# Municipality of Anchorage

## Planning Department

## Memorandum

**DATE:** February 2, 2026

**TO:** Planning and Zoning Commission

**THRU:** MB Mélisa R. K. Babb, Director, Planning Department

**FROM:** MR Megan Rohlfing, Associate Planner

**SUBJECT:** Draft Design Criteria Manual Updates to Chapters 3 – Landscape, 7 – Public Transportation, and 8 – Plans and Specifications

Project Management and Engineering (PM&E) is conducting an on-going series of updates to the *Design Criteria Manual* (DCM). Most chapters have not had an update since 2007, except for Chapter 2 – Stormwater, which received an update in 2017. PM&E has developed the following draft chapters for review and recommendation by the Planning and Zoning Commission: Chapter 3 – Landscape, Chapter 7 – Public Transportation, and 8 – Plans and Specifications.

The Municipality has experienced changes to Anchorage Municipal Code (AMC), community priorities, development practices, and technological shifts in the nearly twenty years since the previous update. The draft chapters aim to improve community outcomes related to landscaping, public transportation, and plans and specifications on municipal projects.

The need for an updated DCM is fourfold in that it will be:

1) Providing implementation strategies for the Safe System Approach,
2) Incorporating the Movement & Place framework,
3) Updating formatting graphics and code references, and
4) Shifting towards consistent organizational references.

Draft language for all three chapters has undergone the following public involvement process:

- An initial public involvement and comment period;
- Drafted updates based on comments from the project management team, industry stakeholder groups, and technical advisory groups;
- An additional public comment period.
- Edits to respond to and reflect public comments.

Public comments and PM&E staff responses are in the tables prior to each draft chapter.

The Planning Department has reviewed the draft update to DCM Chapters 3, 7, and 8 to identify any potential conflicts with the current language of AMC Title 21. Since the submittal of the initial public hearing draft of the AO, PM&E has also identified additional edits.

All of the suggested changes from Planning and PM&E are incorporated into an updated draft for review by the Planning and Zoning Commission. All of the suggested changes are within Chapter 3 - Landscape. The attachments to this memorandum show the changes in a table, as tracked changes, and as a new clean-version document.

**Planning Department Recommendation**

The Planning Department recommends the Planning and Zoning Commission recommend APPROVAL to the Assembly of the DCM Updates to Chapters 3 – Landscape, 7 – Public Transportation, and 8 – Plans and Specifications, with the following conditions:

1. Incorporate all changes outlined in the attachments to this memorandum.
2. If the Assembly approves the sunset of the Urban Design Commission before this item is heard, the Planning Department recommends removing references to the Urban Design Commission, and replacing them with references to the updated relevant Title 21 chapters.

**Attachments to Memorandum**

1. Reviewing Agency Routing Document (original PZC submittal)
2. Summary Table of Chapter 3 Changes
3. Updated Chapter 3 Public Hearing Draft – Tracked Changes
4. Updated Chapter 3 Public Hearing Draft – Clean Version

# **Attachment 1.**

Reviewing Agency
Routing Document
(original PZC submittal)

Case 2026-0013

# Municipality of Anchorage
## Project Management and Engineering

# MEMORANDUM

**DATE:** November 26, 2025

**TO:** Reviewing Agencies

**SUBJECT:** **PZC Case 2026-0013, Update of Design Criteria Manual Chapters 3 – Landscape, 7 – Public Transportation, and 8 – Plans and Specifications.**

The Project Management and Engineering Department (PM&E) is proposing a comprehensive update of the Design Criteria Manual beginning with Chapter 3 – Landscape, Chapter 7 – Public Transportation, and Chapter 8 – Plans and Specifications. As required by AR No. 2013-296(S), PM&E is submitting the proposed updated chapters to the Planning and Zoning Commission for review before submitting the proposed updated chapters to the Assembly for approval. The attached drafts represent comprehensive updates, some of the targeted changes to each chapter are summarized below.

Chapter 3 – Landscape

- Restructured goals to focus on Safety, Functionality, and Durability.
- Clarified planting options within roadway snow storage areas, added clustered tree and shrub planting, and documented relevant maintenance practices.
- Reorganized Section 3.4 Street Landscape by functional classification and land use within Class A (urban/suburban) or Class B (rural) zones.
- Updated information on best practice and municipal standards, code/plan reviews, relevant documents and plans, hardiness zones, and other references.
- Updated graphics.

Chapter 7 – Public Transportation

- Updated to adhere to the most recent MOA planning efforts to promote sustainable urban growth, improve public transportation infrastructure, and accommodate the increasing need for accessible and efficient public transit options.
- Updated bus stop location selection methodology to locate stops near crosswalks and incorporate land use/zoning changes including designation of Transit-Supportive Development Corridors (TSDC).
- Updated bus stop type selection methodology to follow a shift in MOA's approach to modal hierarchy, placing higher priority on transit facilities aiming to improve ridership comfort and service within the municipality.
- Incorporate PROWAG standards and updates to regional and national standards, as well as local changes to transit infrastructure, equipment, policies, and regulations.
- Updated bus stop design to incorporate M&O needs, as well as feedback from transit operators and DOT&PF.
- Updated transit vehicle and amenities to current standards including new figures.

Chapter 8 – Plans and Specifications

- Updated Drawing Standards for AutoCAD Civil 3D to adopt the United States National CAD Standard layer naming convention, ARIAL True Type font for drawing annotation, STB for plot files, and provided an updated symbols legend.
- Replaced example plans and Project Manual appendices with downloadable Civil 3D templates on the PM&E website and referenced the Project Manual template available on the PM&E website.

PM&E

# DESIGN CRITERIA MANUAL

## Updates to Chapters 3, 7, & 8

**Municipality of Anchorage**

Project Management & Engineering Department

November 2025

**Case No. 2025-0013**

**PZC: 02/02/26**

# Background

## What is the Municipality of Anchorage Design Criteria Manual (DCM)?

The Design Criteria Manual (DCM) establishes the minimum standards for the development of roads, trails, transit, and storm drain infrastructure in Anchorage. The need for local criteria is driven by the unique climate, geology, and topography of Anchorage, which is not explicitly accounted for in national or international design guidance, and the dense urban development that exists in Anchorage which is not accounted for in State criteria. The design standards outlined in the DCM generally follow standards established and used nationwide, with particular emphasis on northern climate design techniques.

## Where can the DCM be found?

The DCM may be downloaded from the following link:

https://www.muni.org/Departments/project_management/Pages/DesignCriteriaManual.aspx

## What is the current plan for updating the DCM?

The Project Management & Engineering Department (PM&E) is updating the DCM on a by-chapter basis as funding, staffing, and workload allows. Updates have been developed for DCM Chapter 3 (Landscaping), DCM Chapter 7 (Public Transportation, and DCM Chapter 8 (Plans and Specifications) and are provided for review and recommendation.

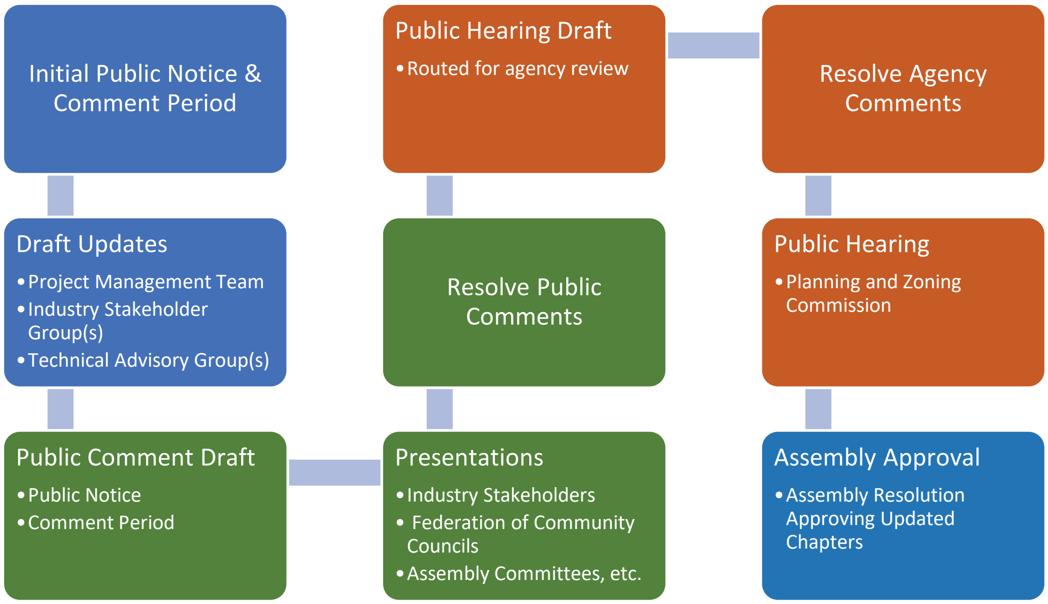
| DCM Chapter | Last Update | Chapter Update Underway | Estimated Adoption |
|---|---|---|---|
| 1 – Streets | 2007 | Pending | Q3, 2027 |
| 2 – Stormwater | 2017 | No | TBD |
| **3 – Landscape** | **2007** | **Yes** | **Q2, 2026** |
| 4 – Trails | 2007 | Pending | Q3, 2027 |
| 5 – Lighting | 2007 | No | TBD |
| 6 – Traffic Control | 2007 | Pending | Q3, 2027 |
| **7 – Public Transportation** | **2007** | **Yes** | **Q2, 2026** |
| **8 – Plans & Specifications** | **2007** | **Yes** | **Q2, 2026** |

## How does the DCM work with the Context Sensitive Solutions Process?

The Context Sensitive Solutions Process requires projects to carefully consider stakeholder feedback and context to determine what improvements to construct with a project. As a result, the DCM avoids prescriptive criteria in many cases in favor of optional criteria or a range of acceptable criteria, leaving room for projects to make context sensitive decisions about what they construct.

## What is the process for updating the DCM?

As we update each chapter of the DCM we are following the process outlined below:




# Current DCM Update

## What are the goals for updating the DCM?

**Implementing the Safe System Approach:** The Safe System approach was founded on the principles that humans make mistakes and that human bodies have limited ability to tolerate crash impacts. In a Safe System, those mistakes should never lead to death. Applying the Safe System approach involves anticipating human mistakes by designing and managing road infrastructure to keep the risk of a mistake low; and when a mistake leads to a crash, the impact on the human body doesn't result in a fatality or serious injury. Road design and management should encourage safe speeds and manipulate appropriate crash angles to reduce injury severity. There are six principles that form the basis of the Safe System approach: deaths and serious injuries are unacceptable, humans make mistakes, humans are vulnerable, responsibility is shared, safety is proactive, and redundancy is crucial.

**Incorporating Movement & Place Framework:** Movement and Place is a framework for identifying which roads serve what purpose, recognizing that some transport facilities are more about the movement function, and others about the place (land access) function, and that streets themselves act as places and serve multiple modes. The Movement and Place framework balances the accessibility needs of different types of road users across the network. Roads that are high place and low movement should have slower speeds and be oriented to pedestrians. Roads that are high movement and low place (limited access motorways, e.g.) may prohibit pedestrians. (Austroads Publication No. AGTM04-20 & Austroads Research Report No. AP-R611-20)

**Updating Formatting, Graphics, & Code References:** Changing from text in two columns to full page text, providing updated graphics, and updating code references to align with organization of new code.

**Moving Towards Consistent Organization:** Ensuring each chapter includes sections for Design Variances, Glossaries, Acronyms & Abbreviations, and References.

## Which chapters are being submitted for approval?

**Chapter 3** of the DCM provides guidance and criteria for designing and installing landscape on municipal roads and on other municipal lands with the objective of creating attractive and sustainable landscape design projects.

**Chapter 7** of the DCM provides guidance and criteria for designing and installing public transportation infrastructure on municipal roads such as bus pull-outs, bus stop pads, and bus stop amenities such as shelters, benches, and lighting. Chapter 7 does not direct the Public Transportation Department (PTD) where or when bus stops and amenities should be provided, instead it offers design guidance and criteria for how to install bus stops and amenities once the PTD determines they are necessary.

**Chapter 8** of the DCM provides guidance and criteria for developing plans and specifications for projects in the Municipal right-of-way or on Municipal park land.

## What stakeholders were involved in the process?

**Chapter 3 – Landscape** stakeholders included representatives from:

- MOA PM&E
- MOA Operations & Maintenance
- MOA Planning
- MOA Parks & Recreation
- MOA Horticulture
- Bettisworth North Architects
- R&M Consultants, Inc
- Corvus Design
- Earthscape Landscape Architecture
- ADNR Forestry
- Huddle
- Coffman Engineers
- Green Earth Landworks, LLC

**Chapter 7 – Public Transportation** stakeholders included representatives from:

| | | | |
|---|---|---|---|
| MOA PM&E | MOA Traffic Engineering | ADOT Central Region Traffic & Safety Engineer | People Mover Planning |
| People Mover Operators | People Mover Maintenace | MOA Maintenance & Operations | ADOT Maintenance & Operations |
| Professional & Technical Services, Inc. | | | |

**Chapter 8 – Plans and Specifications** stakeholders included representatives from:

| | | |
|---|---|---|
| MOA PM&E | CRW Engineering Group, Inc | HDR |

## What has been updated in each chapter?

**Chapter 3 – Landscape**

- Restructured goals to focus on Safety, Funcionality, and Durability
- Clarified planting options within roadway snow storage areas, added clustered tree and shrub planting and documented relevant maintenance practices
- Reorganized Section 3.4 Street Landscape by functional classification and land use within Class A (urban/suburban) or Class B (rural) zones
- Updated information on best practices and municipal standards, code/plan reviews, relevant documents and plans, hardiness zones, and other references
- Upated graphics

## Chapter 7 – Public Transportation

- Updated to adhere to the most recent MOA planning efforts to promote sustainable urban growth, improve public transportation infrastrucure, and accomodate the increasing needs for accessible and efficient public transit options
- Updated bus stop location selection methodology to locate stops near crosswalks and incorporate land use/zoning changes including designations of Transit-Supportive Development Corridors
- Updated bus stop type selection methodology to follow a shift in MOA's approach to modal hierarchy, placing higher priority on transit facilities aiming to improve ridership comfort and service within the municipality
- Incorporate PROWAG standards and updates to regional and national standards, as well as local changes to transit infrastructure, equipment, policies, and regulations
- Updated bus stop design to incorporate M&O needs, as well as feedback from transit operators and DOT&PF
- Updated transit vehicle and amenaties to current standards including new figures

## Chapter 8 – Plans and Specifications

- Updated Drawing Standards for AutoCAD Civil 3D to adopt the United States National CAD standards layer naming convention, ARIAL True Type font for drawing annotation, STB for plot styles, and provided an updated symbols legend
- Eliminated Example Plans and Project Manual Appendicies and instead providing downloadable Civil 3D Templates on the PM&E website and referencing the Project Manual Template available on the PM&E website

## Public Involvement

The project team has completed the following public involvement efforts:

- **May 14, 2025** — Presentation to ITE Luncheon
- **June 11, 2025** — Presentation to the Urban Design Commission
- **July 16, 2025** — Presentation to the Assembly Transportation Committee
- **August 19, 2025** — Draft Public Comment Period Opened
- **August 20, 2025** — Presentation to the Federation of Community Councils
- **September 18, 2025** — Presentation to the Northeast Community Council
- **October 10, 2025** — Draft Public Comment Period Closed
- **October 31, 2025** — Stakeholder Meeting with the Anchorage Downtown Partnership

Email notifications advertising public comment periods and the availability of draft chapter updates were sent to those who subscribed for notice through the MOA PM&E DCM project website or via email to project team members. 58 people subscribed to the project notification list, including numerous local engineers, landscape architects, and related professions who may implement the DCM.

https://survey123.arcgis.com/share/4db36dd47c274ab4b7949fae28af54ce

## Attachments

ITE Luncheon Announcement

Urban Design Commission Agenda

Assembly Transportation Committee Agenda

Email Distribution Public Comment Period Open

Federation of Community Councils Agenda

Northeast Community Council Agenda

Email Distribution Public Comment Period Reminder

Chapter 3 Public Review Draft Comment Log

Chapter 3 Public Hearing Draft

Chapter 7 Public Review Draft Comment Log

Chapter 7 Public Hearing Draft

Chapter 8 Public Review Draft Comment Log

Chapter 8 Public Hearing Draft

**Telford, Brandon S.**

**From:** ITE Alaska Section <alaska@itedsc.org>
**Sent:** Wednesday, May 7, 2025 2:09 PM
**To:** Telford, Brandon S.
**Subject:** ITE Alaska - May 2025 Newsletter & Meeting Announcement

**[EXTERNAL EMAIL]**

View this email in your browser

## ITE Alaska - A Community of Transportation Professionals

# MAY 2025 NEWSLETTER

Whether you call it Spring or Construction the city cleanups, green trees, and changing weight restrictions tell us a new season has arrived!

Get ready for an exciting month as we award our ITE Student Scholarships and dive into the latest developments in transportation at the Municipality of Anchorage! Join us Tuesday, May 13th at the MOA Permit Center Training Room as we hear from leaders at MOA Planning, Traffic Engineering, Project Management & Engineering, and Public Transportation Departments. Doors open at 11:45 am, Section business begins at 12:00 pm. Please remember to RSVP by EOD Monday May 12th, for an accurate catering order. Note that there will be no virtual option for this meeting.

## May Luncheon Presentation:
## "Latest Developments in Transportation at the Municipality of Anchorage"

*Presented by:*

***Mélisa R. K. Babb**, P.L.A. – Director, MOA Planning;*

***Brad Coy**, P.E., PTOE – Municipal Traffic Engineer/Director, Traffic Engineering;*

***Brandon Telford**, P.E., Engineering Manager, Project Management & Engineering;*

***Bart Rudolph** – Director, Public Transportation*

You'll be treated to four engaging mini presentations on the new Long Range Transportation Strategy, Anchorage's NACTO affiliation, and the latest updates to Title 21, the Design Criteria Manual, and the Transit Development Plan.

**When:** Tuesday May 13th,12:00-1:00 pm, Doors Open at 11:45 am
**Where:** MOA Permit Center Training Room, 4700 Elmore Rd, Anchorage

**Click here to RSVP**

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## Alaska Section News

- **The results are in!** Scholarship recipients will be officially announced at the May 13 Section Meeting; recipients are encouraged to attend.
- The Alaska Section wants to highlight the great work happening as part of the ITE Safety Roadmap and Action Plan. Check it out!

## We'd Like to Thank Our Annual ITE Alaska Sponsors:

Stantec

HDL ENGINEERING Consultants LLC

Michael Baker INTERNATIONAL

KINNEY ENGINEERING, LLC

CRW ENGINEERING GROUP

DOWL

ITE Alaska Section recently released a new sponsorship proposal. Get in touch to have your logo featured on our monthly newsletters.

## ITE News

**ITE Journal:** Read the May Issue Here.

## Upcoming 2025 ITE Webinars and Events

**Webinars**

**MAY 2025**

05/13: Women in ITE (WITE) 2025 Boot Camp #2: Navigating Career Growth: The Power of Coaches, Mentors, and Advocates

05/13: Back to Basics: Active Transportation

05/15: Building a Business Series: Launching Your Consulting Business - Essential Steps to Success



*__Media Release:__ I understand that ITE Alaska Section reserves the right to use any audio, video, and/or photographs of me, or guest, or staff member, participating in any meeting(s) or event for promotional or marketing purposes.*

**Our mailing address is:**
PO Box 242114
Anchorage, AK 99524-2114

# URBAN DESIGN COMMISSION

## A G E N D A

Assembly Chambers

Z.J. Loussac Library
3600 Denali Street
Anchorage, Alaska

June 11, 2025
6:30 P.M.

5:30 p.m. Work Session: Design Criteria Manual Update – Chapter 3, Landscaping

Edith McKee, Chair
Allison Lenig, Vice Chair

The Urban Design Commission encourages anyone wishing to provide public testimony via telephone to email **PlanningPhoneTestimony@anchorageak.gov** by 2:00 p.m. the day of the meeting. Please provide your Name, Phone Number, and Agenda Item Number/Title for which you wish to provide testimony. The Subject Line should read "Phone Testimony". The Secretary will phone you at the number you have provided. You will have 3 minutes to provide testimony on each item you wish to speak on or 5 minutes for group representatives.
**PLEASE DO NOT EMAIL CASE COMMENTS TO THIS EMAIL ADDRESS**

**ALL DOCUMENTS LISTED ON THIS AGENDA ARE AVAILABLE ONLINE AT www.muni.org/watchnow.**

**FOR AUXILLARY AIDS, SERVICES, OR SPECIAL MODIFICATIONS TO PARTICIPATE, PLEASE CONTACT THE MEETING SECRETARY TO REQUEST REASONABLE ACCOMMODATIONS AT 343-7576; FAX 343-7927**

**Urban Design Commission**
**June 11, 2025**

The Urban Design Commission meets the second Wednesday of each month except holidays as regular meetings. If the Urban Design Commission fails to complete its agenda for its regular meetings, the Commission carries over the remainder of the agenda to the following meeting date.

The procedure by which the public may speak to the Urban Design Commission at its meeting is:

1) After the staff presentation is completed on public hearing items, the Chair will ask for public testimony on the issue.

2) Persons who wish to testify will follow the time limits established in the Urban Design Commission Rules of Procedure.

   a. Petitioners (including all his/her representatives) - 10 minutes. Rebuttal by the petitioner may be allowed when time has been reserved.

   b. Representatives of groups (community councils, PTA's etc.) - 5 minutes.

   c. Individuals - 3 minutes.

3) When your testimony is complete you may be asked questions by the Commission. You may only testify once on any issue unless questioned by the Commission.

4) Any party of interest wishing to appeal shall first file with the planning director, within seven (7) days of the commission's decision made on the record, a written notice of intent to appeal, in accordance with AMC 21.03.050A.4.a. Commission recommendations to the Anchorage Assembly are not appealable.

   Following approval of the written findings of fact and decision, any party of interest may, within twenty (20) days, file an appeal by filing a notice of appeal, and paying the appeal fee and deposit in accordance with section (21.03.050). The notice of appeal must be filed with the planning director on a form prescribed by the municipality. If the appellant is not the applicant, the appellant's notice of appeal shall include proof of service on the applicant.

Revised: 5/7/25

**A. ROLL CALL**

**B. MINUTES**

**1.** Wednesday, March 12, 2025

**C. SPECIAL ORDER OF BUSINESS / EXECUTIVE SESSIONS**

**1.** Disclosures

**D. CONSENT AGENDA**

**1.** Resolutions for Approval

a. Resolution: 2025-002 Related Case: 2024-0122
Purpose: APPROVAL (PH)
Request for Design Variances from: 1) AMC 21.05.070D.16.b.i. for the outdoor keeping of more than three large domestic animals (5 sheep) on a lot smaller than 20,000 square feet; and 2) AMC 21.05.070D.16.ii.(D)(1) for the outdoor keeping of up to 3 geese on a lot smaller than 40,000 square feet.

**2.** Site / Landscape Plan Approval

**3.** Other

**E. UNFINISHED BUSINESS AND ACTIONS OF PUBLIC HEARINGS**

**F. REGULAR AGENDA**

**1.** Resolutions for Approval

**2.** Site / Landscape Plan Approval

**3.** Other

**G. PUBLIC HEARINGS**

**1. CASE: 2025-0061 (CF)**

| | |
|---|---|
| PETITIONER: | Municipality of Anchorage - Parks & Recreation |
| REQUEST: | Request for Trail Review for the Downtown Trail Connection, a 1-mile non-motorized, multi-use trail connecting the Tony Knowles Coastal Trail and the Ship Creek Trail. |
| LOCATION: | Downtown Trail Connection, a 1-mile non-motorized trail connecting Tony Knowles Coastal Trail and the Ship Creek Trail |
| SITE ADDRESS: | N/A |
| COMMUNITY COUNCIL(S): | Downtown, Government Hill, South Addition |

**H. APPEARANCE REQUEST**

**I. REPORTS**

**1.** Chair

**2.** Secretary

**3.** Committee

**J.** **COMMISSIONERS' COMMENTS**

**K.** **ADJOURNMENT**

## Late Public Hearing Submittal Policy

Voluminous information shall not be submitted to the Commission at a public hearing. Generally, maps, graphic and photographs will be allowed. Type written information shall be limited to two pages, submitted no later than three (3) working days prior to a public hearing (i.e. the Friday before a regularly scheduled or special UDC Wednesday meeting). Information may be accepted, if the Commission chooses, to allow the additional information. If the petitioner or public insists that the voluminous information is important and critical to the case, the hearing shall be postponed for 30 days to allow staff to review the information, include it in the board member packet, and allow a thorough review by the Commission.

## Policy Re: Postponement of Public Hearing Applications

When there is a short 5 member Board or Commission, and a postponement is offered to, and agreed to by the petitioner, they will be moved to the next regular agenda (AMCR 21.13.350). This should occur within 30-days, which does not require re-noticing the case (new public hearing notices, advertising).

If the petitioner is willing to postpone, but unable to attend the next available meeting date within 30 days, the petitioner has a **one-time only option** to choose the next date certain he/she can attend, at no extra fee.

When a postponement is requested by the petitioner, there is a rescheduling fee (AMCR 21.20.007.A), and a new public hearing date shall be determined by the Planning Department. This will put their case in the next available cut-off date queue as if they were submitting their case for the first time.

Effective January 01, 2004

**MUNICIPALITY OF ANCHORAGE**

# Assembly Transportation Committee

**Committee-of-the-Whole**

**Assembly Member Daniel Volland, Chair**
**Assembly Member Erin Baldwin Day, Vice-Chair**

***"Anchorage: a place to get to; not just a place to get through."***

**Wednesday, July 16, 2025; 1:00 p.m. – 03:00 p.m.**
City Hall, 632 West 6th Avenue
Assembly Conference Room #155
Anchorage, AK 99501

1. **CALL TO ORDER**

2. **INTRODUCTIONS**

3. **UNFINISHED BUSINESS**
   a. – Snow Removal Year End Wrap Up
   b. -- Vision Zero Report and Progress

4. **NEW BUSINESS**
   a. Commuter Rail
   b. MOA Design Criteria Manual Updates
   c. AMATS update

5. **AUDIENCE PARTICIPATION**

6. **ADJOURNMENT**

**HOW THE PUBLIC CAN PARTICIPATE REMOTELY IN THIS COMMITTEE MEETING:**

**Listen:** Conference Bridge Phone Number – (907) 273-5190 with Participant Code – 721227 #
**Documents:** If documents are presented at the meeting, they will be posted on the committee's web page: *https://www.muni.org/Departments/Assembly/Pages/Public%20Safety%20Committee.aspx*
**View:** Videos of committee meetings are typically posted within 24-hours after meeting adjournment. To view, go to the Municipal Meetings page and click the "view media" link next to the corresponding meeting.

***Mission Statement:*** *The Assembly Public Safety Committee deliberates and makes recommendations on legislative and policy matters relating to crime and fire prevention, law enforcement, administration of justice, corrections, and emergency services; and coordinates with the Municipal, State, and Federal law enforcement and justice agencies.*

**Telford, Brandon S.**

**From:** MOA PM&E <vle@rmconsult.ccsend.com>
**Sent:** Tuesday, August 19, 2025 10:59 AM
**To:** Telford, Brandon S.
**Subject:** Design Criteria Manual Update

**[EXTERNAL EMAIL]**

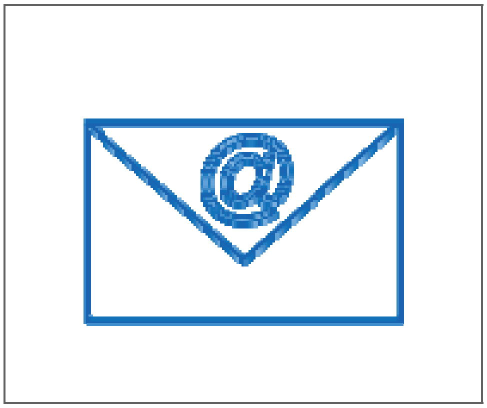

The Project Management & Engineering Department (PM&E) is updating the DCM on a by-chapter basis.

Public comment is currently open on the Public Comment Drafts for:

## Chapter 3 - Landscaping
## Chapter 7 - Public Transportation
## Chapter 8 - Plans & Specifications

Email comments to **DCMUPDATE@anchorageak.gov**; please indicated in your correspondence which chapter your comments apply to.

**Comment Period is open until October 10, 2025.**



**Join the MOA Design Criteria Manual Update Mailing List**
to be informed via email on
DCM Updates and Draft Reviews.

## Questions?
## Please contact:

**Brandon Telford, PE, Engineering Manager**
Project Management & Engineering
Municipality of Anchorage
907.343.8145 | **brandon.telford@anchorageak.gov**

FEDERATION OF COMMUNITY COUNCILS
ANCHORAGE | EAGLE RIVER | GIRDWOOD

**PHONE** 907-277-1977
**EMAIL** info@communitycouncils.org
**www.communitycouncils.org**

# Board of Delegates Meeting

Wednesday, August 20th, 6pm-8pm
**In Person:** FCC Conference Room
**Zoom Meeting:** https://us06web.zoom.us/j/89600528663 | Meeting ID: 896 0052 8663

## Bylaws Worksession

5:30pm – 6:00pm

Join us in informal conversation about the current draft bylaws from the FCC's Bylaws Committee. Learn about the changes, provide your feedback, and ask questions before this project is brought to the full membership.

## Part I – The Board Meeting

| ACTION | ESTIMATED TIME |
|---|---|
| **1. Meeting Opening** – Chair Edgington<br>1.1. Roll Call | 5 minutes |
| **2. Consent Agenda**<br>2.1. Approval of Agenda<br>2.2. Approval of Minutes | 5 minutes |
| **3. Committee Updates**<br>3.1. Financial Committee – Financial Committee<br>3.2. Bylaw Committee – Committee Chair | 10 minutes |
| **4. Discussion Topic**<br>4.1. Open Treasurer Position | 10 minutes |
| **5. Comment Period** | *If Applicable* |
| **6. Move to second agenda** | -- |

**PHONE** 907-277-1977
**EMAIL** info@communitycouncils.org
**www.communitycouncils.org**

# Part II – The Coalition Meeting

| ACTION | ESTIMATED TIME |
|---|---|
| **1. Meeting Opening** – Chair Edgington | -- |
| **2. Education Topic**<br>2.1 Council Updates – Rabbit Creek thru University Area<br>***Council Updates:*** *Rabbit Creek, Rogers Park, Russian Jack, Sand Lake, Scenic Foothills, South Addition, South Fork, Spenard, Taku Campbell, Tudor Area, Turnagain, Turnagain Arm, University Area* | 15 minutes<br>*(1 minute per council, then time for other councils with urgent business)* |
| **3. Education Topic**<br>3.1. Project Management and Engineering Design Criteria Manual Update – Brandon Telford | 15 minutes |
| **4. Education Topic**<br>4.1. Transit Supportive Development Overlay: Project Update and Process – Graham Downey, Mayor's Office | 30 minutes |
| **5. Education Topic**<br>5.1. Better Public Meetings – Arianna Bellizzi | 30 minutes |
| **6. Comment Period** | *If Applicable* |
| **7. Adjourn** | -- |

** Representative Reports are being provided in written format for this month's meeting.*

**Federation of Community Councils**
**Board of Delegates Meeting**

Wednesday, June 18, 2025 | Hybrid
Draft Minutes

*Zoom meeting being recorded, including the "Chat". There is no expectation of privacy.*

**FCC Delegates in attendance** (16)

Abbott Loop - Lizzie Newell
Airport Heights – Emily Weiser
Basher – Don Crafts
Bayshore/Klatt – Bob Laule
Bear Valley – Not Present
Birchwood – Not Present
Campbell Park – Not Present
Chugiak – Paul Schneider
Downtown – Not Present
Eagle River – Not Present
Eagle River Valley – Not Present
Eklutna Valley – Not Present
Fairview – Allen Kemplen
Girdwood (GBOS) – Mike Edgington
Glen Alps – Not Present
Government Hill – Not Present
Hillside – Bruce Vergason
Huffman/O'Malley – Not Present
Midtown – Not Present
Mountain View – Charlie Welch
North Star – Not Present
Northeast – Pamela Raygor
Old Seward/Oceanview – Gary Meaders
Portage Valley – Not Present
Rabbit Creek – Not Present
Rogers Park – Not Present
Russian Jack – Kathleen Plunkett
Sand Lake – Not Present
Scenic Foothills – Not Present
South Addition – John Thurber
South Fork – Not Present
Spenard – Sarah Preskitt
Taku-Campbell – Not Present
Tudor – Not Present
Turnagain – Not Present
Turnagain Arm – Michael Packard
University Area – Steven Callaghan

**Others in attendance:**

Arianna Bellizzi, FCC Executive Director
Ali Rambo, FCC Office Administrator
Anna Brawley, Vice Chair of the Anchorage Assembly
Carl Jacobs, President of the Anchorage School Board
Farina Brown, Special Assistant to the Mayor
Dierdra, member of the public

**PART I – THE BOARD MEETING**
Call to Order and Establish Quorum: Sarah Preskitt, Chair Pro Tempore
The meeting was called to order at 6:05 p.m.

I. **Consent Agenda**
   a. **Approval of Agenda**
      i. Sarah Preskitt explained that elected Chair, Mike Edgington, was not able to attend in person. Mike appointed Sarah as Chair Pro Tempore for the only the June meeting.
      ii. Arianna informed the board that Patrick LeMay had stepped down as Treasurer of the FCC and as FCC Delegate for Scenic Foothills. A replacement treasurer will be discussed at the August meeting.
   b. **Approval of Minutes**
      i. Movement made to accept consent agenda and approve minutes made by Charlie Welch, seconded by Kathleen Plunkett. Passes unanimously.

II. **Committee Update:**
   a. **Bylaw Committee:**
      i. Mike gave an update on the Bylaws Committee, explaining the shift towards a membership model with a smaller board and emphasizing the need for two more meetings to finalize a complete draft by August or September.
      ii. Sarah adds that it would be a board of 13-17 people, and they're still determining how that smaller board would be selected.

III. **Education Topic:**
   a. **Core Purpose & Core Values Introduction:**
      i. Arianna presented the proposed Core Purpose and Values, which will be voted on in the August meeting. She explained that when this gets voted on, it has the potential to become the Federation's mission.
      ii. Someone asks if anyone is allowed to reach out with questions or comments before the next meeting, Arianna confirms this and encourages that anyone is welcome to email or call with any thoughts about the Core Purpose & Core Values.

IV. **Discussion Topic:**
   a. **FY 2026 Budget Decision**
      i. Arianna introduces the budget, and gives everyone a moment to review it, and ask any questions before Sarah calls for a vote. There are a few general questions regarding the internal codes used for organizing, and some line-item allotments.
      ii. Mike Edgington makes a motion to approve the 2026 Budget, seconded by Steve Callaghan. The Budget passes with 15-1 votes.

V. **Comment Period:**
   **a.** Arianna announces the July 16 picnic location will be at Chanshtnu Muldoon Park, and encourages everyone to join with some chairs, as seating will be limited.
   **b.** Arianna also mentioned she'll be at the Downtown Summer Solstice Festival co-tabling with League of Women Voters and hopes to see familiar faces there.

c. Arianna also informs the board about a website outage earlier in the week, as well as informing everyone that the FCC is switching website hosts, nothing will change for anyone using the website, other than a short outage over a weekend to avoid causing major disruption, the outage will be advertised as soon as a date has been chosen.

## VI. Move to second agenda

**PART II – THE COALITION MEETING**
Meeting Opener: Chair Pro Tempore Preskitt

I. **Education Topic:**
   a. **Council Updates: Girdwood thru Portage Valley**
      i. **Girdwood** – Mike discussed three main issues: a proposal for affordable housing on public land, trail closures due to a new road being built in Holden Hills, and a controversial helipad development near residential areas.
      ii. **Hillside** – Currently on break through July, however they've been involved in tracking homeless initiative to criminalize trespassing and notes that the work session for this can be found on the Assembly website.
      iii. **Mountain View** – Charlie mentions the fires in Davis Park weren't nearly as bad as it seems through the media, and shares that many people were given assistance but that there are still several people lingering in the park. MVCC is hosting a Street Fair July 26th from 1pm to 5pm, with the meeting location still being determined. Charlie also mentioned that the Community Center had a smooth transition from Boys & Girls Club to Municipal oversight.
      iv. **Northeast** – Pamela shared updates from Muldoon, including a successful picnic event and thanks the Muni for addressing homeless encampments in the park prior to the event.
      v. **South Addition** – John reported on new housing developments, including a grant for affordable housing units, with the starting price of those new units being 500k.
      vi. **Fairview** – Allen mentions July 19th is the Annual Block Party, all are invited. Positive movement has been happening on the Community Gardens as well at 13th & Karluk St. Reconnecting Fairview also had its first technical advisory meeting as well.
      vii. **University Area** – 42nd Ave construction is happening and avoid it if possible. Steve calls attention to a potential AO regarding Transitive Supportive Corridors.

II. **Motion Made:**
   a. There was a motion made by Charlie Welch, seconded by Kathleen Plunkett to amend the agenda, to allow for Farina Brown to present before the Representative Reports due to Representatives running late. Motion was approved by consent.

III. **Education Topic:**
   a. **Turning the Tide on Homelessness –** Farina Brown, Special Assistant to the Mayor
      i. Farina presented updates on the city's homelessness initiatives, including the "Turning the Tide" website, which provides data on shelter beds and abatement activities.
      ii. She discussed the administration's efforts to address homelessness through year-round shelter, increased enforcement, and outreach

programs. Farina also introduced a new proposed designated overnight parking program for individuals experiencing homelessness, which will operate seasonally and require permits. The program is currently accepting proposals, with a deadline of June 26th.

iii. Farina provided an update on recent abatement efforts at Davis Park and the snow dump, highlighting the importance of connecting people to shelter and housing services. She emphasized that encampments should not become entrenched and explained the change in policy allowing abatement without requiring shelter space.

iv. Farina discussed the challenges of managing homelessness, including the need for balanced approaches between abatement and providing shelter options. The administration is committed to addressing the issue through outreach, enforcement, and community engagement.

IV. **Education Topic:**

a. **Mayor's Office:** Marie Husa, Mayor's Office Representative

i. Not Present at this meeting

b. **Assembly:** Anna Brawley, Vice-Chair

i. Anna Brawley discussed ongoing efforts to address homelessness and mentioned an upcoming meeting to consider an ordinance regarding criminal penalties for camping outside. She also highlighted the 50th anniversary of Anchorage's formation in 2025 and encouraged Community Councils to plan events reflecting on the city's history and future.

c. **School Board:** Carl Jacobs, President

i. Carl Jacobs reported on the impact of the governor's veto of funding for the school district and outlined steps being taken to address the budget shortfall.

d. **Planning Department:** Elizabeth Appleby, Current Planning Division

i. Arianna gives a brief update on behalf of Elizabeth Appleby; the Transitive Supportive Development Overlay is coming up July 14 and materials can be found online. The Manufactured & Modular Housing Coordinates and Non-Conformities Ordinance are going before Assembly in the near future. The Community Councils Boundary Review will also be going in front of the Assembly soon with an undetermined date. PZC continues to meet and discuss a 10 year targeted update to the Anchorage 2020 Comprehensive Plan and 2040 Land Use Plan.

V. **Comment Period:**

VI. **Adjourn:** Meeting was adjourned at 8:00 pm.

## Federation Of Community Councils
# Budget vs. Actual
### January through June 2025

| | Actual | Budget | Over/Under Budget |
|---|---|---|---|
| **Expense** | | | |
| **7200 · Personnel Services** | | | |
| **7210 · ED Labor** | 54,333.32 | | |
| **7211 · ED Fringe** | 4,705.00 | | |
| **7220 · Staff Labor** | 22,642.69 | | |
| **7221 · Staff Fringe** | 2,747.24 | | |
| **7250 · Payroll taxes** | 6,630.25 | | |
| **Total 7200 · Personnel Services** | 91,058.50 | 98,558.00 | -7,499.50 |
| **7900 · Overhead** | | | |
| **7910 · Accounting** | 1,250.00 | | |
| **7940 · Utilities** | 1,335.76 | | |
| **7950 · Office Equipment Rental** | 283.12 | | |
| **7960 · Insurance** | 1,575.00 | | |
| **7970 · Office Tech Support** | 1,031.38 | | |
| **Total 7900 · Overhead** | 5,475.26 | 8,125.00 | -2,649.74 |
| **8000 · Outreach & Training** | | | |
| **8010 · Physical Outreach** | 740.96 | | |
| **8020 · Digital Outreach** | 2,945.30 | | |
| **8060 · Training** | 6,888.12 | | |
| **8070 · Insurance for Councils** | 368.00 | | |
| **Total 8000 · Outreach & Training** | 10,942.38 | 9,750.00 | 1,192.38 |
| **8200 · Occupancy** | | | |
| **8210 · Office Rent** | 3,308.76 | | |
| **8211 · Shared Rent Costs** | 85.76 | | |
| **8290 · Occupancy - Other** | 112.50 | | |
| **Total 8200 · Occupancy** | 3,507.02 | 3,500.00 | 7.02 |
| **8500 · Other** | | | |
| **8510 · Supplies** | 332.89 | | |
| **8530 · Membership dues - organization** | 607.10 | | |
| **8550 · Bank Charges** | 150.00 | | |
| **Total 8500 · Other** | 1,089.99 | 815.00 | 274.99 |
| **Total Expense** | **112,073.15** | **120,748.00** | **-8,674.85** |

# DRAFT AGENDA

General Meeting
In-person and online
**September 18, 2025, 2025 | 7pm**

Northeast Anchorage Community Council

Zoom Link to Join
Meeting ID: 833 4733 9174

**Creekside Park Elementary- Gymnasium**
7500 E 6th Ave, Anchorage, AK 99504
Doors open at 6:30 PM

**NECC Voting member participants must sign-in & verification of residence, business ownership, or non-profit agency representative is required.**
**Voting cards will be distributed once membership is verified.**

**Standing Rules:** Business will be conducted in the manner established at previous NECC meetings, in bylaws or Robert's Rules of Order. Members are encouraged to participate, if they wish, within the agenda time constraints. No member may speak a second time until others have had the opportunity to do so, within a fixed time. During a debate on an action item, comments will be limited to 2 minutes per person, 3 individuals may speak to an issue per side, in support of or opposing any motion, as recognized by the Chair. The maker of a motion is not counted as one of the three speakers in support of or opposing any motion. Maximum debate on any subject shall be limited to 20 minutes unless otherwise allotted.

| Time | | Lead |
|---|---|---|
| **6:30 pm** | Doors Open<br>Sign-in, register, collect meeting materials & handouts, and mingle with neighbors. | |
| **7:00** | Welcome & Call to Order<br>**Reminder: NECC Voting members must sign-in & verification of residence is required.** | Stephanie Taylor |
| **7:01** | Pledge of Allegiance | Member |
| **7:03** | Board Introductions | Stu Grenier |
| **7:05** | Minutes' Approval: August General Meeting<br>Note responses to previous requests for Information | David Weber |
| **7:08** | Treasurer's Report ($________) as of August | John Cunningham |
| **7:09** | NECC Community Members' an opportunity for members to share.<br>**(max 2 min per person unless otherwise noted)** | |
| **7:15** | NECC Council Committee Reports (**Limit 3 min incl. discussion unless otherwise noted**)<br>Alcohol & Marijuana, Art & Placemaking Ad Hoc, CIP, Homelessness Ad Hoc, Parks & Trails, Planning & Zoning Ad Hoc, Spirit of Muldoon Picnic, NECC Patrol, Nunaka Valley Patrol | Committee Chairs |
| **7:35** | Community Leadership Updates as available (**Limit 3 min each incl. discussion**)<br>JBER, Police Department, Fire Department, Muldoon Public Library, PTAs, Bartlett Area Principal Group, Rotary | |
| **7:50** | Elected Representatives (**Limit 3 min including questions unless otherwise noted**)<br>Mayor's Report<br>One representative per district office will rotate each month.<br>Northeast Elected Officials: School Board (7), Assembly (4), House (6), Senate (3)<br>School Board Member Report – Dora Wilson<br>Assembly Member Report – Yarrow Silvers<br>State House Representatives Report – David Nelson<br>State Senator Report – Loki Tobin | Mayor's Office<br>Anchorage School Board<br>Assembly Members<br>State Legislators |
| **8:10** | Old Business includes **Action Items** (**Limit 3 min incl. discussion unless otherwise noted**)<br>Council Board Election voted on by **ballot**. The results will be announced at the end of Old Business.<br>Only properly vetted voting members will be provided a voting card to obtain a ballot.<br><br>Reinstate Jaywalking Laws & Fines Resolution 2025-07 2nd Reading (5 min) **Action** | Nate Martin |

| | | |
|---|---|---|
| **8:17** | Presentations (**Limit 3 min including discussion unless otherwise noted**)<br>Presentations<br>Project Management & Engineering, Municipality of Anchorage (25 min)<br><br>Muldoon & Debarr Transit Center Study Project (12 min) | Taryn Oleson-Yelle<br><br>Lucy Whittlinger |
| **8:55** | New Business Non-Action Items (**Limit 3 min including discussion unless otherwise noted**) | |
| **8:56** | Community Announcements of Events/Meetings **(Limit 1 min ea.)**<br>Noteworthy: MOA 50 celebrations thru November | |
| **9:00** | Next NECC Regular General Meeting:<br>October 23, 2025 (Doors open: 6:30 p.m. Mtg 7-9 p.m.)<br><br>Adjourn no later than 9:00 PM | |

**Notes and Announcements:**

- Presentations and subjects are timed. **Brevity is important to ensure all have the opportunity to participate.**
- Please sign in when attending a meeting. If possible, choose to be notified of meetings by email. NECC email: info@communitycouncils.org or northeastcommunitycouncil@gmail.com
- The NECC has a web page maintained by the Federation of Community Councils (FCC). Minutes for meetings, agendas, and other documents (as well as NECC contact information) can be found at http://communitycouncils.org/servlet/content/2 3.html

**Contact Your Board and Committee Chairs:** Please cc all board communications to: northeastcommunitycouncil@gmail.com

**President:** Pamela Raygor (2026), northeastcommunitycouncil@gmail.com
**Vice President, Chair of Picnic Committee:** Murray Crookes (2025) munrahcito@gmail.com
**Secretary:** David Weber (2025), davidweber34@gmail.com
**Treasurer:** John Cunningham (2027), strangesoundsak@gmail.com
**Parliamentarian, Co-Chair of Bylaws Committee:** Nate Martin (2027), ncmartin.necc@gmail.com
**Member, Chair of Parks & Trails Committee:** Stu Grenier (2026), 907-337-5127 stug907@gmail.com
**Member:** Stephanie Taylor (2027), staylorak@outlook.com
**Member:** Mary O'Loughlin (2026), maryoloughlin460@gmail.com
**Member:** Vacant (2025)

**FCC Delegate:** NECC President northeastcommunitycouncil@gmail.com
**Chair of Alcohol & Marijuana Committee:** Steve Johnson, thebeesknowthis@gmail.com
**Chair of CIP Committee:** Kyle Rehberg, rehberg1392@sbcglobal.net
**Chair of Parks & Trails:** Vacant
**Chair of Spirit of Muldoon:** Vacant
**Chair Community Art & Placemaking Ad Hoc Committee:** Mary McQuilkin, mary.mcquilkin@gmail.com
**Chair of Homelessness Ad Hoc:** Aimee Sims, northeastcommunitycouncil@gmail.com
**Chair of Planning & Zoning Ad Hoc:** Margaret Friedenauer, northeastcommunitycouncil@gmail.com
**Northeast Community Patrol**: Paul Robard, 907-575-7285
**Nunaka Valley Community Patrol:** nunakavalleycommunitypatrol@gmail.com

**Telford, Brandon S.**

**From:** MOA PM&E <vle@rmconsult.ccsend.com>
**Sent:** Friday, September 26, 2025 11:02 AM
**To:** Telford, Brandon S.
**Subject:** Design Criteria Manual Update

[EXTERNAL EMAIL]


# REMINDER

## The public comment period will close on October 10, 2025.

Public Comment Drafts currently open:

## Chapter 3 - Landscaping
## Chapter 7 - Public Transportation
## Chapter 8 - Plans & Specifications

Email comments to **DCMUPDATE@anchorageak.gov**; please indicated in your correspondence which chapter your comments apply to.

**Join the MOA Design Criteria Manual Update Mailing List**
to be informed via email on
DCM Updates and Draft Reviews.

## Questions?
## Please contact:

**Brandon Telford, PE, Engineering Manager**
Project Management & Engineering
Municipality of Anchorage
907.343.8145 | **brandon.telford@anchorageak.gov**

**DCM 3 UPDATE**

| Section | Article | Comment | Response |
|---|---|---|---|
| DCM 3 | General | Thank you for the opportunity to comment on the Design Criteria Manual Chapter 3 .<br><br>Overall there are many excellent additions, in particular the support for street trees and the traffic calming and overall positive benefits they provide. My comments address some of the specifics that I think could be improved to realize the best streetscapes. | Thank you for the time and depth of your review. As a group committed to planning, designing, constructing, and maintaining our public spaces, we share your appreciation. |
| DCM 3 | General | This chapter should contemplate and endorse the use of vegetation in the right of way for more specific traffic calming uses, such as pinch points, parking space curb extension, and other methods of horizontal traffic calming. Anchorage has an existing example in the “bean” located in Airport Heights. Consider adding a section to clarify best practices for vegetation integrated in traffic calming.<br><br>The inclusion of vegetation in a pedestrian refuge is positive, but the DCM should more specifically imagine how Anchorage can deploy vegetation in traffic calming uses that are being done across the country currently. | Vegetation plays a vital role in supporting traffic calming, but its use has varied considerably by MOA Traffic preferences over the years, levels of neighborhood engagement, and maintenance commitment. No revision. |
| DCM 3 | General | Overall, this document should include a description and endorsement of a simpler model of buffer, street trees, and snow storage: the “boulevard” of 5+ feet that serves all three uses and is widely deployed all across snowy midwestern cities. The Minneapolis 2021 street design guide includes strong guidance on this common pattern.<br><br>“Every effort should be made to include 5’ of space on both sides of the street to support healthy street trees, green stormwater infrastructure, and space for snow storage”<br><br>Edmonton’s guidance refers to this space at the “furnishing zone” and calls it the “the preferred location for snow storage.”<br><br>In Anchorage, the collector and other low speed roads, the snow storage and street tree zones should be frequently combined into the “boulevard” model that serves both purposes, requires less space, and sites the street trees in the appropriate locations. Anchorage’s “best” urban neighborhood streetscape of South Addition (imaging G street near the park strip) has this boulevard pattern, and people pay huge sums of money to live in it. Anchorage should aim to create more South Addition style streets, but a strict reading of the clustering requirements in this chapter would prohibit them | The organization of chapter 3 follows similar format found in other DCM chapters, thus making it easier for users to cross-reference. See other responses on snow storage clearance, municipal forestry, clustering, tree spacing, and tree locations at edge of ROW. Revisions to this draft have included design guidelines to incorporate more landscaping in buffer zone using clustering. |
| DCM 3 | 3.4 C Landscaping in Urban/Class A Areas and 3.4D Landscaping in Rural/Class B Areas. | This chapter does not include any guidance on landscaping for neighborhood/local roads. I recommend clarifying where that guidance exists or creating a section in this chapter. Snow storage, street trees, and vegetated buffers between sidewalks and streets are what elevate neighborhood streets and allow kids, elderly people, and anyone else to successfully navigate local streets. | Local roads have many driveways, creating a conflict between landscape and sight triangles. Emphasis on preserving existing vegetation. DCM can't be too prescriptive because context is key, especially with local roads. "Neighborhood Rd." could be any classification and are currently being shown.<br><br>Revised to include local road and that due to frequent driveways and associated sight distance triangles that landscaping is not often included. When it is it should be adapted to local context and preserve existing vegetation. |
| DCM 3 | General | Add a refence to 1% for Art | Reference added to 3.2B Anchorage Municipal Code (AMC). |

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|---|---|---|---|
| DCM 3 | General | Add reference to Clear Zone early in section; " All landscape and streetscape amenities should be out of the "Clear Zone," as defined in Chapter 1." | Added section in 3.4A New Landscaping to reference DCM Chapter One and need to coordinate with engineer that no site elements are hazards. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | 1st paragraph, 2nd sentence: Leave as "other adopted plans," without the 's', it sounds a bit off. | Revised. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Promote Safety, 3rd bullet: I would strike "pedestrian amenities" as this chapter is specifically talking about landscaping, would be better to focus on that. | Pedestrian Amenities are included in this chapter and a part of streetscapes. No Revision. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Promote Safety, 4th bullet: I recommend describing how landscaping features could result in "clear and intuitive wayfinding," as this connection is not clear (at least to me) | Clarified that wayfinding includes signage, amenities, and landscape features, and contributes to place making and space delineation. Revised. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Improve Function, 1st bullet: I think this sentence is a too vague for this chapter. This could apply to designing streetscapes more generally, and doesn't focus on the subject matter of this chapter (landscaping) | Streetscapes, including landscaping and pedestrian amenities, do contribute to or hinder equality. No revision. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Improve Function, 2nd bullet, 1st sentence: strike out "future" | Revised. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Improve Function, 2nd bullet, 2nd sentence: say "climate change impacts" or "effects" | Revised. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Improve Function, 2nd bullet, 1st sub-bullet: I know this term is defined in the glossary, could there be a way to reference it as being in the glossary so people can go straight there? | Revised. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Improve Function, 2nd bullet, last sub-bullet: The noise pollution issue is touchy. You need a lot of trees to get larger noise pollution dampening effects. I recommend providing a citation here to keep it in and relevant to this section | Revised. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Improve Function, 3rd bullet, 2nd sub-bullet: Perhaps worth updating this reference. Lots of cool research coming out for community forestry, perhaps another study has looked at increased sales as related to trees in the last 5-7 years | Updated with a more recent study, however, the newer study references the original research cited in the DCM. |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Improve Function, 5th bullet: Love this!! This succinctly refers to the "community" in community and urban forestry | |
| SECTION 3.1 PROJECT PLANNING | 3.1 B Decision-Making | Durability, 4th bullet: I would be more specific here to what 1) actually happens, and 2) what feasible improvements could take place to check and reject unsuitable plant materials | No revision. Inspections are per M.A.S.S. |
| SECTION 3.1 PROJECT PLANNING | 3.1 C Design Variances | 1st paragraph, 2nd sentence: This would be a good thing for an urban/community forester or municipal arborist to do, someone with training in the field to approve changes | Project Engineer may consult with others on team but ultimately remains responsible for any field change. Consultants and trained staff are occasionally consulted for these changes. No revision. |
| SECTION 3.1 PROJECT PLANNING | 3.1 C Design Variances | 1st paragraph, last sentence: Should this process should be in code as the required landscaping is in Title 21? Or are we speaking more to substituting tree species, which can be managed with permits review? | This is not code-required landscaping, and the design variance process is consistent between chapters. No revision. |
| SECTION 3.1 PROJECT PLANNING | 3.1 C Design Variances | 1st paragraph, 1st bullet, last sentence: Why are we giving someone permission to not meet the standard of the code before reviewing a plan? I recommend having the applicant seriously attempt to meet the standard of the code first before asking for a variance | This is not code, but guidelines. In practice, the designer will try to meet the code, and variances are for situations where they can't be met. No revision. |

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|---|---|---|---|
| SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW PROCESSES | 3.2 A Reference Plans | Consider a generic reference here so when the Land Use Plan is updated, this reference is still applicable. E.g. "Current Anchorage Land Use and Comprehensive Plan" | Revised. |
| SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW PROCESSES | 3.2 B Anchorage Municipal Code (AMC) | Municipal Policies and Standards, last sentence: Might be worth adding some Planning Department contact info here. It doesn't totally fit into this section, but providing the front desk number for any questions to the Planning Department may be helpful -- 907-343-7943 | Revised with recommendation to contact department without number to prevent future outdated info. |
| SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW PROCESSES | 3.2 B Anchorage Municipal Code (AMC) | Is authority for UDC the same as previous version? | Yes, it is referenced in section 3.2B. |
| SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW PROCESSES | 3.2 C Landscape Review Process Overview | 1st paragraph, 3rd sentence: Would be worth adding this process is spelled out in Chapter 3 of AMC Title 21 (although there are often code changes, I would say it's unlikely for a whole chapter to be changed, so the reference here would be valuable and not subject to sudden changes) | Relevant code is listed below. No revision. |
| SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW PROCESSES | 3.2 C Landscape Review Process Overview | 2nd paragraph, 1st sentence: Great references -- thank you! | |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 A Preservation and Protection of Existing Vegetation | 1st paragraph, 2nd sentence: Very important to mention wetlands have regulations and permitting requirements from the Army Corps of Engineers and the MOA. Refer to the Anchorage Wetlands Management Plan to see if mapped wetlands exist on a site. | Already listed in 3.3A of DCM Chapter 3. No Revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 A Preservation and Protection of Existing Vegetation | 2nd paragraph, 1st sentence: Add information about windbreak opportunity when evergreens are located on the north sides of properties | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 A Preservation and Protection of Existing Vegetation | 2nd paragraph, 1st sentence: I wouldn't say "control erosion" I would say "reduce erosion" | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 A Preservation and Protection of Existing Vegetation | 2nd paragraph, 1st sentence: change to "effects" | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 A Preservation and Protection of Existing Vegetation | 2nd paragraph, last sentence: Missing a period | Revised. |

| | | | |
|---|---|---|---|
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 A Preservation and Protection of Existing Vegetation | Early Site Assessment, 3rd paragraph, 1st sentence: Are there any standards of review for these documents? are they even required to be reviewed? For example, if a builder shows trees on a site plan, throws a TPZ around them, but doesn't provide DBH, species, etc., is someone able to ask for that? To verify necessary protections will occur to meet landscaping criteria and tree health? Also, is this fencing being inspected? | Anchorage has not developed a formal standard or adoption for review other than what's identified in MASS. Municipal projects in the ROW would adhere to those standards during construction. If TPZ and other standards are identified in the contract documents then enforcement should address conformance. The development of a municipal forestry department would foster needed development of these protections. No revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 A Preservation and Protection of Existing Vegetation | Wetland Protection, 4th sentence: "and Planning Department" -- no longer have the general permit from Army Corps, Long Range Planning is now working on wetlands permits in addition to whatever is needed by the fed | Kept general for planning department in case responsibility shifts in future. No revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 1. Planting Bed Sizes, Shapes, and Location, 1st paragraph, 4th sentence: Shouldn't be deeper, should be wider. Utilizing structural soils that can handle compaction and provide more macropores for roots to grow out rather than hoping they grow down. | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 1. Planting Bed Sizes, Shapes, and Location, 3rd paragraph, 1st sentence: That isn't deep enough -- a root ball for a three inch caliper tree could be at least 18inches... need more like 2' soil depth at minimum, like 3' max | Most trees specified for projects call for 2" caliper which per ANSI Z60, latest edition (Z60.2-2025) the minimum rootball depth for a Type 1 Shade Tree is 14 3/8" and 15 5/8" for a Type 3 Small Upright Tree. Depending on the plant selection, landscape designs may specify and adjust planting depth. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 1. Planting Bed Sizes, Shapes, and Location, Tree Planting Bed Size and Shape, 2nd bullet, 2nd sentence: True, but the rootball might be taller than 18'....and are landscapers going to knock off additional soil from the bottom, or take an easier route and plant the tree too high (i.e. above final grade, likely without the trunk flare exposed)...I would consider a max depth of 3' so (hopefully) the bottom of the rootball wouldn't need adjustment and just exposing the root flare on the base of the truck would occur for prep prior to installation | Site observations indicate that the landscaper digs deeper in these cases, though the comment does underline the importance of inspection. No revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 1. Planting Bed Sizes, Shapes, and Location, Tree Planting Bed Size and Shape, 2nd bullet, 3rd sentence: Yes!! Creativity underground is key | |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 1. Planting Bed Sizes, Shapes, and Location, Soil Volume Recommendations for Trees Based on mature DBH, last paragraph, 2nd sentence: "...are pest, disease, and injury free" Trees can get beat up during transport or installation, with trunk wounds, branches being torn off, etc. | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 1. Planting Bed Sizes, Shapes, and Location, Change Soil Volume list to a table | Revised. |

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| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 2. Clustering Plantings Along Roadways, 1st sentence: Love this -- this addresses concerns of snow storage and biologic benefits of roots being close together, amending the soil to their benefit. I might suggest, rather than shrubs, tall grasses and perennial flowers with depth penetrating roots -- which I see is recommended later, thank you! | |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 2. Clustering Plantings Along Roadways: I recommend revising the guidance on clustering trees Page 3-15<br><br>”Grouping trees and shrubs in planting beds rather than dispersing them evenly along the roadway can minimize conflicts with plowing and snow storage while increasing efficiency of maintenance (Figure 3-1).”<br><br>Regular spacing is necessary for street trees to provide their core benefits of traffic calming, visual narrowing, and protection for drivers and pedestrians . Adequate gaps are of course needed for snow storage, utilities, and other needs, but regular spacing is part of what makes street trees beneficial. | Tree-lined blocks can be found in Anchorage, but our current maintenance capabilities cannot support a large-scale effort, and our winter maintenance needs require clearance where feasible for safe and cost-effective snow removal.<br>The cluster strikes a balance between Street Maintenance’s need for snow storage clearance and the public benefits to safety, health, and well-being provided by landscape improvements.<br><br>As regards to regular or continuous spacing along the block, without subsequent tree care, the textbook spacing quickly becomes irregular and unkempt because of tree mortality. Clusters and trees at edge of ROW offer easier maintenance (Parks and/or adjacent owner) and increase soil volume vital to long-term tree health. No revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 2. Clustering Plantings Along Roadways: Figure 3-1: Clustered Plantings shows a pattern of 150 feet (minimum) for snow storage  next to a 40 foot (max) clustered planting section. I recommend that the DCM clarify how this graphic’s guidance is applied. Is it a pattern that must be achieved in a project? On a per block basis? There are nor references to this in the DCM’s text, only in the image.  Further, this pattern as described only allows plantings along 21% of the ROW length (40 feet of 190).<br><br>The 150’ minimum clear spacing for snow storage (on page 3-16) should be revised lower or eliminated. Requiring spans of half of a football field effectively eliminates the potential of landscaping or trees in the most effective location: between the sidewalk and the road .<br><br>The 2021 Minneapolis street tree guide does not specify spacing or clustering. Rather, it creates specific buffer recommendations to things like utility poles, driveways, etc.<br><br>I suggest the DCM remove this specific guidance on clustering to create a more permissive standard. While there may be some complication on particular snow hauling practices, “ dispersing them evenly along the roadway” provides the benefits of street trees that this guide describes. Anchorage’s use of “gates” in snow plowing allow for excellent integration with street trees.  The dispersed pattern of trees lining a road is what creates the visual effect of narrowing for the traffic calming benefit. An overly clustered pattern eliminates that visual effect. | Text has been added to clarify the intent of the clustered plantings.  Objects including trees, signs, and light poles located between the vehicle traveled way and the pedestrian facility (or buffer area) have a severe negative impact on the efficiency of snow removal operations.  The equipment used to remove the snow from the buffer area during hauling operations must negotiate around the obstructions which results in a significant delay when many obstructions exist.   Additionally, closely spaced trees spread maintenance such as watering out over long distances while clustered plantings concentrate those maintenance activities.  To provide adequate soil volume to support tree health in the limited space in the buffer area, expensive soil cells may be needed.  The cluster strikes a balance between Street Maintenance’s need for snow storage clearance and the public benefits to safety, health, and well-being provided by landscape improvements.<br>Designers have other options beyond landscaping available to achieve traffic calming where it is needed for safety.<br><br>Like Minneapolis, Calgary, and any municipality, Anchorage must consider the local factors and conditions that enable it to serve the public. Snow clearances and operations, the absence of a municipal urban forestry program, and other factors inform how our municipality plans, constructs, and maintains. Additionally, without programmatic support for their long-term care, the effectiveness of traffic calming provided by trees planted in the buffer area would be increasingly diminished by the expected tree mortality. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 2. Clustering Plantings Along Roadways: The location of street trees to the furthest outside edge of the ROW  in much of this DCM guidance reduces the traffic calming effectiveness and aesthetic contributions of street trees. If there must be a 2 foot landscaped buffer for snow storage to the inside of the sidewalk, it is difficult to imagine finding enough ROW to achieve much landscaping . | Our ROW width varies considerably and by project. Space for any tree planting must compete with all sorts of elements, utilities, sidewalks, etc., which is why we recognize the opportunity to use this space when the project features present themselves. In terms of the tree life cycle, placing them at the edge provides greater soil volume which in turn leads to bigger and healthier trees, ones better able at reaching canopy widths to shade the sidewalk and heights for traffic calming. Additionally, these trees are more likely to be ‘adopted’ by adjacent property owners and receive supplemental care. No revision. |

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| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 2. Clustering Plantings Along Roadways: Review Sight Distance Triangle in Figure 3-1. | Sight distance triangles will be site-specific. The one shown in Figure 3-1 is diagrammatic only in regards to plants within the sight distance triangles. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 3. Planting Installation Details: I would add a section on mulching here, to avoid "volcano" mulching from occurring | Already included in M.A.S.S., do not want to duplicate information. No Revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 3. Planting Installation Details, Watering Rings, 2nd sentence: AO 2025-0095 asks for supplemental watering systems to be removed after 1 year of installation. Watering rings, when used correctly and consistently, can help overcome transplant shock during drought; however, these rings are typically left on for years, unused, and if they're gator bags, the proximity to the trunk can be harmful. I recommend removal of the watering rings after a year, for consistency with an upcoming Title 21 amendment ordinance and to keep them from being a maintenance concern | Already included in M.A.S.S., do not want to duplicate information. No Revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 3. Planting Installation Details, Staking: Excellent point to include here! | |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 4. Maintenance Practices and Long-Term Care, 1st sentence: It should be the responsibility of the municipality, ideally an urban forestry division within Parks | Revised to clarify MOA is responsible for landscape within the ROW. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 4. Maintenance Practices and Long-Term Care, Weed and Pest Control, 1st bullet: Integrated Pest Management typically encourages the use chemical controls as a last option. It may be worthwhile to mention biological, cultural, and mechanical controls specifically so people are reminded | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 5. Urban Tree Health: Urban Tree Health can be paired with "maintenance practices and long-term care". If there is interest in Urban Tree Health, use that as the header then have maintenances practices, long-term care, pest management, pruning, organizational structure for maintenance, etc. | Revised to clarify section content and intent. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 5. Urban Tree Health, 2nd paragraph: I feel like tree vaults, structural soils, and raised planters ought to go under item 1: planting bed sizes, shapes, and locations. And then tree grates and tree guards should go under section 3: Planning Installation Details | See above. |

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| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 5. Urban Tree Health, Tree Vault Modular Pavement Support System, 1st sentence: Cost is a major factor for Silva cells and other forms of pavement support systems, just something to mention | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 5. Urban Tree Health, Suspended Sidewalks and Structural Soil, 3rd sentence: Excellent point! | |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 5. Urban Tree Health, Suspended Sidewalks and Structural Soil, 4th sentence: Although these are mentioned together, you can do structural soil without suspended sidewalks. Structural soils are costly, especially if there aren't any manufacturers here in AK. And these can be placed, according to most transit folks, directly under the sidewalks to replace ABC stone | Revised for clarification. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 5. Urban Tree Health, Raised Plantings, 1st paragraph: In the arboriculture industry, we refer to these as tree graves... especially having well explained root available soil space, the mention of raised tree planters doesn't make total sense. Raised curbs near planting strips is one thing, but dedicating space to raised planters isn't doing much for long-term benefits of tree plantings in urban environments. I would get rid of raised planters, and focus on tree vaults, pavement support systems, and structural soils. I think the raised curbs are fine to leave if needed. Could suggest raised curbs with wide planting lawns or medians and make that a subsection | Revised to clarify importance of increased soil volume. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 5. Urban Tree Health, Raised Plantings: Look into insulation for planting beds | Insulation is included in the description of raised beds. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 5. Urban Tree Health, Tree Grates, 1st paragraph, 3rd sentence: A tree inventory would be beneficial to know where tree grates are, and who the maintainer is if there isn't an urban forestry division to directly task | Beyond the scope of the DCM. No revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 5. Urban Tree Health, Tree Guards: This should be in the section with 3: Planting Installation Details | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 6. Stormwater Management/Green Infrastructure, 3rd paragraph, 1st sentence: I would include an arborist here to help with species selection, maintenance schedules, etc. | Revised. |

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| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | Subsection 7, Understand Snow Removal Techniques, 3rd Bullet: Audience is inconsistent | The DCM is meant for a range of audiences. No revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 7. Planning for Snow Clearing and Storage, 3rd paragraph, 2nd sentence: Refer back to the earlier section where clustered plantings are recommended | DCM references snow clearing method in several sections, and the chapter tries to avoid referring back to itself for clarity. No revision. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 7. Planning for Snow Clearing and Storage, Plan for Snow Storage, 3rd bullet, 2nd sentence: How are plants with flexible branching "more resilient" in these areas? | Revised to clarify they are less subject to breakage. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 7. Planning for Snow Clearing and Storage, Understand Snow Removal Techniques, 3rd bullet, 1st sentence: This is great because it can be Muni-led! | |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 B Best Practices for Growth and Minimizing Maintenance in New Plantings | 7. Planning for Snow Clearing and Storage, after Integrate Design Solutions for Durability, paragraph following sub-section: Formatting issue here with the image below (Figure 3-2: Snow Storage Area Without Cluster Planting) | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 C Plant Selection | Add "non-poisonous" plants to plant selection or moose browse section. History of moose eating berries and being poisoned. | Added "Plants that are known to be toxic to moose and other animals should not be used. " to 3.3 C, Plant Selection. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 C Plant Selection | Native and Invasives Species: Not all non-native plants are invasive. Some non-native plants have low invasive qualities while some natives act more aggressively than non-natives. It might be better to title this subsection "Species Selection" to more broadly cover what are better selections vs. harmful selections. | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 C Plant Selection | Native and Invasives Species, 1st bullet, 1st sentence: Switch, to "and" -- species diversity is important! Don't want to hem us in with either or | Revised. |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 C Plant Selection | Native and Invasives Species, 1st bullet, 1st sentence: Trees in this region don't typically require "little water" and there is an inherent maintenance period after plantings. It might be better to focus this sentence on what the environments are around them. For example, "...adapted to Anchorage's climate and can tolerate the conditions of an urban environment while supporting local biodiversity." | Revised. |

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| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 C Plant Selection | Environmental Impact: I would change this to be "Built Impacts" to describe the challenges that plant life faces in urban, impervious environments" -- see comment below | Revised to clarify how plant selection interacts with "Environmental Impact" |
| SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE | 3.3 C Plant Selection | Environmental Impact, 1st bullet, 1st sentence: This sentence is kind of out-of-context for this section. I think what I'm reading is landscaping selected shouldn't add arduous encumbrances, but we can't really control what birds, bugs, and other wildlife does in trees and shrubs. Perhaps instead the focus here could be less on wildlife and more on avoiding trees that have large fruiting bodies (like fruit trees) so they don't pose ADA hazards or wildlife grazing opportunities. It's nice to mention that urban forests support wildlife, but if this section focuses instead on trees that can survive/thrive in the built environment, rather than the natural one, it might make more sense and be a better aid for tree selection. | Revised to clarify how plant selection interacts with "Environmental Impact" |
| SECTION 3.4 STREET LANDSCAPE | 3.4 A New Landscaping | 1st paragraph, 2nd sentence: ROW dedications should include room for tree plantings, imo, especially as trees aid in traffic calming and stormwater management. I understand this is a much larger conversation that would need to take place, but it's hard to plan for these additional, important features to be in the ROW without dedicating space to them. | Current municipal priorities promote less ROW dedication to allow more developments such as housing. No Revision. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 A New Landscaping | 1. Public Process, 1st paragraph, 1st sentence: Until there is an urban forestry department with a municipal arborist/forester, it shouldn't be in code to plant trees in the ROW, otherwise the maintenance will fall to the wayside | No revision. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 A New Landscaping | 2. Utility Conflicts, 1st sentence: These should be installed under impervious surfaces prior to their installation, or bored down to 4' depths to avoid roots. | Not ideal to tear up roads/pathways and risk subsurface base failure, so is current infeasible for MOA broadly. No revision. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 A New Landscaping | 2. Utility Conflicts, 4th sentence: Including utilities in the site design is important, perhaps something to mention in the stakeholders section | Utilities typically included in the plan set. No revision. |
| SECTION 3.4 STREET LANDSCAPING | 3.4 A New Landscaping | Subsection 3 Visibility Triangles: Add pedestrian and biker Visibility Triangles | Revised. Added reference and graphic to pedestrian and bike visibility zone. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 A New Landscaping | 4. Funding, 1st sentence: The Inflation Reduction Act allocated funding specifically for the development of urban forests -- this funding was hampered by the current federal administration, but some state governments may have received funds already -- may be worth checking into | This is too dependent on administration and needs to be general enough to apply at all times. No revision. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 B Landscaping in Urban Centers | 1. Streets in Urban Centers, Figure 3-4: Urban Center Street- Raised Planter: I wouldn't show a diagram with a multi-stem tree...also do current ROW dedications for development projects allow for an additional 22'? I personally love it! I'm just wondering about the viability of the plan? If this is a gap of knowledge on my part, that's my bad! | Graphics shall be revised to show single stem in ROW. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 B Landscaping in Urban Centers | 1. Streets in Urban Centers, 3rd paragraph, 1st sentence: Sorry, what does this (CPTED) stand for? | Revised and added to acronyms and abbreviations. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 B Landscaping in Urban Centers | 1. Streets in Urban Centers, 3rd paragraph, 2nd sentence: This should be italicized | Revised *Our Downtown Plan* to be italicized. |

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| SECTION 3.4 STREET LANDSCAPE | 3.4 C Landscaping in Urban/Class A Areas | 1. Major Arterial (Class III), 2nd paragraph, 4th sentence: Great reminder here | |
| SECTION 3.4 STREET LANDSCAPE | 3.4 C Landscaping in Urban/Class A Areas | 3. Collector Streets (Class I), Figure 3 - 8: Urban Collector Street is somewhat inconsistent with the description on page 3-30 for 3. Collector Streets (Class I). The graphic shows trees on the outside of the sidewalk, while the description seems to encourage trees between the sidewalk and the road .<br><br>"The strip between the travel way and sidewalks/trails could be seeded, planted with trees and shrubs in clusters." | Figure 3-8 has been revised to include clustered plantings and text has been revised to clarify that the range of options that could be used depending on site context. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 C Landscaping in Urban/Class A Areas | 3. Collector Streets (Class I): Consider adding a graphic that demonstrates the inclusion of trees in the buffer between the sidewalk and the road, which is a textbook example of excellent street trees and one I'd like to see deployed in Anchorage . | See above. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 C Landscaping in Urban/Class A Areas | 3. Collector Streets (Class I): The use of a graded drainage buffer is well illustrated, but the non-drainage buffer type (with trees or plants) is not shown. | Urban collectors would be draining into gutter rather than into landscaping, whereas rural is using swales for stormwater management so graphics reflect typical design. No revision. |
| SECTION 3.4 STREET LANDSCAPE | 3.4 D Landscaping in Rural/Class B Areas | 1. Major Arterial (Class III), 1st paragraph, 4th sentence: Although what if we put Taxodium distichum (bald cypress) in the swales? They're hardy for 5a (which is where Anchorage is per the 2023 Hardiness map) and can handle poor draining soils and high water | Despite 5a hardiness, the recommended tree suggestion would likely find it too uncomfortable Anchorage but the larger point is taken and appreciated. No revision. |
| SECTION 3.5 CONSIDERATIONS FOR ADDITIONAL RIGHTS-OF-WAY FOR LANDSCAPE | | 1st paragraph, 2nd sentence: Why are the issues only for landscaping? Utilities can be, and often are, placed in easements on private property; snow storage strips can be limited in size, and trees can be planted behind sidewalks still within the ROW...I agree creativity is key, but phrasing the issues as solely "landscaping issues" makes it seem like the other features are not subject to creativity and thinking differently | Revised. |
| SECTION 3.5 CONSIDERATIONS FOR ADDITIONAL RIGHTS-OF-WAY FOR LANDSCAPE | | 1st paragraph, 3rd sentence: I can appreciate the goal of this section, but I think the presentation of these undermines the rest of this chapter of the DCM, and the consideration and effort for planning and planting trees. | These are provided as alternatives for projects when vegetation is not appropriate, similar to fencing replacing vegetation in Title 21. No revision. |
| SECTION 3.5 CONSIDERATIONS FOR ADDITIONAL RIGHTS-OF-WAY FOR LANDSCAPE | | 3rd paragraph, 5th bullet: If ROW landscaping was required in T21, it would be embedded in ROW dedications. Landscaping is a key feature of Complete Streets, and high pedestrian areas (like urban centers and travels avenues) | Planting in the ROW is not code (Title 21) required. We hope that the chapter 3 re-write demonstrates the many functions of vegetation and street amenities in the ROW. No revision. |
| SECTION 3.6 PUBLIC OPEN SPACE AND PARKS PROJECTS | | 2. Streambank Protection and Restoration: Might be good to refer to WMS in this section as well, for stream setbacks and additional guidance during planning | Revised. |
| SECTION 3.6 PUBLIC OPEN SPACE AND PARKS PROJECTS | | Equity and Cultural Identity: This section is great -- thank you for including it with design goals. | |
| SECTION 3.9 REFERENCES | | Formatting error here at "Longitudinal Effects…." | Revised. |

# DESIGN CRITERIA MANUAL

# CHAPTER 3 LANDSCAPE

**MUNICIPALITY OF ANCHORAGE**

**PROJECT MANAGEMENT & ENGINEERING DEPARTMENT**

## D-R-A-F-T

**NOVEMBER 2025**

**DESIGN CRITERIA MANUAL**
**REVISION LOG**

## Chapter 3 – Landscape

| Rev. No. | Date Executed | Description | Sections Revised or Added | New/*Revised* Template |
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**FIGURES**

## ACRONYMS AND ABBREVIATIONS

AASHTO......................................American Association of State Highway and Transportation Officials
ANSI A300..........................................................American National Standard for Tree Care Operations
ANSI Z60.2......................................................................American National Standard for Nursery Stock
AMATS.......................................................................Anchorage Metropolitan Transportation Solutions
AMC..........................................................................................................Anchorage Municipal Code
CPTED..............................................................................crime prevention through environmental design
CBD...........................................................................................................................central business district
DBH........................................................................................................................diameter at breast height
M.A.S.S.....................................................................Municipality of Anchorage Standard Specifications
OS & HP...........................................................................................Official Streets and Highways Plan
P&Z……………………………………………..…….………….Planning and Zoning Commission
ROW..........................................................................................................................................right-of-way
TPZ…………………………………………………………………..…….……tree protection zone
UDC…………………………………….………………………………Urban Design Commission

## SECTION 3.1 PROJECT PLANNING

### 3.1 A Objectives

This chapter of the Design Criteria Manual (DCM) provides comprehensive guidance and criteria for landscape design, installation, and maintenance of projects within the public right-of-way (ROW) and in public open spaces such as parks in the Municipality of Anchorage. As Alaska's largest city, Anchorage recognizes the importance of urban design, and the need to maintain high standards. Design should balance aesthetic appeal, functionality, maintenance, stewardship, and community needs. Streetscape improvements are significant tools that provide the community with a strong connection to the magnificent natural setting that surrounds Anchorage.

This chapter's goals are to:

- improve safety within public spaces
- maximize functionality
- provide durable and maintainable landscapes

This chapter serves as one of several adopted or referenced resources used to inform and guide municipal projects (see Section 3.2 and end of this chapter for references). Together, these documents ensure that landscapes contribute to Anchorage's built and natural environments by creating a cohesive approach to landscape design that reflects community values, enhances public spaces, and supports Anchorage's long-term goals.

Landscape improvements for municipal projects may include:

- Plantings: All plant material, including turf, selected for resilience, ecological benefits, and aesthetics.
- Pedestrian Amenities: Seating, trash receptacles, and lighting that enhance comfort, safety, and usability.
- Hardscape Features: Paved pathways, walls, and other hardscape elements that contribute to accessibility and define outdoor spaces.
- Art and Cultural Elements: Public art installations, interpretive signage, and decorative features that reflect Anchorage and Alaska's cultural heritage.

Landscape architects are licensed professionals trained to design public spaces, including roadway improvements, to create functional, aesthetically pleasing spaces that balance available resources. In addition to landscape architects, other professionals may be required depending on the proposed project. Certified arborists are trained to understand tree health, retention, and preservation. Electrical engineers ensure landscaped spaces have adequate lighting. Civil engineers work closely with landscape architects to ensure effective stormwater management, grading and drainage, utilities, and other infrastructure features.

## 3.1 B Decision-Making

Landscape improvements vary project-by-project. Factors such as ROW limits and project budgets affect the type and level of landscape design. A project's role within the greater community context should also be considered when determining the level of landscape desired, which is often determined or guided in the municipal comprehensive plan, neighborhood plan, or other adopted plan. It is the role of the landscape architect to work closely with the community, the design team, and other members of PM&E to determine specific landscape improvements. Thus, it is important for the landscape architect to be included in the initial project planning phases and to aid in developing options. If there is a conflict with a project meeting design criterion, a design variance may be possible, see DCM 3.1 C. The following goals and methods should be considered when evaluating landscape improvements for a project:

**Promote Safety:**

Landscapes should support safety in public and private areas by minimizing hazards for pedestrians, reducing vehicle speeds through traffic calming design, and supporting visibility and security.

- Follow Crime Prevention Through Environmental Design (CPTED) principles to discourage crime and enhance visibility.
    - Ensure that landscapes allow and support clear sight lines, well-maintained pathways, and strategic placement of site amenities (e.g., lighting and seating). Generally, street plantings should allow for clear sight lines between 30" and 80" above finish grade.
    - Use plantings, decorative elements, and signage to help visitors recognize it as a valued public space and discourage misuse.
- Use methods to support traffic calming and make the streets safer for all users in accordance with transportation plans such as planting trees along roads to slow drivers by creating vertical elements that make lanes feel narrower.
- Use pedestrian amenities and plantings to define pedestrian spaces from vehicular spaces to reduce conflicts.
- Provide clear and intuitive wayfinding to minimize confusion and reduce distractions. Wayfinding includes signage, amenities, and landscape features, which contribute to place making and space delineation.
- Lighting is critical to safety for pedestrians, bikers, and drivers, especially during our long winter nights. Landscaping should enhance, or at least not impede, street lighting while recognizing the issues created by light pollution, including glare.
- Landscapes should be designed so they are easy to maintain for safety, especially in winter. This includes reducing tripping hazards and providing clear areas that allow snow clearing machinery easy access.

**Improve Function:**

Thoughtfully designed landscapes can provide numerous functions including storm water management, improved streetscapes that better separate vehicles from non-motorized spaces, improve air quality, control wind and snow drift, and provide visual cues for drivers.

- Integrate features that support diverse user needs, so all members of the Anchorage community and visitors can use the facilities, regardless of age, ability, or cultural background.
- Design streetscapes that increase ecological function, promote sustainability, and are resilient to climate change impacts.
    - Prioritize sustainable practices and low-impact development (LID) (see glossary) such as native plantings to improve ecosystem health and reduce heat island effects. Integrate stormwater management strategies from DCM Chapter 2, such as bioretention facilities and vegetated swales, to reduce runoff and improve stormwater capacity and water quality.
    - Design green corridors, such as tree-lined streets or connected park systems, to provide continuous habitat for wildlife and improve ecosystem connectivity.
    - Enhance the pedestrian experience which has been shown to positively impact commerce and economic development.
    - Street trees can add 3% to sales price and reduce time-on market by 1.7 days for residential areas (Donovan and Butry, 2010).
    - In retail areas with high quality tree canopy, surveys indicate consumers are willing to spend 9% to 12% more on goods and services (Wolf, 2005) (Wolf, 2014).
- Enrich the pedestrian experience which improves community health and well-being. Creating spaces that people care about also fosters a sense of stewardship, which will in turn help keep streets safer and cleaner.
    - High percentage of tree cover was associated with lower prevalence of diabetes, hypertension, and cardiovascular diseases when adjusting for socio-economic factors for residents (Astell-Burt and Feng, 2020)
    - Children living in areas with street trees achieved more positive early childhood development outcomes such as cognitive development, physical health, and social competence. (Jarvis et al., 2022)
- Use place-based design principles to reflect the natural landscape and its cultural significance, recognize the history and traditions of Indigenous communities, and incorporate traditional patterns, materials, and spatial arrangements.
- Buffer users from inclement weather or environmental conditions to provide a more comfortable experience.
- Ensure landscape supports effective drainage by avoiding obstruction of water flow and incorporating elements that facilitate proper runoff and storage/infiltration and prevent undesirable water accumulation

**Durability:**

Provide a framework for proper maintenance and care of plantings for sustainable, long-term landscapes that enhance quality of life. Design plantings that align with responsible snow removal and storage practices that are safe, efficient, and recognize limited municipal resources.

- Minimize long-term maintenance needs by using drought-tolerant and native or climate-adapted species. Other maintenance needs, such as pruning, should also be weighed when selecting plants.
- Consider raised planter beds, raised curbs, or other solutions that protect plant material from snow clearing and storage, as well as collection of gravel and sediment from cleaning operations.

- Specify high quality materials grown by professional nurseries that meet American Standard for Nursery Stock ANSI A300.
- Inspect plant materials prior to transportation to site if possible and during planting operations and reject all unsuitable materials. Inspection must take place no later than delivery to site per M.A.S.S.

### 3.1 C Design Variances

This manual presents the minimum requirements for landscape. Whether expressly stated or not, throughout the criteria, any deviation from these standards in which the minimum requirements are not met shall require a written variance from the Municipal Engineer. A variance is not required for deviations in which these minimum requirements are exceeded. Approval of plans containing deviations from the criteria shall not constitute tacit approval of the deviation or approval of a design variance. The variance application request process is as follows:

- Request Submittal: Variance requests shall be in writing and shall contain information, justification, and suggested resolutions. Variances shall be approved prior to submittal of applicable plans and/or reports.
- Documentation: Variance requests shall include complete discussion and documentation supporting proposed methods and parameters. Documentation must include citations of current research and manuals of practice published or sponsored by well-known, credible public and private agencies. Complete copies of supporting documentation must be provided as part of the application. Economic hardship shall not be adequate justification for a variance.
- Justification: Variance requests shall include compelling technical arguments for using the proposed method or parameter as an alternate to what is stated within this chapter of the Design Criteria Manual.
- Review: The Municipal Engineer will consider variance requests and accept or deny the request in writing. Appeal of decisions regarding variances shall follow the procedures detailed on the Municipality of Anchorage website in Policy and Procedures Number 10, “Contesting and Appealing Decisions” (found at www.muni.org).

### 3.1 D Integrated Decision-Making Framework

Achieving these objectives requires a collaborative and integrated approach to planning and design. The following steps provide opportunities throughout the design process to help landscape architects, project managers, and community stakeholders navigate projects:

#### Collaborative Planning:

- Involve key stakeholders early, including community members and other professionals, to ensure a shared vision and to identify community priorities. Each district and neighborhood in Anchorage has a unique identity and issues that should be addressed within the project. Use an integrated approach to design and engineering by including landscape architects, arborists, and horticulture specialists in initial project planning phases.

- Conduct initial site assessments to determine the need for specialists including arborists, urban foresters, maintenance managers, horticulture, environmental/habitat and wetlands experts.
- Consider community feedback and conduct public involvement meetings to understand specific needs, concerns, and aspirations for each project.

END OF SECTION 3.1

# SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW PROCESSES

## 3.2 A Reference Plans

Designers, planners, and project managers should reference this chapter in conjunction with the following resources:

- **Anchorage Municipal Code (AMC) Title 21:** Comprehensive zoning and land use regulations, including specific landscaping requirements for various project types.

- **Official Streets and Highways Plan**: Offers a way for the community to plan for future growth by determining the location, classification, and minimum ROW of streets and highways necessary to meet the transportation needs of the community in the future. Additionally, it provides goals for ROW landscaping for each street classification.

- **Municipality of Anchorage Standard Specifications (M.A.S.S.):** Technical standards for materials and construction methods essential for implementing municipal projects.

- **Current Anchorage Land Use and Comprehensive Plan:** Guides development across Anchorage and emphasizes the importance of sustainable landscapes, ecological connectivity, and climate resilience in all public spaces.

- **Anchorage Stormwater Manual (Volume 1&2):** Criteria for integrating landscape elements into stormwater management systems to improve water quality and reduce runoff. This manual is Chapter 2 of the Design Criteria Manual.

- **Anchorage Non-Motorized Plan:** Strategies to enhance walkability, ensure pedestrian safety, and integrate accessible pathways into urban landscapes.

- **Vision Zero Action Plan:** A framework to eliminate traffic-related fatalities and serious injuries, emphasizing safe and effective landscape designs.

- **AMATS Complete Streets Policy:** This policy guides the future design approach for AMATS projects and includes information on creating streets that accommodate all users, including pedestrians, cyclists, and vehicles and can provide valuable context and strategies for similar municipal projects.

- **Context-Sensitive Solutions (CSS):** Approach to designing landscapes that reflects the unique character, history, and needs of Anchorage neighborhoods, as well as the public-involvement process. It emphasizes flexible design solutions, collaborative decision-making, community input, and environmental stewardship.

## 3.2 B Anchorage Municipal Code (AMC)

Note: As our community's needs change, the Anchorage Municipal Code is updated. Always refer to the most recently adopted codes on the municipal Planning Department website or contact the department directly.

Anchorage Municipal Code (AMC) outlines specific landscape requirements and design standards across various zoning districts and use types. These are primarily applied to private site development, not within the ROW. Below are the primary code sections most relevant to municipal landscape projects:

AMC 7.40: Funds for works of art in public facilities

AMC 21.04: General landscape requirements by zoning district.

AMC 21.07.080: Landscaping, Screening, and Fences

AMC 21.07.080C: When the sum of the required perimeter and parking lot landscaping is greater than 1,000 square feet, a landscape plan must be prepared by a licensed landscape architect registered by the State of Alaska consistent with AS 08.48 and 12 AAC36.

AMC 21.03.190: Street and Trail Review requires that the Planning & Zoning Commission (P&Z) and Urban Design Commission (UDC) review and make recommendations on public facilities, including streets of collector or higher designation in the Official Streets and Highways Plan (OS & HP).

AMC 21.11.070: Downtown Development and Design Standards

### 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 the draft design study reports for new construction and reconstruction of streets of collector class or greater in the OS & HP (21.03.190).

AMC 21.02.030B: Plans subject to review by P&Z, including site design, landscape, and structural design. P&Z may delegate the authority to review and approve plans to the UDC.

### Urban Design Commission Authority

AMC 21.02.040A.4: Reviews Plans-in-Hand (PIH) preliminary design drawings for new construction and reconstruction of streets of collector classification or greater on the Official Streets and Highways Plan (21.03.190).

## Municipal Policies and Standards

AMC 21.01.080: Comprehensive Plan identifies rules and policies that govern land use development throughout the Municipality on both public and private lands.

Anchorage's comprehensive planning policies and standards reinforce landscape goals that align with community values, environmental priorities, and aesthetic objectives. Some of the plans applicable to public facility projects include the Areawide Trails Plan, Our Downtown Plan, Turnagain Arm Comprehensive Plan, the Girdwood Area Plan, the Chugiak-Eagle River Comprehensive Plan, and the Street and Highway Landscape Plan. Many community councils have their own MOA approved neighborhood plans.

## 3.2 C Landscape Review Process Overview

Municipal landscape projects may undergo a multi-step review process involving the Planning Department, Planning & Zoning Commission, and Urban Design Commission. Each application requires a minimum of two months of review prior to the date of the public hearing (if required). Below is a list of typical components for street and site plan reviews:

- **Pre-application Conference**: Initial discussion to align project objectives with municipal standards. This should be done as early in the concept phase as possible.
- **Conceptual Review** (optional for major projects): Early feedback on preliminary street and landscape design.
- **Formal Application Submittal**: Submission of final design plans and compliance documentation.
- **Public Notification and Comment Period**: Opportunity for residents to provide input and feedback.
- **Departmental Review**: Internal review of landscape plans for code compliance.
- **Commission Review and Approval**: Final review by the PZC or UDC, potentially including a public hearing.

For information about specific project reviews please refer to the associated codes and departments:

AMC 21.03.190B.2: Street Reviews

AMC 21.03.190C.3: Trail Reviews

AMC 21.03.180: Site Plan Reviews

Site plans will either require an Administrative Site Plan Review or Major Site Plan Review as identified in:

- AMC 21.05 for Anchorage Table of Allowed Uses
- AMC 21.09 for Girdwood Table of Allowed Uses
- AMC 21.10 for Chugiak-Eagle River Table of Allowed Uses

- AMC 21.11 for Downtown Districts Table of Allowed Uses

### 3.2 D Order of Reviews and Public Outreach

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

Street projects should comply with the Street and Trail Review process per AMC 21.03.190 for public engagement which includes:

- **Project Scoping**: Feedback is used to define project goals, identify community priorities, and highlight potential issues. This may include outreach such as public meetings, newsletters, and a Citizens' Advisor Committee.
- **Alternatives Development**: A full range of alternative and understandable solutions must be presented for the public to review and offer feedback.

END OF SECTION 3.2

## SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE

### 3.3 A Preservation and Protection of Existing Vegetation

Perform site inventory and analysis early in the design process to determine the value of existing vegetation and the presence of any invasive species. Where practical, existing trees, forested areas, and wetlands should be preserved; efforts should be made to retain healthy trees and vegetation that have special character due to size, age, habit, wind breaks, screening or buffering adjacent properties, or have other ecological benefits.

Existing vegetation can reduce erosion, slow water run-off, reduce urban heat island effects, and maintain air quality. Preserving the urban tree canopy also improves residents' mental health and well-being, thus benefiting the larger community (Alcock, et al., 2014). Another benefit of retaining existing vegetation is the savings in construction costs by reducing the need to remove, transplant or replace trees. Negative aesthetic impacts created by new construction can stall or delay projects and raise public concern. Preserving existing vegetation also protects soils that support vegetation and provide critical green infrastructure. Identifying invasive species and developing mitigation plans can help to protect native vegetation and soil. These benefits are crucial to create and maintain durable, highly functioning, and resilient landscapes.

The contract documents should clearly denote areas to be protected and the best methods for that protection. The following measures should be taken to best preserve the existing vegetation on site:

**Early Site Assessment:**
The preliminary design phase is a critical period in the design process to protect existing vegetation. During this time, a landscape architect should work with allied professionals such as a certified arborist or a horticultural specialist to assess and document the age, health, and ecological value of existing trees and vegetation to identify which should be preserved. Priority should be given to retaining vegetation with significant size, habitat value, or those providing erosion control, screening, or other important contributions to the site. Invasive species should be identified for removal to limit spread and impact on the plant community in the project and surrounding area. In the case of invasive species removal, it may be necessary to coordinate with an invasive species management specialist, as some species require specific treatment to limit spread.

Landscape architects are trained to understand the overall site, including screening or similar public concerns regarding landscaping. Arborists assist landscape architects and other allied professionals in establishing a Tree Protection Zone (TPZ) in accordance with ANSI A300 and MASS Division 75. Refer to MASS Division 75, Article 2 Construction, D. as well as Section 75.13 Root Pruning and 75.14 Tree Protection Zone Fence for detailed information on tree protection.

Plan documents should show the areas for preservation including the configuration and area occupied by crown/canopy of the trees that are to be retained. Documents should also show protective fencing per Anchorage's M.A.S.S., Section 75.14 & the associated M.A.S.S. detail 75-10 to keep construction

equipment and materials out of the TPZ. Root pruning per M.A.S.S. Section 75.13 and soil aeration may be used as additional preservation measures where necessary

**Wetland Protection:**

Wetlands provide critical habitat and ecological functions that make them vital to Anchorage's ecosystem. Anchorage has mapped and catalogued its wetlands, see Wetlands Management Plan and Wetland Designation Map in Section 3.9 References. For this reason, there are many protections and regulations for any project that occurs within them. For information about permitting of wetland projects, refer to the Anchorage Stormwater Manual (Volume 1&2), contact the U.S. Army Corps of Engineers, MOA Watershed Management Services, or Planning Department. Include timing for permitting in the schedule and budget additional funds for mitigation costs. It is critical to preserve wetlands and their ecosystem services to align with this chapter's goals of sustainable urban design.

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

### 1. Planting Bed Sizes, Shapes, and Location

Proper soil volume (see recommendations below) reduces maintenance, improves safety and plant resiliency providing healthier, more attractive, long-lived vegetation that absorbs more water, reduces noise pollution, and improves community spaces. Providing for bigger tree growth provides more ecosystem services including stormwater mitigation and air quality improvements. It can take a few years after being planted for a 2" caliper tree to provide ecosystem services. Planting soil meeting M.A.S.S. (unless modification is specifically needed) should be provided to meet or exceed the minimum depth. Most roots remain in the top 24 inches of soil, the lateral root spread grows significantly with increasing Diameter at Breast Height (DBH). Thus, when narrow strips of tree plantings are required due to limited ROW, roots are forced to grow in one or two directions only, limiting the lateral stability of the trees. Utilizing structural soils that can handle compaction to provide more macropores for root growth can promote lateral stability.

Certain projects, such as along trails and in parks, offer the opportunity to use existing soils which can minimize costs, promote the establishment of native plant species, and mitigate the risk of introducing invasive species that may accompany imported topsoil.

All planting beds shall have a minimum of 12 inches per M.A.S.S. Section 75.03; however, most landscape beds with trees and shrubs call for at least 18 inches of planting soil depth. Importantly, the soil shall meet requirements as determined by soil tests in accordance with M.A.S.S. Section 75.03. If using salvaged soils, the soil test will provide information as to the need for additional minerals or organics.

- **Tree Planting Bed Size and Shape:**
    - Tree soil volume requirements should be estimated based on DBH, which is generally a more reliable indicator than tree height.
    - The planting bed should provide a minimum 18-inch depth of planting soil to a maximum depth of two feet for tree root development, depending on species and size. Depths greater than this seldom provide for additional root development due to low soil temperatures and available oxygen. Where planting bed width is limited, adequate soil

volume, as described below, is still recommended and may be accommodated through creative planting layout.
    - Massing the vegetation tends to provide increased survivability of plant materials and helps to reduce maintenance.
- **Soil Volume Recommendations for Trees Based on mature DBH:**
    - These guidelines offer the minimum ideal soil volumes needed to support robust root development:

| DBH: | Soil Volume: |
|---|---|
| 4–8 inches | 400–600 cubic feet |
| 8–12 inches | 800–1,200 cubic feet |
| 12–18 inches | 1,500–2,000 cubic feet |
| 18–24 inches | 2,500–3,000 cubic feet |
| 24+ inches | 3,000+ cubic feet |

    - Plant material should be inspected by a landscape architect or horticulturalist before arriving at the project site to verify compliance with M.A.S.S., ANSI Z60.2, and ANSI A300. This includes checking the plants' health and size and verifying plants are pest, disease, and injury free. This review ensures plants arrive in optimal condition and have the greatest likelihood of properly establishing.

## 2. Clustering Plantings Along Roadways

Clustering plantings along roadways may reduce damage from snow removal operations and enhance aesthetic characteristics. Grouping trees and shrubs in planting beds rather than dispersing them evenly along the roadway can minimize conflicts with plowing and snow storage while increasing efficiency of maintenance (Figure 3-1). The dimensions shown in the Figure below (Figure 3-1) align with recommendations from MOA street maintenance and can vary by street size provided projects conform to the maximum and minimum dimensions shown in the figure. These recommendations were developed using precedents such as Elmore Road, which demonstrates a successful example of street amenities and plantings being consolidated for efficient snow clearing and a sufficient room for snow storage. Indeed, adequate spacing of planting beds provides area to accommodate snow storage, ensuring that plants are not buried or damaged by snow clearing equipment. While specific dimensions will vary depending on site conditions, right-of-way width, and maintenance requirements, designs should balance aesthetic appeal with functionality, allowing for safe and efficient roadway operations throughout the year. Consolidating light fixtures and planting clusters may further assist snow maintenance procedures.

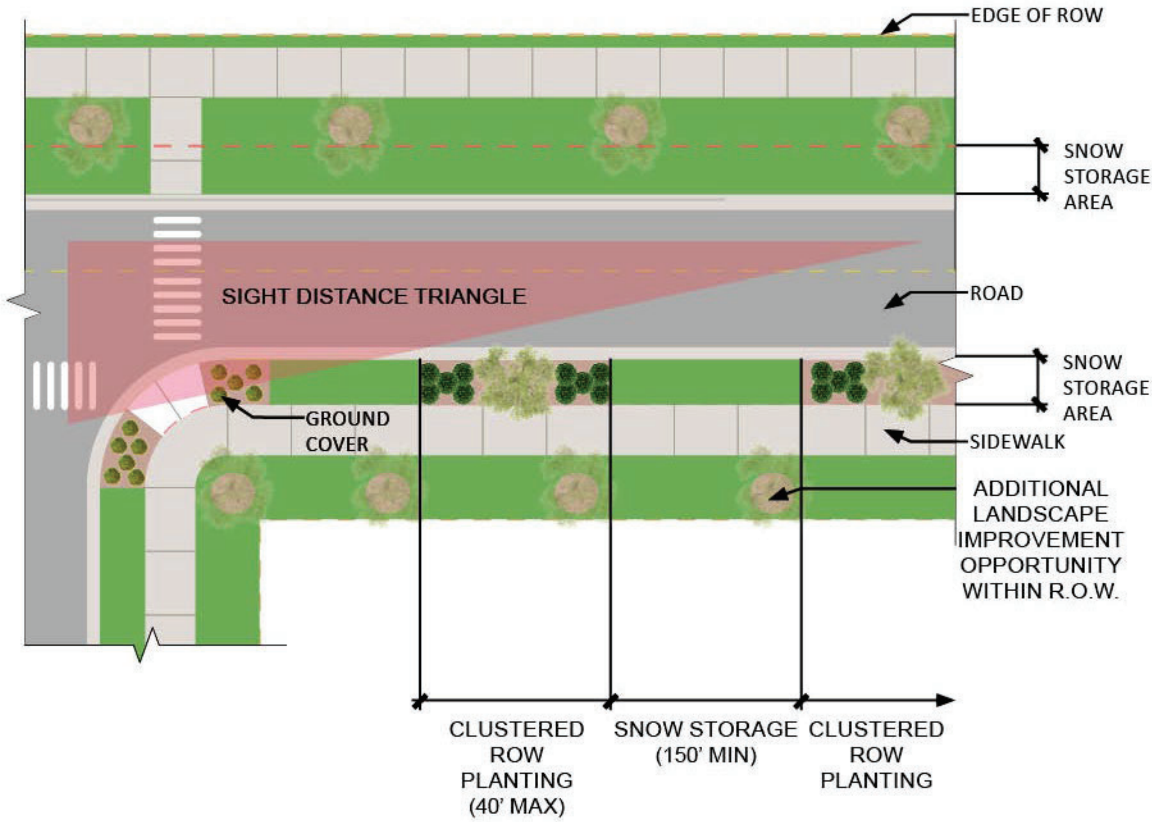


**Figure 3 - 1: Clustered Plantings**

3. Planting Installation Details

Planting installation shall be per specifications and details found in M.A.S.S. Division 75 as well as its applicable standards in ANSI A300 and ANSI Z60.2.

Trees and planting beds within the right-of-way and along roadways pose challenges to plant survival because of the drier conditions, soil compaction, maintenance demands, and other elements typical to urban areas. The details will often show the planting soil brought to the site because the native soil had been removed during construction.

**Watering Rings**:
Trees in lawn areas suffer injury from lack of water, mowing equipment, and string trimmers. New plantings in lawn areas should be established with a well-defined temporary watering saucer, as shown in M.A.S.S. details 75-2, and 75-3, to allow the plant to grow free from grass for 2 to 3 years and provide easy mowing.

**Moose Browse**:
Another consideration for planting details is the potential for moose-browse. In many locations, it is an issue, resulting in the damage or death of plants. Designers should provide moose protection fencing

according to M.A.S.S. Detail 75-11. Fencing should be removed after the maintenance period or once the tree has reached sufficient size to withstand the occasional moose-browse.

**Staking**:
Staking is generally not considered best practice because it can hamper optimal tree growth and, if left unattended, can result in significant damage including scrapped bark and trunk girdling. It should be reserved for areas where there is high wind, a strong chance of third-party damage, or if trees come as "bare root" stock. If used, stakes must be checked regularly for any damage and removed after the maintenance period.

**Tree Guards**:
Tree guards are protective barriers or enclosures placed around the base of young or vulnerable trees. Their primary purpose is to shield the trunk of the tree from potential damage caused by mechanical equipment, animals, environmental factors (e.g., wind, ice), and human activity. While this can provide a temporary benefit to young trees, it can also be a source of damage when not adequately maintained as it can constrain the branches and trunks if they grow beyond the guard. Tree guards should only be used when mechanical injury of some type is expected, when on-going maintenance is assured, or where large concentrations of people are expected to gather.

## 4. Maintenance Practices and Long-Term Care

To ensure project success, landscaping design shall be coordinated with the agency that will provide long-term maintenance to ensure the needs of the landscaping do not exceed the resources of the agency. If the landscaping is located within a municipal ROW, the MOA is responsible for maintenance. Landscaping that is installed in the ROW without a long-term maintenance plan may struggle to thrive and ultimately may be replaced by pavement or topsoil and seed, even if the plantings were still productive by providing infiltration, particle absorption, etc. It is important for plantings to be designed to be durable and long-lasting like other parts of the streetscape. Long-term maintenance may be provided by a non-profit, such as the Anchorage Downtown Partnership, or by a municipal department such as Parks & Recreation. Given the challenges of long-term maintenance, plants will need to be chosen based on their ability to survive without varying levels of maintenance. Depending on site conditions, it may be pertinent to cluster plantings rather than continuous, linear landscaping installations, as concentrated plantings tend to be easier to maintain. Designers shall consider long-term maintenance requirements when determining the size and concentration of plantings along a road.

The short-term maintenance of plantings is described in M.A.S.S. 75.02 Article 2.4. The Plant Establishment Period is generally one year long but can be extended with permission from the Engineer. Following the Plant Establishment Period, the practices and protections below should be applied, when appropriate, to improve the success rate of establishment:

**Inspection and Replacement**:

- Inspect new plantings regularly during the first two to three years. Replace any failed plants promptly to maintain landscape integrity.
- Adhere to standards from ANSI Z60.1 and ANSI A300 to ensure quality and consistency of replacement plant materials.

### Weed and Pest Control:

- Use an Integrated Pest Management program, which can include biological, cultural, mechanical, and/or chemical controls, for the least-toxic option for weed and pest control to minimize chemical exposure and protect Anchorage's water quality.
- All beds should be weed free, and weeding shall be a routine maintenance activity.

## 5. Urban Tree Health Design Considerations

Trees and other vegetation in urban areas must withstand harsh growing conditions with numerous stress factors such as salt, compacted soils, and pollution. Furthermore, trees in urban areas need to have a mature branching height of 80" to accommodate ADA and create comfortable pedestrian areas. Intersections require clear vision areas (site triangles) that limit both tree and shrub plantings to allow visibility. The clear vision area is defined in AMC 21.45.020.

Soil vaults, structural soil, and suspended sidewalks are three design options when planting trees in dense urban areas where trees are under more stress from compaction and seasonal use of salts.

### Tree Vault/Modular Pavement Support System:

Tree vaults or modular pavement support systems are an ideal solution for promoting tree health and stormwater management in densely built urban environments where soil space is limited and adequate funding is available. These systems provide a greater volume of nutrient rich, uncompacted soil while supporting vehicle loads, and capturing stormwater. Many systems are available commercially and have been approved for use by transportation officials.

### Suspended Sidewalks and Structural Soil:

Structural soil and suspended sidewalks can be used to provide an adequate zone for healthy root development by increasing the quantity of soil available to the trees underneath the sidewalk. Suspended concrete spans the planting soil, 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 and requires a way to allow air circulation around the roots. Structural soil, whether used for suspended sidewalks or not, can also be used to create a stable sidewalk base and expand the soil volume for rooting. Supportive aggregate occupies some of the space that would be available for roots increasing soil volume.

### Raised Plantings:

Raised planters and raised curbs can protect plants by elevating them above the ground surface, reducing the potential input of contaminants such as deicing salts, and protecting plants from maintenance damage. Additionally, planter walls absorb warmth from the sun to elevate soil temperatures during the day, which is especially valuable in the spring. Adequate soil volume is still necessary for optimal tree health and to insulate roots to prevent freezing and subsequent damage. Adding insulation to raised planters also reduces the risk of winter damage due to freezing and freeze/thaw conditions. Finally, planting plants that are rated one zone below the site's hardiness zone may reduce plant stress in raised beds.

Generally, raised planters should have a total minimum height of 12" above finish grade to prevent tripping and damage from snow clearing operations. Decorative features such as railings, can be used to meet the 12" height above finish grade.

**Tree Grates**:
Tree grates allow air circulation and water to enter the root zone while providing a safe walking surface for pedestrians. Tree grates should meet current accessibility standards and be specified to ensure that tripping hazards do not occur. The tree grate opening should be designed to accommodate trunk flare diameter and must be regularly inspected and adjusted to ensure there is no contact between the grate and the trunk. Tree grates can incorporate decorative elements that enhance their surroundings and enrich the neighborhood's unique design identity.

## 6. Stormwater Management/Green Infrastructure

Several road typologies offer an opportunity for on-site water treatment and should be incorporated into landscape design. Vegetated swales, biofiltration systems, infiltration basins, and other green infrastructure systems are ideal ways to establish landscapes that can mitigate and enhance stormwater management. Interconnected stormwater systems work with the natural landscape, creating highly productive, diverse ecosystems with significant habitat values while creating safer streets by reducing the risk of flooding and other hazards on roadways.

Landscape projects are site specific, and their success heavily relies on the thorough study and careful design of the pre-construction hydrology, topography, and soils. For information on selecting and installing urban green infrastructure recommended by the municipality, please refer to DCM Chapter 2.

The design of green infrastructure systems requires an interdisciplinary team composed of civil engineers, hydrologists, arborists, and landscape architects. Based on the complexity and the number of variables present, other professionals and scientists may be valuable resources.

Grading and seeding are the most common landscape methods for the treatment of drainage areas. Landscape architects should work closely with the civil engineers to ensure slopes and plantings prevent soil erosion and understand depth and duration of standing water. 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 and woody plant recommendations which are suitable and desired are provided in DCM Chapter 2 as well as M.A.S.S.

Phytoremediation uses plants to clean environmental pollutants in the soil, water, and air. Specific types of plants offer different phytoremediation capabilities; each site and situation must be considered individually depending on desired outcomes. Anchorage has a wide array of woody and herbaceous plant species that thrive under wet conditions in poorly drained, cold, and acidic soils, thus research into which plant species are right for the site and remediation goals should be part of the design process.

Sometimes donor sites may be found that offer prime material for salvaging operations. The salvaging and transplanting of this material may sometimes be done 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.

## 7. Planning for Snow Clearing and Storage

Snow storage along a road may occur in buffers between vehicle lanes and pedestrian facilities, in areas beyond pedestrian facilities where those facilities lack buffers from vehicle lanes, or in the area immediately adjacent to a roadside when pedestrian facilities are not present. These areas are covered by snow and ice for extended periods during the winter. When snow accumulation exceeds the space available in the snow storage area, equipment such as road graders or snow blowers are used to remove snow from these areas. Along Collector and Arterial streets, significant accumulation of road debris, including gravel used to increase traction in icy conditions, can build up in these areas. Summer maintenance of these areas often includes sweeping mechanical brooms to remove accumulated gravels.

Snow storage areas should be excavated and re-graded periodically to mitigate excess accumulation or road debris that can degrade the landscaping in these areas and block drainage paths. Plantings in these areas should be easily replaced and be cost-sensitive. The excavation and re-grading should be included in Capital projects such as pavement preservation projects whenever possible.

Effective snow management is essential in municipal projects to ensure safety, functionality, and the preservation of landscaped areas. Due to Anchorage's conditions as a winter city, it is vital that landscapes support efficient snow clearing and storage practices. Proper planning and implementation minimize damage to infrastructure and vegetation which increases safety by minimizing hazards. Follow these principles:

### Plan for Snow Storage:

- Designate specific snow storage areas during the project planning phase, ensuring they are large enough to accommodate typical snowfall volumes per AMC 21.07.040F.
- Locate storage areas away from sensitive landscapes, pedestrian pathways, pedestrian amenities, and drainage systems to reduce the risk of damage, flooding, and pollution.
- Consider using hardy, salt-tolerant plant species near high-traffic or snow storage zones. Plants with flexible branching are also less subject to breakage, and therefore, more resilient in these areas.

### Understand Snow Removal Techniques:

- Learn what equipment the client will use, ideally it will minimize impact on pavement and landscape features, such as rubber-edged blades or snow blowers.
- Design landscapes to accommodate the equipment, including the turning radius of machinery. Tree branching should not impede snow clearing, and shrubs/perennials should have a form which will not spread into the sidewalk clear space.
- Train operators to avoid piling snow against tree trunks, shrubs, or landscape structures. Update them about new landscape installations, so they are aware of changes and may operate accordingly.

### Mitigate Salt and De-Icer Impact:

- Understand the use of salt and de-icing products near landscaped areas and consider vegetated filtering methods and plants that are tolerant of these products.
- Include measures to direct salt and de-icing runoff away from plant beds and into appropriate drainage systems, unless green infrastructure is being used.

### Integrate Design Solutions for Durability:

- Incorporate permeable materials in designated snow storage areas to facilitate drainage and reduce ice buildup.

- Design hardscapes and pathways to accommodate snow-clearing equipment without damaging edges or adjoining landscapes.
- Use raised planting beds, when possible, to protect planting material from snow clearing operations.
- Consider snowmelt systems on sidewalks where pedestrian use is highest.
- With proper planning and thoughtful design, snow clearing and storage practices can protect municipal investments while maintaining accessibility and safety throughout the winter season.

Woody plant material in snow storage areas adjacent to sidewalks and streets often suffers damage during winter. Where cluster plantings are proposed, woody plant material should be two feet from back-of-curb and are allowed outside of snow storage areas in non-clustered plantings. In addition, where space is available, a two-foot accent concrete apron may be installed adjacent to curbs to reduce maintenance and improve the appearance of the street landscape (Figure 3-2). While grass is typically used in snow storage areas, perennials, and/or other herbaceous plants should be considered in lieu of grass in locations where plow damage will not remove herbaceous root stock.

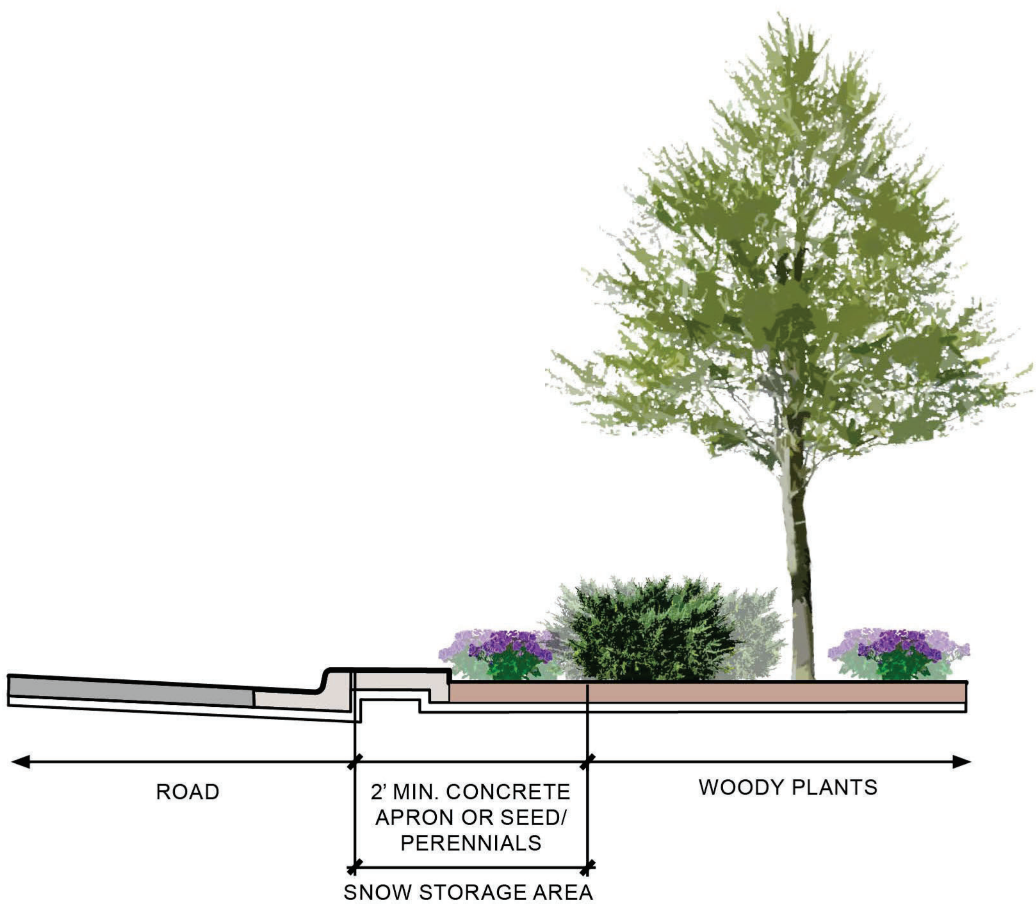


**Figure 3 - 2: Snow Storage Area Without Cluster Planting**

8. Irrigation

Permanent irrigation systems are not recommended for municipal projects due to the high cost of maintaining and operating such systems. Climate adapted design that utilizes native species does not need supplemental irrigation once established. If irrigation systems must be used, temporary low-maintenance drip systems that conserve water and target plant roots directly are preferred.

### 3.3 C Plant Selection

In a well-designed landscape plan, plants are carefully selected and arranged to perform a myriad of functions. The following information is intended to provide guidance in this process.

**Species Selection:**

- Projects should prioritize selecting native plants and plants that are adapted to Anchorage's climate, can tolerate the conditions of an urban environment, and support local biodiversity. Ensure that the species will be successful in urban settings with conditions such as compaction or salt pollution.

- Design professionals should be familiar with municipal, state, and federal lists and regulations for invasive species. Invasive species should not be specified. Invasive species found in existing vegetation should be removed and replaced with a suitable alternative.

- The Alaska Center for Conservation Science at the University of Alaska Anchorage has information about invasives and species that are an ecological risk. Alaska Exotic Plants Information Clearinghouse (AKEPIC) database portal offers up-to-date information on invasive species.

- Plants that are known to be toxic to moose or other animals should not be used.

**Hardiness:**

- The Anchorage Bowl falls within USDA hardiness Zones 1 through 5 and microclimates may additionally modify these zones. Designers must consider plant hardiness, wind tolerance, and moisture needs when selecting a species. As the climate in Anchorage continues to change, reference the most recent version of the USDA Plant Hardiness Zone Map to ensure the correct hardiness zone is being used. In addition to climate changes, rain and snow quantities are also changing and must be considered. Finally, it is important to understand growing degree days (GDD) to select appropriate, hardy plants that work where the growing season is short and cool.

- Microclimates are localized variations in climate conditions caused by factors including elevation, wind and sun exposure, and nearby vegetation and structures. In Anchorage, open areas or elevated sites experience harsher winds, which can damage plants and dry out soil. Areas near buildings and paved surfaces may experience warmer temperatures from heat retention or cooler zones in shaded spots. Snow accumulation from plowing or drifting, as well as ice melting runoff

from roofs, can further create unique challenges to microclimates. Recognizing variations is crucial for selecting plants and designing layouts that fit each site’s specific conditions.

**Environmental Impact:**

- Plants that attract pollinators and wildlife, including birds, should be selected whenever reasonable. While careful consideration is needed to ensure that wildlife will not pose any safety risks and large fruits don’t create barriers to those with physical disabilities, streetscapes can play a key role in supporting small-scale ecosystems and a healthy robust urban environment, especially when connected to a larger green network.

- Using a variety of plants enhances habitat by improving biodiversity and can create a lower-maintenance planting that responds better to pests and disease.

**Maintenance:**

- Designers should discuss with the owner (MOA or private) and their respective maintenance departments the various levels of maintenance that would be expected for a given finished project and select plants accordingly.
- The availability of water during the establishment period should be considered to ensure plants are properly watered per M.A.S.S. 75.02.6B.

- Consider whether species have maintenance impacts including fruit drop, extensive/shallow root systems, or aggressively spread to determine if they are appropriate for the site.

END OF SECTION 3.3

## SECTION 3.4 STREET LANDSCAPE

Landscaping along municipal streets serves functional purposes such as improving pedestrian safety, managing stormwater, improving air quality, reducing noise, supporting ecological health, calming traffic, enhancing life quality, offering habitat, and improving social well-being. The landscape goals vary per street typology and context of each street. This section covers general considerations for new landscaping along streets, followed by a more specific look at each street typology depending on its setting- urban center, urban area, or rural area.

### 3.4 A New Landscaping

Often the ROW is very limited, and in these situations, planting priorities should be towards safety and function, such as space delineation, traffic calming, stormwater management, etc., depending on site conditions. When ROW space allows, greater consideration is afforded to other elements that enhance the overall public space. Streetscape designs involve several considerations including visibility, long-term maintenance, and snow storage discussed earlier as well as the following:

#### 1. Public Process

All new construction or reconstruction projects involving streets and highways of collector or greater designation are required to have a site plan/landscaping review by the Planning and Zoning Commission or Urban Design Commission as mandated in AMC 21.03.190, although there are currently no requirements in code for providing landscape within the ROW. However, landscaping on roads significantly improves the streetscape by using the methods outlined in this document to create safer streets and complement the livability and character of neighborhoods. The community also benefits from improvements such as noise pollution reduction and increased stormwater infrastructure. This section includes design criteria and establishes standards for landscaping improvements of all types of municipal streets.

#### 2. Utility Conflicts

The ROW is used for many different types of infrastructure, with a primary use being overhead and underground utilities. The location of these utilities must be considered and may have an impact on the available planting space and plant locations. Additionally, plants grow at a relatively slow pace in Anchorage because of the climatic conditions and cold soil. Thus, if plants are planted over utilities, it is important to consider future maintenance of utilities when designing the plantings or streetscapes by choosing plants and ground treatments that can be easily and economically replaced when utilities need to be maintained. See State of Alaska Utilities website listed in Section 3.9. References.

#### 3. Visibility Triangles

The term “Visibility Triangle” refers to the area at an intersection or driveway approach that is maintained free of visual obstructions to allow roadway users to perceive the presence of other, potentially conflicting users. Designs shall follow criteria in DCM Chapter 1 in providing visibility triangles for all users including drivers, bikers, and pedestrians at driveway and intersection approaches. Where visibility triangles are not necessary because all approaches are controlled, designs shall provide a pedestrian and/or bicycle visibility zone on all intersection approaches (Figure 3-3).

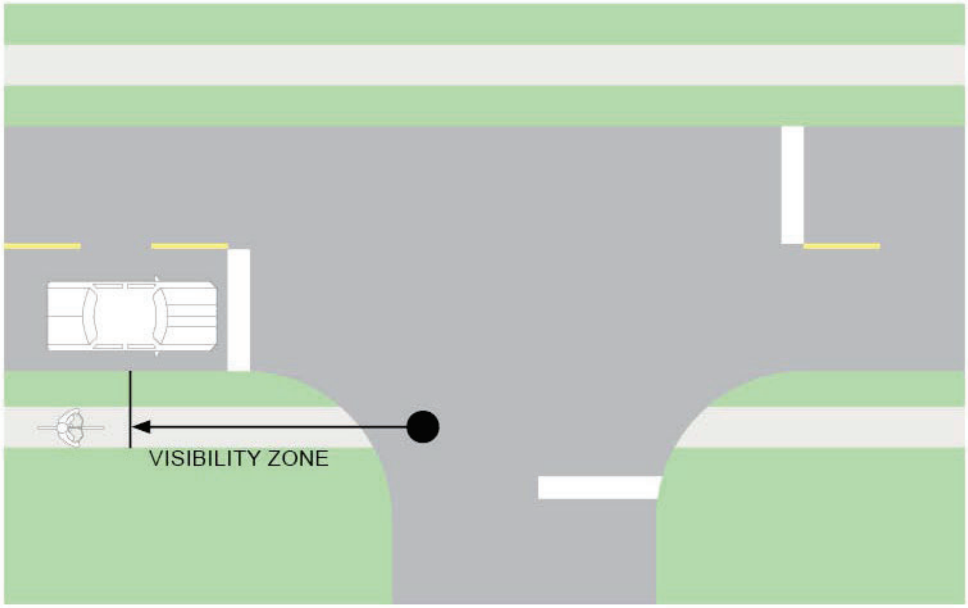


**Figure 3 - 3: Visibility Zone**

AMC 21.07.080F.2.b references “Clear Vision Area Requirements”. Shrubs that need aggressive pruning to maintain a height below twenty-four inches are not allowed. Trees must not branch below 8’ height from adjacent paved area. 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. Additionally, trees in visibility triangles should be spaced apart such that, cumulatively, mass plantings do not obscure the driver’s vision of oncoming traffic. For information about Visibility Triangles refer to Chapter 1 of the DCM. Other organizations and owners, such as AASHTO, NACTO, and DOT, have their own standards that must be followed if necessary for the project.

### 4. Clear Zones

As defined in DCM Chapter 1, the clear zone is the total roadside border area, starting at the edge of traveled way, available for safe use by errant vehicles. The desired width of the clear zone is dependent on the traffic volume, design speed, and roadside geometry. Designers should work with the project engineer to determine the appropriate clear zone and ensure that any landscaping and site elements do not present hazards within it.

### 5. Funding

Some sources of funding (particularly from Federal transportation sources) have limitations that prevent them from being used to fund landscaping improvements. In these cases, it is necessary to seek alternative funding sources such as municipal bonds or state grants to pay for project landscaping. Funding limitations can be particularly problematic where ROW acquisitions are needed. It may not be possible to include space for landscaping in ROW acquisitions if the funding has limitations that exclude landscaping.

## 3.4 B Landscaping in Urban Centers

Landscaping varies by street classification, from major arterials to local roads, and is specific to urban centers, urban areas, and rural contexts. Road classifications are provided in the OS&HP, and the classification designations are defined in Chapter 1 of the DCM. Adjacent land uses are categorized as "Urban" (or "Class A" in AMC Title 21) or "Rural" (or "Class B" in AMC Title 21). See table below for zoning associations with these classes (Figure 3-4).

| TABLE 21.08-1: IMPROVEMENT AREAS DEFINED | | |
|---|---|---|
| District Type | Class A | Class B |
| Residential | R-1<br>R-1A<br>R-2A<br>R-2D<br>R-2M<br>R-3<br>R-3A<br>R-4<br>R-4A<br>R-5 | R-6<br>R-7<br>R-8<br>R-9<br>R-10 |
| Commercial | B-1A<br>B-1B<br>B-3<br>RO<br>MC | |
| Downtown (DT) | B-2A<br>B-2B<br>B-2C | |
| Industrial | I-1<br>I-2<br>MI | |
| Other Districts | A | TA<br>WS |

**Figure 3 – 4: Zoning Classification**

### 1. Streets in Urban Centers

Per the Anchorage 2040 Plan, City and Town Centers, Main Street Corridors, and Transit-supportive Development are streetscapes that promote pedestrian use in an urban setting by having compact and dense land-use and safe, interesting pedestrian spaces. These areas are focal points for community and commerce as they exhibit the highest degree of interaction between different land uses. Streetscapes should be designed to facilitate window-shopping and enjoyable pedestrian spaces (Figure 3-5). Sidewalks for storefronts and buildings should have a minimum six-foot wide clear zone for efficient pedestrian circulation and a two-foot friction zone for a storefront viewing area. Wherever possible, all objects within the site furnishings area, including plantings, signage, furnishings, etc., shall be consolidated to minimize obstructions and spaced a minimum of 6 feet apart to allow for mechanized snow clearing. It is particularly important to have street trees because of the direct positive functional, environmental, and economic benefits. This includes calming automotive traffic in pedestrian-oriented streetscapes, improving ecological resiliency, and improved public perception resulting in increased public patronage. Refer to DCM 3.3B.4 for information about planting methods for street trees on urban streets. In the downtown area, landscape standards for sites adjacent to the ROW are provided in AMC Title 21.11.

Collector and arterial streets in city and town centers should also provide a minimum two-foot setback from the back of curb to any **streetscape elements**, such as parking meters, trash receptacles, hanging baskets, tree guards, raised planters, or light posts. This setback is the minimum required for pedestrian safety and provides space for temporary snow storage and access to curbside parking. Per the MOA *Our Downtown Plan*, sidewalks along designated "Pedestrian-oriented mixed-use streets" should have at least 8–12 feet of clear width. See the Anchorage *Our Downtown Plan* for additional information.

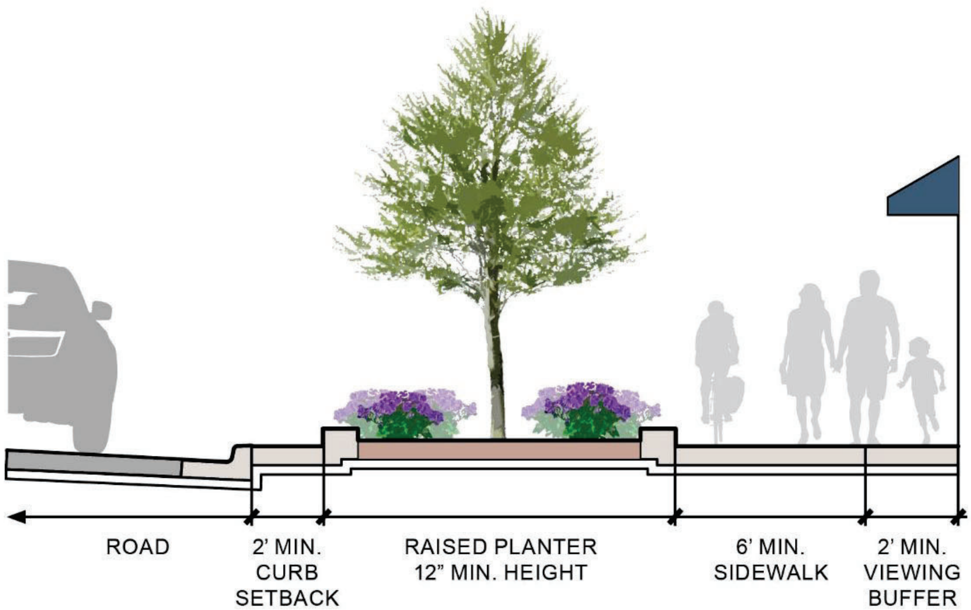


**Figure 3 - 5: Urban Center Street - Raised Planter**

For residential areas in Urban Centers, it is important to create streetscapes that assist in private and public space delineation and use Crime Prevention Through Environmental Design (CPTED) practices to foster feelings of safety. Per the MOA *Our Downtown Plan*, landscaping between residential buildings and the street is encouraged. Using landscape elements to soften the urban fabric can be a powerful tool in creating inviting residential streets (Figure 3-6).

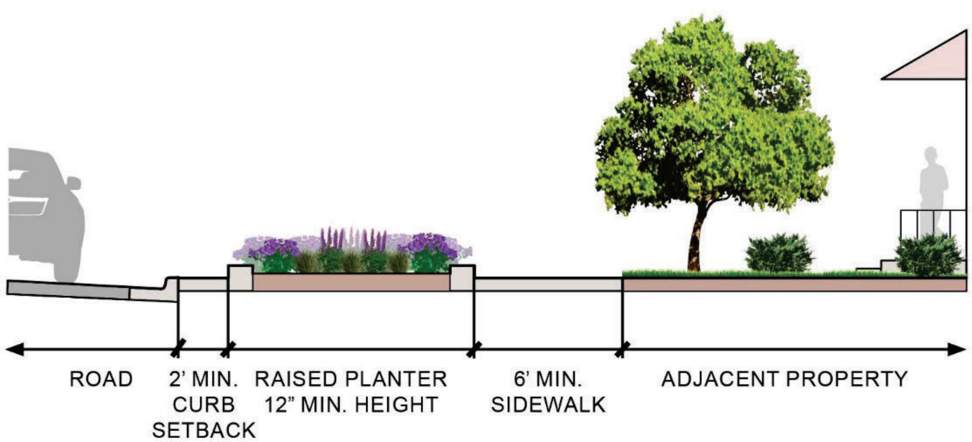


**Figure 3 - 6: Urban Center Street – Residential**

## 3.4 C Landscaping in Urban/Class A Areas

### 1. Major Arterial (Class III)

Major Arterial streets have high traffic volumes where separation is desired between the back of curb and pedestrian facilities to provide increased pedestrian comfort as well as snow storage area. Landscaping along major arterials has a significant role in defining the different functional zones (pedestrian, vehicle, bicycles, green infrastructure, etc.) within the road section as well as providing environmental benefits by creating a larger network of green space, improving air quality, reducing and improving run-off, protecting neighborhoods by providing buffering, and improving aesthetics. Visibility triangles address safety issues by allowing drivers to see adjacent pedestrians or wildlife activity. A grass or perennial strip for snow storage and utilities should be provided between the back of curb and sidewalk appropriately sized per the DCM Chapter 1 and Figure 3-7. In a case-by-case basis, perennials may be accepted in lieu of grass seed if their root systems are located so that they will not be injured by snow clearing machinery.

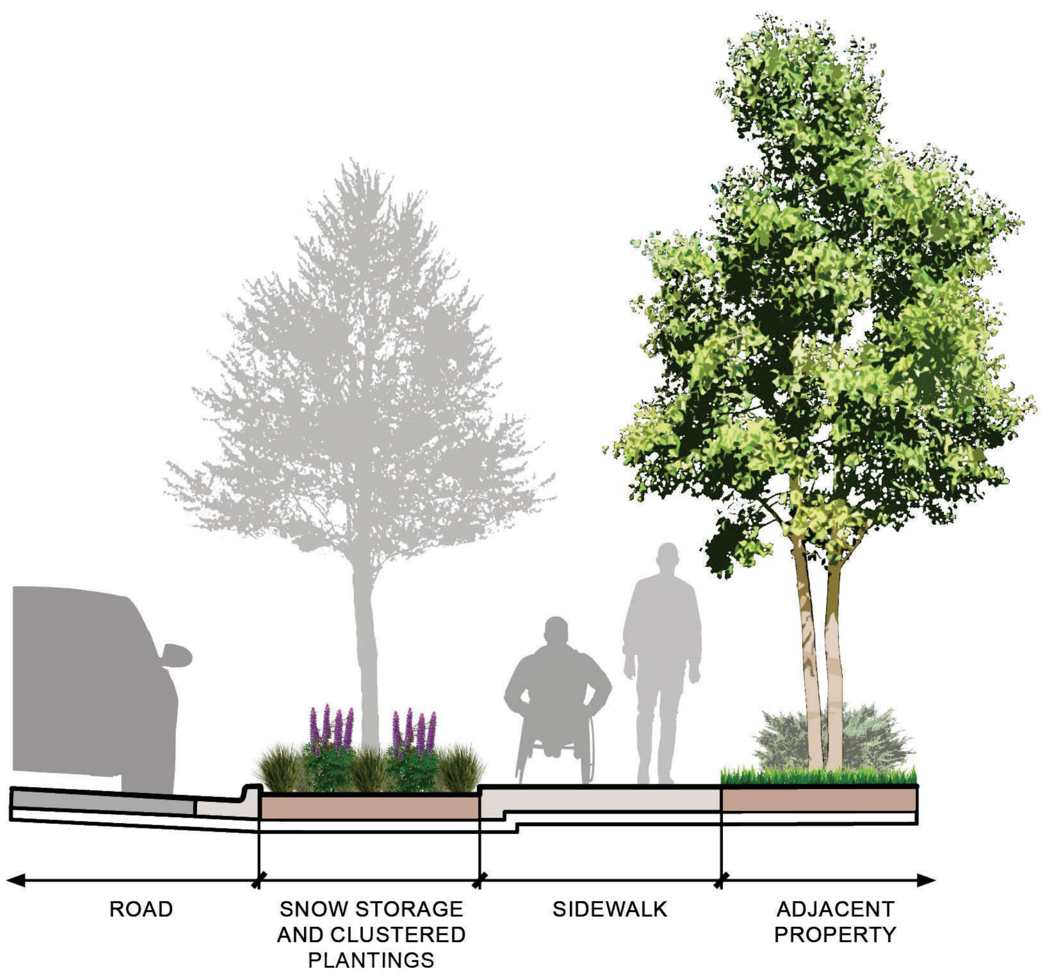


**Figure 3 - 7: Urban Major Arterial Street**

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 (2:1 to 3:1 slope) or elevated with raised curbs or planters to provide less exposure of plant material to road salts (Figure 3-8). Double curbs should be considered for arterial roads to provide necessary protection for plant material. If no curbs are present and the median is a swale, generally trees should not be planted except where adequate width exists, and always outside of the swale flowline. Channeling or diverting runoff into medians, planting strips, and other landscape beds can provide water input which can increase plant survival in addition to stormwater filtration and absorption. Medians are often exposed to far more wind and sun than areas along the sides of roadways which benefit from the protection of adjacent forests or structures.

The designer should carefully consider the long-term maintenance the landscaping will receive and specify plant material that can withstand the harsh conditions found in roadside environments. On these roads with high volume and speeds, it is especially important to select plant material that does not provide moose browse.

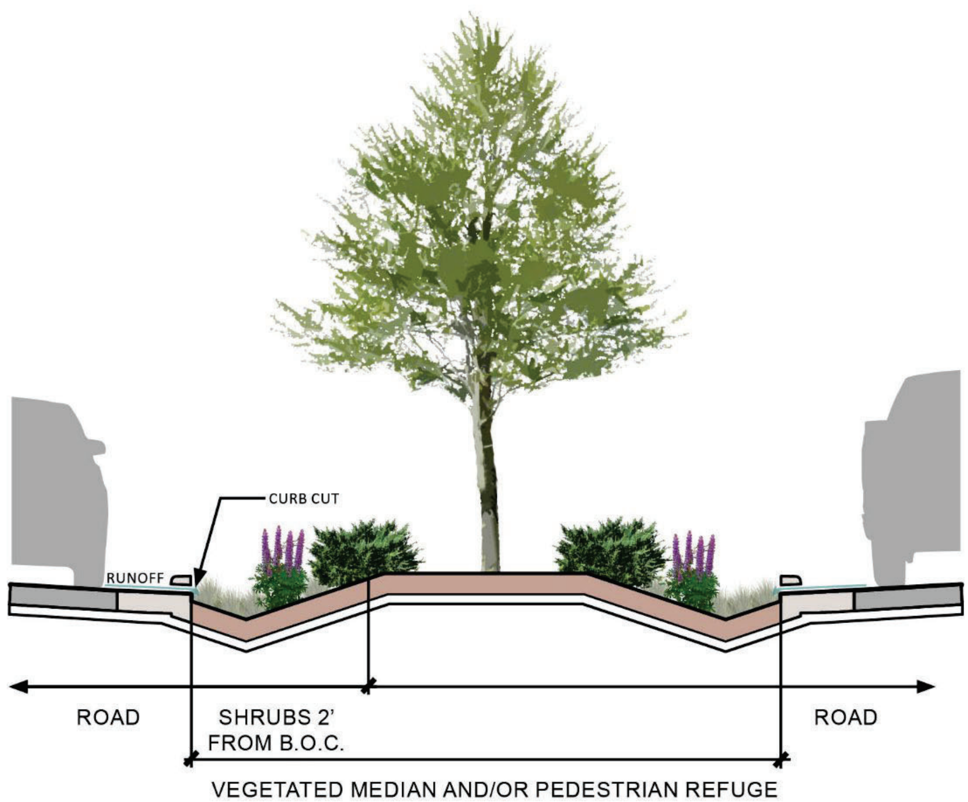


**Figure 3 - 8: Urban Major Street Arterial – Median**

### 2. Minor Arterial (Class II)

The landscape treatment of minor arterials should be like that of major arterials. However, lower traffic volumes and typically lower speeds may reduce the need to provide specific attention for adjoining properties, depending on the location and available ROW. As with Major Arterials, an area for snow storage and utilities should be provided adjacent to the curb with limited obstructions and/or landscaping. Reference Class A Major Arterials (above) for street tree and landscape buffer discussions.

### 3. Collector Streets (Class I)

Collector streets are generally lined with residential properties where an attractive landscape is beneficial to the neighborhood's overall visual character. 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 (Figure 3-9). Consideration should be given to placing underground utilities as close to the curb as possible to minimize conflicts with area residences.

The strip between the travel way and sidewalks/trails could be seeded, used for stormwater management, or depending on site conditions, planted with trees and shrubs in clusters. Additional landscaping can be placed to the outside edge of the ROW adjacent to the property lines.

Similar to arterials, if trees are present in the median, there should be a curb, and the planting bed should be mounded. If the median has a swale for stormwater management, trees should not be located in the swale line.

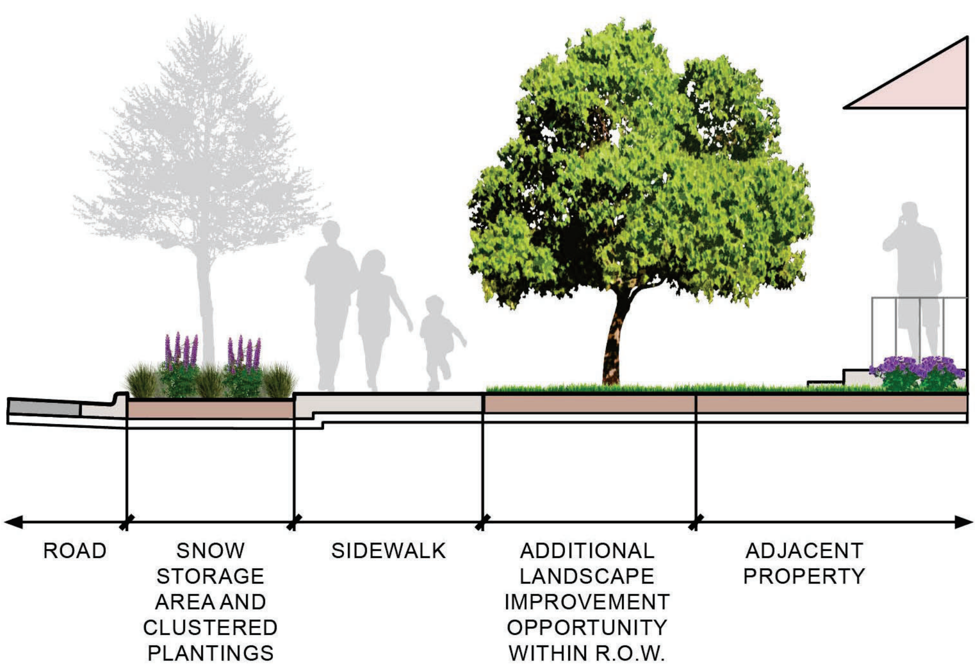


**Figure 3 - 9: Urban Collector Street**

### 4. Local Streets

Landscaping on local roads is often limited due to the sight-distance triangles of the driveways that line the streets. Landscaping on these streets will need to be very site-specific and preserving existing vegetation should be a primary focus. When applicable, streetscape design for these roads should align with those of collector streets.

### 3.4 D Landscaping in Rural/Class B Areas

Class B streets are built with strip-paved road sections without curbs. The drainage is handled in roadside ditches that also store snow throughout the winter without hauling. These conditions are ideal for the implementation of green infrastructure as outlined in DCM Chapter 2 Volume 1.

Rural streets benefit from the separation of sidewalks or side paths from roads for safety and maintenance. Utility installations are most desirable under trails and road areas to avoid conflict with the landscape installation.

1. Major Arterial (Class III)

A primary goal of landscape along Major Arterials in rural areas is to buffer residential or public use areas from traffic. To improve the pedestrian experience in these rural areas and improve ecological function, green infrastructure such as vegetated swales are used to provide stormwater capacity and pedestrian buffers (Figure 3-10). Channeling or diverting runoff into medians, planting strips, and other landscape beds can provide water input, which can increase plant survivability. In swales for stormwater management, whether on the side of the road or in a median, trees should not be planted in the bottom of the swale. However, where the distance between the road and sidewalk is wide enough, additional plantings can be added for a combined swale and landscape planting bed (Figure 3-12).

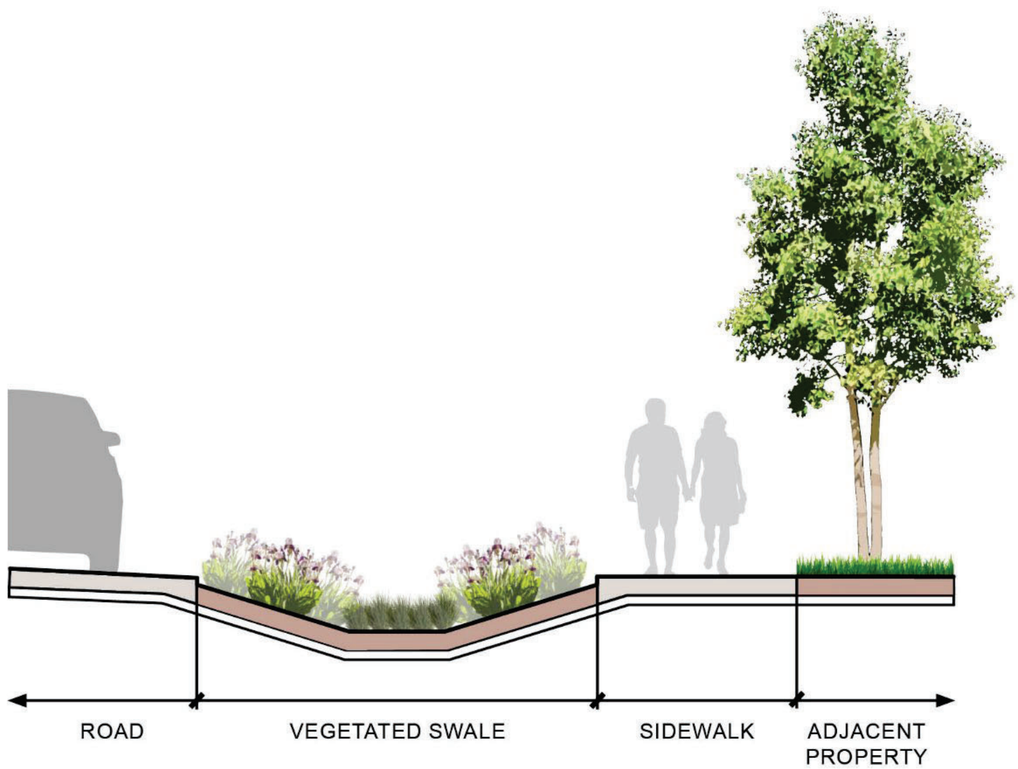


**Figure 3 - 10: Rural Major Arterial**

2. Minor Arterial (Class II)

The design of Minor Arterials in Class B are like those in Class A, but without curb and gutter. The area between the road and sidewalk is intended for snow storage and drainage (Figure 3-11).

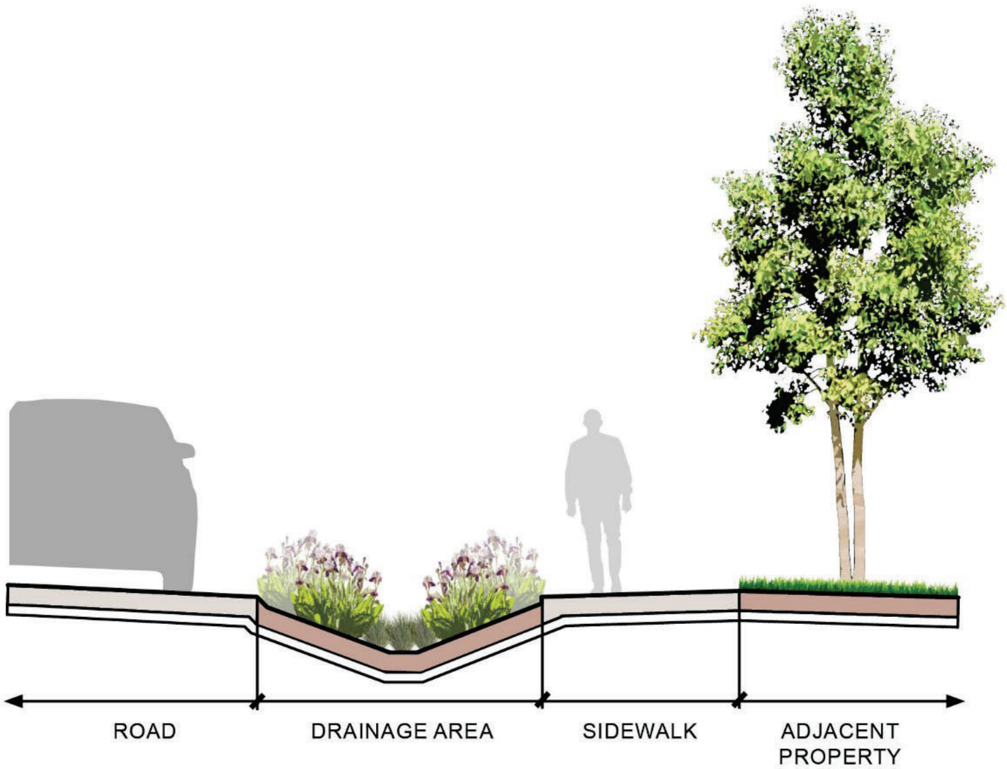


**Figure 3 - 11: Rural Minor Arterial**

Rural locations may offer opportunities for an enhanced multi-use trail experience by using landscape in some locations as buffers between users and vehicles. Where ROW allows, drainage and landscape areas can be combined for greatest safety while maintaining function (Figure 3-12). Similar to planting in medians, trees should be kept out of the swale flowline.

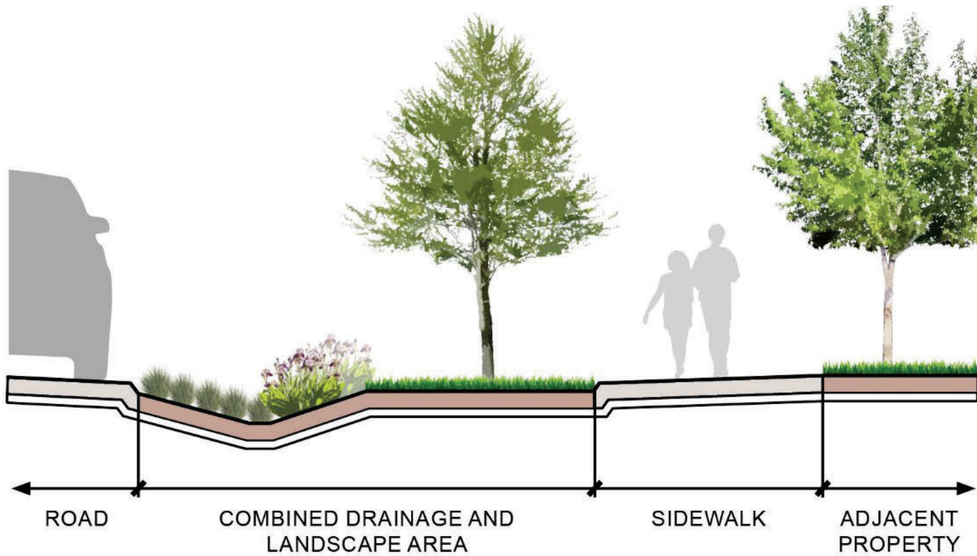


**Figure 3 - 12: Rural Minor Arterial - Landscape Buffer**

3. Collector Streets (Class I)

These streets are typically lined with residential properties where a comfortable, attractive streetscape benefits the neighborhood's overall visual character. Plantings should be tied to the landscaping provided by adjacent residential properties where possible. The treatment of Rural/Class B Collector Streets should be similar to Rural/Class B Minor Arterials (Figure 3-13). If the snow storage area is not being used for drainage, trees and shrubs may be planted in clusters that allow for efficient snow management.

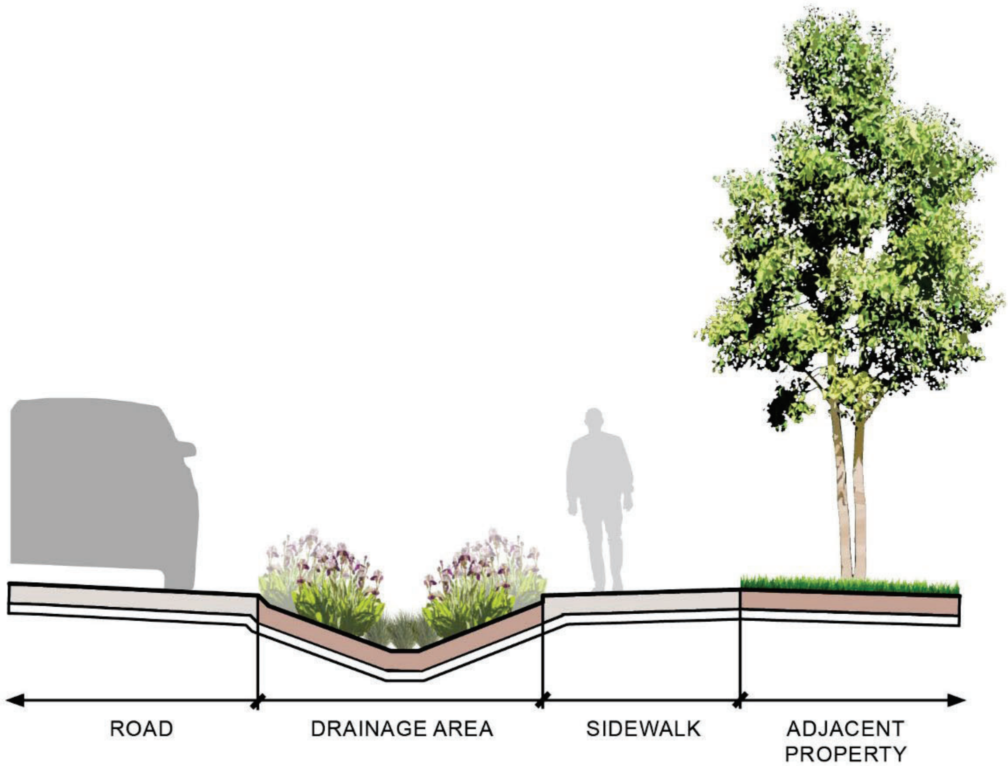


**Figure 3 - 13: Rural Collector Streets**

4. Local Streets

Similar to urban local streets, landscaping on rural local roads is often limited due to the sight-distance triangles of the driveways that line the streets. Landscaping on these streets will need to be very site-specific and preserving existing vegetation should be a primary focus. When applicable, streetscape design for these roads should align with those of collector streets.

END OF SECTION 3.4

## SECTION 3.5 CONSIDERATIONS FOR ADDITIONAL RIGHTS-OF-WAY FOR LANDSCAPE

ROW is seldom sufficient to meet all the needs for roadway, snow storage, paths, sidewalks, and landscaping. Designers should seek creative means to solve issues resulting from competing demands. Art, fencing, or screening panels are often an appropriate amenity that can be employed in tight spaces or places where plant materials may not survive.

While not common practice, there may be occasions where purchase of additional ROW should be considered. These decisions require close coordination between the project manager, the engineer, the arborist, and the landscape architect. A significant part of this determination will be 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 “A Strategy for Developing Context Sensitive Transportation Projects” for direction on integrating the public into project decisions.

Designers should weigh the following in determining whether additional ROW is necessary:

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

END OF SECTION 3.5

## SECTION 3.6 PUBLIC OPEN SPACE AND PARKS PROJECTS

Parks play a significant role in providing recreational green space to communities and are often core areas for ecological function within cities. It is important that street projects and park projects are aligned in their goals and work together to create a strong green network system. Additionally, park projects are subject to many of the same aspects of development as building and road projects.

### 1. Municipal Code Review

While parks are seen as compatible elements of neighborhoods, significant development can be controversial. Parking lot, landscaping, and Site Plan Review requirements should be addressed early in proposed plans. Municipal projects are required to go through the approval process per AMC 21.05.040G.2. The exact requirements of these reviews can vary depending on the size of the project.

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 must be presented to the appropriate commission prior to being scheduled before the Planning and Zoning Commission.

Depending on the project, additional code requirements may need to be satisfied, for example, projects that provide parking are subject to the requirements of AMC 21.07.090H.3 for parking lot landscaping. Park projects may require a Stormwater Pollution Prevention Plan (SWPPP) prepared, something that is typically placed on the contractor through the special provisions for contracted work.

### 2. Streambank Protection and Restoration

The many waterways that run along municipal lands are essential to the local ecosystem. Some projects, such as bridges and culvert upgrades, may require the need to clear out the streambanks for construction. When this is the case, it is vital that proper protection and restoration efforts are made to revegetate the area and improve the quality of the wetland area to uphold the integrity of the waterway. Refer to guides such as Stream Bank Revegetation and Protection- A Guide for Alaska by the Alaska Department of Fish and Game for information about different revegetation techniques. For information about permitting of wetland projects, refer to the Anchorage Stormwater Manual (Volume 1&2), contact the U.S. Army Corps of Engineers, MOA Watershed Management Services or MOA Planning.

### 3. Design Goals

It is important for street and park projects to work together to enhance the community. These projects are significant components of transportation connections and creating a system of green corridors. The following values should be considered to better align park and streets projects:

**Equity and Cultural Identity:**

- Design parks and pathways to be accessible for individuals of all abilities and ages by incorporating accessible pathways, seating, and amenities where possible and incorporating planning for proper maintenance of facilities throughout the year. Refer to DCM Chapter 4 “Trails” for additional guidelines for trails and pathways to provide seamless transitions between on-street facilities and trails for non-motorized users.
- Use place-based design to reflect the natural and cultural context of the surrounding community by using interpretive signage, traditional art, and culturally significant plantings.
- Blend municipal and private landscaping to create a cohesive look and identity throughout a community.
- Use art, plantings, and other design elements to create distinctive patterns and visuals to support and strengthen identity.

**Sustainability and Environmental Stewardship:**

- Creating a robust green network anchored by municipal park land to create more resilient urban landscapes.
- Creating and maintaining quality habitat for local and migratory species.
- Use native and climate-resilient plant species to enhance biodiversity and reduce maintenance.
- Work with street projects to create comprehensive stormwater management features.
- Create cohesive plans to adapt and protect the ecological function of a site for it to perform well. This is especially important for parks that are within or near estuaries or wetlands that have critical ecological systems.

END OF SECTION 3.6

## SECTION 3.7 SCREENING AND BUFFERING OF PARKING LOTS, BUILDINGS, AND OTHER DEVELOPMENTS

Effective screening and buffering are essential for mitigating the visual and environmental impacts of different development projects. Thoughtfully designed landscaping promotes safety by delineating pedestrian and vehicular spaces, defining public and private space, and improving visibility. Plantings, especially when designed with green infrastructure systems, can improve stormwater management, reduce urban heat island effects, and enhance green corridors. These measures ensure that private development can contribute positively to Anchorage's urban landscape, aligning with the broader goals of sustainability, functionality, and community well-being outlined in this chapter.

Anchorage Municipal Code Title 21 provides guidance on the minimums required for buffering and screening of parking lots and buildings, including planting bed areas, plant counts, among other design features. Refer to AMC 21.07.080 for requirements for screening. Standard planting details are provided in M.A.S.S. Div. 75.

END OF SECTION 3.7

## SECTION 3.8 GLOSSARY

**CLIMATE ADAPTED DESIGN:** the practice of designing spaces that respond to and mitigate the impacts of climate change. It emphasizes using native species in resilient planting strategies, water management systems, and site-specific solutions to address issues like extreme weather, rising temperatures, and biodiversity loss, ensuring sustainable and functional landscapes for future conditions.

**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. This method seeks to achieve community building by inclusion of the public throughout the decision-making stages of project development. These procedures seek 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. The process is described in A Strategy for Developing Context Sensitive Transportation Projects as adopted by the Municipality of Anchorage on 10/14/2008.

**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.

**TREE PROTECTION ZONE (TPZ)**: defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development. The TPZ should encompass the CRZ, based on the judgement of the arborist.

END OF SECTION 3.8

## SECTION 3.9 REFERENCES


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END OF SECTION 3.9

**DCM 7 Public Review Draft**
**Comment Summary 2025**

**DCM 7 UPDATE**

| Section | Article | Comment | Response |
| --- | --- | --- | --- |
| N/A | N/A | I wish the Eagle River Transit Center had access to the heated waiting area. The door has been locked for a long time, and the clock has not worked for years. Currently, we have to wait for the bus in the cold. Since there are no longer any bus stops past the transit center going into Chugiak, we also need a place to wait for another ride. I have been relying on nearby businesses, like Taco Bell, to warm up after getting off the bus when I could be using the infrastructure built for this purpose. | People Mover is in the process of writing FTA funding paperwork to re-open the ERTC. When the ERTC reopens is will have heat, security cameras , new glass, and time locks on the doors. People Mover is in the early stages of aquiring the fudning and improvments aren't expect to occur for several years. |
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# DESIGN CRITERIA MANUAL

# CHAPTER 7

# PUBLIC TRANSPORTATION

**MUNICIPALITY OF ANCHORAGE**

**PROJECT MANAGEMENT &**
**ENGINEERING DEPARTMENT**
**AND PUBLIC TRANSPORTATION**

**D-R-A-F-T**
**NOVEMBER 2025**

**DESIGN CRITERIA MANUAL**
**REVISION LOG**

## Chapter 7 – Public Transportation

| Rev. No. | Date Executed | Description | Sections Revised or Added | New/*Revised* Template |
|---|---|---|---|---|
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## Acronyms and Abbreviations

| | |
|---|---|
| AADT | annual average daily traffic |
| AASHTO | American Association of State Highway and Transportation Officials |
| ABA | Architectural Barriers Act |
| AC | asphalt concrete |
| ADA | Americans with Disabilities Act |
| ADAAG | Americans with Disabilities Act Accessibility Guidelines |
| ADT | average daily traffic |
| ALUM | aluminum |
| ANSI | American National Standards Institute |
| ASTM | American Society of Testing Materials |
| AWS | American Welding Society Specifications |
| CITY BUS | AASHTO City Bus |
| CBD | Central Business District |
| DCM | Design Criteria Manual |
| DOT&PF | State of Alaska Department of Transportation and Public Facilities |
| DPW | State of Alaska Department of Public Works |
| FHWA | Federal Highway Administration |
| Ft | feet |
| ELEC | electricity |
| GALV | galvanized |
| IAW | in accordance with |
| In. | inch |
| Lb. | pound |
| LOS | level of service |
| MASS | Municipality of Anchorage Standard Specifications |
| MUTCD. | Manual on Uniform Traffic Control Devices (FHWA) |
| OS&HP | Official Streets and Highways Plan |
| NCHRP | National Cooperative Highway Research Program |
| Max | maximum |
| Min | minimum |
| MOA | Municipality of Anchorage |
| MPH | miles per hour |
| PCC | Portland Cement Concrete |
| PGDHS. | Policy on Geometric Design of Highways and Streets (AASHTO) |
| PM&E | Municipality of Anchorage Project Management and Engineering |
| PROWAG | Public Right-of-Way Accessibility Guidelines |
| PTD | Municipality of Anchorage Public Transportation Department |
| PUE | Public Use Easement |
| ROW | Right-of-Way |
| TYP | typical |
| USDOT | United States Department of Transportation |

## GLOSSARY

**ADA ACCESSIBLE ROUTES**
A continuous, unobstructed path connecting all accessible elements and spaces of a building or facility. This path must be usable by individuals with disabilities, including those using wheelchairs or other mobility devices.

**APPROACH ANGLE**
The maximum angle of a ramp onto which a vehicle can climb without the front of the vehicle hitting the ground before the tires.

**CURBSIDE BUS STOP**
An on-street bus stop is characterized by the bus stopping in the travel lane, parking lane, at curb extensions, or on an improved shoulder. Separate bus-only areas are not provided. These stops are typically found in major commercial districts.

**DEPARTURE ANGLE**
The steepest ramp angle from which the vehicle can descend without the rear bumper or undercarriage hitting the ground.

**HARDSCAPE**
A constructed feature used in landscape or facility infrastructure such as pathways, sidewalks, and bus pads.

**MAJOR GENERATORS**
A bus stop that produces a significant number of users exceeding the typical threshold of average bus stops.

**MICRO TRANSIT**
Technology-enabled service that uses multi-passenger vehicles to provide on-demand services with dynamically generated routing. Micro transit services are traditionally provided in designated service areas (zones).

**ON-STREET BUS STOP**
Bus stops that are located on-street. There are two types of on-street stops: curbside and pullout. See respective definitions for additional information.

**PULLOUT BUS STOP**
An on-street bus stop is a stop that has a designated space provided for the bus to stop out of the travel lane.

**ROLLOVER ANGLE**
The angle at which a vehicle, or other object, tips or rolls over. It is the angle at which the object's center of gravity shifts to a point where it can no longer maintain stability and begins to topple over.

**SIGHT-DISTANCE**
The length of roadway visible to a driver at any given point, enabling them to perceive and react to potential hazards and make safe driving decisions.

**TIME STOPS**
Stops along a route at which buses are expected to arrive and/or depart at the time indicated. Time Points help pace the bus through the route start to end.

**TRANSFER POINTS**
Designated bus stops where multiple bus route converge allowing passengers to switch between buses to continue their journey.

**TRANSIT AMENITIES**
Include items of comfort, convenience, and safety that are available to the general riding public, such as benches, shelters, signage, and trash receptacles.

**TRANSIT-SUPPORTIVE DEVELOPMENT CORRIDORS (TSDC)**
Corridors defined by Anchorage Municipal Code Section 12.70.080 to encourage transit-oriented development along key transportation routes.

**UNDERBODY CLEARANCE**
The distance between the lowest point of a vehicle's undercarriage and the ground. This may also be referred to as ground clearance.

## SECTION 7.1 OBJECTIVE

The Municipality of Anchorage's (MOA) Public Transportation Department (PTD) operates the largest public transit provider in the State. PTD's mission is to connect the community with safe, reliable transportation options, emphasizing customer service while providing economic, social, and environmental benefits. This chapter provides guidance in the development of transit facilities to meet this mission incorporating regional and national standards, as well as local preferred transit infrastructure and equipment, policies, and regulations.

The guidelines within this chapter describe the recommended methodology for the location and design of bus stops and other public transportation facilities within the MOA. This chapter adheres to the most recent MOA planning efforts to promote sustainable urban growth, improve public transportation infrastructure, and accommodate the increasing need for accessible and efficient public transit options. Land-use and zoning changes, including the adoption of Transit-Supportive Development Corridors (TSDC), encourage transit-oriented development along key transportation routes. These TSDC are key criteria when selecting bus stop locations. Further, the methodologies herein follow a shift in MOA's approach to modal hierarchy, placing higher priority on transit facilities aiming to improve ridership comfort and service within the municipality. Non-motorized and transit facilities take higher precedent over single occupancy vehicles. As the nature of these efforts are continuously under development, the MOA Planning Department should be consulted as planning efforts identify opportunities for public transportation improvements.

Design of transit facilities must account for transit vehicles and pedestrian movement, and how they fit into the larger transportation system. These guidelines endeavor to order and clarify the factors to consider, and to guide the user toward a balancing of the needs of all roadway users. Improved pedestrian sidewalks, paths and trails connected to bus stops will make using the transit system safer and more enjoyable. Bus stops with rider amenities will improve rider comfort. Ensuring bus stop design accounts for maintenance efforts, such as snow storage, will aid in more efficient maintenance efforts and minimize access obstacles. Incorporating U.S. Access Board's Accessibility Guidelines for Pedestrian Facilities in the Right-of-Way (PROWAG) will ensure bus stops are accessible by all users. Appropriately located stops will enhance user safety while minimizing delay to traffic. For lower volume, or inner urban roads, curbside stops are preferred for greater transit efficiency. As barriers to transit use are removed, the transit system will become easier for all residents, and particularly individuals with disabilities, to use.

A number of specific elements are included in this chapter – transit vehicle dimensions, guides to the location and design of bus stops, proper placement of amenities at bus stops, snow storage and winter maintenance strategies, general guidelines for the design of other transit facilities, such as layover areas, and Park-and-Ride lots and Micro Transit services. The primary objective of this effort is to provide engineers, designers, and planners with one document to aid in the functional, legal, and cost-effective development of public transportation facilities during transit-related improvements.

The 2025 update of this chapter includes several updated bus stop amenities to the Public Transportation Standard Details for Construction. Designers should contact the Municipality of Anchorage Public Transportation Department Planning Division or Project Management and Engineering Design Division (PM&E) for the current preferred products prior to proceeding with planning and design.

END OF SECTION 7.1

## SECTION 7.2 POLICIES, CODES, AND REGULATIONS

### 7.2 A Objective

When designing public transportation facilities, it is important to be aware of the policies, codes, and regulations that PTD facilities need to conform to. This section presents the standards policies, codes, and regulations. Other relevant references can be found in Section 7.7.

### 7.2 B Codes and Regulations

Public Transportation facility design in Anchorage is subject to local, state, and federal regulations, standards, and guidelines. As no single document can ultimately define complete design standards, users of this manual are cautioned to obtain and carefully read codes and other Municipal documents referenced herein to ensure comprehensive design compliance. If conflict appears to exist between the various codes, Municipal policies, this manual, or other Municipal documents, consult with the Municipal Engineer for resolution of these conflicts.

General public transit requirements are found in Anchorage Municipal Code (AMC) AMC 11.70 – Public Transit System. The AMC does not provide requirements or guidance on design of transit facilities, instead it outlines prohibited acts, penalties for violations, and other regulations related to operation of public transit system.

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

#### Americans with Disabilities Act (ADA)

In accordance with the ongoing effort to improve the accessibility standards under the Americans with Disabilities Act (ADA), the U.S. Department of Transportation adopted the U.S. Access Board's Accessibility Guidelines for Pedestrian Facilities in the Right-of-Way (PROWAG). All facilities shall adhere to the requirements of PROWAG.

### 7.2 C Policies

As a rule, policies do not include specific design criteria. For example, AMC Title 11 only provides guidance on the public transportation system, not design of facilities. The design standards contained in this DCM and the specifications contained in the *Municipality of Anchorage Standard Specifications* (M.A.S.S.) establish the particular standards and specifications. Both the DCM and M.A.S.S. are periodically updated and amended by the Municipal Engineer with concurrence from various Departments in the Municipality.

#### MOA Planning Department Efforts

Several of the MOA Planning Department efforts impact the design approach for public transportation facilities including land-use and zoning, Transit-Supportive Development Corridors (TSDC), and modal hierarchy. Each play a role to promote sustainable urban growth, improve public transportation infrastructure, and accommodate the increasing need for accessible and efficient public transit options.

Section 7.4 incorporates policy guidance into the selection of bus stop types and locations. As policy and guidance documents change, efforts to incorporate and conform the public transportation are continuously ongoing. The MOA Planning Department should be consulted as planning efforts identify opportunities for public transportation improvements.

### Anchorage Metropolitan Area Transportation Solutions (AMATS) Efforts

The Anchorage Metropolitan Area Transportation Solutions (AMATS) organizes transportation improvements in Anchorage. As part of their coordination efforts, a Complete Streets Plan policy was developed to provide guidance for improving the transportation network in Anchorage. Complete streets is a vision for safer, more accessible and more connected streets for everyone.

Similar to MOA Planning efforts, AMATS' efforts are continuous and should be consulted for the most recent guidance.

## 7.2 D Design Variances

Designers shall adhere to the criteria established in this DCM and other referenced documents, unless compliance with such will compromise their judgment as professional engineers with regard to safety, project impacts, and/or practicality. In such cases, a written variance request of the appropriate standard may be requested from the Municipal Engineer.

Variance(s) should be considered a solution(s) of last resort and should not be used as a standard practice. The maximum or minimum criteria value should only be used occasionally.

Written variance requests shall be submitted through the municipal project manager for a determination by the Municipal Engineer. Variance requests should contain supporting information, justification and alternate solutions considered.

Design variances should be identified in the design study or project planning phase, and detailed variance requests should be submitted not later than the 65 percent level of project design.

Variance request(s) should not be based solely on the difficulty and/or cost of implementing such criteria and must include:

- alternate solutions considered, and discussion on why they are not practical or achievable;
- justification explaining why proposed alternate solution(s) is/are equivalent;
- explanation of why proposed alternative solution is the right solution, and is in the best interest of the public and the Municipality of Anchorage.

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

END OF SECTION 7.2

## SECTION 7.3 TRANSIT VEHICLE GEOMETRIC CONSIDERATIONS

### 7.3 A Objective

All street design should consider the existing or future presence of transit vehicles in the flow of traffic. This section presents the current design vehicles in use by the Public Transportation Department's (PTD) People Mover services and their horizontal and vertical clearance requirements. Because transit vehicles are rarely the largest design vehicle anticipated on a roadway facility, most street and highway design controls accommodate transit vehicles. However, the designers and planners should verify that the design metrics developed in this section are satisfied. Where a design criterion is not addressed in this section, the appropriate street and highway design control should be used.

### 7.3 B Design Vehicle: City Transit Bus (CITY BUS)

People Mover currently uses 41.0-foot long, 8.5- foot wide New Flyer buses in its fleet. The physical characteristics of this bus size should be considered in all transit-related design controls. Because the critical dimensions for this vehicle are consistent with the American Association of State Highway and Transportation Officials (AASHTO) City Transit Bus (CITY-BUS), this Design Vehicle shall be used in determining transit-related geometric design requirements. Figure 7-1 depicts the basic front and side views of a 41.0-foot bus and summarizes its critical dimensions and clearance requirements of the model the system currently operates.

1. Horizontal Clearance - Turning Movements

    a. Desirable Curb Return Radius

    The desirable curb return radius for City Transit Buses with 12-foot entrance and departure lanes is 40 feet. This radius is typically used in arterial applications, with 30 feet standard for collectors and 20 feet for residential streets. It should be noted that for 90-degree turns with curb return radii less than 40 feet, the City Transit Bus will swing into the intersecting street's opposing traffic lane while negotiating the turn.

    b. Minimum Turning Path

    Figure 7-2 presents the Minimum Turning Path for a City Transit Bus. This template should be used to design curve radii and entrance/exit throats on approaches for roadways where City Transit Buses will operate. It is desirable to avoid requiring City Transit Buses to encroach into oncoming lanes or overhang sidewalks during turning movements.

    As indicated in Figure 7-2, the City Transit Bus turns on a minimum inside clearance radius of 23.6-feet and requires an outside clearance of 44 feet.

    Satisfactory horizontal clearance at turns should be verified by the application of appropriate turning path templates. Additional radius should be provided if bus-turning speeds are expected to be greater than 10 mph. Anchorage's design speed for 90-degree turns is 3 to 5 mph.

2. Horizontal Clearance – Lane Width Requirements

    a. Travel Lanes and Curbside Bus Stops without Shoulders, Parking and/or Bike Lanes

Current Municipal Project Management and Engineering Department (PM&E), Alaska Department of Transportation and Public Facilities (DOT&PF), and AASHTO travel lane width requirements (10 to 12 feet) accommodate the City Transit Bus. Consequently, no special requirements for bus lanes or on-street bus stops are necessary.

b. Curbside Bus Stops using Shoulders, Parking and/or Bike Lanes

Where parking lanes, bike lanes, or shoulders are to be used for on-street bus stops, disruption to through-traffic is to be minimized. The combined design width of the outside travel lane and the parking/bike/shoulder lane should be a minimum of 20-feet.

c. Pullout Bus Stops

The desirable width (as measured from lip of curb to edge of the through-travel lane) for bus pullouts is 12-feet. The design minimum width for bus pullouts is 10-feet.

3. Vertical and Underbody Clearance

a. Vertical Clearance

Current City Transit Buses have a maximum overall height of 10-feet, 3-inches. The desirable clearance between the roadway surface and overhead obstructions on transit routes is 16.5-feet, and the minimum is 14-feet.

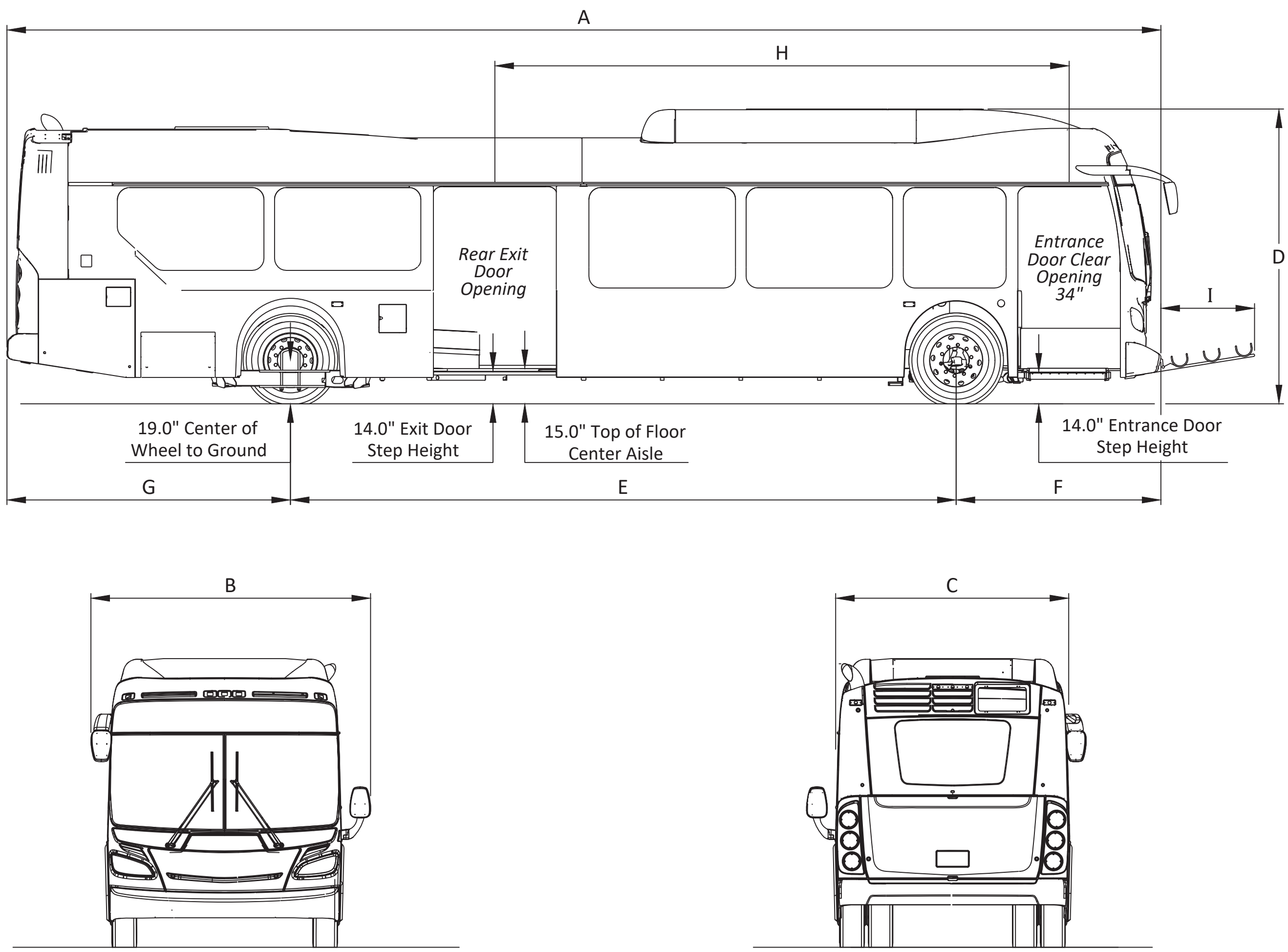
b. Underbody Clearance

Underbody clearance should be considered in the design of intersections, driveways, and off-street facilities. Grade breaks at these locations should be set so that underbody clearance is maintained during three phases of movement over a grade break: Approach, Rollover, and Departure. Figure 7-3 depicts these phases of movements and presents the maximum allowable grade breaks for transit buses: 12% difference for sag vertical curves and 10% for crest vertical curves.

### 7.3 C Transit Van

PTD's AnchorRIDES service utilizes Transit Vans. These vans are 20-foot cutaway van chassis vehicles. Micro Transit service will also utilize the Transit Van. Micro Transit is not a service currently provided by PTD; see section 7.6 D for additional information. Current PM&E, DOT&PF, and AASHTO street and highway design controls accommodate these vans. Consequently, no special design considerations are necessary for roads on which vans are used.

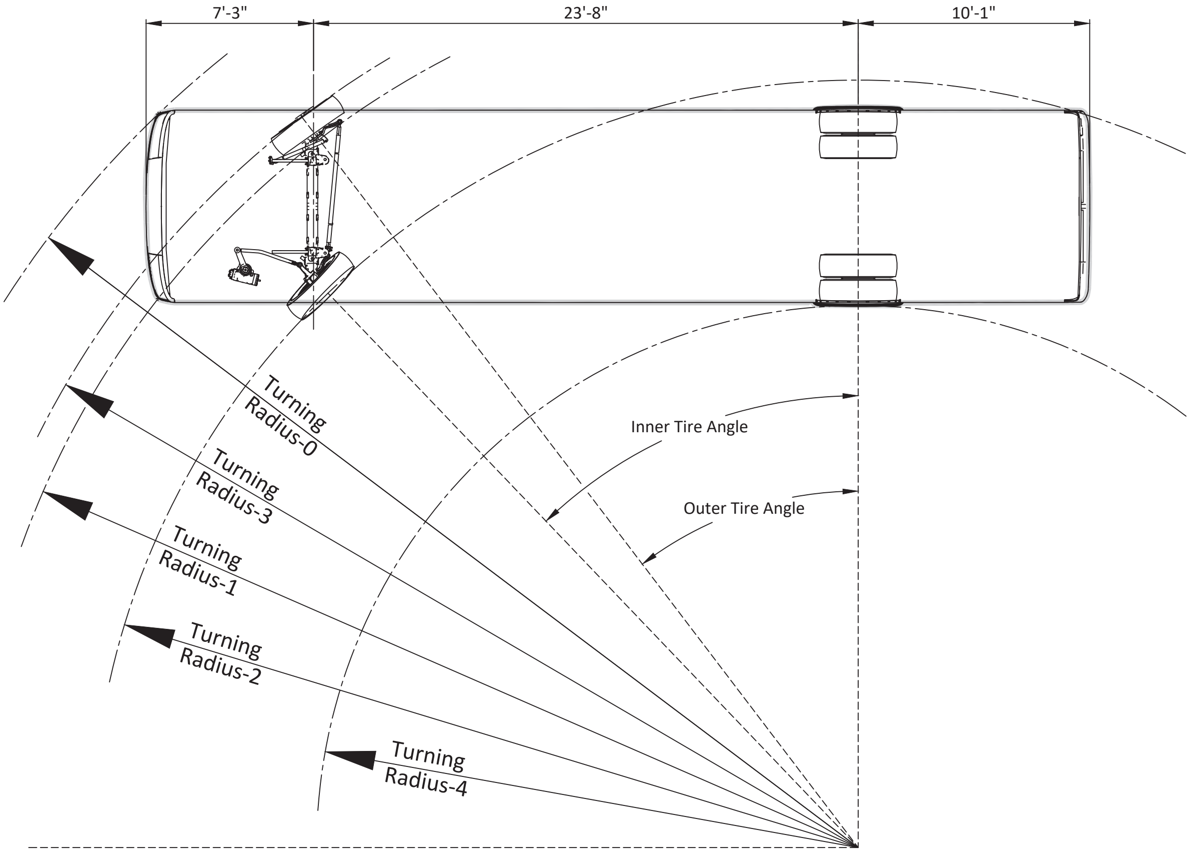
END OF SECTION 7.3




| BUS DIMENSIONS (NEW FLYER) | | |
|---|---|---|
| A. | Overall Length | 41'- 0" |
| B. | Overall Width (W/ Mirrors) | ± 9'-11" |
| C. | Overall Width (W/Out Mirrors) | 8'-6" |
| D. | Overall Height | 10'-3" |
| E. | Wheelbase Length | 19'-11" |
| F. | Front Overhang | 7'-3" |
| G. | Rear Overhang | 10'-1" |
| H. | Door to Door (center) | 26'-6" |
| I. | Front Bike Rack Extension Length | 3'-4" |

NOT TO SCALE

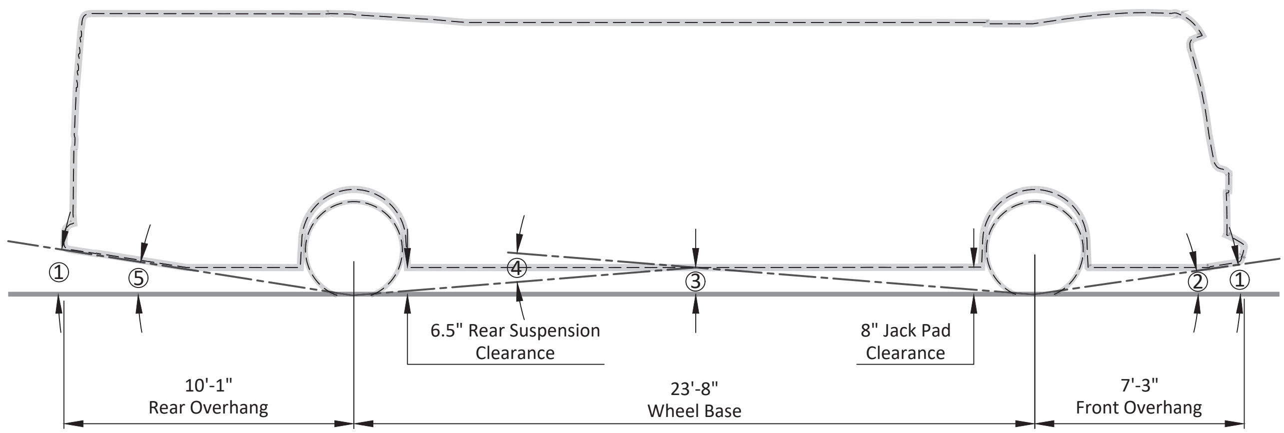
# Figure 7-1: City Transit Bus (41-foot Bus)




| BUS TURNING RADIUS CHARACTERISTICS (MAXIMUM VALUES) | |
|---|---|
| TR0 | 44' |
| TR1 | 39' |
| TR2 | 34' |
| TR3 | 40' |
| TR4 | 24' |
| Inner Tire Angle | 46° |
| Outer Tire Angle | 39° |

NOT TO SCALE

# Figure 7-2: Turning Path for City Transit Bus




| UNDERBODY CLEARANCE FOR DRIVEWAY DESIGN | | | |
|---|---|---|---|
| No. | Description | Degrees | Dimensions |
| 1 | Ground to Bumper Clearance (Front/Back) | - | 11" |
| 2 | Approach Angle | 9° | - |
| 3 | Underbody Clearance | - | 10" |
| 4 | Rollover Angle | 9° | - |
| 5 | Departure Angle | 9° | - |

NOT TO SCALE

# Figure 7-3: Underbody Clearance for Driveway Design

## SECTION 7.4 BUS STOP LOCATION AND TYPE

### 7.4 A Objective

Decisions regarding bus stop frequency, location, and length, call for careful analysis of passenger service requirements, the type of bus service provided, and the interaction of stopped buses with general traffic flow. These factors are often dependent upon existing land-use development along the road in question as well as planning efforts encouraging transit-oriented development such as Transit Supportive Development Corridors (TSDC). Alternative modes of travel are emphasized on these corridors with increased use of pedestrian, bicycle, and transit design elements. Further, MOA modal hierarchy places higher priority on non-motorized and transit facilities aiming to improve ridership comfort and service within the municipality. This prioritization should be accounted for when balancing the convenience to the bus passenger and convenience to the auto user. This section contains guidelines for selection of bus stop placement, spacing and type, along with methodologies to help the designer and planner in achieving the successful balance. Flowcharts that depict the location and stop type decision process are presented in Figures 7-4 and 7-5.

### 7.4 B Bus Stop Spacing and Location

The proper location of a bus stop requires a site investigation of the stop(s) under consideration; no standard type of stop can be recommended for all locations. Utilizing the MOA Planning Department adopted TSDC, which encourages transit-oriented development along key transportation routes, should be the first consideration for bus stop locations. New stops are not required to be in a TSDC; however, they are encouraged. MOA's Land Use Plan Map defines the TSDC within the MOA. Designers and planners should always reference the most up to date Land Use Plan Map as planning efforts are continuous. An inventory of land-uses within a quarter-mile corridor of the road under consideration should be developed, making certain those uses which serve as major trip producers and attractors are noted. In particular, these categories should be included in the inventory:

- High-density residential units (R-3 and R-4 zoning) normally generate sizeable numbers of transit trips because of typical income levels and density
- Public institutions (schools, hospitals, libraries, etc.)
- Office buildings
- Retail malls

1. Selection of Preliminary Bus Stop Locations

Once the major trip generators within the corridor have been identified, the next step is to begin locating bus stops. Needed transit information can be obtained from the MOA PTD Planning Staff, which include:

- The portion of the length of the road the route operates, or will, operate in the future.
- At which intersections do, or will, other routes connect. Assume riders will transfer from one route to another at these intersections.
- Number of ridership by stop, if the road has existing stops.
- Forecasted ridership, in cases where development is anticipated.

a) Sequence of Decisions

**Step 1: Stops at Major Generators**

The first stops established are those adjacent to major trip generators. Stops should be located within a short walk from schools, major retail malls, office buildings and multi-unit apartments to provide access to the public transportation system. At these major passenger generators, bus stops should be located to balance rider access with pedestrian safety. Stops should be located close to the main entrance to minimize the distance users have to travel through parking lots. Stop locations should minimize the potential for jaywalking as well as minimizing user walking distance and avoiding unnecessary crosswalk movements (disincentives for public transportation users).

**Step 2: Stops at Transfer Points**

The next stops to locate are at intersections of streets served by other bus routes. These stops will allow transfers with other buses, which are necessary to provide connections to areas of the community that have no direct routing from a rider's origin. Hassle-free transfers are an important element of a successful transit system. The maximum walking distance between two bus stops serving connecting routes should be no more than 300 feet.

**Step 3: Stops at Signalized Intersections**

The next category of stops to establish includes those at signalized intersections. Whether curbside or pullout, stops at the far-side (Figure 7-8) of signalized intersections can operate conveniently for both auto and transit users. Buses can use the gaps in the stream of traffic created by the signal to transfer passengers and then re-enter traffic travel-lane.

**Step 4: Intermediate Stops**

Once stops have been placed at transfer points, major generators and signalized intersections, additional stops are added to complete the set of stops for the route or street. A standard in the transit industry suggests that most riders will not want to walk farther than one quarter-mile to a bus stop. The additional stops for areas of low to moderate passenger demand should be established by applying standard bus stop spacing criteria.

Bus stop spacing should be related to ridership density; stops should be close together in the major commercial districts and farther apart in the outlying areas. Ideally, stops should be as far apart as possible without adversely affecting passenger convenience. TSDC are key when selecting intermediate bus stop locations. The use of ranges for these two zone areas is recommended for MOA. The recommended ranges for bus stop spacing are as follows:

- Within TSDC – 500 to 800 feet
- Outside of TSDC – 800 to 1,300 feet

Consideration to existing or proposed roadway configurations should be evaluated for intermediate stops. Locations should be evaluated on a case-by-case basis considering number of vehicle travel lanes, one-way versus two-way roads, speed of the roadway, presence of a roadway median, and sight distance. The following table provides guidance on conditions metrics to consider for intermediate stops.

| | Conditions in Favor of an Intermediate Stop | Conditions to Reconsider an Intermediate Stop |
|---|---|---|
| Number of Total Vehicle Lanes | 1-3 | 3+ |
| Roadway Speed | 30pmh or less | Above 30 mph |
| Other | Presence of Median<br>One-way Vehicle Travel | Sight Distance Issues |

**TABLE 7- 1 CONSIDERATIONS FOR INTERMEDIATE BUS STOP PLACEMENT**

In low density housing and commercial areas, consideration should be given to how far a person must walk to get to the street with bus service. For areas where much of the development is off the road, stops should be closer than where all development occurs on the road.

Stops on both sides of a two-way street should be paired up whenever possible to provide passengers with transfer points near one another. These stops should be placed in proximity to existing marked crosswalks or evaluate installing a marked pedestrian crosswalk per the current versions of the Alaska Traffic Manual and the Manual on Uniform Traffic Control Devices.

### 2. Refine Bus Stop Locations

Generally, bus stops should be located after (far-side of) an intersection to facilitate bus and traffic operations. However, far-side stops are occasionally impractical or conflict with existing commercial development. Long blocks and arterials with long distances between intersecting streets also require mid-block stops. On rare occasions, land use, bus routing or other factors will dictate the use of a near-side stop.

Other specific attributes of the preliminary location should be reviewed. Sight distance issues due to roadway geometry (e.g. curves, hills) or obstructions should be evaluated. Sight distance constraints can reduce the bus driver's ability to safely reenter traffic and following vehicles' ability to safely avoid a stopped or merging bus. If sight distance issues are present, the proposed stop should be relocated. Driveway curb cuts should generally be avoided, with the stop placed far-side of the driveway. If necessary, driveway cuts can be placed in the entrance taper or the first part of the bay of a pullout (see also Section 7.4 B.2 b., below).

The following criteria, advantages and disadvantages for far-side, near-side and mid-block stops are guidelines for refining stop locations:

#### a) Far-Side Stops

A far-side bus stop is located immediately after an intersection, or after major commercial driveway.

Conditions where far-side stops are recommended:

- At intersections controlled by signals, stop or yield signs.
- The traffic is heavier on the approach side than on the departure side of an intersection.

- The intersecting street is a one-way street with traffic moving from left to right (when viewed as one approaches the intersection).
- At intersections where heavy left or right turns occur.
- At intersections where the bus route and heavy traffic movements diverge.

Advantages of far-side bus stops:

- Reduced conflicts between right turning vehicles and stopped buses.
- Additional intersection capacity is provided by making the approach curb lane available for traffic.
- Sight-distance deficiencies created by buses stopped near-side of the intersection are eliminated.
- Pedestrian crossing at rear of the bus is encouraged; in front of the bus discouraged.
- Shorter maneuvering distances for the buses to enter and leave moving traffic are required.
- Increased ease and speed for bus reentering traffic stream during heavy traffic, as a result of platooning of traffic at signalized intersections.

Disadvantages of far-side bus stops:

- Intersections may be blocked if other vehicles park illegally in the bus stop, thereby obstructing buses and causing traffic to back up across the intersection.
- A bus standing at a far side stop may obscure sight distance to the right of a driver entering the intersection from the right.
- Where the bus stop is too short for occasional heavy demand (i.e., multiple buses stopping at the same time), the overflow may obstruct the cross street.

#### b) Near-Side Stops

A near-side stop is one which is located immediately before an intersection, including major commercial driveways.

Conditions where near-side stops are recommended:

- Traffic is heavier on the departure side than on the approach side of the intersection.
- The cross street is a one-way street where traffic flows from right to left.
- Where the bus route turns right, if curb space is critical, a near-side stop should be established before the turn.
- At intersections controlled by signals or stop or yield signs, when transit operations are more critical than traffic or parking.

- At intersections where a free right turn leads into the direction of bus route traffic.

Advantages of near-side bus stops:

- Create a minimum of interference at locations where traffic is heavier on the far side than on the approach side of an intersection.

- Passengers generally board buses close to a crosswalk, which minimizes walking distance.

Disadvantages of near-side bus stops:

- Heavy vehicular right turns can cause conflicts, especially where a vehicle makes a right turn from the left of a stopped bus.

- Buses may obscure stop signs, traffic signals, or other control devices as well as pedestrians crossing in the front of the bus.

- A bus standing at a near-side stop diminishes the sight distance of a driver entering the intersection from the right.

- Where the bus stop is too short for occasional heavy demand (multiple buses), the overflow may obstruct the traffic lane.

- The bus reentering traffic flow after stopping often must wait through several light cycles as vehicles trap the bus in the stop bay or departure zone.

- Lengthy separate right turn lanes (pockets) cause the bus stop to be located too far from the intersection.

#### c) Mid-Block Stops

A mid-block stop is one which is located 300 feet or more beyond or before an intersection, or after major commercial driveways.

It should be noted that in the case of arterials with long stretches between signalized intersections, mid-block stops present a hazard to the bus rider who often must cross the road on the way from the trip origin or to his or her destination. A raised median can lessen the hazard, allowing the pedestrian to cross half the road at a time. In cases in which a particularly attractive major trip generator exists mid-block, a signalized crosswalk or pedestrian overpass may be warranted. Providing a marked crosswalk should be evaluated per the current versions of the Alaska Traffic Manual and the Manual on Uniform Traffic Control Devices. Designers and planners need to coordinate with MOA Traffic Department and DOT&PF per the designated roadway ownership, respectively.

Conditions under which mid-block stops are recommended:

- Traffic or physical street characteristics prohibit a near- or far-side stop next to an intersection.

- Large bus passenger generators exist, and heavy ridership makes the location desirable.

- Blocks are exceptionally long and allow adequate distance for the bus to merge into a left-turn lane, if required.

- A median island exists in the roadway or space for construction of a median island is available.

Advantages of mid-block bus stops:

- Buses create a minimum of interference with sight distance of both vehicles and pedestrians.
- Waiting passengers assemble at less crowded sections of the sidewalk.

Disadvantages of mid-block bus stops:

- The removal of multiple curb parking may be required.
- Patrons coming from a cross street may have to walk farther to board the bus.
- Pedestrian jaywalking is more prevalent, thereby increasing vehicular friction, congestion and accident potential.

### 3. Controlled Access Roads

Freeway bus stops should only be provided at interchanges. They may be placed on either the on-ramp (desirable) or the off-ramp if the bus will not be turning onto the local street network. The bus pullout location and design should meet the requirements for pullouts on arterial facilities. Pullouts are difficult to provide effectively within cloverleaf or directional-type interchanges and should be omitted or located on the frontage road or cross street beyond the limits of the interchange.

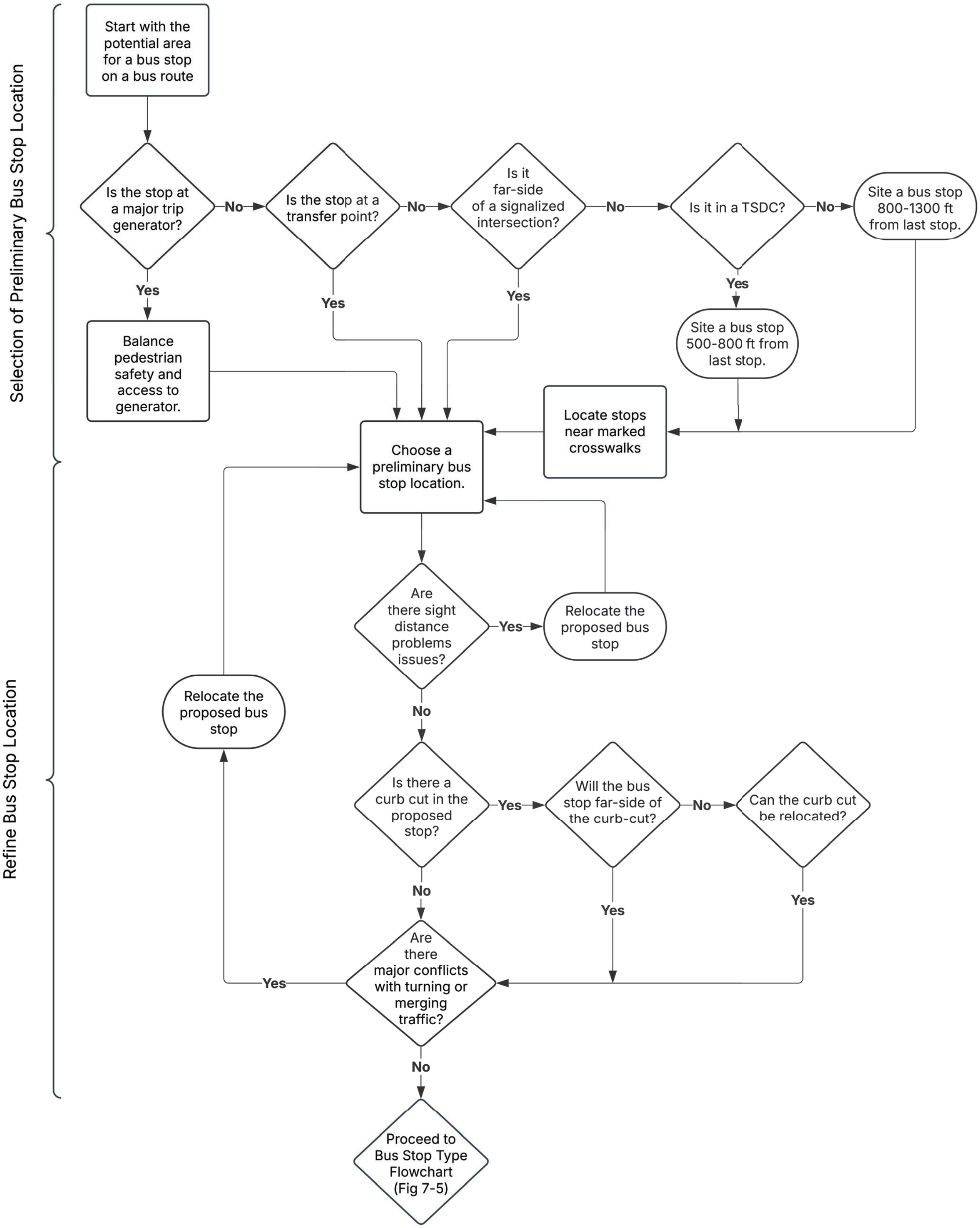
Under special circumstances bus stop pullouts may be provided on freeways. This type of bus stop must be constructed so that the deceleration, standing, and acceleration of buses occur on pavement areas clear of, and separated from, the through traffic lanes. Costly features such as speed change lanes and pedestrian overpass facilities are required. The decision about whether to construct these facilities must be based on a cost analysis that compares all benefits with the cost to construct and maintain.

### 4. Roundabouts

Transit considerations at a roundabout are similar to those at a conventional intersection. If the roundabout has been designed using the appropriate design vehicle, a bus should have no physical difficulty negotiating the intersection. To minimize passenger discomfort, if the roundabout is on a bus route, it is preferable that scheduled buses are not required to use the truck-apron if present. Bus stops should be located carefully to minimize the probability of vehicle queues spilling back into the circulatory roadway. This typically means that bus stops located on the far-side of the roundabout intersection need to have pullouts or be further downstream than the splitter island.

Bus stops situated on an entrance leg should be positioned 50 feet or greater before the splitter island and crosswalk.

Pedestrian access routes to transit should be designed for safety, comfort, and convenience. If demand is significant, such as near a transit/transfer facility, pedestrian crossing capacity should be accounted for.




# Figure 7-4: Bus Stop Location Flowchart

### 7.4 C Bus Stop Type – On-Street (Curbside or Pullout) or Off-Street?

This decision depends first on the stop sequence on the route. Terminus of routes should be off-street stops where space is available; this is also referred to as a bus layover area (see section 7.5A). All other stops should be on-street. The two types of on-street stops are curbside and pullout. Which on-street stop type depends on the functional classification of the road, anticipated transit ridership, traffic volume and speed, and other factors. It is normal practice to have buses stop in the traveled way on residential streets, collectors and some minor arterials. In addition, buses will normally stop curbside (in the parking lane) in the major commercial districts. Typical curbside stops are in a parking lane, in the travel lane, at curb extensions, or on an improved shoulder. On major arterials, and some minor arterials, many bus stops are pullouts with a designated space provided for the bus to stop out of the travel lane.

The design of a bus stop on a major arterial is often the most difficult case, because the tradeoffs between general vehicular traffic and transit are difficult to predict and quantify. Lack of quick reentry into the traffic stream from a pullout will, especially if repeated often; increase the transit trip time and the disincentive to ride the bus. However, stopping in the through lane may reduce the roadway level-of-service (LOS) and may precipitate rear-end accidents. Therefore, the decision to place a pullout stop should be made carefully. Cumulatively, the decisions will affect the ability of the roadway and transit to move people safely and quickly. This section contains a decision-making process that will help the planner or engineer make consistent decisions. The sequence is diagramed in Figure 7-5.

1. Sequence of Decisions

**Step 1: Is the stop a route terminus?**

If the answer is yes, go on to step 2; an off-street stop is warranted. If the answer is no, go to step 4.

**Step 2: Is there a parking lot in the vicinity?**

If the answer is no, utilize a pullout stop; go to step 8. If yes, go on to step 3.

**Step 3: Can a public use easement (PUE) be obtained from the parking lot owner?**

If the answer is no, utilize a pullout stop; go to step 8. If yes, establish an off-street stop/layover area.

**Step 4: Is the road an arterial?**

If the answer is no, establish a curbside bus stop. If yes, go on to step 5. Pullouts are not necessary on collector level or lower roadway functional classifications.

**Step 5: Is the stop a Time Point?**

If the answer is yes, go to step 7. If no, proceed to step 6.

A Time Point is a location, typically a bus stop, along a route at which buses are expected to arrive and/or depart at the time indicated. Time Points help pace the bus through the route start to end. Buses should never leave a time point bus stop early and thus may need to wait at the stop until the scheduled departure time. Pullout stops are ideal in this scenario as they allow the bus to wait outside of the travel lane.

**Step 6: Is the stop a transfer point for connecting bus routes?**

If the answer is no, go to step 7. If yes, go on to step 8.

Far-side bus pullouts should be constructed where bus routes intersect. This allows a bus to wait for transferring passengers safely out of the curbside travel lane, and to use the signal red phase to reenter the travel lane.

Curbside bus stops on arterials are recommended to be placed when there is a dedicated right-turn lane on the near-side of an intersection. The curbside stop can be placed at the beginning of the dedicated turn lane. Placement shall be approved by PTD, and MOA Traffic, and DOT&PF staff, respectively per roadway ownership. See figure 7-8 for additional information.

**Step 7: Is the speed limit of the roadway 50 mph or higher?**

If the answer is no, build a curbside stop. If yes, go on to step 8.

Curbside bus stops on arterials where the speed limit is 50 mph or more are not recommended.

**Step 8: Is there sufficient right-of-way (ROW) for an off-street stop?**

If yes, establish a pullout stop. If no, consider property acquisition, and go on to step 9.

**Step 9: Can a PUE be obtained?**

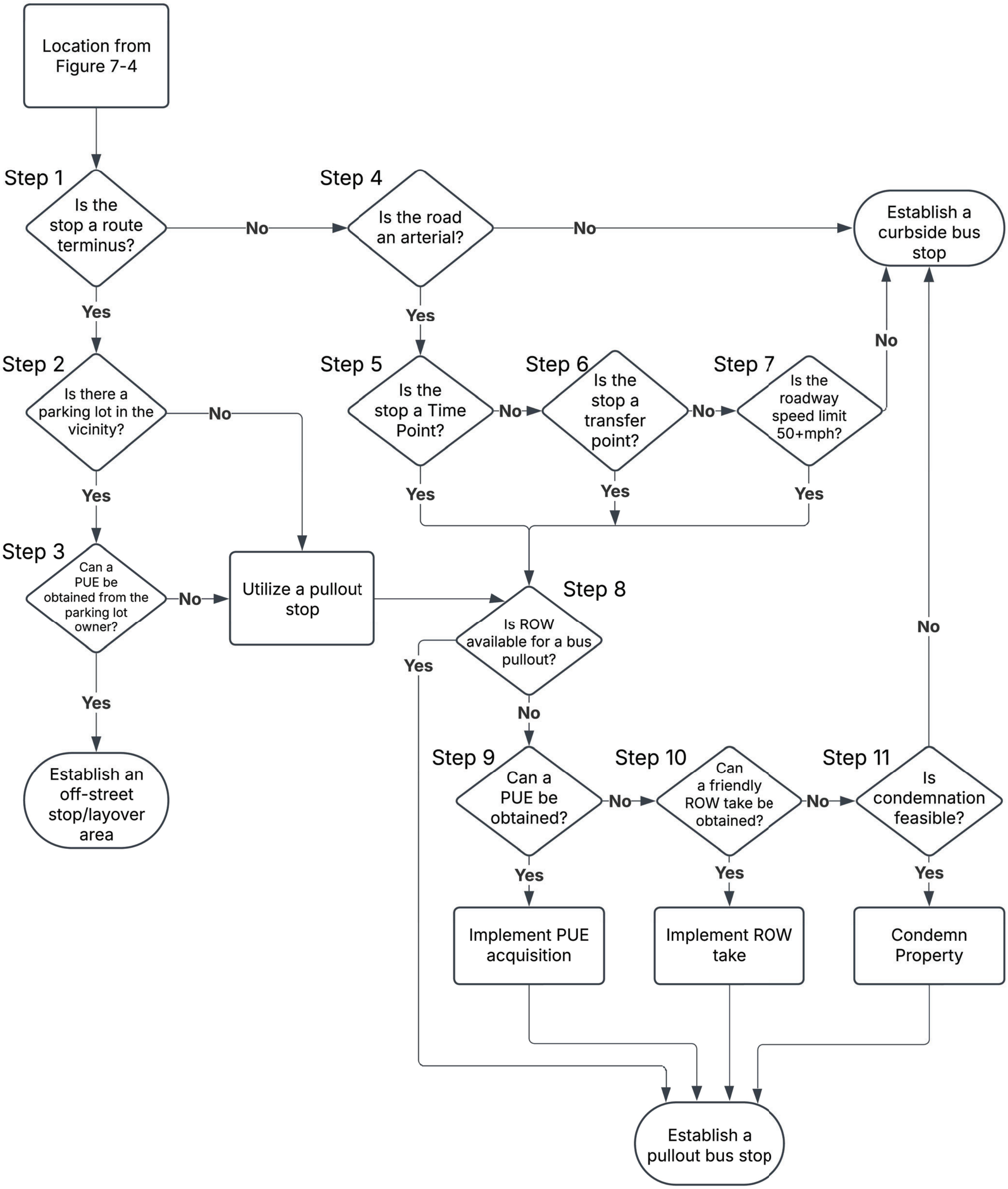
If yes, secure the easement and establish pullout stop. If no, proceed to step 10 and consider a friendly ROW acquisition.

**Step 10: Can a friendly ROW take be obtained?**

If yes, acquire the property and establish a pullout stop. If no, proceed to step 11 and consider condemnation of the property.

**Step 11: Is condemnation feasible?**

If yes, condemn the property and establish the pullout stop. If no, establish a curbside stop or consider relocating the bus stop; utilize flowchart in Figure 7-4.




# Figure 7-5: Bus Stop Type Flowchart

2. Other Issues to Consider

a. If real estate acquisition is necessary, will it make the affected property(s) a non-conforming land use? If so, can a variance be obtained? If a variance cannot be obtained, will the entire parcel have to be purchased?

   Strip development often results in parking spaces constructed right up to the public ROW. The installation of a bus pullout at such locations can be very expensive. Besides purchasing sufficient developed property to build the pullout, it sometimes becomes necessary to purchase the entire lot, because the acquisition puts the development into a non-conforming status or creates a site that is no longer economically viable. It may be more appropriate to install curbside stop in such cases, and avoid the need for expensive property acquisition. In addition, the already significant turbulence in traffic flow created by many turning movements to and from commercial sites means the occasional stopped bus is a marginal contributor to auto user delay.

b. Will a pullout stop severely impact transit operations? Would a bus stopped in the pullout regularly have to wait more than 30 seconds to reenter traffic flow?

   If the answer to one or both questions is yes, consider whether the stop should be relocated or made into a curbside bus stop.

### 7.4 D Micro Transit Stops

Micro Transit services do not utilize fixed locations for stops but rather virtual bus stops within specified zones. Micro Transit zones are typically areas that are poorly served by regular fixed route service. The virtual bus stop locations are variable as the service is on-demand and pick-up/drop-off locations can be at a rider's door or at a nearby intersections depending on service operations. Riders should typically not have to walk more than two blocks to a virtual stop. Amenities are not provided as stops are not fixed.

No design is required for these stops; however, parameters may be placed on the service depending on target user group, community context, and trip types. Parameters may include restricting virtual stops to only door-to-door or corner-to-corner; or limiting drop-offs to high demand locations or transit stations.

### 7.4 E Decommissioning of Pullout Bus Stops

Existing bus stops constructed using pullout configurations may be decommissioned during reconstruction of roadways or other transportation improvement projects. Decommissioning may include removal of no longer used stops or transitioning to a curbside stop. Decommissioning of pullout bus stops should be evaluated to determine whether use of the bus stop may be desired in the future, type of roadway, accessible routes, traffic geometry, and public use safety. Evaluation should utilize Figure 7-5 Bus Type Flowchart; if the existing pullout stop does not meet the criteria for a pullout, it should be decommissioned to a curbside stop if feasible. Decommissioning of pullout bus stops should consider the impacts to utilities and to the existing pedestrian accessible routes. Each decommissioned pullout bus stop will require a case-by-case evaluation of these impacts and coordination with other MOA departments, DOT&PF, and affected utilities prior to a final determination. Refer to Section 7.5 E for design considerations for decommissioning.

END OF SECTION 7.4

## SECTION 7.5 BUS STOP DESIGN

### 7.5 A Objective

Bus stops serve as interface points between sidewalk/trail systems, street networks, and transit routes. Consequently, bus stop design should provide access to, through, and around for vehicles and non-motorized travelers; safe passenger waiting areas with amenities as applicable; and space for snow storage and maintenance activities. MOA modal hierarchy places higher priority on non-motorized and transit facilities, with single occupancy vehicle travel having less priority in the transportation system. This approach aims to improve ridership comfort and service within the municipality. The location, placement, and type of stop discussed in the previous section, used in conjunction with the information this section is intended to guide engineers and planners to bus stop design to balance the needs of all roadway users.

### 7.5 B Design

1. Curbside Bus Stops

Figure 7-6 presents desirable curbside bus stop layouts for far-side, near-side, and mid-block locations. The stop lengths shown for each location indicate the minimum length of roadway which should be signed and/or painted for “No Parking” and cleared of any landscaping, street hardware, signs, etc. which may interfere with the loading and unloading of passengers and other transit-related operations.

Curbside Bus Stops assume one of three conditions:

- Condition 1: The bus will dwell in a traffic through-lane;
- Condition 2: There is a combined through lane + shoulder + parking/bike lane width of 20 feet available for the bus to clear the travel lane during stops.
- Condition 3: There is a Curb Extension which utilizes less curb space than pullouts.

If none of those conditions apply, or the desired stop is along an arterial, a pullout should be designed in accordance with Section 7.5 B.2, Pullout, below.

a) Curbside Bus Stops - Condition 1 Bus Fully in Travel Lane

For curbside bus stops meeting Condition 1, no roadway improvements are required. Access shall be provided in accordance with section 7.4 C., Facility Access. Where possible, a waiting area and amenities should be provided in accordance with Section 7.4 D., Bus Stop Amenities.

b) Curbside Bus Stops - Condition 2 Bus Partially in Travel Lane

The design of curbside bus stops under Condition 2 should consider location factors (such as traffic volumes and turning movements—reference Section 7.4), traffic control, parking, intersection characteristics, and pedestrian movements. Each curbside bus stop should incorporate an entrance length, a bay length, and a departure length (presented in Figure 7-6). Desirable entrance lengths are 60 feet, and minimum lengths shall be 40 feet. Bay lengths shall be 45 feet plus 50 feet for each additional bus scheduled to dwell simultaneously at the stop. Departure lengths shall be a minimum of 30 feet. Note that these lengths are not identical to pullout stop dimensions. Curb corresponding to the entrance, bay, and departure segments of the stop shall be painted red.

For bus stops on the near side of intersections, the width of the crosswalk, curb return, and cross-street should provide sufficient reentry space. For bus stops on the far side of intersections, see Figure 7-8 for minimum distances from intersection curb return to start of the stop bay.

Access to the stop shall be provided in accordance with section 7.5 C., Facility Access. Where possible, a waiting area and amenities for curbside stops should be provided in accordance with section 7.5 D., Bus Stop Amenities.

#### c) Curbside Bus Stops – Condition 3 - Curb Extensions

On streets with parallel parking, near-side and far-side bus stops may benefit from curb extensions. Curb extensions allow the bus to stage alongside the curb, allowing passengers to board or disembark the bus without stepping onto the street. If curb extensions are not possible, or available, and passengers are required load or disembark onto the street a direct ADA accessible route is required. (Figure 7-7).

In urban areas where on-street parking is at a premium, mid-bock bus stops with curb extensions can be installed (see Figure 7-8). The mid-block curb extension stops utilize less curb space than pullouts and minimize obstructions to pedestrian traffic—essentially becoming a curbside stop that maintains available parking and pedestrian flow.

The curb extension tapers should be sharp enough to discourage additional parking, but shallow enough to facilitate snow removal and street maintenance.

### 2. Pullouts

Bus pullouts are widened sections of roadway designed for buses to pull out of the traffic through-lane. (see Figure 7-9). Pullouts should be considered integral to the roadway and maintain its functional elements. The following presents standards for the geometric layout and typical sections of pullouts. Access to the pullouts shall be provided in accordance with Section 7.5 C., Facility Access. Where possible, a waiting area and amenities for passengers should be provided in accordance with Section 7.5 D., Bus Stop Amenities.

#### a) Geometric Lay-Out

Entrance and departure lengths shall be developed by tapering the roadway limits (Figure 7-9). Entrance tapers shall have a desirable 6:1 and minimum 5:1 longitudinal to transverse ratio. Desirable bay lengths shall be 80 feet, with a minimum of 50 feet. Also, a minimum of 50 feet shall be provided for each additional bus scheduled to dwell simultaneously at the stop. Departure tapers shall have a desirable 6:1 and minimum 3:1 longitudinal to transverse ratio. Where the pullout is on the near side of an intersection, the width of the cross street is usually great enough to provide the necessary merging space

Longer bus pullouts increase the speed of bus maneuvers and lessen interference with through traffic. Figure 7-9 presents a typical geometric layout for a bus pullout. If right-of-way (ROW) or other constraints do not allow construction of the desirable pullout dimensions, the bay length should be modified first, followed by the departure taper, and lastly the entrance taper.

Driveway access should generally be avoided; however, where site conditions demand, a bus pullout may be located such that the curb cut is placed in the approach taper, or in the approach end of the central portion of the pullout. In such cases the bay shall be lengthened by an amount equal to the width of the curb cut. The curb cut shall not be placed in the departure taper.

Pullouts should not be located where there are potential rear-sight distance problems. Generally, pullouts shall not be located on horizontal curves to the right.

b) Typical Cross-Section

Bus pullouts should extend the typical section of the adjoining roadway, including curb and gutter treatment, cross-slope, drainage pattern, and structural fill. However, because traffic volumes in the pullout will be significantly less than the roadway, a depth of pavement of three (3) inches is permissible. On roadways with flat grades, protraction of the cross slope across the bay width may disrupt drainage patterns both on the roadway and adjacent properties. The engineer should design the vertical alignment to maintain minimum grades in the gutter or provide appropriate inlet treatment. Particular attention should be paid to pullout drainage with roadway flow grades of 0.5% or less. Typically, this creates ponding in the pullouts which is problematic for passengers waiting at the stop due to water spray and sidewalk icing (see Figure 7-9, Note 4).

### 7.5 C Facility Access

The location and design of new bus stops shall be accessible to persons with disabilities and provide for safely and fully deploying lifts and ramps on transit vehicles in accordance with the requirements of this section as much as is structurally practicable. It is noted that cost is not a factor in determining structural practicability in new construction.

For the rehabilitation or improvement of existing bus stops, the provision of access to persons with disabilities and adequate area for the safe deployment of lifts and ramps is required. Providing access to an improved bus stop is required to the extent practicable as required by accessibility guidelines.

Where the engineer believes that implementation of the requirements of this section are not structurally practicable, a written documentation presenting this assessment and for rationale shall be provided. PTD staff will have final determination.

1. Bus Stop Pads

Bus stop pads that provide a minimum clear space for deploying a lift and ramp from a transit vehicle shall be developed for all bus stops. Where feasible, the pad shall be a paved area with the following minimum dimensions:

Thirty (30) feet long, as measured parallel to the roadway, and eight (8) feet wide as measured perpendicular from the back of curb or roadway shoulder. For bus stops with amenities such as benches, trash receptacles, and lights, a width of 13 feet is desirable. For bus stop locations where this much space is not available, the clear space shall be a minimum of 5 feet by 8 feet at the bus door (see Figures 7-10, 7-11, and 7-12).

Assuming the bus dwells with its front approximately even with the transit sign, the pad should be placed at the front door of the bus where the lifts and ramps are deployed. A pad at the rear door location is also desirable. The bus stop boarding pad should extend from the front door to the rear door of the bus.

## CASE 1: Far-Side Stop

Total Minimum Length = 135'

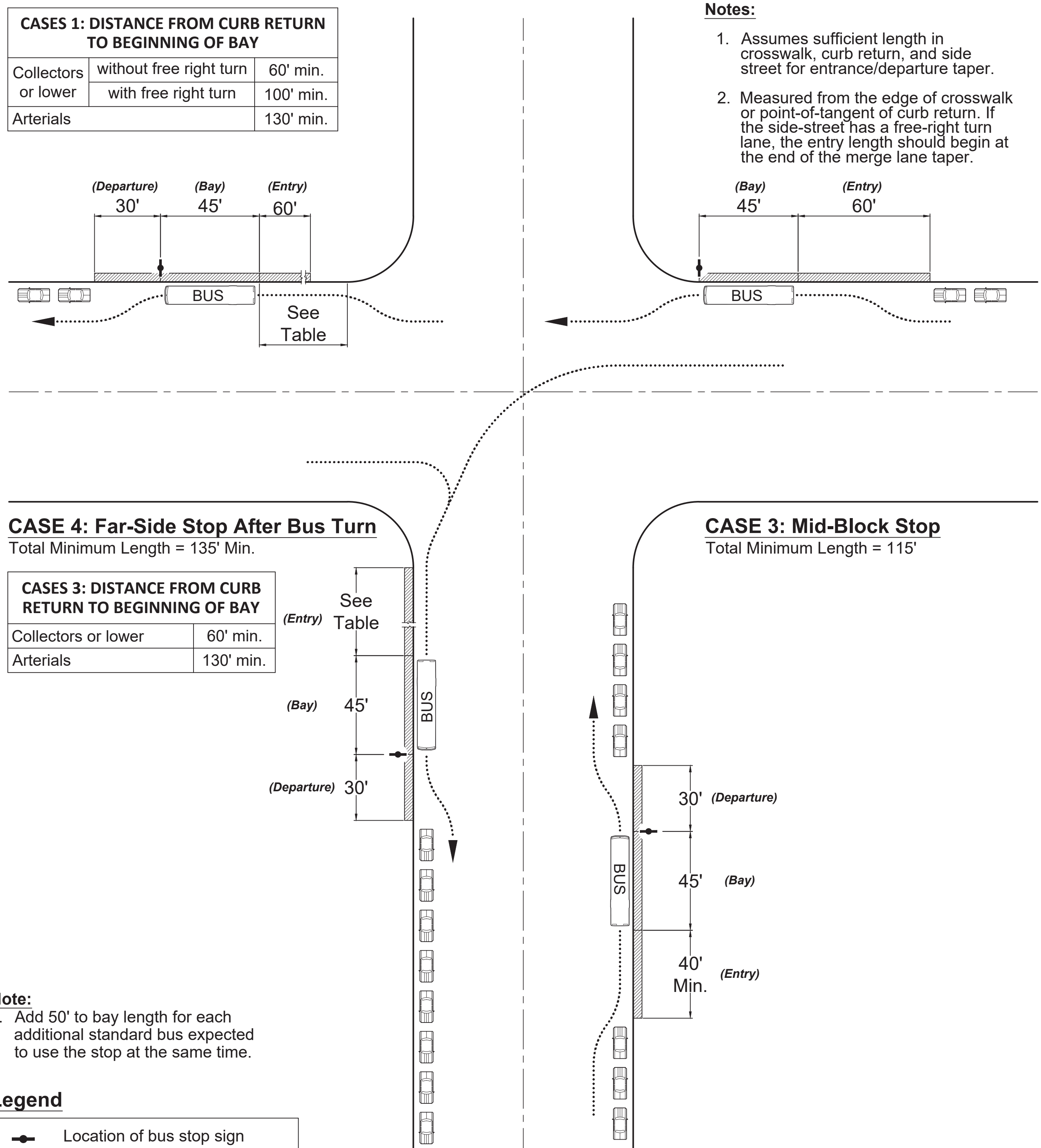
| CASES 1: DISTANCE FROM CURB RETURN TO BEGINNING OF BAY | | |
|---|---|---|
| Collectors or lower | without free right turn | 60' min. |
| | with free right turn | 100' min. |
| Arterials | | 130' min. |

## CASE 2: Near-Side Stop

Total Minimum Length = 105'

**Notes:**

1. Assumes sufficient length in crosswalk, curb return, and side street for entrance/departure taper.
2. Measured from the edge of crosswalk or point-of-tangent of curb return. If the side-street has a free-right turn lane, the entry length should begin at the end of the merge lane taper.




## CASE 4: Far-Side Stop After Bus Turn

Total Minimum Length = 135' Min.

| CASES 3: DISTANCE FROM CURB RETURN TO BEGINNING OF BAY | |
|---|---|
| Collectors or lower | 60' min. |
| Arterials | 130' min. |

## CASE 3: Mid-Block Stop

Total Minimum Length = 115'

**Note:**

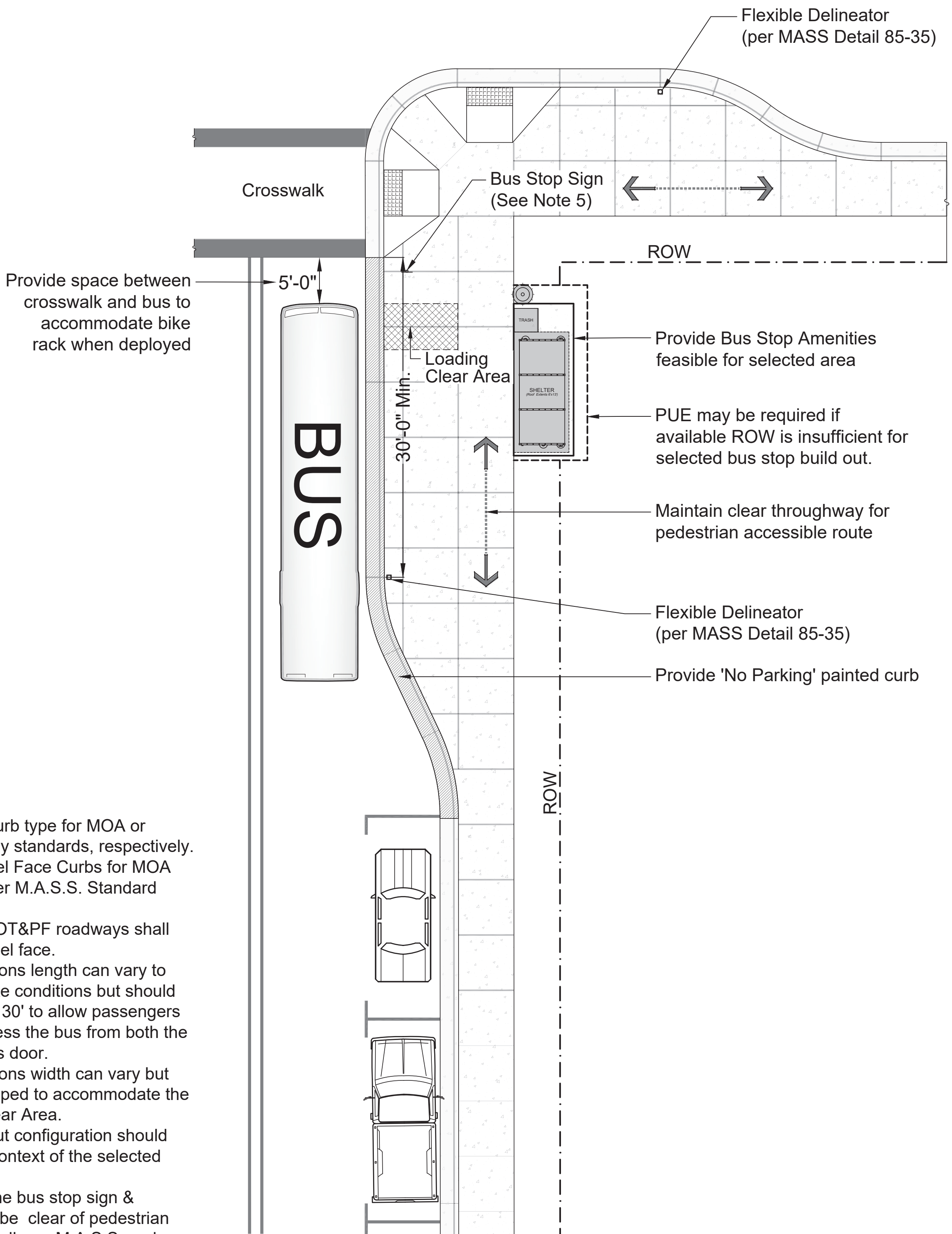
1. Add 50' to bay length for each additional standard bus expected to use the stop at the same time.

**Legend**

- Location of bus stop sign
- Painted curb

NOT TO SCALE

# Figure 7-6: Curbside Bus Stop Layouts




**Notes:**

1. Provide typical curb type for MOA or DOT&PF roadway standards, respectively.
   1.1. Provide Steel Face Curbs for MOA roadways per M.A.S.S. Standard Detail 30-5.
   1.2. Curbs on DOT&PF roadways shall not have steel face.
2. Sidewalk extensions length can vary to accommodate site conditions but should be a minimum of 30' to allow passengers the ability to access the bus from both the front and mid-bus door.
3. Sidewalk extensions width can vary but should be developed to accommodate the 5'x8' Loading Clear Area.
4. Bus Stop build out configuration should meet need and context of the selected location.
5. The location of the bus stop sign & schedule should be clear of pedestrian accessible sidewalk per M.A.S.S. and MOA / DOT&PF Traffic Engineer.

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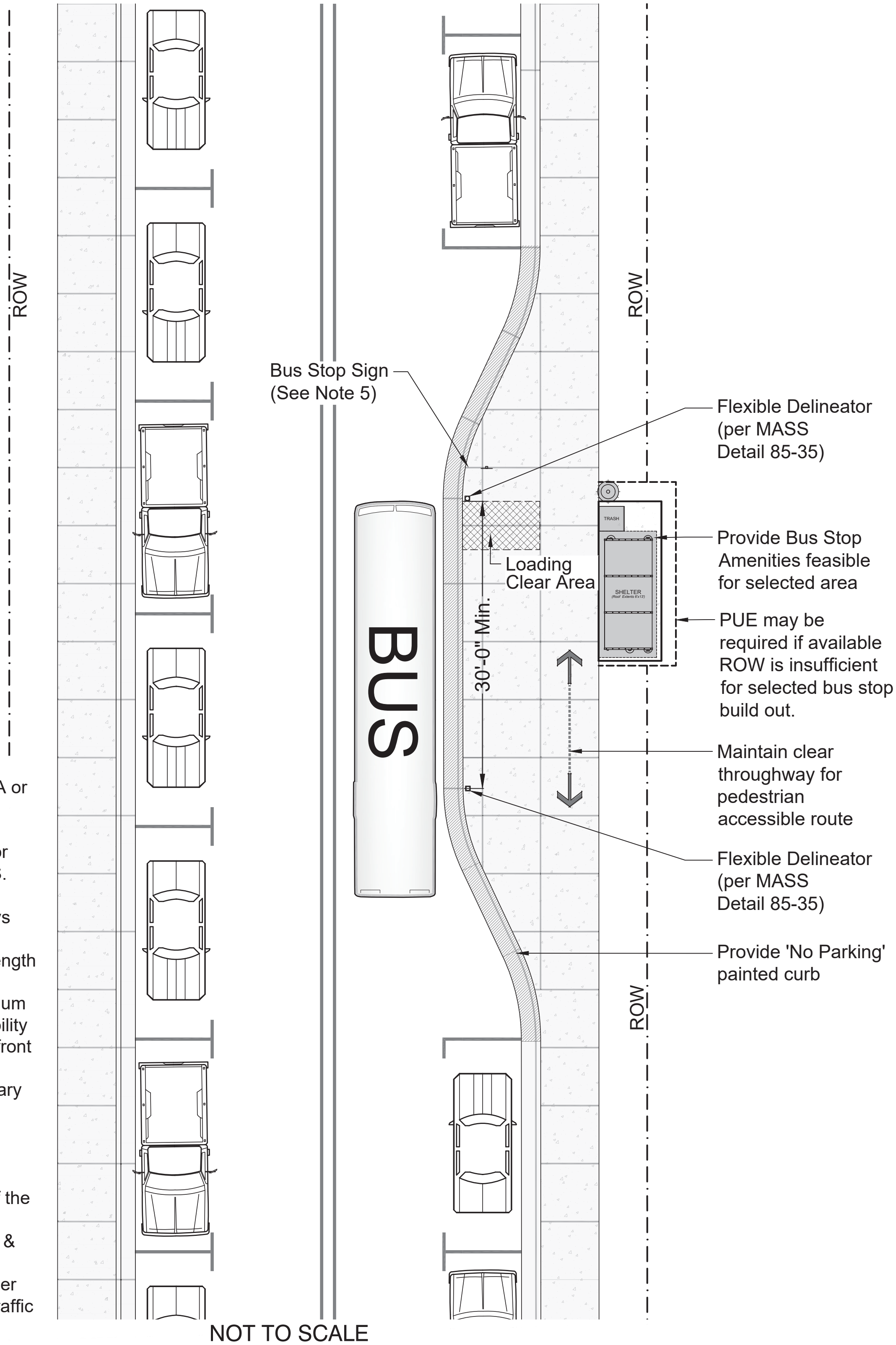
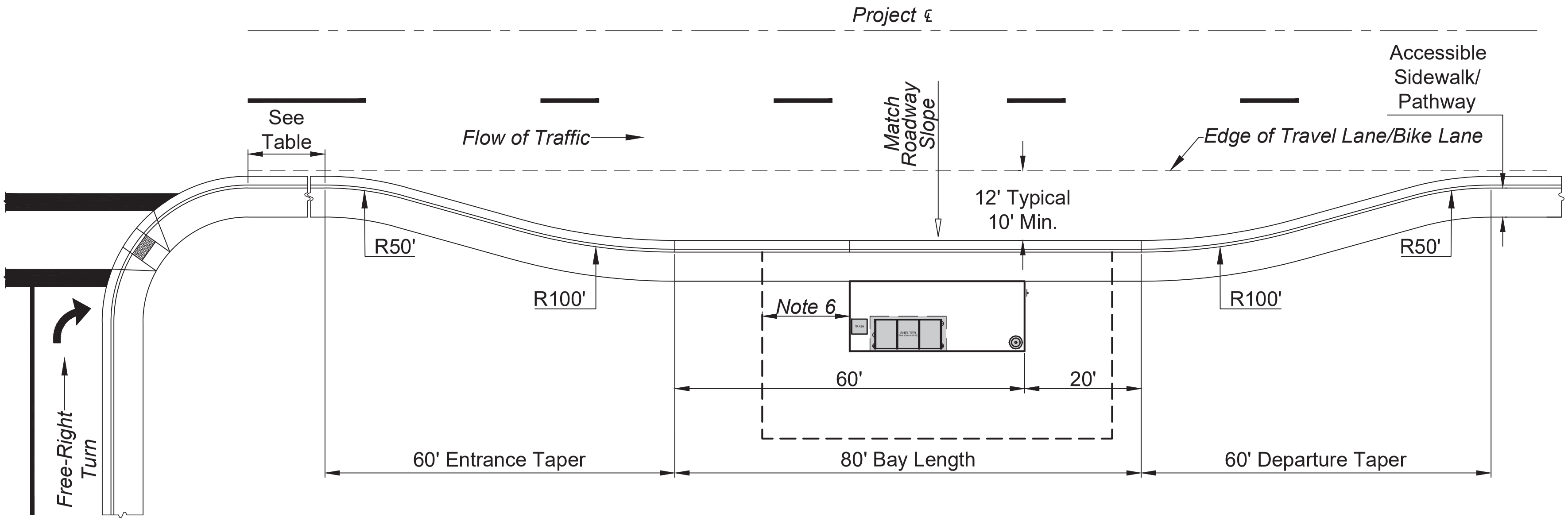
# Figure 7-7: Curb Extensions at Intersections




**Notes:**

1. Provide typical curb type for MOA or DOT&PF roadway standards, respectively.
   1.1. Provide Steel Face Curbs for MOA roadways per M.A.S.S. Standard Detail 30-5.
   1.2. Curbs on DOT&PF roadways shall not have steel face.
2. Mid-Block sidewalk extensions length can vary to accommodate site conditions but should be a minimum of 30' to allow passengers the ability to access the bus from both the front and mid-bus door.
3. Sidewalk extensions width can vary but should be developed to accommodate the 5'x8' Loading Clear Area.
4. Bus Stop build out configuration should meet need and context of the selected location.
5. The location of the bus stop sign & schedule should be clear of pedestrian accessible sidewalk per M.A.S.S. and MOA / DOT&PF Traffic Engineer.

# Figure 7-8: Mid-Block Bus Stop with Curb Extensions




| Intersection Layout | Begin Entrance Taper |
|---|---|
| Intersection with **no** free-right turn | 50' |
| Intersections with free-right turn (see Note 7) | 100' |

**Notes:**

1. Pullouts only allowable on Arterials. If a pullout is desired on collector (or lower), approval from PTD and MOA Traffic Engineer is required.
2. Construct curb angles to the radii shown.
3. All bus turnouts shall have, as a minimum, an 8-foot wide by 5-foot long paved loading area for wheelchair lift operation and disabled user access.
4. When drainage will not clear pullout, install catch basin or M.O.A. Type III curb and valley gutter system.
5. This drawing shows the Standard Geometric layout for the typical bus pullout. All other types are modifications based upon location and type of roadway where installed.
6. Provide accessible route tie-in 15-feet max. beyond bus stop for retrofits or upgrades per PROWAG/ADA Guidelines.
7. For pullout bus stops located immediately after intersections (far-side bus stops) and with free-right turns, additional distance should be placed between the intersection and pullout. The additional distance increases clear views and reaction time for bus drivers to determine safe departure.

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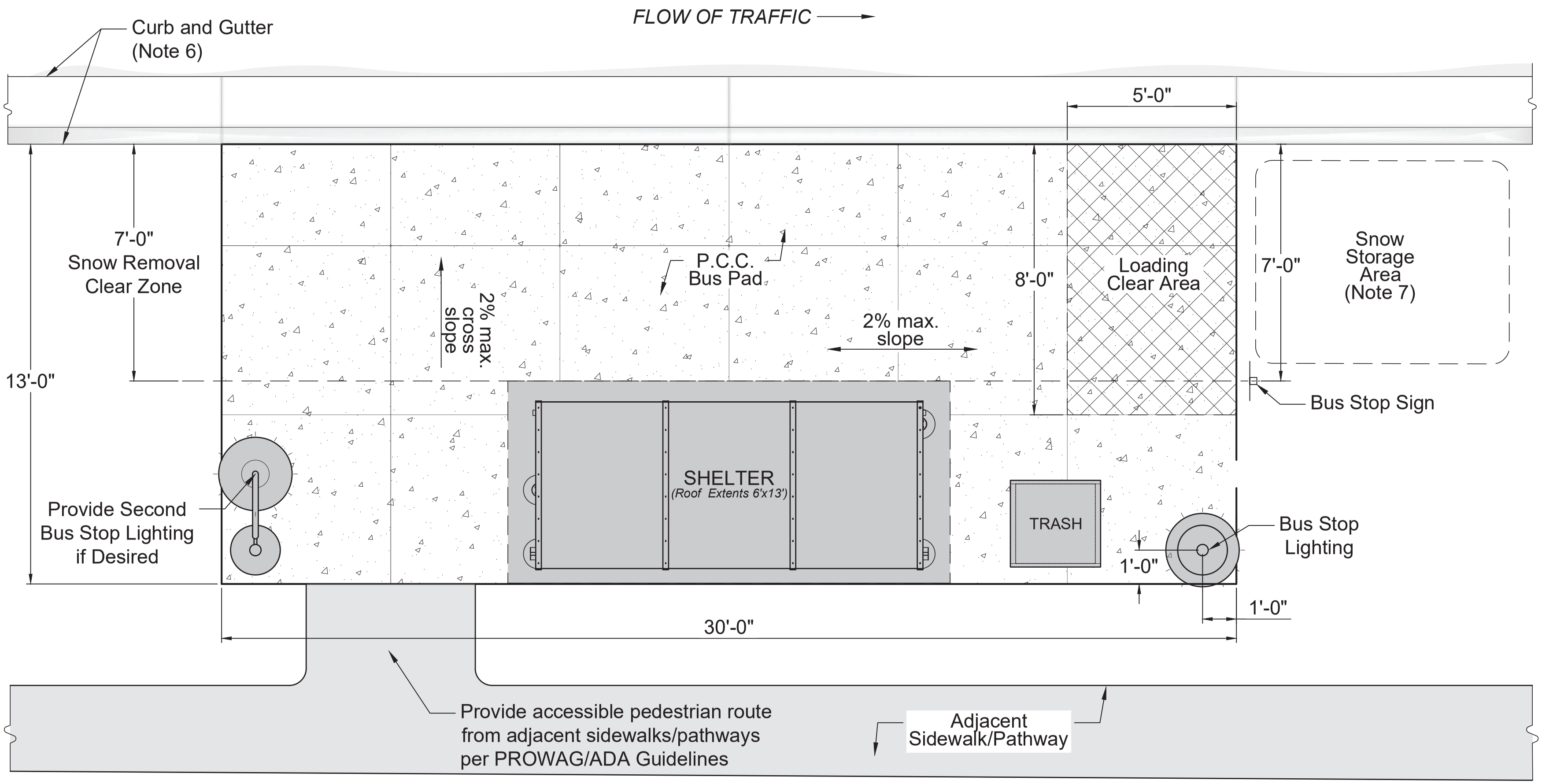
# Figure 7-9: Geometric Layout for Typical Bus Pullout




**Notes:**

1. Pathway, shelter and bench pad to be constructed with 6-inch thick P.C.C.
2. Shelter and/or bench may be relocated; maintain 5-ft width x 8-ft length min. width for the Loading Clear Area.
3. When possible, install light at sign location and mount sign on pole I.A.W. M.O.A. Standard Detail 85-26.
4. Supplemental illumination to be placed near-side of shelter, and/or bench, and/or at sign location.
5. Optional amenities: transit information sign/kiosk.
6. Provide typical curb and gutter per MOA or DOT&PF roadway designation.
   6.1. Provide Steel Face Curbs for MOA roadways per M.A.S.S. Standard Detail 30-5.
   6.2. Curbs on DOT&PF roadways shall not have steel face.
7. Preferred snow storage location is the downstream side of bus pad, but alternate locations may be provided if coordinated with MOA Transit M&O or DOT&PF M&O as applicable. Dedicated areas for snow storage should be considered for both street maintenance and Transit M&O. Snow storage areas should be kept back a minimum 3-ft clear of Loading Clear Zone and 3-ft from back of curb.

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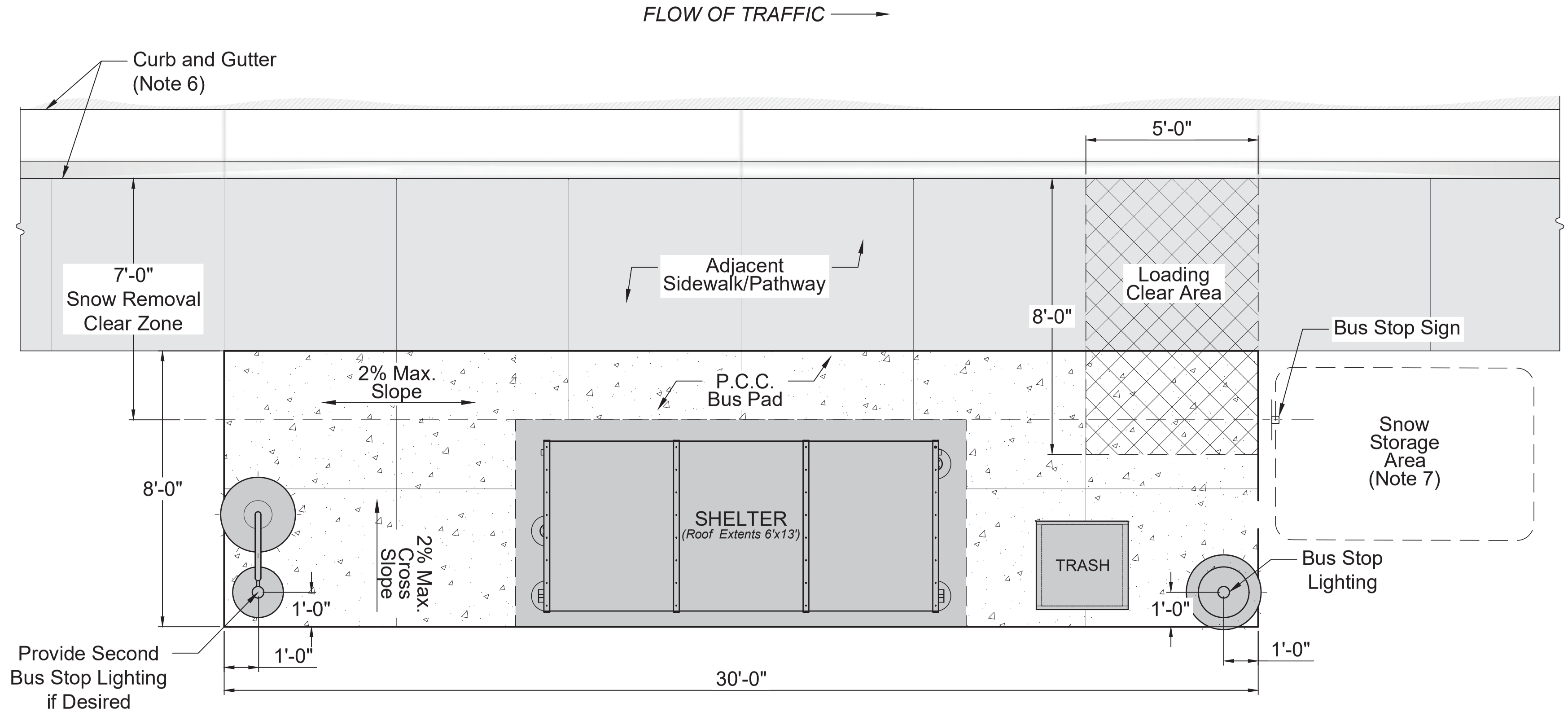
# Figure 7-10: Layout for Typical Bus Stop Pad at Back of Curb




**Notes:**

1. Pathway, shelter and bench pad to be constructed with 6-inch thick P.C.C.
2. Shelter and/or bench may be relocated; maintain 5-ft width x 8-ft length min. width for the Loading Clear Area.
3. When possible, install light at sign location and mount sign on pole I.A.W. M.O.A. Standard Detail 85-26.
4. Supplemental illumination to be placed near-side of shelter, and/or bench, and/or at sign location.
5. Optional amenities: transit information sign/kiosk.
6. Provide typical curb and gutter per MOA or DOT&PF roadway designation.
   - 6.1. Provide Steel Face Curbs for MOA roadways per M.A.S.S. Standard Detail 30-5.
   - 6.2. Curbs on DOT&PF roadways shall not have steel face.
7. Preferred snow storage location is the downstream side of bus pad, but alternate locations may be provided if coordinated with MOA Transit M&O or DOT&PF M&O as applicable. Dedicated areas for snow storage should be considered for both street maintenance and Transit M&O. Snow storage areas should be kept back a minimum 3-ft clear of Loading Clear Zone and 3-ft from back of curb.

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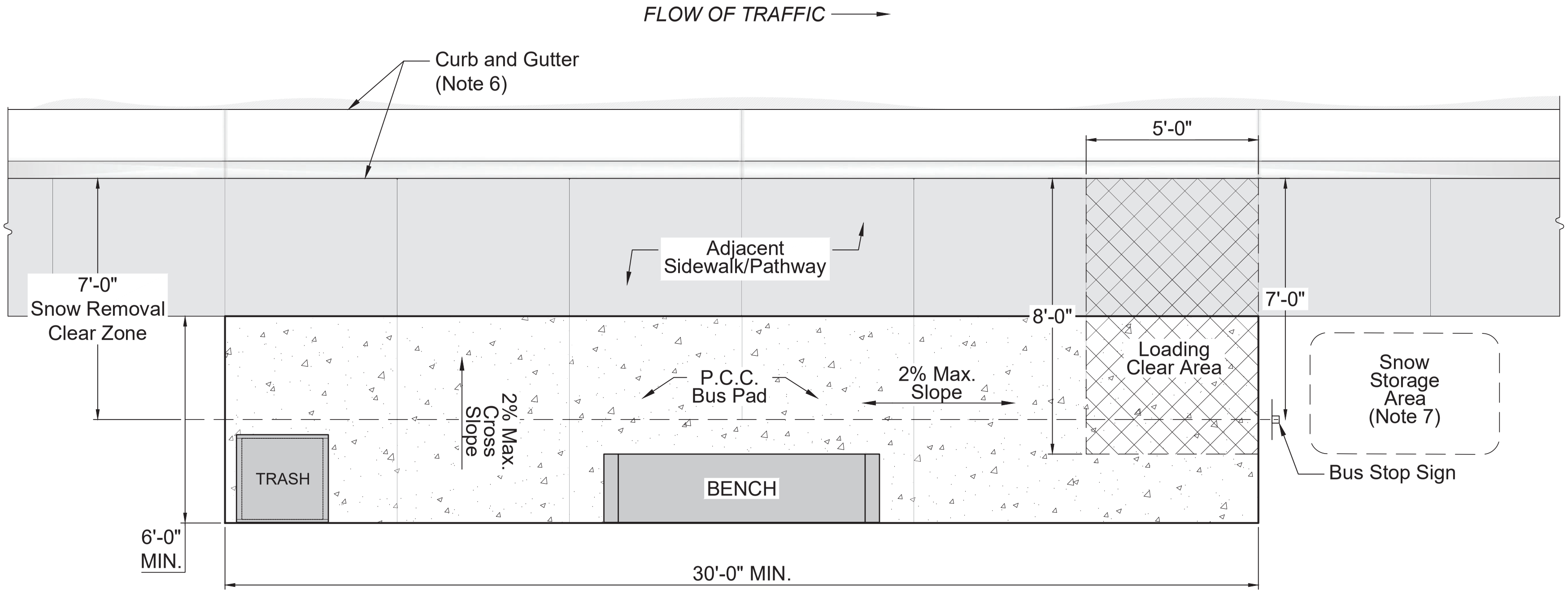
**Figure 7-11: Layout for Typical Bus Stop Pad Street-Side Sidewalk**




**Notes:**
1. Pathway, shelter and bench pad to be constructed with 6-inch thick P.C.C.
2. Shelter and/or bench may be relocated; maintain 5-ft width x 8-ft length min. width for the Loading Clear Area.
3. When possible, install light at sign location and mount sign on pole I.A.W. M.O.A. Standard Detail 85-26.
4. Supplemental illumination to be placed near-side of shelter, and/or bench, and/or at sign location.
5. Optional amenities: transit information sign/kiosk.
6. Provide typical curb and gutter per MOA or DOT&PF roadway designation.
   6.1. Provide Steet Face Curbs for MOA roadways per M.A.S.S. Standard Detail 30-5.
   6.2. Curbs on DOT&PF roadways shall not have steel face.
7. Preferred snow storage location is the downstream side of bus pad, but alternate locations may be provided per coordination with MOA Transit Maintenance & Operations or DOT&PF M&O as applicable.

NOT TO SCALE

# Figure 7-12: Layout for Typical Bus Stop Pad (Limited Build Out)

## 2. Accessible Routes

Bus stops shall be connected with an accessible route to all streets, sidewalks, pathways, and/or trails within the site boundary. The site boundary is considered to be defined by the beginning and end of the bus stop, the adjacent street, and the ROW line for the street segment containing the bus stop. Accessible routes shall comply with all ADA guidelines, including but not limited to, width, clearances, surfaces, grades, and cross slopes. Exterior accessible routes may include parking access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps and lifts. Figure 7-9 depicts a typical minimum site boundary for a bus pullout. Where a bus stop serves as a transfer point, the site boundary and an accessible route shall extend to the connecting route bus stops. Where a bus stop is the closest stop to an intersection, major generator or other private development, it is necessary to extend the site boundary and an accessible route to the intersection, and desirable to extend both boundary and route to the generator or development. In the case of a mid-block stop with no adjacent sidewalk or trail, it is desirable to provide an accessible route to the nearest intersection or signal-protected crosswalk.

### a) Width of Walks and Ramps

Accessible routes should be at least 5 feet wide. A minimum width of 4 feet is acceptable within the MOA if 5- foot by 5-foot passing spaces are provided at intervals of 200 feet or less. Sidewalks and pathways narrower than 4-feet create issues for mechanized snow removal equipment, making regular and quick maintenance impracticable.

### b) Side and Vertical Clearance

Accessible routes must be completely clear of any objects protruding from the surface or from the sides that narrow the pathway such as fire hydrants, parking meters, sign posts, benches, landscaping, etc. A minimum clear headroom of 80-inches shall be maintained on accessible pathways.

### c) Surfacing

Surfaces along accessible routes shall be stable, firm and slip resistant. Avoid materials or construction methods that create bumpy and uneven surfaces in areas and along routes required to be accessible. Imprinted concrete, decorative pavers, and excessive concrete joints can be difficult and sometimes painful to negotiate with wheeled mobility aids due to the vibrations. It is recommended that routes be paved with either 4-inch thick Portland Cement Concrete or 2-inch asphalt concrete pavement. An appropriate foundation shall be provided for the surfacing.

### d) Grades, Changes in Level, and Cross-slopes

Any part of an accessible route with a slope greater than 5% shall be considered a ramp and comply with subsection 3, Ramps, below. Changes in level greater than ¼-inch shall be accommodated in accordance with subsection 3, Ramps, below. The maximum permissible cross-slope is 2%.

### e) Utility Grates

Utility grates with openings should not be placed in accessible routes. If utility grates must be located in the route, they shall have openings no greater than ½-inch wide in one direction. If utility grates have elongated openings, they shall be placed so that the long dimension is perpendicular to the direction of travel.

3. Ramps

Segments of accessible routes with grades greater than 5% or changes in level greater than ¼-inch shall be designed in accordance with this section. All other accessible route requirements shall be applied to ramps.

a) Grades

The maximum slope for any segment of a ramp is 8.3%. However, where site infeasibility precludes a slope of 8.3%, the least possible running slope shall be provided. The maximum rise for any segment of an accessible route with a grade greater than 5% is 30 inches. All ramps must comply with ADA guidelines. All ramps are required to be equipped with detectable warning tiles. To the extent feasible, all slopes, cross slopes, and grades must adhere to ADA guidelines. A landing shall be constructed on the ramp after each 30 inches of rise. Minimum landing size shall be 5 feet by 5 feet.

b) Changes in Level

Any abrupt change in level on a bus stop pad or accessible route greater than ¼-inch but less than ½- inch must be beveled to a slope of no more than 1 inch of rise for 2 inches of run. Particular attention shall be emphasized with respect to surface tolerances when using surface materials such as concrete brick pavers and imprinted Portland concrete cement.

Any change in level on a bus stop pad or accessible pathway greater than ½-inch requires a ramp. Curb ramps shall meet the requirements of ADAAG.

## 7.5 D Bus Stop Amenities

The DCM provides guidance on the design of bus stop amenities and placement of the desired amenities within a bus stop. To determine when amenities are warranted, see the most recent version of MOA PTD's Bus Stop Amenity Guidelines.

1. Waiting Areas

Regardless of the location and type of stop, all new or rebuilt bus stops must provide a bus stop pad as described above in Section 7.4 C. The improved stop should include adequate area and clearance for passenger access to buses, bus stop amenities, and connecting sidewalks and trails. Waiting areas should be removed from the through sidewalk or trail. Figures 7-10, 7-11, and 7-12 depict fully-developed waiting area and the desirable location of amenities for potential configurations when the site may be constrained.

2. Benches

a) Design

PTD has a specified bench that is installed at its facilities. The bench standardizes and provides recognition of public transportation facilities. Benches are installed at stops based upon the average number of boardings and/or if the stop provides service for senior citizens or people with disabilities.

PTD may provide benches for the project and designers should contact PTD staff for arrangements and/or equipment specifications.

### b) Placement

Benches should be placed no closer than 7-feet from the back of curb to avoid injuries to persons waiting at the benches by the opening of bus doors, to allow passengers to pass people sitting on the bench, and to facilitate regular winter maintenance.

At least 60 inches of clearance for wheelchairs should be provided on either the front or backside of the bench (see Figures 7-12). Seating should be placed no closer than 5-feet and no further than 15 feet from a bus stop sign post.

## 3. Trash Receptacles

PTD has two specified types of trash receptacles that are installed at its facilities. One is ground mounted, and the other is mounted to the shelter. The shelter mounted trash receptacles should be considered where space is limited. If available, PTD may be able to provide trash receptacles for the project. The designer should contact PTD staff for arrangements and/or equipment specifications.

## 4. Shelters

PTD encourages construction of shelters that provide protection from rain, wind and snow for transit passengers.

### a) Design

Bus shelter designs shall provide for ready use by individuals in wheelchairs. The following minimum features should be incorporated into a shelter:

- Complete roof
- Optional walls
- Inside bench with outside bench if site conditions allow
- Interior and exterior lighting
- Display area for route and schedule information
- Concrete base for bus shelters shall be a minimum of 6-inch thick Portland Concrete Cement. The Engineer shall provide recommendations for rebar reinforcing.

PTD has a specified bus shelter to be installed at its facilities. If available, PTD may be able to provide bus shelters for the project. A typical shelter design used in Anchorage is shown in Appendix 7A. The designer should contact the PTD staff for arrangements and/or equipment specifications. Shelters can also be increased in size for high ridership stops. Shelters should be located behind the bus stop boarding area and be set back from back of curb or edge of pavement at least 7- feet to leave room for the full bus stop pad. If the shelter cannot be located next to the bus stop pad, an accessible route shall be constructed between the two. Electricity should be provided for illumination of the shelter interior, in accordance with Municipal Code requirements.

Shelters can also be designed into the architectural theme of a building. Shelters integrated into building facades can vary considerably depending on the purpose and style of the building. There should, however, be at least 30 inches of roof overhang to protect waiting passengers.

b) Location

Refer to the most recent version of MOA PTD's Bus Stop Amenity Guidelines to determine which conditions warrant a bus shelter.

c) Other Considerations

Shelters need to be aesthetically and functionally compatible with nearby uses; a shelter should not severely affect an adjacent residence or business. Every effort should be made to minimize potential impacts before proceeding with an installation. Passenger shelters are generally located within the available public right-of-way, on sites that allow for clear and open pedestrian movements. Locations at or near existing street lighting are also preferred.

d) Utilities

Utilities are a consideration for bus stops where it is anticipated that a shelter will be required. If the location is a transfer point and/or abuts a land use expected to generate significant passenger activity then it is likely that a passenger shelter will be installed. A power connection will be required to provide illumination inside the shelter. The field location can often be adjusted to some extent to minimize the power drop and corresponding capital costs.

In scenarios where existing infrastructure such as utility poles, power transformers, signal switching boxes, other utilities conflict with the location of an pullout bus stop, the cost of utility relocation may be prohibitive. The bus stop configuration may need to be modified to develop the optimal location and/or design.

e) Coordination with Property Owners

Coordination with adjacent property owners can sometimes produce more cost-effective bus stop improvements. Examples of benefits include benches integrated into the design of fences or walls, and awnings or building overhangs used as passenger protection. This approach can produce attractive improvements at minimal agency cost.

5. Bus Stop Signs

All bus stops should be conspicuously signed. Unlike most street signage, bus stop signs serve both informational and marketing functions, and are designed to be viewed both by drivers and pedestrians. Signs are intended to be immediately identifiable as transit stops in order to make the system easier to use for existing riders and to attract new users. People Mover bus stop signs are produced by the Municipal Sign Shop.

Regular bus stop signs shown in Appendix 7A are placed at all authorized bus stops. Sign placement for bus pullouts should be located immediately at the end, or downstream side of the bus pad. Signs should be set 7-feet back from the back of curb or roadside edge in accordance with MASS Division 85.

Although the bus stop sign may be mounted with a "No Parking" sign, generally, it should be mounted independently of other signage on its own pole. The sign face should be mounted at a 93° to 97° angle to the direction of travel. When a sign must overhang an accessible pathway, it shall be mounted 7-feet above the finished grade.

Where applicable, bus stop signs can be mounted on bus stop light poles if the light location is installed at the appropriate sign location. Lighting at bus stops is encouraged. Signs and schedules can be easily read when mounted on the light pole.

Central Business District and Downtown: Signs should not be closer than 19 inches from back of curb to avoid contact with bus mirrors. Signs shall be located between the curb and the main walking corridor when separated from the curb.

Outside Central Business District: Signs should not be obstructed by trees, buildings or other signs, shall be set back 7-feet from the curb face, and should face oncoming traffic. If there is a sidewalk or adjacent bike trail, the sign should be placed outside the sidewalk or bike trail, unless the distance is more than 10 feet from the curb line.

## 6. Bus Route and Schedule Information

The People Mover has two types of bus stop route and schedule information signage: schedule information holders and A-frame signs. Schedule information holders are 8.5-inch by 21-inch cast metal units mounted to bus stop sign posts, light poles, or shelter frames. The holders display one to five schedules.

### a) Design

Schedule information holders are designed to display a schematic route map and schedule of each route that serves the stop. At stops used by the visually impaired it is also desirable to include an information placard, which would contain the route number, direction (inbound or outbound), and location of the stop printed in Braille.

### b) Location

Schedule information holders are placed at all authorized bus stops.

A-frame signs are placed in areas of high foot traffic, high visibility, and/or where multiple routes intersect. A-frame signs should be placed such that at least 40 inches of clearance is provided for the passage of disabled persons.

## 7. Illumination

Passenger safety is enhanced by adequate lighting of the stop; riders feel more comfortable waiting for a bus at a lighted stop. Direct illumination of waiting passengers by a streetlight located near the start of the bus stop allows the bus driver to easily see waiting passengers.

Installing a supplemental light at the sign location provides light to read schedules and the bus stop sign can be mounted on the light pole (see Appendix 7A). Light poles shall be placed in locations to facilitate regular maintenance for snow removal equipment.

Illumination for bus stops shall be in accordance with the Design Criteria Manual Section 5.040 B and with ADA (ADAAG 4.30.8) illumination requirements. A further recommendation is that the illumination level on the surface of the sign not be significantly exceeded by a visible bright lighting source behind or in front of the sign. When street lighting does not provide the minimum illumination levels established in the Design Criteria Manual, new or supplemental lighting should be considered.

PTD has identified a pedestrian scale light for bus stops. The light is manufactured by Lumec, Identification No. CANC3_47150A; telephone (514) 430-7040, Fax (514) 430-1453. (see Appendix 7A).

### 7.5 E Decommissioning of Bus Stops

Scope of decommissioning bus stops is at the discretion of PTD. A bus stop may cease to be used or may transition between types as routes change.

Simple decommissioning, such as during a bus route and schedule adjustment, may be limited to sign and schedule removal. These routes and stops may become active again in the future.

A full decommissioning involves complete removal of all amenities, including hardscape, bus pad, lighting, and curb reconstruction as applicable. All vertical elements shall be removed. Full decommission may occur at any time; however, is advantageous during reconstruction of roadways or other transportation improvement projects. Reallocation of the space should conform to the context of the adjacent land uses while maintaining accessible routes through the stop area. Designer shall coordinate with PTD Maintenance and Operations staff regarding salvage of amenities. Each decommissioned bus stop will require a case-by-case evaluation of impacts and coordination with PTD and other MOA departments, DOT&PF, and affected utilities prior a final determination.

END OF SECTION 7.5

## SECTION 7.6 OTHER TRANSIT FACILITIES & SERVICES

### 7.6 A Objective

Transit service is not limited to fixed route services and facilities. On-street bus stops are not the only transit facilities that require consideration and design. Bus layovers and park-and-ride facilities are two facilities that are currently utilized by MOA's PTD. Further, transit services continue to evolve and incorporate alternative services such as Micro Transit. This section provides guidance on other transit facilities and services.

### 7.6 B Bus Layover Areas

A bus layover area is a bus parking area provided at a terminus of each bus route. The area is out of the traffic flow, and is used to give the driver a rest break, an opportunity to prepare for the return trip, and recovery time to ensure on-schedule operation. Turnouts will work as layover areas if no other option is available. Better locations are designated corners of shopping mall parking lots (malls often serve as route ends), or other lots or areas where the driver can safely leave the bus.

1. Design

The appropriate length of a layover area is determined by the number of routes sharing the zone, the scheduled overlap of layovers (if any), and any sight clearance problems for nearby driveways or intersections.

For additional information concerning design criteria, see Section 7.5 B.2., Off-Street Bus Turnouts and Section 7.6 C., Park and Ride Facilities.

2. Location

Bus layover areas should be located as close as possible to existing bus stops serving major passenger generators (hospitals, malls, schools, recreation facilities, etc.).

Bus layover areas should be close to restroom facilities so drivers can refresh themselves before beginning another trip. A site with a restaurant nearby is desirable, although not necessary.



### 7.6 C Park-and-Ride Facilities

A Park-and-Ride Facility is an area providing parking for commuters in rural and lower density areas of the Municipality. These facilities are designed to provide an incentive for time-sensitive commuters to use mass transit. Park-and-Ride facilities can be a stand-alone development or can be created in partnership with strategically located commercial or other uses.

The People Mover system currently has one Park-and-Ride lot located at Business Boulevard in Eagle River at the Eagle River Transit Center.

1. Design

Design criteria for park-and-ride facilities follow the same design standards as any other parking lot, and should be coordinated with either MOA PM&E or DOT&PF, depending on the location and ownership of the sites. Lots should have a minimum of 10 spaces available for park-and-ride use and should provide for internal circulation.

Bus loading areas and auto drop-off (park-and-ride) areas should be designed to be near building/facility entrances to permit easy and fast transit bus access and egress.

The design criteria for Bus Pullouts and Bus Layover Areas shall be applied to the bus loading area. The full range of stop amenities should be provided at park-and-ride facilities. Access standards must conform to Section 7.4 C.

2. Location

Lots should be located along corridors that experience significant actual or perceived traffic congestion. It is desirable for the lots to be visible from the corridor, and located so that potential users do not have to alter their travel patterns to use the lot. Good access and egress are essential.

Lots must be located on or close to (within one block) at least one bus line, and preferably more than one bus line. Lots should be at least four (4) miles from the Anchorage downtown area.

### 7.6 D Micro Transit

Micro Transit is a transit service between fixed route transit and ride hailing services such as Uber or Lyft. Micro Transit is typically app-based, on-demand service available to the general public. Some transit providers may utilize a call-in option as well. Riders can expect solo-rides or small carpool. Services are provided in specified zones generally in areas that are poorly served by fixed route service. Micro Transit operations can be tailored to the target user group, community context, and trip types.

Micro Transit is complementary to traditional fixed route service. Micro Transit can provide transportation during time periods outside of fixed service hours and to fixed route stops enhancing connectivity. PTD does not currently have a Micro Transit service; however, guidance on anticipated vehicle and virtual stops have been provided in Sections 7.3 and 7.4, respectively, for future use.

END OF SECTION 7.6

## SECTION 7.7 REFERENCES

**Chapter 7 – Public Transportation**

**Industry Standard Guidance**

| Agency | Publication |
| --- | --- |
| AASHTO | A Policy on Geometric Design of Highways and Streets |
| AASHTO | Guide for High-Occupancy Vehicle (HOV) Facilities |
| AASHTO | Guide for the Geometric Design of Transit Facilities on Highways and Streets |
| AASHTO | American Association of State Highway and Transportation Officials |
| APTA | Design of On-street Transit Stops and Access from Surrounding Area |
| FTA | Optimization Models for Prioritizing Bus Stop Facility Investment for Riders with Disabilities |
| FTA | Americans with Disabilities Act (ADA): Guidance (FTA C 4710.1) |
| NACTO | Transit Street Design Guide |
| TCRP | Transit Agency Relationships and Initiatives to Improve Bust Stops and Pedestrian Access |
| TCRP | Better On-Street Bus Stops |
| TCRP | Managing Extreme Weather at Bus Stops |

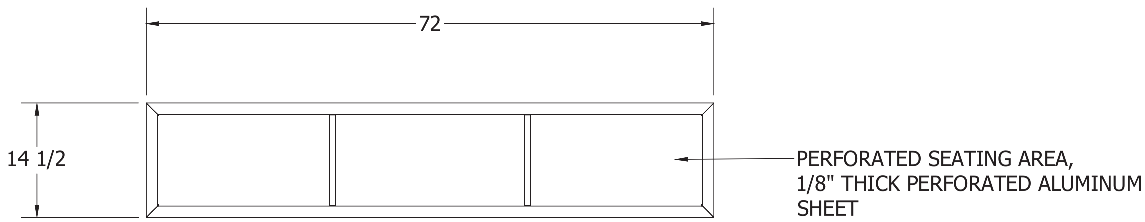
**Applicable Regulation**

| Agency | Publication/Regulation |
| --- | --- |
| USAB | Americans with Disabilities Act Accessibility Standards |
| ATBCB | Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way |

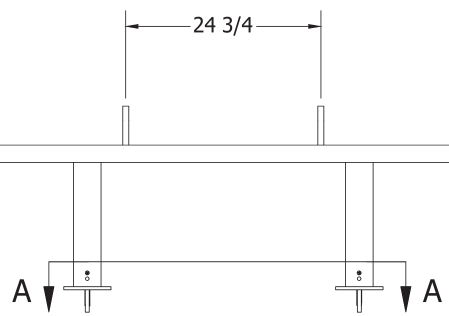
END OF SECTION 7.7

# APPENDIX 7A

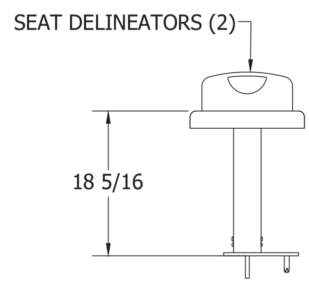
# Bus Stop Amenity Details



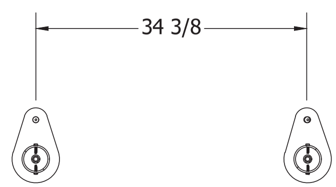

TOP VIEW
SCALE 3/4"=1'-0"




FRONT VIEW
SCALE 3/4"=1'-0"




SIDE VIEW
SCALE 3/4"=1'-0"




SECTION A-A
SCALE 3/4"=1'-0"

| CONFIGURATION A | |
|---|---|
| 1 | PLANT 1 |
| 2 | PLANT 2 |

| CONFIGURATION B - ANCHORS | |
|---|---|
| 0 | NO ANCHORS |
| 1 | 1/2" X 3 3/4" SUP-R ANCHORS, ZINC |
| 2 | 1/2" X 3 3/4" SUP-R ANCHORS, STN STL |
| 3 | 1/2" X 4 1/4" SUP-R ANCHORS, ZINC |
| 4 | 1/2" X 4 1/4" SUP-R ANCHORS, STN STL |
| 5 | 1/2" X 3 3/4" HILTI TZ ANCHORS, ZINC |
| 6 | 1/2" X 3 3/4" HILTI TZ ANCHORS, STN STL |
| 7 | 1/2" X 4 1/2" HILTI TZ ANCHORS, ZINC |
| 8 | 1/2" X 4 1/2" HILTI TZ ANCHORS, STN STL |
| 9 | SPECIAL - SPECIFIED ON SALES ORDER |

| CONFIGURATION C - FINISH | |
|---|---|
| 0 | NONE |
| 1 | STANDARD POWDER COAT |
| 2 | STANDARD POWDER COAT WITH CLEAR COAT |
| 3 | PREMIUM POWDER COAT |
| 4 | PREMIUM POWDER COAT WITH CLEAR COAT |
| 5 | TBD |
| 6 | TBD |
| 7 | TBD |
| 8 | TBD |
| 9 | SPECIAL - SPECIFIED ON SALES ORDER |

EXAMPLE: 4 8 9 2 4 - 1 2 1

DRAWING NUMBERS
CONFIGURATION A
CONFIGURATION B
CONFIGURATION C

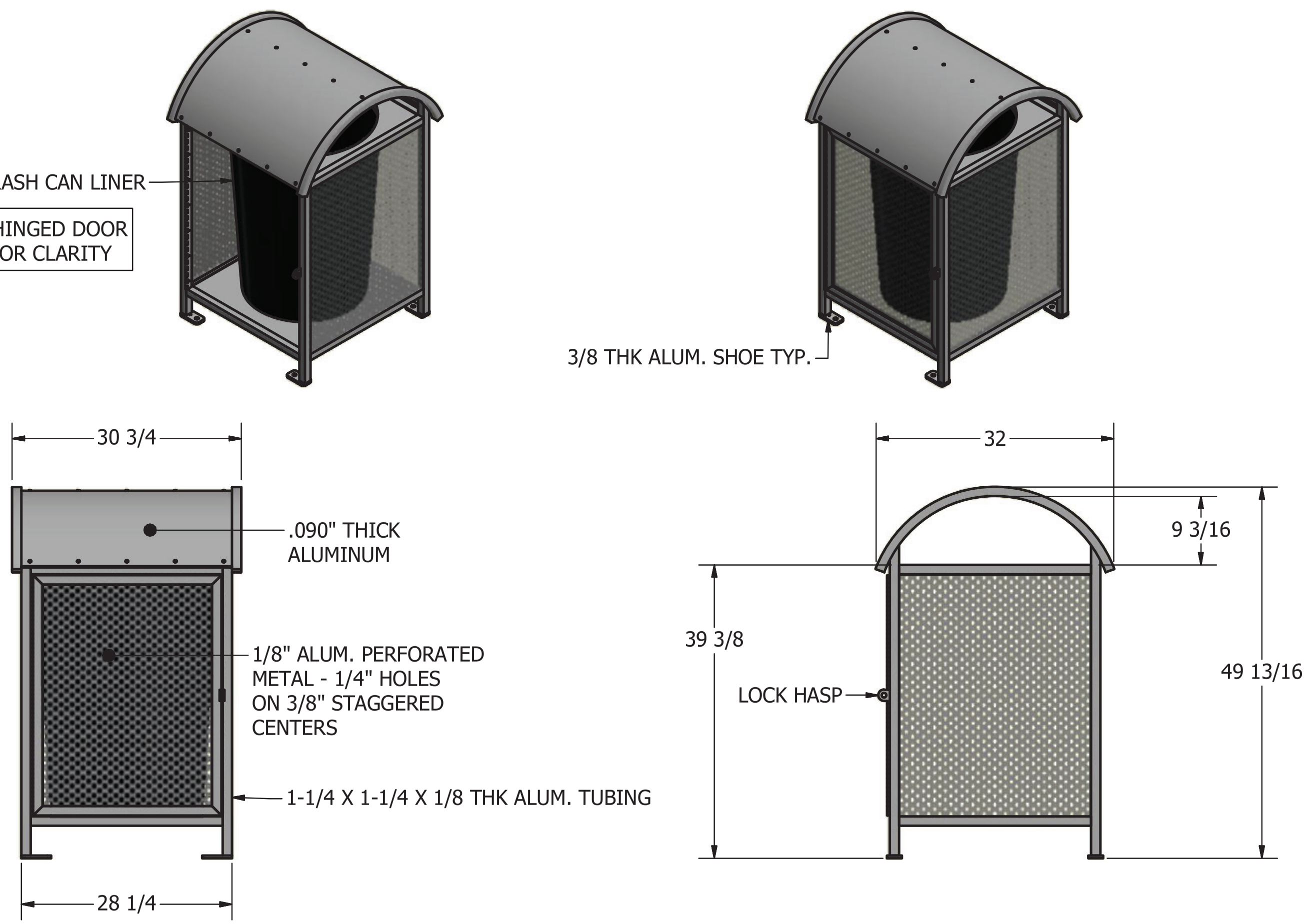


TOLAR® DURABILITY WITH DISTINCTION

TOLAR MANUFACTURING COMPANY, INC
258 Mariah Circle, Corona CA. 92879

| | | | |
|---|---|---|---|
| DESCRIPTION | 6'EUROBNCHPERF2VB (MODIFIED) | | |
| CUSTOMER/VENDOR | BLACKSBURG, VA | PAGE: 1 OF 1 | |
| SIZE B | MATL. VARIES | DWG NO. 48924 | REV - |
| SCALE AS NOTED | DATE 1/8/2024 | DRAWN BY: E. ROMERO | |

T:\Inventor\Benches\48924.idw




EXAMPLE: 1 6 3 7 0 - 1 1 1

DRAWING NUMBER
CONFIGURATION A
CONFIGURATION B
CONFIGURATION C

| | CONFIGURATION B - ANCHORS |
|---|---|
| 0 | NO ANCHORS |
| 1 | 1/2" X 3 3/4" SUP-R ANCHORS, ZINC |
| 2 | 1/2" X 3 3/4" SUP-R ANCHORS, STN STL |
| 3 | 1/2" X 4 1/4" SUP-R ANCHORS, ZINC |
| 4 | 1/2" X 4 1/4" SUP-R ANCHORS, STN STL |
| 5 | 1/2" X 3 3/4" HILTI TZ ANCHORS, ZINC |
| 6 | 1/2" X 3 3/4" HILTI TZ ANCHORS, STN STL |
| 7 | 1/2" X 4 1/2" HILTI TZ ANCHORS, ZINC |
| 8 | 1/2" X 4 1/2" HILTI TZ ANCHORS, STN STL |
| 9 | SPECIAL - SPECIFIED ON SALES ORDER |

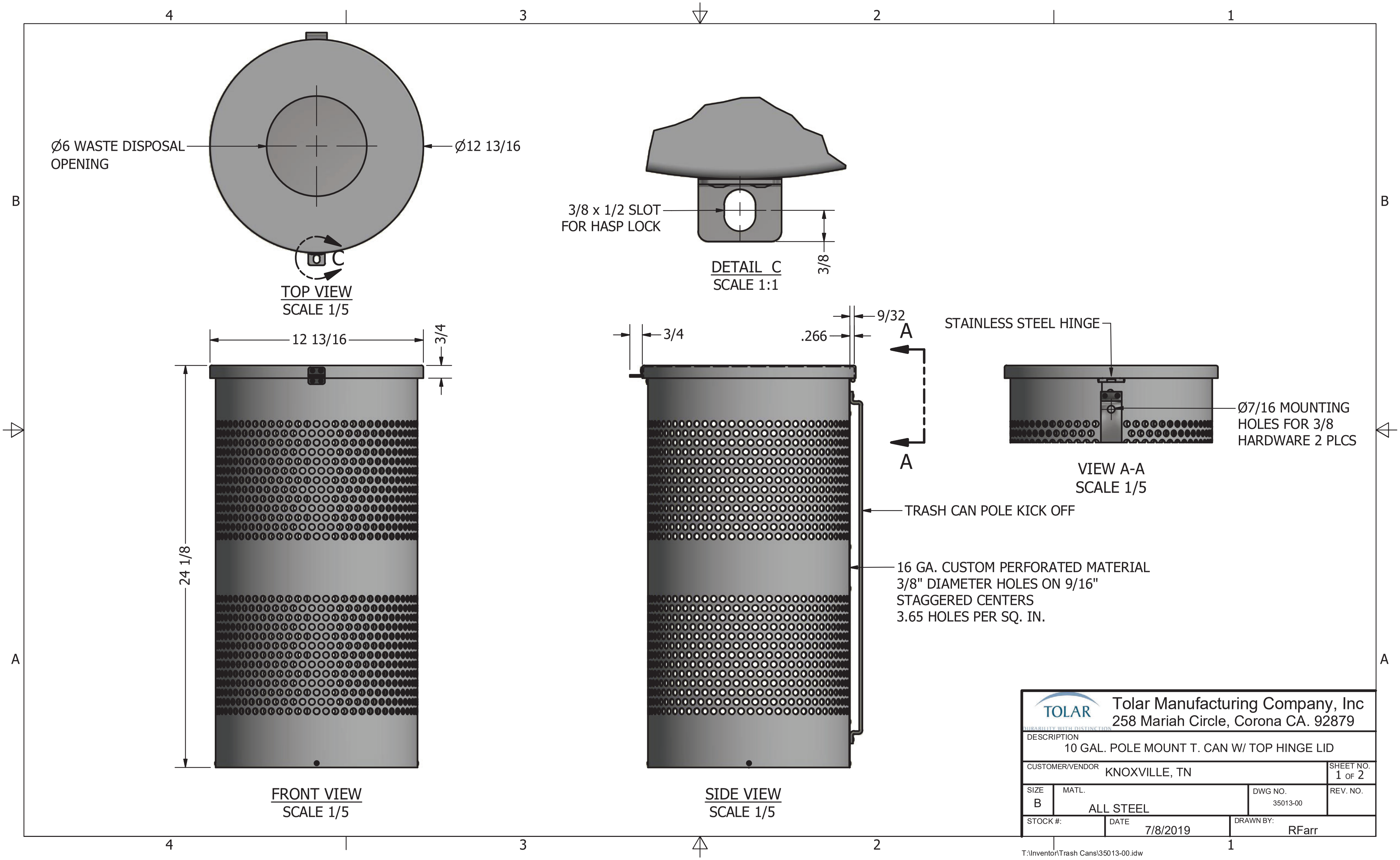
| | CONFIGURATION C - FINISH |
|---|---|
| 0 | NONE |
| 1 | STANDARD POWDER COAT |
| 2 | STANDARD POWDER COAT WITH CLEAR COAT |
| 3 | PREMIUM POWDER COAT |
| 4 | PREMIUM POWDER COAT WITH CLEAR COAT |
| 5 | TBD |
| 6 | TBD |
| 7 | TBD |
| 8 | TBD |
| 9 | SPECIAL - SPECIFIED ON SALES ORDER |

TOLAR
DURABILITY WITH DISTINCTION

Tolar Manufacturing Company, Inc
258 Mariah Circle, Corona CA. 92879

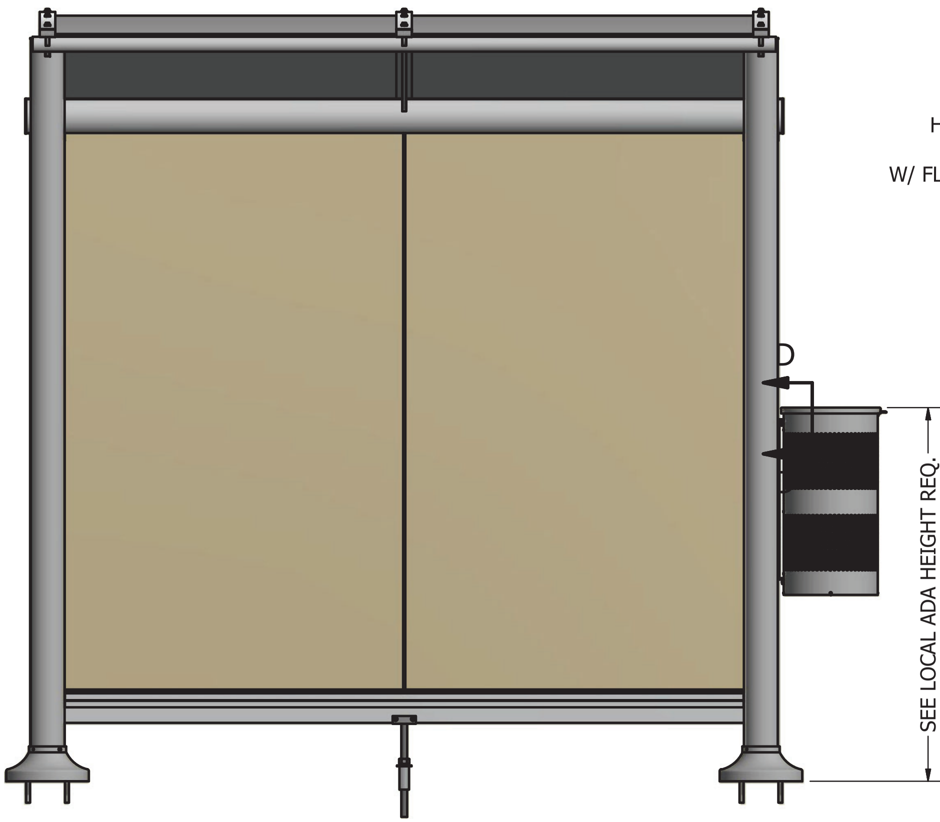
| | | | |
|---|---|---|---|
| DESCRIPTION: 44 GALLON TRASH RECEPTACLE, RECTANGULAR , ALL ALUM. CONST. | | | |
| CUSTOMER/VENDOR | | | SHEET NO. 1 OF 1 |
| SIZE B | MATL. | DWG NO. 20953-00 | REV. NO. |
| SCALE | DATE 2/13/2014 | DRAWN BY: RGARCIA | |

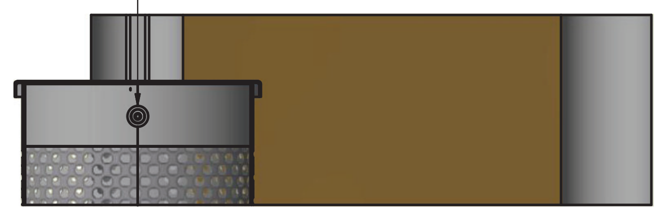
T:\Inventor\Trash Cans\20953-00.idw




| | | | |
|---|---|---|---|
| TOLAR | Tolar Manufacturing Company, Inc<br>258 Mariah Circle, Corona CA. 92879 | | |
| DESCRIPTION | 10 GAL. POLE MOUNT T. CAN W/ TOP HINGE LID | | |
| CUSTOMER/VENDOR | KNOXVILLE, TN | | SHEET NO. 1 OF 2 |
| SIZE B | MATL. ALL STEEL | DWG NO. 35013-00 | REV. NO. |
| STOCK #: | DATE 7/8/2019 | DRAWN BY: RFarr | |

T:\Inventor\Trash Cans\35013-00.idw

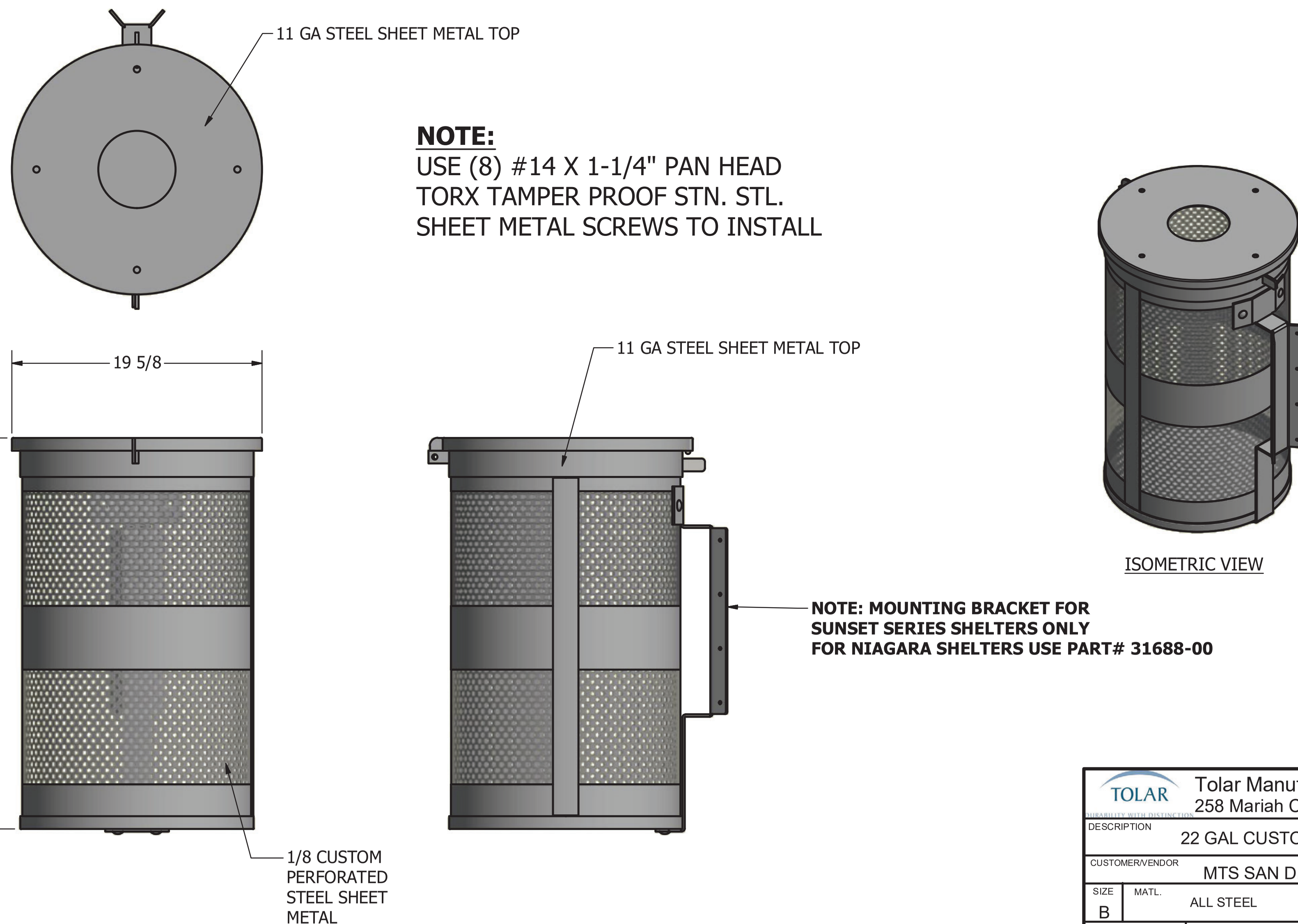



SECTION D-D
SCALE 1/6

| | | | |
|---|---|---|---|
| TOLAR | Tolar Manufacturing Company, Inc<br>258 Mariah Circle, Corona CA. 92879 | | |
| DESCRIPTION | | | |
| CUSTOMER/VENDOR | KNOXVILLE, TN | | SHEET NO. 2 OF 2 |
| SIZE B | MATL. ALL STEEL | DWG NO. 35013-00 (MOUNTED) | REV. NO. |
| STOCK #: | DATE 7/8/2019 | DRAWN BY: RFarr | |

T:\Inventor\Trash Cans\35013-00.idw



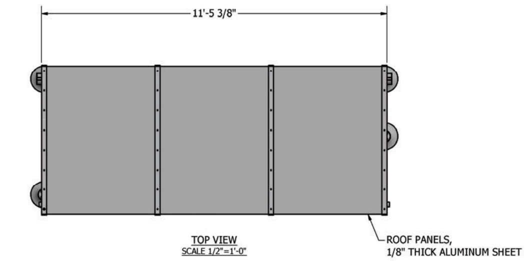

**NOTE:**
USE (8) #14 X 1-1/4" PAN HEAD
TORX TAMPER PROOF STN. STL.
SHEET METAL SCREWS TO INSTALL

| | |
|---|---|
| TOLAR | Tolar Manufacturing Company, Inc<br>258 Mariah Circle, Corona CA. 92879 |
| DESCRIPTION | 22 GAL CUSTOM TRASH CAN |
| CUSTOMER/VENDOR | MTS SAN DIEGO |
| SHEET NO. | 1 OF 1 |
| SIZE | B |
| MATL. | ALL STEEL |
| DWG NO. | 29225-00 |
| REV. NO. | - |
| SCALE | 1/8 |
| DATE | 1/3/2017 |
| DRAWN BY: | EROMERO |

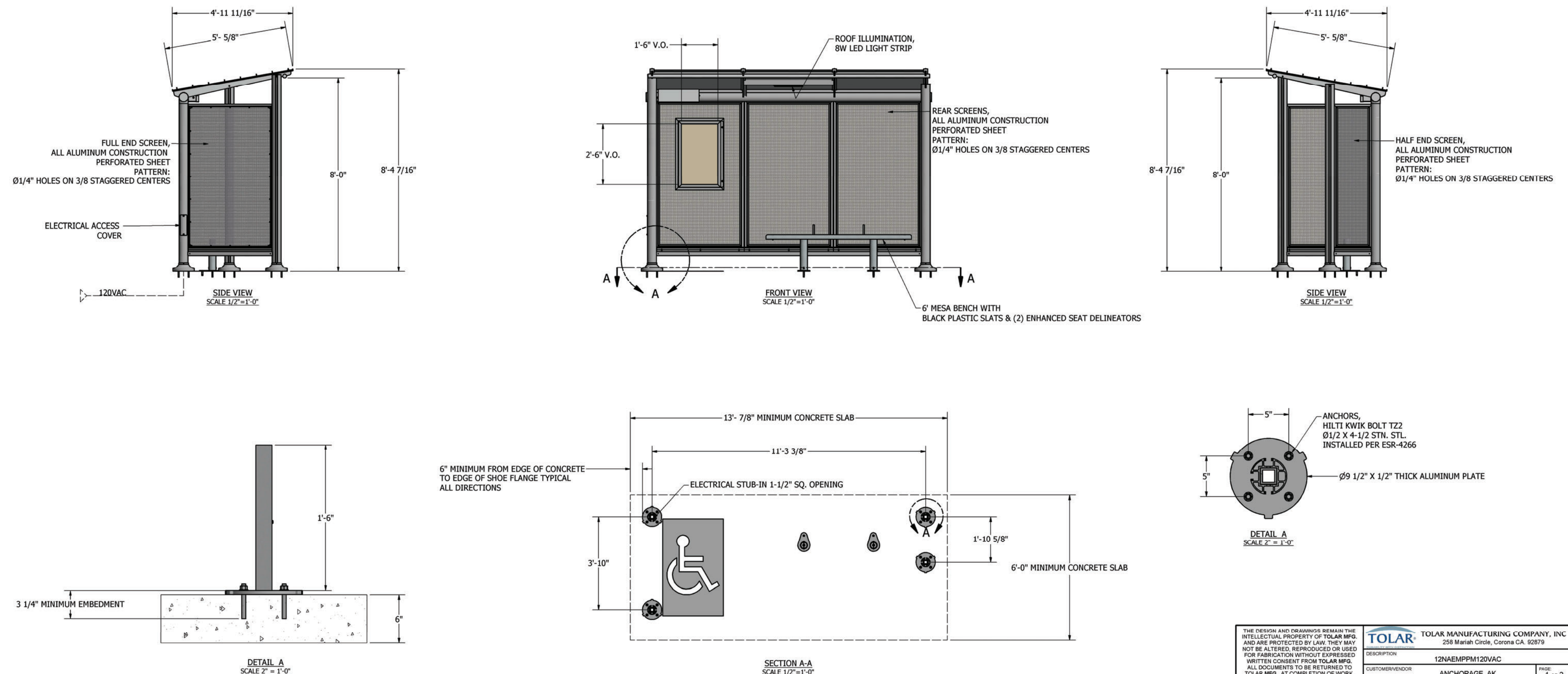
T:\Inventor\Trash Cans\29225-00.idw

GENERAL NOTES:

1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
2. ALL STRUCTURAL ALUMINUM MEMBERS, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5 OR GREATER.
3. ALL HOLES TO BE DRILLED OR PUNCHED.
4. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 1-10. ELECTRODES SHALL CONFORM TO AWS 5.1, CLASS E70S-5.
5. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 2-08. ELECTRODES SHALL CONFORM TO AWS/SFA 5.10 CLASS ER4043.
6. ALL WELDING TO BE DONE AT TOLAR MANUFACTURING COMPANY, INC. FACILITY.
7. ALL CORPORATE PROCEDURES, INCLUDING FABRICATION, MUST BE IN COMPLIANCE WITH TOLAR MANUFACTURING CO. INC'S QUALITY CONTROL MANUAL
8. THE CONCRETE PAD SIZES SHOWN ARE STANDARD MINIMUM REQUIREMENTS FOR THE STRUCTURE AND ARE FOR REFERENCE ONLY. THE PAD MAY NEED TO BE REINFORCED OR ENLARGED DEPENDING ON LOCAL CODES AND LOADING CONDITIONS AND DOES NOT INCLUDE ADA CLEAR PATH REQUIREMENTS.




TOP VIEW
SCALE 1/2"=1'-0"






TOLAR — TOLAR MANUFACTURING COMPANY, INC
258 Mariah Circle, Corona CA. 92879

| | |
|---|---|
| DESCRIPTION | 12NAEMPPM120VAC |
| CUSTOMER/VENDOR | ANCHORAGE, AK |
| PAGE | 1 OF 2 |
| SIZE | D |
| MATL. | VARIES |
| DWG NO. | 48964-00 |
| REV | - |
| SCALE | AS NOTED |
| DATE | 6/28/2023 |
| DRAWN BY: | RFarr |

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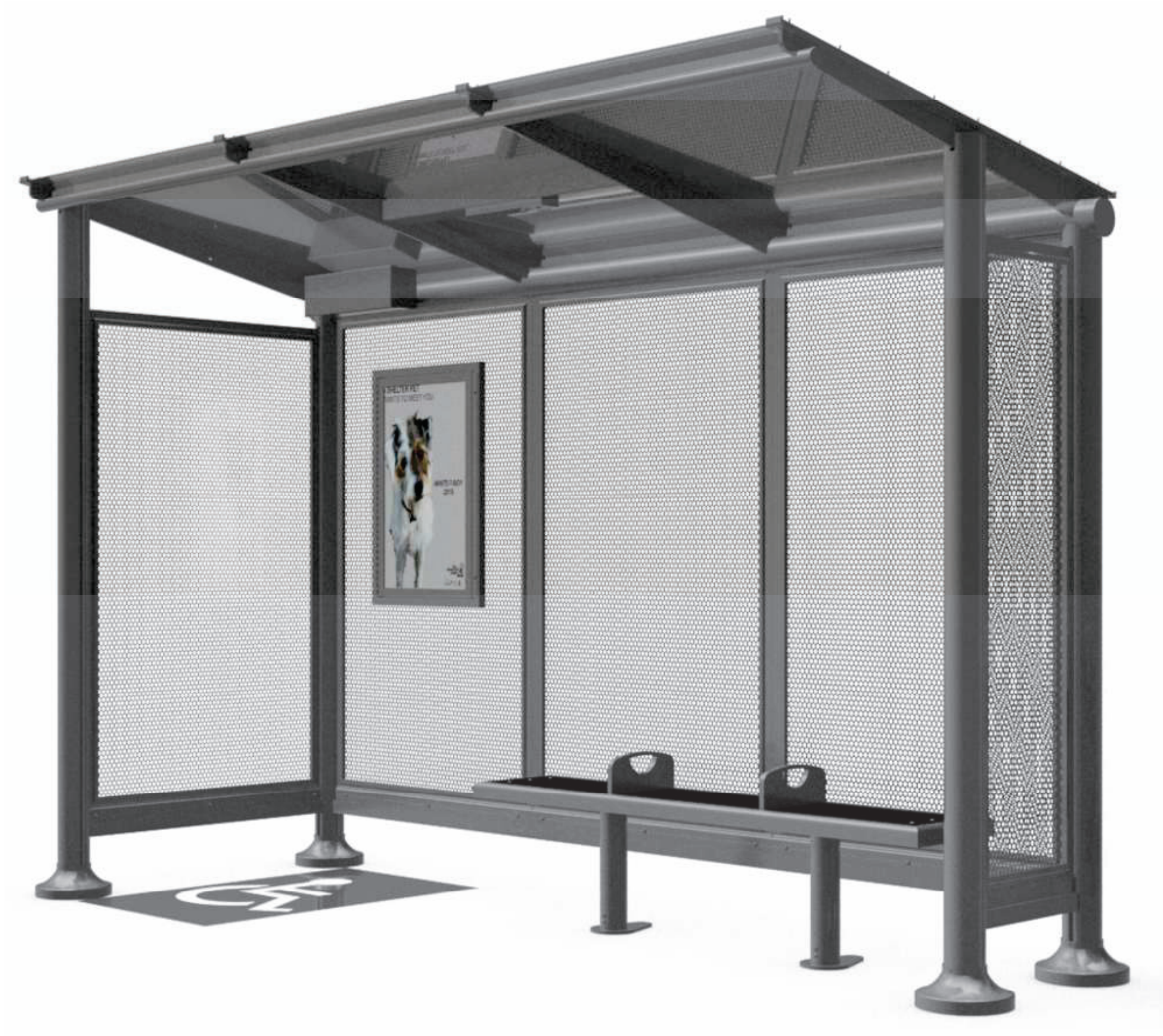

THE DESIGN AND DRAWINGS REMAIN THE INTELLECTUAL PROPERTY OF **TOLAR MFG.** AND ARE PROTECTED BY LAW. THEY MAY NOT BE ALTERED, REPRODUCED OR USED FOR FABRICATION WITHOUT EXPRESSED WRITTEN CONSENT FROM **TOLAR MFG.** ALL DOCUMENTS TO BE RETURNED TO TOLAR **MFG.** AT COMPLETION OF WORK. CONTRACTOR TO SITE VERIFY ALL DETAILS AND DIMENSIONS AND REPORT ANY AND ALL DISCREPANCIES TO **TOLAR MFG.** BEFORE COMMENCING WITH THAT RELATED PORTION OF THE WORK.

| | | | |
|---|---|---|---|
| **TOLAR MANUFACTURING COMPANY, INC** 258 Mariah Circle, Corona CA. 92879 | | | |
| DESCRIPTION | | | |
| CUSTOMER/VENDOR: ANCHORAGE, AK | | | PAGE 2 OF 2 |
| SIZE D | MAT'L VARIES | DWG NO. | REV |
| SCALE AS NOTED | DATE 6/28/2023 | DRAWN BY: RFarr | |

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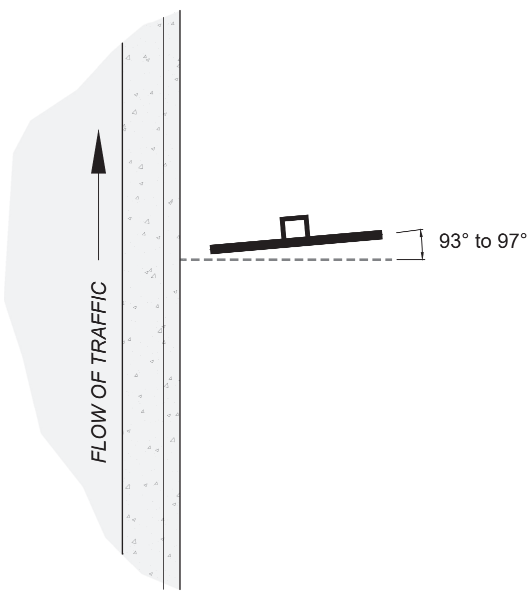
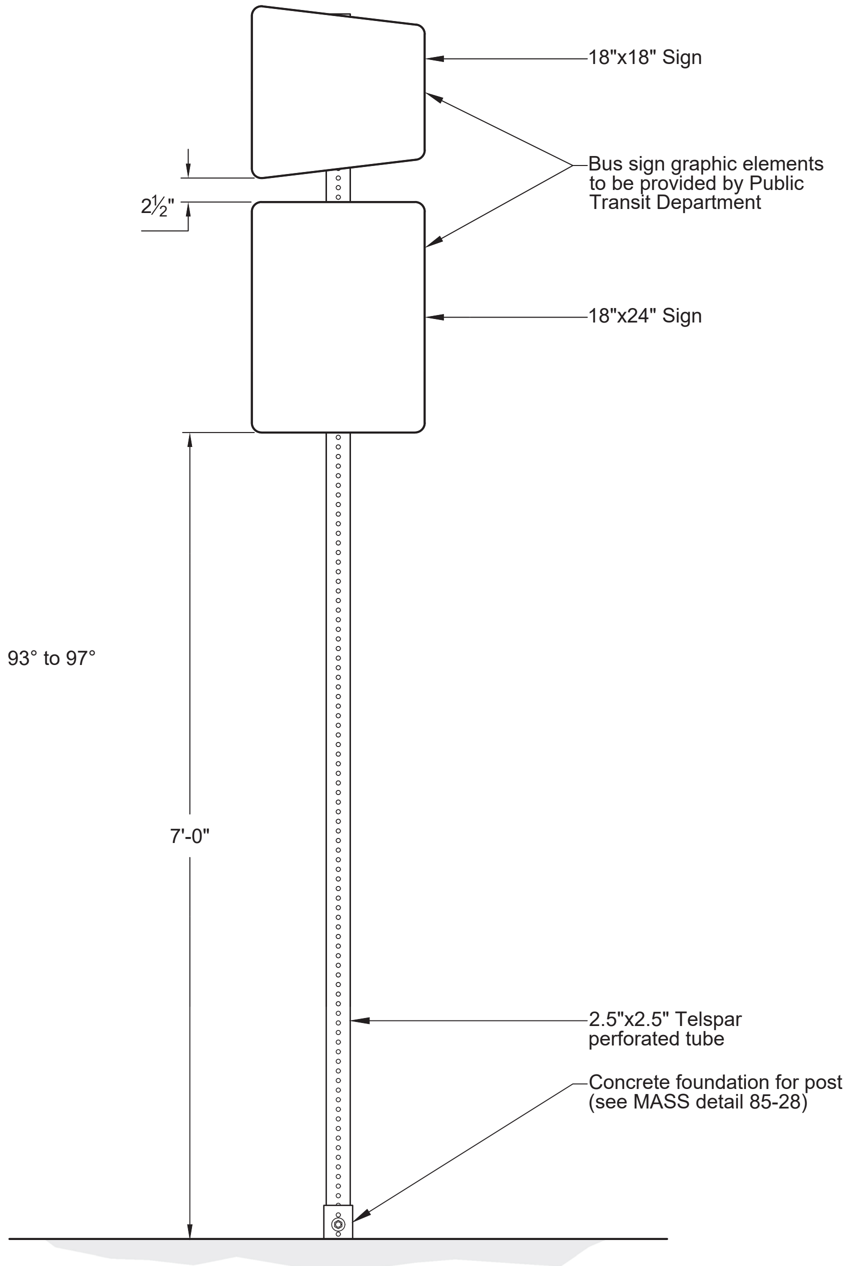


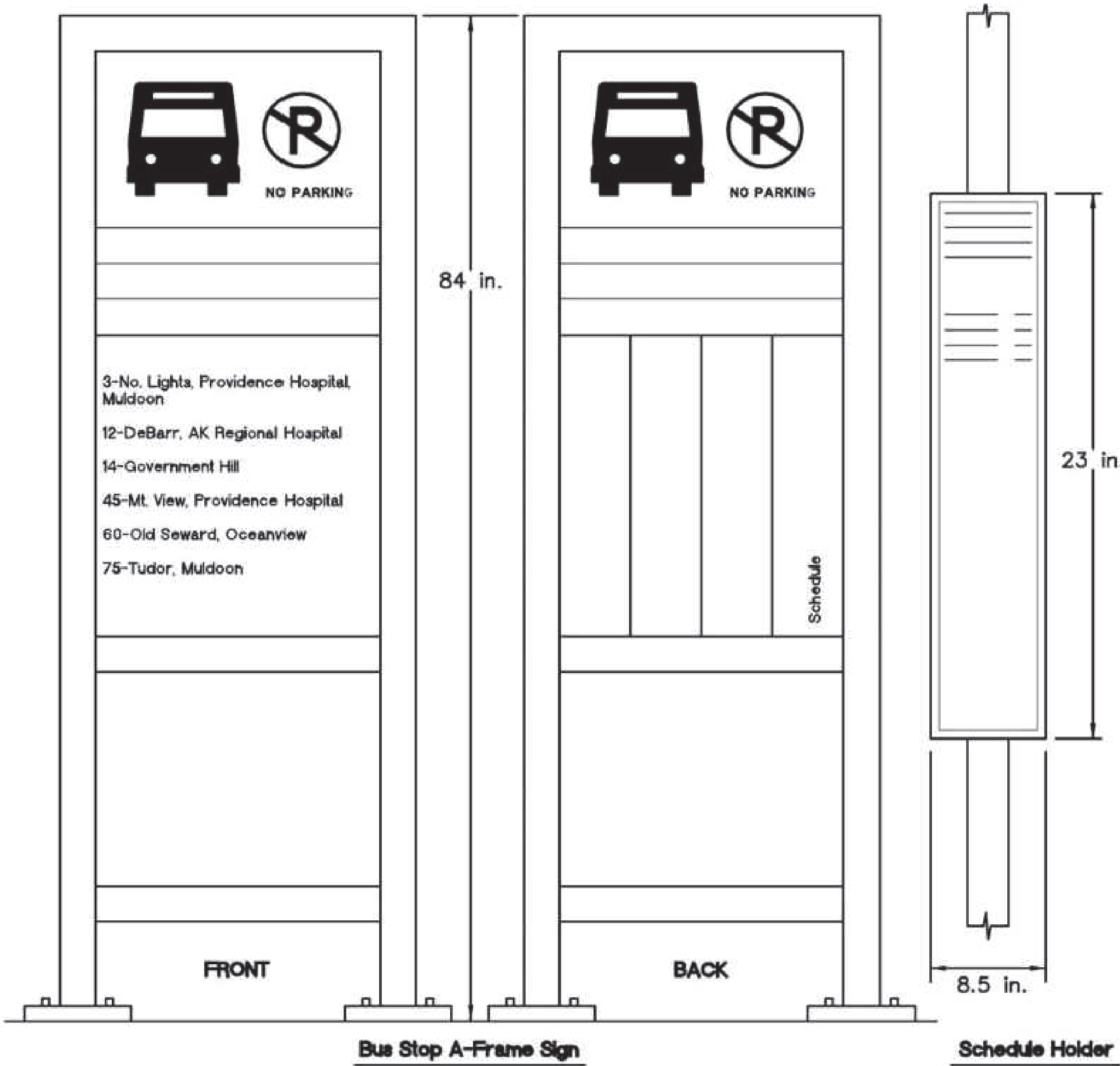

**BUS STOP SIGN ORIENTATION**




**BUS STOP SIGN**

NOT TO SCALE

# Bus Stop Sign

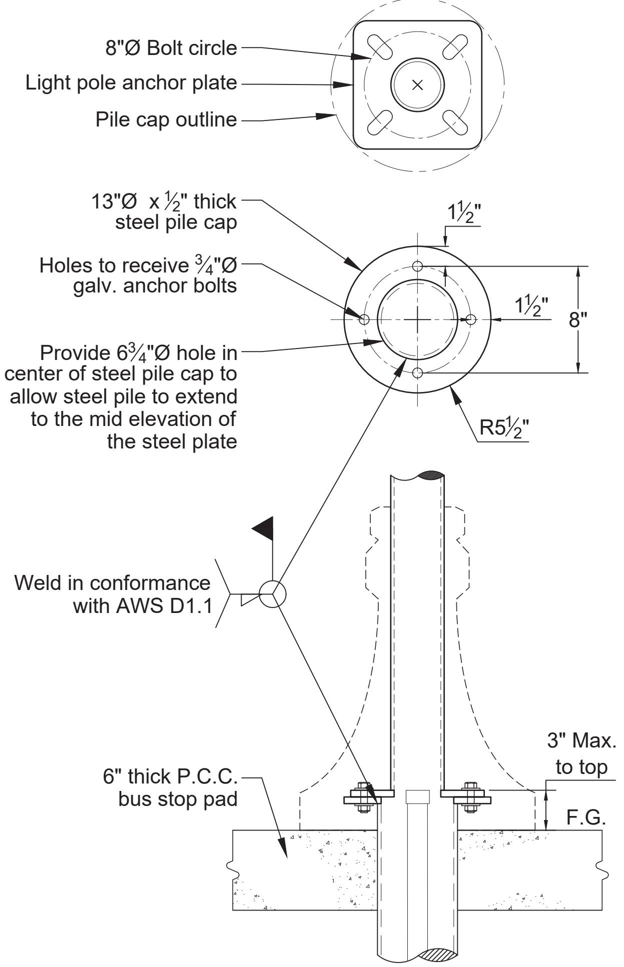



Bus Stop A-Frame Sign and Schedule Holder

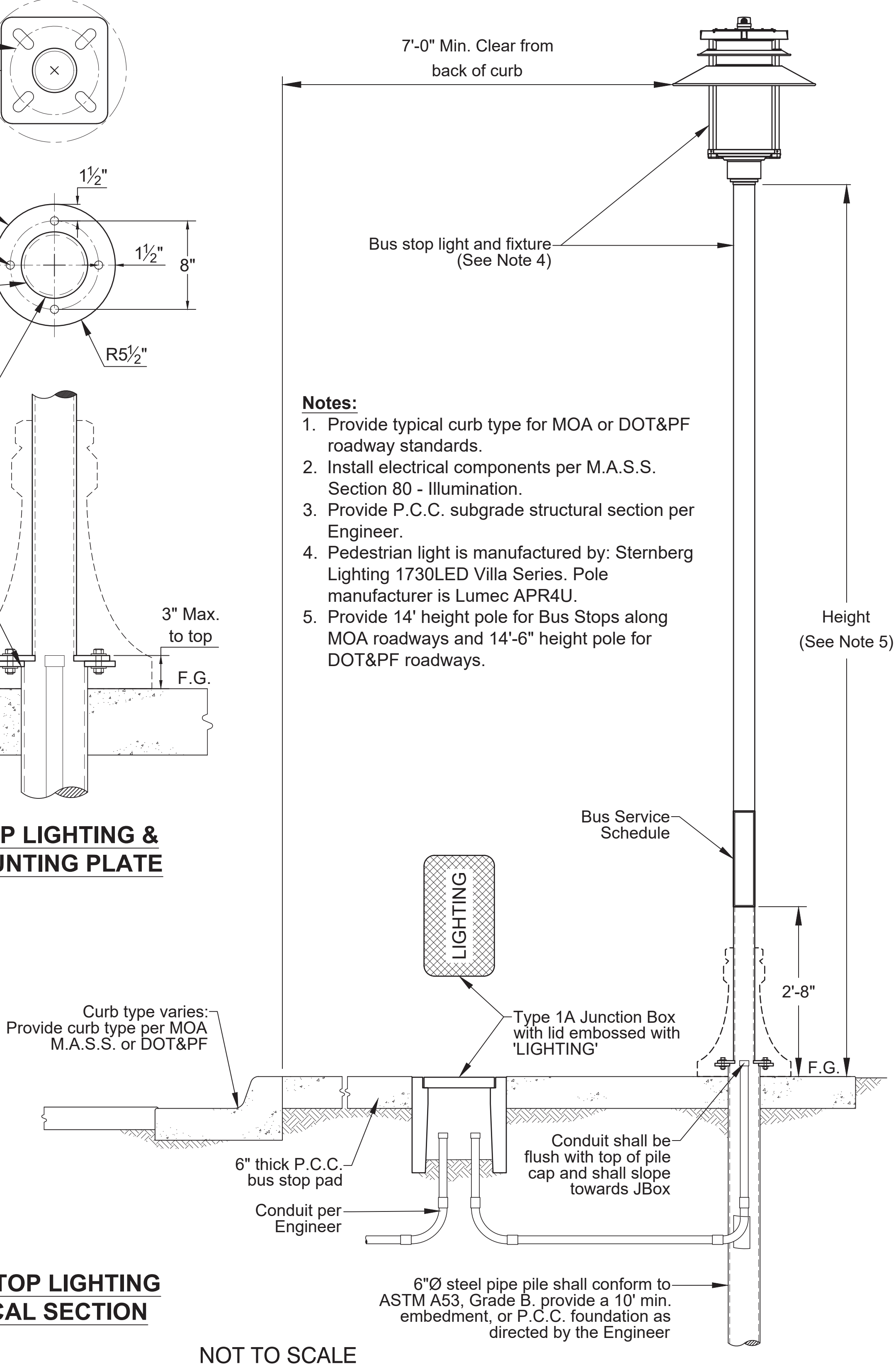
*Anchorage Transit Design Guidelines*

NOT TO SCALE

## Bus Stop Lighting




**BUS STOP LIGHTING & PILE MOUNTING PLATE**




**Notes:**

1. Provide typical curb type for MOA or DOT&PF roadway standards.
2. Install electrical components per M.A.S.S. Section 80 - Illumination.
3. Provide P.C.C. subgrade structural section per Engineer.
4. Pedestrian light is manufactured by: Sternberg Lighting 1730LED Villa Series. Pole manufacturer is Lumec APR4U.
5. Provide 14' height pole for Bus Stops along MOA roadways and 14'-6" height pole for DOT&PF roadways.

**BUS STOP LIGHTING TYPICAL SECTION**

NOT TO SCALE

# Bus Stop Lighting

**DCM 8 UPDATE**

| Section | Article | Comment | Response |
|---|---|---|---|
| 8.2 | D | Suggest providing guidance on sheet scale for Demolition Sheets similar to P&P Sheets | Guidance added. |
| 8.2 | F | This section is about P&P sheets, not demo sheets. Need to add section about Demo Sheets. | Section renamed to Street or Trail Plan and Profile Sheets. |
| 8.2 | F | *Update Section to "Plan & Profile Sheets".*Demolition Sheets are covered in Section 8D. | Section renamed to Street or Trail Plan and Profile Sheets. |
| 8.2 | G | Are SD P&P sheets required if there are no SD improvements (even if the roadway grade changes - ex. if there is no curb & gutter? | No, projects only require the sheets that are relevent to the work being done. |
| 8.2 | G | Table 8-10: Top of Casting Location isn't referenced on MASS Details and can be confused with Offset referece point at Top back of Curb as stated on Detail 55-22 | Changed to "Top of Structure Elevation". Elevation reference point can be further clarified in Comments column. |
| 8.2 | H | Table 8-12: For the detailed grading sheets, would it be beneficial to not show items that are to be demolished? When the contractor gets to the detailed grading work, all the demo will be complete so it may benefit the plans to only show existing to remain and proposed. | Yes, the intent is that demolished features are not shown with proposed features. Tables have been revised to include the text "that remain after demolition" for existing features. |
| 8.2 | I | Table 8-15: Same comment as for the grading sheets. For the signing and striping sheets, would it be beneficial to not show items that are to be demolished? When the contractor gets to the signing and striping work, all the demo will be complete so it may benefit the plans to only show existing to remain and proposed. | Yes, the intent is that demolished features are not shown with proposed features. Tables have been revised to include the text "that remain after demolition" for existing features. |
| 8.2 | I | Table 8-15: Proposed striping required throughout the project. | Added "Proposed striping labeled with width and color and dimensioned" to Table 8-15. |
| 8.2 | J | Sentence describing the 50 percent screen - Suggest describing this in the beginning of the Chapter to cover the whole chapter or include it in each section as applicable. | The following sentence has been aded to Section 8.2 A: "On sheets that include both existing and proposed conditions do not include existing features that will be demolished and present the existing conditions using a 50 percent screen, to result in a gray tone for existing conditions." |
| 8.2 | J | Table 8-17: Same comment as for the other, specific sheets. Consider only showing existing to remain and proposed. | Yes, the intent is that demolished features are not shown with proposed features. Tables have been revised to include the text "that remain after demolition" for existing features. |
| 8.2 | K | Table 8-25: Same comment as for the other, specific sheets. Consider only showing existing to remain and proposed. | Yes, the intent is that demolished features are not shown with proposed features. Tables have been revised to include the text "that remain after demolition" for existing features. |
| 8.2 | L | Table 8-33: Same comment as for the other, specific sheets. Consider only showing existing to remain and proposed. | Yes, the intent is that demolished features are not shown with proposed features. Tables have been revised to include the text "that remain after demolition" for existing features. |
| 8.2 | M | Table 8-34: Same comment as for the other, specific sheets. Consider only showing existing to remain and proposed. | Yes, the intent is that demolished features are not shown with proposed features. Tables have been revised to include the text "that remain after demolition" for existing features. |
| 8.2 | M.2 | Delete duplicated sentence at end of first paragraph. | Duplicated sentace deleted. |

## DCM 8 UPDATE

| Section | Article | Comment | Response |
|---|---|---|---|
| 8.2 | M | Table 8-35: Same comment as for the other, specific sheets. Consider only showing existing to remain and proposed. | Yes, the intent is that demolished features are not shown with proposed features. Tables have been revised to include the text "that remain after demolition" for existing features. |
| 8.2 | M | Should a table of grading points, point number, N/E (or Sta/offset), elevation, location/type, notes, etc. also be included on the grading plans? | Yes, where needed a table of grading points should be provided. Table 8-38 has been added to provide an example for the grading point table. |
| Appendix A | 8A-18 | consider "SS" for sanitary sewer (to match the symbol, which uses "ss" designation) | The AWWU DCPM specifies "S" for sanitary sewer lines rather than "SS". The DCM will maintain "S" for consistency. |
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# DESIGN CRITERIA MANUAL

# CHAPTER 8 PLANS & SPECS

MUNICIPALITY OF ANCHORAGE

PROJECT MANAGEMENT & ENGINEERING DEPARTMENT

D-R-A-F-T

NOVEMBER 2025

**DESIGN CRITERIA MANUAL**
**REVISION LOG**

## Chapter 8 – Plans & Specs

| Rev. No. | Date Executed | Description | Sections Revised or Added | New/*Revised* Template |
|---|---|---|---|---|
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## FIGURES



## TABLES



## APPENDICES

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| CAD | Computer Aided Drafting |
| DCM | Design Criteria Manual |
| K | Horizontal Distance per Percent Grade Change |
| M.A.S.S. | Municipality of Anchorage Standard Specifications |
| MOA | Municipality of Anchorage |
| NCS | National CAD Standards |
| NGE | No Groundwater Encountered |
| PC | Point of Curve |
| PM&E | Project Management and Engineering |
| PRC | Point of Reverse Curvature |
| PSC | Professional Services Contract |
| PVC | Point of Vertical Curvature |
| PVI | Point of Vertical Intersection |
| PVT | Point of Vertical Tangency |
| PT | Point Tangency |
| SI | Street Intersection |
| RAD | Radar Detector |

# SECTION 8.1 OBJECTIVE

## 8.1 A Objective

The objective of this Chapter is to establish standards for the preparation of plans and specifications for the improvements discussed in this Design Criteria Manual (DCM). Plans are developed using AutoDesk AutoCAD Civil 3D. Detailed standards for Civil 3D plan preparation are provided in Appendix 8A, and Civil 3D template files are available on the PM&E website. The information provided is the framework for plan and specification preparation for both in-house and consultant design projects.

Use this chapter in conjunction with PM&E's the Municipality of Anchorage Standard Specifications (M.A.S.S.). M.A.S.S. provides standard construction specifications and details. Consultants performing design work for the Municipality shall also design in accordance with their professional services contract (PSC).

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

## 8.1 B Definitions

In the design process, several entities are involved. They include the Municipality, Project Management and Engineering Department (PM&E), Department of Parks and Recreation, the Municipal project manager, the project engineer, and the consultant. For clarification of the role of each, the following discussion is provided:

1. The owner of all Municipality design projects is the Municipality of Anchorage (MOA) or the managing authority.
2. The managing authority for street and drainage improvements is PM&E.
3. The managing authority for all completed pathway and park projects is the Department of Parks and Recreation, unless otherwise defined.
4. The Municipal Project Manager is the person established as contract administrator for the municipality and is the consultant's contact with the Municipality. The Municipal Project Manager has authority to transmit instructions, receive information and interpret and define the Municipality's policies and decisions with respect to materials, equipment elements and systems pertinent to the work covered by the PSC. The Municipal Project Manager is identified in the consultant's notice to proceed and should be contacted for verification of any information pertaining to the PSC, the information contained in this DCM, or the project in general.
5. The project engineer is the person identified by PM&E as the project designer responsible for the preparation of plans, specifications, and bid documents.
6. The consultant is the consulting firm (and its representatives) hired by the Municipality to function as the project engineer.

## 8.1 C Variances

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

END OF SECTION 8.1

## SECTION 8.2 PLAN PREPARATION

### 8.2 A Objective

Construction documents for Municipal projects should be consistent in appearance and format. This section provides guidelines to assist the designer in achieving that consistency. In addition, Appendix 8A provides detailed criteria for the preparation of project plans using Autodesk Civil 3D and a series of Civil 3D template files are available on the PM&E website.

Prepare plans on 22 inches by 34 inches sheets. This size allows for half-scale plan sets that are 11 inches by 17 inches. Information should primarily be provided on the plans in black ink with the use of color ink limited to gaining attention for specific or unique elements of the plans. The following criteria apply to the preparation of all sheets.

1. Line weights and symbols shall conform with Municipal standards as shown in Appendix 8A of this DCM. The Municipal Project Manager shall approve departure from the standards. On sheets that include both existing and proposed conditions do not include existing features that will be demolished and present the existing conditions using a 50 percent screen, to result in a gray tone for existing conditions.
2. Standard information blocks are provided on all but the cover sheets. The project engineer shall complete all standard information blocks with the information in Table 8-1.

**TABLE 8- 1** STANDARD INFORMATION BLOCK REQUIREMENTS

| | |
|---|---|
| Project name | Project number |
| Individual Park name and number (where applicable) | Sheet title |
| Sheet number (n of n) | Date |
| Scale | Grid Number |
| Project milestone | Engineer, architect, or landscape architect registration stamp |
| Consultant’s name, address, and logo | Survey field book number |
| Benchmark (PM) | Basis of Datum and Basis of Bearings |
| Record Drawing Stamp | Revisions, as necessary |

3. Arrange construction notes on the plan sheets so they do not conflict with the base and design information. Avoid long leader lines. The project engineer should make an effort to group items for each schedule in one area of the plan sheet.

   Present notes in a direct and consistent manner throughout the contract documents. Identify existing features as “existing” when not identifiable by legend symbol. Notes that identify bid items on the plan sheets shall correspond exactly to the item description under M.A.S.S. “Basis of Payment” or in the special provisions. Notes shall identify methods and materials of construction, but not treatment, quality of materials, or standards of workmanship, which should be addressed in the specifications.

   Plans including traffic signals, illumination, or thaw wire improvements shall clearly identify electrical hook-up responsibilities of the contractor, unless specifically addressed in the specifications.

4. Reproduce plans and drawings only on quality paper. Collate plan sets and staple along the left edge. Individually roll plan sets.

   The Municipal Project Manager will determine the number of plan sets to be printed and submitted in each phase of project development.

5. Begin stationing at an appropriate interval before the beginning of project (such as one station) and increase northward and eastward, unless otherwise approved by the Municipal Project Manager. Do not duplicate project stationing. Further, Station 0+00 shall not be used.

### 8.2 B Cover Sheet

The cover sheet is the first sheet of the plan set of construction drawings. A sample title sheet is available in AutoCAD drawing file from PM&E. The cover sheet shall include the following information:

1. The MOA seal and name;
2. Project name;
3. Project number;
4. Location of proposed improvements on the vicinity map;
5. Signature and signature blocks for the Municipal Engineer or Director of Parks and Recreation as appropriate; and
6. The name, address, and/or logo of the consultant under "Prepared by:"

### 8.2 C Key Map, Legend, Abbreviations, General Notes, and Sheet Index

All plan sets shall include a key map, legend, abbreviations, general notes, and a sheet index on a sheet or series of sheets which should follow the cover sheet. A sample key map and legend sheet is available in the Civil 3D templates on the PM&E website. The key map and legend sheet shall include the following information:

1. A completed standard information block as discussed in Section 8.2 A.
2. A Municipal standard legend, vertical or horizontal, which defines all symbols used on the drawings, including non-standard symbols.
3. A key map showing the information from Table 8-2.

**TABLE 8- 2** STANDARD KEY MAP REQUIREMENTS

| | |
|---|---|
| Project limits (100-scale) | Proposed edge of paving or curb and gutter line |
| North arrow, pointing to the top or the right side of the sheet | Schedule designation (where applicable) |
| Existing manholes, catch basins, and cleanouts | Existing pavement |
| Proposed storm drains, including manholes, catch basins, and cleanouts | |

4. An index for all drawing sheets.
5. General notes, including a statement of compliance with M.A.S.S.

a. A current list of required general notes is maintained on the PM&E Civil 3D Template located on the PM&E website.

### 8.2 D Demolition Sheets

Provide demolition sheets with direction on what facilities should be removed, what facilities should be protected, limits of clearing and grubbing, and other demolition related activities. Prepare the demolition sheet at a scale of 1 inch equals 20 feet (1" = 20'). Some projects may require less clarity and be acceptable at a smaller scale. In such cases, a scale of 1 inch equals 50 feet (1" = 50') may be used when approved by the Municipal Project Manager. The demolition sheets shall include the following information:

1. A legend indicating how protection, removal, and demolition limits and items are depicted.
2. A boundary indicating the approximate limits of disturbance.
3. The plan view elements listed in Table 8-3.

**TABLE 8- 3** DEMOLITION SHEET REQUIREMENTS

| 0% Screen | |
|---|---|
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads | Existing streetlights, junction boxes, and load centers |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales | Existing water utility pipes, valves, services, hydrants, and structures |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves |
| Existing signalization poles, controller cabinets, vaults, and junction boxes | Other pertinent existing features (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line | Lots, blocks, tracts, and parcel designations |
| Existing easements and permits, including public use easements, temporary access permits, and access or entry permits | Section lines and corners |
| North arrow, pointing to the top or right of the sheet | Rights-of-way and street names |
| Graphic scale (2-inch bar scale) | Property lines |
| Clearing limits | Centerline stationing increasing from left to right |
| Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. | Numbered or lettered leaders indicating locations where facilities will be removed, salvaged, or protected |
| Approximate limits of disturbance | |

### 8.2 E Detail Sheets

Provide details and typical sections to clarify and define elements within the plans. Reference MASS standard Municipal details; do not repeat standard details in the drawing set except when including project specific modifications. Organize detail sheets to depict details and sections of similar construction on the same sheet. Clearly and prominently mark pay limits on all details.

Draw each detail or section to scale when possible. Note the scale for each detail, unless otherwise directed by the Municipal Project Manager. Provide reference numbers to allow cross-reference between plan sheets and detail sheets.

1. Roadway or Trail Typical Sections

   Prepare typical sections to include the elements in Table 8-4.

**TABLE 8- 4** TYPICAL SECTIONS REQUIREMENTS

| | |
|---|---|
| Label each typical section with the right-of-way name and provide stationing where typical section applies | Centerline of improvements (crown) with dimension from centerline of right-of-way if not centered within right-of-way |
| Dimensioned right-of-way limits and centerline of right-of-way | Streetlight poles with minimum offset dimensioned |
| Dimensioned vehicle travel lanes, shoulders, curb and gutters, buffers, sidewalks, side paths, and bike lanes | Surface slopes with grade arrows |
| Surface materials with thickness and MASS item designation | Insulation and/or geotextile |
| Pavement structure including thickness of material and MASS item designations for all materials | Cut and fill slopes with maximum slope labels |
| Permanent erosion and sediment controls | |



### 8.2 F Street or Trail Plan and Profile Sheets

Provide street or trail plan and profile sheets for all street and trail projects that involve changes in grade such as grade brakes or vertical curves along the project alignment. Profile sheets are not required when the scope of the project is limited to spot improvements that don't affect grade or where the scope is limited to pavement improvements (mill and pave, pavement reclamation).

1. Plan View

   Prepare the plan view at a scale of 1 inch equals 20 feet (1" = 20'). Some projects may require less clarity and be acceptable at a smaller scale. In such cases, a scale of 1 inch equals 50 feet (1" = 50') may be used when approved by the Municipal Project Manager. Utilize and reference standard details provided in M.A.S.S., unless directed by the Municipal Project Manager. When applicable, the plan view should contain the information shown in Tables 8-5 and 8-6.

| **TABLE 8- 5** STREET OR TRAIL PLAN VIEW REQUIREMENTS | |
|---|---|
| **50% Screen** | |
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls that remain after demolition | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads that remain after demolition |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads that remain after demolition | Existing streetlights, junction boxes, and load centers that remain after demolition |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales that remain after demolition | Existing water utility pipes, valves, services, hydrants, and structures that remain after demolition |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services that remain after demolition | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves that remain after demolition |
| Existing signalization poles, controller cabinets, vaults, and junction boxes that remain after demolition | Other pertinent existing features that remain after demolition (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line that remain after demolition | Section lines and corners |
| Existing easements and permits, including public use easements, temporary access permits, and access or entry permits | |

| **TABLE 8- 6** STREET OR TRAIL PLAN VIEW REQUIREMENTS | |
|---|---|
| **0% Screen** | |
| North arrow, pointing to the top or right of the sheet | Lots, blocks, tracts, and parcel designations |
| Graphic scale (2-inch bar scale) | Property lines |
| Rights-of-way and street names | Basis of bearing and stationing |
| Proposed easements and permits, including public use easements, temporary access permits, and access or entry permits | Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. |
| Horizontal location of test holes within project limits | Centerline stationing increasing from left to right. Align stationing on both plan and profile views |
| Proposed limits of asphalt, concrete, and gravel surfacing | Necessary construction notes |
| Proposed limits of vegetation | Cut or fill limits for proposed construction |
| Spot elevations and stationing and offsets for grade breaks and pavement end not shown in profile | Street intersection (S.I.) points with stationing of intersecting streets |
| P.C., P.T., and, where applicable, P.R.C. of curves, top back of curb elevations at curb returns, and any location varying from typical sections | Proposed traffic signal equipment including load centers, traffic controller, signal poles, signal heads, pedestrian heads, junction boxes, detection, pre-emption, etc. |
| Proposed storm sewer manholes, catch basins, and other structures | Proposed sanitary sewer manholes, cleanouts, and other structures |
| Proposed water valves, hydrants, and other structures | Locations affected by wetland, flood hazard, or other permits, where appropriate |
| Permanent erosion and sediment control measures required | Arrows to indicate surface drainage direction for intersecting streets |
| Proposed street light luminaire, junction boxes, and load centers | |

2. Profile View

   Prepare the profile view at a vertical scale of 1 inch equals 5 feet (1” = 5’) for streets, alleys, and pathways or trails. Include the elements listed in Table 8-7.

| **TABLE 8- 7** STREET OR TRAIL PROFILE VIEW REQUIREMENTS | |
|---|---|
| **50% Screen** | |
| Existing ground profiles for the right-of-way centerline and the right and left property lines | Soils logs showing soils letter classifications and percent passing #200 sieve, unified frost classification, and water table level. “NGE” shall be noted where no groundwater is encountered |
| Vertical location of existing water, sanitary sewer, storm sewer, and other underground utilities. When vertical location is unknown, a caution note to this effect should be shown | Existing roadway insulation |
| **0% Screen** | |
| Proposed street or pathway profile showing vertical curves and appropriate curve data (P.V.I. station, P.V.I. elevation, K, and vertical curve length), grades and centerline elevations at grade breaks, vertical points of tangency (P.V.C., P.V.T.), and street intersection (S.I.) points with stationing and spot elevation of intersecting streets | Estimated depth of excavation |
| Proposed storm sewer manholes, catch basins, pipes, and culverts | Proposed roadway insulation |
| Proposed sanitary sewer manholes, cleanouts, mains, and services | Proposed water mains, services, and valves |

### 8.2 G Storm Sewer Plan and Profile Sheets

Provide storm sewer plan and profile sheets for all projects that involve changes in grade such as grade brakes or vertical curves along the project alignment or where storm sewer improvements are proposed within corridors that contain other utilities.

1. Plan View

   Prepare the plan view at a scale of 1 inch equals 20 feet (1” = 20’). Some projects may require less clarity and be acceptable at a smaller scale. In such cases, a scale of 1 inch equals 50 feet (1” = 50’) may be used when approved by the Municipal Project Manager. Utilize and reference standard details provided in M.A.S.S., unless directed by the Municipal Project Manager. When applicable, the plan view should contain the information shown in Tables 8-8 and 8-9.

| **TABLE 8- 8** STORM SEWER PLAN VIEW REQUIREMENTS | |
|---|---|
| **50% Screen** | |
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls that remain after demolition | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads that remain after demolition |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads that remain after demolition | Existing streetlights, junction boxes, and load centers that remain after demolition |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales that remain after demolition | Existing water utility pipes, valves, services, hydrants, and structures that remain after demolition |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services that remain after demolition | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves that remain after demolition |
| Existing signalization poles, controller cabinets, vaults, and junction boxes that remain after demolition | Other pertinent existing features that remain after demolition (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line that remain after demolition | Section lines and corners |
| Existing easements and permits, including public use easements, temporary access permits, and access or entry permits | |

| **TABLE 8-9** STORM SEWER PLAN VIEW REQUIREMENTS | |
|---|---|
| **0% Screen** | |
| North arrow, pointing to the top or right of the sheet | Lots, blocks, tracts, and parcel designations |
| Graphic scale (2-inch bar scale) | Property lines |
| Rights-of-way and street names | Basis of bearing and stationing |
| Proposed easements and permits, including public use easements, temporary access permits, and access or entry permits | Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. |
| Horizontal location of test holes within project limits | Centerline stationing increasing from left to right. Align stationing on both plan and profile views |
| Proposed limits of asphalt, concrete, and gravel surfacing | Necessary construction notes |
| Proposed limits of vegetation | Arrows to indicate surface drainage direction |
| Locations affected by wetland, flood hazard, or other permits, where appropriate | Centerline stationing of proposed manholes, catch basins, and other storm sewer structures unless summarized separately in structure tables |
| Permanent erosion and sediment control measures required | Storm sewer pipe diameter, length, slope, material, and type unless summarized separately in pipe tables |
| When storm sewer structure and pipe tables are used, provide proposed structure and pipe identification labels | |

2. Profile View

   Prepare the profile view at a vertical scale of 1 inch equals 5 feet (1" = 5'). The profile view should contain the information shown in Table 8-10

| **TABLE 8- 10** STORM SEWER PROFILE VIEW REQUIREMENTS | |
|---|---|
| **50% Screen** | |
| Existing ground profiles for the right-of-way centerline or centerline of storm sewer alignment | Soils logs showing soils letter classifications and percent passing #200 sieve, unified frost classification, and water table level. "NGE" shall be noted where no groundwater is encountered |
| Vertical location, size, and type of existing water, sewer, storm drain, and other underground utilities. When vertical location is unknown, a caution note to this effect should be shown | |
| **0% Screen** | |
| Stationing, invert, and top elevations of proposed storm drain manholes, catch basins, and culverts unless summarized separately in structure tables. If a specific cone rotation is required, this should be noted | Storm sewer pipe diameter, length, slope, material, and type unless summarized separately in pipe tables |
| Proposed underground utility crossings including existing utilities that will be relocated | Permanent erosion and sediment control measures required |
| When storm sewer structure and pipe tables are used, provide proposed structure and pipe identification labels | |

3. Structure and Pipe Labels and Tables

   Whenever possible, storm sewer structure and pipe information should be shown using structure and pipe labels that contain the information shown in Figure 8-1.

   When storm sewer structure and pipe information is too complex for structure and pipe labels tables may be substituted to document storm sewer structure and pipe design information.  Provide tables that contain the information shown in Tables 8-11 and 8-12.

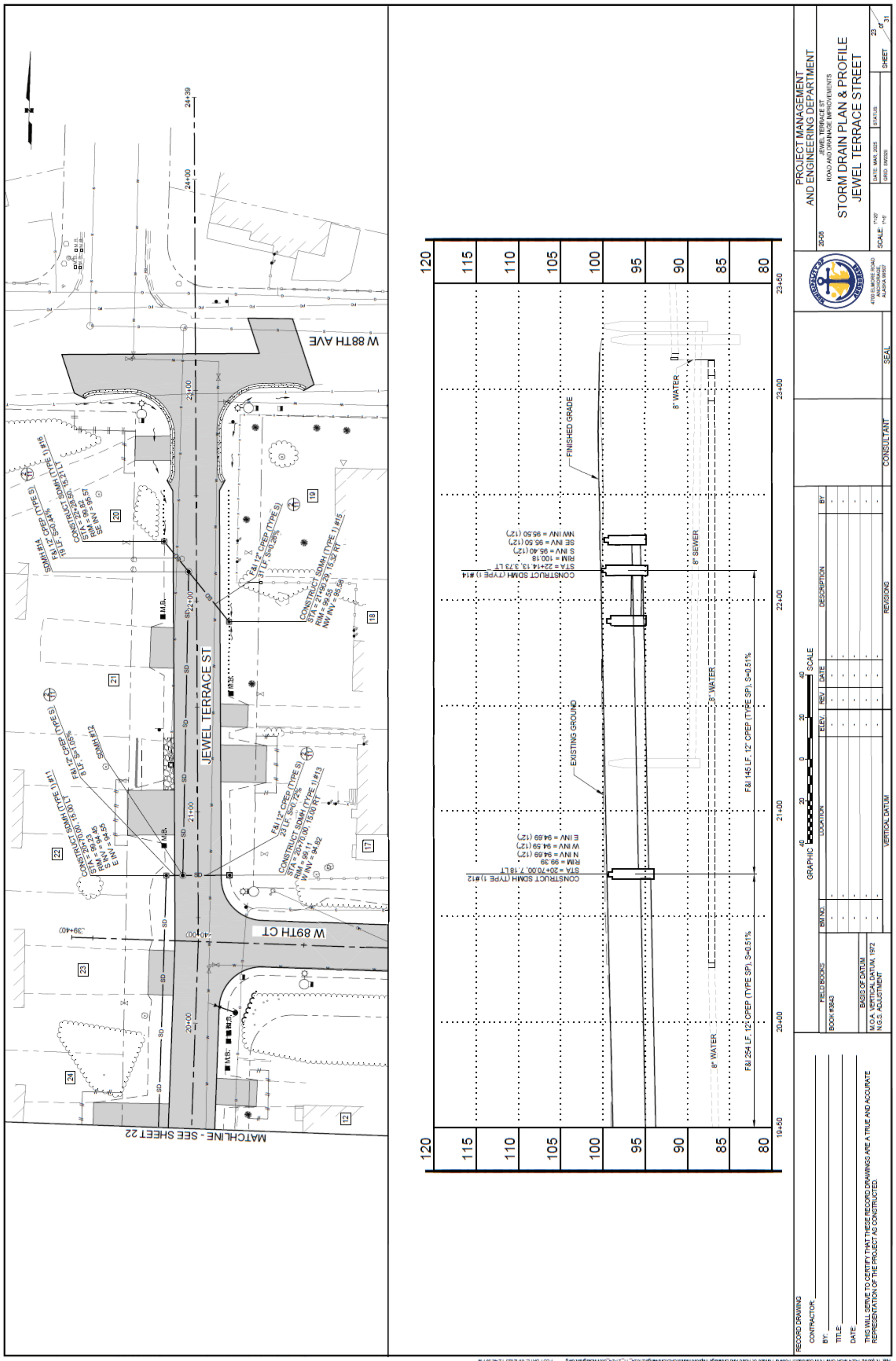
**TABLE 8- 11** EXAMPLE STORM SEWER STRUCTURES TABLE

| Structure ID | Structure Type | Station | Offset | Top of Structure Elevation | Comments |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**TABLE 8- 12** EXAMPLE STORM SEWER PIPE TABLE

| Pipe ID | Pipe Size | Pipe Type | Pipe Length | From Structure | To Structure | Inlet Elevation | Outlet Elevation | Slope |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |

## FIGURE 8- 1 STORM SEWER STRUCTURE AND PIPE LABELS



### 8.2 H Detailed Grading Sheets

Provide detailed grading sheets where additional grading and layout information is needed for features such as ADA curb ramps and intersections. Prepare detailed grading sheets at a scale of 1 inch equals 10 feet (1” = 10’). Some projects may require less clarity and be acceptable at a smaller scale. In such cases, a scale of 1 inch equals 20 feet (1” = 20’) may be used when approved by the Municipal Project Manager.

1. Detailed grading sheets shall include the features indicated in Table 8-13.

| **TABLE 8- 13** DETAILED GRADING SHEET REQUIREMENTS | |
|---|---|
| **50% Screen** | |
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls that remain after demolition | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads that remain after demolition |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads that remain after demolition | Existing streetlights, junction boxes, and load centers that remain after demolition |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales that remain after demolition | Existing water utility pipes, valves, services, hydrants, and structures that remain after demolition |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services that remain after demolition | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves that remain after demolition |
| Existing signalization poles, controller cabinets, vaults, and junction boxes that remain after demolition | Other pertinent existing features that remain after demolition (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line that remain after demolition | Section lines and corners |
| Existing easements and permits, including public use easements, temporary access permits, and access or entry permits | |
| **0% Screen** | |
| North arrow, pointing to the top or right of the sheet | Lots, blocks, tracts, and parcel designations |
| Graphic scale (2-inch bar scale) | Property lines |
| Rights-of-way and street names | Basis of bearing and stationing |
| Proposed easements and permits, including public use easements, temporary access permits, and access or entry permits | Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. |
| Horizontal location of test holes within project limits | Centerline stationing increasing from left to right. Align stationing on both plan and profile views |
| Proposed limits of asphalt, concrete, and gravel surfacing | Necessary construction notes |
| Proposed limits of vegetation | Cut or fill limits for proposed construction |
| P.C., P.T., and, where applicable, P.R.C. of curves, top back of curb elevations at curb returns, and any location varying from typical sections | Street intersection (S.I.) points with stationing of intersecting streets |
| Permanent erosion and sediment control measures required | Arrow to indicate surface drainage direction for intersecting streets |
| Locations affected by wetland, flood hazard, or other permits, where appropriate | |

2. Provide grading point and curb radii tables that contain the information shown in Tables 8-14 and 8-15.

**TABLE 8- 14** EXAMPLE GRADING POINT TABLE

| Point Number | Station | Offset | Elevation | Curb Type | Notes |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**TABLE 8- 15** EXAMPLE CURB RADIUS TABLE

| Radius Point | Station | Offset | Radius | Description |
|---|---|---|---|---|
| | | | | |
| | | | | |

### 8.2 I Signing and Striping Sheets

These sheets provide plan views of the project detailing project signing and striping. Prepare signing and striping plan sheets at a scale of 1 inch equals 20 feet (1" = 20').

1. The signing and striping plan sheets should include the information specified in Tables 8-16 and 8-17.

| **TABLE 8- 16** SIGNING AND STRIPING SHEET REQUIREMENTS | |
|---|---|
| **50% Screen** | |
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls that remain after demolition | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads that remain after demolition |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads that remain after demolition | Existing streetlights, junction boxes, and load centers that remain after demolition |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales that remain after demolition | Existing water utility pipes, valves, services, hydrants, and structures that remain after demolition |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services that remain after demolition | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves that remain after demolition |
| Existing signalization poles, controller cabinets, vaults, and junction boxes that remain after demolition | Other pertinent existing features that remain after demolition (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line that remain after demolition | Existing above ground electric, telephone, traffic signal equipment and natural gas utilities including poles, guy lines, mains, services, vaults, and valves. |
| Existing easements and permits, including public use easements, temporary access permits, and access or entry permits | Section lines and corners |

**TABLE 8- 17** SIGNING AND STRIPING SHEET REQUIREMENTS

| 0% Screen | |
|---|---|
| North arrow, pointing to the top or right of the sheet | Lots, blocks, tracts, and parcel designations |
| Graphic scale (2-inch bar scale) | Property lines |
| Rights-of-way and street names | Basis of bearing and stationing |
| Proposed easements and permits, including public use easements, temporary access permits, and access or entry permits | Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. |
| Horizontal location of test holes within project limits | Centerline stationing increasing from left to right. Align stationing on both plan and profile views |
| Proposed limits of asphalt, concrete, and gravel surfacing | Necessary construction notes |
| Proposed limits of vegetation | Proposed striping with position dimensioned and labeled with width and color |
| Proposed sign symbols with post no, stationing, sign image oriented in intended direction, and sign designation | All appropriate signing and striping notes including depth of inlaid markings |
| Proposed above ground electric, telephone, traffic and natural gas utilities including poles, guy lines, mains, services, vaults, and valves | |

2. Provide standard sign tables that contain the information shown in Tables 8-18.

**TABLE 8- 18** EXAMPLE STANDARD SIGN

| Sheet No. | Post No. | Station | Offset | Sign Designation | Legend | Width (inches) | Height (inches) | Area (SF) | Sign Faces | Sign Post | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

## 8.2 J Traffic Signal Sheets

The Traffic Department Engineering Division has five types of base sheets specifically for MOA projects. They include a traffic signal legend & notes sheet, plan sheet, wiring diagram, a hardware schedule sheet, and a profile detail sheet. Guidelines for preparing traffic signal sheets are described below:

1. A legend sheet specifically for traffic signal improvements shall have a symbol legend, specific to traffic signals and equipment, similar to that shown in DCM Chapter 6. In addition, the sheet shall include an abbreviations table, and signal system notes.

2. All other sheets shall have the intersection oriented with north to the top. However, if significantly better space utilization results, the intersection may be oriented with north to the right of the sheet. Designate North with an arrow in either case.

3. Prepare the traffic signal plans at a scale of 1 inch equals 20 feet (1” = 20’). Generally, it is not necessary to size plan sheets to show loop detectors at the scaled distance from the intersection. If geometrics or other conditions dictate that the loops be located to scale, develop an auxiliary map or

detail at a scale of 1 inch equals 50 feet (1” = 50’). Signal plans for the Central Business District (CBD) may be drawn at a scale of 1 inch equals 10 feet (1” = 10’), as there are more conflicting utilities in a limited space and detector loops are not used.

4. Information provided on the traffic signal plan drawings shall include existing conditions. Present the existing conditions using a 50 percent screen, to result in a gray tone for existing conditions. The plan sheet shall include, but not be limited to, the information in Table 8-19.

**TABLE 8- 19** TRAFFIC SIGNAL PLANS

| | |
|---|---|
| **50% Screen** | |
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls that remain after demolition | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads that remain after demolition |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads that remain after demolition | Existing streetlights, junction boxes, and load centers that remain after demolition |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales that remain after demolition | Existing water utility pipes, valves, services, hydrants, and structures that remain after demolition |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services that remain after demolition | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves that remain after demolition |
| Existing signalization poles, controller cabinets, vaults, and junction boxes that remain after demolition | Other pertinent existing features that remain after demolition (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line that remain after demolition | Existing easements and permits, including public use easements, temporary access permits, and access or entry permits |
| Existing traffic signal equipment and underground features including load centers, traffic controller, signal poles, signal heads, pedestrian heads, junction boxes, conduit runs, detection, pre-emption, etc. | Section lines and corners |
| **0% Screen** | |
| North arrow, pointing to the top or right of the sheet | Lots, blocks, tracts, and parcel designations |
| Graphic scale (2-inch bar scale) | Property lines |
| Rights-of-way and street names | Basis of bearing and stationing |
| Proposed easements and permits, including public use easements, temporary access permits, and access or entry permits | Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. |
| Horizontal location of test holes within project limits | Centerline stationing increasing from left to right. Align stationing on both plan and profile views |
| Proposed limits of asphalt, concrete, and gravel surfacing | Necessary construction notes |
| Proposed limits of vegetation | |
| Angle of intersecting streets | Driveways |
| Utility manholes, vaults, and valves | Signs and poles |
| Lane lines and channelization | |

5. Proposed improvements shown on the traffic signal plan sheets shall include, but not be limited to, the information shown in Table 8-20.

| **TABLE 8- 20** TRAFFIC SIGNAL PLANS IMPROVEMENTS | |
|---|---|
| **0% Screen** | |
| Lane lines and channelization | Mast arms and poles |
| Vehicle signal head locations | Pedestrian signal head and button locations |
| Detector locations | Junction boxes |
| Conduit runs and intercepts (runs must be labeled) | Controller cabinet location |
| Load center location | Power source |
| Luminaires | Traffic signs |
| Pavement markings | Pre-emption detectors |
| Traffic cameras | |

6. Show station reference and offset dimensions on the plans to clearly identify the location of each item listed (except junction boxes and conduits). The project engineer shall include information in accordance with DCM Chapter 6.

7. Group construction notes, which are applicable to the specific intersection, on the traffic signal plan sheet. Use a symbol and number to the specific location on the diagram to refer to the note.

8. Pole schedules and notes on each traffic signal plan sheet shall include a signal display diagram showing each unique signal head configuration for the intersection. The diagram shall show the indication color, size of section (8” or 12”), and identify the signal head numbers for each display. Pedestrian signal head diagrams shall also be provided.

9. Each traffic signal plan sheet shall include a phasing sequence diagram. If the signal is being upgraded, show both the existing and proposed phasing. The assigned phases shall adhere to the phase identification scheme outlined below.

    a. Show the sequence of operations with a phasing sequence diagram for each intersection on the plan sheet in accordance with DCM Chapter 6.

    b. Designate phases on the traffic signal plan sheet in accordance with DCM Chapter 6.

10. Prepare the lane configuration for each intersection.

11. Identify detector loops on the plan sheets by the three-digit number as discussed in DCM Chapter 6.

12. Identify radar detectors as “RAD” followed by the through phase it detects and the type of detection. Currently 3 types of detection exist: advanced detectors (A), bike detectors (B) and stop bar detectors (leave blank).

13. Prepare a wiring diagram for each intersection. Diagram shall identify the number and size of conduits, type and quantity of conductors in each conduit, cable labeling, loop group, and any equipment or structure the wiring feeds to and from.

14. Prepare a profile view for each traffic signal pole. Each profile view shall have the distances to any equipment mounted on the signal pole and approach lane configurations, widths, and alignments to signal heads. Included luminaire mast arm distances and orientation.

15. Hardware schedules

    Provide hardware schedules with the information summarized in Tables 8-21 through 8-26.

**TABLE 8- 21** LOOP GROUPING SCHEDULE

| Cable Group | Loops |
|---|---|
| | |

**TABLE 8- 22** LOOP DETECTOR SCHEDULE

| Detector Number | Station | Offset | Cable Group | Remarks |
|---|---|---|---|---|
| | | | | |

**TABLE 8- 23** RADAR DETECTION EQUIPMENT

| Quantity | Description |
|---|---|
| | |

**TABLE 8- 24** RADAR DETECTOR SCHEDULE

| Detector ID | Location | Phase Call | Facing Direction | Remarks |
|---|---|---|---|---|
| | | | | |

**TABLE 8- 25** STRUCTURE SUMMARY

| Pole | Junction Box | | Cabinet | Station | Offset | Remarks |
|---|---|---|---|---|---|---|
| | Number | Type | | | | |
| | | | | | | |

**TABLE 8- 26** OPTICOM DETECTOR SCHEDULE

| Detector Number | Location | Phase Call | Facing Direction | Model Number | Remarks |
|---|---|---|---|---|---|
| | | | | | |

## 8.2 K Street Illumination Sheets

Provide street illumination sheets to indicate where street lighting improvements are being installed. Prepare the sheets at a scale of 1 inch equals 20 feet (1” = 20’). Some projects may require less clarity and be acceptable at a smaller scale. In such cases, a scale of 1 inch equals 50 feet (1” = 50’) may be used when approved by the Municipal Project Manager.

1. The street illumination sheets should include the information specified in Table 8-27.

| **TABLE 8- 27** ILLUMINATION PLANS | |
|---|---|
| **50% Screen** | |
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls that remain after demolition | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads that remain after demolition |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads that remain after demolition | Existing streetlights, junction boxes, and load centers that remain after demolition |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales that remain after demolition | Existing water utility pipes, valves, services, hydrants, and structures that remain after demolition |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services that remain after demolition | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves that remain after demolition |
| Existing signalization poles, controller cabinets, vaults, and junction boxes that remain after demolition | Other pertinent existing features that remain after demolition (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line that remain after demolition | Section lines and corners |
| Existing easements and permits, including public use easements, temporary access permits, and access or entry permits | |
| **0% Screen** | |
| North arrow, pointing to the top or right of the sheet | Lots, blocks, tracts, and parcel designations |
| Graphic scale (2-inch bar scale) | Property lines |
| Rights-of-way and street names | Basis of bearing and stationing |
| Proposed easements and permits, including public use easements, temporary access permits, and access or entry permits | Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. |
| Horizontal location of test holes within project limits | Centerline stationing increasing from left to right. Align stationing on both plan and profile views |
| Proposed limits of asphalt, concrete, and gravel surfacing | Necessary construction notes |
| Notes detailing special construction techniques, as appropriate | Horizontal locations of proposed luminaires, junction boxes, load centers |
| Proposed conduit routing, conduit intercepts, conduit size, conductors and circuit number | |

2. Illumination Schedules

   Provide illumination schedules with the information summarized in Tables 8-28 through 8-32. Include all appropriate lighting level notes, including calculation method.

| **TABLE 8- 28** LIGHT LEVELS (1/2) | | | | | |
|---|---|---|---|---|---|
| Location | Roadway Classification | Pedestrian Conflict Area | Intersection Functional Classification | Light Loss Factor (LLF) | Luminaire Mounting Height |
| | | | | | |
| | | | | | |

| **TABLE 8- 29** LIGHT LEVELS (2/2) | | | | | |
|---|---|---|---|---|---|
| Required Min. Average Illuminance (fc) | Average Design Illuminance (fc) | Required Maximum Uniformity Ratio | Design Uniformity Ratio | Required Max. Veiling Luminance Ratio | Design Veiling Luminance Ratio |
| | | | | | |
| | | | | | |

| **TABLE 8- 30** LUMINAIRE DEFINITION SCHEDULE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Type | Symbol | Make | Model | CCT | Voltage | Color | Options | Mount |
| | | | | | | | | |
| | | | | | | | | |

| **TABLE 8- 31** ROADWAY & INTERSECTION LUMINAIRE SCHEDULE | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pole | Station | Offset | Shaft Length | Mast Arm Length | Lumens | Distribution | Circuit |
| | | | | | | | |
| | | | | | | | |

| **TABLE 8- 32** JUNCTION BOX SCHEDULE | | | | |
|---|---|---|---|---|
| J-Box | Type | Circuit | Station | Offset |
| | | | | |
| | | | | |

3. Load Center Schedule and Schematics

Provide details of the appropriate load center wiring diagram (one-line) and load center panel schedule as depicted in MASS details in Section 80 along with the load center arc flash calculations and voltage drop summary information depicted in Tables 8-33 and 8-34. Include all appropriate load center notes, including foundation and placard details.

| **TABLE 8- 33** VOLTAGE DROP SUMMARY | | | | | |
|---|---|---|---|---|---|
| Circuit | Conductor Size | Length | Voltage | Current | Percent Voltage Drop |
| | | | | | |
| | | | | | |

| **TABLE 8- 34** ARC FLASH CALCULATION | |
|---|---|
| Incident Energy | |
| ARC-Flash Boundary | |
| ARC-Flash PPE Category | |
| Nominal System Voltage | |
| Limited Approach Boundary | |
| Restricted Approach Boundary | |
| Calculation Date | |

## 8.2 L Landscaping Plan Sheets

Provide landscape plan sheets where detailed plantings are proposed. Prepare the sheets at a scale of 1 inch equals 20 feet (1" = 20'). Some projects may require less clarity and be acceptable at a smaller scale. In such cases, a scale of 1 inch equals 50 feet (1" = 50') may be used when approved by the Municipal Project Manager.

1. The landscape plan sheets should include the information specified in Table 8-35.

| **TABLE 8- 35** LANDSCAPE PLAN REQUIREMENTS | |
|---|---|
| **50% Screen** | |
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls that remain after demolition | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads that remain after demolition |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads that remain after demolition | Existing streetlights, junction boxes, and load centers that remain after demolition |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales that remain after demolition | Existing water utility pipes, valves, services, hydrants, and structures that remain after demolition |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services that remain after demolition | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves that remain after demolition |
| Existing signalization poles, controller cabinets, vaults, and junction boxes that remain after demolition | Other pertinent existing features that remain after demolition (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line that remain after demolition | Existing vegetation identifying location, species, canopy diameter, and approximate size |
| Existing easements and permits, including public use easements, temporary access permits, and access or entry permits | Section lines and corners |
| **0% Screen** | |
| North arrow, pointing to the top or right of the sheet | Lots, blocks, tracts, and parcel designations |
| Graphic scale (2-inch bar scale) | Property lines |
| Rights-of-way and street names | Basis of bearing and stationing |
| Proposed easements and permits, including public use easements, temporary access permits, and access or entry permits | Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. |
| Horizontal location of test holes within project limits | Centerline stationing increasing from left to right. Align stationing on both plan and profile views |
| Proposed limits of asphalt, concrete, and gravel surfacing | Necessary construction notes |
| Proposed limits of vegetation | Schematic layout of plants, planting beds, and lawn area |
| Schematic layout of pertinent streets, bodies of water, and park elements | Plant schedule to address botanical name (including genus, species and variety), common name, quantity, plant size (caliper, height, or container size), root requirement, symbol (if applicable), spacing (if applicable), and special requirements |
| Planting notes identifying typical planting-related requirements and job- or site-specific conditions | Planting details |
| Notes and/or details indicating the removal of temporary watering, support, and protection systems | |

## 8.2 M Other Plan Sheets

Site plan sheets are used primarily for projects involving parks, landscaping, grading, and other land development. A prototypical plan sheet is available from PM&E. Prepare the site plan at a scale of 1 inch equals 20 feet (1” = 20’), unless otherwise approved by the Municipal Project Manager. Information required for specific types of site plans is discussed below.

1. Park Site Plans

   Park site plans should include the information specified in Table 8-36.

| **TABLE 8- 36** PARK SITE PLANS | |
|---|---|
| **50% Screen** | |
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls that remain after demolition | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads that remain after demolition |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads that remain after demolition | Existing streetlights, junction boxes, and load centers that remain after demolition |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales that remain after demolition | Existing water utility pipes, valves, services, hydrants, and structures that remain after demolition |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services that remain after demolition | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves that remain after demolition |
| Existing signalization poles, controller cabinets, vaults, and junction boxes that remain after demolition | Other pertinent existing features that remain after demolition (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line that remain after demolition | Lots, blocks, tracts, and parcel designations |
| Existing easements and permits, including public use easements, temporary access permits, and access or entry permits | Section lines and corners |
| **0% Screen** | |
| North arrow, pointing to the top or right of the sheet | Lots, blocks, tracts, and parcel designations |
| Graphic scale (2-inch bar scale) | Property lines |
| Rights-of-way and street names | Basis of bearing and stationing |
| Proposed easements and permits, including public use easements, temporary access permits, and access or entry permits | Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. |
| Horizontal location of test holes within project limits | Centerline stationing increasing from left to right. Align stationing on both plan and profile views |
| Proposed limits of asphalt, concrete, and gravel surfacing | Necessary construction notes |
| Proposed limits of vegetation | Proposed topography with a contour interval of two feet or less. |
| Location and exact dimensioning of proposed park elements | Identification of materials and keys to details |
| Location of stockpile, staging and storage sites, if applicable | Notes detailing special construction techniques, as appropriate |
| Locations affected by wetland, flood hazard, or other permits, where appropriate | Permanent erosion and sediment control measures required |

2. Grading and Drainage Plans

   Site grading and drainage sheets are used primarily for park, landscaping, and other land development projects where substantial re-contouring is involved. The grading and drainage sheet should follow the site plan when assembling the plan set of drawings.

   a. The grading and drainage plan should include the information specified in Table 8-37;

   b. In addition to the information specified in Table 8-37, the grading and drainage plan must also include the information specified in Section 3.4.2 of the Anchorage Stormwater Manual.

**TABLE 8- 37** GRADING AND DRAINAGE PLANS

| | |
|---|---|
| **50% Screen** | |
| Existing edge of pavement, curbs, medians, sidewalks, curb ramps, driveways, guardrail, signs and traffic controls that remain after demolition | Nearest corners of existing buildings, structures, walkways, stairs, decks, foundations, and pads that remain after demolition |
| Existing mailboxes, cluster mailboxes, and cluster mailbox pads that remain after demolition | Existing streetlights, junction boxes, and load centers that remain after demolition |
| Existing storm sewer pipes, manholes, catch basins, structures, cleanouts, culverts, ditches, and swales that remain after demolition | Existing water utility pipes, valves, services, hydrants, and structures that remain after demolition |
| Existing sanitary sewer pipes, manholes, structures, cleanouts, and services that remain after demolition | Existing underground and overhead electric, telephone, fiber-optic, and natural gas utilities including poles, guy lines, manholes, boxes, posts, pads, junction boxes, transformers, load centers, hand holes, mains, services, vaults, and valves that remain after demolition |
| Existing signalization poles, controller cabinets, vaults, and junction boxes that remain after demolition | Other pertinent existing features that remain after demolition (e.g., dumpster pads, fencing, street furniture, retaining walls, bollards, etc.) |
| Existing trees, shrubs, landscape beds and features, limits of vegetation & brush/tree line that remain after demolition | Lots, blocks, tracts, and parcel designations |
| Existing easements and permits, including public use easements, temporary access permits, and access or entry permits | Section lines and corners |
| **0% Screen** | |
| North arrow, pointing to the top or right of the sheet | Lots, blocks, tracts, and parcel designations |
| Graphic scale (2-inch bar scale) | Property lines |
| Rights-of-way and street names | Basis of bearing and stationing |
| Proposed easements and permits, including public use easements, temporary access permits, and access or entry permits | Horizontal location of survey monuments and benchmarks, including name (or number), elevations, etc. |
| Horizontal location of test holes within project limits | Necessary construction notes |
| Proposed limits of asphalt, concrete, and gravel surfacing | Proposed limits of vegetation |
| Identification of materials and keys to details | Proposed topography with a contour interval of two feet or less |
| Location of stockpile, staging and storage sites, if applicable | Notes detailing special construction techniques, as appropriate |
| Locations affected by wetland, flood hazard, or other permits, where appropriate | Permanent erosion and sediment control measures required |

c. Provide grading point tables that contain the information shown in Table 8-38.

**TABLE 8- 38** EXAMPLE GRADING POINT TABLE

| Point Number | Northing | Easting | Elevation | Point Type | Notes |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

END OF SECTION 8.2

## SECTION 8.3 SPECIFICATIONS PREPARATION

### 8.3 A Objective

The specifications for contract documents consist of the fifteen major components listed below:

1. Invitation to bid;
2. Special provisions;
3. Submittal list;
4. Special details;
5. Soils information;
6. Temporary construction permits and easements;
7. Equal employment opportunity special provisions;
8. Minimum rates of pay;
9. Contract;
10. Contract performance and payment bond;
11. Certificate of insurance;
12. Bid bond;
13. Bidders checklist & responsible bidder questionnaire;
14. Bid proposal; and
15. Plans.

This information is referred to as the Project Manual in M.A.S.S. The project engineer shall download the latest available Project Manual template from the PM&E website.

The project engineer shall use M.A.S.S. as the basis for and primary source of information during plan and specification preparation. Incorporate M.A.S.S. by reference into the contract documents. All parts of the specifications shall be clear and intelligible. The technical parts of the documents must be understandable to qualified contractors. Utilize standard specifications and bid items whenever possible and not modified or repeated in the special provisions. Specific discussion of some of the components is provided below.

### 8.3 B Invitation to Bid

The Invitation to Bid page is a standard Municipal form that is provided in the project manual template. The project engineer shall complete the project name and work description. The project work description is used for advertising purposes and should be brief, but shall contain specific information as to the quantity and description of major bid items.

The project bid numbers, and the dates and times for the conferences and the bid opening, are furnished by the Municipal Purchasing Department and is coordinated through the Municipal Project Manager. The Municipal Project Manager will provide a copy of the Invitation to Bid, completed and signed by the Municipal Purchasing Department, to the project engineer for final printing of bid documents.

### 8.3 C Special Provisions

1. General

The special provisions are specific clauses, which present conditions or requirements specific to a project and are supplementary to M.A.S.S. The project engineer shall use standard bid items and specifications whenever possible with additions and/or deletions included in the special provisions when required. In no case shall special provisions refer to “the standard specification”. In all cases the reference shall be to the “M.A.S.S.”

Number special provisions sequentially beginning with 95.01. Number the special provision pages in sequence, beginning with “SP-1”. Provide a special provision for each project for the following items using the format provided in the project manual template on the PM&E website.

a. Location and scope, including information on whether the project is located in the State or Municipal right-of-way;

b. Reference to M.A.S.S.;

c. Time of completion, which refers to the number of calendar days to complete the required work after the notice to proceed has been issued, or a set completion date; and

d. Modifications and/or additions to the M.A.S.S.

Additional items may be provided by the Municipal Project Manager for inclusion in the special provisions. Non-standard bid items unique to each project should be included as special provisions only when the M.A.S.S. does not contain an applicable bid item that may be used or amended to apply to the project requirements.

2. Modifications of M.A.S.S. Standard Provisions

Special provisions which modify existing standard provisions in the M.A.S.S. will only delete, add to, or replace existing descriptions or provisions. Do not restate existing descriptions in the special provisions. Clearly state the division, section, and article being modified. Follow the format in the project manual template.

The Municipality has modifications to the M.A.S.S. that are updated periodically in the project manual template on the PM&E website. Include the most current modifications applicable to the project in the special provisions.

3. New Work Items

Develop special provisions in full, which create new work items that are not modifications of the M.A.S.S. standard provisions. Add new work items to the end of the division which relates to the new work item. Designate new special provisions for the new items AA.XX, where AA is the M.A.S.S.

division under which the work falls and XX is the next available section number within that M.A.S.S. division. The special provisions for new work items shall include the following:

Article XX.1 General

Article XX.2 Material

Article XX.3 Construction

Article XX.4 Measurement

Article XX.5 Basis of Payment

List the special provisions in the same order as the M.A.S.S. divisions. For example, all special provisions pertaining to General Items (Division 10) appear first, then Earthwork Items (Division 20), Portland Cement Concrete Items (Division 30), Asphalt Surfacing Items (Division 40), etc.

Nomenclature used in the special provisions shall conform to the M.A.S.S. general provisions, Section 10.01 Definitions, (i.e., use of “Engineer” or “Owner” rather than “Municipal Representative” or “Municipality”).

### 8.3 D Bid Proposal

The bid proposal section is the last section in the document and consists of four parts: a title page, unit bid price sheet(s), a bid summary page, and a bid proposal (certification). Number the bid proposal pages consecutively starting with “BP-1 of BP-n”.

Utilize bid proposal sheets similar to those provided in Appendix 8C, unless otherwise directed by the Municipal Project Manager.

1. Arrange the bid items in the same numerical order in which they appear in the M.A.S.S., as modified by the project’s special provisions.

2. Separate the unit bid price sheets into separate schedules, as required.

3. Bid item titles shall correspond exactly to work items as listed under Basis of Payment in the M.A.S.S. or the special provisions.

END OF SECTION 8.3

## SECTION 8.4 ADDENDUM PREPARATION

When required, prepare addenda on Municipal letterhead. The letter shall explicitly outline all changes, additions, and deletions to be incorporated in the plans and specifications with attached prints or sketches, as necessary.

END OF SECTION 8.4

# APPENDIX 8A

# AutoCAD Standards

## INTRODUCTION

This Appendix is an accompaniment to the MOA AutoCAD standard drawings which were created in AutoCAD Civil 3D 2023. Users shall use AutoCAD Civil 3D 2023 at a minimum or a newer version still compatible with AutoCAD Civil 3D 2023. These standards were developed to establish base criteria for the exchange and compatibility of information. These files provide the designer with sample drawings for use on MOA projects. Users should familiarize themselves with Section 8.2 of this DCM which gives detailed information about the required content and presentation of plan sheets. An example of each dwg file is also included in this appendix.

The MOA AutoCAD standards drawings include the following dwt files:

1. PM&E Cover Sheet (NCS-STB).dwt Sample cover sheet (Page 8A-8).

2. PM&E General Notes-Index-Key Map (NCS-STB).dwt, Sample notes, sheet index, keymap & schedule table (Page 8A-9 through 8A-10).

3. PM&E General Legend (NCS-STB).dwt, Sample Legend & Abbreviations (Page 8A-11).

4. PM&E Detail Sheet (NCS-STB).dwt, Sample Detail sheet (Page 8A-12).

5. PM&E 3D Styles & Settings_All Disciplines (NCS-STB).dwt, Sample Plan & Profile, Plan over Plan sheet, and Site Plan Views (Pages 8A-13 through 15).

6. Plot Style legend for drawing layers (Page 8A-16).

7. Listing of the most common symbols found on MOA projects. The appropriate layer name and plot style is also given for each symbol. (Pages 8A-17 through 8A-21).

8. Lettering legend for title blocks, plan views and profile views. Font style, text height, and pen weight are given for each feature type typically found on MOA plan sheets (Pages 8A-22 through 8A-24).

## LAYER NAMING CONVENTION

AutoCAD drawings produced for MOA shall generally follow the United States National CAD Standards (NCS) Version 6 standard layering convention as described below. See the following website for information regarding NCS Version 6: https://www.nationalcadstandard.org/ncs6/ The layer naming convention is a hierarchical system. This allows users to select from several options for naming layers according to the level of detailed information desired. Layer names consist of distinct data fields separated from one another by dashes. A detailed list of abbreviations is prescribed to define the content of layers. Most field codes are abbreviations of construction terminology.

There are three defined layer name data fields: Discipline Designator, Major Group and Minor Groups.

Discipline Designator

The first letter of the layer name denotes the discipline or category on the specified layer. The following four disciplines shall be used on MOA projects:

C – Civil: all proposed civil features

E – Electrical: all proposed electrical features

G – General: all general features (text, title block lines, detail lines, etc.)

V – Survey / Mapping: all existing or record features. Any record features should be included in a separate Record Base drawing to ensure users understand that the features have not been surveyed.

L – Landscape: all proposed landscape features

Major Group

The Major Group is a four-character field that identifies a major system. Any Major Group can be combined with a discipline designator. User-defined Major Group fields are acceptable for unique items that are not included in the MOA templates.

Example for proposed civil road feature: C-ROAD

Example for surveyed fence: V-FENC

Minor Group

The Minor Group is an optional four-character field to further define the Major Group. A second Minor Group may be used to provide further delineation of the minor group. User-defined Minor Group fields are acceptable for unique items that are not included in the MOA templates.

Example for proposed civil guardrail: C-ROAD-GRAL-N

Example for proposed civil back of curb: C-ROAD-CURB-BACK-N

## DRAWING ANNOTATION

Capitalization

Capital letters shall be used in text since they retain readability when reproduced at one-half size (Figure 1).

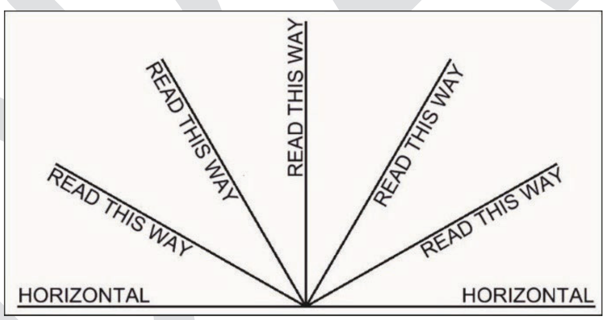
Figure 1 - Capitalization in text.


Orientation and placement

Text shall be set parallel to the primary base of the drawing. If necessary, text can be rotated at 30-degree angles up to 180 degrees as long as the orientation is as shown in Figure 2. However, rotating the text is discouraged to prevent having to turn the drawing sheet to read notations.

Note: An exception to maintaining this text orientation would be on waterways projects because of the various directions in which channels are located. Often, text that has a definite bearing on the contract is kept at proper orientation, while map features incidental to the contract are allowed to follow the orientation when created in a north-up base map, which may result in upside-down text on rotated plan sheets.

Figure 2 - Orientation of text.




The text shall never be placed over other text. Text shall not be placed over feature lines, hatching, or patterning. If text is required in a hatched or patterned area, the hatching/patterning shall be clipped (masked) so the text can be clearly read.

Text justification depends upon the type of text being placed. For example, general numbered notes shall have upper-left justification, elevation labels appearing to the left of a feature shall have bottom-right justification, and elevation labels appearing to the right of a feature shall have bottom-left justification.

Font Types

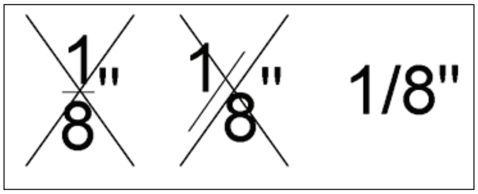
All sheets shall maintain a consistent text style, and all text, labeling, and dimensions shall use ARIAL True Type Font. Text and dimensions may be used in model or layout space but must be kept consistent per drawing and drawing discipline. Text and dimensions are not to be exploded or overridden. All references to details sheets shall be linked fields.

General Text, Labeling and Dimension Styles

- A sufficient margin will be left around all text, labeling, and dimensions to ensure clarity and readability
- Allowable plotted text heights are 0.080”, 0.125”, 0.150”, 0.200”, 0.250”, 0.300”, and 0.350”
- 0.125” ARIAL font for notes and leader text and 0.15” ARIALBOLD for view titles with underline
- All text will be UPPERCASE unless a specific item requires an exception for clarity
- All leader heads are to be 0.1875” plotted height.
- Labels shall always have a leader landing gap of 0.0625” and a landing of 0.125”
- When a leader is extending off the right side of a text object, the leader will come from the middle of the bottom line. When it is extending off the left side, it will come from the middle of the top line.
- If styles are changed, changes must not alter the appearance or effectiveness of the dimension.
- Dimension text height shall be 0.125” plotted (See Figure 5).
- Dimension units must be consistent across sheets and the drawing set.
- Dimensions shall be associative by default.
- Fractions shall not be stacked (See Figure 3).

Fractions

Figure 3 – Stacked Fraction Format.




All fractions on the drawing shall be inline (not stacked) (Figure 3). Fractions shall not be less than 1/16 in. (1.5 mm) because accuracy in the field rarely requires more precision. Decimal values shall always have a leading zero before the decimal point when values are less than 1.

Generally, architectural construction dimensions are shown in feet and inches. Decimals of a foot shall be used where dimensions are being set by surveying equipment, such as beam spacing, foundation locations, and structure widths.

Dimension Placement

Dimension values shall always be placed above the dimension line, preferably midway between the dimension terminators (Figure 4). The dimension line shall never be broken to insert the dimension, with the exception of angular dimensioning. It is preferred that dimensions always be placed outside the view, preferably located at the top and/or the right side of the plans. With that in mind, dimensions shall apply to one view only (i.e., no shared dimensions between views). The dimension shall be placed on the view that shows its true length. Exploded dimensions or dimensions where the dimension text has been edited are strongly discouraged except for the following: where software limitations prevent users from providing the appropriate dimensioning, where the dimension is intended to be an approximation and is notated as such, or where a dimension is displayed as a mathematical formula. An exploded dimension for the sole purpose of displaying a value different from the actual measured value is strictly prohibited.

Figure 4 – Positioning of text in dimensions.

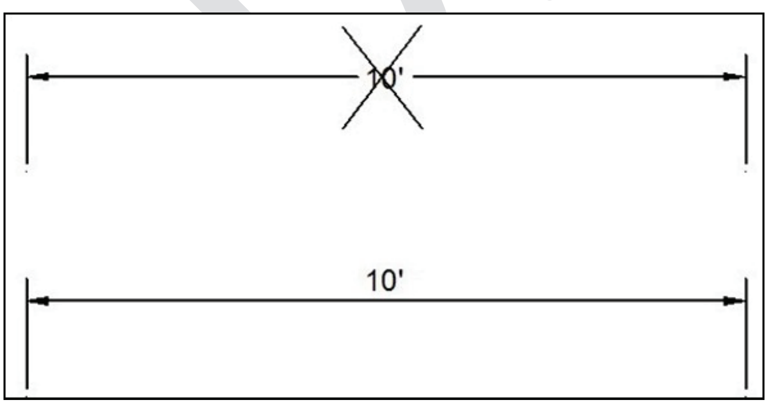
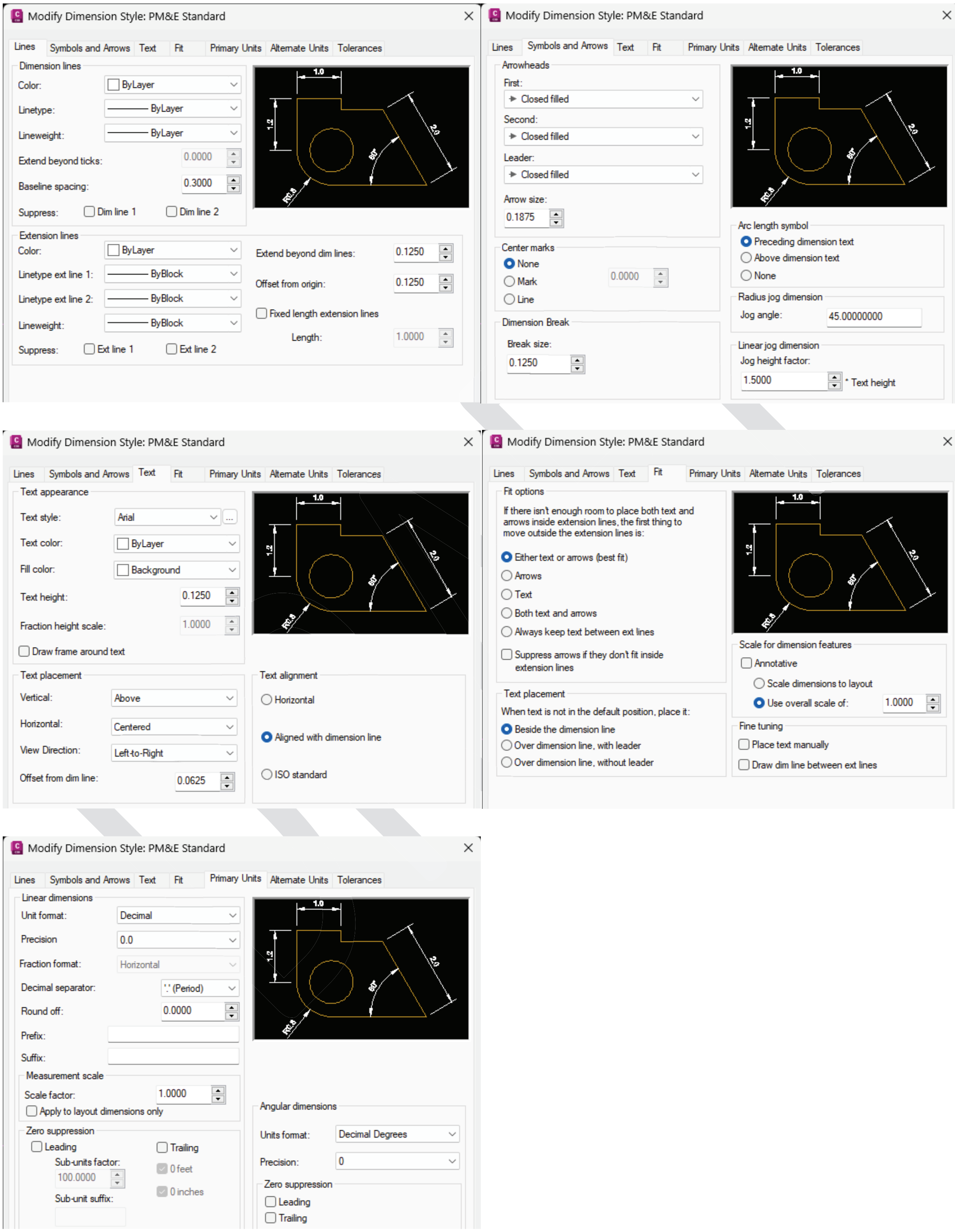
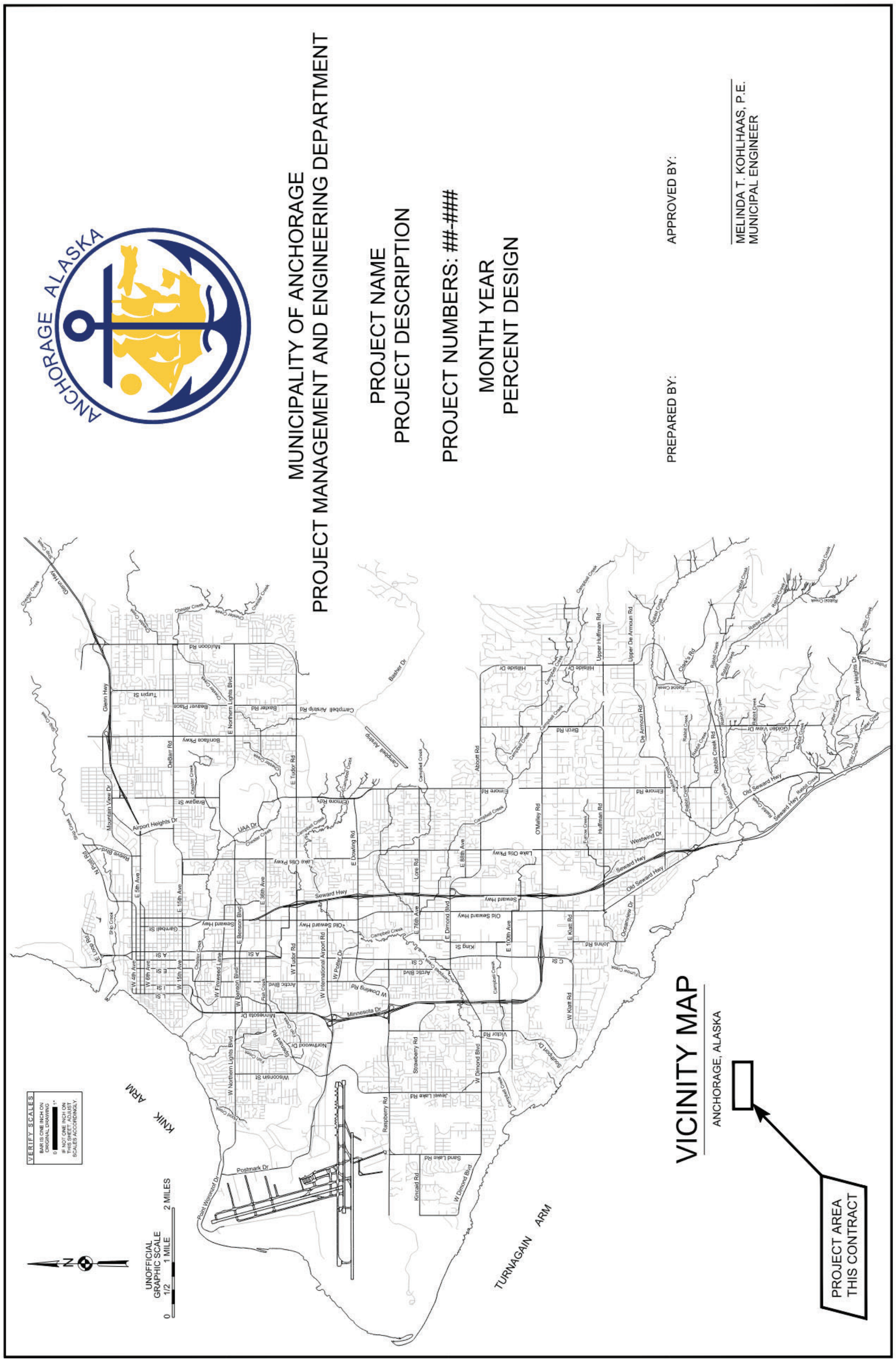
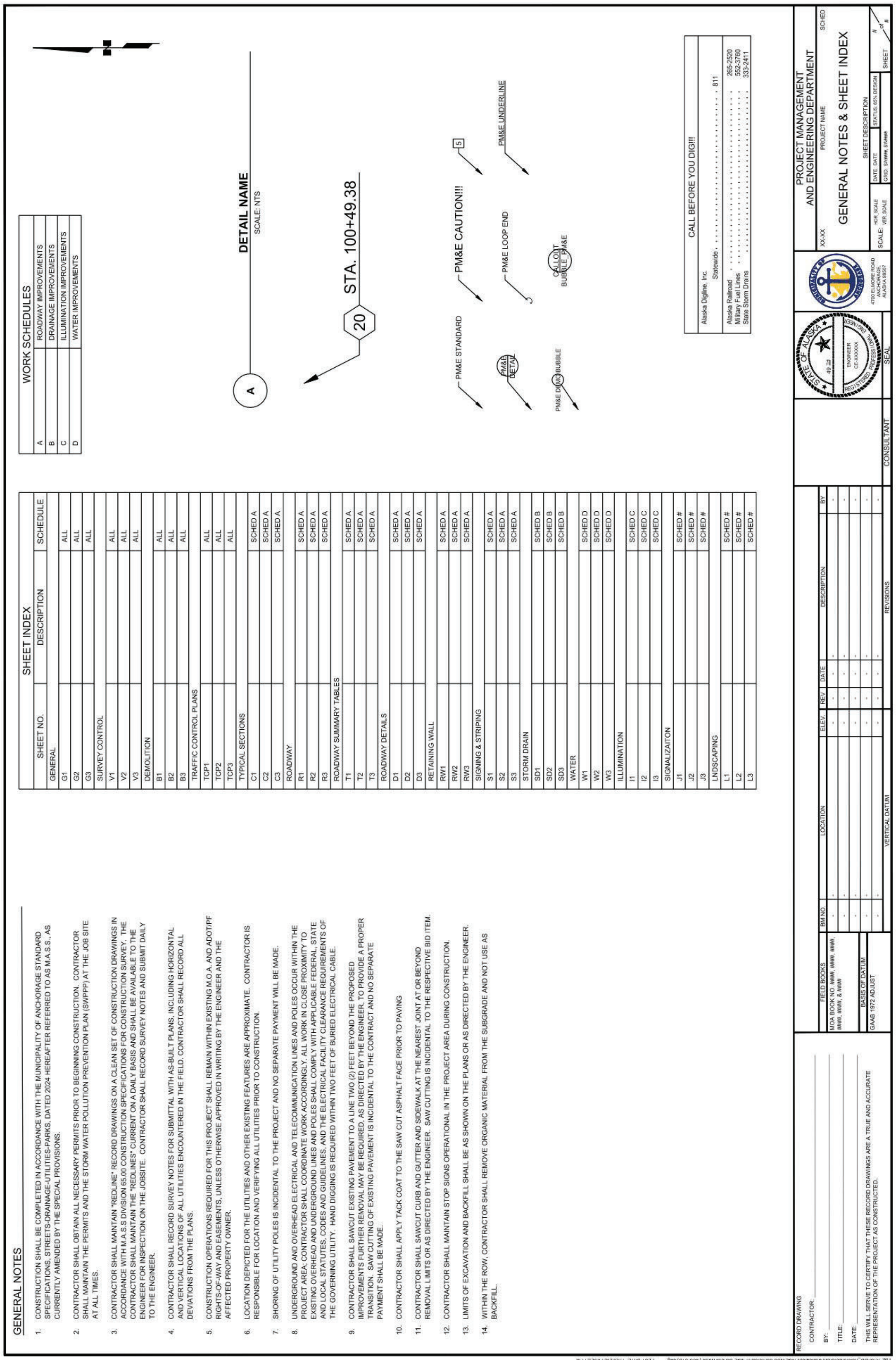
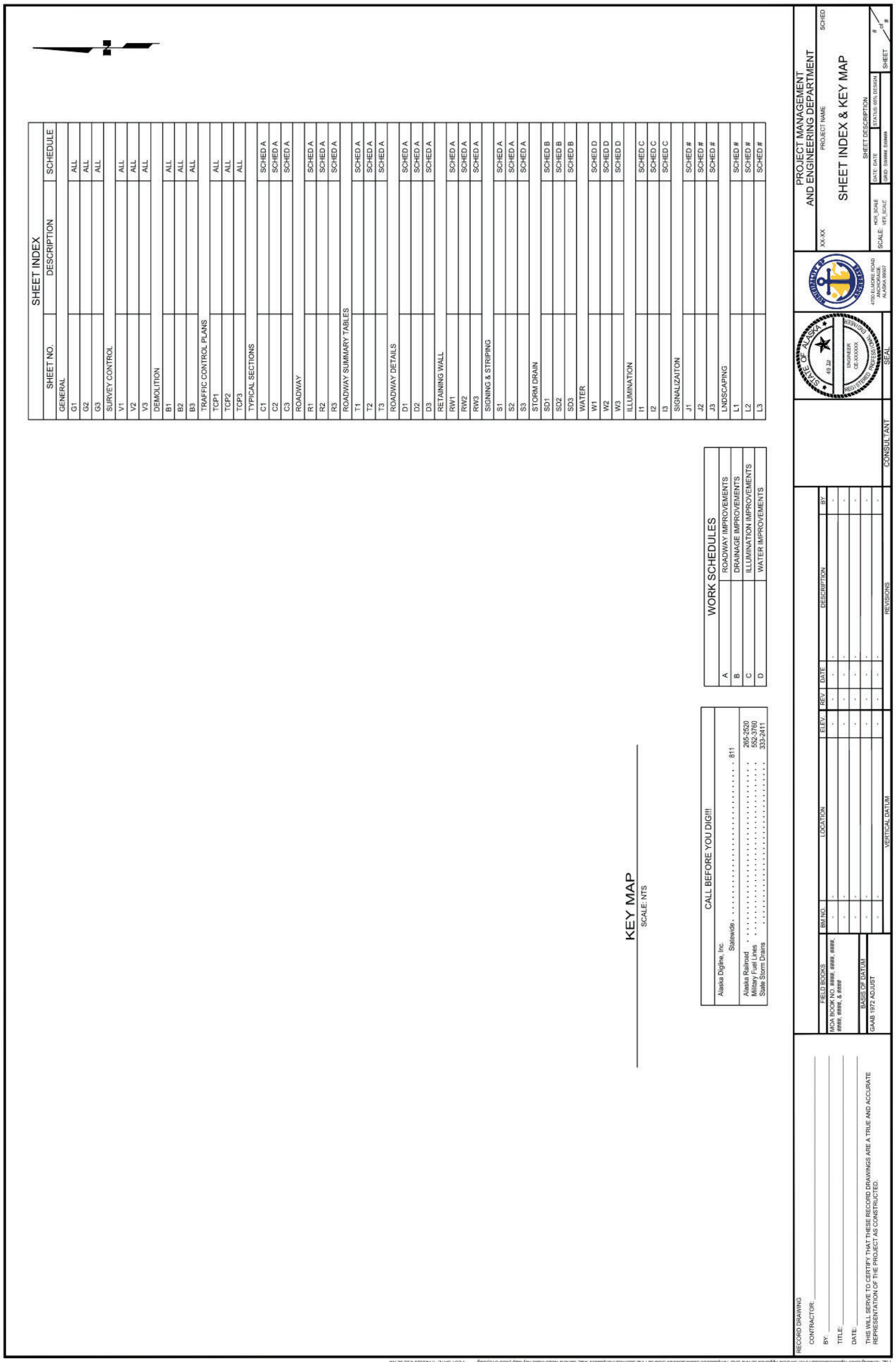


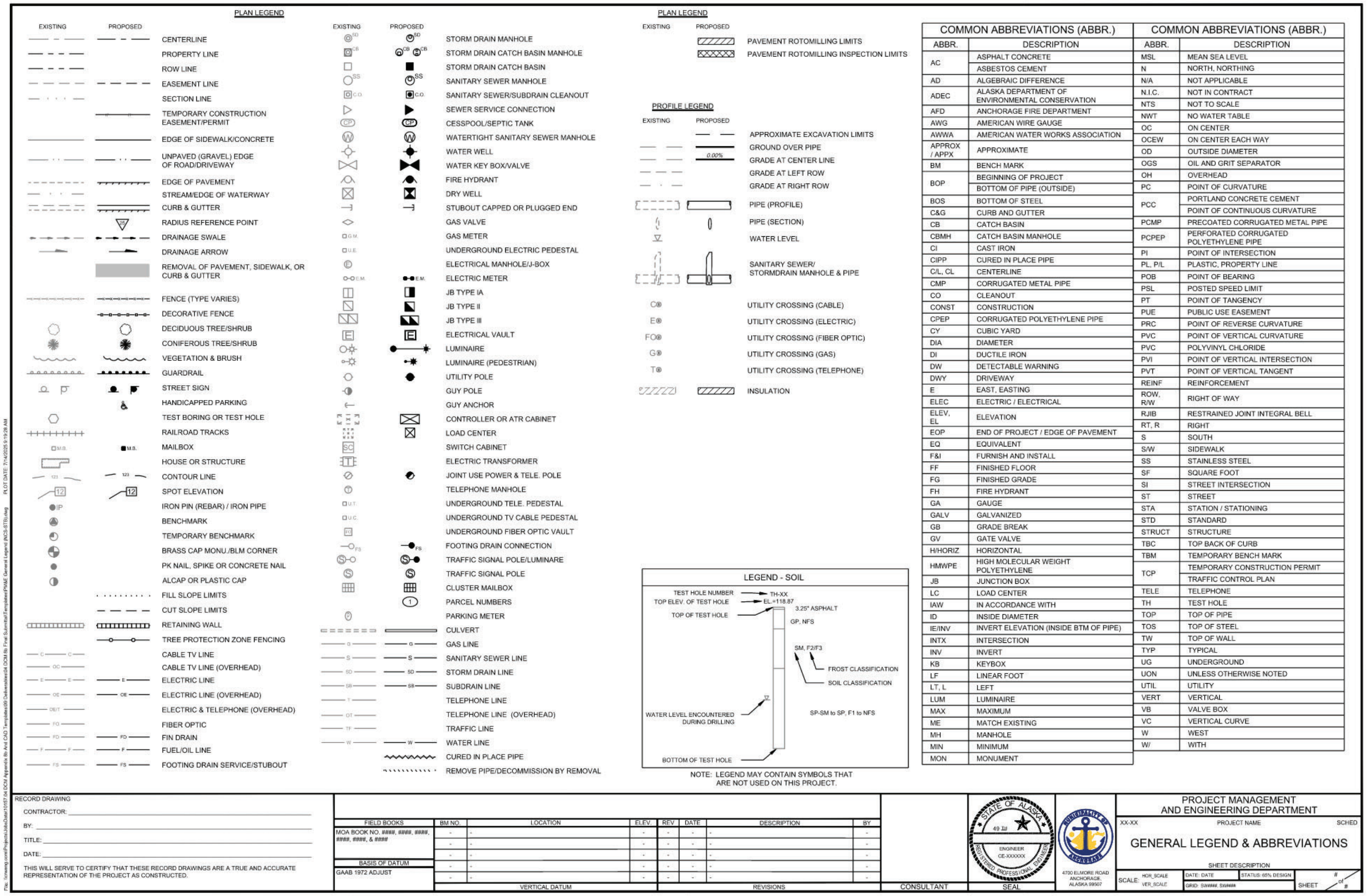
Figure 5 – Dimension Settings.




ANCHORAGE ALASKA
MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT
PROJECT NAME
PROJECT DESCRIPTION
PROJECT NUMBERS: ##-###
MONTH YEAR
PERCENT DESIGN
PREPARED BY:
APPROVED BY:
MELINDA T. KOHLHAAS, P.E.
MUNICIPAL ENGINEER
VICINITY MAP
ANCHORAGE, ALASKA
PROJECT AREA
THIS CONTRACT
KNIK ARM
TURNAGAIN ARM
UNOFFICIAL
GRAPHIC SCALE
0 1/2 1 MILE 2 MILES
VERIFY SCALES


GENERAL NOTES
1. CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH THE MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS, STREETS-DRAINAGE-UTILITIES-PARKS, DATED 2024 HEREAFTER REFERRED TO AS M.A.S.S., AS CURRENTLY AMENDED BY THE SPECIAL PROVISIONS.
2. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL MAINTAIN THE PERMITS AND THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AT THE JOB SITE AT ALL TIMES.
3. CONTRACTOR SHALL MAINTAIN "REDLINE" RECORD DRAWINGS ON A CLEAN SET OF CONSTRUCTION DRAWINGS IN ACCORDANCE WITH M.A.S.S DIVISION 65.00 CONSTRUCTION SPECIFICATIONS FOR CONSTRUCTION SURVEY. THE CONTRACTOR SHALL MAINTAIN THE "REDLINES" CURRENT ON A DAILY BASIS AND SHALL BE AVAILABLE TO THE ENGINEER FOR INSPECTION ON THE JOBSITE. CONTRACTOR SHALL RECORD SURVEY NOTES AND SUBMIT DAILY TO THE ENGINEER.
4. CONTRACTOR SHALL RECORD SURVEY NOTES FOR SUBMITTAL WITH AS-BUILT PLANS, INCLUDING HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED IN THE FIELD. CONTRACTOR SHALL RECORD ALL DEVIATIONS FROM THE PLANS.
5. CONSTRUCTION OPERATIONS REQUIRED FOR THIS PROJECT SHALL REMAIN WITHIN EXISTING M.O.A. AND ADOT/PF RIGHTS-OF-WAY AND EASEMENTS, UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER AND THE AFFECTED PROPERTY OWNER.
6. LOCATION DEPICTED FOR THE UTILITIES AND OTHER EXISTING FEATURES ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR LOCATION AND VERIFYING ALL UTILITIES PRIOR TO CONSTRUCTION.
7. SHORING OF UTILITY POLES IS INCIDENTAL TO THE PROJECT AND NO SEPARATE PAYMENT WILL BE MADE.
8. UNDERGROUND AND OVERHEAD ELECTRICAL AND TELECOMMUNICATION LINES AND POLES OCCUR WITHIN THE PROJECT AREA; CONTRACTOR SHALL COORDINATE WORK ACCORDINGLY. ALL WORK IN CLOSE PROXIMITY TO EXISTING OVERHEAD AND UNDERGROUND LINES AND POLES SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL STATUTES, CODES AND GUIDELINES, AND THE ELECTRICAL FACILITY CLEARANCE REQUIREMENTS OF THE GOVERNING UTILITY. HAND DIGGING IS REQUIRED WITHIN TWO FEET OF BURIED ELECTRICAL CABLE.
9. CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT TO A LINE TWO (2) FEET BEYOND THE PROPOSED IMPROVEMENTS FURTHER REMOVAL MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, TO PROVIDE A PROPER TRANSITION. SAW CUTTING OF EXISTING PAVEMENT IS INCIDENTAL TO THE CONTRACT AND NO SEPARATE PAYMENT SHALL BE MADE.
10. CONTRACTOR SHALL APPLY TACK COAT TO THE SAW CUT ASPHALT FACE PRIOR TO PAVING
11. CONTRACTOR SHALL SAWCUT CURB AND GUTTER AND SIDEWALK AT THE NEAREST JOINT AT OR BEYOND REMOVAL LIMITS OR AS DIRECTED BY THE ENGINEER. SAW CUTTING IS INCIDENTAL TO THE RESPECTIVE BID ITEM.
12. CONTRACTOR SHALL MAINTAIN STOP SIGNS OPERATIONAL IN THE PROJECT AREA DURING CONSTRUCTION.
13. LIMITS OF EXCAVATION AND BACKFILL SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
14. WITHIN THE ROW, CONTRACTOR SHALL REMOVE ORGANIC MATERIAL FROM THE SUBGRADE AND NOT USE AS BACKFILL.
SHEET INDEX
SHEET NO. DESCRIPTION SCHEDULE
GENERAL
G1 ALL
G2 ALL
G3 ALL
SURVEY CONTROL
V1 ALL
V2 ALL
V3 ALL
DEMOLITION
B1 ALL
B2 ALL
B3 ALL
TRAFFIC CONTROL PLANS
TCP1 ALL
TCP2 ALL
TCP3 ALL
TYPICAL SECTIONS
C1 SCHED A
C2 SCHED A
C3 SCHED A
ROADWAY
R1 SCHED A
R2 SCHED A
R3 SCHED A
ROADWAY SUMMARY TABLES
T1 SCHED A
T2 SCHED A
T3 SCHED A
ROADWAY DETAILS
D1 SCHED A
D2 SCHED A
D3 SCHED A
RETAINING WALL
RW1 SCHED A
RW2 SCHED A
RW3 SCHED A
SIGNING & STRIPING
S1 SCHED A
S2 SCHED A
S3 SCHED A
STORM DRAIN
SD1 SCHED B
SD2 SCHED B
SD3 SCHED B
WATER
W1 SCHED D
W2 SCHED D
W3 SCHED D
ILLUMINATION
I1 SCHED C
I2 SCHED C
I3 SCHED C
SIGNALIZAITON
J1 SCHED #
J2 SCHED #
J3 SCHED #
LNDSCAPING
L1 SCHED #
L2 SCHED #
L3 SCHED #
WORK SCHEDULES
A ROADWAY IMPROVEMENTS
B DRAINAGE IMPROVEMENTS
C ILLUMINATION IMPROVEMENTS
D WATER IMPROVEMENTS
N
A
DETAIL NAME
SCALE: NTS
20
STA. 100+49.38
PM&E STANDARD
PM&E CAUTION!!!
5
PM&E DETAIL
PM&E LOOP END
PM&E UNDERLINE
PM&E DEMO BUBBLE
CALLOUT BUBBLE PM&E
CALL BEFORE YOU DIG!!!
Alaska Digline, Inc.
Statewide . . . . . 811
Alaska Railroad . . . . . 265-2520
Military Fuel Lines . . . . . 552-3760
State Storm Drains . . . . . 333-2411
RECORD DRAWING
CONTRACTOR:
BY:
TITLE:
DATE:
THIS WILL SERVE TO CERTIFY THAT THESE RECORD DRAWINGS ARE A TRUE AND ACCURATE REPRESENTATION OF THE PROJECT AS CONSTRUCTED.
FIELD BOOKS
MOA BOOK NO. ####, ####, ####, ####, ####, & ####
BASIS OF DATUM
GAAB 1972 ADJUST
BM NO. LOCATION ELEV. REV DATE DESCRIPTION BY
VERTICAL DATUM
REVISIONS
CONSULTANT
SEAL
ENGINEER
CE-XXXXXX
4700 ELMORE ROAD
ANCHORAGE, ALASKA 99507
PROJECT MANAGEMENT
AND ENGINEERING DEPARTMENT
XX-XX
PROJECT NAME
SCHED
GENERAL NOTES & SHEET INDEX
SHEET DESCRIPTION
SCALE: HOR. SCALE VER. SCALE
DATE: DATE
STATUS: 65% DESIGN
SHEET # of #


SHEET INDEX
SHEET NO.
DESCRIPTION
SCHEDULE
GENERAL
G1 ALL
G2 ALL
G3 ALL
SURVEY CONTROL
V1 ALL
V2 ALL
V3 ALL
DEMOLITION
B1 ALL
B2 ALL
B3 ALL
TRAFFIC CONTROL PLANS
TCP1 ALL
TCP2 ALL
TCP3 ALL
TYPICAL SECTIONS
C1 SCHED A
C2 SCHED A
C3 SCHED A
ROADWAY
R1 SCHED A
R2 SCHED A
R3 SCHED A
ROADWAY SUMMARY TABLES
T1 SCHED A
T2 SCHED A
T3 SCHED A
ROADWAY DETAILS
D1 SCHED A
D2 SCHED A
D3 SCHED A
RETAINING WALL
RW1 SCHED A
RW2 SCHED A
RW3 SCHED A
SIGNING & STRIPING
S1 SCHED A
S2 SCHED A
S3 SCHED A
STORM DRAIN
SD1 SCHED B
SD2 SCHED B
SD3 SCHED B
WATER
W1 SCHED D
W2 SCHED D
W3 SCHED D
ILLUMINATION
I1 SCHED C
I2 SCHED C
I3 SCHED C
SIGNALIZAITON
J1 SCHED #
J2 SCHED #
J3 SCHED #
LNDSCAPING
L1 SCHED #
L2 SCHED #
L3 SCHED #
KEY MAP
SCALE: NTS
CALL BEFORE YOU DIG!!!
Alaska Digline, Inc.
Statewide 811
Alaska Railroad 265-2520
Military Fuel Lines 552-3760
State Storm Drains 333-2411
WORK SCHEDULES
A ROADWAY IMPROVEMENTS
B DRAINAGE IMPROVEMENTS
C ILLUMINATION IMPROVEMENTS
D WATER IMPROVEMENTS
RECORD DRAWING
CONTRACTOR:
BY:
TITLE:
DATE:
THIS WILL SERVE TO CERTIFY THAT THESE RECORD DRAWINGS ARE A TRUE AND ACCURATE REPRESENTATION OF THE PROJECT AS CONSTRUCTED.
FIELD BOOKS
MOA BOOK NO. ####, ####, ####, ####, ####, & ####
BASIS OF DATUM
GAAB 1972 ADJUST
BM NO.
LOCATION
ELEV.
VERTICAL DATUM
REV
DATE
DESCRIPTION
BY
REVISIONS
CONSULTANT
SEAL
4700 ELMORE ROAD ANCHORAGE, ALASKA 99507
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT
XX-XX
PROJECT NAME
SCHED
SHEET INDEX & KEY MAP
SHEET DESCRIPTION
SCALE:
HOR_SCALE
VER_SCALE
STATUS: 65% DESIGN
SHEET

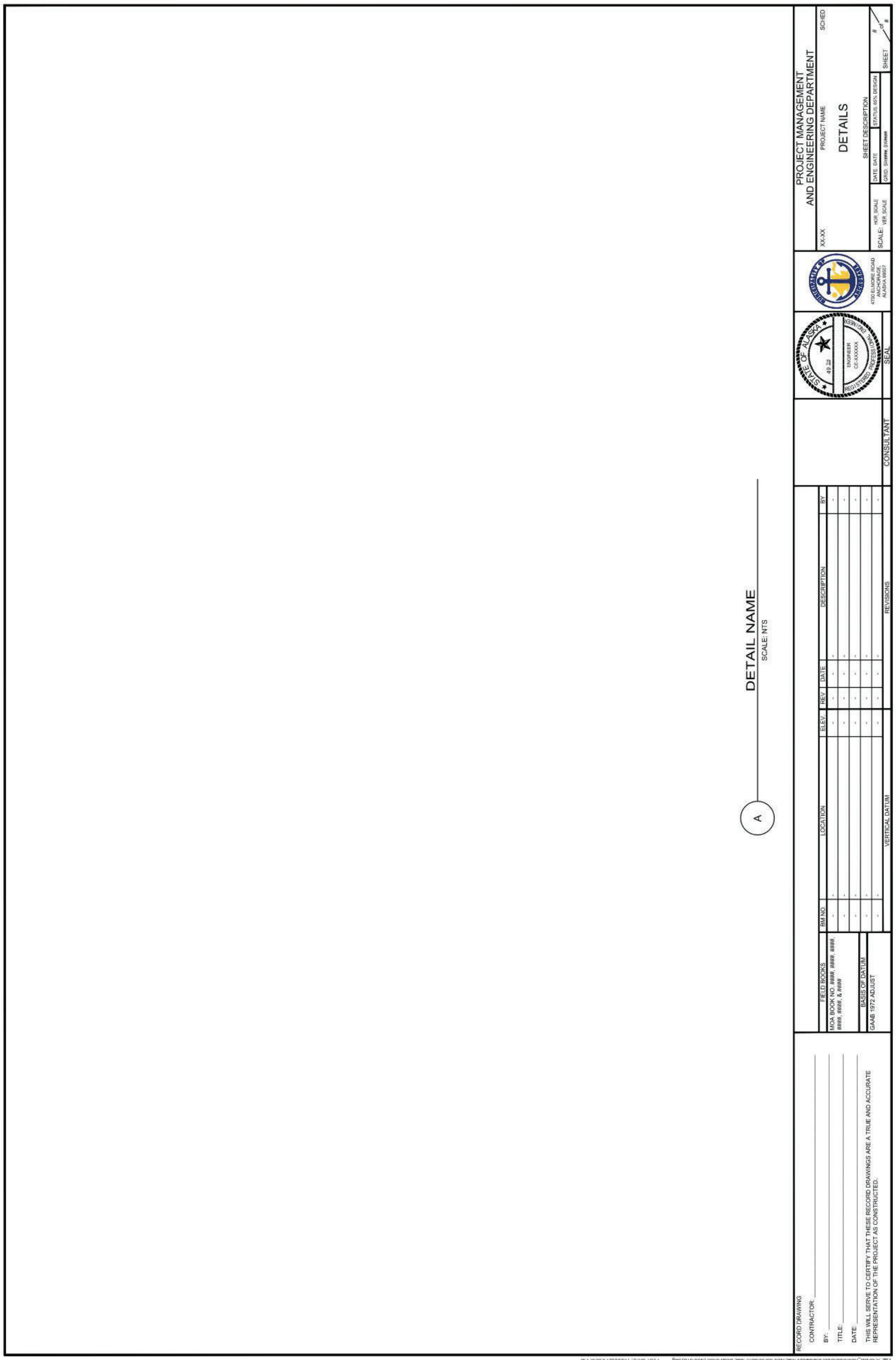



COMMON ABBREVIATIONS (ABBR.)

| ABBR. | DESCRIPTION |
|---|---|
| AC | ASPHALT CONCRETE |
| | ASBESTOS CEMENT |
| AD | ALGEBRAIC DIFFERENCE |
| ADEC | ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION |
| AFD | ANCHORAGE FIRE DEPARTMENT |
| AWG | AMERICAN WIRE GAUGE |
| AWWA | AMERICAN WATER WORKS ASSOCIATION |
| APPROX / APPX | APPROXIMATE |
| BM | BENCH MARK |
| BOP | BEGINNING OF PROJECT |
| | BOTTOM OF PIPE (OUTSIDE) |
| BOS | BOTTOM OF STEEL |
| C&G | CURB AND GUTTER |
| CB | CATCH BASIN |
| CBMH | CATCH BASIN MANHOLE |
| CI | CAST IRON |
| CIPP | CURED IN PLACE PIPE |
| C/L, CL | CENTERLINE |
| CMP | CORRUGATED METAL PIPE |
| CO | CLEANOUT |
| CONST | CONSTRUCTION |
| CPEP | CORRUGATED POLYETHYLENE PIPE |
| CY | CUBIC YARD |
| DIA | DIAMETER |
| DI | DUCTILE IRON |
| DW | DETECTABLE WARNING |
| DWY | DRIVEWAY |
| E | EAST, EASTING |
| ELEC | ELECTRIC / ELECTRICAL |
| ELEV, EL | ELEVATION |
| EOP | END OF PROJECT / EDGE OF PAVEMENT |
| EQ | EQUIVALENT |
| F&I | FURNISH AND INSTALL |
| FF | FINISHED FLOOR |
| FG | FINISHED GRADE |
| FH | FIRE HYDRANT |
| GA | GAUGE |
| GALV | GALVANIZED |
| GB | GRADE BREAK |
| GV | GATE VALVE |
| H/HORIZ | HORIZONTAL |
| HMWPE | HIGH MOLECULAR WEIGHT POLYETHYLENE |
| JB | JUNCTION BOX |
| LC | LOAD CENTER |
| IAW | IN ACCORDANCE WITH |
| ID | INSIDE DIAMETER |
| IE/INV | INVERT ELEVATION (INSIDE BTM OF PIPE) |
| INTX | INTERSECTION |
| INV | INVERT |
| KB | KEYBOX |
| LF | LINEAR FOOT |
| LT, L | LEFT |
| LUM | LUMINAIRE |
| MAX | MAXIMUM |
| ME | MATCH EXISTING |
| MH | MANHOLE |
| MIN | MINIMUM |
| MON | MONUMENT |

COMMON ABBREVIATIONS (ABBR.)

| ABBR. | DESCRIPTION |
|---|---|
| MSL | MEAN SEA LEVEL |
| N | NORTH, NORTHING |
| N/A | NOT APPLICABLE |
| N.I.C. | NOT IN CONTRACT |
| NTS | NOT TO SCALE |
| NWT | NO WATER TABLE |
| OC | ON CENTER |
| OCEW | ON CENTER EACH WAY |
| OD | OUTSIDE DIAMETER |
| OGS | OIL AND GRIT SEPARATOR |
| OH | OVERHEAD |
| PC | POINT OF CURVATURE |
| PCC | PORTLAND CONCRETE CEMENT |
| | POINT OF CONTINUOUS CURVATURE |
| PCMP | PRECOATED CORRUGATED METAL PIPE |
| PCPEP | PERFORATED CORRUGATED POLYETHYLENE PIPE |
| PI | POINT OF INTERSECTION |
| PL, P/L | PLASTIC, PROPERTY LINE |
| POB | POINT OF BEARING |
| PSL | POSTED SPEED LIMIT |
| PT | POINT OF TANGENCY |
| PUE | PUBLIC USE EASEMENT |
| PRC | POINT OF REVERSE CURVATURE |
| PVC | POINT OF VERTICAL CURVATURE |
| PVC | POLYVINYL CHLORIDE |
| PVI | POINT OF VERTICAL INTERSECTION |
| PVT | POINT OF VERTICAL TANGENT |
| REINF | REINFORCEMENT |
| ROW, R/W | RIGHT OF WAY |
| RJIB | RESTRAINED JOINT INTEGRAL BELL |
| RT, R | RIGHT |
| S | SOUTH |
| S/W | SIDEWALK |
| SS | STAINLESS STEEL |
| SF | SQUARE FOOT |
| SI | STREET INTERSECTION |
| ST | STREET |
| STA | STATION / STATIONING |
| STD | STANDARD |
| STRUCT | STRUCTURE |
| TBC | TOP BACK OF CURB |
| TBM | TEMPORARY BENCH MARK |
| TCP | TEMPORARY CONSTRUCTION PERMIT |
| | TRAFFIC CONTROL PLAN |
| TELE | TELEPHONE |
| TH | TEST HOLE |
| TOP | TOP OF PIPE |
| TOS | TOP OF STEEL |
| TW | TOP OF WALL |
| TYP | TYPICAL |
| UG | UNDERGROUND |
| UON | UNLESS OTHERWISE NOTED |
| UTIL | UTILITY |
| VERT | VERTICAL |
| VB | VALVE BOX |
| VC | VERTICAL CURVE |
| W | WEST |
| W/ | WITH |


DETAIL NAME
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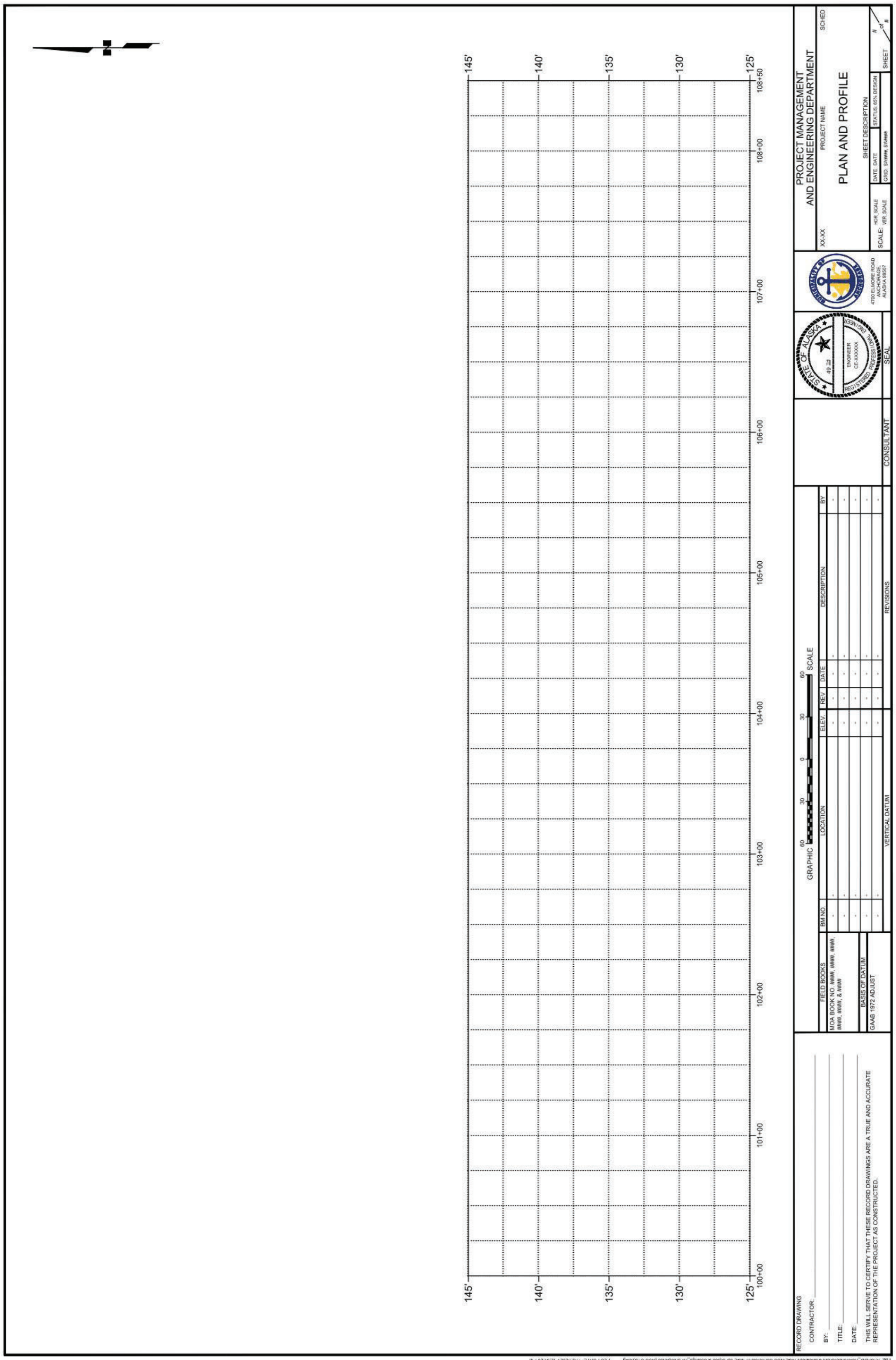
AND ENGINEERING DEPARTMENT
PROJECT NAME
DETAILS
SHEET DESCRIPTION
CONSULTANT
SEAL
REVISIONS
VERTICAL DATUM
RECORD DRAWING
CONTRACTOR:
BY:
TITLE:
DATE:
THIS WILL SERVE TO CERTIFY THAT THESE RECORD DRAWINGS ARE A TRUE AND ACCURATE REPRESENTATION OF THE PROJECT AS CONSTRUCTED.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AND ENGINEERING DEPARTMENT
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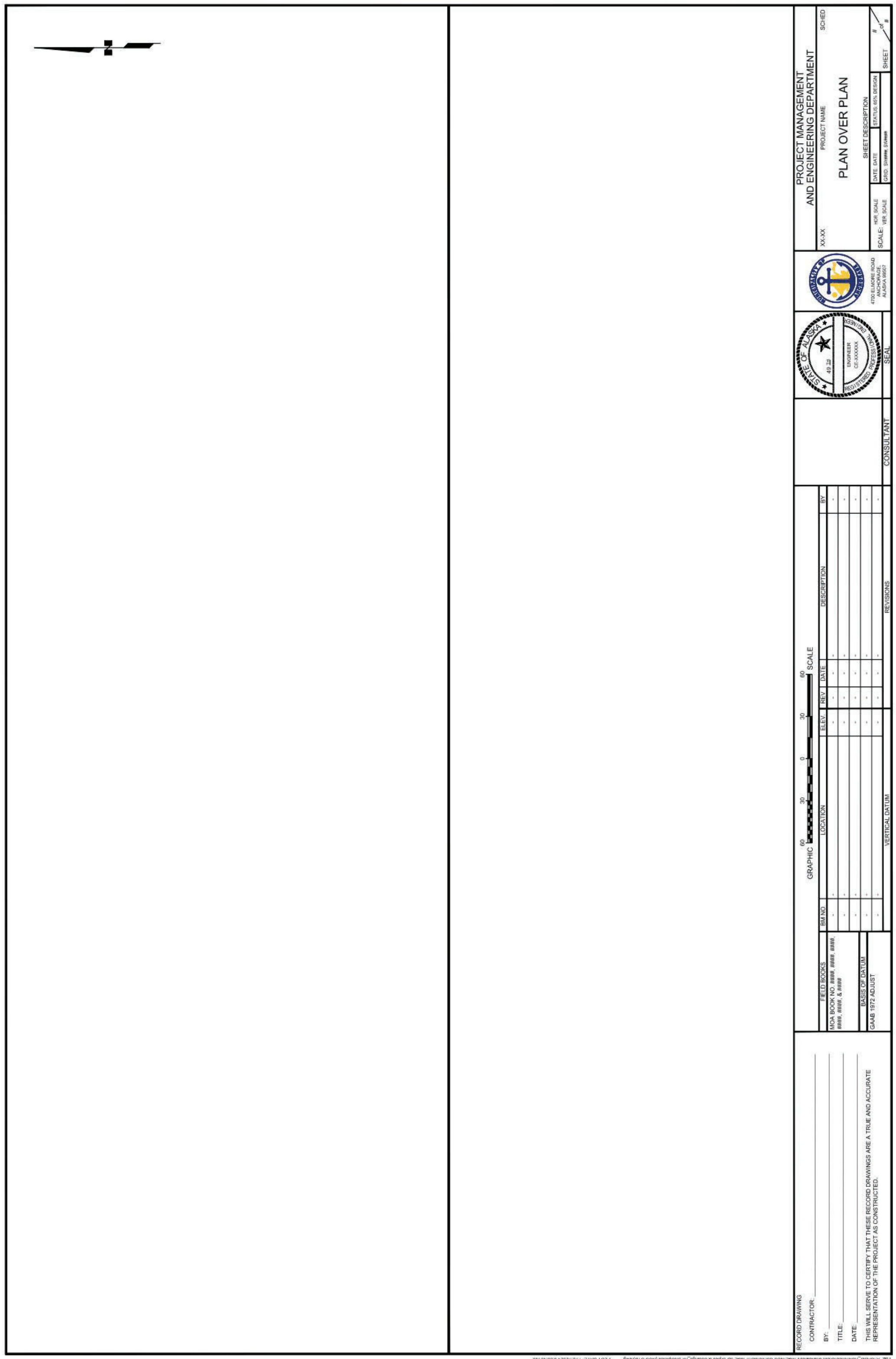
REVISIONS
VERTICAL DATUM
GRAPHIC SCALE
RECORD DRAWING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AND ENGINEERING DEPARTMENT
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REVISIONS
DESCRIPTION
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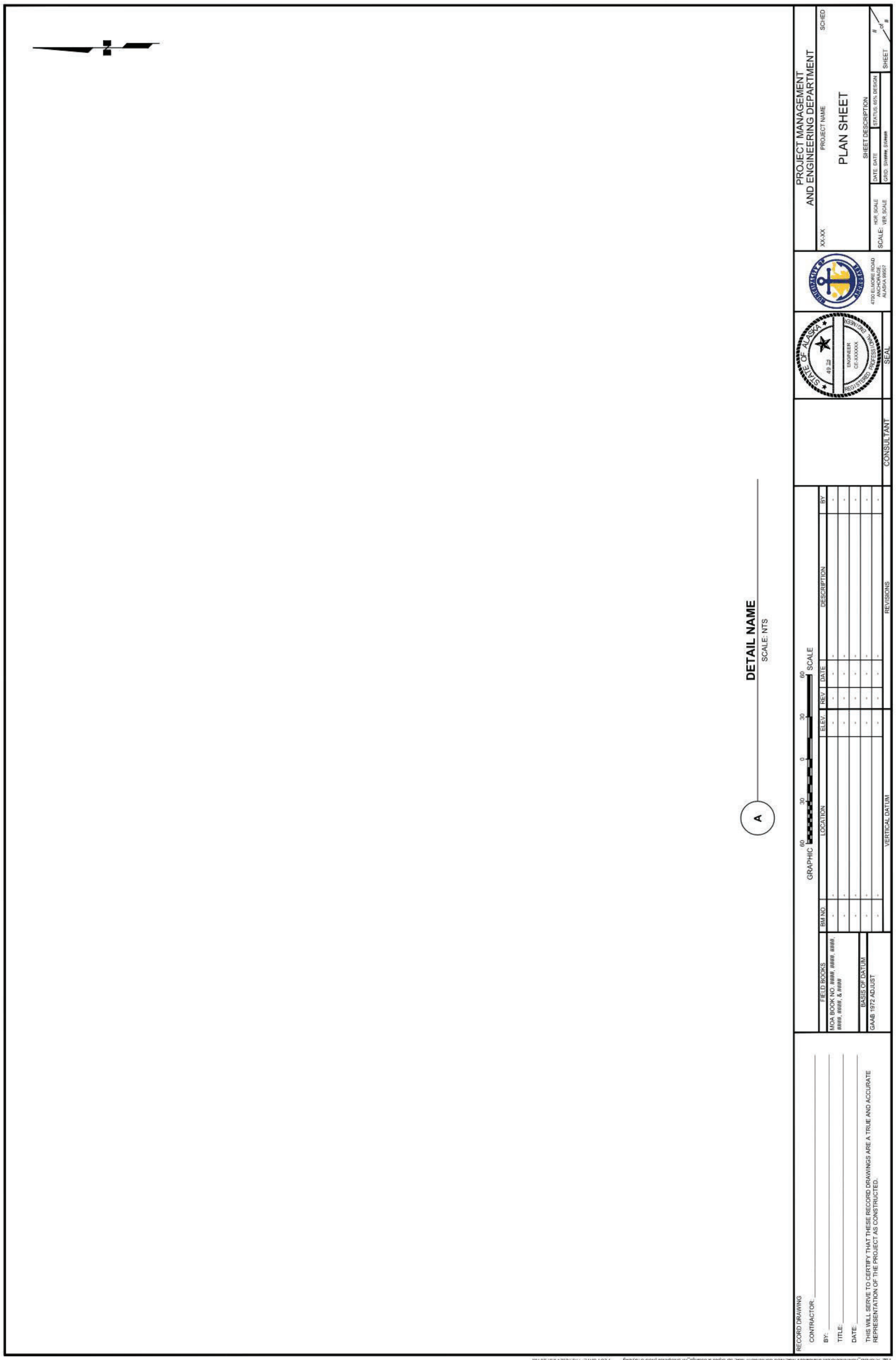
DATE:
THIS WILL SERVE TO CERTIFY THAT THESE RECORD DRAWINGS ARE A TRUE AND ACCURATE REPRESENTATION OF THE PROJECT AS CONSTRUCTED.


PROJECT MANAGEMENT
AND ENGINEERING DEPARTMENT
XX-XX
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ANCHORAGE, ALASKA 99507
SEAL
CONSULTANT
DETAIL NAME
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FIELD BOOKS
BASIS OF DATUM
GAAB 1972 ADJUST
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CONTRACTOR:
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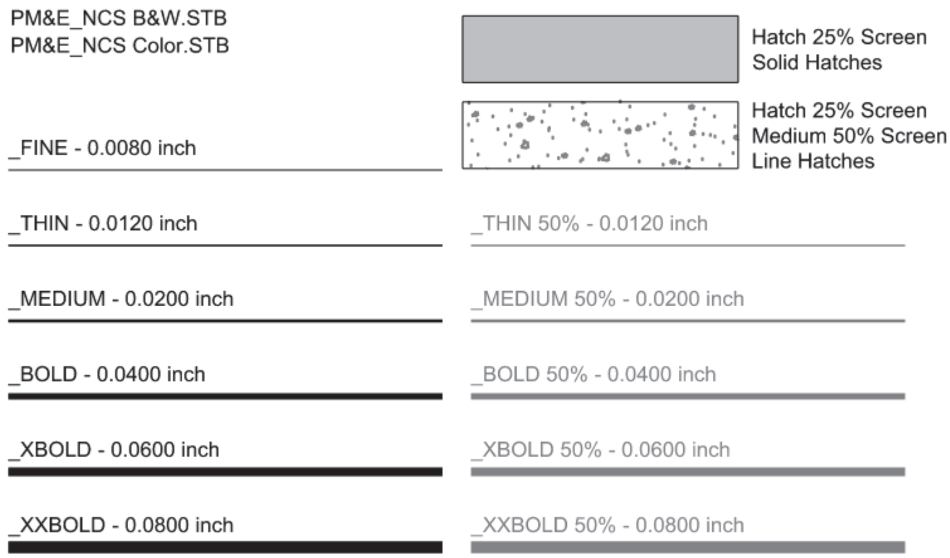
TITLE:
DATE:
THIS WILL SERVE TO CERTIFY THAT THESE RECORD DRAWINGS ARE A TRUE AND ACCURATE REPRESENTATION OF THE PROJECT AS CONSTRUCTED.

## PLOT STYLE

The plot style shall be STB, and all plot styles have a defined line weight. With this style, it does not matter what color the objects are or even what layer they are on. See the line weight tables below for various weights based on the plot style. Existing lines/hatches are screened, as shown in the existing features line weight table. Users can modify the color of the layers based on their preferences. All layers will follow the Layer Naming Convention section below.



| Symbol | | Plan Legend | Layer Name<br>National CAD Standards<br>(?)=Discipline Code<br>(?) = Status Field Code | Layer Width<br>(Plot Style Name) | |
|---|---|---|---|---|---|
| Existing (E) | Proposed (N) | | | (E) | (N) |
| | | CENTERLINE | ?-RWAY-CNTR-? | Med 50% | Medium |
| | | PROPERTY LINE | V-PROP-LINE-E | Medium | ---- |
| | | EASEMENT LINE | ?-ESMT-? | Med 50% | Medium |
| | | SECTION LINE | V-PROP-SECT-E | Med 50% | ---- |
| | | TEMPORARY CONSTRUCTION EASEMENT / PERMIT | C-ESMT-TEMP-PMIT-N | Med 50% | Medium |
| | | UNPAVED (GRAVEL) EDGE OF ROAD / DWY | ?-ROAD-GRVL-EDGE-? | Med 50% | Medium |
| | | EDGE OF PAVEMENT | ?-ROAD-ASPH-EDGE-? | Med 50% | Medium |
| | | EDGE OF SIDEWALK / CONCRETE | ?-SWLK-CONC-? | Med 50% | Medium |
| | | PAVEMENT REMOVAL | C-ROAD-PATT-D | ---- | Hatch 25% |
| | | PAVEMENT ROTOMILLING LIMITS | C-MILL-LIMI-PATT-N | ---- | Fine |
| | | PAVEMENT ROTOMILLING INSPECTION LIMITS | C-MILL-LIMI-PATT-N | ---- | Fine |
| | | CURB & GUTTER | ?-ROAD-CURB-BACK-? | Med 50% | Medium |
| | 25 | RADIUS REFERENCE POINT | C-ROAD-CURB-TEXT-N | ---- | Medium |
| | | DRAINAGE SWALE | ?-DTCH-BOTM-? | Med 50% | Medium |
| | | DRAINAGE ARROW | ?-DRAN-FLOW-? | Med 50% | Medium |
| | | CULVERT | ?-STRM-CULV-? | Med 50% | Medium |
| | | FENCE (AS NOTED) | ?-FENC-STEL-? | Med 50% | Medium |
| | | DECORATIVE FENCE | C-FENC-WOOD-N | ---- | Medium |
| | | DECIDUOUS TREE / SHRUB | ?-PLNT-VEGE-SYMB-? | Med 50% | Medium |
| | | CONIFEROUS TREE / SHRUB | ?-PLNT-VEGE-SYMB-? | Thin 50% | Thin |
| | | VEGETATION & BRUSH | ?-SITE-VEGE-? | Med 50% | Medium |
| | | GUARDRAIL | ?-ROAD-GRAL-? | Med 50% | Medium |
| | | STREET SIGN | ?-ROAD-SIGN-SYMB-? | Med 50% | Medium |
| | | HANDICAPPED PARKING | C-ROAD-MRKG-SPCL-N | ---- | Fine |
| | | TEST BORING OR TEST HOLE | ?-BORE-TPIT-SYMB-? | Med 50% | Bold |
| | | RAILROAD TRACKS | V-RAIL-TRAK-E | Med 50% | ---- |
| M.B. | M.B. | MAILBOX | ?-ROAD-MBOX-SYMB-? | Med 50% | Medium |
| | | HOUSE OR STRUCTURE | ?-SITE-STRC-? | Med 50% | Medium |
| 123 | 123 | CONTOUR LINE | ?-TOPO-MAJR-? | Med 50% | Medium |
| | | STREAM / EDGE OF WATERWAY | V-RIVR-EDGE-E | Med 50% | ---- |
| Date: July 2025 | | Standard Symbols | | | |
| Revised: | | | | | |

| Symbol | | Plan Legend | Layer Name<br>National CAD Standards<br>(?)=Discipline Code<br>(?) = Status Field Code | Layer Width<br>(Plot Style Name) | |
|---|---|---|---|---|---|
| Existing (E) | Proposed (N) | | | (E) | (N) |
| 12 | 12 | SPOT ELEVATION | ?-TOPO-TEXT-? | Med 50% | Medium |
| IP | | IRON PIN (REBAR / IRON PIPE | V-SURV-HORZ-SYMB-E | Med 50% | ---- |
| | | BENCHMARK | V-SURV-HORZ-SYMB-E | Med 50% | ---- |
| | | TEMPORARY BENCHMARK | V-SURV-HORZ-SYMB-E | Med 50% | ---- |
| | | BRASS CAP MONU. / BLM CORNER | V-SURV-HORZ-SYMB-E | Med 50% | ---- |
| | | PK NAIL, SPIKE OR CONCRETE NAIL | V-SURV-HORZ-SYMB-E | Med 50% | ---- |
| | | ALCAP OR PLASTIC CAP | V-SURV-HORZ-SYMB-E | Med 50% | ---- |
| | | FILL SLOPE LIMITS | C-GCVR-FILL-N | ---- | Medium |
| | | CUT SLOPE LIMITS | C-GCVR-MCUT-N | ---- | Medium |
| | | RETAINING WALL | ?-WALL-RTWL-? | Med 50% | Medium |
| SD | SD | STORM DRAIN LINE | ?-STRM-CNTR-? | Med 50% | Medium |
| FD | FD | FIN DRAIN | ?-STRM-FLDR-CNTR-? | Med 50% | Medium |
| FS | FS | FOOTING DRAIN SERVICE / STUBOUT | ?-STRM-FTNG-CNTR-? | Med 50% | Medium |
| SB | SB | SUBDRAIN LINE | ?-STRM-SUBS-CNTR-? | Med 50% | Medium |
| S | S | SANITARY SEWER LINE | ?-SSWR-CNTR-? | Med 50% | Medium |
| W | W | WATER LINE | ?-WATR-CNTR-? | Med 50% | Medium |
| G | G | GAS LINE | ?-NGAS-CNTR-? | Med 50% | Medium |
| E | E | ELECTRIC LINE | ?-POWR-UGND-? | Med 50% | Medium |
| OE | OE | OVERHEAD ELECTRIC LINE | ?-POWR-OVHD-? | Med 50% | Medium |
| OE/T | | OVERHEAD ELECT. & TELE. LINE | V-POWR-COMM-OVHD-E | Med 50% | ---- |
| T | | TELEPHONE LINE | V-COMM-UGND-E | Med 50% | ---- |
| OT | | OVERHEAD TELEPHONE LINE | V-COMM-OVHD-E | Med 50% | ---- |
| C | | CABLE TV | V-CATV-UGND-E | Med 50% | ---- |
| OC | | OVERHEAD CABLE TV | V-CATV-OVHD-E | Med 50% | ---- |
| FO | | FIBER OPTIC | V-COMM-FIBR-E | Med 50% | ---- |
| F | F | FUEL / OIL LINE | ?-FUEL-PIPE-? | Med 50% | Medium |
| TF | | TRAFFIC LINE | V-TRAF-UGND-E | Med 50% | ---- |
| | L | TRAFFIC LIGHTING CIRCUITS | E-TRAF-LITE-CIRC-N | ---- | Medium |
| 413 | 414 | TRAFFIC DETECTOR LOOPS | ?-TRAF-EQPM-? | Med 50% | Medium |
| | | CAST IN PLACE PIPE | C-STRM-SLVE-N | - | Medium |
| Date: July 2025 | | Standard Symbols | | | |
| Revised: | | | | | |

| Symbol: Existing (E) | Symbol: Proposed (N) | Plan Legend | Layer Name National CAD Standards (?)=Discipline Code (?) = Status Field Code | Layer Width (Plot Style Name) (E) | (N) |
|---|---|---|---|---|---|
| | | REMOVE PIPE / DECOMMISSION BY REMOVAL | C-UTIL-PIPE-D | ---- | Medium |
| | | TREE PROTECTION ZONE FENCING | L-PROT-FENC-ZONE-N | ---- | Medium |
| SD | SD | STORM DRAIN MANHOLE | ?-STRM-STRC-SYMB-? | Med 50% | Medium |
| CB | CB CB | CATCH BASIN MANHOLE | ?-STRM-STRC-SYMB-? | Med 50% | Medium |
| | | CATCH BASIN | ?-STRM-STRC-SYMB-? | Med 50% | Medium |
| SS | SS | SANITARY SEWER MANHOLE | ?-SSWR-STRC-SYMB-? | Med 50% | Medium |
| C.O. | C.O. | SANITARY SEWER CLEANOUT | ?-SSWR-STRC-SYMB-? | Med 50% | Medium |
| | | SEWER SERVICE CONNECTION | ?-SSWR-STRC-SYMB-? | Med 50% | Medium |
| CP | CP | CESSPOOL / SEPTIC TANK | ?-SSWR-STRC-SYMB-? | Med 50% | Medium |
| W | W | WATERTIGHT SANITARY SEWER MANHOLE | ?-SSWR-STRC-SYMB-? | Med 50% | Medium |
| | | WATER WELL | ?-WATR-STRC-SYMB-? | Med 50% | Medium |
| | | WATER SERVICE KEY BOX / VALVE MARKER | ?-WATR-STRC-SYMB-? | Med 50% | Medium |
| | | FIRE HYDRAINT | ?-WATR-STRC-SYMB-? | Med 50% | Medium |
| | | DRY WELL | ?-WATR-STRC-SYMB-? | Med 50% | Medium |
| | | STUBOUT CAPPED OR PLUGGED END | ?-WATR-STRC-SYMB-? | Med 50% | Medium |
| | | GAS VALVE | V-NGAS-SYMB-E | Med 50% | ---- |
| G.M. | | GAS METER | V-NGAS-SYMB-E | Med 50% | ---- |
| U.E. | | UNDERGROUND ELECTRIC PEDESTAL | V-POWR-ELEC-SYMB-E | Med 50% | ---- |
| E | | ELECTRICAL MANHOLE / J-BOX | V-POWR-ELEC-SYMB-E | Med 50% | ---- |
| E.M. | E.M. | ELECTRIC METER | ?-POWR-ELEC-SYMB-? | Med 50% | Medium |
| | | JUNCTION BOX (TYPE IA, II, & III) | ?-POWR-ELEC-SYMB-? | Med 50% | Medium |
| E | E | ELECTRICAL VAULT / MANHOLE | ?-POWR-ELEC-SYMB-? | Med 50% | Medium |
| | | LUMINAIRE | ?-POWR-ELEC-SYMB-? | Med 50% | Medium |
| | | UTILITY POLE | ?-POWR-ELEC-SYMB-? | Med 50% | Medium |
| | | GUY POLE | V-POWR-ELEC-SYMB-E | Med 50% | ---- |
| | | GUY ANCHOR | V-POWR-ELEC-SYMB-E | Med 50% | ---- |
| | | CONTROLLER OR ATR CABINET | ?-POWR-ELEC-SYMB-? | Med 50% | Medium |
| | | LOAD CENTER | ?-POWR-ELEC-SYMB-? | Med 50% | Medium |
| SC | | SWITCH CABINET | V-POWR-ELEC-SYMB-E | Med 50% | ---- |
| T | | ELECTRIC TRANSFORMER | V-POWR-ELEC-SYMB-E | Med 50% | ---- |

Date: July 2025

Revised:

Standard Symbols

| Symbol: Existing (E) | Symbol: Proposed (N) | Plan Legend | Layer Name National CAD Standards (?)=Discipline Code (?) = Status Field Code | Layer Width (Plot Style Name) (E) | (N) |
|---|---|---|---|---|---|
| | | JOINT USE POWER & TELE. POLE | ?-POWR-ELEC-SYMB-? | Med 50% | Medium |
| | | TELEPHONE MANHOLE | V-CABL-PHON-SYMB-E | Med 50% | ---- |
| U.T. | | UNDERGROUND TELE. PEDESTAL | V-CABL-PHON-SYMB-E | Med 50% | ---- |
| U.C. | | UNDERGROUND TV CABLE PEDESTAL | V-CATV-SYMB-E | Med 50% | ---- |
| FO | | UNDERGROUND FIBER OPTIC PEDESTAL | V-CABL-FIBR-SYMB-E | Med 50% | ---- |
| FS | FS | FOOTING DRAIN SERVICE CONNECTION | ?-STRM-FTNG-SYMB-? | Med 50% | Medium |
| | | TRAFFIC SIGNAL POLE / LUMINARE | ?-TRAF-POLE-SYMB-? | Med 50% | Medium |
| | | TRAFFIC SIGNAL POLE | ?-TRAF-POLE-SYMB-? | Med 50% | Medium |
| | | CLUSTER MAILBOX | ?-ROAD-MBOX-SYMB-? | Med 50% | Medium |
| | 1 | PARCEL NUMBERS | C-PROPO-PRCL-N | ---- | Medium |
| | | PARKING METER | V-ROAD-PRKG-SYMB-E | Med 50% | ---- |
| | | BOULDER | ?-SITE-ROCK-? | Med 50% | Medium |
| | | ELECTRIC SIGN | C-ROAD-SIGN-ELEC-N | ---- | Medium |
| | | INTERLOCKING CONCRETE PAVERS | ?-ROAD-SWLK-PATT-? | Hatch 25% | Fine |
| | | IMPRINTED COLORED CONCRETE | ?-ROAD-CONC-PATT-? | Hatch 25% | Fine |
| | | RIPRAP ARMOR MIX | ?-ROAD-RRAP-PATT-? | Hatch 25% | Fine |
| | | STREAM SUBSTRATE | ?-HYDR-GRVL-PATT-? | Hatch 25% | Fine |
| | | ---- | ---- | ---- | ---- |
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|---|---|---|
| Date: July 2025 | Standard Symbols | PM&E |
| Revised: | | |

| Symbol: Existing (E) | Symbol: Proposed (N) | Profile Legend | Layer Name<br>National CAD Standards<br>(?)=Discipline Code<br>(?) = Status Field Code | Layer Width (Plot Style Name) (E) | Layer Width (Plot Style Name) (N) |
|---|---|---|---|---|---|
| | | APPROXIMATE EXCAVATION LIMITS | C-LOCN-XCAV-APPX-? | ---- | Medium |
| | | GROUND OVER PIPE | ?-ROAD-PROF-? | Med 50% | Bold |
| | 0.00% | GRADE AT CENTER LINE | ?-ROAD-PROF-? | Med 50% | Bold |
| | | GRADE AT LEFT ROW | V-ROAD-PROF-LEFT-E | Med 50% | ---- |
| | | GRADE AT RIGHT ROW | V-ROAD-PROF-RGHT-E | Med 50% | ---- |
| | | INSULATION | C-????-INSL-PATT-? | Hatch 25% | Fine |
| | | RIPRAP ARMOR MIX | C-PROF-RRAP-PATT-N | ---- | Fine |
| | | STREAM SUBSTRATE | C-PROF-HYDR-PATT-N | ---- | Fine |
| | | PIPE (PROFILE) | ?-SSWR-PIPE-? | Med 50% | Medium |
| | | PIPE (SECTION) | V-SSWR-PIPE-E | Med 50% | Medium |
| | | WATER LEVEL | V-ROAD-GNDW-E | Med 50% | ---- |
| | | | | | |
| | | SS / SD MANHOLE & PIPE (SSWR OR STRM) | ?-????-STRC-? | Med 50% | Medium |
| | | | | | |
| C | | UTILITY CROSSING (CABLE) | C-UTIL-PROF-SYMB-E | Med 50% | ---- |
| E | | UTILITY CROSSING (ELECTRIC) | C-UTIL-PROF-SYMB-E | Med 50% | ---- |
| FO | | UTILITY CROSSING (FIBER OPTIC) | C-UTIL-PROF-SYMB-E | Med 50% | ---- |
| G | | UTILITY CROSSING (GAS) | C-UTIL-PROF-SYMB-E | Med 50% | ---- |
| T | | UTILITY CROSSING (TELEPHONE) | C-UTIL-PROF-SYMB-E | Med 50% | ---- |
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|---|---|---|
| Date: July 2025 | Standard Symbols | PM&E |
| Revised: | | |

| Annotation Item | Font Style | Text Height | Line Weight (Inches) |
|---|---|---|---|
| FIELD BOOK NUMBER | Arial | 0.10 | Medium |
| DATUM INFORMATION | Arial | 0.10 | Medium |
| PROJECT NAME & PROJECT NUMBER | Arial | 0.10 | Medium |
| AREA OR SHEET NAME | Arial | 0.20 | Medium |
| SCALE | Arial | 0.10 | Medium |
| DATE | Arial | 0.10 | Medium |
| GRID NUMBER | Arial | 0.10 | Medium |
| ACCOUNT NUMBER | Arial | 0.10 | Medium |
| PROFESSIONAL ENGINEERS NAME & NUMBER | Arial | 0.08 | Fine |
| SHEET NUMBER / SHEET DESCRIPTION | Arial | 0.10 | Medium |
| REVISIONS | Arial | 0.10 | Medium |
| RECORD DRAWING INFORMAITON | Arial | 0.08 - 0.10 | Medium |
| SCHEDULE | Arial | 0.10 | Medium |
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|---|---|---|
| Date: July 2025 | Lettering Legend - Title Block | PM&E |
| Revised: | | |

| Annotation Item | Font Style | Text Height | Line Weight (Inches) |
|---|---|---|---|
| SUBDIVISION NAME | Arial | 0.24 | Medium 50% |
| BLOCK NUMBER | Arial | 0.24 | Medium 50% |
| LOT NUMBERS | Arial | 0.12 | Medium 50% |
| STREET NAMES | Arial | 0.14 | Medium |
| 100' STATION TEXT | Arial | 0.12 | Medium |
| STREET WIDTHS | Arial | 0.12 | Medium |
| ELEVATIONS | Arial | 0.12 | Medium |
| PROPERTY AND EASEMENT NOTES | Arial | 0.12 | Medium |
| EXISTING FEATURES AND UTILITY SYMBOLS | Arial | 0.12 | Medium |
| CONTOUR LABELS, GENERAL NOTES, LEADERS, DIMENSIONS | Arial | 0.12 | Medium |
| EXISTING UTILITY LINE LABEL | Arial | 0.12 | Medium 50% |
| PROPOSED UTILITY LINE LABEL | Arial | 0.12 | Medium |
| TABLES ( TITLE ) | Arial | 0.14 | Medium |
| TABLES ( HEADERS & DATA ) | Arial | 0.12 | Medium |
| VIEW TITLES w/UNDERLINES | Arial Bold | 0.15 | Medium |
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Note: Use proper planning for text justification so future editing does not require the text to be moved. Wherever multiple lines of text are placed, use multiline text (mode) instead of single-line text.

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| Date: July 2025 | Lettering Legend - Plan View | PM&E |
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| Annotation Item | Font Style | Text Height | Line Weight (Inches) |
|---|---|---|---|
| TITLE ANNOTATION | Arial | 0.25 | Medium |
| HORIZONTAL AXES | Arial | 0.12 | Medium |
| VERTICAL AXES | Arial | 0.175 | Medium |
| PL & CL REFERENCE | Arial | 0.12 | Medium |
| CONSTRUCTION NOTES | Arial | 0.12 | Medium |
| SOILS CLASSIFICATIONS | Arial | 0.08 | Medium 50% |
| GRADE AND VERTICAL CURVE DATA | Arial | 0.12 | Medium |
| EXISTING UTILITY DATA | Arial | 0.12 | Medium 50% |
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# Attachment 2.

Summary Table of
Chapter 3 Changes

Case 2026-0013

**PZC Public Hearing: Summary of Changes to Chapter 3 - Landscape**

| Section | Change | Reason |
|---|---|---|
| 3.3 B.2 Cluster Plantings Along Roadway | Added text to exempt streets in urban centers from the dimensions shown in Figure 3-1 for cluster planting spacing. | The cluster planting spacing was developed to allow landscaping to be installed in snow storage areas in urban, suburban, and rural areas without significantly impacting snow hauling efficiency. High density urban centers with wide sidewalks have alternative maintenance requirements and practices and the degree to which planting spacing interferes with snow clearing and hauling varies. Projects on these streets should determine spacing on a case-by-case basis. |
| 3.3 B.4 Maintenance Practices and Long-Term Care | Added text to clarify that landscape design shall be coordinated with maintenance agencies to avoid placing landscaping in locations that obstruct operations such as snow hauling, street sweeping, or sidewalk clearing. | The section previously stated that landscape design shall be coordinated with maintenance agencies to ensure landscaping does not exceed the resources of the agencies but did not provide direction about the placement of the landscaping. This change directs designers to consider the location of the landscaping as well. |
| 3.3 B 5 Urban Tree Health Design Considerations | Replaced clear vision area reference from AMC 21.45.020 with reference to DCM Chapter 1. | Reference applied to old code that has been deleted. Clear vision area is defined in Chapter 1 of the DCM. |
| 3.4 B.1 Streets in Urban Centers | Added text to indicate that Urban Center streets are prime locations for Indigenous Place Name signage, decorative lighting, or other place-based art installations. | Recent projects in the downtown central business district have been developed to add Indigenous Place Name signage and decorative lighting. Additional text is intended to prompt designers to consider adding these elements to designs. |

**PZC Public Hearing: Summary of Changes to Chapter 3 - Landscape**

| Section | Change | Reason |
|---|---|---|
| 3.4 B.1 Streets in Urban Centers | Added text indicating that while Urban Centers are exempt from the dimensional requirements of the cluster concept, cluster landscaping is still desirable. | Recent discussions with the Anchorage Downtown Partnership have provided additional clarification on the challenges the ADP faces in removing snow in the downtown central business district. Reducing the number of planters by clustering plantings in locations where snow does not need to be removed is an option to reduce the workload on ADP. |
| 3.4 B.1 Streets in Urban Centers | Added text indicating that objects within the site furnishing area shall be coordinated with storefronts so they will not impinge on visibility or signage and windows. | The 2007 Anchorage Downtown Core Streets Streetscape Plan included the language that has been added regarding the placement of landscaping. Language was added to conform to the plan. |
| 3.4 B.1 Streets in Urban Centers | Changed reference to “Our Downtown Plan” to “the most recently adopted downtown district plan.” | Referencing the name of the plan could result in an inaccurate reference if the plan is superseded and the DCM isn’t revised to update the reference. The new language is intended to direct designers to the most current plan. |
| 3.4 B.1 Streets in Urban Centers | Figures 3-5: Urban Center Street – Raised Planter revised to increase planter setback to 3’ min from back of curb instead of 2’ min from back of curb and add tree setback of 3.5’ from back of curb. | Figures 3-5 was originally developed using setbacks that were in the 2007 DCM. After additional review of the 2007 Anchorage Downtown Core Streets Streetscape Plan the setbacks defined in the plan exceed the setback previously published in the DCM. The figure has been updated to conform to the setbacks defined in the plan. |

**PZC Public Hearing: Summary of Changes to Chapter 3 - Landscape**

| Section | Change | Reason |
|---|---|---|
| 3.4 B.1 Streets in Urban Centers | Figures 3-6: Urban Center Street – Residential revised to increase planter setback to 3’ min from back of curb instead of 2’ min from back of curb. | Figures 3-6 was originally developed using setbacks that were in the 2007 DCM. After additional review of the 2007 Anchorage Downtown Core Streets Streetscape Plan the setbacks defined in the plan exceed the setback previously published in the DCM. The figure has been updated to conform to the setbacks defined in the plan. |
| 3.6.1 Municipal Code Review | Revised reference to AMC 21.05.040G.2. | The draft had referenced AMC 21.05.040G.2 for the approval criteria related to Municipal owned park and open space projects. This reference was revised to directly reference the three possible approval review procedures in AMC 21.03.180C, AMC 21.03.180D, and AMC 21.03.190C and reference AMC 21.05.040G.2 for criteria on which review is required. |

# Attachment 3.

Updated Chapter 3 Public Hearing Draft – Tracked Changes

Case 2026-0013

# DESIGN CRITERIA MANUAL

# CHAPTER 3 LANDSCAPE

**MUNICIPALITY OF ANCHORAGE**

**PROJECT MANAGEMENT & ENGINEERING DEPARTMENT**

## D-R-A-F-T

**NOVEMBER 2025**

**DESIGN CRITERIA MANUAL**
**REVISION LOG**

## Chapter 3 – Landscape

| Rev. No. | Date Executed | Description | Sections Revised or Added | New/*Revised* Template |
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**FIGURES**

## ACRONYMS AND ABBREVIATIONS

AASHTO......................................American Association of State Highway and Transportation Officials
ANSI A300..........................................................American National Standard for Tree Care Operations
ANSI Z60.2.......................................................................American National Standard for Nursery Stock
AMATS.......................................................................Anchorage Metropolitan Transportation Solutions
AMC...............................................................................................................Anchorage Municipal Code
CPTED...............................................................................crime prevention through environmental design
CBD...................................................................................................................central business district
DBH.................................................................................................................diameter at breast height
M.A.S.S.....................................................................Municipality of Anchorage Standard Specifications
OS & HP..................................................................................................Official Streets and Highways Plan
P&Z……………………………………………..…………….………….Planning and Zoning Commission
ROW.......................................................................................................................................right-of-way
TPZ…………………………………………………………………..……….…….tree protection zone
UDC………………………………………………………………………….Urban Design Commission

## SECTION 3.1 PROJECT PLANNING

### 3.1 A Objectives

This chapter of the Design Criteria Manual (DCM) provides comprehensive guidance and criteria for landscape design, installation, and maintenance of projects within the public right-of-way (ROW) and in public open spaces such as parks in the Municipality of Anchorage. As Alaska's largest city, Anchorage recognizes the importance of urban design, and the need to maintain high standards. Design should balance aesthetic appeal, functionality, maintenance, stewardship, and community needs. Streetscape improvements are significant tools that provide the community with a strong connection to the magnificent natural setting that surrounds Anchorage.

This chapter's goals are to:

- improve safety within public spaces
- maximize functionality
- provide durable and maintainable landscapes

This chapter serves as one of several adopted or referenced resources used to inform and guide municipal projects (see Section 3.2 and end of this chapter for references). Together, these documents ensure that landscapes contribute to Anchorage's built and natural environments by creating a cohesive approach to landscape design that reflects community values, enhances public spaces, and supports Anchorage's long-term goals.

Landscape improvements for municipal projects may include:

- Plantings: All plant material, including turf, selected for resilience, ecological benefits, and aesthetics.
- Pedestrian Amenities: Seating, trash receptacles, and lighting that enhance comfort, safety, and usability.
- Hardscape Features: Paved pathways, walls, and other hardscape elements that contribute to accessibility and define outdoor spaces.
- Art and Cultural Elements: Public art installations, interpretive signage, and decorative features that reflect Anchorage and Alaska's cultural heritage.

Landscape architects are licensed professionals trained to design public spaces, including roadway improvements, to create functional, aesthetically pleasing spaces that balance available resources. In addition to landscape architects, other professionals may be required depending on the proposed project. Certified arborists are trained to understand tree health, retention, and preservation. Electrical engineers ensure landscaped spaces have adequate lighting. Civil engineers work closely with landscape architects to ensure effective stormwater management, grading and drainage, utilities, and other infrastructure features.

## 3.1 B Decision-Making

Landscape improvements vary project-by-project. Factors such as ROW limits and project budgets affect the type and level of landscape design. A project's role within the greater community context should also be considered when determining the level of landscape desired, which is often determined or guided in the municipal comprehensive plan, neighborhood plan, or other adopted plan. It is the role of the landscape architect to work closely with the community, the design team, and other members of PM&E to determine specific landscape improvements. Thus, it is important for the landscape architect to be included in the initial project planning phases and to aid in developing options. If there is a conflict with a project meeting design criterion, a design variance may be possible, see DCM 3.1 C. The following goals and methods should be considered when evaluating landscape improvements for a project:

**Promote Safety:**

Landscapes should support safety in public and private areas by minimizing hazards for pedestrians, reducing vehicle speeds through traffic calming design, and supporting visibility and security.

- Follow Crime Prevention Through Environmental Design (CPTED) principles to discourage crime and enhance visibility.
  - Ensure that landscapes allow and support clear sight lines, well-maintained pathways, and strategic placement of site amenities (e.g., lighting and seating). Generally, street plantings should allow for clear sight lines between 30" and 80" above finish grade.
  - Use plantings, decorative elements, and signage to help visitors recognize it as a valued public space and discourage misuse.
- Use methods to support traffic calming and make the streets safer for all users in accordance with transportation plans such as planting trees along roads to slow drivers by creating vertical elements that make lanes feel narrower.
- Use pedestrian amenities and plantings to define pedestrian spaces from vehicular spaces to reduce conflicts.
- Provide clear and intuitive wayfinding to minimize confusion and reduce distractions. Wayfinding includes signage, amenities, and landscape features, which contribute to place making and space delineation.
- Lighting is critical to safety for pedestrians, bikers, and drivers, especially during our long winter nights. Landscaping should enhance, or at least not impede, street lighting while recognizing the issues created by light pollution, including glare.
- Landscapes should be designed so they are easy to maintain for safety, especially in winter. This includes reducing tripping hazards and providing clear areas that allow snow clearing machinery easy access.

**Improve Function:**

Thoughtfully designed landscapes can provide numerous functions including storm water management, improved streetscapes that better separate vehicles from non-motorized spaces, improve air quality, control wind and snow drift, and provide visual cues for drivers.

- Integrate features that support diverse user needs, so all members of the Anchorage community and visitors can use the facilities, regardless of age, ability, or cultural background.
- Design streetscapes that increase ecological function, promote sustainability, and are resilient to climate change impacts.
    - Prioritize sustainable practices and low-impact development (LID) (see glossary) such as native plantings to improve ecosystem health and reduce heat island effects. Integrate stormwater management strategies from DCM Chapter 2, such as bioretention facilities and vegetated swales, to reduce runoff and improve stormwater capacity and water quality.
    - Design green corridors, such as tree-lined streets or connected park systems, to provide continuous habitat for wildlife and improve ecosystem connectivity.
    - Enhance the pedestrian experience which has been shown to positively impact commerce and economic development.
    - Street trees can add 3% to sales price and reduce time-on market by 1.7 days for residential areas (Donovan and Butry, 2010).
    - In retail areas with high quality tree canopy, surveys indicate consumers are willing to spend 9% to 12% more on goods and services (Wolf, 2005) (Wolf, 2014).
- Enrich the pedestrian experience which improves community health and well-being. Creating spaces that people care about also fosters a sense of stewardship, which will in turn help keep streets safer and cleaner.
    - High percentage of tree cover was associated with lower prevalence of diabetes, hypertension, and cardiovascular diseases when adjusting for socio-economic factors for residents (Astell-Burt and Feng, 2020)
    - Children living in areas with street trees achieved more positive early childhood development outcomes such as cognitive development, physical health, and social competence. (Jarvis et al., 2022)
- Use place-based design principles to reflect the natural landscape and its cultural significance, recognize the history and traditions of Indigenous communities, and incorporate traditional patterns, materials, and spatial arrangements.
- Buffer users from inclement weather or environmental conditions to provide a more comfortable experience.
- Ensure landscape supports effective drainage by avoiding obstruction of water flow and incorporating elements that facilitate proper runoff and storage/infiltration and prevent undesirable water accumulation

**Durability:**

Provide a framework for proper maintenance and care of plantings for sustainable, long-term landscapes that enhance quality of life. Design plantings that align with responsible snow removal and storage practices that are safe, efficient, and recognize limited municipal resources.

- Minimize long-term maintenance needs by using drought-tolerant and native or climate-adapted species. Other maintenance needs, such as pruning, should also be weighed when selecting plants.
- Consider raised planter beds, raised curbs, or other solutions that protect plant material from snow clearing and storage, as well as collection of gravel and sediment from cleaning operations.

- Specify high quality materials grown by professional nurseries that meet American Standard for Nursery Stock ANSI A300.
- Inspect plant materials prior to transportation to site if possible and during planting operations and reject all unsuitable materials. Inspection must take place no later than delivery to site per M.A.S.S.

### 3.1 C Design Variances

This manual presents the minimum requirements for landscape. Whether expressly stated or not, throughout the criteria, any deviation from these standards in which the minimum requirements are not met shall require a written variance from the Municipal Engineer. A variance is not required for deviations in which these minimum requirements are exceeded. Approval of plans containing deviations from the criteria shall not constitute tacit approval of the deviation or approval of a design variance. The variance application request process is as follows:

- Request Submittal: Variance requests shall be in writing and shall contain information, justification, and suggested resolutions. Variances shall be approved prior to submittal of applicable plans and/or reports.
- Documentation: Variance requests shall include complete discussion and documentation supporting proposed methods and parameters. Documentation must include citations of current research and manuals of practice published or sponsored by well-known, credible public and private agencies. Complete copies of supporting documentation must be provided as part of the application. Economic hardship shall not be adequate justification for a variance.
- Justification: Variance requests shall include compelling technical arguments for using the proposed method or parameter as an alternate to what is stated within this chapter of the Design Criteria Manual.
- Review: The Municipal Engineer will consider variance requests and accept or deny the request in writing. Appeal of decisions regarding variances shall follow the procedures detailed on the Municipality of Anchorage website in Policy and Procedures Number 10, “Contesting and Appealing Decisions” (found at www.muni.org).

### 3.1 D Integrated Decision-Making Framework

Achieving these objectives requires a collaborative and integrated approach to planning and design. The following steps provide opportunities throughout the design process to help landscape architects, project managers, and community stakeholders navigate projects:

#### Collaborative Planning:

- Involve key stakeholders early, including community members and other professionals, to ensure a shared vision and to identify community priorities. Each district and neighborhood in Anchorage has a unique identity and issues that should be addressed within the project. Use an integrated approach to design and engineering by including landscape architects, arborists, and horticulture specialists in initial project planning phases.

- Conduct initial site assessments to determine the need for specialists including arborists, urban foresters, maintenance managers, horticulture, environmental/habitat and wetlands experts.
- Consider community feedback and conduct public involvement meetings to understand specific needs, concerns, and aspirations for each project.

END OF SECTION 3.1

## SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW PROCESSES

### 3.2 A Reference Plans

Designers, planners, and project managers should reference this chapter in conjunction with the following resources:

- **Anchorage Municipal Code (AMC) Title 21:** Comprehensive zoning and land use regulations, including specific landscaping requirements for various project types.
- **Official Streets and Highways Plan**: Offers a way for the community to plan for future growth by determining the location, classification, and minimum ROW of streets and highways necessary to meet the transportation needs of the community in the future. Additionally, it provides goals for ROW landscaping for each street classification.
- **Municipality of Anchorage Standard Specifications (M.A.S.S.):** Technical standards for materials and construction methods essential for implementing municipal projects.
- **Current Anchorage Land Use and Comprehensive Plan:** Guides development across Anchorage and emphasizes the importance of sustainable landscapes, ecological connectivity, and climate resilience in all public spaces.
- **Anchorage Stormwater Manual (Volume 1&2):** Criteria for integrating landscape elements into stormwater management systems to improve water quality and reduce runoff. This manual is Chapter 2 of the Design Criteria Manual.
- **Anchorage Non-Motorized Plan:** Strategies to enhance walkability, ensure pedestrian safety, and integrate accessible pathways into urban landscapes.
- **Vision Zero Action Plan:** A framework to eliminate traffic-related fatalities and serious injuries, emphasizing safe and effective landscape designs.
- **AMATS Complete Streets Policy:** This policy guides the future design approach for AMATS projects and includes information on creating streets that accommodate all users, including pedestrians, cyclists, and vehicles and can provide valuable context and strategies for similar municipal projects.
- **Context-Sensitive Solutions (CSS):** Approach to designing landscapes that reflects the unique character, history, and needs of Anchorage neighborhoods, as well as the public-involvement process. It emphasizes flexible design solutions, collaborative decision-making, community input, and environmental stewardship.

## 3.2 B Anchorage Municipal Code (AMC)

Note: As our community's needs change, the Anchorage Municipal Code is updated. Always refer to the most recently adopted codes on the municipal Planning Department website or contact the department directly.

Anchorage Municipal Code (AMC) outlines specific landscape requirements and design standards across various zoning districts and use types. These are primarily applied to private site development, not within the ROW. Below are the primary code sections most relevant to municipal landscape projects:

AMC 7.40: Funds for works of art in public facilities

AMC 21.04: General landscape requirements by zoning district.

AMC 21.07.080: Landscaping, Screening, and Fences

AMC 21.07.080C: When the sum of the required perimeter and parking lot landscaping is greater than 1,000 square feet, a landscape plan must be prepared by a licensed landscape architect registered by the State of Alaska consistent with AS 08.48 and 12 AAC36.

AMC 21.03.190: Street and Trail Review requires that the Planning & Zoning Commission (P&Z) and Urban Design Commission (UDC) review and make recommendations on public facilities, including streets of collector or higher designation in the Official Streets and Highways Plan (OS & HP).

AMC 21.11.070: Downtown Development and Design Standards

### 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 the draft design study reports for new construction and reconstruction of streets of collector class or greater in the OS & HP (21.03.190).

AMC 21.02.030B: Plans subject to review by P&Z, including site design, landscape, and structural design. P&Z may delegate the authority to review and approve plans to the UDC.

### Urban Design Commission Authority

AMC 21.02.040A.4: Reviews Plans-in-Hand (PIH) preliminary design drawings for new construction and reconstruction of streets of collector classification or greater on the Official Streets and Highways Plan (21.03.190).

### Municipal Policies and Standards

AMC 21.01.080: Comprehensive Plan identifies rules and policies that govern land use development throughout the Municipality on both public and private lands.

Anchorage's comprehensive planning policies and standards reinforce landscape goals that align with community values, environmental priorities, and aesthetic objectives. Some of the plans applicable to public facility projects include the Areawide Trails Plan, Our Downtown Plan, Turnagain Arm Comprehensive Plan, the Girdwood Area Plan, the Chugiak-Eagle River Comprehensive Plan, and the Street and Highway Landscape Plan. Many community councils have their own MOA approved neighborhood plans.

## 3.2 C Landscape Review Process Overview

Municipal landscape projects may undergo a multi-step review process involving the Planning Department, Planning & Zoning Commission, and Urban Design Commission. Each application requires a minimum of two months of review prior to the date of the public hearing (if required). Below is a list of typical components for street and site plan reviews:

- **Pre-application Conference**: Initial discussion to align project objectives with municipal standards. This should be done as early in the concept phase as possible.
- **Conceptual Review** (optional for major projects): Early feedback on preliminary street and landscape design.
- **Formal Application Submittal**: Submission of final design plans and compliance documentation.
- **Public Notification and Comment Period**: Opportunity for residents to provide input and feedback.
- **Departmental Review**: Internal review of landscape plans for code compliance.
- **Commission Review and Approval**: Final review by the PZC or UDC, potentially including a public hearing.

For information about specific project reviews please refer to the associated codes and departments:

AMC 21.03.190B.2: Street Reviews

AMC 21.03.190C.3: Trail Reviews

AMC 21.03.180: Site Plan Reviews

Site plans will either require an Administrative Site Plan Review or Major Site Plan Review as identified in:

- AMC 21.05 for Anchorage Table of Allowed Uses
- AMC 21.09 for Girdwood Table of Allowed Uses
- AMC 21.10 for Chugiak-Eagle River Table of Allowed Uses

- AMC 21.11 for Downtown Districts Table of Allowed Uses

### 3.2 D Order of Reviews and Public Outreach

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

Street projects should comply with the Street and Trail Review process per AMC 21.03.190 for public engagement which includes:

- **Project Scoping**: Feedback is used to define project goals, identify community priorities, and highlight potential issues. This may include outreach such as public meetings, newsletters, and a Citizens' Advisor Committee.
- **Alternatives Development**: A full range of alternative and understandable solutions must be presented for the public to review and offer feedback.

END OF SECTION 3.2

## SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE

### 3.3 A Preservation and Protection of Existing Vegetation

Perform site inventory and analysis early in the design process to determine the value of existing vegetation and the presence of any invasive species. Where practical, existing trees, forested areas, and wetlands should be preserved; efforts should be made to retain healthy trees and vegetation that have special character due to size, age, habit, wind breaks, screening or buffering adjacent properties, or have other ecological benefits.

Existing vegetation can reduce erosion, slow water run-off, reduce urban heat island effects, and maintain air quality. Preserving the urban tree canopy also improves residents' mental health and well-being, thus benefiting the larger community (Alcock, et al., 2014). Another benefit of retaining existing vegetation is the savings in construction costs by reducing the need to remove, transplant or replace trees. Negative aesthetic impacts created by new construction can stall or delay projects and raise public concern. Preserving existing vegetation also protects soils that support vegetation and provide critical green infrastructure. Identifying invasive species and developing mitigation plans can help to protect native vegetation and soil. These benefits are crucial to create and maintain durable, highly functioning, and resilient landscapes.

The contract documents should clearly denote areas to be protected and the best methods for that protection. The following measures should be taken to best preserve the existing vegetation on site:

**Early Site Assessment:**
The preliminary design phase is a critical period in the design process to protect existing vegetation. During this time, a landscape architect should work with allied professionals such as a certified arborist or a horticultural specialist to assess and document the age, health, and ecological value of existing trees and vegetation to identify which should be preserved. Priority should be given to retaining vegetation with significant size, habitat value, or those providing erosion control, screening, or other important contributions to the site. Invasive species should be identified for removal to limit spread and impact on the plant community in the project and surrounding area. In the case of invasive species removal, it may be necessary to coordinate with an invasive species management specialist, as some species require specific treatment to limit spread.

Landscape architects are trained to understand the overall site, including screening or similar public concerns regarding landscaping. Arborists assist landscape architects and other allied professionals in establishing a Tree Protection Zone (TPZ) in accordance with ANSI A300 and MASS Division 75. Refer to MASS Division 75, Article 2 Construction, D. as well as Section 75.13 Root Pruning and 75.14 Tree Protection Zone Fence for detailed information on tree protection.

Plan documents should show the areas for preservation including the configuration and area occupied by crown/canopy of the trees that are to be retained. Documents should also show protective fencing per Anchorage's M.A.S.S., Section 75.14 & the associated M.A.S.S. detail 75-10 to keep construction

equipment and materials out of the TPZ. Root pruning per M.A.S.S. Section 75.13 and soil aeration may be used as additional preservation measures where necessary

### Wetland Protection:

Wetlands provide critical habitat and ecological functions that make them vital to Anchorage's ecosystem. Anchorage has mapped and catalogued its wetlands, see Wetlands Management Plan and Wetland Designation Map in Section 3.9 References. For this reason, there are many protections and regulations for any project that occurs within them. For information about permitting of wetland projects, refer to the Anchorage Stormwater Manual (Volume 1&2), contact the U.S. Army Corps of Engineers, MOA Watershed Management Services, or Planning Department. Include timing for permitting in the schedule and budget additional funds for mitigation costs. It is critical to preserve wetlands and their ecosystem services to align with this chapter's goals of sustainable urban design.

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

### 1. Planting Bed Sizes, Shapes, and Location

Proper soil volume (see recommendations below) reduces maintenance, improves safety and plant resiliency providing healthier, more attractive, long-lived vegetation that absorbs more water, reduces noise pollution, and improves community spaces. Providing for bigger tree growth provides more ecosystem services including stormwater mitigation and air quality improvements. It can take a few years after being planted for a 2" caliper tree to provide ecosystem services. Planting soil meeting M.A.S.S. (unless modification is specifically needed) should be provided to meet or exceed the minimum depth. Most roots remain in the top 24 inches of soil, the lateral root spread grows significantly with increasing Diameter at Breast Height (DBH). Thus, when narrow strips of tree plantings are required due to limited ROW, roots are forced to grow in one or two directions only, limiting the lateral stability of the trees. Utilizing structural soils that can handle compaction to provide more macropores for root growth can promote lateral stability.

Certain projects, such as along trails and in parks, offer the opportunity to use existing soils which can minimize costs, promote the establishment of native plant species, and mitigate the risk of introducing invasive species that may accompany imported topsoil.

All planting beds shall have a minimum of 12 inches per M.A.S.S. Section 75.03; however, most landscape beds with trees and shrubs call for at least 18 inches of planting soil depth. Importantly, the soil shall meet requirements as determined by soil tests in accordance with M.A.S.S. Section 75.03. If using salvaged soils, the soil test will provide information as to the need for additional minerals or organics.

- **Tree Planting Bed Size and Shape:**
    - Tree soil volume requirements should be estimated based on DBH, which is generally a more reliable indicator than tree height.
    - The planting bed should provide a minimum 18-inch depth of planting soil to a maximum depth of two feet for tree root development, depending on species and size. Depths greater than this seldom provide for additional root development due to low soil temperatures and available oxygen. Where planting bed width is limited, adequate soil

volume, as described below, is still recommended and may be accommodated through creative planting layout.
  - Massing the vegetation tends to provide increased survivability of plant materials and helps to reduce maintenance.
- **Soil Volume Recommendations for Trees Based on mature DBH:**
  - These guidelines offer the minimum ideal soil volumes needed to support robust root development:

| DBH: | Soil Volume: |
|---|---|
| 4–8 inches | 400–600 cubic feet |
| 8–12 inches | 800–1,200 cubic feet |
| 12–18 inches | 1,500–2,000 cubic feet |
| 18–24 inches | 2,500–3,000 cubic feet |
| 24+ inches | 3,000+ cubic feet |

  - Plant material should be inspected by a landscape architect or horticulturalist before arriving at the project site to verify compliance with M.A.S.S., ANSI Z60.2, and ANSI A300. This includes checking the plants' health and size and verifying plants are pest, disease, and injury free. This review ensures plants arrive in optimal condition and have the greatest likelihood of properly establishing.

## 2. Clustering Plantings Along Roadways

Clustering plantings along roadways may reduce damage from snow removal operations and enhance aesthetic characteristics. Grouping trees and shrubs in planting beds rather than dispersing them evenly along the roadway can minimize conflicts with plowing and snow storage while increasing efficiency of maintenance (Figure 3-1). The dimensions shown in the Figure below (Figure 3-1) align with recommendations from MOA street maintenance and can vary by street size provided projects conform to the maximum and minimum dimensions shown in the figure. Streets in Urban Centers are exempt from the maximum and minimum dimensions shown in Figure 3-1; in all other areas, projects shall conform to these dimensions unless a variance is approved by the Municipal Engineer. See Section 3.4 B.1 Streets in Urban Centers for criteria specific to these streets. These Cluster planting recommendations were developed using precedents such as Elmore Road, which demonstrates a successful example of street amenities and plantings being consolidated for efficient snow clearing and a sufficient room for snow storage. Indeed, adequate spacing of planting beds provides area to accommodate snow storage, ensuring that plants are not buried or damaged by snow clearing equipment. While specific dimensions will vary depending on site conditions, right-of-way width, and maintenance requirements, designs should balance aesthetic appeal with functionality, allowing for safe and efficient roadway operations throughout the year. Consolidating light fixtures and planting clusters may further assist snow maintenance procedures.

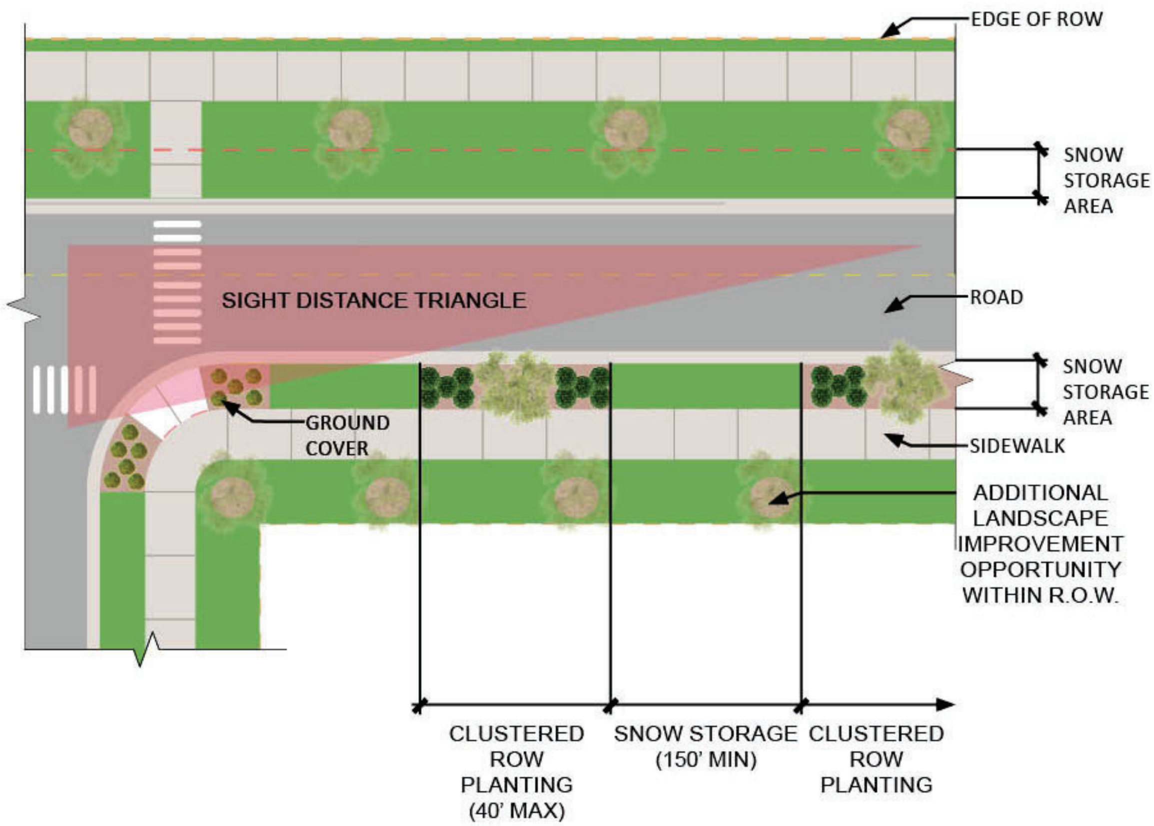



**Figure 3 - 1: Clustered Plantings**

3. Planting Installation Details

Planting installation shall be per specifications and details found in M.A.S.S. Division 75 as well as its applicable standards in ANSI A300 and ANSI Z60.2.

Trees and planting beds within the right-of-way and along roadways pose challenges to plant survival because of the drier conditions, soil compaction, maintenance demands, and other elements typical to urban areas. The details will often show the planting soil brought to the site because the native soil had been removed during construction.

**Watering Rings**:
Trees in lawn areas suffer injury from lack of water, mowing equipment, and string trimmers. New plantings in lawn areas should be established with a well-defined temporary watering saucer, as shown in M.A.S.S. details 75-2, and 75-3, to allow the plant to grow free from grass for 2 to 3 years and provide easy mowing.

**Moose Browse**:
Another consideration for planting details is the potential for moose-browse. In many locations, it is an issue, resulting in the damage or death of plants. Designers should provide moose protection fencing

according to M.A.S.S. Detail 75-11. Fencing should be removed after the maintenance period or once the tree has reached sufficient size to withstand the occasional moose-browse.

**Staking**:
Staking is generally not considered best practice because it can hamper optimal tree growth and, if left unattended, can result in significant damage including scrapped bark and trunk girdling. It should be reserved for areas where there is high wind, a strong chance of third-party damage, or if trees come as "bare root" stock. If used, stakes must be checked regularly for any damage and removed after the maintenance period.

**Tree Guards**:
Tree guards are protective barriers or enclosures placed around the base of young or vulnerable trees. Their primary purpose is to shield the trunk of the tree from potential damage caused by mechanical equipment, animals, environmental factors (e.g., wind, ice), and human activity. While this can provide a temporary benefit to young trees, it can also be a source of damage when not adequately maintained as it can constrain the branches and trunks if they grow beyond the guard. Tree guards should only be used when mechanical injury of some type is expected, when on-going maintenance is assured, or where large concentrations of people are expected to gather.

### 4. Maintenance Practices and Long-Term Care

To ensure project success, landscaping design shall be coordinated with the agency that will provide long-term maintenance to ensure the needs of the landscaping do not exceed the resources of the agency and that landscaping is placed in locations that don't obstruct maintenance operations such as snow hauling, ~~or~~ street sweeping, or sidewalk clearing. If the landscaping is located within a municipal ROW, the MOA is responsible for maintenance. Landscaping that is installed in the ROW without a long-term maintenance plan may struggle to thrive and ultimately may be replaced by pavement or topsoil and seed, even if the plantings were still productive by providing infiltration, particle absorption, etc. It is important for plantings to be designed to be durable and long-lasting like other parts of the streetscape. Long-term maintenance may be provided by a non-profit, such as the Anchorage Downtown Partnership, or by a municipal department such as Parks & Recreation. Given the challenges of long-term maintenance, plants will need to be chosen based on their ability to survive without varying levels of maintenance. Depending on site conditions, it may be pertinent to cluster plantings rather than continuous, linear landscaping installations, as concentrated plantings tend to be easier to maintain. Designers shall consider long-term maintenance requirements when determining the size and concentration of plantings along a road.

The short-term maintenance of plantings is described in M.A.S.S. 75.02 Article 2.4. The Plant Establishment Period is generally one year long but can be extended with permission from the Engineer. Following the Plant Establishment Period, the practices and protections below should be applied, when appropriate, to improve the success rate of establishment:

**Inspection and Replacement**:

- Inspect new plantings regularly during the first two to three years. Replace any failed plants promptly to maintain landscape integrity.
- Adhere to standards from ANSI Z60.1 and ANSI A300 to ensure quality and consistency of replacement plant materials.

### Weed and Pest Control:

- Use an Integrated Pest Management program, which can include biological, cultural, mechanical, and/or chemical controls, for the least-toxic option for weed and pest control to minimize chemical exposure and protect Anchorage's water quality.
- All beds should be weed free, and weeding shall be a routine maintenance activity.

## 5. Urban Tree Health Design Considerations

Trees and other vegetation in urban areas must withstand harsh growing conditions with numerous stress factors such as salt, compacted soils, and pollution. Furthermore, trees in urban areas need to have a mature branching height of 80" to accommodate ADA and create comfortable pedestrian areas. Intersections require clear vision areas (site triangles) that limit both tree and shrub plantings to allow visibility. The clear vision area is defined in ~~AMC 21.45.020.~~DCM Chapter 1.

Soil vaults, structural soil, and suspended sidewalks are three design options when planting trees in dense urban areas where trees are under more stress from compaction and seasonal use of salts.

### Tree Vault/Modular Pavement Support System:

Tree vaults or modular pavement support systems are an ideal solution for promoting tree health and stormwater management in densely built urban environments where soil space is limited and adequate funding is available. These systems provide a greater volume of nutrient rich, uncompacted soil while supporting vehicle loads, and capturing stormwater. Many systems are available commercially and have been approved for use by transportation officials.

### Suspended Sidewalks and Structural Soil:

Structural soil and suspended sidewalks can be used to provide an adequate zone for healthy root development by increasing the quantity of soil available to the trees underneath the sidewalk. Suspended concrete spans the planting soil, 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 and requires a way to allow air circulation around the roots. Structural soil, whether used for suspended sidewalks or not, can also be used to create a stable sidewalk base and expand the soil volume for rooting. Supportive aggregate occupies some of the space that would be available for roots increasing soil volume.

### Raised Plantings:

Raised planters and raised curbs can protect plants by elevating them above the ground surface, reducing the potential input of contaminants such as deicing salts, and protecting plants from maintenance damage. Additionally, planter walls absorb warmth from the sun to elevate soil temperatures during the day, which is especially valuable in the spring. Adequate soil volume is still necessary for optimal tree health and to insulate roots to prevent freezing and subsequent damage. Adding insulation to raised planters also reduces the risk of winter damage due to freezing and freeze/thaw conditions. Finally, planting plants that are rated one zone below the site's hardiness zone may reduce plant stress in raised beds.

Generally, raised planters should have a total minimum height of 12" above finish grade to prevent tripping and damage from snow clearing operations. Decorative features such as railings, can be used to meet the 12" height above finish grade.

**Tree Grates**:
Tree grates allow air circulation and water to enter the root zone while providing a safe walking surface for pedestrians. Tree grates should meet current accessibility standards and be specified to ensure that tripping hazards do not occur. The tree grate opening should be designed to accommodate trunk flare diameter and must be regularly inspected and adjusted to ensure there is no contact between the grate and the trunk. Tree grates can incorporate decorative elements that enhance their surroundings and enrich the neighborhood's unique design identity.

## 6. Stormwater Management/Green Infrastructure

Several road typologies offer an opportunity for on-site water treatment and should be incorporated into landscape design. Vegetated swales, biofiltration systems, infiltration basins, and other green infrastructure systems are ideal ways to establish landscapes that can mitigate and enhance stormwater management. Interconnected stormwater systems work with the natural landscape, creating highly productive, diverse ecosystems with significant habitat values while creating safer streets by reducing the risk of flooding and other hazards on roadways.

Landscape projects are site specific, and their success heavily relies on the thorough study and careful design of the pre-construction hydrology, topography, and soils. For information on selecting and installing urban green infrastructure recommended by the municipality, please refer to DCM Chapter 2.

The design of green infrastructure systems requires an interdisciplinary team composed of civil engineers, hydrologists, arborists, and landscape architects. Based on the complexity and the number of variables present, other professionals and scientists may be valuable resources.

Grading and seeding are the most common landscape methods for the treatment of drainage areas. Landscape architects should work closely with the civil engineers to ensure slopes and plantings prevent soil erosion and understand depth and duration of standing water. 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 and woody plant recommendations which are suitable and desired are provided in DCM Chapter 2 as well as M.A.S.S.

Phytoremediation uses plants to clean environmental pollutants in the soil, water, and air. Specific types of plants offer different phytoremediation capabilities; each site and situation must be considered individually depending on desired outcomes. Anchorage has a wide array of woody and herbaceous plant species that thrive under wet conditions in poorly drained, cold, and acidic soils, thus research into which plant species are right for the site and remediation goals should be part of the design process.

Sometimes donor sites may be found that offer prime material for salvaging operations. The salvaging and transplanting of this material may sometimes be done 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.

## 7. Planning for Snow Clearing and Storage

Snow storage along a road may occur in buffers between vehicle lanes and pedestrian facilities, in areas beyond pedestrian facilities where those facilities lack buffers from vehicle lanes, or in the area immediately adjacent to a roadside when pedestrian facilities are not present. These areas are covered by snow and ice for extended periods during the winter. When snow accumulation exceeds the space available in the snow storage area, equipment such as road graders or snow blowers are used to remove snow from these areas. Along Collector and Arterial streets, significant accumulation of road debris, including gravel used to increase traction in icy conditions, can build up in these areas. Summer maintenance of these areas often includes sweeping mechanical brooms to remove accumulated gravels.

Snow storage areas should be excavated and re-graded periodically to mitigate excess accumulation or road debris that can degrade the landscaping in these areas and block drainage paths. Plantings in these areas should be easily replaced and be cost-sensitive. The excavation and re-grading should be included in Capital projects such as pavement preservation projects whenever possible.

Effective snow management is essential in municipal projects to ensure safety, functionality, and the preservation of landscaped areas. Due to Anchorage's conditions as a winter city, it is vital that landscapes support efficient snow clearing and storage practices. Proper planning and implementation minimize damage to infrastructure and vegetation which increases safety by minimizing hazards. Follow these principles:

### Plan for Snow Storage:

- Designate specific snow storage areas during the project planning phase, ensuring they are large enough to accommodate typical snowfall volumes per AMC 21.07.040F.
- Locate storage areas away from sensitive landscapes, pedestrian pathways, pedestrian amenities, and drainage systems to reduce the risk of damage, flooding, and pollution.
- Consider using hardy, salt-tolerant plant species near high-traffic or snow storage zones. Plants with flexible branching are also less subject to breakage, and therefore, more resilient in these areas.

### Understand Snow Removal Techniques:

- Learn what equipment the client will use, ideally it will minimize impact on pavement and landscape features, such as rubber-edged blades or snow blowers.
- Design landscapes to accommodate the equipment, including the turning radius of machinery. Tree branching should not impede snow clearing, and shrubs/perennials should have a form which will not spread into the sidewalk clear space.
- Train operators to avoid piling snow against tree trunks, shrubs, or landscape structures. Update them about new landscape installations, so they are aware of changes and may operate accordingly.

### Mitigate Salt and De-Icer Impact:

- Understand the use of salt and de-icing products near landscaped areas and consider vegetated filtering methods and plants that are tolerant of these products.
- Include measures to direct salt and de-icing runoff away from plant beds and into appropriate drainage systems, unless green infrastructure is being used.

### Integrate Design Solutions for Durability:

- Incorporate permeable materials in designated snow storage areas to facilitate drainage and reduce ice buildup.
- Design hardscapes and pathways to accommodate snow-clearing equipment without damaging edges or adjoining landscapes.
- Use raised planting beds, when possible, to protect planting material from snow clearing operations.
- Consider snowmelt systems on sidewalks where pedestrian use is highest.
- With proper planning and thoughtful design, snow clearing and storage practices can protect municipal investments while maintaining accessibility and safety throughout the winter season.

Woody plant material in snow storage areas adjacent to sidewalks and streets often suffers damage during winter. Where cluster plantings are proposed, woody plant material should be two feet from back-of-curb and are allowed outside of snow storage areas in non-clustered plantings. In addition, where space is available, a two-foot accent concrete apron may be installed adjacent to curbs to reduce maintenance and improve the appearance of the street landscape (Figure 3-2). While grass is typically used in snow storage areas, perennials, and/or other herbaceous plants should be considered in lieu of grass in locations where plow damage will not remove herbaceous root stock.

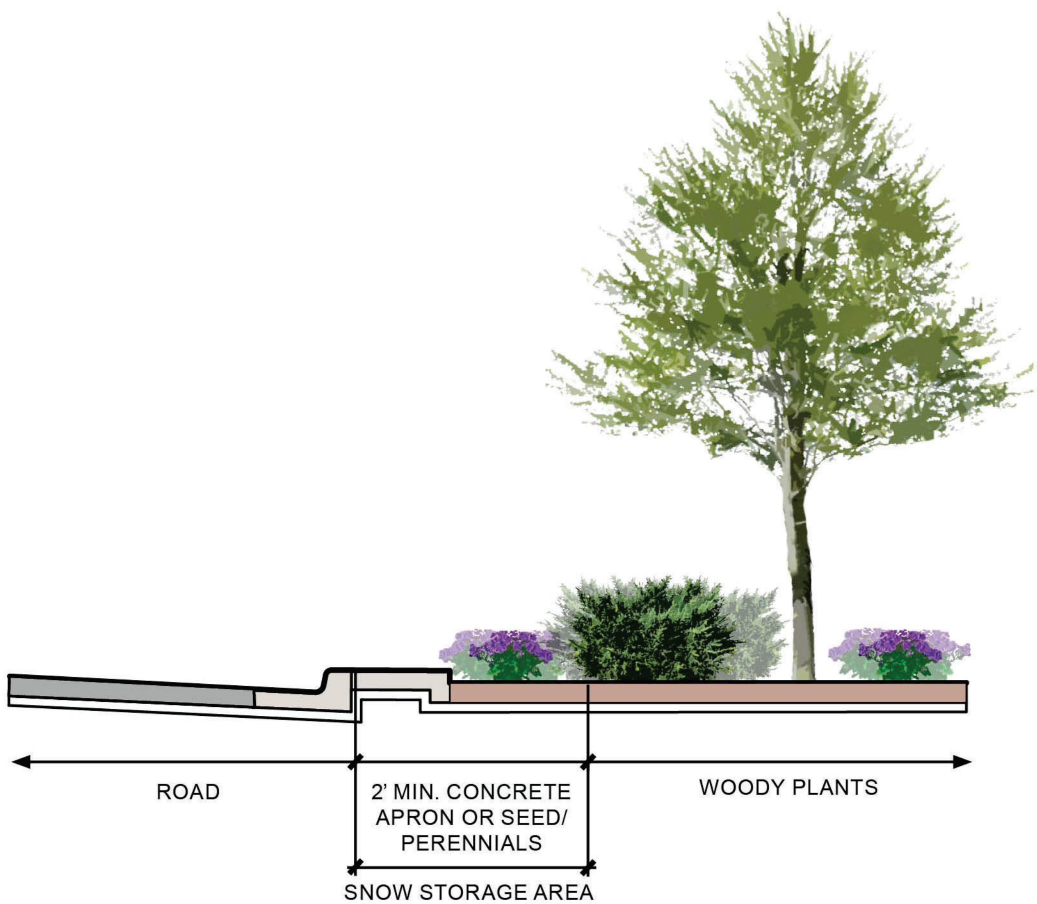



**Figure 3 - 2: Snow Storage Area Without Cluster Planting**

8. Irrigation

Permanent irrigation systems are not recommended for municipal projects due to the high cost of maintaining and operating such systems. Climate adapted design that utilizes native species does not need supplemental irrigation once established. If irrigation systems must be used, temporary low-maintenance drip systems that conserve water and target plant roots directly are preferred.

### 3.3 C Plant Selection

In a well-designed landscape plan, plants are carefully selected and arranged to perform a myriad of functions. The following information is intended to provide guidance in this process.

**Species Selection:**

- Projects should prioritize selecting native plants and plants that are adapted to Anchorage's climate, can tolerate the conditions of an urban environment, and support local biodiversity. Ensure that the species will be successful in urban settings with conditions such as compaction or salt pollution.

- Design professionals should be familiar with municipal, state, and federal lists and regulations for invasive species. Invasive species should not be specified. Invasive species found in existing vegetation should be removed and replaced with a suitable alternative.

- The Alaska Center for Conservation Science at the University of Alaska Anchorage has information about invasives and species that are an ecological risk. Alaska Exotic Plants Information Clearinghouse (AKEPIC) database portal offers up-to-date information on invasive species.

- Plants that are known to be toxic to moose or other animals should not be used.

**Hardiness:**

- The Anchorage Bowl falls within USDA hardiness Zones 1 through 5 and microclimates may additionally modify these zones. Designers must consider plant hardiness, wind tolerance, and moisture needs when selecting a species. As the climate in Anchorage continues to change, reference the most recent version of the USDA Plant Hardiness Zone Map to ensure the correct hardiness zone is being used. In addition to climate changes, rain and snow quantities are also changing and must be considered. Finally, it is important to understand growing degree days (GDD) to select appropriate, hardy plants that work where the growing season is short and cool.

- Microclimates are localized variations in climate conditions caused by factors including elevation, wind and sun exposure, and nearby vegetation and structures. In Anchorage, open areas or elevated sites experience harsher winds, which can damage plants and dry out soil. Areas near buildings and paved surfaces may experience warmer temperatures from heat retention or cooler zones in shaded spots. Snow accumulation from plowing or drifting, as well as ice melting runoff

from roofs, can further create unique challenges to microclimates. Recognizing variations is crucial for selecting plants and designing layouts that fit each site's specific conditions.

**Environmental Impact:**

- Plants that attract pollinators and wildlife, including birds, should be selected whenever reasonable. While careful consideration is needed to ensure that wildlife will not pose any safety risks and large fruits don't create barriers to those with physical disabilities, streetscapes can play a key role in supporting small-scale ecosystems and a healthy robust urban environment, especially when connected to a larger green network.

- Using a variety of plants enhances habitat by improving biodiversity and can create a lower-maintenance planting that responds better to pests and disease.

**Maintenance:**

- Designers should discuss with the owner (MOA or private) and their respective maintenance departments the various levels of maintenance that would be expected for a given finished project and select plants accordingly.
- The availability of water during the establishment period should be considered to ensure plants are properly watered per M.A.S.S. 75.02.6B.

- Consider whether species have maintenance impacts including fruit drop, extensive/shallow root systems, or aggressively spread to determine if they are appropriate for the site.

END OF SECTION 3.3

# SECTION 3.4 STREET LANDSCAPE

Landscaping along municipal streets serves functional purposes such as improving pedestrian safety, managing stormwater, improving air quality, reducing noise, supporting ecological health, calming traffic, enhancing life quality, offering habitat, and improving social well-being. The landscape goals vary per street typology and context of each street. This section covers general considerations for new landscaping along streets, followed by a more specific look at each street typology depending on its setting- urban center, urban area, or rural area.

## 3.4 A New Landscaping

Often the ROW is very limited, and in these situations, planting priorities should be towards safety and function, such as space delineation, traffic calming, stormwater management, etc., depending on site conditions. When ROW space allows, greater consideration is afforded to other elements that enhance the overall public space. Streetscape designs involve several considerations including visibility, long-term maintenance, and snow storage discussed earlier as well as the following:

### 1. Public Process

All new construction or reconstruction projects involving streets and highways of collector or greater designation are required to have a site plan/landscaping review by the Planning and Zoning Commission or Urban Design Commission as mandated in AMC 21.03.190, although there are currently no requirements in code for providing landscape within the ROW. However, landscaping on roads significantly improves the streetscape by using the methods outlined in this document to create safer streets and complement the livability and character of neighborhoods. The community also benefits from improvements such as noise pollution reduction and increased stormwater infrastructure. This section includes design criteria and establishes standards for landscaping improvements of all types of municipal streets.

### 2. Utility Conflicts

The ROW is used for many different types of infrastructure, with a primary use being overhead and underground utilities. The location of these utilities must be considered and may have an impact on the available planting space and plant locations. Additionally, plants grow at a relatively slow pace in Anchorage because of the climatic conditions and cold soil. Thus, if plants are planted over utilities, it is important to consider future maintenance of utilities when designing the plantings or streetscapes by choosing plants and ground treatments that can be easily and economically replaced when utilities need to be maintained. See State of Alaska Utilities website listed in Section 3.9. References.

### 3. Visibility Triangles

The term “Visibility Triangle” refers to the area at an intersection or driveway approach that is maintained free of visual obstructions to allow roadway users to perceive the presence of other, potentially conflicting users. Designs shall follow criteria in DCM Chapter 1 in providing visibility triangles for all users including drivers, bikers, and pedestrians at driveway and intersection approaches. Where visibility triangles are not necessary because all approaches are controlled, designs shall provide a pedestrian and/or bicycle visibility zone on all intersection approaches (Figure 3-3).

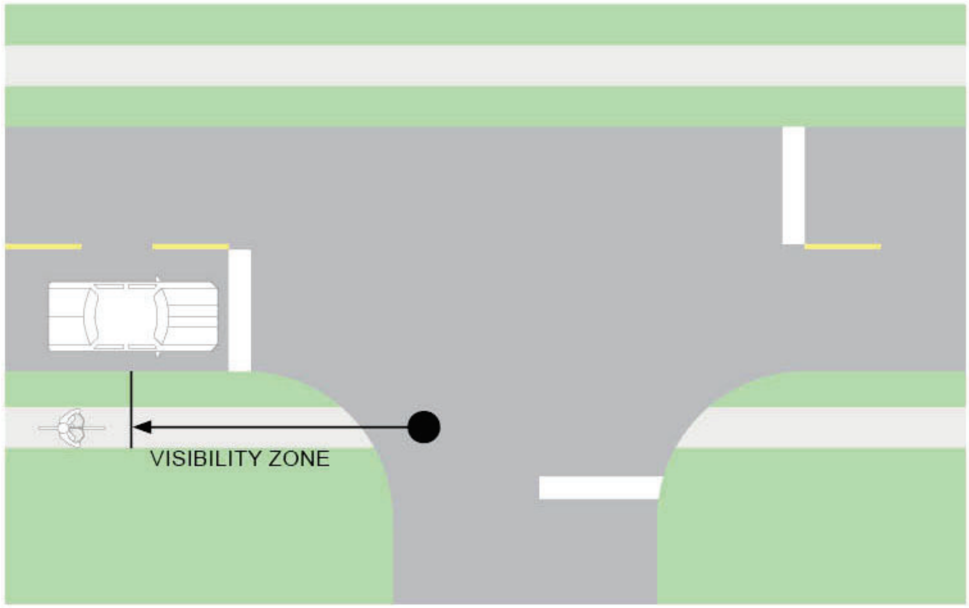



**Figure 3 - 3: Visibility Zone**

AMC 21.07.080F.2.b references “Clear Vision Area Requirements”. Shrubs that need aggressive pruning to maintain a height below twenty-four inches are not allowed. Trees must not branch below 8’ height from adjacent paved area. 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. Additionally, trees in visibility triangles should be spaced apart such that, cumulatively, mass plantings do not obscure the driver’s vision of oncoming traffic. For information about Visibility Triangles refer to Chapter 1 of the DCM. Other organizations and owners, such as AASHTO, NACTO, and DOT, have their own standards that must be followed if necessary for the project.

## 4. Clear Zones

As defined in DCM Chapter 1, the clear zone is the total roadside border area, starting at the edge of traveled way, available for safe use by errant vehicles. The desired width of the clear zone is dependent on the traffic volume, design speed, and roadside geometry. Designers should work with the project engineer to determine the appropriate clear zone and ensure that any landscaping and site elements do not present hazards within it.

## 5. Funding

Some sources of funding (particularly from Federal transportation sources) have limitations that prevent them from being used to fund landscaping improvements. In these cases, it is necessary to seek alternative funding sources such as municipal bonds or state grants to pay for project landscaping. Funding limitations can be particularly problematic where ROW acquisitions are needed. It may not be possible to include space for landscaping in ROW acquisitions if the funding has limitations that exclude landscaping.

## 3.4 B Landscaping in Urban Centers

Landscaping varies by street classification, from major arterials to local roads, and is specific to urban centers, urban areas, and rural contexts. Road classifications are provided in the OS&HP, and the classification designations are defined in Chapter 1 of the DCM. Adjacent land uses are categorized as "Urban" (or "Class A" in AMC Title 21) or "Rural" (or "Class B" in AMC Title 21). See table below for zoning associations with these classes (Figure 3-4).

| TABLE 21.08-1: IMPROVEMENT AREAS DEFINED | | |
|---|---|---|
| District Type | Class A | Class B |
| Residential | R-1<br>R-1A<br>R-2A<br>R-2D<br>R-2M<br>R-3<br>R-3A<br>R-4<br>R-4A<br>R-5 | R-6<br>R-7<br>R-8<br>R-9<br>R-10 |
| Commercial | B-1A<br>B-1B<br>B-3<br>RO<br>MC | |
| Downtown (DT) | B-2A<br>B-2B<br>B-2C | |
| Industrial | I-1<br>I-2<br>MI | |
| Other Districts | A | TA<br>WS |

**Figure 3 – 4: Zoning Classification**

1. Streets in Urban Centers

Per the Anchorage 2040 Plan, City and Town Centers, Main Street Corridors, and Transit-supportive Development are streetscapes that promote pedestrian use in an urban setting by having compact and dense land-use and safe, interesting pedestrian spaces. These areas are focal points for community and commerce as they exhibit the highest degree of interaction between different land uses. Streetscapes should be designed to facilitate window-shopping and enjoyable pedestrian spaces (Figure 3-5). It is particularly important to have street trees because of the direct positive functional, environmental, and economic benefits. This includes calming automotive traffic in pedestrian-oriented streetscapes, improving ecological resiliency, and improved public perception resulting in increased public patronage. Refer to DCM 3.3B.4 for information about planting methods for street trees on urban streets. In the downtown area, landscape standards for downtown landscaping are provided in AMC Title 21.11. These Urban Center streets are also prime locations for Indigenous Place Name signage, decorative lighting, or other place-based art installations.

While streets in the Urban Centers are exempt from the dimensions in Figure 3-1, the clustering concept is still applicable and should be used to ease snow clearing and maintenance practices. The intent of the clustered plantings in the Urban Centers is not to move snow into or store snow in these planting beds, but to provide areas where snow doesn't need to be cleared, thus resulting in fewer obstacles to shovel or plow around. Designers should work closely with other design disciplines (for example; civil, traffic, and electrical engineers) to ensure signage, poles, site furnishings, and plantings are as consolidated as possible.

Collector and arterial streets in city and town centers should provide a minimum setback of three feet from the back of curb to any **streetscape elements**, such as parking meters, trash receptacles, hanging baskets, tree guards, raised planters, or light posts. This setback is the minimum required for car entry/exit, efficient snow clearing, and access to curbside parking. ~~Per the MOA *Our Downtown Plan*, sidewalks along designated "Pedestrian-oriented mixed-use streets" should have at least 8–12 feet of clear width. See the Anchorage *Our Downtown Plan* for additional information.~~

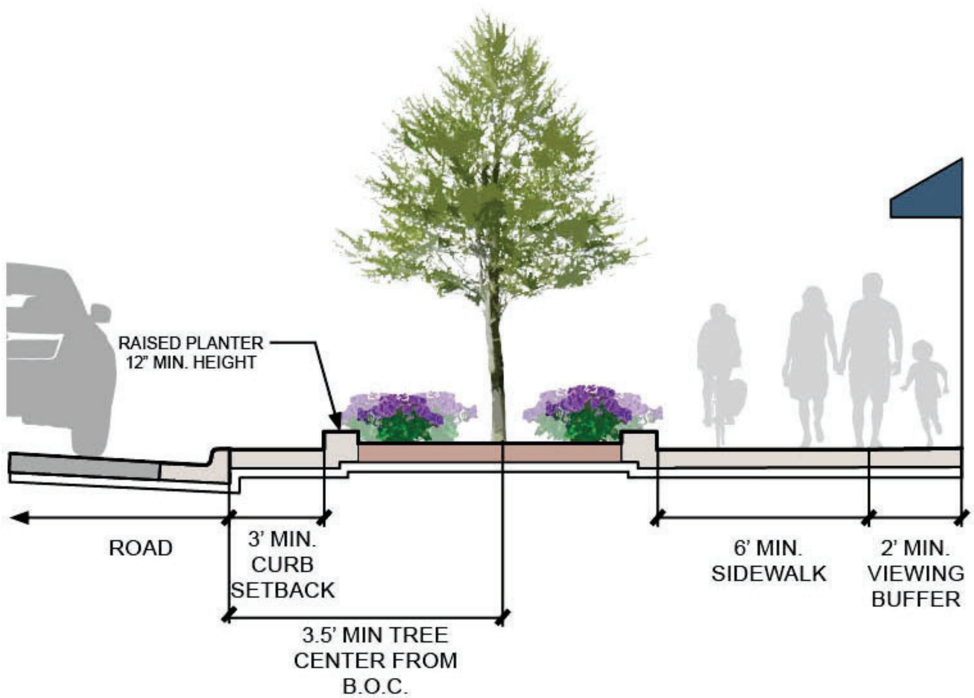
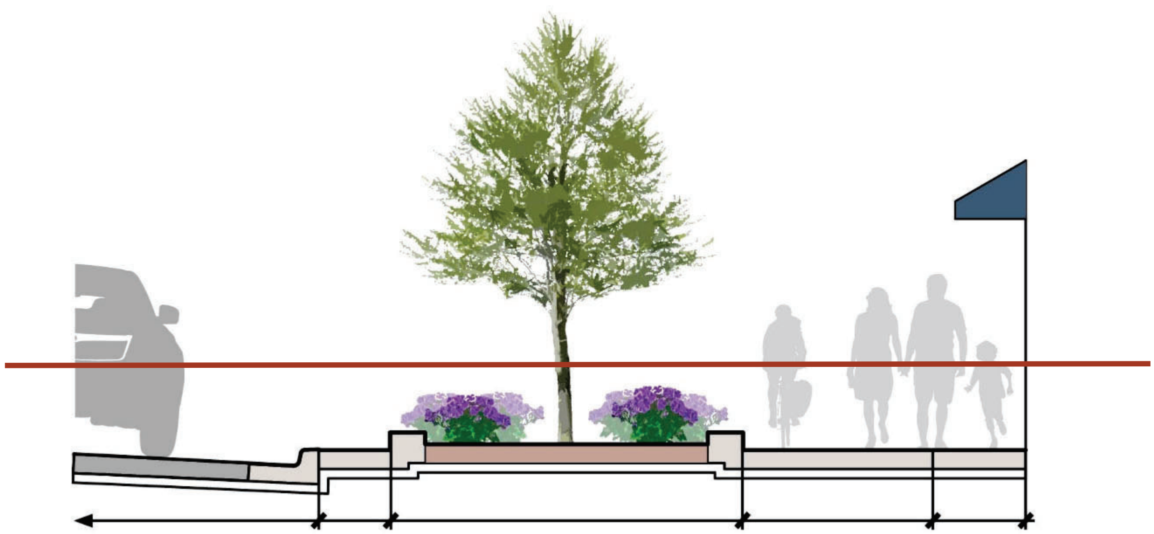



**Figure 3 - 5: Urban Center Street - Raised Planter**

Sidewalks for storefronts and buildings should have a minimum six-foot wide clear zone for efficient pedestrian circulation and a two-foot friction zone for a storefront viewing area. Wherever possible, all objects within the site furnishings area, including plantings, signage, furnishings, lighting, other utilities, etc., shall be coordinated with storefronts so they will not impinge on visibility of signage and windows, and consolidated to minimize obstructions. All vertical elements should be ~~and~~ spaced a minimum of ~~6~~ 3 feet apart to allow for mechanized snow clearing. Landscape designers should work closely with stakeholder groups, maintenance providers, and engineers to minimize all street amenities and signage. If areas are designed to allow for no snow clearing, such as planting beds, on-street parking should be considered so pedestrians exiting the cars have a clear path of travel. More specific guidelines for landscaping in the downtown area ~~is provided~~ can be found in ~~*Our Downtown Plan*~~the most recently adopted downtown district plan and AMC Title 21.11.. ~~It is particularly important to have street trees~~

~~because of the direct positive functional, environmental, and economic benefits. This includes calming automotive traffic in pedestrian-oriented streetscapes, improving ecological resiliency, and improved public perception resulting in increased public patronage. Refer to DCM 3.3B.4 for information about planting methods for street trees on urban streets. In the downtown area, landscape standards for sites adjacent to the ROW are provided in AMC Title 21.11.~~

~~Collector and arterial streets in city and town centers should also provide a minimum two-foot setback of three and a half feet from the back of curb to any **streetscape elements**, such as parking meters, trash receptacles, hanging baskets, tree guards, raised planters, or light posts. This setback is the minimum required for pedestrian safety and provides space for temporary snow storage and access to curbside parking. Per the MOA *Our Downtown Plan*, sidewalks along designated "Pedestrian-oriented mixed-use streets" should have at least 8 12 feet of clear width. See the Anchorage *Our Downtown Plan* for additional information.~~




~~**Figure 3 - 5: Urban Center Street - Raised Planter**~~

For residential areas in Urban Centers, it is important to create streetscapes that assist in private and public space delineation and use Crime Prevention Through Environmental Design (CPTED) practices to foster feelings of safety. Per the MOA *Our Downtown Plan*, landscaping between residential buildings and the street is encouraged. Using landscape elements to soften the urban fabric can be a powerful tool in creating inviting residential streets (Figure 3-6).

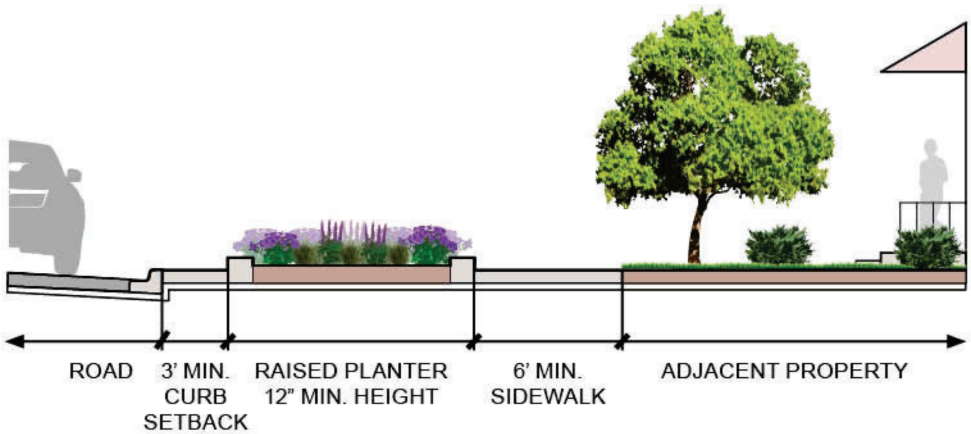
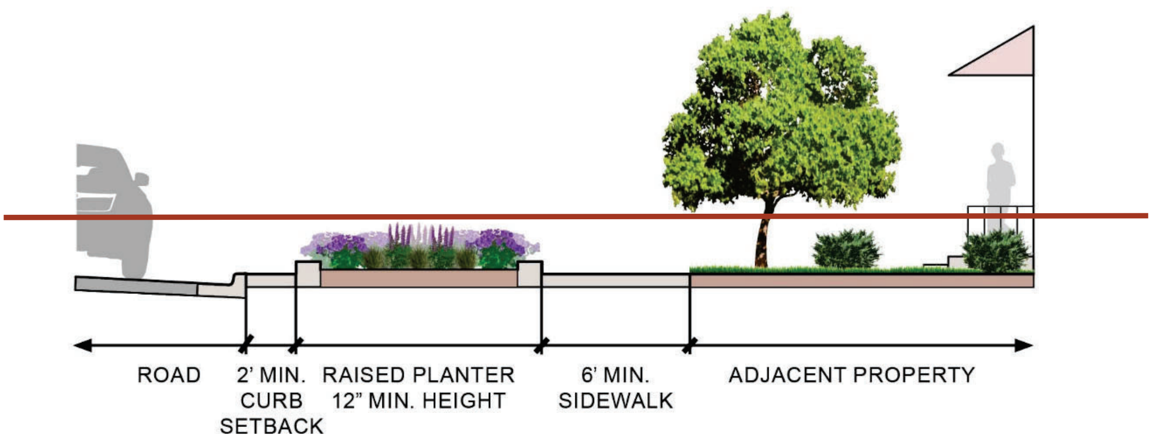



Figure 3 - 6: Urban Center Street – Residential




~~Figure 3 - 6: Urban Center Street – Residential~~

### 3.4 C Landscaping in Urban/Class A Areas

1. Major Arterial (Class III)

Major Arterial streets have high traffic volumes where separation is desired between the back of curb and pedestrian facilities to provide increased pedestrian comfort as well as snow storage area. Landscaping along major arterials has a significant role in defining the different functional zones (pedestrian, vehicle, bicycles, green infrastructure, etc.) within the road section as well as providing environmental benefits by creating a larger network of green space, improving air quality, reducing and improving run-off, protecting neighborhoods by providing buffering, and improving aesthetics. Visibility triangles address safety issues by allowing drivers to see adjacent pedestrians or wildlife activity. A grass or perennial strip for snow storage and utilities should be provided between the back of curb and sidewalk appropriately sized per the DCM Chapter 1 and Figure 3-7. In a case-by-case basis, perennials may be accepted in lieu of grass seed if their root systems are located so that they will not be injured by snow clearing machinery.


**Figure 3 - 7: Urban Major Arterial Street**

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 (2:1 to 3:1 slope) or elevated with raised curbs or planters to provide less exposure of plant material to road salts (Figure 3-8). Double curbs should be considered for arterial roads to provide necessary protection for plant material. If no curbs are present and the median is a swale, generally trees should not be planted except where adequate width exists, and always outside of the swale flowline. Channeling or diverting runoff into medians, planting strips, and other landscape beds can provide water input which can increase plant survival in addition to stormwater filtration and absorption. Medians are often exposed to far more wind and sun than areas along the sides of roadways which benefit from the protection of adjacent forests or structures.

The designer should carefully consider the long-term maintenance the landscaping will receive and specify plant material that can withstand the harsh conditions found in roadside environments. On these roads with high volume and speeds, it is especially important to select plant material that does not provide moose browse.

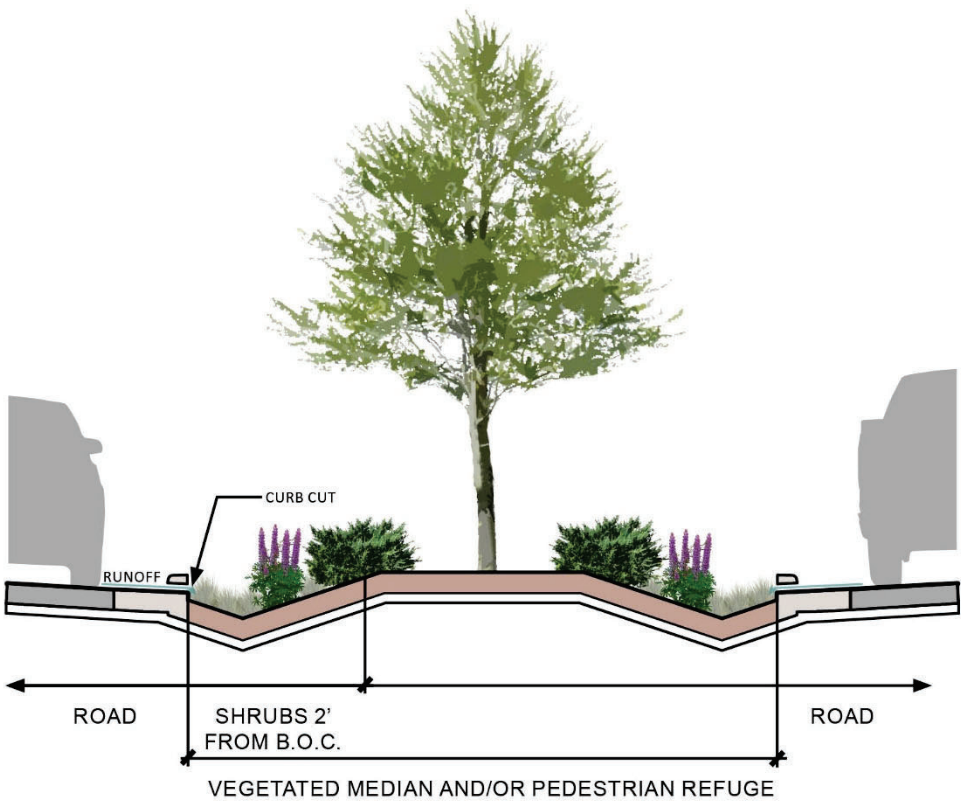



**Figure 3 - 8: Urban Major Street Arterial – Median**

2. Minor Arterial (Class II)

The landscape treatment of minor arterials should be like that of major arterials. However, lower traffic volumes and typically lower speeds may reduce the need to provide specific attention for adjoining properties, depending on the location and available ROW. As with Major Arterials, an area for snow storage and utilities should be provided adjacent to the curb with limited obstructions and/or landscaping. Reference Class A Major Arterials (above) for street tree and landscape buffer discussions.

3. Collector Streets (Class I)

Collector streets are generally lined with residential properties where an attractive landscape is beneficial to the neighborhood's overall visual character. 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 (Figure 3-9). Consideration should be given to placing underground utilities as close to the curb as possible to minimize conflicts with area residences.

The strip between the travel way and sidewalks/trails could be seeded, used for stormwater management, or depending on site conditions, planted with trees and shrubs in clusters. Additional landscaping can be placed to the outside edge of the ROW adjacent to the property lines.

Similar to arterials, if trees are present in the median, there should be a curb, and the planting bed should be mounded. If the median has a swale for stormwater management, trees should not be located in the swale line.

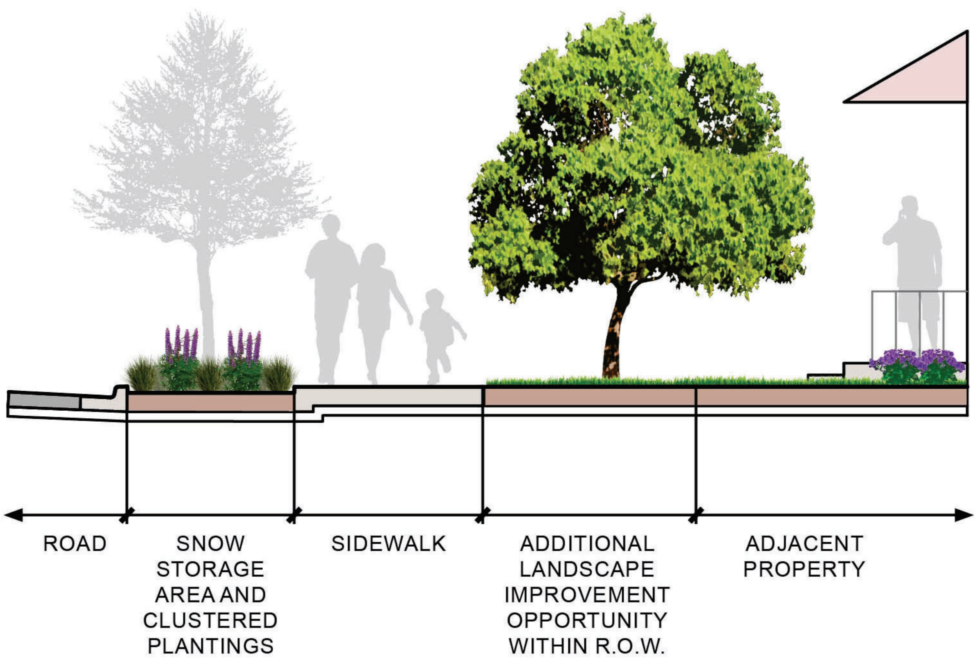



**Figure 3 - 9: Urban Collector Street**

4. Local Streets

Landscaping on local roads is often limited due to the sight-distance triangles of the driveways that line the streets. Landscaping on these streets will need to be very site-specific and preserving existing vegetation should be a primary focus. When applicable, streetscape design for these roads should align with those of collector streets.

### 3.4 D Landscaping in Rural/Class B Areas

Class B streets are built with strip-paved road sections without curbs. The drainage is handled in roadside ditches that also store snow throughout the winter without hauling. These conditions are ideal for the implementation of green infrastructure as outlined in DCM Chapter 2 Volume 1.

Rural streets benefit from the separation of sidewalks or side paths from roads for safety and maintenance. Utility installations are most desirable under trails and road areas to avoid conflict with the landscape installation.

1. Major Arterial (Class III)

A primary goal of landscape along Major Arterials in rural areas is to buffer residential or public use areas from traffic. To improve the pedestrian experience in these rural areas and improve ecological function, green infrastructure such as vegetated swales are used to provide stormwater capacity and pedestrian buffers (Figure 3-10). Channeling or diverting runoff into medians, planting strips, and other landscape beds can provide water input, which can increase plant survivability. In swales for stormwater management, whether on the side of the road or in a median, trees should not be planted in the bottom of the swale. However, where the distance between the road and sidewalk is wide enough, additional plantings can be added for a combined swale and landscape planting bed (Figure 3-12).

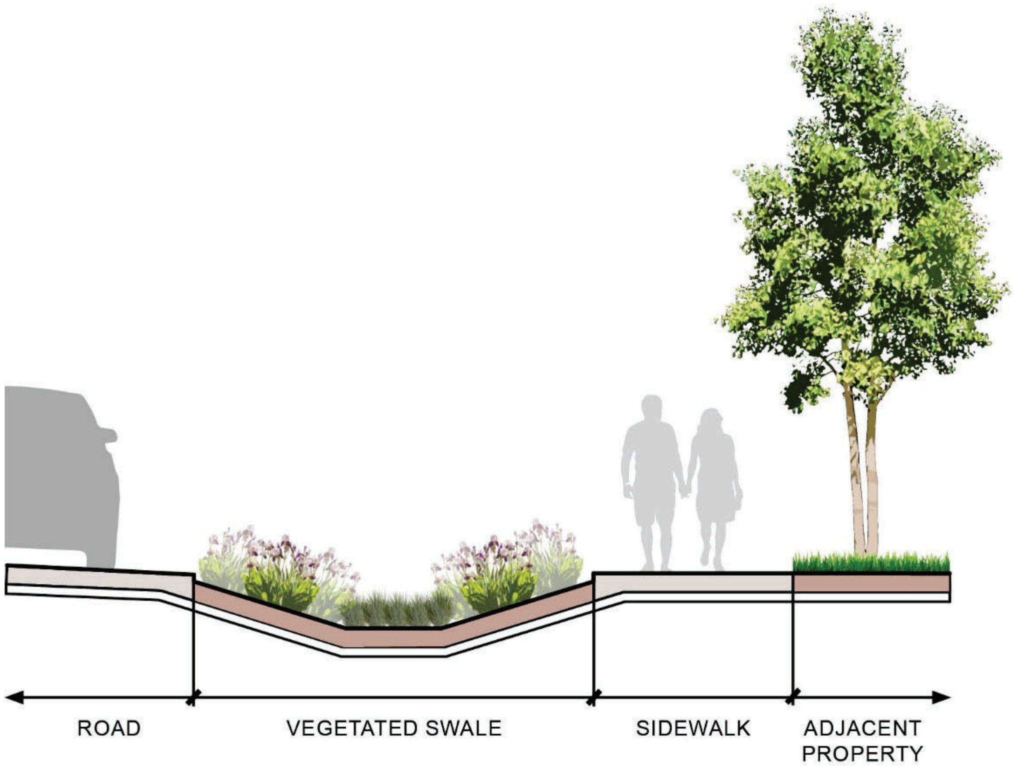



**Figure 3 - 10: Rural Major Arterial**

2. Minor Arterial (Class II)

The design of Minor Arterials in Class B are like those in Class A, but without curb and gutter. The area between the road and sidewalk is intended for snow storage and drainage (Figure 3-11).

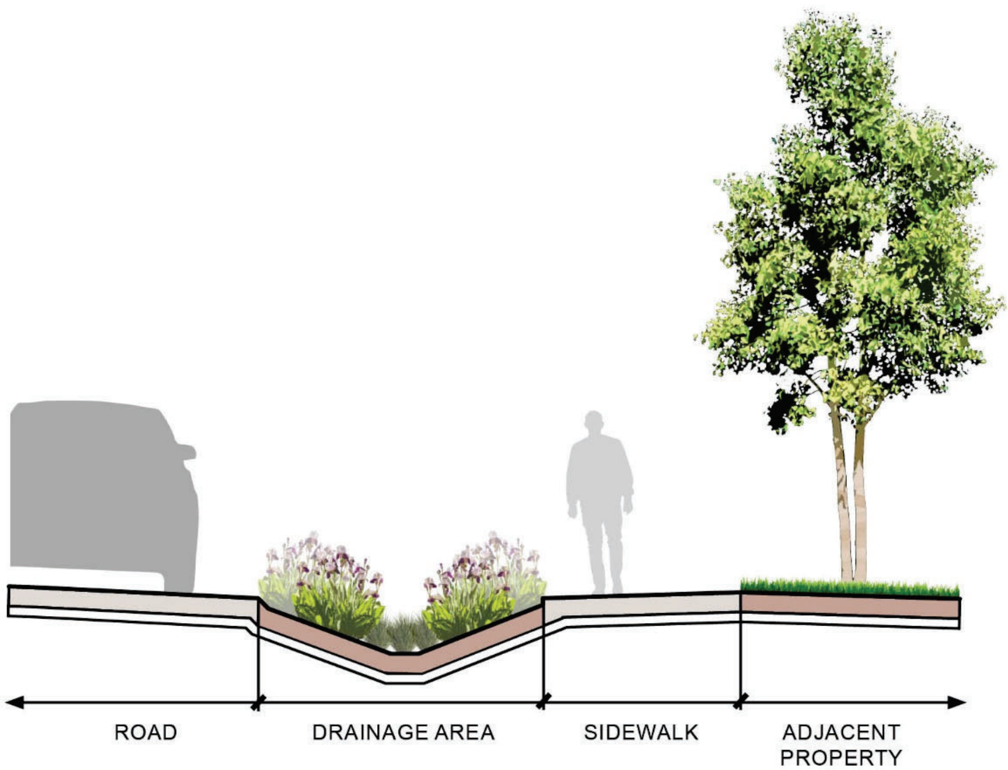



**Figure 3 - 11: Rural Minor Arterial**

Rural locations may offer opportunities for an enhanced multi-use trail experience by using landscape in some locations as buffers between users and vehicles. Where ROW allows, drainage and landscape areas can be combined for greatest safety while maintaining function (Figure 3-12). Similar to planting in medians, trees should be kept out of the swale flowline.

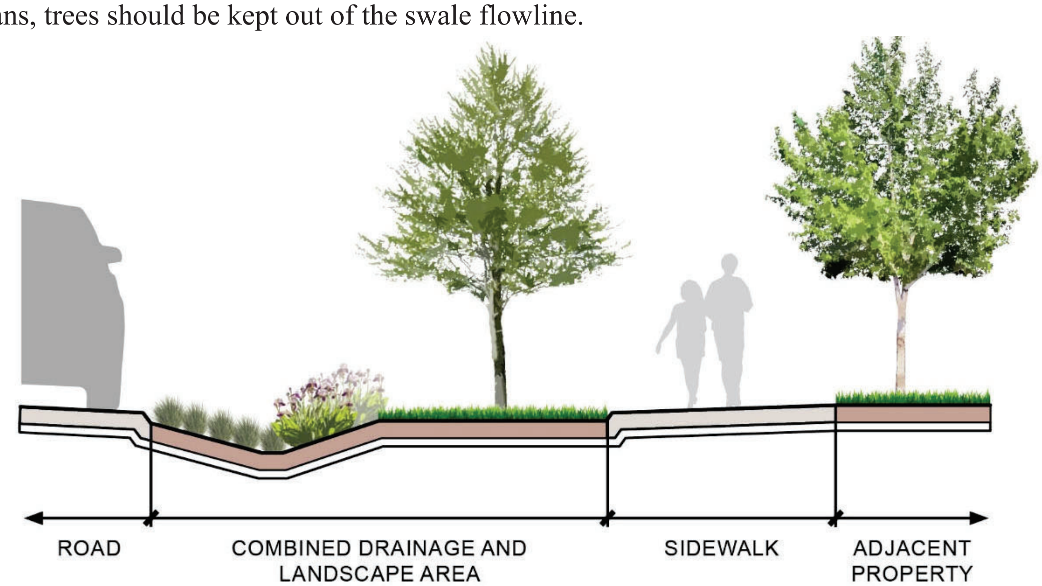



**Figure 3 - 12: Rural Minor Arterial - Landscape Buffer**

3. Collector Streets (Class I)

These streets are typically lined with residential properties where a comfortable, attractive streetscape benefits the neighborhood's overall visual character. Plantings should be tied to the landscaping provided by adjacent residential properties where possible. The treatment of Rural/Class B Collector Streets should be similar to Rural/Class B Minor Arterials (Figure 3-13). If the snow storage area is not being used for drainage, trees and shrubs may be planted in clusters that allow for efficient snow management.

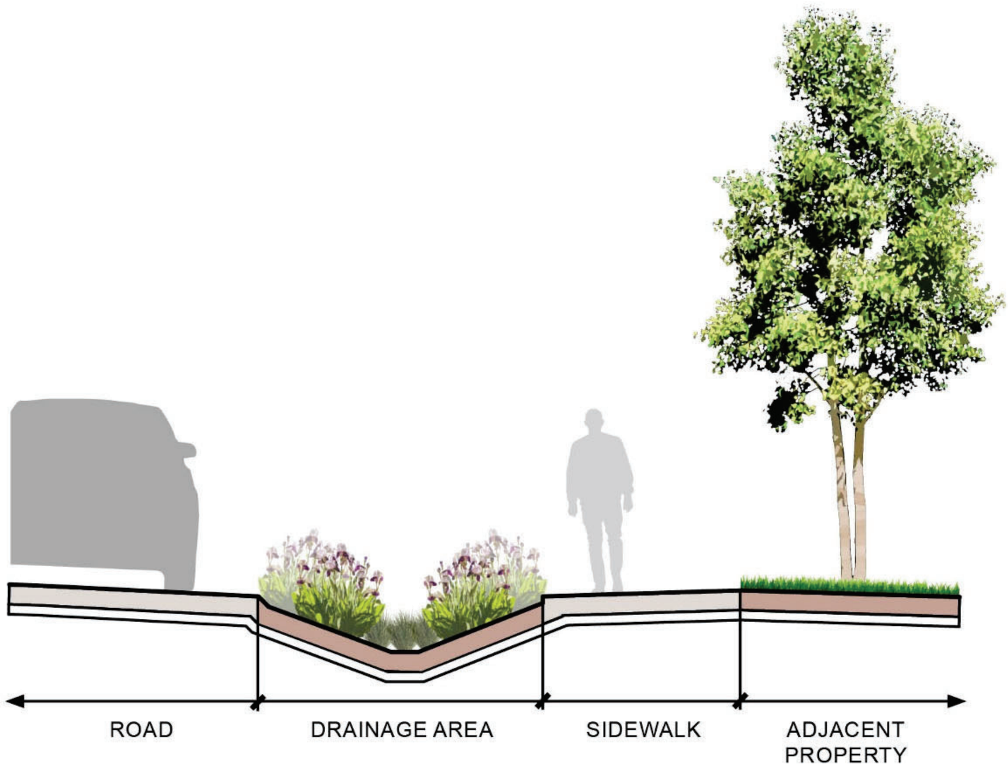



**Figure 3 - 13: Rural Collector Streets**

4. Local Streets

Similar to urban local streets, landscaping on rural local roads is often limited due to the sight-distance triangles of the driveways that line the streets. Landscaping on these streets will need to be very site-specific and preserving existing vegetation should be a primary focus. When applicable, streetscape design for these roads should align with those of collector streets.

END OF SECTION 3.4

## SECTION 3.5 CONSIDERATIONS FOR ADDITIONAL RIGHTS-OF-WAY FOR LANDSCAPE

ROW is seldom sufficient to meet all the needs for roadway, snow storage, paths, sidewalks, and landscaping. Designers should seek creative means to solve issues resulting from competing demands. Art, fencing, or screening panels are often an appropriate amenity that can be employed in tight spaces or places where plant materials may not survive.

While not common practice, there may be occasions where purchase of additional ROW should be considered. These decisions require close coordination between the project manager, the engineer, the arborist, and the landscape architect. A significant part of this determination will be 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 “A Strategy for Developing Context Sensitive Transportation Projects” for direction on integrating the public into project decisions.

Designers should weigh the following in determining whether additional ROW is necessary:

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

END OF SECTION 3.5

## SECTION 3.6 PUBLIC OPEN SPACE AND PARKS PROJECTS

Parks play a significant role in providing recreational green space to communities and are often core areas for ecological function within cities. It is important that street projects and park projects are aligned in their goals and work together to create a strong green network system. Additionally, park projects are subject to many of the same aspects of development as building and road projects.

### 1. Municipal Code Review

While parks are seen as compatible elements of neighborhoods, significant development can be controversial. Parking lot, landscaping, and Site Plan Review requirements should be addressed early in proposed plans. Municipal projects are required to go through ~~the approval process per AMC 21.05.040G.2~~ one of several approval processes; an Administrative Site Plan Review in accordance with AMC 21.03.180C, a Major Site Plan Review in accordance with AMC 21.03.180D, or a Trail Review in accordance with AMC 21.03.190C. The exact requirements of these reviews can vary depending on the size of the project as summarized in AMC 21.05.040G2.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 must be presented to the appropriate commission prior to being scheduled before the Planning and Zoning Commission.

Depending on the project, additional code requirements may need to be satisfied, for example, projects that provide parking are subject to the requirements of AMC 21.07.090H.3 for parking lot landscaping. Park projects may require a Stormwater Pollution Prevention Plan (SWPPP) prepared, something that is typically placed on the contractor through the special provisions for contracted work.

### 2. Streambank Protection and Restoration

The many waterways that run along municipal lands are essential to the local ecosystem. Some projects, such as bridges and culvert upgrades, may require the need to clear out the streambanks for construction. When this is the case, it is vital that proper protection and restoration efforts are made to revegetate the area and improve the quality of the wetland area to uphold the integrity of the waterway. Refer to guides such as Stream Bank Revegetation and Protection- A Guide for Alaska by the Alaska Department of Fish and Game for information about different revegetation techniques. For information about permitting of wetland projects, refer to the Anchorage Stormwater Manual (Volume 1&2), contact the U.S. Army Corps of Engineers, MOA Watershed Management Services or MOA Planning.

### 3. Design Goals

It is important for street and park projects to work together to enhance the community. These projects are significant components of transportation connections and creating a system of green corridors. The following values should be considered to better align park and streets projects:

### Equity and Cultural Identity:

- Design parks and pathways to be accessible for individuals of all abilities and ages by incorporating accessible pathways, seating, and amenities where possible and incorporating planning for proper maintenance of facilities throughout the year. Refer to DCM Chapter 4 “Trails” for additional guidelines for trails and pathways to provide seamless transitions between on-street facilities and trails for non-motorized users.
- Use place-based design to reflect the natural and cultural context of the surrounding community by using interpretive signage, traditional art, and culturally significant plantings.
- Blend municipal and private landscaping to create a cohesive look and identity throughout a community.
- Use art, plantings, and other design elements to create distinctive patterns and visuals to support and strengthen identity.

### Sustainability and Environmental Stewardship:

- Creating a robust green network anchored by municipal park land to create more resilient urban landscapes.
- Creating and maintaining quality habitat for local and migratory species.
- Use native and climate-resilient plant species to enhance biodiversity and reduce maintenance.
- Work with street projects to create comprehensive stormwater management features.
- Create cohesive plans to adapt and protect the ecological function of a site for it to perform well. This is especially important for parks that are within or near estuaries or wetlands that have critical ecological systems.

END OF SECTION 3.6

## SECTION 3.7 SCREENING AND BUFFERING OF PARKING LOTS, BUILDINGS, AND OTHER DEVELOPMENTS

Effective screening and buffering are essential for mitigating the visual and environmental impacts of different development projects. Thoughtfully designed landscaping promotes safety by delineating pedestrian and vehicular spaces, defining public and private space, and improving visibility. Plantings, especially when designed with green infrastructure systems, can improve stormwater management, reduce urban heat island effects, and enhance green corridors. These measures ensure that private development can contribute positively to Anchorage's urban landscape, aligning with the broader goals of sustainability, functionality, and community well-being outlined in this chapter.

Anchorage Municipal Code Title 21 provides guidance on the minimums required for buffering and screening of parking lots and buildings, including planting bed areas, plant counts, among other design features. Refer to AMC 21.07.080 for requirements for screening. Standard planting details are provided in M.A.S.S. Div. 75.

END OF SECTION 3.7

## SECTION 3.8 GLOSSARY

**CLIMATE ADAPTED DESIGN:** the practice of designing spaces that respond to and mitigate the impacts of climate change. It emphasizes using native species in resilient planting strategies, water management systems, and site-specific solutions to address issues like extreme weather, rising temperatures, and biodiversity loss, ensuring sustainable and functional landscapes for future conditions.

**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. This method seeks to achieve community building by inclusion of the public throughout the decision-making stages of project development. These procedures seek 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. The process is described in A Strategy for Developing Context Sensitive Transportation Projects as adopted by the Municipality of Anchorage on 10/14/2008.

**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.

**TREE PROTECTION ZONE (TPZ)**: defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development. The TPZ should encompass the CRZ, based on the judgement of the arborist.

END OF SECTION 3.8

## SECTION 3.9 REFERENCES

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## Websites:

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Alaska Exotic Plants Information Clearing House: https://accs.uaa.alaska.edu/invasive-species/non-native-plants/

Division of Forestry and Fire Protection: https://forestry.alaska.gov/community/links

International Society of Arboriculture: https://www.isa-arbor.com/

Green Infrastructure Project: Rain Garden Guide: https://www.fairbankssoilwater.org/wp-content/uploads/2024/08/Rain-Garden-Guide.pdf

USDA Plant Hardiness Zone Map: https://planthardiness.ars.usda.gov/

Utilities Right Tree:
https://forestry.alaska.gov/Assets/pdfs/community/publications/05Utilitiesrighttree.pdf

Wetland Designation Map:
https://www.muni.org/Departments/OCPD/Planning/Publications/Wetlands%20Management%20Plan%201996/AWMP-Maps.pdf

END OF SECTION 3.9

# Attachment 4.

Updated Chapter 3 Public Hearing Draft – Clean Version

Case 2026-0013

# DESIGN CRITERIA MANUAL

# CHAPTER 3 LANDSCAPE


**MUNICIPALITY OF ANCHORAGE**

**PROJECT MANAGEMENT & ENGINEERING DEPARTMENT**


**D-R-A-F-T**

**NOVEMBER 2025**

DESIGN CRITERIA MANUAL
REVISION LOG

## Chapter 3 – Landscape

| Rev. No. | Date Executed | Description | Sections Revised or Added | New/*Revised* Template |
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## FIGURES



## ACRONYMS AND ABBREVIATIONS

AASHTO........American Association of State Highway and Transportation Officials
ANSI A300........American National Standard for Tree Care Operations
ANSI Z60.2........American National Standard for Nursery Stock
AMATS........Anchorage Metropolitan Transportation Solutions
AMC........Anchorage Municipal Code
CPTED........crime prevention through environmental design
CBD........central business district
DBH........diameter at breast height
M.A.S.S........Municipality of Anchorage Standard Specifications
OS & HP........Official Streets and Highways Plan
P&Z........Planning and Zoning Commission
ROW........right-of-way
TPZ........tree protection zone
UDC........Urban Design Commission

## SECTION 3.1 PROJECT PLANNING

### 3.1 A Objectives

This chapter of the Design Criteria Manual (DCM) provides comprehensive guidance and criteria for landscape design, installation, and maintenance of projects within the public right-of-way (ROW) and in public open spaces such as parks in the Municipality of Anchorage. As Alaska's largest city, Anchorage recognizes the importance of urban design, and the need to maintain high standards. Design should balance aesthetic appeal, functionality, maintenance, stewardship, and community needs. Streetscape improvements are significant tools that provide the community with a strong connection to the magnificent natural setting that surrounds Anchorage.

This chapter's goals are to:

- improve safety within public spaces
- maximize functionality
- provide durable and maintainable landscapes

This chapter serves as one of several adopted or referenced resources used to inform and guide municipal projects (see Section 3.2 and end of this chapter for references). Together, these documents ensure that landscapes contribute to Anchorage's built and natural environments by creating a cohesive approach to landscape design that reflects community values, enhances public spaces, and supports Anchorage's long-term goals.

Landscape improvements for municipal projects may include:

- Plantings: All plant material, including turf, selected for resilience, ecological benefits, and aesthetics.
- Pedestrian Amenities: Seating, trash receptacles, and lighting that enhance comfort, safety, and usability.
- Hardscape Features: Paved pathways, walls, and other hardscape elements that contribute to accessibility and define outdoor spaces.
- Art and Cultural Elements: Public art installations, interpretive signage, and decorative features that reflect Anchorage and Alaska's cultural heritage.

Landscape architects are licensed professionals trained to design public spaces, including roadway improvements, to create functional, aesthetically pleasing spaces that balance available resources. In addition to landscape architects, other professionals may be required depending on the proposed project. Certified arborists are trained to understand tree health, retention, and preservation. Electrical engineers ensure landscaped spaces have adequate lighting. Civil engineers work closely with landscape architects to ensure effective stormwater management, grading and drainage, utilities, and other infrastructure features.

### 3.1 B Decision-Making

Landscape improvements vary project-by-project. Factors such as ROW limits and project budgets affect the type and level of landscape design. A project's role within the greater community context should also be considered when determining the level of landscape desired, which is often determined or guided in the municipal comprehensive plan, neighborhood plan, or other adopted plan. It is the role of the landscape architect to work closely with the community, the design team, and other members of PM&E to determine specific landscape improvements. Thus, it is important for the landscape architect to be included in the initial project planning phases and to aid in developing options. If there is a conflict with a project meeting design criterion, a design variance may be possible, see DCM 3.1 C. The following goals and methods should be considered when evaluating landscape improvements for a project:

**Promote Safety:**

Landscapes should support safety in public and private areas by minimizing hazards for pedestrians, reducing vehicle speeds through traffic calming design, and supporting visibility and security.

- Follow Crime Prevention Through Environmental Design (CPTED) principles to discourage crime and enhance visibility.
    - Ensure that landscapes allow and support clear sight lines, well-maintained pathways, and strategic placement of site amenities (e.g., lighting and seating). Generally, street plantings should allow for clear sight lines between 30” and 80” above finish grade.
    - Use plantings, decorative elements, and signage to help visitors recognize it as a valued public space and discourage misuse.
- Use methods to support traffic calming and make the streets safer for all users in accordance with transportation plans such as planting trees along roads to slow drivers by creating vertical elements that make lanes feel narrower.
- Use pedestrian amenities and plantings to define pedestrian spaces from vehicular spaces to reduce conflicts.
- Provide clear and intuitive wayfinding to minimize confusion and reduce distractions. Wayfinding includes signage, amenities, and landscape features, which contribute to place making and space delineation.
- Lighting is critical to safety for pedestrians, bikers, and drivers, especially during our long winter nights. Landscaping should enhance, or at least not impede, street lighting while recognizing the issues created by light pollution, including glare.
- Landscapes should be designed so they are easy to maintain for safety, especially in winter. This includes reducing tripping hazards and providing clear areas that allow snow clearing machinery easy access.

**Improve Function:**

Thoughtfully designed landscapes can provide numerous functions including storm water management, improved streetscapes that better separate vehicles from non-motorized spaces, improve air quality, control wind and snow drift, and provide visual cues for drivers.

- Integrate features that support diverse user needs, so all members of the Anchorage community and visitors can use the facilities, regardless of age, ability, or cultural background.
- Design streetscapes that increase ecological function, promote sustainability, and are resilient to climate change impacts.
  - Prioritize sustainable practices and low-impact development (LID) (see glossary) such as native plantings to improve ecosystem health and reduce heat island effects. Integrate stormwater management strategies from DCM Chapter 2, such as bioretention facilities and vegetated swales, to reduce runoff and improve stormwater capacity and water quality.
  - Design green corridors, such as tree-lined streets or connected park systems, to provide continuous habitat for wildlife and improve ecosystem connectivity.
  - Enhance the pedestrian experience which has been shown to positively impact commerce and economic development.
  - Street trees can add 3% to sales price and reduce time-on market by 1.7 days for residential areas (Donovan and Butry, 2010).
  - In retail areas with high quality tree canopy, surveys indicate consumers are willing to spend 9% to 12% more on goods and services (Wolf, 2005) (Wolf, 2014).
- Enrich the pedestrian experience which improves community health and well-being. Creating spaces that people care about also fosters a sense of stewardship, which will in turn help keep streets safer and cleaner.
  - High percentage of tree cover was associated with lower prevalence of diabetes, hypertension, and cardiovascular diseases when adjusting for socio-economic factors for residents (Astell-Burt and Feng, 2020)
  - Children living in areas with street trees achieved more positive early childhood development outcomes such as cognitive development, physical health, and social competence. (Jarvis et al., 2022)
- Use place-based design principles to reflect the natural landscape and its cultural significance, recognize the history and traditions of Indigenous communities, and incorporate traditional patterns, materials, and spatial arrangements.
- Buffer users from inclement weather or environmental conditions to provide a more comfortable experience.
- Ensure landscape supports effective drainage by avoiding obstruction of water flow and incorporating elements that facilitate proper runoff and storage/infiltration and prevent undesirable water accumulation

**Durability:**

Provide a framework for proper maintenance and care of plantings for sustainable, long-term landscapes that enhance quality of life. Design plantings that align with responsible snow removal and storage practices that are safe, efficient, and recognize limited municipal resources.

- Minimize long-term maintenance needs by using drought-tolerant and native or climate-adapted species. Other maintenance needs, such as pruning, should also be weighed when selecting plants.
- Consider raised planter beds, raised curbs, or other solutions that protect plant material from snow clearing and storage, as well as collection of gravel and sediment from cleaning operations.

- Specify high quality materials grown by professional nurseries that meet American Standard for Nursery Stock ANSI A300.
- Inspect plant materials prior to transportation to site if possible and during planting operations and reject all unsuitable materials. Inspection must take place no later than delivery to site per M.A.S.S.

### 3.1 C Design Variances

This manual presents the minimum requirements for landscape. Whether expressly stated or not, throughout the criteria, any deviation from these standards in which the minimum requirements are not met shall require a written variance from the Municipal Engineer. A variance is not required for deviations in which these minimum requirements are exceeded. Approval of plans containing deviations from the criteria shall not constitute tacit approval of the deviation or approval of a design variance. The variance application request process is as follows:

- Request Submittal: Variance requests shall be in writing and shall contain information, justification, and suggested resolutions. Variances shall be approved prior to submittal of applicable plans and/or reports.
- Documentation: Variance requests shall include complete discussion and documentation supporting proposed methods and parameters. Documentation must include citations of current research and manuals of practice published or sponsored by well-known, credible public and private agencies. Complete copies of supporting documentation must be provided as part of the application. Economic hardship shall not be adequate justification for a variance.
- Justification: Variance requests shall include compelling technical arguments for using the proposed method or parameter as an alternate to what is stated within this chapter of the Design Criteria Manual.
- Review: The Municipal Engineer will consider variance requests and accept or deny the request in writing. Appeal of decisions regarding variances shall follow the procedures detailed on the Municipality of Anchorage website in Policy and Procedures Number 10, "Contesting and Appealing Decisions" (found at www.muni.org).

### 3.1 D Integrated Decision-Making Framework

Achieving these objectives requires a collaborative and integrated approach to planning and design. The following steps provide opportunities throughout the design process to help landscape architects, project managers, and community stakeholders navigate projects:

#### Collaborative Planning:

- Involve key stakeholders early, including community members and other professionals, to ensure a shared vision and to identify community priorities. Each district and neighborhood in Anchorage has a unique identity and issues that should be addressed within the project. Use an integrated approach to design and engineering by including landscape architects, arborists, and horticulture specialists in initial project planning phases.

- Conduct initial site assessments to determine the need for specialists including arborists, urban foresters, maintenance managers, horticulture, environmental/habitat and wetlands experts.
- Consider community feedback and conduct public involvement meetings to understand specific needs, concerns, and aspirations for each project.

END OF SECTION 3.1

## SECTION 3.2 LANDSCAPE CODES, POLICIES AND REVIEW PROCESSES

### 3.2 A Reference Plans

Designers, planners, and project managers should reference this chapter in conjunction with the following resources:

- **Anchorage Municipal Code (AMC) Title 21:** Comprehensive zoning and land use regulations, including specific landscaping requirements for various project types.

- **Official Streets and Highways Plan**: Offers a way for the community to plan for future growth by determining the location, classification, and minimum ROW of streets and highways necessary to meet the transportation needs of the community in the future. Additionally, it provides goals for ROW landscaping for each street classification.

- **Municipality of Anchorage Standard Specifications (M.A.S.S.):** Technical standards for materials and construction methods essential for implementing municipal projects.

- **Current Anchorage Land Use and Comprehensive Plan:** Guides development across Anchorage and emphasizes the importance of sustainable landscapes, ecological connectivity, and climate resilience in all public spaces.

- **Anchorage Stormwater Manual (Volume 1&2):** Criteria for integrating landscape elements into stormwater management systems to improve water quality and reduce runoff. This manual is Chapter 2 of the Design Criteria Manual.

- **Anchorage Non-Motorized Plan:** Strategies to enhance walkability, ensure pedestrian safety, and integrate accessible pathways into urban landscapes.

- **Vision Zero Action Plan:** A framework to eliminate traffic-related fatalities and serious injuries, emphasizing safe and effective landscape designs.

- **AMATS Complete Streets Policy:** This policy guides the future design approach for AMATS projects and includes information on creating streets that accommodate all users, including pedestrians, cyclists, and vehicles and can provide valuable context and strategies for similar municipal projects.

- **Context-Sensitive Solutions (CSS):** Approach to designing landscapes that reflects the unique character, history, and needs of Anchorage neighborhoods, as well as the public-involvement process. It emphasizes flexible design solutions, collaborative decision-making, community input, and environmental stewardship.

## 3.2 B Anchorage Municipal Code (AMC)

Note: As our community's needs change, the Anchorage Municipal Code is updated. Always refer to the most recently adopted codes on the municipal Planning Department website or contact the department directly.

Anchorage Municipal Code (AMC) outlines specific landscape requirements and design standards across various zoning districts and use types. These are primarily applied to private site development, not within the ROW. Below are the primary code sections most relevant to municipal landscape projects:

AMC 7.40: Funds for works of art in public facilities

AMC 21.04: General landscape requirements by zoning district.

AMC 21.07.080: Landscaping, Screening, and Fences

AMC 21.07.080C: When the sum of the required perimeter and parking lot landscaping is greater than 1,000 square feet, a landscape plan must be prepared by a licensed landscape architect registered by the State of Alaska consistent with AS 08.48 and 12 AAC36.

AMC 21.03.190: Street and Trail Review requires that the Planning & Zoning Commission (P&Z) and Urban Design Commission (UDC) review and make recommendations on public facilities, including streets of collector or higher designation in the Official Streets and Highways Plan (OS & HP).

AMC 21.11.070: Downtown Development and Design Standards

### 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 the draft design study reports for new construction and reconstruction of streets of collector class or greater in the OS & HP (21.03.190).

AMC 21.02.030B: Plans subject to review by P&Z, including site design, landscape, and structural design. P&Z may delegate the authority to review and approve plans to the UDC.

### Urban Design Commission Authority

AMC 21.02.040A.4: Reviews Plans-in-Hand (PIH) preliminary design drawings for new construction and reconstruction of streets of collector classification or greater on the Official Streets and Highways Plan (21.03.190).

### Municipal Policies and Standards

AMC 21.01.080: Comprehensive Plan identifies rules and policies that govern land use development throughout the Municipality on both public and private lands.

Anchorage's comprehensive planning policies and standards reinforce landscape goals that align with community values, environmental priorities, and aesthetic objectives. Some of the plans applicable to public facility projects include the Areawide Trails Plan, Our Downtown Plan, Turnagain Arm Comprehensive Plan, the Girdwood Area Plan, the Chugiak-Eagle River Comprehensive Plan, and the Street and Highway Landscape Plan. Many community councils have their own MOA approved neighborhood plans.

## 3.2 C Landscape Review Process Overview

Municipal landscape projects may undergo a multi-step review process involving the Planning Department, Planning & Zoning Commission, and Urban Design Commission. Each application requires a minimum of two months of review prior to the date of the public hearing (if required). Below is a list of typical components for street and site plan reviews:

- **Pre-application Conference**: Initial discussion to align project objectives with municipal standards. This should be done as early in the concept phase as possible.
- **Conceptual Review** (optional for major projects): Early feedback on preliminary street and landscape design.
- **Formal Application Submittal**: Submission of final design plans and compliance documentation.
- **Public Notification and Comment Period**: Opportunity for residents to provide input and feedback.
- **Departmental Review**: Internal review of landscape plans for code compliance.
- **Commission Review and Approval**: Final review by the PZC or UDC, potentially including a public hearing.

For information about specific project reviews please refer to the associated codes and departments:

AMC 21.03.190B.2: Street Reviews

AMC 21.03.190C.3: Trail Reviews

AMC 21.03.180: Site Plan Reviews

Site plans will either require an Administrative Site Plan Review or Major Site Plan Review as identified in:

- AMC 21.05 for Anchorage Table of Allowed Uses
- AMC 21.09 for Girdwood Table of Allowed Uses
- AMC 21.10 for Chugiak-Eagle River Table of Allowed Uses

- AMC 21.11 for Downtown Districts Table of Allowed Uses

### 3.2 D Order of Reviews and Public Outreach

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

Street projects should comply with the Street and Trail Review process per AMC 21.03.190 for public engagement which includes:

- **Project Scoping**: Feedback is used to define project goals, identify community priorities, and highlight potential issues. This may include outreach such as public meetings, newsletters, and a Citizens' Advisor Committee.
- **Alternatives Development**: A full range of alternative and understandable solutions must be presented for the public to review and offer feedback.

END OF SECTION 3.2

# SECTION 3.3 GENERAL GUIDELINES FOR LANDSCAPE INSTALLATION AND MAINTENANCE

## 3.3 A Preservation and Protection of Existing Vegetation

Perform site inventory and analysis early in the design process to determine the value of existing vegetation and the presence of any invasive species. Where practical, existing trees, forested areas, and wetlands should be preserved; efforts should be made to retain healthy trees and vegetation that have special character due to size, age, habit, wind breaks, screening or buffering adjacent properties, or have other ecological benefits.

Existing vegetation can reduce erosion, slow water run-off, reduce urban heat island effects, and maintain air quality. Preserving the urban tree canopy also improves residents' mental health and well-being, thus benefiting the larger community (Alcock, et al., 2014). Another benefit of retaining existing vegetation is the savings in construction costs by reducing the need to remove, transplant or replace trees. Negative aesthetic impacts created by new construction can stall or delay projects and raise public concern. Preserving existing vegetation also protects soils that support vegetation and provide critical green infrastructure. Identifying invasive species and developing mitigation plans can help to protect native vegetation and soil. These benefits are crucial to create and maintain durable, highly functioning, and resilient landscapes.

The contract documents should clearly denote areas to be protected and the best methods for that protection. The following measures should be taken to best preserve the existing vegetation on site:

### Early Site Assessment:

The preliminary design phase is a critical period in the design process to protect existing vegetation. During this time, a landscape architect should work with allied professionals such as a certified arborist or a horticultural specialist to assess and document the age, health, and ecological value of existing trees and vegetation to identify which should be preserved. Priority should be given to retaining vegetation with significant size, habitat value, or those providing erosion control, screening, or other important contributions to the site. Invasive species should be identified for removal to limit spread and impact on the plant community in the project and surrounding area. In the case of invasive species removal, it may be necessary to coordinate with an invasive species management specialist, as some species require specific treatment to limit spread.

Landscape architects are trained to understand the overall site, including screening or similar public concerns regarding landscaping. Arborists assist landscape architects and other allied professionals in establishing a Tree Protection Zone (TPZ) in accordance with ANSI A300 and MASS Division 75. Refer to MASS Division 75, Article 2 Construction, D. as well as Section 75.13 Root Pruning and 75.14 Tree Protection Zone Fence for detailed information on tree protection.

Plan documents should show the areas for preservation including the configuration and area occupied by crown/canopy of the trees that are to be retained. Documents should also show protective fencing per Anchorage's M.A.S.S., Section 75.14 & the associated M.A.S.S. detail 75-10 to keep construction

equipment and materials out of the TPZ. Root pruning per M.A.S.S. Section 75.13 and soil aeration may be used as additional preservation measures where necessary

### Wetland Protection:

Wetlands provide critical habitat and ecological functions that make them vital to Anchorage's ecosystem. Anchorage has mapped and catalogued its wetlands, see Wetlands Management Plan and Wetland Designation Map in Section 3.9 References. For this reason, there are many protections and regulations for any project that occurs within them. For information about permitting of wetland projects, refer to the Anchorage Stormwater Manual (Volume 1&2), contact the U.S. Army Corps of Engineers, MOA Watershed Management Services, or Planning Department. Include timing for permitting in the schedule and budget additional funds for mitigation costs. It is critical to preserve wetlands and their ecosystem services to align with this chapter's goals of sustainable urban design.

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

### 1. Planting Bed Sizes, Shapes, and Location

Proper soil volume (see recommendations below) reduces maintenance, improves safety and plant resiliency providing healthier, more attractive, long-lived vegetation that absorbs more water, reduces noise pollution, and improves community spaces. Providing for bigger tree growth provides more ecosystem services including stormwater mitigation and air quality improvements. It can take a few years after being planted for a 2" caliper tree to provide ecosystem services. Planting soil meeting M.A.S.S. (unless modification is specifically needed) should be provided to meet or exceed the minimum depth. Most roots remain in the top 24 inches of soil, the lateral root spread grows significantly with increasing Diameter at Breast Height (DBH). Thus, when narrow strips of tree plantings are required due to limited ROW, roots are forced to grow in one or two directions only, limiting the lateral stability of the trees. Utilizing structural soils that can handle compaction to provide more macropores for root growth can promote lateral stability.

Certain projects, such as along trails and in parks, offer the opportunity to use existing soils which can minimize costs, promote the establishment of native plant species, and mitigate the risk of introducing invasive species that may accompany imported topsoil.

All planting beds shall have a minimum of 12 inches per M.A.S.S. Section 75.03; however, most landscape beds with trees and shrubs call for at least 18 inches of planting soil depth. Importantly, the soil shall meet requirements as determined by soil tests in accordance with M.A.S.S. Section 75.03. If using salvaged soils, the soil test will provide information as to the need for additional minerals or organics.

- **Tree Planting Bed Size and Shape:**
  - Tree soil volume requirements should be estimated based on DBH, which is generally a more reliable indicator than tree height.
  - The planting bed should provide a minimum 18-inch depth of planting soil to a maximum depth of two feet for tree root development, depending on species and size. Depths greater than this seldom provide for additional root development due to low soil temperatures and available oxygen. Where planting bed width is limited, adequate soil

volume, as described below, is still recommended and may be accommodated through creative planting layout.
  - Massing the vegetation tends to provide increased survivability of plant materials and helps to reduce maintenance.
- **Soil Volume Recommendations for Trees Based on mature DBH:**
  - These guidelines offer the minimum ideal soil volumes needed to support robust root development:

| DBH: | Soil Volume: |
|---|---|
| 4–8 inches | 400–600 cubic feet |
| 8–12 inches | 800–1,200 cubic feet |
| 12–18 inches | 1,500–2,000 cubic feet |
| 18–24 inches | 2,500–3,000 cubic feet |
| 24+ inches | 3,000+ cubic feet |

  - Plant material should be inspected by a landscape architect or horticulturalist before arriving at the project site to verify compliance with M.A.S.S., ANSI Z60.2, and ANSI A300. This includes checking the plants' health and size and verifying plants are pest, disease, and injury free. This review ensures plants arrive in optimal condition and have the greatest likelihood of properly establishing.

### 2. Clustering Plantings Along Roadways

Clustering plantings along roadways may reduce damage from snow removal operations and enhance aesthetic characteristics. Grouping trees and shrubs in planting beds rather than dispersing them evenly along the roadway can minimize conflicts with plowing and snow storage while increasing efficiency of maintenance (Figure 3-1). The dimensions shown in the Figure below (Figure 3-1) align with recommendations from MOA street maintenance and can vary by street size provided projects conform to the maximum and minimum dimensions shown in the figure. Streets in Urban Centers are exempt from the maximum and minimum dimensions shown in Figure 3-1; in all other areas, projects shall conform to these dimensions unless a variance is approved by the Municipal Engineer. See Section 3.4 B.1 Streets in Urban Centers for criteria specific to these streets. These Cluster planting recommendations were developed using precedents such as Elmore Road, which demonstrates a successful example of street amenities and plantings being consolidated for efficient snow clearing and a sufficient room for snow storage. Indeed, adequate spacing of planting beds provides area to accommodate snow storage, ensuring that plants are not buried or damaged by snow clearing equipment. While specific dimensions will vary depending on site conditions, right-of-way width, and maintenance requirements, designs should balance aesthetic appeal with functionality, allowing for safe and efficient roadway operations throughout the year. Consolidating light fixtures and planting clusters may further assist snow maintenance procedures.

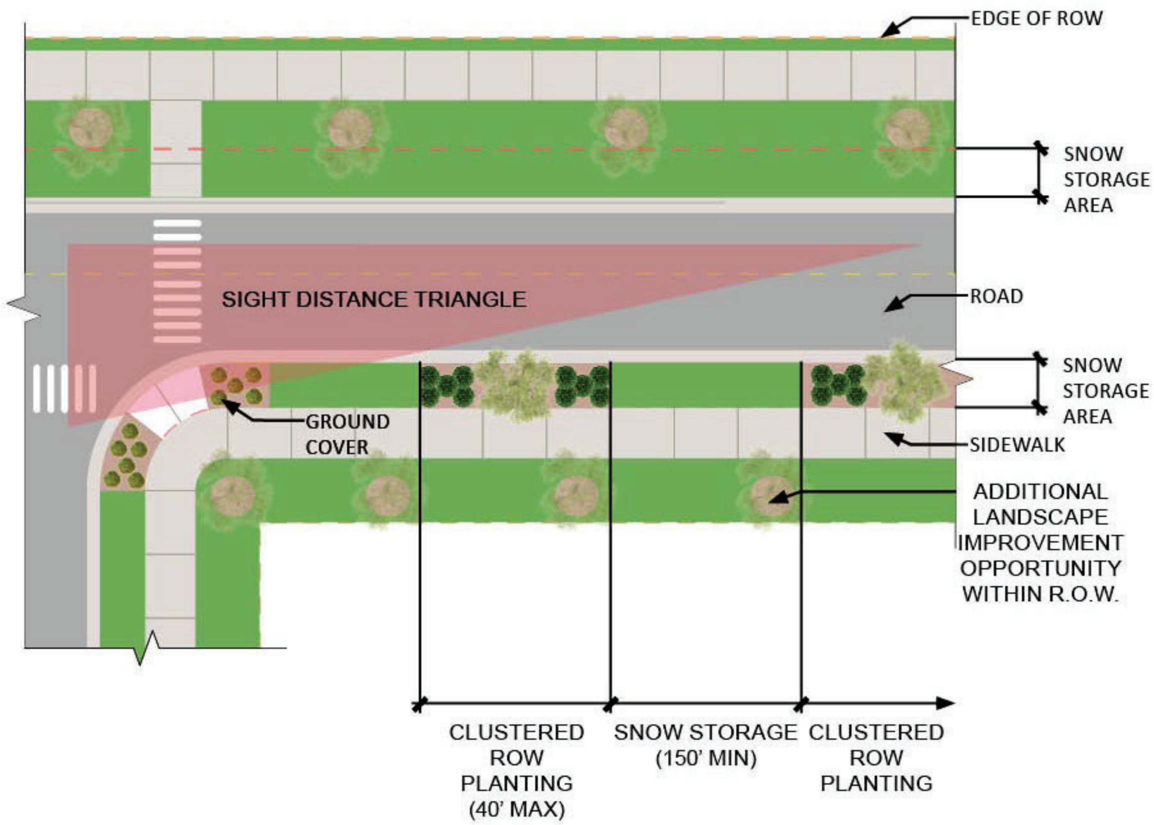


**Figure 3 - 1: Clustered Plantings**

3. Planting Installation Details

Planting installation shall be per specifications and details found in M.A.S.S. Division 75 as well as its applicable standards in ANSI A300 and ANSI Z60.2.

Trees and planting beds within the right-of-way and along roadways pose challenges to plant survival because of the drier conditions, soil compaction, maintenance demands, and other elements typical to urban areas. The details will often show the planting soil brought to the site because the native soil had been removed during construction.

**Watering Rings**:
Trees in lawn areas suffer injury from lack of water, mowing equipment, and string trimmers. New plantings in lawn areas should be established with a well-defined temporary watering saucer, as shown in M.A.S.S. details 75-2, and 75-3, to allow the plant to grow free from grass for 2 to 3 years and provide easy mowing.

**Moose Browse**:
Another consideration for planting details is the potential for moose-browse. In many locations, it is an issue, resulting in the damage or death of plants. Designers should provide moose protection fencing

according to M.A.S.S. Detail 75-11. Fencing should be removed after the maintenance period or once the tree has reached sufficient size to withstand the occasional moose-browse.

**Staking**:
Staking is generally not considered best practice because it can hamper optimal tree growth and, if left unattended, can result in significant damage including scrapped bark and trunk girdling. It should be reserved for areas where there is high wind, a strong chance of third-party damage, or if trees come as "bare root" stock. If used, stakes must be checked regularly for any damage and removed after the maintenance period.

**Tree Guards**:
Tree guards are protective barriers or enclosures placed around the base of young or vulnerable trees. Their primary purpose is to shield the trunk of the tree from potential damage caused by mechanical equipment, animals, environmental factors (e.g., wind, ice), and human activity. While this can provide a temporary benefit to young trees, it can also be a source of damage when not adequately maintained as it can constrain the branches and trunks if they grow beyond the guard. Tree guards should only be used when mechanical injury of some type is expected, when on-going maintenance is assured, or where large concentrations of people are expected to gather.

## 4. Maintenance Practices and Long-Term Care

To ensure project success, landscaping design shall be coordinated with the agency that will provide long-term maintenance to ensure the needs of the landscaping do not exceed the resources of the agency and that landscaping is placed in locations that don't obstruct maintenance operations such as snow hauling, street sweeping, or sidewalk clearing. If the landscaping is located within a municipal ROW, the MOA is responsible for maintenance. Landscaping that is installed in the ROW without a long-term maintenance plan may struggle to thrive and ultimately may be replaced by pavement or topsoil and seed, even if the plantings were still productive by providing infiltration, particle absorption, etc. It is important for plantings to be designed to be durable and long-lasting like other parts of the streetscape. Long-term maintenance may be provided by a non-profit, such as the Anchorage Downtown Partnership, or by a municipal department such as Parks & Recreation. Given the challenges of long-term maintenance, plants will need to be chosen based on their ability to survive without varying levels of maintenance. Depending on site conditions, it may be pertinent to cluster plantings rather than continuous, linear landscaping installations, as concentrated plantings tend to be easier to maintain. Designers shall consider long-term maintenance requirements when determining the size and concentration of plantings along a road.

The short-term maintenance of plantings is described in M.A.S.S. 75.02 Article 2.4. The Plant Establishment Period is generally one year long but can be extended with permission from the Engineer. Following the Plant Establishment Period, the practices and protections below should be applied, when appropriate, to improve the success rate of establishment:

**Inspection and Replacement**:
- Inspect new plantings regularly during the first two to three years. Replace any failed plants promptly to maintain landscape integrity.
- Adhere to standards from ANSI Z60.1 and ANSI A300 to ensure quality and consistency of replacement plant materials.

### Weed and Pest Control:

- Use an Integrated Pest Management program, which can include biological, cultural, mechanical, and/or chemical controls, for the least-toxic option for weed and pest control to minimize chemical exposure and protect Anchorage's water quality.
- All beds should be weed free, and weeding shall be a routine maintenance activity.

## 5. Urban Tree Health Design Considerations

Trees and other vegetation in urban areas must withstand harsh growing conditions with numerous stress factors such as salt, compacted soils, and pollution. Furthermore, trees in urban areas need to have a mature branching height of 80" to accommodate ADA and create comfortable pedestrian areas. Intersections require clear vision areas (site triangles) that limit both tree and shrub plantings to allow visibility. The clear vision area is defined in DCM Chapter 1.

Soil vaults, structural soil, and suspended sidewalks are three design options when planting trees in dense urban areas where trees are under more stress from compaction and seasonal use of salts.

### Tree Vault/Modular Pavement Support System:

Tree vaults or modular pavement support systems are an ideal solution for promoting tree health and stormwater management in densely built urban environments where soil space is limited and adequate funding is available. These systems provide a greater volume of nutrient rich, uncompacted soil while supporting vehicle loads, and capturing stormwater. Many systems are available commercially and have been approved for use by transportation officials.

### Suspended Sidewalks and Structural Soil:

Structural soil and suspended sidewalks can be used to provide an adequate zone for healthy root development by increasing the quantity of soil available to the trees underneath the sidewalk. Suspended concrete spans the planting soil, 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 and requires a way to allow air circulation around the roots. Structural soil, whether used for suspended sidewalks or not, can also be used to create a stable sidewalk base and expand the soil volume for rooting. Supportive aggregate occupies some of the space that would be available for roots increasing soil volume.

### Raised Plantings:

Raised planters and raised curbs can protect plants by elevating them above the ground surface, reducing the potential input of contaminants such as deicing salts, and protecting plants from maintenance damage. Additionally, planter walls absorb warmth from the sun to elevate soil temperatures during the day, which is especially valuable in the spring. Adequate soil volume is still necessary for optimal tree health and to insulate roots to prevent freezing and subsequent damage. Adding insulation to raised planters also reduces the risk of winter damage due to freezing and freeze/thaw conditions. Finally, planting plants that are rated one zone below the site's hardiness zone may reduce plant stress in raised beds.

Generally, raised planters should have a total minimum height of 12" above finish grade to prevent tripping and damage from snow clearing operations. Decorative features such as railings, can be used to meet the 12" height above finish grade.

**Tree Grates**:
Tree grates allow air circulation and water to enter the root zone while providing a safe walking surface for pedestrians. Tree grates should meet current accessibility standards and be specified to ensure that tripping hazards do not occur. The tree grate opening should be designed to accommodate trunk flare diameter and must be regularly inspected and adjusted to ensure there is no contact between the grate and the trunk. Tree grates can incorporate decorative elements that enhance their surroundings and enrich the neighborhood's unique design identity.

## 6. Stormwater Management/Green Infrastructure

Several road typologies offer an opportunity for on-site water treatment and should be incorporated into landscape design. Vegetated swales, biofiltration systems, infiltration basins, and other green infrastructure systems are ideal ways to establish landscapes that can mitigate and enhance stormwater management. Interconnected stormwater systems work with the natural landscape, creating highly productive, diverse ecosystems with significant habitat values while creating safer streets by reducing the risk of flooding and other hazards on roadways.

Landscape projects are site specific, and their success heavily relies on the thorough study and careful design of the pre-construction hydrology, topography, and soils. For information on selecting and installing urban green infrastructure recommended by the municipality, please refer to DCM Chapter 2.

The design of green infrastructure systems requires an interdisciplinary team composed of civil engineers, hydrologists, arborists, and landscape architects. Based on the complexity and the number of variables present, other professionals and scientists may be valuable resources.

Grading and seeding are the most common landscape methods for the treatment of drainage areas. Landscape architects should work closely with the civil engineers to ensure slopes and plantings prevent soil erosion and understand depth and duration of standing water. 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 and woody plant recommendations which are suitable and desired are provided in DCM Chapter 2 as well as M.A.S.S.

Phytoremediation uses plants to clean environmental pollutants in the soil, water, and air. Specific types of plants offer different phytoremediation capabilities; each site and situation must be considered individually depending on desired outcomes. Anchorage has a wide array of woody and herbaceous plant species that thrive under wet conditions in poorly drained, cold, and acidic soils, thus research into which plant species are right for the site and remediation goals should be part of the design process.

Sometimes donor sites may be found that offer prime material for salvaging operations. The salvaging and transplanting of this material may sometimes be done 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.

## 7. Planning for Snow Clearing and Storage

Snow storage along a road may occur in buffers between vehicle lanes and pedestrian facilities, in areas beyond pedestrian facilities where those facilities lack buffers from vehicle lanes, or in the area immediately adjacent to a roadside when pedestrian facilities are not present. These areas are covered by snow and ice for extended periods during the winter. When snow accumulation exceeds the space available in the snow storage area, equipment such as road graders or snow blowers are used to remove snow from these areas. Along Collector and Arterial streets, significant accumulation of road debris, including gravel used to increase traction in icy conditions, can build up in these areas. Summer maintenance of these areas often includes sweeping mechanical brooms to remove accumulated gravels.

Snow storage areas should be excavated and re-graded periodically to mitigate excess accumulation or road debris that can degrade the landscaping in these areas and block drainage paths. Plantings in these areas should be easily replaced and be cost-sensitive. The excavation and re-grading should be included in Capital projects such as pavement preservation projects whenever possible.

Effective snow management is essential in municipal projects to ensure safety, functionality, and the preservation of landscaped areas. Due to Anchorage’s conditions as a winter city, it is vital that landscapes support efficient snow clearing and storage practices. Proper planning and implementation minimize damage to infrastructure and vegetation which increases safety by minimizing hazards. Follow these principles:

### Plan for Snow Storage:

- Designate specific snow storage areas during the project planning phase, ensuring they are large enough to accommodate typical snowfall volumes per AMC 21.07.040F.
- Locate storage areas away from sensitive landscapes, pedestrian pathways, pedestrian amenities, and drainage systems to reduce the risk of damage, flooding, and pollution.
- Consider using hardy, salt-tolerant plant species near high-traffic or snow storage zones. Plants with flexible branching are also less subject to breakage, and therefore, more resilient in these areas.

### Understand Snow Removal Techniques:

- Learn what equipment the client will use, ideally it will minimize impact on pavement and landscape features, such as rubber-edged blades or snow blowers.
- Design landscapes to accommodate the equipment, including the turning radius of machinery. Tree branching should not impede snow clearing, and shrubs/perennials should have a form which will not spread into the sidewalk clear space.
- Train operators to avoid piling snow against tree trunks, shrubs, or landscape structures. Update them about new landscape installations, so they are aware of changes and may operate accordingly.

### Mitigate Salt and De-Icer Impact:

- Understand the use of salt and de-icing products near landscaped areas and consider vegetated filtering methods and plants that are tolerant of these products.
- Include measures to direct salt and de-icing runoff away from plant beds and into appropriate drainage systems, unless green infrastructure is being used.

### Integrate Design Solutions for Durability:

- Incorporate permeable materials in designated snow storage areas to facilitate drainage and reduce ice buildup.
- Design hardscapes and pathways to accommodate snow-clearing equipment without damaging edges or adjoining landscapes.
- Use raised planting beds, when possible, to protect planting material from snow clearing operations.
- Consider snowmelt systems on sidewalks where pedestrian use is highest.
- With proper planning and thoughtful design, snow clearing and storage practices can protect municipal investments while maintaining accessibility and safety throughout the winter season.

Woody plant material in snow storage areas adjacent to sidewalks and streets often suffers damage during winter. Where cluster plantings are proposed, woody plant material should be two feet from back-of-curb and are allowed outside of snow storage areas in non-clustered plantings. In addition, where space is available, a two-foot accent concrete apron may be installed adjacent to curbs to reduce maintenance and improve the appearance of the street landscape (Figure 3-2). While grass is typically used in snow storage areas, perennials, and/or other herbaceous plants should be considered in lieu of grass in locations where plow damage will not remove herbaceous root stock.

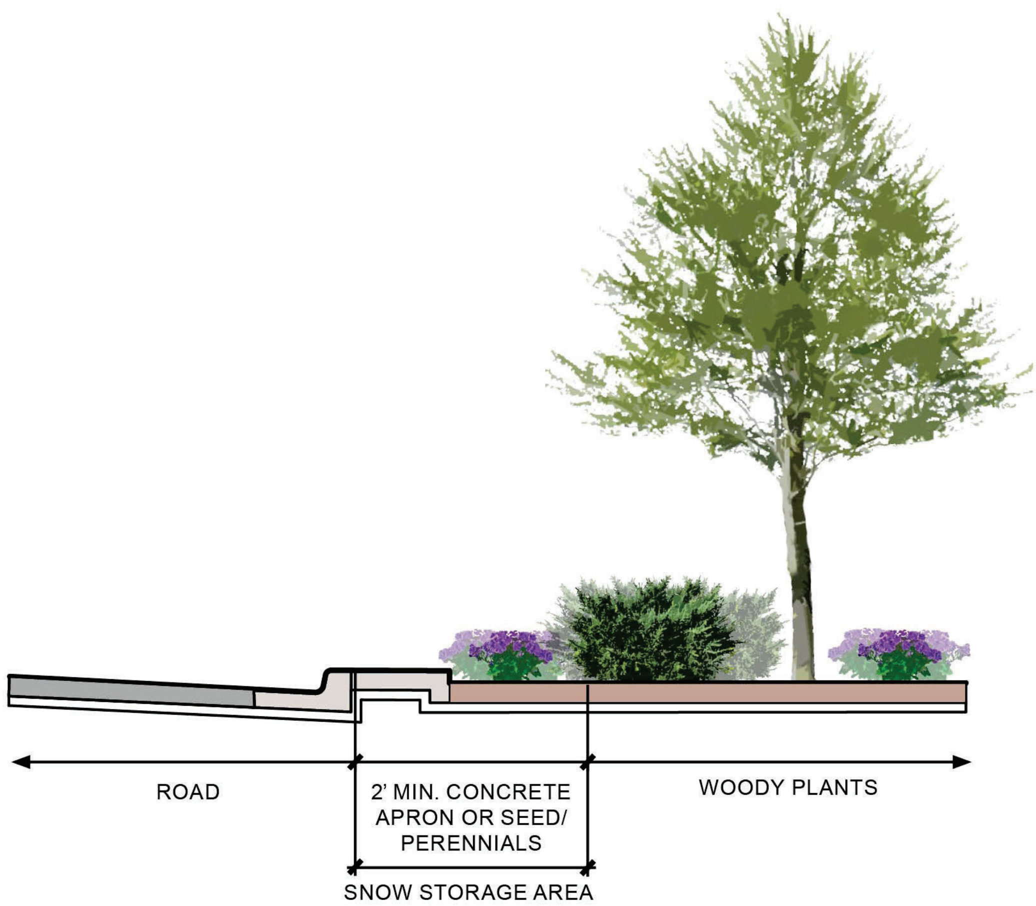


**Figure 3 - 2: Snow Storage Area Without Cluster Planting**

8. Irrigation

Permanent irrigation systems are not recommended for municipal projects due to the high cost of maintaining and operating such systems. Climate adapted design that utilizes native species does not need supplemental irrigation once established. If irrigation systems must be used, temporary low-maintenance drip systems that conserve water and target plant roots directly are preferred.

## 3.3 C Plant Selection

In a well-designed landscape plan, plants are carefully selected and arranged to perform a myriad of functions. The following information is intended to provide guidance in this process.

**Species Selection:**

- Projects should prioritize selecting native plants and plants that are adapted to Anchorage's climate, can tolerate the conditions of an urban environment, and support local biodiversity. Ensure that the species will be successful in urban settings with conditions such as compaction or salt pollution.

- Design professionals should be familiar with municipal, state, and federal lists and regulations for invasive species. Invasive species should not be specified. Invasive species found in existing vegetation should be removed and replaced with a suitable alternative.

- The Alaska Center for Conservation Science at the University of Alaska Anchorage has information about invasives and species that are an ecological risk. Alaska Exotic Plants Information Clearinghouse (AKEPIC) database portal offers up-to-date information on invasive species.

- Plants that are known to be toxic to moose or other animals should not be used.

**Hardiness:**

- The Anchorage Bowl falls within USDA hardiness Zones 1 through 5 and microclimates may additionally modify these zones. Designers must consider plant hardiness, wind tolerance, and moisture needs when selecting a species. As the climate in Anchorage continues to change, reference the most recent version of the USDA Plant Hardiness Zone Map to ensure the correct hardiness zone is being used. In addition to climate changes, rain and snow quantities are also changing and must be considered. Finally, it is important to understand growing degree days (GDD) to select appropriate, hardy plants that work where the growing season is short and cool.

- Microclimates are localized variations in climate conditions caused by factors including elevation, wind and sun exposure, and nearby vegetation and structures. In Anchorage, open areas or elevated sites experience harsher winds, which can damage plants and dry out soil. Areas near buildings and paved surfaces may experience warmer temperatures from heat retention or cooler zones in shaded spots. Snow accumulation from plowing or drifting, as well as ice melting runoff

from roofs, can further create unique challenges to microclimates. Recognizing variations is crucial for selecting plants and designing layouts that fit each site's specific conditions.

**Environmental Impact:**

- Plants that attract pollinators and wildlife, including birds, should be selected whenever reasonable. While careful consideration is needed to ensure that wildlife will not pose any safety risks and large fruits don't create barriers to those with physical disabilities, streetscapes can play a key role in supporting small-scale ecosystems and a healthy robust urban environment, especially when connected to a larger green network.

- Using a variety of plants enhances habitat by improving biodiversity and can create a lower-maintenance planting that responds better to pests and disease.

**Maintenance:**

- Designers should discuss with the owner (MOA or private) and their respective maintenance departments the various levels of maintenance that would be expected for a given finished project and select plants accordingly.
- The availability of water during the establishment period should be considered to ensure plants are properly watered per M.A.S.S. 75.02.6B.

- Consider whether species have maintenance impacts including fruit drop, extensive/shallow root systems, or aggressively spread to determine if they are appropriate for the site.

END OF SECTION 3.3

# SECTION 3.4 STREET LANDSCAPE

Landscaping along municipal streets serves functional purposes such as improving pedestrian safety, managing stormwater, improving air quality, reducing noise, supporting ecological health, calming traffic, enhancing life quality, offering habitat, and improving social well-being. The landscape goals vary per street typology and context of each street. This section covers general considerations for new landscaping along streets, followed by a more specific look at each street typology depending on its setting- urban center, urban area, or rural area.

## 3.4 A New Landscaping

Often the ROW is very limited, and in these situations, planting priorities should be towards safety and function, such as space delineation, traffic calming, stormwater management, etc., depending on site conditions. When ROW space allows, greater consideration is afforded to other elements that enhance the overall public space. Streetscape designs involve several considerations including visibility, long-term maintenance, and snow storage discussed earlier as well as the following:

### 1. Public Process

All new construction or reconstruction projects involving streets and highways of collector or greater designation are required to have a site plan/landscaping review by the Planning and Zoning Commission or Urban Design Commission as mandated in AMC 21.03.190, although there are currently no requirements in code for providing landscape within the ROW. However, landscaping on roads significantly improves the streetscape by using the methods outlined in this document to create safer streets and complement the livability and character of neighborhoods. The community also benefits from improvements such as noise pollution reduction and increased stormwater infrastructure. This section includes design criteria and establishes standards for landscaping improvements of all types of municipal streets.

### 2. Utility Conflicts

The ROW is used for many different types of infrastructure, with a primary use being overhead and underground utilities. The location of these utilities must be considered and may have an impact on the available planting space and plant locations. Additionally, plants grow at a relatively slow pace in Anchorage because of the climatic conditions and cold soil. Thus, if plants are planted over utilities, it is important to consider future maintenance of utilities when designing the plantings or streetscapes by choosing plants and ground treatments that can be easily and economically replaced when utilities need to be maintained. See State of Alaska Utilities website listed in Section 3.9. References.

### 3. Visibility Triangles

The term “Visibility Triangle” refers to the area at an intersection or driveway approach that is maintained free of visual obstructions to allow roadway users to perceive the presence of other, potentially conflicting users. Designs shall follow criteria in DCM Chapter 1 in providing visibility triangles for all users including drivers, bikers, and pedestrians at driveway and intersection approaches. Where visibility triangles are not necessary because all approaches are controlled, designs shall provide a pedestrian and/or bicycle visibility zone on all intersection approaches (Figure 3-3).

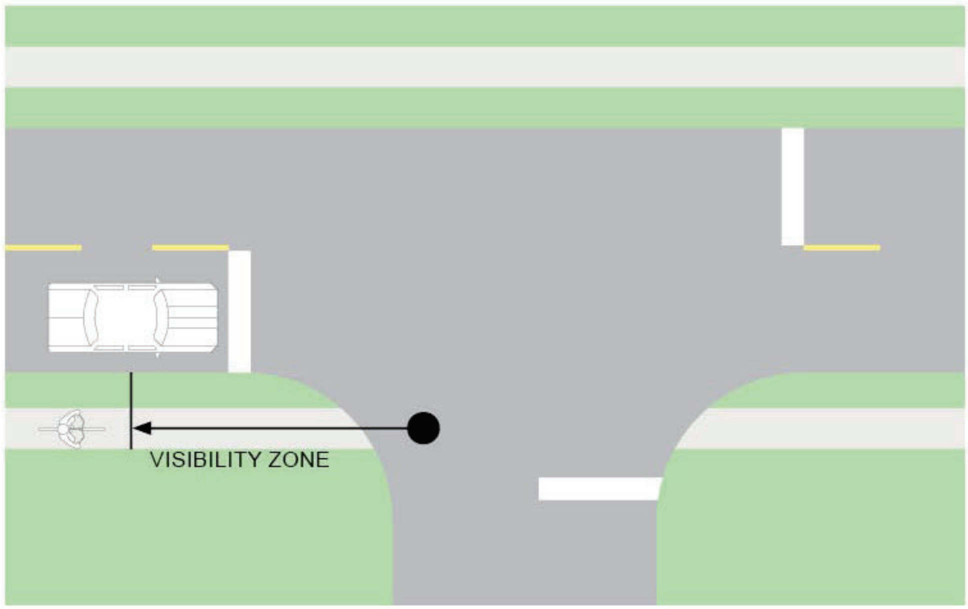


**Figure 3 - 3: Visibility Zone**

AMC 21.07.080F.2.b references "Clear Vision Area Requirements". Shrubs that need aggressive pruning to maintain a height below twenty-four inches are not allowed. Trees must not branch below 8' height from adjacent paved area. 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. Additionally, trees in visibility triangles should be spaced apart such that, cumulatively, mass plantings do not obscure the driver's vision of oncoming traffic. For information about Visibility Triangles refer to Chapter 1 of the DCM. Other organizations and owners, such as AASHTO, NACTO, and DOT, have their own standards that must be followed if necessary for the project.

### 4. Clear Zones

As defined in DCM Chapter 1, the clear zone is the total roadside border area, starting at the edge of traveled way, available for safe use by errant vehicles. The desired width of the clear zone is dependent on the traffic volume, design speed, and roadside geometry. Designers should work with the project engineer to determine the appropriate clear zone and ensure that any landscaping and site elements do not present hazards within it.

### 5. Funding

Some sources of funding (particularly from Federal transportation sources) have limitations that prevent them from being used to fund landscaping improvements. In these cases, it is necessary to seek alternative funding sources such as municipal bonds or state grants to pay for project landscaping. Funding limitations can be particularly problematic where ROW acquisitions are needed. It may not be possible to include space for landscaping in ROW acquisitions if the funding has limitations that exclude landscaping.

## 3.4 B Landscaping in Urban Centers

Landscaping varies by street classification, from major arterials to local roads, and is specific to urban centers, urban areas, and rural contexts. Road classifications are provided in the OS&HP, and the classification designations are defined in Chapter 1 of the DCM. Adjacent land uses are categorized as "Urban" (or "Class A" in AMC Title 21) or "Rural" (or "Class B" in AMC Title 21). See table below for zoning associations with these classes (Figure 3-4).

| TABLE 21.08-1: IMPROVEMENT AREAS DEFINED | | |
|---|---|---|
| District Type | Class A | Class B |
| Residential | R-1<br>R-1A<br>R-2A<br>R-2D<br>R-2M<br>R-3<br>R-3A<br>R-4<br>R-4A<br>R-5 | R-6<br>R-7<br>R-8<br>R-9<br>R-10 |
| Commercial | B-1A<br>B-1B<br>B-3<br>RO<br>MC | |
| Downtown (DT) | B-2A<br>B-2B<br>B-2C | |
| Industrial | I-1<br>I-2<br>MI | |
| Other Districts | A | TA<br>WS |

**Figure 3 – 4: Zoning Classification**

1. Streets in Urban Centers

Per the Anchorage 2040 Plan, City and Town Centers, Main Street Corridors, and Transit-supportive Development are streetscapes that promote pedestrian use in an urban setting by having compact and dense land-use and safe, interesting pedestrian spaces. These areas are focal points for community and commerce as they exhibit the highest degree of interaction between different land uses. Streetscapes should be designed to facilitate window-shopping and enjoyable pedestrian spaces (Figure 3-5). It is particularly important to have street trees because of the direct positive functional, environmental, and economic benefits. This includes calming automotive traffic in pedestrian-oriented streetscapes, improving ecological resiliency, and improved public perception resulting in increased public patronage. Refer to DCM 3.3B.4 for information about planting methods for street trees on urban streets. In the downtown area, landscape standards for downtown landscaping are provided in AMC Title 21.11. These Urban Center streets are also prime locations for Indigenous Place Name signage, decorative lighting, or other place-based art installations.

While streets in the Urban Centers are exempt from the dimensions in Figure 3-1, the clustering concept is still applicable and should be used to ease snow clearing and maintenance practices. The intent of the clustered plantings in the Urban Centers is not to move snow into or store snow in these planting beds, but to provide areas where snow doesn't need to be cleared, thus resulting in fewer obstacles to shovel or plow around. Designers should work closely with other design disciplines (for example; civil, traffic, and electrical engineers) to ensure signage, poles, site furnishings, and plantings are as consolidated as possible.

Collector and arterial streets in city and town centers should provide a minimum setback of three feet from the back of curb to any **streetscape elements**, such as parking meters, trash receptacles, hanging baskets, tree guards, raised planters, or light posts. This setback is the minimum required for car entry/exit, efficient snow clearing, and access to curbside parking.

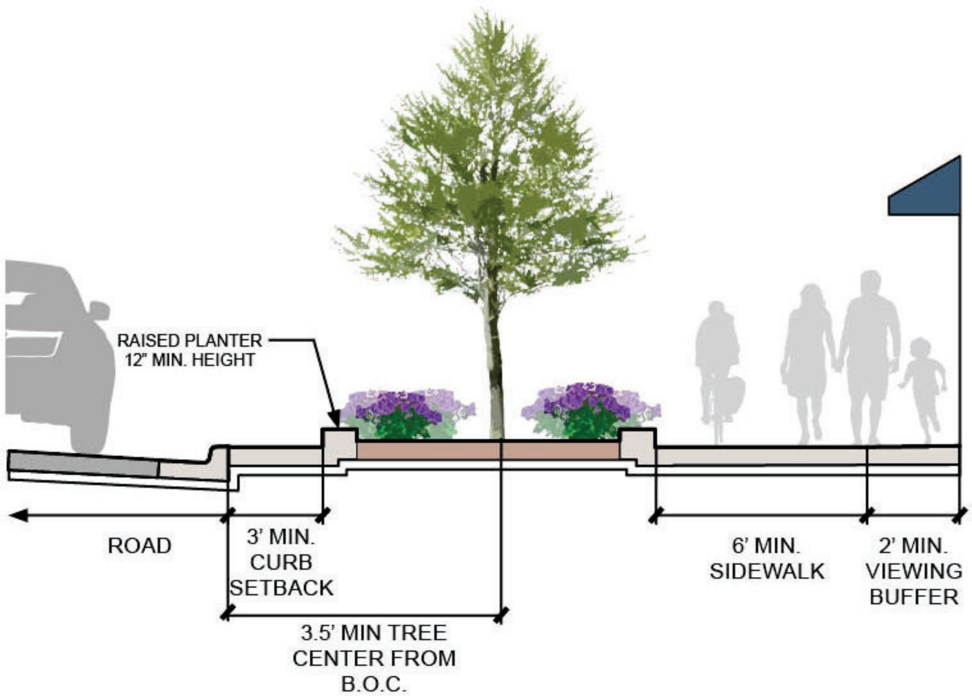


**Figure 3 - 5: Urban Center Street - Raised Planter**

Sidewalks for storefronts and buildings should have a minimum six-foot wide clear zone for efficient pedestrian circulation and a two-foot friction zone for a storefront viewing area. Wherever possible, all objects within the site furnishings area, including plantings, signage, furnishings, lighting, other utilities, etc., shall be coordinated with storefronts so they will not impinge on visibility of signage and windows, and consolidated to minimize obstructions. All vertical elements should be spaced a minimum of 3 feet apart to allow for mechanized snow clearing. Landscape designers should work closely with stakeholder groups, maintenance providers, and engineers to minimize all street amenities and signage. If areas are designed to allow for no snow clearing, such as planting beds, on-street parking should be considered so pedestrians exiting the cars have a clear path of travel. More specific guidelines for landscaping in the downtown area can be found in the most recently adopted downtown district plan and AMC Title 21.11.. For residential areas in Urban Centers, it is important to create streetscapes that assist in private and public space delineation and use Crime Prevention Through Environmental Design (CPTED) practices to foster feelings of safety. Per the MOA *Our Downtown Plan*, landscaping between residential buildings and the street is encouraged. Using landscape elements to soften the urban fabric can be a powerful tool in creating inviting residential streets (Figure 3-6).

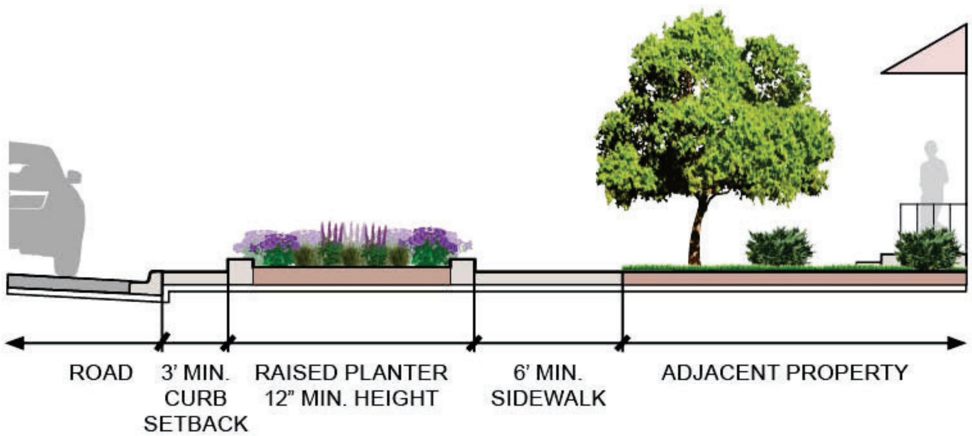


**Figure 3 - 6: Urban Center Street – Residential**

### 3.4 C Landscaping in Urban/Class A Areas

1. Major Arterial (Class III)

Major Arterial streets have high traffic volumes where separation is desired between the back of curb and pedestrian facilities to provide increased pedestrian comfort as well as snow storage area. Landscaping along major arterials has a significant role in defining the different functional zones (pedestrian, vehicle, bicycles, green infrastructure, etc.) within the road section as well as providing environmental benefits by creating a larger network of green space, improving air quality, reducing and improving run-off, protecting neighborhoods by providing buffering, and improving aesthetics. Visibility triangles address safety issues by allowing drivers to see adjacent pedestrians or wildlife activity. A grass or perennial strip for snow storage and utilities should be provided between the back of curb and sidewalk appropriately sized per the DCM Chapter 1 and Figure 3-7. In a case-by-case basis, perennials may be accepted in lieu of grass seed if their root systems are located so that they will not be injured by snow clearing machinery.


**Figure 3 - 7: Urban Major Arterial Street**

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 (2:1 to 3:1 slope) or elevated with raised curbs or planters to provide less exposure of plant material to road salts (Figure 3-8). Double curbs should be considered for arterial roads to provide necessary protection for plant material. If no curbs are present and the median is a swale, generally trees should not be planted except where adequate width exists, and always outside of the swale flowline. Channeling or diverting runoff into medians, planting strips, and other landscape beds can provide water input which can increase plant survival in addition to stormwater filtration and absorption. Medians are often exposed to far more wind and sun than areas along the sides of roadways which benefit from the protection of adjacent forests or structures.

The designer should carefully consider the long-term maintenance the landscaping will receive and specify plant material that can withstand the harsh conditions found in roadside environments. On these roads with high volume and speeds, it is especially important to select plant material that does not provide moose browse.

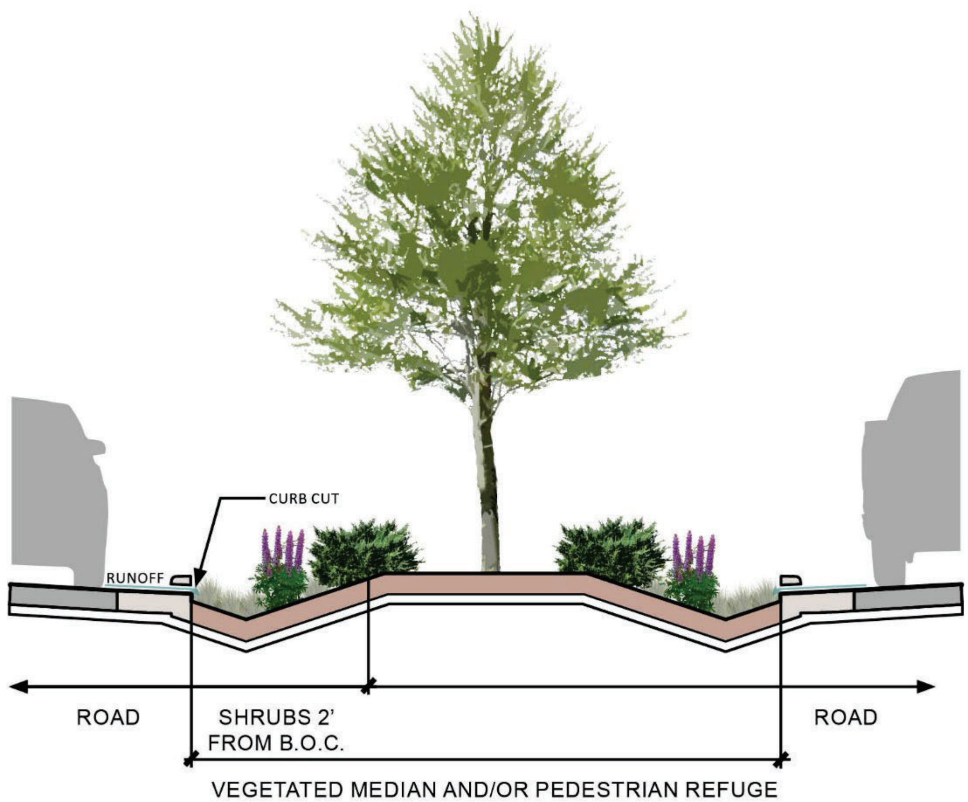


**Figure 3 - 8: Urban Major Street Arterial – Median**

2. Minor Arterial (Class II)

The landscape treatment of minor arterials should be like that of major arterials. However, lower traffic volumes and typically lower speeds may reduce the need to provide specific attention for adjoining properties, depending on the location and available ROW. As with Major Arterials, an area for snow storage and utilities should be provided adjacent to the curb with limited obstructions and/or landscaping. Reference Class A Major Arterials (above) for street tree and landscape buffer discussions.

3. Collector Streets (Class I)

Collector streets are generally lined with residential properties where an attractive landscape is beneficial to the neighborhood's overall visual character. 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 (Figure 3-9). Consideration should be given to placing underground utilities as close to the curb as possible to minimize conflicts with area residences.

The strip between the travel way and sidewalks/trails could be seeded, used for stormwater management, or depending on site conditions, planted with trees and shrubs in clusters. Additional landscaping can be placed to the outside edge of the ROW adjacent to the property lines.

Similar to arterials, if trees are present in the median, there should be a curb, and the planting bed should be mounded. If the median has a swale for stormwater management, trees should not be located in the swale line.

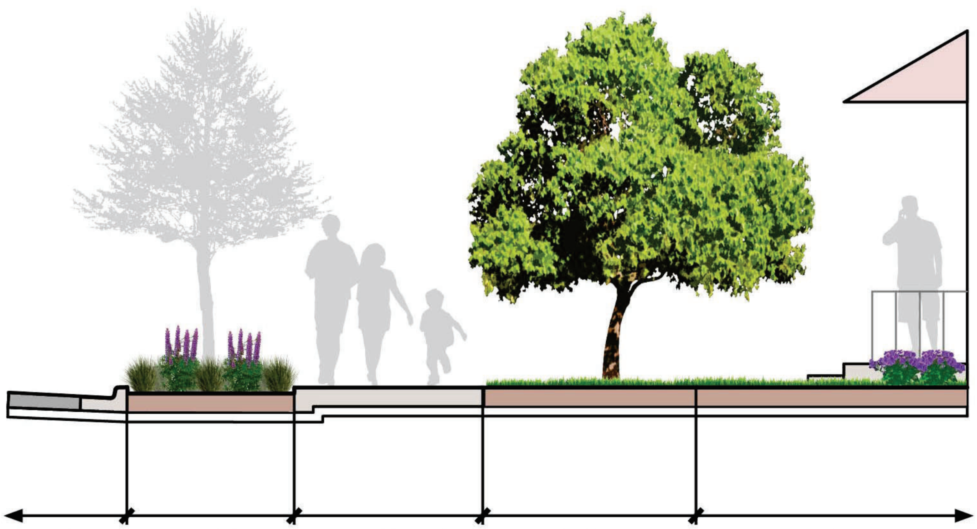


**Figure 3 - 9: Urban Collector Street**

4. Local Streets

Landscaping on local roads is often limited due to the sight-distance triangles of the driveways that line the streets. Landscaping on these streets will need to be very site-specific and preserving existing vegetation should be a primary focus. When applicable, streetscape design for these roads should align with those of collector streets.

### 3.4 D Landscaping in Rural/Class B Areas

Class B streets are built with strip-paved road sections without curbs. The drainage is handled in roadside ditches that also store snow throughout the winter without hauling. These conditions are ideal for the implementation of green infrastructure as outlined in DCM Chapter 2 Volume 1.

Rural streets benefit from the separation of sidewalks or side paths from roads for safety and maintenance. Utility installations are most desirable under trails and road areas to avoid conflict with the landscape installation.

1. Major Arterial (Class III)

A primary goal of landscape along Major Arterials in rural areas is to buffer residential or public use areas from traffic. To improve the pedestrian experience in these rural areas and improve ecological function, green infrastructure such as vegetated swales are used to provide stormwater capacity and pedestrian buffers (Figure 3-10). Channeling or diverting runoff into medians, planting strips, and other landscape beds can provide water input, which can increase plant survivability. In swales for stormwater management, whether on the side of the road or in a median, trees should not be planted in the bottom of the swale. However, where the distance between the road and sidewalk is wide enough, additional plantings can be added for a combined swale and landscape planting bed (Figure 3-12).

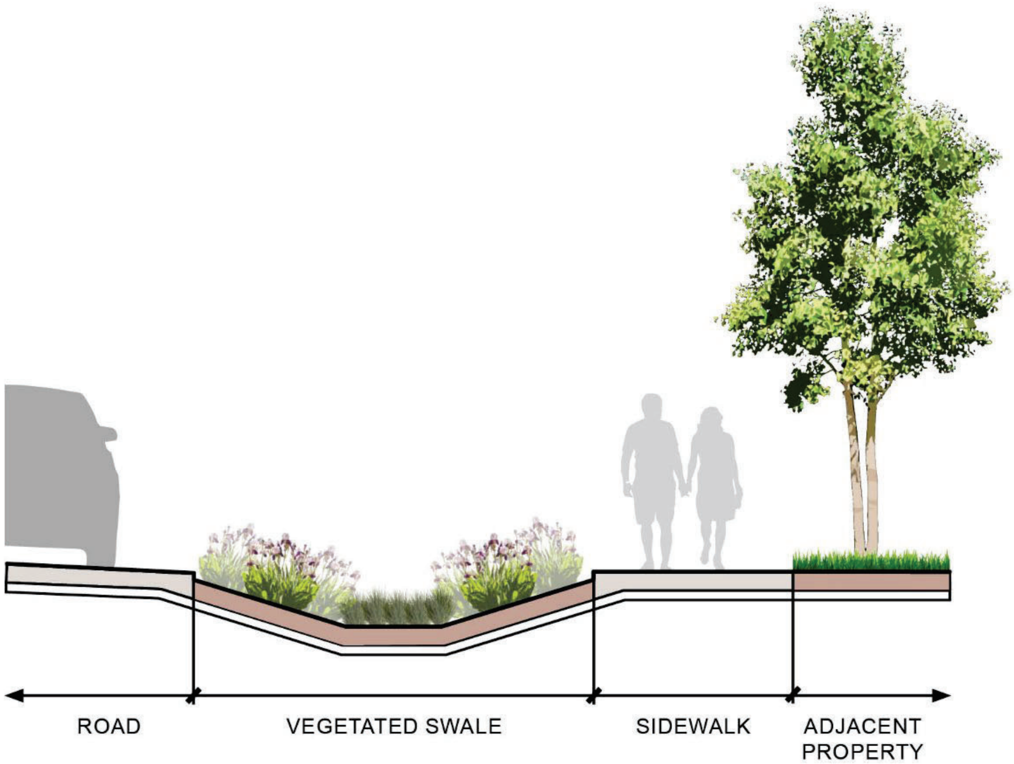


**Figure 3 - 10: Rural Major Arterial**

2. Minor Arterial (Class II)

The design of Minor Arterials in Class B are like those in Class A, but without curb and gutter. The area between the road and sidewalk is intended for snow storage and drainage (Figure 3-11).

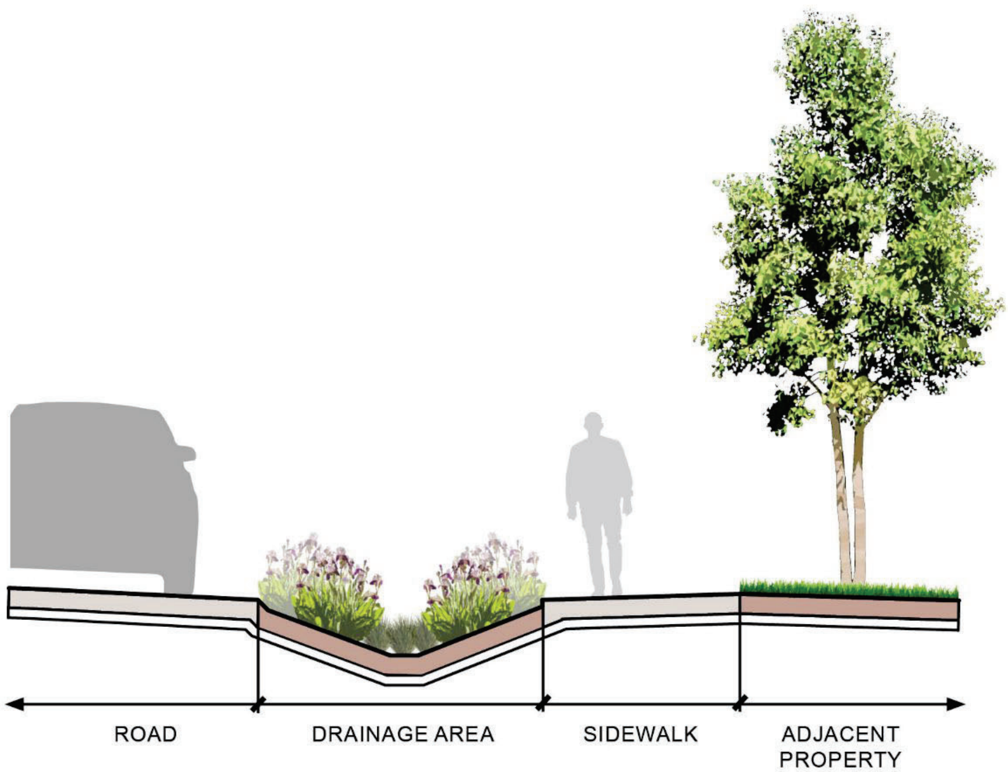


**Figure 3 - 11: Rural Minor Arterial**

Rural locations may offer opportunities for an enhanced multi-use trail experience by using landscape in some locations as buffers between users and vehicles. Where ROW allows, drainage and landscape areas can be combined for greatest safety while maintaining function (Figure 3-12). Similar to planting in medians, trees should be kept out of the swale flowline.

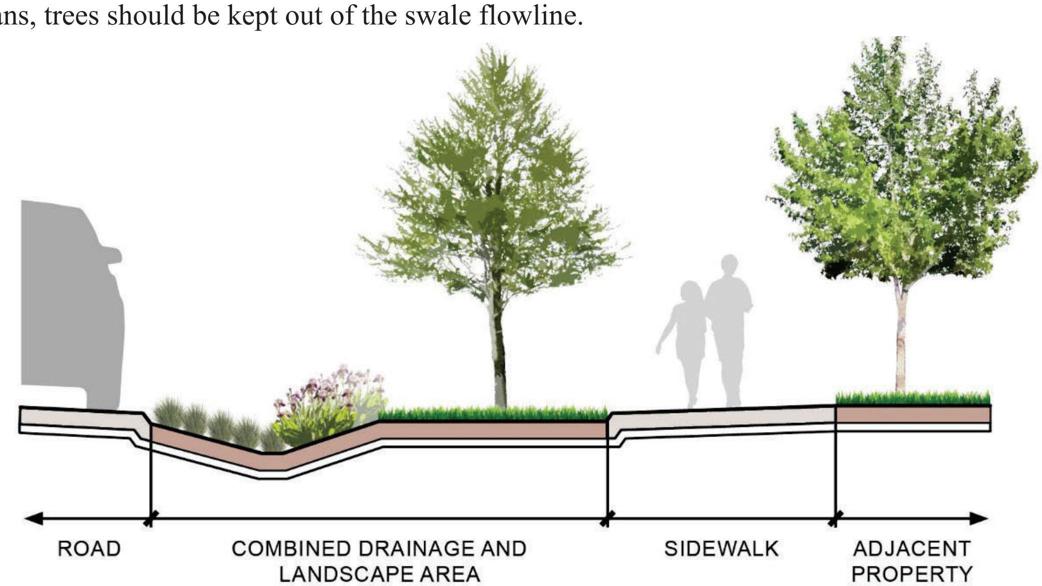


**Figure 3 - 12: Rural Minor Arterial - Landscape Buffer**

3. Collector Streets (Class I)

These streets are typically lined with residential properties where a comfortable, attractive streetscape benefits the neighborhood's overall visual character. Plantings should be tied to the landscaping provided by adjacent residential properties where possible. The treatment of Rural/Class B Collector Streets should be similar to Rural/Class B Minor Arterials (Figure 3-13). If the snow storage area is not being used for drainage, trees and shrubs may be planted in clusters that allow for efficient snow management.

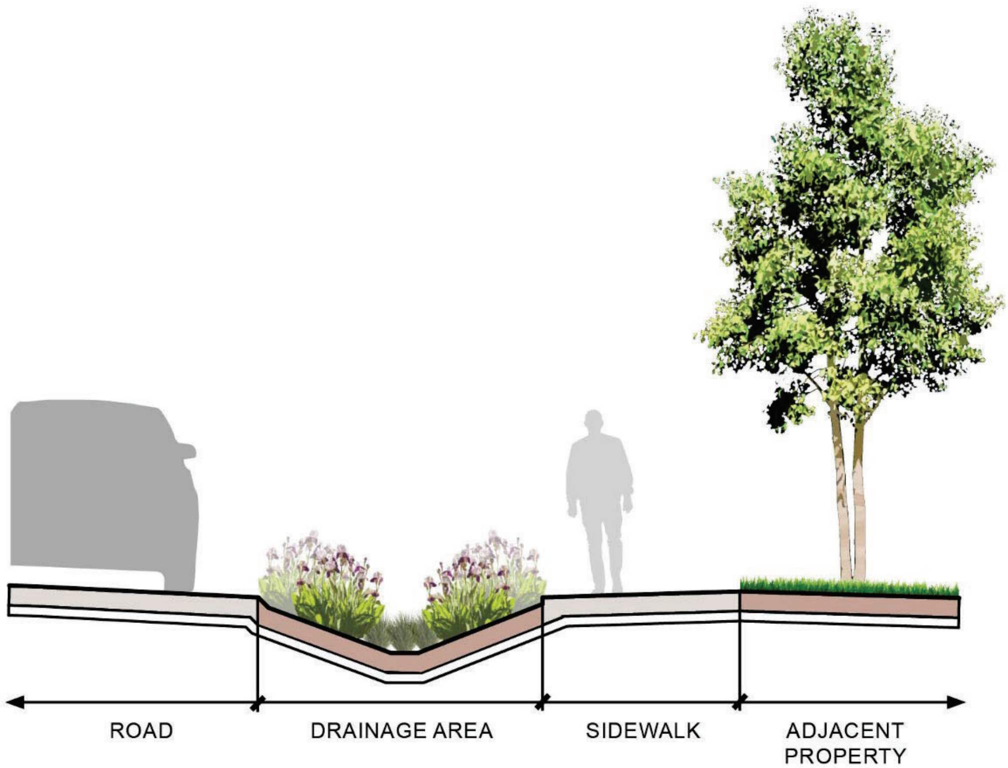


**Figure 3 - 13: Rural Collector Streets**

4. Local Streets

Similar to urban local streets, landscaping on rural local roads is often limited due to the sight-distance triangles of the driveways that line the streets. Landscaping on these streets will need to be very site-specific and preserving existing vegetation should be a primary focus. When applicable, streetscape design for these roads should align with those of collector streets.

END OF SECTION 3.4

## SECTION 3.5 CONSIDERATIONS FOR ADDITIONAL RIGHTS-OF-WAY FOR LANDSCAPE

ROW is seldom sufficient to meet all the needs for roadway, snow storage, paths, sidewalks, and landscaping. Designers should seek creative means to solve issues resulting from competing demands. Art, fencing, or screening panels are often an appropriate amenity that can be employed in tight spaces or places where plant materials may not survive.

While not common practice, there may be occasions where purchase of additional ROW should be considered. These decisions require close coordination between the project manager, the engineer, the arborist, and the landscape architect. A significant part of this determination will be 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 “A Strategy for Developing Context Sensitive Transportation Projects” for direction on integrating the public into project decisions.

Designers should weigh the following in determining whether additional ROW is necessary:

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

END OF SECTION 3.5

## SECTION 3.6 PUBLIC OPEN SPACE AND PARKS PROJECTS

Parks play a significant role in providing recreational green space to communities and are often core areas for ecological function within cities. It is important that street projects and park projects are aligned in their goals and work together to create a strong green network system. Additionally, park projects are subject to many of the same aspects of development as building and road projects.

### 1. Municipal Code Review

While parks are seen as compatible elements of neighborhoods, significant development can be controversial. Parking lot, landscaping, and Site Plan Review requirements should be addressed early in proposed plans. Municipal projects are required to go through one of several approval processes; an Administrative Site Plan Review in accordance with AMC 21.03.180C, a Major Site Plan Review in accordance with AMC 21.03.180D, or a Trail Review in accordance with AMC 21.03.190C. The exact requirements of these reviews can vary depending on the size of the project as summarized in AMC 21.05.040G2.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 must be presented to the appropriate commission prior to being scheduled before the Planning and Zoning Commission.

Depending on the project, additional code requirements may need to be satisfied, for example, projects that provide parking are subject to the requirements of AMC 21.07.090H.3 for parking lot landscaping. Park projects may require a Stormwater Pollution Prevention Plan (SWPPP) prepared, something that is typically placed on the contractor through the special provisions for contracted work.

### 2. Streambank Protection and Restoration

The many waterways that run along municipal lands are essential to the local ecosystem. Some projects, such as bridges and culvert upgrades, may require the need to clear out the streambanks for construction. When this is the case, it is vital that proper protection and restoration efforts are made to revegetate the area and improve the quality of the wetland area to uphold the integrity of the waterway. Refer to guides such as Stream Bank Revegetation and Protection- A Guide for Alaska by the Alaska Department of Fish and Game for information about different revegetation techniques. For information about permitting of wetland projects, refer to the Anchorage Stormwater Manual (Volume 1&2), contact the U.S. Army Corps of Engineers, MOA Watershed Management Services or MOA Planning.

### 3. Design Goals

It is important for street and park projects to work together to enhance the community. These projects are significant components of transportation connections and creating a system of green corridors. The following values should be considered to better align park and streets projects:

**Equity and Cultural Identity:**

- Design parks and pathways to be accessible for individuals of all abilities and ages by incorporating accessible pathways, seating, and amenities where possible and incorporating planning for proper maintenance of facilities throughout the year. Refer to DCM Chapter 4 “Trails” for additional guidelines for trails and pathways to provide seamless transitions between on-street facilities and trails for non-motorized users.
- Use place-based design to reflect the natural and cultural context of the surrounding community by using interpretive signage, traditional art, and culturally significant plantings.
- Blend municipal and private landscaping to create a cohesive look and identity throughout a community.
- Use art, plantings, and other design elements to create distinctive patterns and visuals to support and strengthen identity.

**Sustainability and Environmental Stewardship:**

- Creating a robust green network anchored by municipal park land to create more resilient urban landscapes.
- Creating and maintaining quality habitat for local and migratory species.
- Use native and climate-resilient plant species to enhance biodiversity and reduce maintenance.
- Work with street projects to create comprehensive stormwater management features.
- Create cohesive plans to adapt and protect the ecological function of a site for it to perform well. This is especially important for parks that are within or near estuaries or wetlands that have critical ecological systems.

END OF SECTION 3.6

## SECTION 3.7 SCREENING AND BUFFERING OF PARKING LOTS, BUILDINGS, AND OTHER DEVELOPMENTS

Effective screening and buffering are essential for mitigating the visual and environmental impacts of different development projects. Thoughtfully designed landscaping promotes safety by delineating pedestrian and vehicular spaces, defining public and private space, and improving visibility. Plantings, especially when designed with green infrastructure systems, can improve stormwater management, reduce urban heat island effects, and enhance green corridors. These measures ensure that private development can contribute positively to Anchorage's urban landscape, aligning with the broader goals of sustainability, functionality, and community well-being outlined in this chapter.

Anchorage Municipal Code Title 21 provides guidance on the minimums required for buffering and screening of parking lots and buildings, including planting bed areas, plant counts, among other design features. Refer to AMC 21.07.080 for requirements for screening. Standard planting details are provided in M.A.S.S. Div. 75.

END OF SECTION 3.7

## SECTION 3.8 GLOSSARY

**CLIMATE ADAPTED DESIGN:** the practice of designing spaces that respond to and mitigate the impacts of climate change. It emphasizes using native species in resilient planting strategies, water management systems, and site-specific solutions to address issues like extreme weather, rising temperatures, and biodiversity loss, ensuring sustainable and functional landscapes for future conditions.

**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. This method seeks to achieve community building by inclusion of the public throughout the decision-making stages of project development. These procedures seek 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. The process is described in A Strategy for Developing Context Sensitive Transportation Projects as adopted by the Municipality of Anchorage on 10/14/2008.

**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.

**TREE PROTECTION ZONE (TPZ)**: defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development. The TPZ should encompass the CRZ, based on the judgement of the arborist.

END OF SECTION 3.8

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Division of Forestry and Fire Protection: https://forestry.alaska.gov/community/links

International Society of Arboriculture: https://www.isa-arbor.com/

Green Infrastructure Project: Rain Garden Guide: https://www.fairbankssoilwater.org/wp-content/uploads/2024/08/Rain-Garden-Guide.pdf

USDA Plant Hardiness Zone Map: https://planthardiness.ars.usda.gov/

Utilities Right Tree:
https://forestry.alaska.gov/Assets/pdfs/community/publications/05Utilitiesrighttree.pdf

Wetland Designation Map:
https://www.muni.org/Departments/OCPD/Planning/Publications/Wetlands%20Management%20Plan%201996/AWMP-Maps.pdf

END OF SECTION 3.9