Pierce Transit

2016 BUS STOP MANUAL

go!

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INTRODUCTION

History

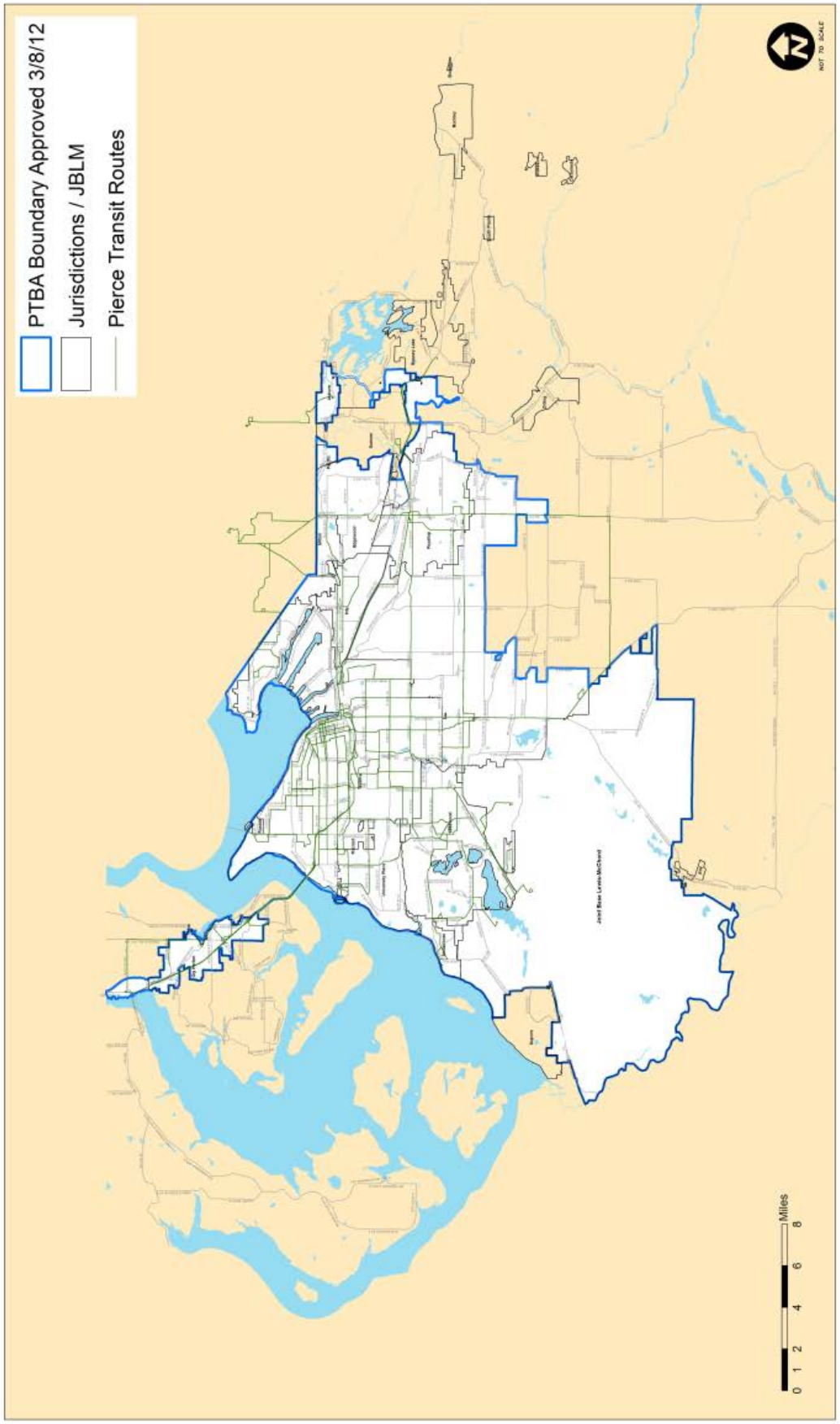
Our bus stops are often the first point of contact with our passengers. The spacing, location, and design of bus stops significantly influence transit system performance and, more importantly, customer satisfaction.

This manual describes the processes to establish and improve bus stops. It identifies agency standards for the location and installation of new bus stops and facilities, and provides a framework for bus stop improvements. Pierce Transit uses the standards listed in this manual when coordinating with jurisdictions and developers. This is particularly important during the early planning stages because it enables transit to be incorporated in road and parcel developments or improvements.

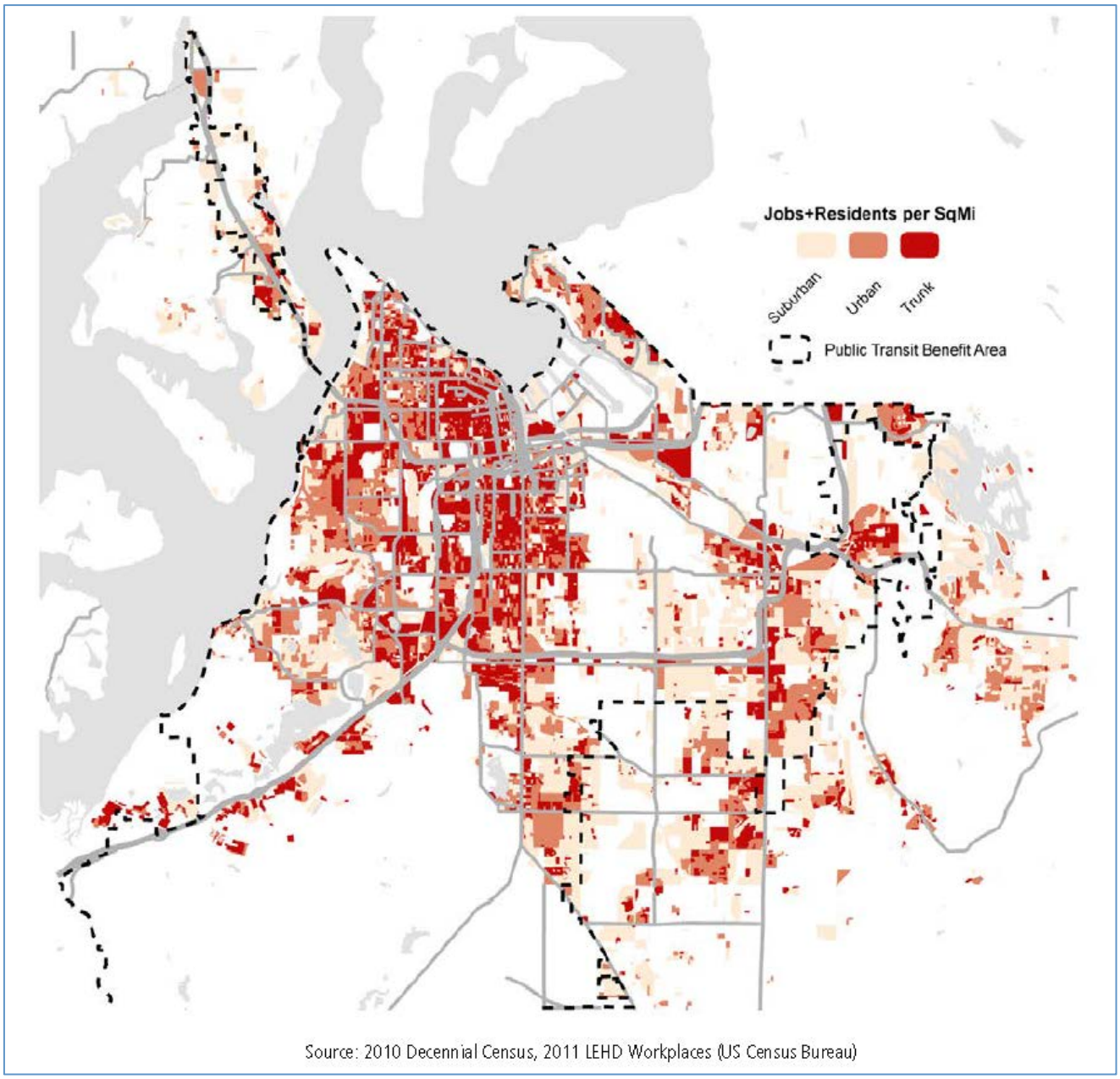
BRIEF AGENCY HISTORY
The Pierce County Public Transportation Benefit Area , commonly known as "Pierce Transit" was formed in 1979 when voters passed a 0.3 percent sales tax to fund public transportation. By authorizing this taxing authority, a municipal corporation (Pierce Transit) was formed under Chapter 36.57A of the Revised Code of Washington.

Pierce Transit strives to provide safe, courteous, reliable transportation service over a nearly 300 square mile area that includes the urbanized areas of Pierce County, some rural areas, and Joint Base Lewis-McChord. Prior to 2012 the service area was over 450 square miles. Several cities, such as Bonney Lake, opted out of the service area. As of 2016, Pierce Transit serves just over 2,400 bus stops, 6 transit centers and 10 park & rides. A map of the service area boundaries and population density is on the following page. In addition, we work closely with Sound Transit, the Regional Transit Authority, and other local transit providers to effectively coordinate service between and across county boundaries.

Service Area/PTBA Boundary



Boundary Map – as of 2016



Source: 2010 Decennial Census, 2011 LEHD Workplaces (US Census Bureau)

Types of Service

LOCAL FIXED ROUTE SERVICE
Pierce Transit's local fixed route service operates on a timed transfer basis, which provides weekday and weekend service throughout Pierce Transit's service area.

In 2014, Fixed Route Bus service accounted for 56% of annual vehicle revenue hours (in-service hours for all mode: Bus, Paratransit and Vanpool) and 89% of total system boardings. This does not include Sound Transit Service.

ST EXPRESS SERVICE
Pierce Transit provides express service under contract with Sound Transit. This service provides non-stop or limited stop service to several downtown areas.

CARPOOL & VANPOOL SERVICE (CTR/Commute Trip Reduction)
Pierce Transit supports carpooling and vanpooling activities by offering ride match services, marketing and providing vanpool vehicles. Additionally, Pierce Transit provides support services to Pierce County employers in the development of transportation demand management and commute trip reduction programs.

HYBRID SERVICES
Community Connector Routes
These are shorter, local area-focused routes which prioritize accessibility over mobility and are therefore less direct. They typically provide feeder service from transit centers or park-and-ride lots to smaller business districts in communities with highly truncated street networks. They can include fixed-route, deviated-route, or other service types in order to accommodate lower density land uses.

On Demand/Zone Service
Transit vehicles serve a geographic area at a set time with service availability entirely determined by customer requests. Vehicles in a zone do not follow a prescribed route. Specific pick-up/drop-off locations may be established to facilitate grouping of customers, but the specific locations are only served if there is a customer request. If no requests are received, there is no service.
An example of this type of service is the former Orting Loop.

Route Deviation Service (Bus PLUS)
Transit vehicles follow a general route but do not necessarily serve all parts of the basic route if service is requested in an adjacent neighborhood or at designated locations. These services operate with general rules of deviation and limitations on the number of deviations. This type of service requires a dedicated vehicle. Typically, a schedule is established at a few locations and service is provided to those locations on a scheduled basis with deviations occurring between the established schedule points. The schedule may provide a time range when a vehicle will serve a location, rather than a specific time.

BUS STOP STANDARDS

Basic Standards & Site Characteristics

MINIMUM STANDARDS

1. A firm stable surface measuring 5′ (parallel to the curb) x 8′ (perpendicular to the curb) boarding area for customers to safely wait for, board and alight the bus.

2. An area for a bus to safely serve the bus stop on or off the roadway.

3. A Pierce Transit bus stop flag.

4. An accessible pathway around the bus stop or shelter. ADA requires a minimum of 3′; most jurisdictions require at least 4′; 5′ is preferred.

5. An accessible pedestrian path from the bus to the boarding area.

6. Some jurisdictions also require that curb ramps and sidewalk be provided if not already present.

SITE CHARACTERISTICS FOR INSTALLATION

Visibility
Bus stops should be located in clear view of approaching traffic. A bus stop should not be located just beyond the crest of a hill or out of sight on a curve. The bus stop pole, flag, shelter or other amenities must not obscure other traffic control devices or signs.

Accessibility
New bus stops or those that are improved must meet minimum ADA requirements. A number of stops in Pierce Transit's service area do not meet these requirements. As time and resources allow, these stops should be improved to meet ADA requirements. Pierce Transit does not typically construct improvements such as sidewalks, curb cuts or other street improvements. However, each location varies.

Adequate Boarding Area
To provide an accessible bus stop location, a minimum of 8′ of clear space, measured perpendicular from the face of curb or roadway edge of pavement and 5′ measured parallel, is needed.

Safe Operation
Pierce Transit staff members will conduct an on-site review of each proposed bus stop or improvement to determine whether the proposed location will allow passengers to safely wait and board while also allowing buses to safely approach, dwell, and depart from the location.

Jurisdictional Approval
Each jurisdiction has a unique approval process for bus stop installation or improvements. Jurisdictional approval is always required before a bus stop can be installed. Refer to Pierce Transit's *Jurisdictional Procedures* binder for more information

Railroad Tracks
Bus stops shall not be closer than 50′ to at-grade railroad crossings. RCW 46.61.570.

Site Selection & Improvement Design Considerations

Customers and the community served by the bus route are very important in the site selection process. When selecting bus stop locations and designing improvements, additional factors must be considered including:

1. Vehicular conflicts (for example, avoid placing bus stops where vehicles will be making right turns across the front of the bus)
2. Intersection/driveway design and sightlines (crosswalks, merging traffic, blind corners, beyond the crest of a hill, turn radius)
3. Pedestrian safety (discourage pedestrians from crossing in front of the bus)
4. Proximity to pedestrian facilities (sidewalk, crosswalk, curb cuts, etc.)
5. Proximity to surrounding stops along the route (Refer to *Spacing & Frequency* section for more information)
6. Proximity to its pair (across the street)
7. Proximity and interaction with bicycle lanes and facilities
7. Existing land characteristics (right of way, surface material, drainage, trees, utility poles, bus tail swing, etc.)
8. Existing amenities that could be utilized by passengers (sheltered waiting area, seating, lighting, pay phone, etc.)
9. Proximity to major trip generators (shopping, medical, apartments, colleges)
10. Traffic volumes, conditions and speed limits
11. Pullout (recommended for layover or relief points, required at 45 mph or greater and required by some jurisdictions regardless of the speed limit)
12. Longevity (if a bus stop is to be installed or improved for less than 5 years, an alternative should be considered. Also consult with Operations Planning for information about upcoming service changes.)
13. Resources available for improving waiting areas and passenger improvements
14. Demonstration of Benefit (give priority to installing or improving bus stop locations where the most benefit will be gained from these improvements)
15. Business vs. residence (when all other factors are equal, bus stops should be located adjacent to a business over a residence)

Passenger Safety Improvements

It is essential to coordinate with the local jurisdiction on any improvement in order to avoid future conflicts or duplication of efforts.

PASSENGER BOARDING AREAS/PADS
Pads are generally constructed as a means of providing a firm boarding or alighting area or as a means of providing better wheelchair access to a bus stop location. Typically, pads are constructed of concrete and are large enough to support a future bench or shelter. The pad should ideally be 15′ wide, at least 6′ deep and 8″ thick. This area is in addition to the depth of the sidewalk. The minimum is 5′ (parallel to the curb) by 8′ (perpendicular to the curb). Asphalt, at a depth of 2″ minimum, is acceptable only when used for a passenger waiting area, not a shelter. Pads should be constructed to meet ADA standards to the maximum extent practicable or as required by the local jurisdiction. The location of the pad should be adjacent to the bus stop and be configured such that light poles, landscaping or other obstructions do not interfere with boarding.

SIDEWALK CONNECTION
A paved connection should be provided along avenues with planted or grass planter strips, between the existing sidewalk and the curb where a bus passenger would otherwise have to cross wet grass or mud during inclement weather. This is of particular concern where patrons with disabilities use the stop.

GRADING
Grading of the stop area may be necessary to improve drainage. When standing or flowing water disrupts passenger boarding, filling and grading can redirect rainwater. Often this can be accomplished at small cost by Pierce Transit's Facilities Maintenance crews but may occasionally require the use of extensive fill material and heavy equipment. When ridership is not sufficient to justify the cost of constructing a bus stop pad, grading the area with a compacted base material may be appropriate.

SIDEWALKS AND RAMPS
Sidewalks and ramps are often necessary to provide access between the bus stop and adjacent businesses, crosswalks and corners. Generally, Pierce Transit coordinates with the local jurisdictions to identify the need to have sidewalks constructed. However, when a short length of sidewalk is needed but not likely to be built by a local jurisdiction or developer, Pierce Transit may opt to construct it. Some jurisdictions require it as part of a new or improved bus stop. Sidewalks and ramps must meet ADA guidelines and local jurisdictional codes.

BOLLARDS
Bollards are typically steel pipe or concrete posts, 6′ tall, 4″ in diameter, which are installed with locking sleeves. The height above ground should be between 30″-36″ so bicycle handlebars don't hit them. Bollards provide protection to the shelter, bench or bus stop pole when they are close to parking lots, gas stations or other areas where the possibility of vehicular contact is increased.

Bus Zone Improvements

It is essential to coordinate with the local jurisdiction on any improvement in order to avoid future conflicts or duplication of efforts.

BUS ZONES
Bus zones are established to provide an area for buses to stop parallel to the curb, in a designated "no parking" area. Preferably, both the front and rear door will be aligned with suitable landing areas. No obstructions should be within 5' of the rear of the bus so the tail doesn't hit anything when the bus pulls away from the curb. Generally, a zone for a 30' bus is 70' long, a zone for a 40' bus is 80' long*and a zone for a 60' bus is 120' long. The pole and sign/flag should be at the head of the zone. These lengths can be decreased when the bus stop is immediately far side since the bus can use part of the intersection to align with the curb. These lengths may need to increase if the bus zone is in between two objects such as a bulbout or on-street parking. When painting is deemed appropriate, the zone must start and end with red paint and alternate red with yellow in 5' increments. On streets already designated as no parking, a 15' section of curb painting may be used to help identify the bus stop. The zone should begin at the bus stop pole and continue to the rear of the zone. Local authorities indicate parking infringement will not be enforced unless the bus zone is painted. Occasionally, cars park too close to the corner and hinder bus turning movements. If the jurisdiction allows it, we may opt to paint red all the way to the corner. Furthermore, if there is an area where cars are not allowed to park regardless of a bus zone, jurisdictions might request that we stripe the area red as part of a good neighbor policy. For example, if there is a bus stop 20' from a crosswalk, we might be asked to stripe the curb red from the bus stop to the edge of the crosswalk even if it's not a part of the designated bus zone. Refer to Curb Painting details in Pierce Transit's *Facilities Bus Stop Installation Standards* document for more information.

BUS PULLOUTS
Bus pullouts are dedicated stopping areas with deceleration/acceleration tapers, where buses pull completely out of the lane of travel. A fully developed pullout is more than simply a widened shoulder; it is constructed with curb, gutter and sidewalk as well. Pullouts are generally undesirable because they cause delays and increase the chance of collisions as buses re-enter the roadway. However, there are some circumstances where pullouts are needed:

- State law recommends that any bus stop on a State Route, outside City limits be completely off the road. Exceptions may be made if the speed limit is under 45 mph and if it is a multiple lane road.

- On non-state roadways with a speed limit over 40 mph, every effort will be made to pull off the roadway. This is based on TCRP recommendations, which are lower than the WSDOT requirement of 45 mph.

- At heavily used stops, those where two buses are likely to be serving the stop simultaneously, at stops with longer than average bus dwell times, such as those serving disabled or elderly populations and where otherwise required.

- Layover points where the Operator takes a break or must wait for a connecting bus.

- Relief points where Operators change shifts.

* Although an 80' zone is preferred, when painting the curb based on this guideline, 75' is the nearest combination of striping beginning and ending in red. Since the majority of our stops are at the far side of the intersection, the remaining 5' is recovered by proximity to crosswalks, intersections or other no parking areas.

Signage & Passenger Information

OVERALL SIZES
Refer to Pierce Transit's *Styles Manual*

STANDARD SIGN
Typically used for 1-2 routes

SLIDER SLOTTED SIGN
A slider slotted sign is significantly larger than standard bus stop signs to allow for space for more routes. A total of nine routes can be posted at once on a single flag.

TRUNK ROUTE/BLADE SIGN
All "super routes" are designated by the route number within a circle graphic.

TROLLEY
An example of a tailored community service route flag

Signage & Passenger Information – continued

ADOPT A STOP

BUS PLUS FIXED ROUTE

LOOP RESERVATION ONLY

SHUTTLE
This sign is placed at regularly scheduled SHUTTLE stops, as well as at Transit Centers

SHUTTLE INTERIOR
This sign is at a designated SHUTTLE pick up area, such as Pierce Transit's lobby.

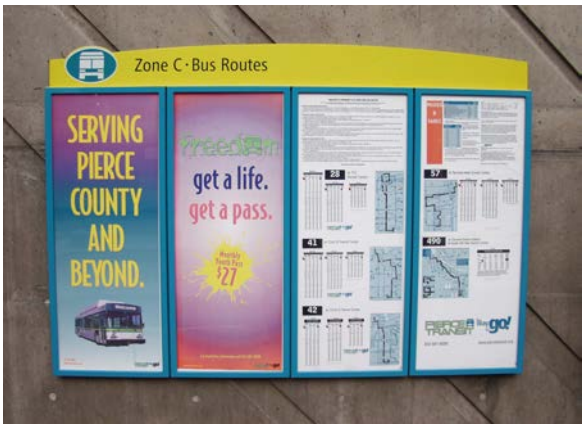
Signage & Passenger Information - continued

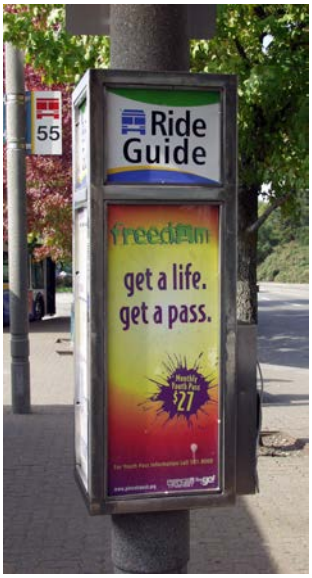
Passenger Information comes in several different forms. Specific standards for the design and placement of route and schedule information can be found in the Pierce Transit *Styles Manual*. Business advertisements, social notices, or information leaflets placed in or on the shelters are prohibited and will be removed. For Transit Centers, Sounder Stations and other major transit destinations, refer to the Exhibit K of the Sound Transit contract which specifies which agency is responsible for what marketing information. At Marketing's discretion, one or more of the following rider information types may be installed:

MIDI RIDE GUIDES
Pierce Transit has over 900 bus stops with Midi Ride Guides which are installed on the bus stop pole, or directly to a shelter support beam, about 4' from the ground. The dimensions are 8.5" x 14" and contain route maps and schedules information. Beginning in 2015, midi ride guides will only be installed at bus stops serving as time points or layovers, transfer locations and at transit centers. Marketing designs and prints all PT schedules. Facilities Maintenance installs the holders as well as the majority of the schedules during Service Changes.

LARGE RIDE GUIDES
Freestanding, two sided signs installed perpendicular to the street. They must not obstruct the sight line of the bus Operator's view of a passenger or sight lines to/from intersections or driveways. They are used primarily at multiple route stops, at major intersections and at transit centers. They hold route information and promotional pieces.

Signage & Passenger Information - continued





KIOSKS
Freestanding, four-sided aluminum framed structures with a usable space of 18" wide x 24" high per side. They are used primarily at multiple route stops or at major intersections. The space may contain promotional material and route information. They must not obstruct the sight line of the bus or the Operator's view of a passenger or sight lines to/from intersections or driveways. They are provided in coordination with business districts and neighborhood councils.

FLUSH MOUNT RIDE GUIDES
To coincide with Commerce Street's face-lift in February 2003, Pierce Transit ushered in several stainless steel ride guides. These are used on special corridors only.

DISPLAY CASE RIDE GUIDE
Display cases at transit centers are mounted directly to the shelter structure. They contain promotional posters and route information. The posters inside these cases are larger, 17" wide x 44" high.

Benches

Benches are appropriate at bus stops where the average number of weekday boardings is five or more. With few exceptions, every bus stop with a shelter warrants a bench. However, if the stop is located where senior citizens or persons with disabilities frequent a stop, a bench may be appropriate even if ridership is less than five. Benches may also be appropriate at locations where space or sight distance considerations make a shelter impractical, or where bus patrons are sitting on adjacent private property. Finally, benches may be required at a bus stop impacted by development either as a requirement set forth by a city's municipal code, or by the Bus Stop Program's recommendation to a jurisdiction. In this case the developer will pay for the cost of the infrastructure and Pierce Transit installs and maintains the bench. Pierce Transit does not typically maintain custom benches nor grant permission for their installation in the public right of way.

BENCH INSTALLATION GUIDELINES
a. Benches must be located outside of the accessible boarding and alighting areas.

b. The footprint area of the bench must not interfere with the minimum accessible landing area of 5' x 8'.

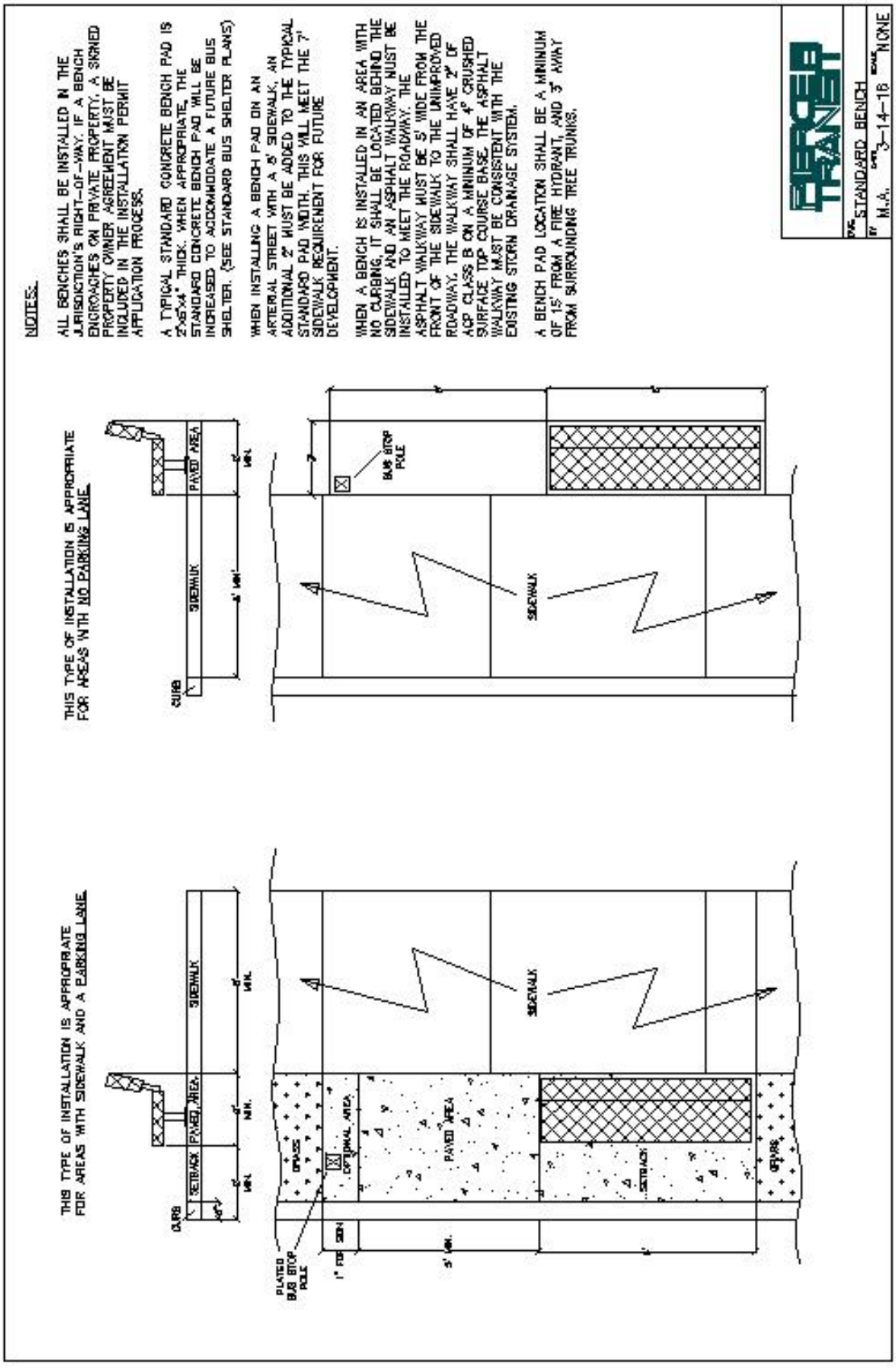
c. Ideally, the bench will be at the back of the sidewalk, creating maximum distance between the lane of travel and the bench. Benches should face the street wherever possible.

d. If sidewalk is present, bench placement must allow a minimum of 5' of sidewalk clearance for passing pedestrians. (Tacoma requires 5' in residential areas and 7' for arterials.) When there is no sidewalk, insufficient sidewalk width, or as required by some jurisdictions, a small foundation pad beneath the bench may be needed.

e. Benches may be surface mounted, directly to the sidewalk or in the ground with 18" deep concrete footings (Sono tubes). Where no sidewalks are present, some jurisdictions also require a pad beneath the bench. It must be large enough to accommodate the bench and foot space in front. This may be concrete or asphalt and at least as long and wide as the bench itself.

NOTE
Non-concrete surfaces such as asphalt or brick are not suitable surfaces for plated bench or pole installations.

Standard Bench



Benches – continued

PHOTOS & CAPTIONS

4′ BENCH
Four feet long with no back, primarily used in shelters.

DIVIDED BENCH
Six feet divided, very limited use, similar to that of the flip bench. The divided bench has enough room for two people to sit, separated by an arm rest/seat divider roll bar in the middle and one on either end.

FLIP BENCH
Six feet long flip benches, very limited use, usually to replace a standard bench when people have been sleeping on the standard 4′ or 6′ style. Also used at some transit centers.

6′ BENCH
Six feet long with a back, typically used at standalone bus stops or in double shelters.

Benches – continued

PHOTOS & CAPTIONS

BUSINESS DISTRICT BENCH
Six feet long, used in business districts, vary in color and have metal vertical slats with an attractive rounded end. They are more expensive than the standard bench. They are used both in a business district shelter or free standing within a business district.

SIMME-SEAT BENCH
Simme-Seat style benches slide down over the bus stop pole, partially relying on the pole for support. It has a seat on either side of the pole. This is ideal for limited right-of-way areas where a bench is still justified. However, the mounting surface must be concrete and the bus stop pole set in a concrete footing. The Simme-Seat mounts directly to the concrete. The pole should be located at the back of the sidewalk to keep the customers away from the street.

CUSTOM BENCH
Custom or private party benches include Rotary clubs and businesses. Wood is a common construction material. Pierce Transit does not maintain these benches.

Shelters

Shelters offer passengers a location protected from the weather to wait for a bus. For our internal bus stop improvement program, the need for a shelter is prioritized based primarily upon ridership. A minimum of 10 average weekday boardings is the minimum criteria to warrant a shelter. A bench and trashcan are typically installed as part of the shelter installation as well. Based on jurisdictional requirements a new development or community project may be required to provide a shelter. Advertising companies may also install shelters. However, their criteria are based primarily on the visibility of their advertising, not the number of passengers.

SPACE REQUIREMENTS

A passenger shelter should be located within the available public right-of-way, on a site that allows for clear and open pedestrian movements. Whenever possible, it should be located at or near street lighting to improve the visibility of the stop. The site must be large enough to accommodate the shelter and provide additional standing, waiting and walking space around the shelter. In most cases, a concrete pad 15' x 10' is desired. The pad may vary slightly depending on the shelter footprint. These dimensions may include the sidewalk area between the shelter and the curb. However, each location needs to be individually designed.

Typically, the local jurisdiction won't allow a shelter to encroach on the sidewalk. The preference is for it to be installed behind the sidewalk. Exceptions may be made, especially if there is a large planter strip or an extra wide sidewalk.

If adequate space cannot be provided at the existing bus stop, the adjacent property owner may be asked to allow Pierce Transit to encroach on private property. A written agreement is needed and required as part of the construction permit. Where this is not possible, relocation of the stop should be considered. In cases where the site is too constrained to allow for a shelter and adequate circulation, and where the stop cannot be reasonably relocated, a shelter may not be possible.

Shelters - continued

SHELTER CONSTRUCTION OPTIONS

Pierce Transit-provided Shelters
Typically, Pierce Transit oversees and funds hiring a contractor for site construction. Pierce Transit assembles and installs the shelter. The local jurisdiction issues the permit and performs any required inspections.

Advertising Shelters
Advertising shelters are used along high traffic corridors where the advertising company, Pierce Transit and the jurisdiction have determined they are appropriate. These shelters have an illuminated canister on one end, which provides lighting inside the shelter and holds two back-lit posters that measure 47.25" x 68.75".

Business District/Special Interest Groups Shelters
Pierce Transit has an understanding with several cities whereby, within a defined business district, the business district has the option to pay the difference between the standard and business district shelter cost. If they don't wish to pay the added cost, a standard shelter will be installed if the jurisdiction approves it. Otherwise, no shelter will be installed. If the business district selects a location that is not on Pierce Transit's list of stops to improve, a cost sharing agreement must be reached prior to installation. The cost of a custom colored bench or trashcan is usually insignificant so no extra payment is needed. It's important to adhere to and respect business districts' identities.

Custom Design Shelters
The design and construction of community-funded shelters is usually undertaken in conjunction with local residents, business districts or neighborhood groups, and the local jurisdiction. While these shelters generally conform to the Pierce Transit standards, individual architectural elements may be modified to meet the unique needs of the community.
Ongoing maintenance and repair of privately owned or business district shelters is an important consideration. If a non-standard shelter design is used, Pierce Transit will give additional consideration to the purchase, storage, handling and replacement of custom parts. It may be desirable to enter into a separate contract with the developer for maintenance of non-standard shelters. Typically, Pierce Transit will empty trash and conduct routine cleaning as long as the design meets Pierce Transit's criteria.

Developer-provided Shelters
When a property owner/developer is interested in or required to provide a shelter, Pierce Transit consults with the property owner/developer regarding the best way to achieve this goal. In most cases, the developer will pay for the improvements, and the improvements become the property and responsibility of Pierce Transit. The developer may wish to have a custom shelter that is consistent with the overall theme or look of the adjacent development. The maintenance and upkeep of developer provided shelters may be negotiated between Pierce Transit and the Developer. A written agreement is usually appropriate. Pierce Transit will review shelter designs of this type to ensure that basic shelter standards are met, such as security, pedestrian circulation, access for persons with disabilities, basic structural elements and ease of repair.

Jurisdictional Requirement
Rarely, a jurisdiction will require a specific style shelter at a particular location. Both agencies must agree on the initial expenses and the long term maintenance.

Rotary
Typically a Rotary group pays for two full sets of etched glass. If both those sets are damaged and the Rotary isn't willing or able to pay for replacements, Pierce Transit will opt to either use clear glass or no glass at all.

Shelters – continued

STANDARD SHELTER PACKAGE
A standard shelter package typically includes a shelter, pole mounted trashcan, a midi-ride guide holder, a bus stop pole and sign, and a bench. The size of shelter installed will depend on the number of passengers boarding at a bus stop, the available space, and the potential impact on the surrounding environment. In a short-term waiting situation an allowance of five square feet per person is acceptable.*

There are six basic shelter types:

FULL
Approximately 9′ x 5′ of covered space without a bench, or a maximum standing capacity of seven passengers. When the area required to maneuver a standard sized wheelchair in and out of the shelter is deducted from the total covered area the remaining space is enough for four additional people. With a bench (seating capacity of two) and wheelchair, the standing capacity is reduced to two. After 2005, only cantilevered shelters will be purchased since they take up less space and it consolidates our inventory of parts.

CANTILEVERED
Approximately 9′ x 3′ of covered space without a bench, or a maximum standing capacity of four passengers. When the area required to maneuver a standard sized wheelchair in and out of the shelter is deducted from the total covered area the remaining space is enough for two additional people. With a bench (seating capacity of two) and a wheelchair, the standing capacity is reduced to zero.

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ADVERTISING
Vary in length, typically from 9′ to 15′ long with an illuminated advertising canister (ad can) at one end. Approximately 15′ x 5′ of covered space without and a bench, or a maximum standing capacity of eight passengers.

TRUE CANTELIVERED
Used in areas with limited right of way.

Shelters – continued

EXAMPLES of BUSINESS DISTRICTS

- 6th Ave
- Downtown
- Fern Hill
- International
- McKinley Ave.
- Oakland Madrona
- Old Town
- Portland Ave.
- Proctor
- Stadium
- • South Hill

South Tacoma

- Upper Tacoma

Shelters – continued

NON-STANDARD
Occasionally, a non-standard shelter will be utilized. Capacity varies by design. These are typically at Transit Centers, provided by others, or in some cases required by the local jurisdiction if a shelter is to be installed at all.

Shelters – continued

SHELTER SITE CONFIGURATION
Pierce Transit evaluates the specific site using criteria such as available right of way, prevailing winds, passenger and driver visibility, passenger access into and out of the shelter, passenger convenience and pedestrian/traffic safety.

BENCH WITHIN THE SHELTER
In most cases, the shelter bench will be a simple 4′ long backless bench. When the shelter is open to the street, the bench is shifted to the right side of the open side of the shelter. Since Operators tend to stop at the head of the bus zone, this provides adequate space for wheelchair users on the left side. When the shelter is closed to the street, the bench location can be shifted to either end.

Shelter and Sign Placement Guidelines
1. The shelter should not create visual obstructions for vehicular traffic. Reasonable sight distances from adjacent intersecting streets and driveways should be maintained.

2. A waiting passenger should have an unobstructed view of oncoming traffic and the transit operator should easily see waiting passengers. The waiting passenger should also be able to see and be seen by people in the immediate vicinity.

3. Maintain a 2′ minimum (3′ is preferred) perpendicular setback between the curb face and the leading edge of the shelter roof, bus stop pole and flag or any street furniture.

4. Maintain a 4′ minimum (5′ is preferred) clear pedestrian pathway, either in front or behind the shelter, and from the buildings, and other street furniture. Bus stops should also be 20′ from a crosswalk, 15′ from fire hydrants, 10′ from a utility pole and 4′ from a tree.

5. When open to the street, the shelter is set back a minimum of 5′ from the curb to give maximum protection from roadway overspray and to allow a wheelchair passenger access to the shelter. In this configuration, a separate 5′ x 8′ area must be provided outside the shelter. When possible, the shelter should be placed with the open side facing away from the road or prevailing winds for maximum protection.

6. The shelter should be placed within 10′ to 15′ of the head of the bus zone to minimize the walking distance from the shelter to the bus boarding area.

7. Pierce Transit tries to avoid placing shelters where they will require retaining walls or other special structures; however, site-specific characteristics may necessitate consideration of these options.

8. ADA requires a minimum vertical clearance of 7′ is maintained between the bottom of the roof or sign and the surface of the shelter pad or sidewalk.

9. Other considerations include the impacts on adjacent properties and transit patron convenience.

Shelters – continued

Shelter Amenities Guidelines

1. No amenities are placed inside the shelter except seating and leaning rails.

2. Trash receptacles are mounted to the bus stop pole whenever possible. If no pole exists, or if other amenities or physical characteristics make that impractical, it may be mounted directly to one of the outer legs of the shelter.

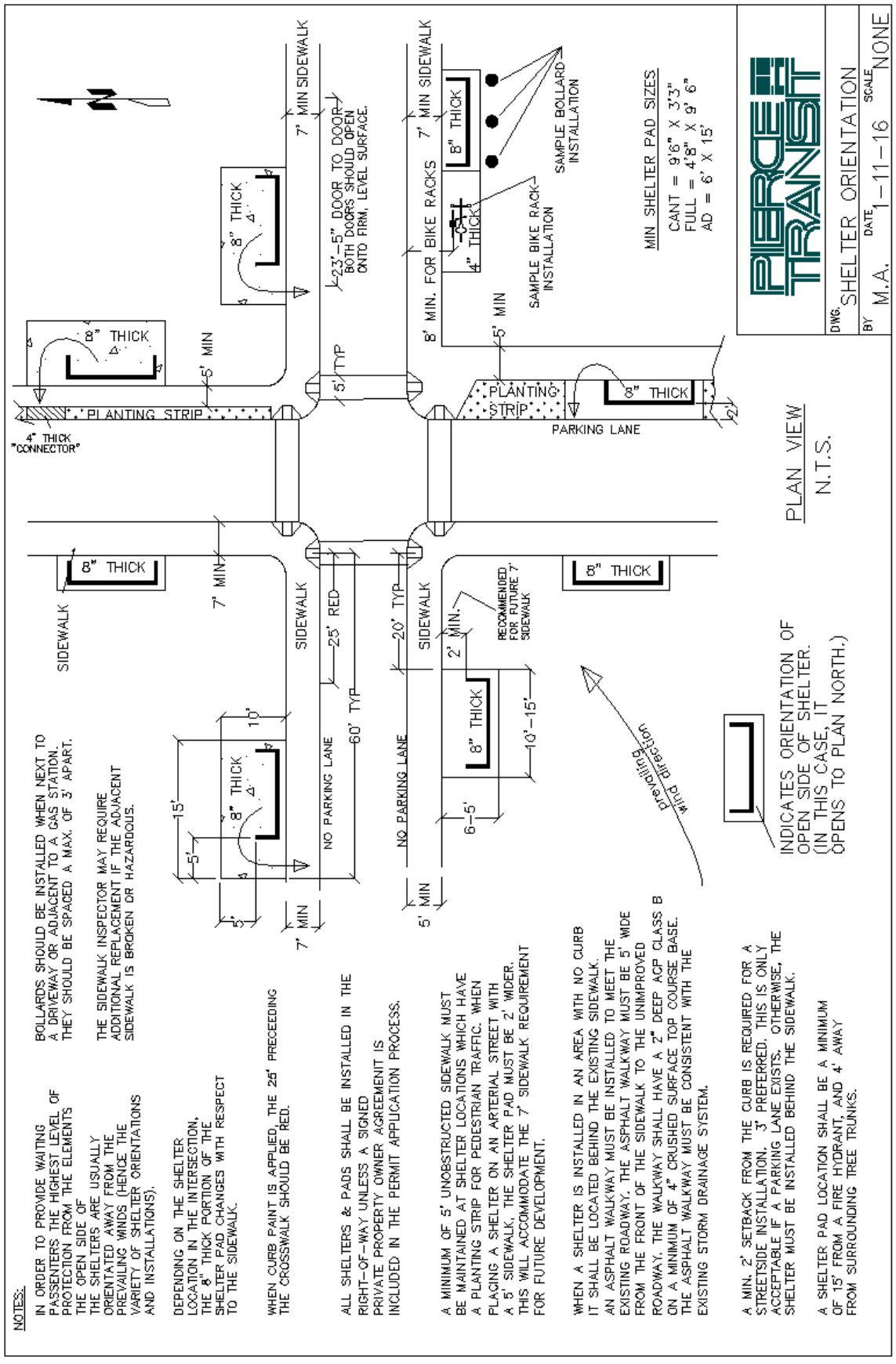
SHELTER APPEARANCE STANDARDS

Involvement of local community organizations in shelter design, placement, and/or funding can create a sense of local ownership which holds the potential for reducing vandalism. Some communities have involved students or other interest groups in shelter art projects to gain community investment in transit facilities.

SHELTER SIGNAGE APPROVAL

Pierce Transit prohibits any non-agency signage, flyers, stickers, etc. from being installed inside its shelters. All unauthorized signs must be removed immediately. The agency may install enforcement or policy signage as needed.

Shelter Orientation



Sign & Pole Installation

A typical bus stop pole is a square walled aluminum pipe; 1-3/4" inside dimension, 2" outside dimension, 11' tall. Bus stop signs come in several sizes, determined by the number of routes served at a particular stop or the specific facility at which the sign is being installed.

SIGN/FLAG DESIGN AND CONTENT

The Pierce Transit *Styles Manual* contains the layout and dimensions of bus stop signs. The sign layout is based on an ideal ADA standard (refer to section 4.30 of the ADA Standards for Accessible Design), but it is not always possible to meet the ideal. All permanently mounted signs should include the route number(s) served, the destination (when space permits), a wheelchair symbol decal, a no parking symbol, Pierce Transit's customer service phone number and website address. For large quantities, all information except the route number is pre-printed on the sign. In the case of a new route, or where many sign changes are required which will reflect the same information, the entire sign may be pre-printed by an outside vendor. Otherwise, Marketing produces the image file and Facilities Maintenance produces the text and numbers and then affixes them to the signs.

SIGN AND POLE INSTALLATION OPTIONS

There are several installation options: plated, in-ground, shared, combined and extended pole. Specifications for each are on the following pages.

NOTE

Non-concrete surfaces such as asphalt or brick are not suitable surfaces for any surface mounted installations, as they do not provide adequate structural strength or integrity.

Sign & Pole Installation – continued

PLATED
When concrete sidewalk is present at the bus stop and where at least 5′ of clearance exists after the pole is installed, a plated pole may be mounted onto the sidewalk. It should be a minimum of 2′ from the curb, 3′ is preferable.

IN-GROUND
In areas without sidewalks, or where sidewalks are less than 5′ wide, the pole should be installed no closer than 10′ (preferably 12′) from the edge of the road, with the sign facing perpendicular to the road, mounted on the street side of the pole. This allows for future sidewalk construction. Poles are installed in a 20″ deep hole and then filled with concrete. This installation should result in the drilled 1/2″ diameter hole at ground level, for maximum breakaway effectiveness.

SHARED
Ideally, the bus stop sign will be mounted on its own pole. However, in overlapping service areas, it is common to mount two or more agencies' signs on a single pole. Sharing a pole with regulatory or traffic signs should be avoided whenever possible. But it is desirable to install on a light standard when approved by the local jurisdiction. These are metallic or other non-wooden styles, where a worker would not climb the pole itself to perform her or his duties. If there are too many signs on the light standard, creating clutter or poor distinction between signs, relocation of the sign to a dedicated bus stop pole is recommended. Never mount a bus stop sign to a wooden utility pole or regulatory sign pole.

Sign & Pole Installation – continued

EXTENDED POLE
There are instances when a pole is simply not tall enough to house a particular sign and/or a sign and blinky light. A pole extension may be used.

BUTTERFLIED
Two bus stop signs are mounted 180 degrees from another, perpendicular to the road.

SHELTER ROOF MOUNT
In a cluttered area, a small bracket may be used to mount the sign directly to the shelter roof.

Sign & Pole Installation – continued

POLE & SIGN PLACEMENT

The sign/pole locations are based on minimum clearances, best visibility and site-specific characteristics. In addition to bus stop spacing, the location of important buildings and other major destinations as well as the roadway configuration should be considered when siting new bus stops. Pairs of stops should be located as close to each other as is practical and safe.

TREES & LIMBS

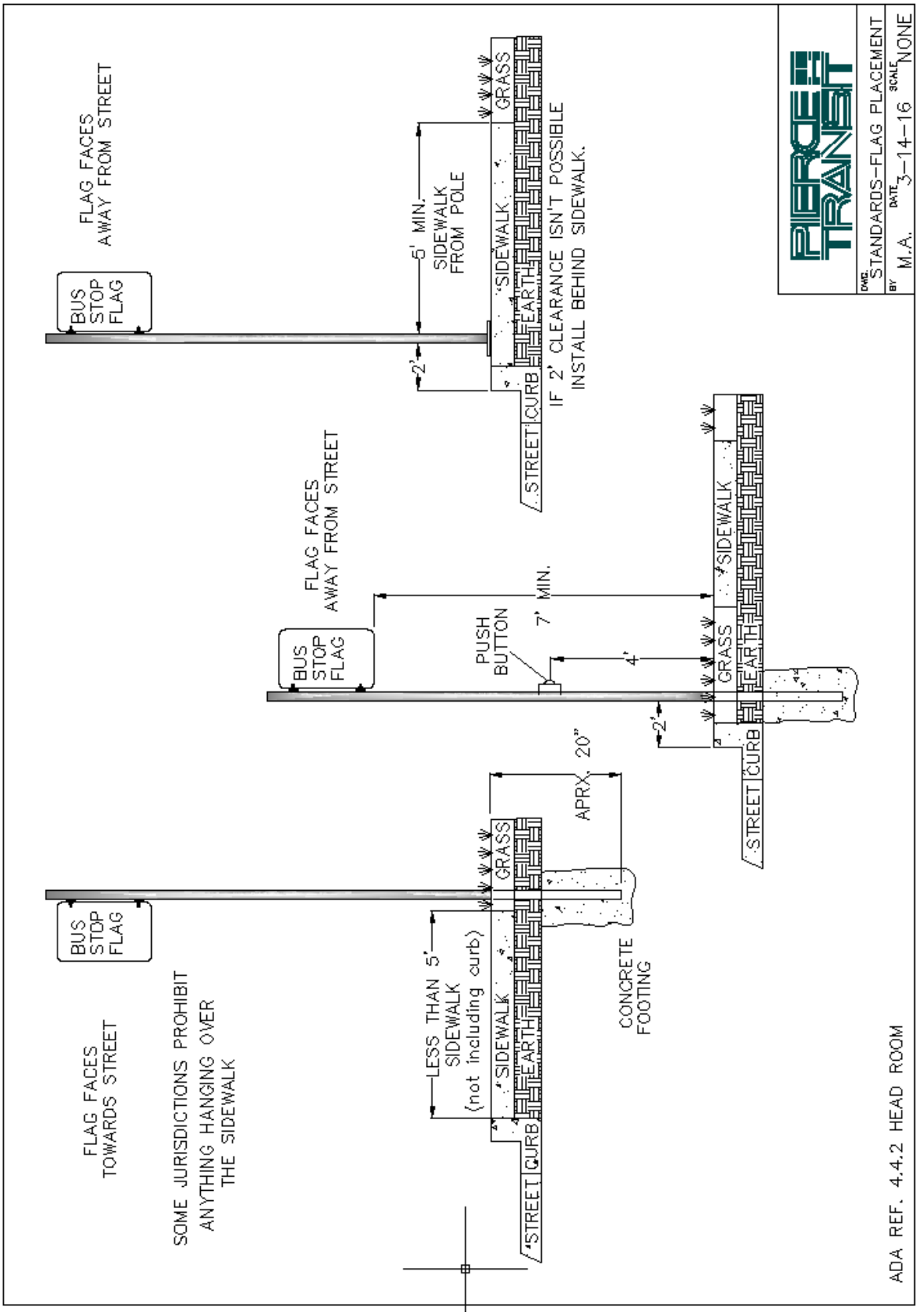
A pole should be located a minimum of 4' away from the trunk of a tree. All tree limbs need a minimum vertical clearance of 7' over the sidewalk and 14' over the roadway. This decreases the chance of tree damage to the bus and/or mirrors as well as damage to the tree itself. The local jurisdiction needs to be notified if a tree needs to be trimmed, regardless if it is on the public ROW or on private property. Facilities Maintenance no longer trims trees.

ADDITIONAL POLE MARKINGS

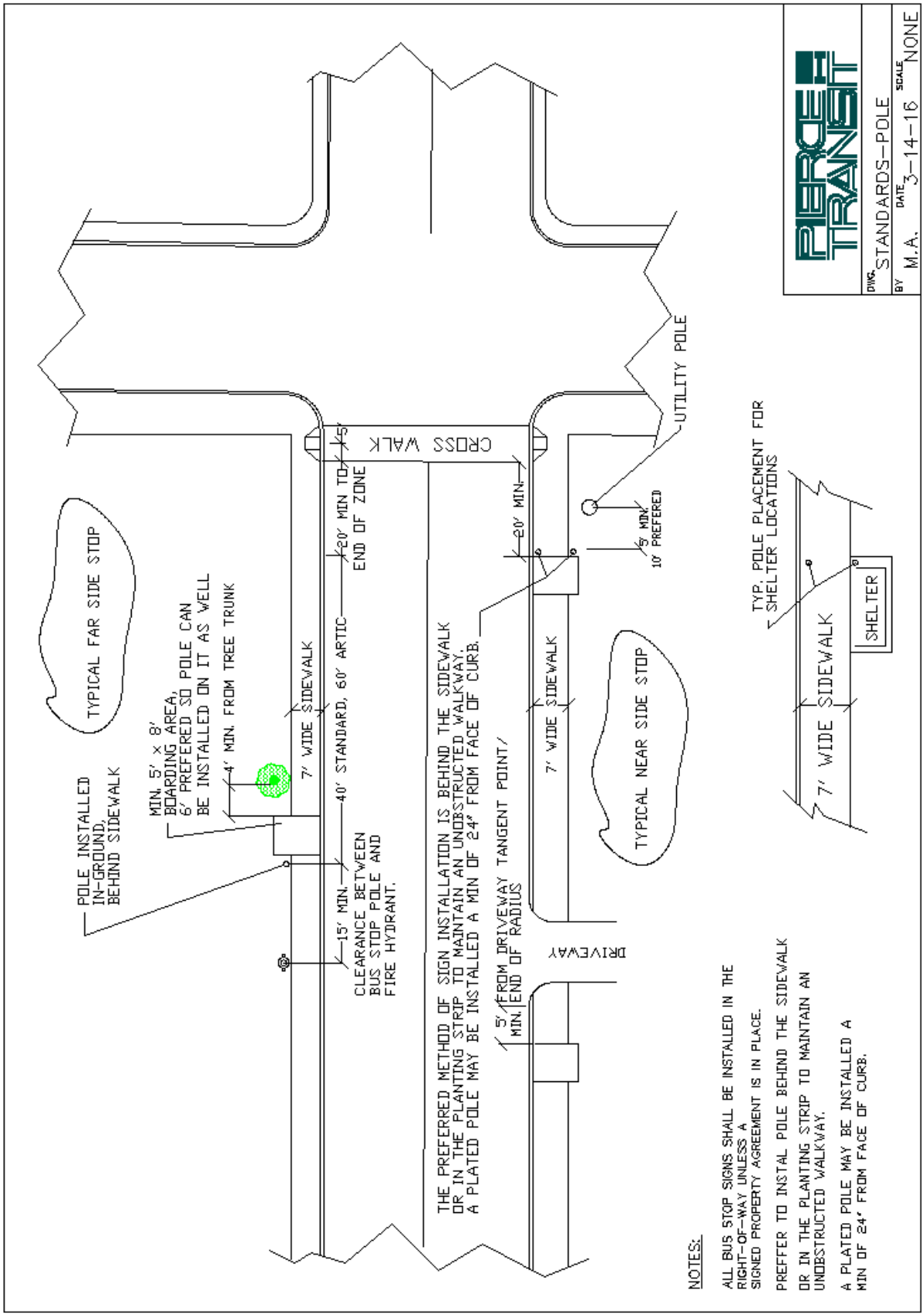
Extra visibility of the pole is created with reflective white tape. Clean and dry the pole at a height of 2' from the ground and wrap the tape around the pole one time, overlapping at least 1". The 2' height is the approximate height of the bus's headlights and the optimum height for maximum reflectivity. (Formerly yellow was used but the MUTCD states white markings on the right side of the road, yellow markings on the left.)

A 4-digit metal plate is affixed at the top of each pole. This is the bus stop's unique number from HASTUS.

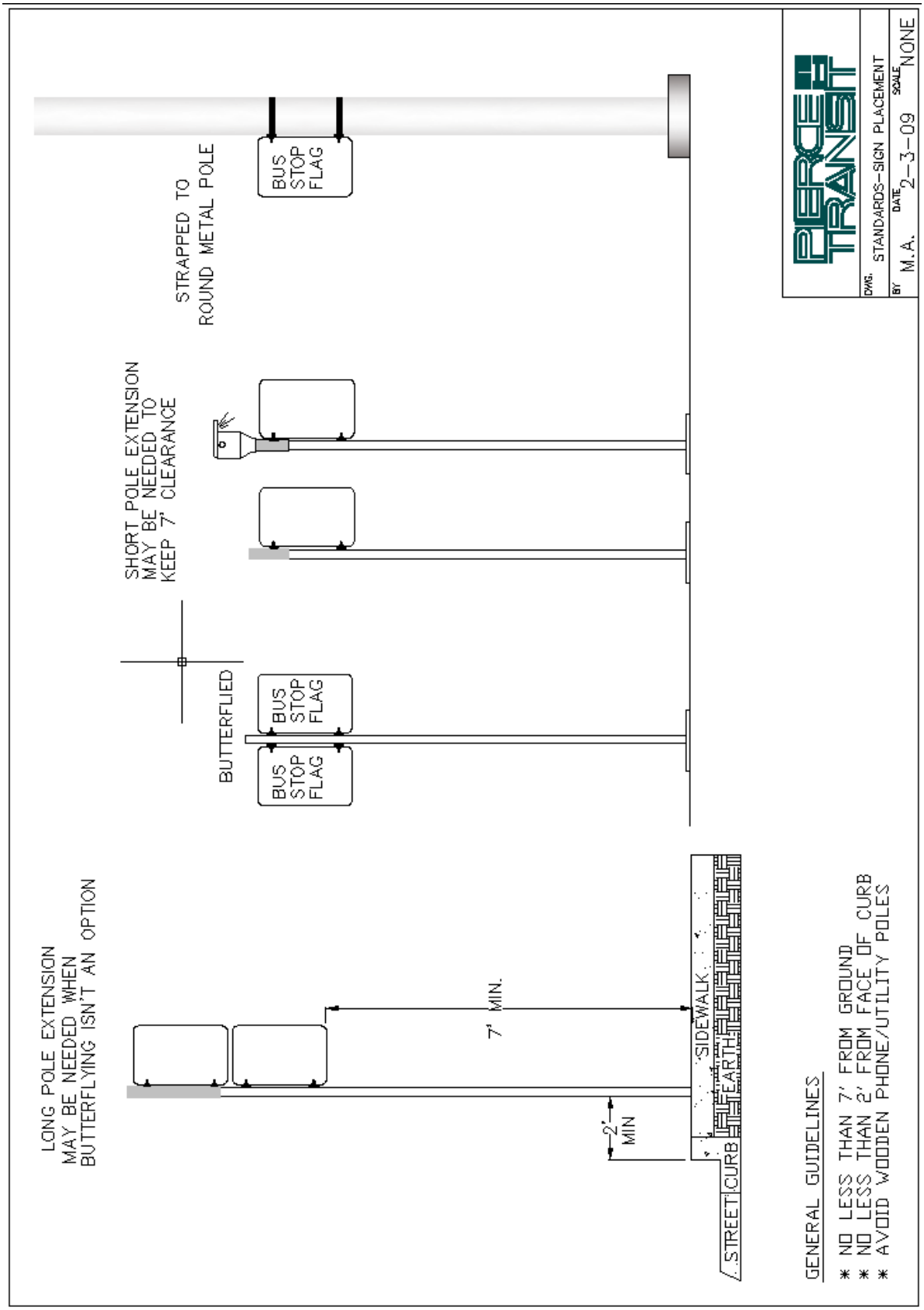
Flag Placement



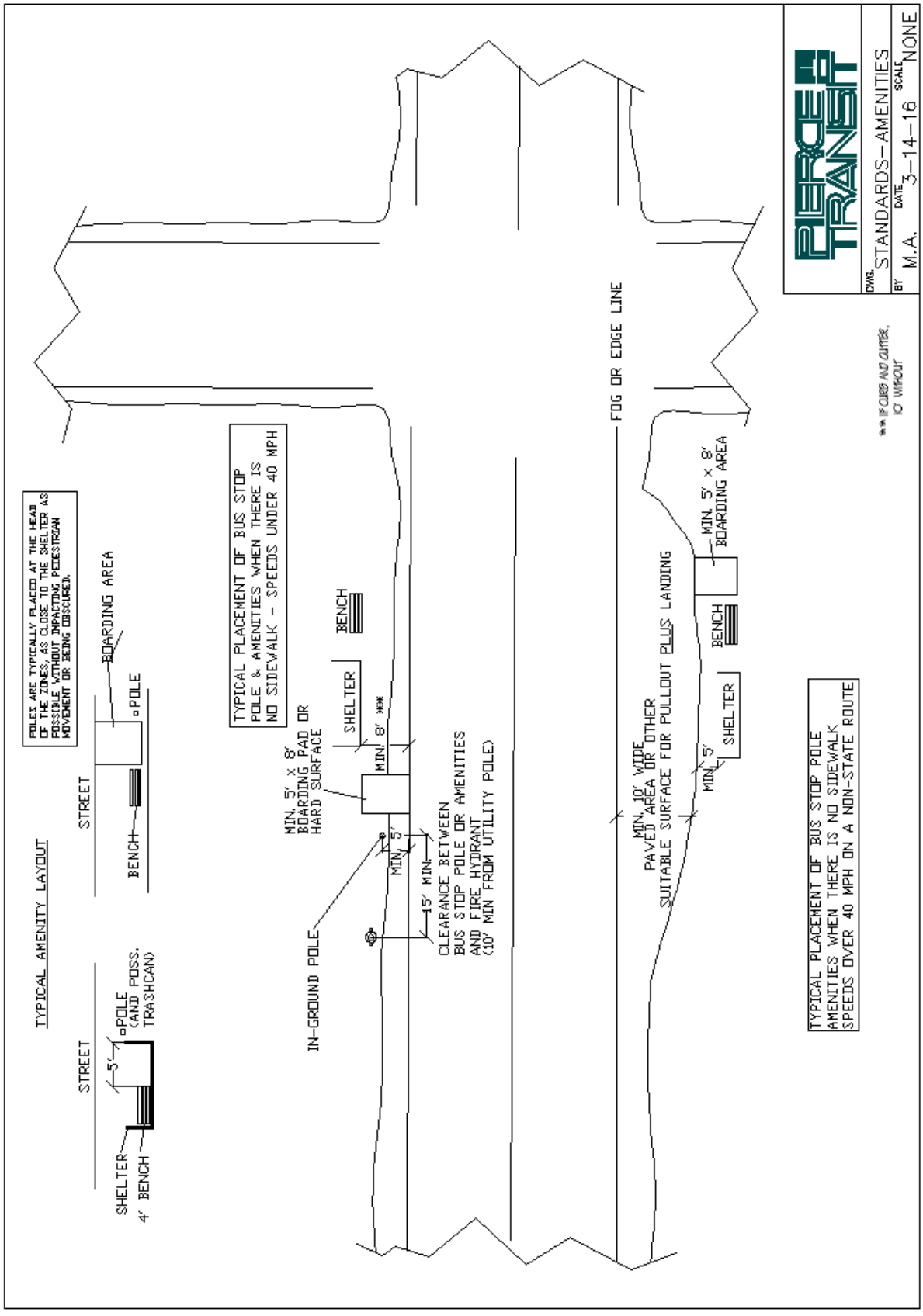
Pole Placement



Pole Placement - continued



Amenities


TYPICAL AMENITY LAYOUT
STREET
SHELTER
4' BENCH
5'
POLE (AND POSS. TRASHCAN)
STREET
BENCH
POLE
BOARDING AREA
POLES ARE TYPICALLY PLACED AT THE HEAD OF THE ZONES, AS CLOSE TO THE SHELTER AS POSSIBLE WITHOUT IMPACTING PEDESTRIAN MOVEMENT OR BEING OBSCURED.
TYPICAL PLACEMENT OF BUS STOP
POLE & AMENITIES WHEN THERE IS NO SIDEWALK - SPEEDS UNDER 40 MPH
MIN. 5' x 8' BOARDING PAD OR HARD SURFACE
IN-GROUND POLE
SHELTER
BENCH
MIN. 8' ***
MIN. 5'
15' MIN.
CLEARANCE BETWEEN BUS STOP POLE OR AMENITIES AND FIRE HYDRANT (10' MIN FROM UTILITY POLE)
EDGE OR EDGE LINE
MIN. 10' WIDE PAVED AREA OR OTHER SUITABLE SURFACE FOR PULLOUT PLUS LANDING
MIN. 5'
SHELTER
BENCH
MIN. 5' x 8' BOARDING AREA
*** IF CURB AND GUTTER, 10' WITHOUT
TYPICAL PLACEMENT OF BUS STOP POLE
AMENITIES WHEN THERE IS NO SIDEWALK
SPEEDS OVER 40 MPH ON A NON-STATE ROUTE
PIERCE TRANSIT
DWG. STANDARDS-AMENITIES
BY M.A. DATE 3-14-16 SCALE NONE

Amenities - continued

Always determine if the proposed amenity is within a defined business district or other unique area. Typically, the districts have chosen non-standard styles, color schemes and/or artwork for their benches, shelters or trash cans. The business district likely has a cost sharing agreement in place with Pierce Transit.

LEANING RAILS
Used in areas where passenger volumes are heavy but either no space is available for benches or wait time is minimal. They can also be used where sleeping on benches has been a problem.

BIKE RACKS
Bike racks are provided to allow one-time or short-term cyclists a secure means of locking their bikes at bus stops where transfers are common, at major destinations like shopping malls, and near bike lockers.

BIKE LOCKERS
These covered secured storage facilities are installed at most of Pierce Transit's Park & Rides and Transit Centers. For a monthly fee and key deposit, users are issued a key to a designated locker. Pierce Transit has chosen a modular design that allows us to easily increase or decrease capacity at facilities as needed.

Amenities – continued

BIKE SPA (Secure Parking Area)
Tacoma Dome Station has a secure area with bike racks and a repair station available for a rental fee.

BUS SIGNAL LIGHTS
As the bus approaches the passenger pushes the button to activate a light at the top of the pole. These devices are especially useful in poorly lit areas, high-speed corridors or where other factors have contributed to pass-by's. Several versions are in use including a blinky light, a steady light, down lighting and an illuminated schedule holder.

SOLAR LIGHTING
A solar lighting system requires no trenching for conduit, permits, inspections or monthly electric bills and is an economically and environmentally friendly alternative to traditional lighting*.

TRADITIONAL LIGHTING
This is accomplished via electrical hookup or by simply placing the bus stop near existing light sources (streetlight or pedestrian lights) to provide adequate illumination*.

*Indiana Council on Outdoor Lighting Education (ICOLE) and I.E.S. Lighting Handbook

Amenities – continued

PERFORATED PANELS
Used in highly vandalized areas. Not always appropriate as they can impede visibility into the shelter and increase passbys.

TRASH RECEPTACLES

Trash receptacles are often desirable as a convenience to customers as well as to maintain a clean environment and are intended for Pierce Transit customers only. Installation of trash receptacles at bus stops is done on an as needed basis. Consult Facilities Maintenance to ensure that the agency has enough staff capacity to properly service and clean the stop. Pierce Transit uses a 10-gallon, drop bottom, pole mounted trashcan at the majority of stops. Occasionally, two cans are needed. At extremely busy stops, a 32-gallon can is used.

In some business districts, particularly in Tacoma, the district or the City have installed a non-standard trashcan. Pierce Transit rarely maintains these trashcans.

Facilities Maintenance staff installs, maintains and empties all trash receptacles at PT's bus stops. The Facilities Manager determines the interval for emptying trash cans. The Facilities Manager also determines if additional trashcans or larger cans are needed.

Trashcans should be installed to minimize conflict with the boarding area, be accessible by all uses and as far from the schedule and pushbuttons as possible.

Non-Pierce Transit Amenities

NEWSPAPER/ADVERTISING DISPENSERS & VENDING MACHINES

Advertising and newspaper companies have the right to occupy the public right of way. However, if passenger or operational safety or litter becomes an issue, the Bus Stop Program staff will contact the specific vendor to seek assistance in relocation or the installation of a "condo," a dispenser which houses more than a single publication. If no response, we may remove it and store until the vendor retrieves it. If a newspaper company wants to place a box at a Pierce Transit facility, they must obtain a Facilities Use permit.

Non-Pierce Transit Amenities – continued

PAY PHONES
Installed through coordination between Pierce Transit and the local telephone company at most of our Park & Rides and Transit Centers. At other locations, the adjacent business or the local jurisdiction has provided them.

CART CORRALS
These provide a dedicated area for the safe storage of shopping carts and may be desirable at bus stops located near shopping areas. Facilities Maintenance & Service Supervisors typically contact retailers when excessive cars are collecting at a bus stop or transit center.

Spacing & Frequency

Population density is the primary factor use to determine the appropriate number of bus stops within a particular area. A balance must be maintained between stop spacing and frequency; the more stops on a particular route, the longer the trip. Conversely, the fewer number of stops, the shorter the trip. The following guidelines should be used to help determine the approximate spacing of bus stops in areas of various densities. Spacing may range from one stop per block where city blocks are 500 or more feet in length to stops every two to three blocks where city blocks are shorter or when there are no major destinations or trip generators. Typically, no two stops should be within an 1/8th of a mile (660') of another within a Central Business District and a ¼ of a mile (1320') within all other regions within Pierce Transit's Service Area.

Density Chart

Land Use Type	Bus Stop Spacing
Business District	1/8 mile (660')
Elsewhere	1/4 mile (1320')

Placement in Relation to Intersections

FAR-SIDE STOPS/ZONES

A far-side stop/zone is immediately following an intersection. Far-side stops/zones are the preferred location for bus stops and are specifically recommended when:

- The intersection is controlled by signals, stop signs or yield signs.
- Traffic is heavier on the near side than on the far side of the intersection.
- A large number of left or right turns occur.
- Heavy traffic movements might cause delays in bus schedule.
- Pedestrian access and existing landing area are better on the far side than the near side.

Advantages

- Transit Signal Priority (TSP) equipment is more effective at far side stops.
- Eliminates double stopping.
- Right turns by vehicles can be made with less conflict with stopped buses (except those turning from the cross street).
- Left-turning buses approaching a far-side stop (after the turn is made) begin their left turn from the proper lane.
- Buses stopped in a zone do not obstruct sight distance to the left for vehicles entering or crossing from a side street.
- At a signalized intersection, buses can find a gap to enter the traffic stream when the traffic light cycles.
- Buses in the bus stop will not obscure traffic control devices or pedestrian movements at the intersection.
- Minimizes sight distance problems on approach to the intersection.
- Less curb space is needed for the bus zone since the intersection length can be used to decelerate and align the bus to the curb. This means less lost parking.
- Encourages passengers to cross behind the bus.

Disadvantages

- Intersections may be blocked if vehicles park illegally in the bus stop, causing the bus and/or traffic to back up into or across the intersection.
- A bus serving a far-side stop restricts sight distance to the right of a vehicle entering from a side street or driveway.
- May increase sight distance problems for crossing pedestrians.
- The bus may have to stop far side after just stopping at a red light, impacting general traffic.
- Motorists may not expect the bus to stop after a red light.

Placement in Relation to Intersections – continued

NEAR-SIDE STOPS/ZONES

A near-side stop zone is one that is located immediately before an intersection. Near-side stops are less desirable and should be used when:

- There are no far-side options.
- When transit operations are more critical than traffic or parking.
- Traffic is heavier on the far-side than on the nearside of the intersection.
- Pedestrian access is better on the near-side than the far-side.

Advantages

- There is less interference with traffic turning onto the bus route street from a side street.
- Passengers generally depart from the bus close to an intersection that might include a crosswalk or other traffic controls.
- Allows for boarding and alighting while the bus is already stopped for a red light.
- The bus has maximum options after serving the stop: right turn, left turn (from a single lane of traffic) or straight.

Disadvantages

- Transit Signal Priority (TSP) equipment is less effective at near-side stops.
- The bus may double stop: once to serve the bus stop and then again if the light turns red.
- Auto drivers may attempt to make a right turn across the front of a bus stopped at a near-side stop.
- A bus standing at a near-side stop may obscure the sight distance of a driver entering the street from the right as well as pedestrians crossing the street.
- A bus serving a near-side stop may block a stop sign on the right corner, or interfere with right turn lanes.
- More curb space is usually needed, which results in additional lost parking.
- If the bus is serving a near-side stop and then has to immediately make a left turn, it would be forced to either cross multiple lanes in a short distance, or make a left turn from the right curb/parking lane. This is highly undesirable.
- Oncoming traffic may make a left turn across the front of the bus, assuming it's going to remain stopped.

Placement in Relation to Intersections – continued

MID-BLOCK STOPS/ZONES

A mid-block stop/zone is located 300' or more beyond or before an intersection. A mid-block stop should be located at the far side of a mid-block pedestrian crosswalk, if one exists, so standing buses will not block a motorist's view of pedestrians in the cross walk. They are recommended when:

- Traffic or physical street/sidewalk characteristics prohibit a near or far-side stop adjacent to an intersection.
- There is a trip generator or destination such as large employer, commercial establishments, or development.
- There are long distances between cross streets.
- There is a crosswalk and/or flashing beacons.

Advantages

- Buses at mid-block stops cause a minimum of interference with the sight distance of both vehicles and pedestrians.
- Stops can be located adjacent to major activity centers.
- May result in passenger waiting areas experiencing less pedestrian congestion than at an intersection.

Disadvantages

- The removal of considerable curb parking is required in areas where on street parking would otherwise be permitted.
- Pedestrian jaywalking is more prevalent if the mid-block stop is not located where there is a mid-block crosswalk. This is hazardous for the pedestrian, conflicts with vehicles and creates congestion.
- Patrons from cross streets must walk farther to catch the bus.

Placement in Relation to Crosswalks

DISTANCE FROM BUS STOP TO CROSSWALK PRIOR TO A CONTROLLED INTERSECTION – NO TSP

1. 20' when the bus stops in driving lane with an overhead traffic signal.
2. 30' when there is a stop sign and flashing overhead stop beacon.
3. 50' when there is only a stop sign.

DISTANCE FROM STOP ZONE TO CROSSWALK PRIOR TO A CONTROLLED INTERSECTION – WITH TSP
Stops should be a minimum of 100' prior, 200' preferred prior to an intersection with Opticom equipment.

STOPS NEAR CROSSWALKS
The bus should not block any part of a crosswalk, marked or unmarked, while it is serving a stop. Typically, the bus stop sign should be no closer than the length of the bus plus 20' beyond the crosswalk (ex. 60' for a 40' bus) or 20' prior to it.*

STOPS AT DRIVEWAYS
Efforts should be made to locate bus stops at least 20' away from driveways. However, if it is determined that a driveway is the only accessible location in the desired stop area, a bus stop may be placed adjacent to the driveway. In such cases, the bus stop will be situated to provide proper sight lines and safety for customers and residents. If the driveway itself will be used for wheelchair boardings, the driveway must be kept clear during normal operations, or it is unsuitable for a bus stop. These are called "non-designated" boarding areas since there is no way to mark them.

STOPS NEAR RIGHT TURN ONLY ENTRIES
Whenever possible, a minimum of 20' separation between the bus stop and the beginning of the right turn only lane should be provided.**

*RCW 46.61.570
**Guidelines determined by Pierce Transit Safety and Training Staff.

Pedestrian Issues & Accessibility Considerations

PEDESTRIAN ISSUES TO BE CONSIDERED IN STOP PLACEMENT

1. The proximity to alternate shelter, adequate lighting and traffic control features.
2. Compare alternate locations that may provide better sidewalk access or other pedestrian amenities.
3. Locate bus stops to minimize crosswalk movements of passengers transferring to other routes, or walking to major destinations. A mid-block stop should not be considered if there is no safe means in which a pedestrian can cross the street to reach a partner stop.
4. If possible, avoid "boxing in" a commercial establishment at a corner by having bus zones on both sides. However, if there is one predominant transfer movement at an intersection, the bus stop/zone should be located so that passenger walking distance will be minimized.
5. Do not place a bus stop where waiting passengers will have to stand in puddles or mud.

ACCESSIBILITY CONSIDIRATIONS
Pierce Transit defines an accessible bus stop with the following criteria:

- A firm, stable surface measuring a minimum of a 5' x 8' boarding area at the bus stop pole. At their discretion, a bus Operator may stop the bus within 40' of either side of the bus stop pole if the defined zone is blocked or if there is a more suitable location to board or alight someone with specific needs. Careful consideration must be given to this situation. The "non-designated" bus zone must be clear under normal circumstances.
- The wheelchair lift can be deployed and a customer using a standard wheelchair can maneuver off or onto the lift to/from an acceptable boarding area.

An accessible path to and from the stop is essential to a customer's ability to use the stop, and Pierce Transit will make every effort to locate stops where customers can safely access them. While Pierce Transit does not typically construct or maintain pedestrian facilities, including sidewalks, curb cuts or crosswalks, we coordinate with all local jurisdictions to encourage inclusion of these facilities as part of private or public development.

BUS STOP PROGRAM

Purpose

Currently, not all bus stops served by Pierce Transit meet the minimum guidelines and standards outlined in Section I. In many cases the bus stop can be brought up to these standards through constructing boarding area improvements or installing passenger amenities. The type of improvements appropriate for the individual stop varies depending upon the physical conditions and other characteristics of each stop. Ridership, roadway conditions and adjacent activities all affect the ability to improve the conditions of the bus stop. We are also cognizant of Title VI of the Civil Rights Act; our methodology in determining which bus stops will be improved is not based on the economic structure of the neighborhood

As President John F Kennedy said in 1963 of Title VI:
Simple justice requires that public funds, to which all taxpayers of all races [colors, and national origins] contribute, shall not be spent in any fashion which encourages, entrenches, subsidizes or results in racial [color or national origin] discrimination.

Since Pierce Transit is a public agency, maintaining a fair distribution of transit service and amenities will continue to be an important factor in all levels of planning. The basis for our improvements is outlined below.

BUS STOP INVENTORY & ASSESSMENT
Pierce Transit conducts periodic inventories and assessments of bus stops, including Transit Centers and Park & Rides. The 1999 inventory and assessment identified a significant number of bus stops that were not accessible or that needed other improvements. This inventory was used to identify and prioritize the work program for the years 2002 through 2008. From 2003 on, the Bus Stop Program intends to continually assess the need for improvements, eliminating the need for additional system-wide assessments.

SITE SELECTION CRITERIA
Potential bus stop improvements are identified through requests from passengers, transit operators, jurisdictional partners, developers and other stakeholders. Regular analyses of activity at bus zones and staff observations are also conducted. Formerly, a points ranking criteria system was used to determine the priority list. However, in 2003, a simplified version was created. The ranking of non-improved (or partially improved) stops is based primarily on boardings. Seventy percent of the improvements budgeted for a given year are now distributed amongst the highest ranked stops in urban areas, 30% are distributed in suburban and emerging areas. This allows us to improve bus stops throughout the service area as opposed to simply those with highest ridership. The boundary of these population divisions was determined by Service Planning and is included in Pierce Transits' 20 year plan.

Purpose - continued

SITE SELECTION CRITERIA - continued

Several factors influence the priority level of an improvement such as:

Amenity	Low Income	Non-Low Income	Minority	Non-Minority	All Zones

1. Accessibility When ever possible, stops that are not ADA compliant will be upgraded to make them accessible. In some cases, bus stops may be improved solely to improve the accessibility of the pathway to/from the bus stop.

2. Existing Safety/Security Problems
High priority must be placed on resolving existing safety and security problems as they are identified.

3. Passenger Ridership
Ridership is generally defined as the number of boarding and alighting passengers on an average weekday. Shelters, benches and boarding area improvements are appropriate for high boardings; front and rear door area improvements are appropriate for high alightings.

4. Frequency of Service and Transfers
If service is infrequent or if passengers must typically wait more than 30 minutes for a transfer bus, the bus stop location may be improved. Timed transfers are not always available. Amenities such as benches and shelters can significantly increase the comfort level of patrons and increase ridership.

5. Land Use Considerations
Whenever possible bus stops should be located as close as possible to major destinations (ex. retail centers, medical facilities, major employment centers).

6. Community Planning Efforts
When a jurisdiction has identified the area surrounding a bus stop as a location of special emphasis, Pierce Transit will assign higher priority to the improvements of the bus stop at that location. This will likely be a joint project between Pierce Transit and the jurisdiction.

7. Availability of Alternative Covered Waiting Areas
The need for a transit shelter is reduced if protection from the elements already exists in public space, such as covered walkways. With an adjacent property owner's permission, a privately owned awning may also serve this function.

8. Property Owner Input
When an adjacent property owner requests a shelter placement or opposes such a placement, Pierce Transit will consider that information when evaluating that location for improvements.

9. Title VI Impacts
Consideration must be given to ensure bus stops, routes and amenities are distributed fairly throughout the service area. An analysis was performed in 2015 by comparing the distribution of amenities between census blocks identified as minority/low-income against census blocks that were not. This was done in comparison with all bus stops within the PTBA to provide context. The table on the next page shows the distribution of bus stops and amenities in each category:

% accessible	99.6%	99.7%	99.6%	99.7%	99.6%
% benches	41.4%	35.2%	39.1%	36.8%	38.1%
% with schedules	24.3%	20.3%	23.6%	20.4%	22.2%
% with shelters	28.0%	23.7%	26.7%	24.5%	25.7%
% with lights	15.2%	13.7%	14.7%	14.1%	14.4%
Number of Bus Stops	1,105	1,231	1,323	1,013	2,336

Distribution of Passenger Amenities

Function & Responsibilities

Pierce Transit's Bus Stop Program (BSP) is administered by Service Planning, which is under Transit Development. Responsibilities include:

DAY-TO-DAY OPERATIONS

- Developing and managing the Bus Stop Program budget.
- Prioritizing bus stop improvements.
- Coordinating with Facilities Maintenance for bus stop installations, improvements and maintenance.
- Reviewing land use actions. Work with various jurisdictions and developers to ensure that bus stops are improved as part of new developments and improvement projects.
- Coordinating bus stop issues with local and state jurisdictions, including street improvements and road construction.
- Notifying key Pierce Transit staff when bus stop changes are made.
- Administering the Adopt a Stop program.
- Maintaining HASTUS, the Bus Stop Database and hard copy files when bus stops are added, changed or removed
- Maintaining paper files on each bus stop as well as a record of requests for new or relocated stops, improvements or amenities that were denied.
- Coordinating all bus stop changes required as a result of two annual service changes.
- Distributing and maintaining the Customer Service Inventory.
- Participate in local and regional planning efforts, including neighborhood planning, active transportation and various ad hoc committees.

Day-to-Day Operations

All day-to-day bus stop issues must be evaluated and resolved based on state law, the local jurisdiction's codes and/or policies and Pierce Transit's policies. Routine maintenance needs, such as replacement of signs or trash collection are referred directly to Facilities Maintenance. Other bus stop issues, including safety, accessibility, requests for new stops, requests to relocate stops and requests for benches or shelters should be directed to the BSP for action/coordination.

PROCEDURES
Requests for bus stop changes are received, logged and reviewed; safety concerns are given priority. Requests for improvements (shelters, benches, and pads) that are not safety-sensitive are evaluated and prioritized. The BSP processes the majority of safety and accessibility issues and requests for new stops, relocations or removals. All or some of the steps outlined below are completed whenever a request or complaint is received:

a. Review the stop history, including previous issues and their resolutions, and current and past ridership at that stop. Inquire about any possible jurisdictional projects or new development, which may impact the bus stop.

b. A BSP member makes a site visit to assess the current conditions and identify possible solutions. When there is an operational or safety issue, the BSP and Safety & Training visit the stop jointly. Likewise, if there is a security concern, the BSP and Transit Public Safety will coordinate on a resolution. If a new stop or stop relocation is considered and an appropriate location is identified, the proposed new bus stop pole location is marked.

c. Coordinate planning efforts with the local jurisdiction as needed. Refer to the *Jurisdictional Procedures* binder for more information on specific processes.

d. New stop pole locations are marked (if not already done at the first site visit). If the installation is in ground, underground utilities must be identified by contacting the Utility Notifications Center.*

e. A work request is sent to Facilities Maintenance. The bus stop number, intersection, side of intersection and direction of bus route should always be included with each work request, as well as the date the work can commence. All work requests should be done through the BSP to prevent duplicate requests.

f. Facilities Maintenance performs the work after the utility locates are completed, and adjusts the bus stop sign pole location if needed to avoid underground utilities.

g. The BSP issues a memo to the Detour Distribution List and posts a copy in the Operators' Lobby about the change.

h. The BSP completes a new inventory of the bus stop, updates the Bus Stop database and HASTUS, and then files all documentation on the issue in the individual bus stop file.

* *callbeforeyoudig.org.* This service will determine the proximity of underground utilities on behalf of all major utilities such as Puget Sound Energy, Qwest, Tacoma Power, etc.

Installation & Improvement Process

The review process includes an evaluation of each bus stop's accessibility to patrons with disabilities. The Americans with Disabilities Act encourages transit systems to strive to become fully accessible to customers with disabilities. Accessibility standards are specified in Section 2. Whenever a bus stop is installed or upgraded the Act mandates that it be accessible to the maximum extent practicable. If a stop is not accessible, the design or the location of the stop should be modified in order to provide accessibility. If it is still not possible to provide an accessible bus stop, the installation or improvement will normally not occur.

The Bus Stop Program uses the following steps when developing and designing a new bus stop as well as bus stop improvements:

1. Site Review & Preliminary Assessment
The first step in the placement of a new bus stop process is a preliminary assessment of the bus stop and vicinity. This, in addition to ridership is the primary factor of a bus stop improvement. A field visit is typically required as part of the evaluation process. Staff will determine a tentative placement for the bus stop that ensures accessible transit operations and will identify any safety issues that may result from the placement. At the same time surrounding activities should be observed to assist in selecting the type of amenity desired and its best location. Stops that clearly do not have the potential to justify installation or improvement should be eliminated from the list of candidate sites.

2. Public Input
Pierce Transit maintains a list of newly requested bus stops and improvements that originate from members of the public, Pierce Transit staff and local jurisdictions.

4. Right-of-Way Determination
Typically, public GIS is sufficient to determine the available Right of Way. When it's very close, contact the local jurisdiction to make a determination. In rare instances, a survey may be needed. Refer to the *Jurisdictional Procedures* binder for guidelines. Funds are typically available in the BSP budget for surveying if needed.

5. Final Assessment and Determination of Project List
Prioritization will be based upon the results of the site review and right-of-way determination. Selected projects, and the nature of the improvement to be undertaken, will be identified and ranked. Ideally, bus stop improvements will be distributed with 70% going to downtown areas, 30% to emerging and rural areas. Because the majority of bus stops in a rural area will never achieve 10+ boarding per day it is important that those areas still benefit by transit improvements.

The BSP will determine the number of stops included and their priority level in the current improvement list. While boarding criteria will be the primary factor in prioritization, special circumstances must also be considered. For example, if adding a bench allows a passenger to transition for SHUTTLE to fixed route, the level of priority is elevated.

Installation & Improvement Process – continued

6. Site Plans
Site plans must be of sufficient quality and detail to meet the needs of jurisdictions and contractors. Pierce Transit staff typically produces these drawings. However, if the site is complex, the design may be done by an Architect and Engineering firm.

7. Jurisdictional Review and Approval
Before installing, improving, or moving a bus stop, Pierce Transit must obtain approval from the jurisdiction having authority (refer to the *Jurisdictional Procedures* binder).

8. Property Owner Notification
As a courtesy, when a new bus stop or shelter will be installed, send the property owner advance notice alerting them to the change. The exception is Puyallup where this is not a courtesy but a requirement of their approval process. Attempt to address any concerns prior to installation. Staff may also be requested to attend the City Council meeting where the bus stop or improvement is discussed.

9. Bus Stop Notifications
In the event of a bus stop closure or removal, every attempt will be made to post a public notice at the impacted bus stop a minimum of 7 days prior to the change.

WITHIN THE RIGHT-OF-WAY
If property owner concerns can be resolved without significantly impacting service, safety or passenger comfort, then site plans will be modified accordingly.

OUTSIDE THE RIGHT-OF-WAY
When it is necessary for Pierce Transit to locate bus stops or improvements partially or wholly on private property, a private property use agreement or an easement is required. These agreements allow Pierce Transit to use a specified area for the shelter or boarding/alighting area, require Pierce Transit to maintain the bus stop amenities in a reasonable condition. Terms and termination language vary by site, but typically, upon termination, Pierce Transit is responsible for restoring the premises to its previous condition.

Regional Agency Relationships

We must maintain a cooperative relationship with partner agencies since Pierce Transit utilizes bus stop zones within these transit agencies' service areas. When changes or additional signs are needed, they are generally coordinated directly with the appropriate agency. Sound Transit in particular requires a significant lead-time for changes to be made. This is important to remember for Service Changes. The point of contact from each agency can be found in the *Jurisdictional Procedures* binder.

METRO (King County)
Stops north of the Pierce County line, on a route currently served by Metro must be coordinated directly with Metro. Metro will then seek outside input if required. On a new route, Metro and the appropriate jurisdiction must be consulted simultaneously.

INTERCITY TRANSIT (Thurston County)
Stops south of the Pierce County line must be coordinated with Inter City Transit.

SOUND TRANSIT (Regional)
Pierce Transit's Operations Planning staff attends frequent joint agency meetings, especially when Service Change is involved. Our role is to take the lead on establishing bus stops that Sound Transit will serve and to assist in other areas. Pierce Transit staff has ultimate voice concerning operational issues.

Relocation Criteria

The BSP may decide to move a bus stop in order to improve operational safety or customer convenience. In general, Pierce Transit will not move a bus stop/zone that is safely and efficiently meeting Pierce Transit's needs unless, one or more of the following criteria are met:

1. The local jurisdiction requests the relocation.

2. An equal or better boarding location exists that meets Pierce Transit and the local jurisdiction's requirements for safety, vehicle access, landing area, pedestrian access, and bus stop/zone spacing.

3. If doing so will completely resolve the issue, such as vandalism or harassment of adjacent property owners, and not simply relocate the problem.

4. Other unique situations may arise and will be reviewed individually.

5. As a last resort, Pierce Transit may consider closing a bus stop/zone if numerous acts of vandalism against private property or physical assault are reported that can be shown to have a direct connection to bus stop/zone users.

Amenity Removal Guidelines

On rare occasions, it may be necessary to consider removal of a passenger amenity. This should be considered only after the BSP has attempted to solve the problem. Following are some circumstances in which removal may be appropriate:

Safety Concerns
A request to remove the shelter because it is posing a pedestrian or traffic problem.

Police Request
Request removal due to adjacent crime, noise or loitering. There have been a dozen or so requests to temporarily remove amenities until law enforcement or community involvement resolves unwanted/undesirable activity. In nearly all of these instances amenities have been able to be reinstalled in time.

Vandalism and Accidents
When a shelter is subjected to repeated acts of vandalism, or has been damaged a number of times by vehicular accidents, Facilities Maintenance may request the removal or relocation of a shelter. In general, three incidents in a single year constitute a significant problem.

Neighborhood/Community Requests
A request to remove the shelter by a neighborhood or community group.

Private Property Owner Requests
A request to remove the shelter because of the extent of problems caused to adjacent private property. In this circumstance, due diligence must be shown that all other alternatives have been considered.

Change in Environment
If there has been a change in the nature of adjacent land uses or the surrounding community.

LAND USE REVIEW----------

Review Process

Pierce Transit requests that the jurisdictions within our service area send us land use permit applications when new developments, major redevelopments, or road improvements are being considered. (In some cases, we have discovered these types of projects only through field observation. We then contact the appropriate jurisdiction for details.) Our interest in reviewing the applications is to determine what impacts the development will have on public transit and to mitigate those impacts.

There are four main elements to consider:

- Proximity of the development to existing or forthcoming transit routes.
- Size and usage of the development.
- Number of vehicular trips generated per day*.
- Location and level of improvements at nearby existing stops, if any.

Once these elements are reviewed, compose a formal reply to the jurisdiction. The intent of the reply is to improve or increase transit services to the development. Our reply is based on the minimum thresholds outlined by the individual jurisdiction, past replies on similar size developments and/or trip generation data. The reply may simply be a suggestion to include internal sidewalks or go on record indicating that the developer is required to provide passenger amenities improvements based on municipal code at the pair of stops nearest their development.

It is important to be consistent in our requests so that one developer does not feel unfairly targeted to pay for transit improvements. Likewise, it acknowledges our ongoing interest and dedication to review all materials being sent to us by the local jurisdictions.

Reporting

Evaluation of the Bus Stop Program's activity will include tracking and year end reporting at a minimum and as requested. Reports may include the following:

- Total number of active stops in system.
- The number of amenities such as shelters, benches, blinky lights and solar units.
- Resolution or discussion of safety issues.
- Track planned and completed improvements to bus stops, including shelter installation, bench installation, pad construction and improvements made by public and private developers.
- Summary of Land Use Applications reviewed and amenities requested.
- Other major projects and accomplishments.
- A list of relevant projects and other accomplishments as needed.

*if the number of trips is not stated, calculate them by using the ITE Trip Generation Manual

Basic Shelter Characteristics

This section lists the basic design characteristics of Pierce Transit shelters as well as some background information. Prior to 2002, shelters typically had solid kick panels made of wood and glass upper panels. Over the years, the wood rotted out and was replaced with plastic wood. For increased visibility and efforts to keep maintenance at a minimum, the standard became all glass shelters in 2002. We are exploring using a smaller pane design as well as increasing the use of perforated metal panels as some locations.

Previously there were two standard shelter sizes: full sized (8'9" x 4'6" x 7') and cantilever (8'9" x 2'6" x 7'). A doublewide version is also available, with a length of approximately 17', and similar depth as the standard shelters. However, in 2015 we decided to purchase only cantilevered so we could reduce the number of parts in inventory and because they require less space. There is also a true cantilevered option available for locations with very limited right of way.

Below are the most common shelter colors. Refer to Pierce Transit's *Parts and Color Standards* for more information.

- PT Green: PMS 5467 or RAL 6009
- Tacoma & Federal Way Blue: RAL5003
- Meridian Black: Cardinal T002-BK09

Shelters are firmly anchored to the concrete pad with hardware that also permits easy installation and removal by Pierce Transit staff. Hardware should also be vandal resistant.

When provided, light fixtures should provide 2-foot candles of illumination.* Most illuminated shelters are powered with 110 volts and use four 85W fluorescent bulbs. For advertising panels (or canisters) 120/240 volt service is typical. Most panels use (4) 72 or 85-watt bulbs with a 2.7 amp ballast. All fixtures must be UL approved. Wire size is typically 14 GA for distances up to 150 feet 12 GA for distances greater than 150 feet.

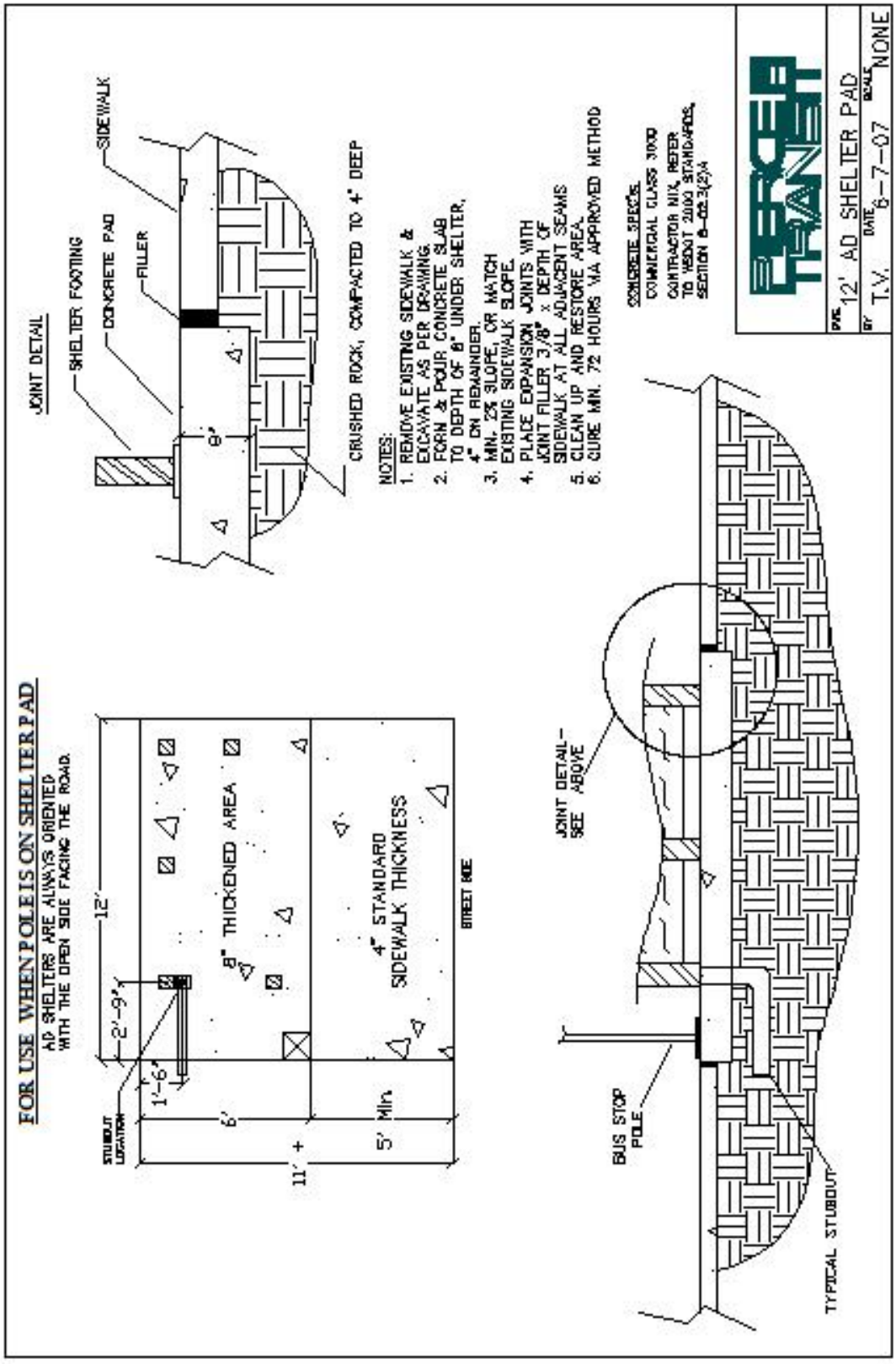
Since very little energy is consumed, most jurisdictions charge a flat rate as opposed to requiring a dedicated meter.

*Indiana Council on Outdoor Lighting Education (ICOLE), May 18, 2003 and I.E.S. Lighting Handbook

Bench Design Characteristics

Benches should be designed to be comfortable for short periods of time. Arms to separate individual seating areas are recommended in some locations to discourage sleeping. Benches should be constructed of non-organic materials to prevent the growth of mold and slime, and should be durable enough to be pressure washed regularly. The seating should be designed to prevent standing water, and allow water to drip through. The seat height should be 17”-19” above the ground.

Concrete Foundation Pad Specifications

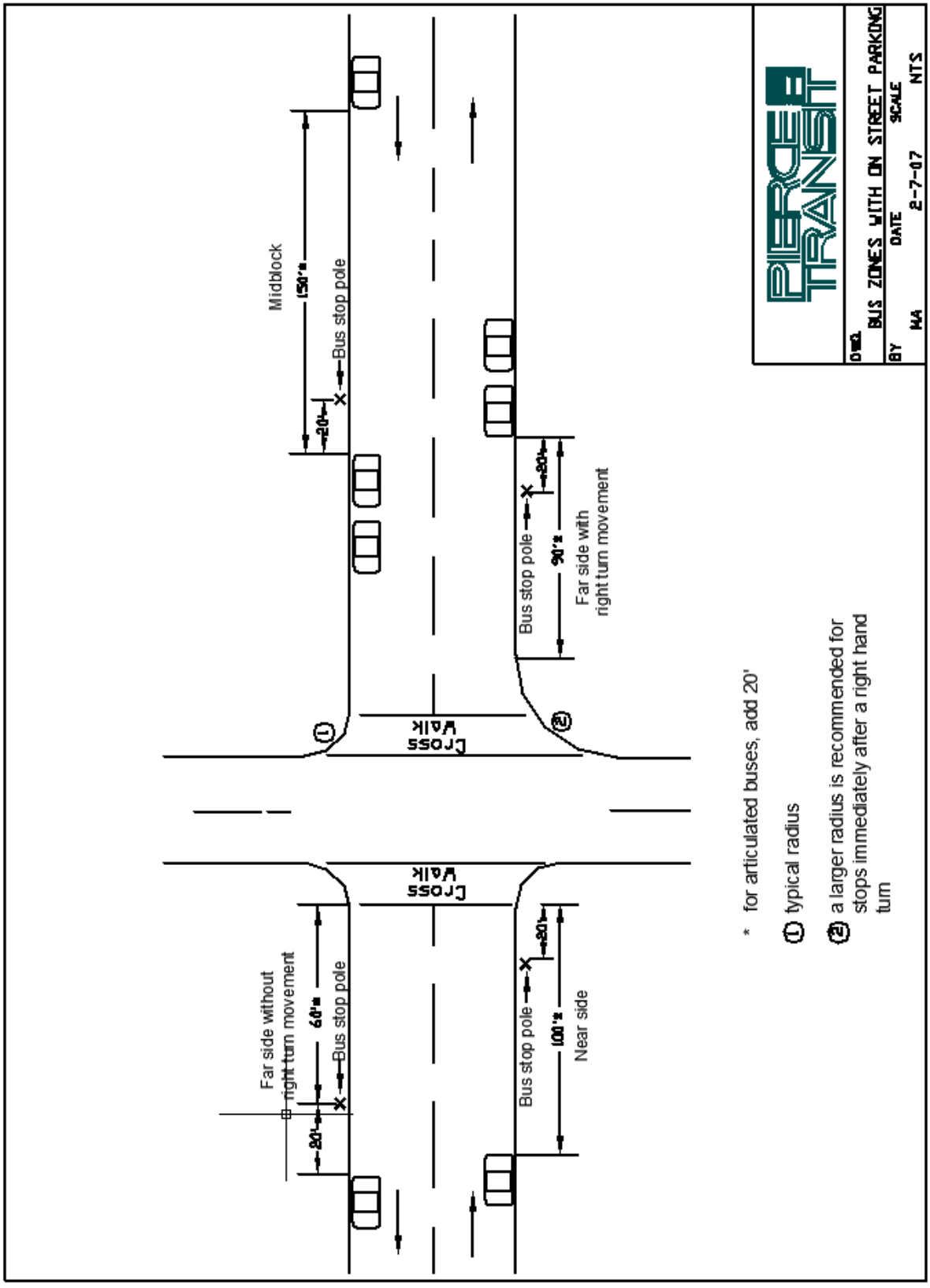


LOCATION GUIDELINES & PULLOUT CHARACTERISTICS----------

On Street Parking

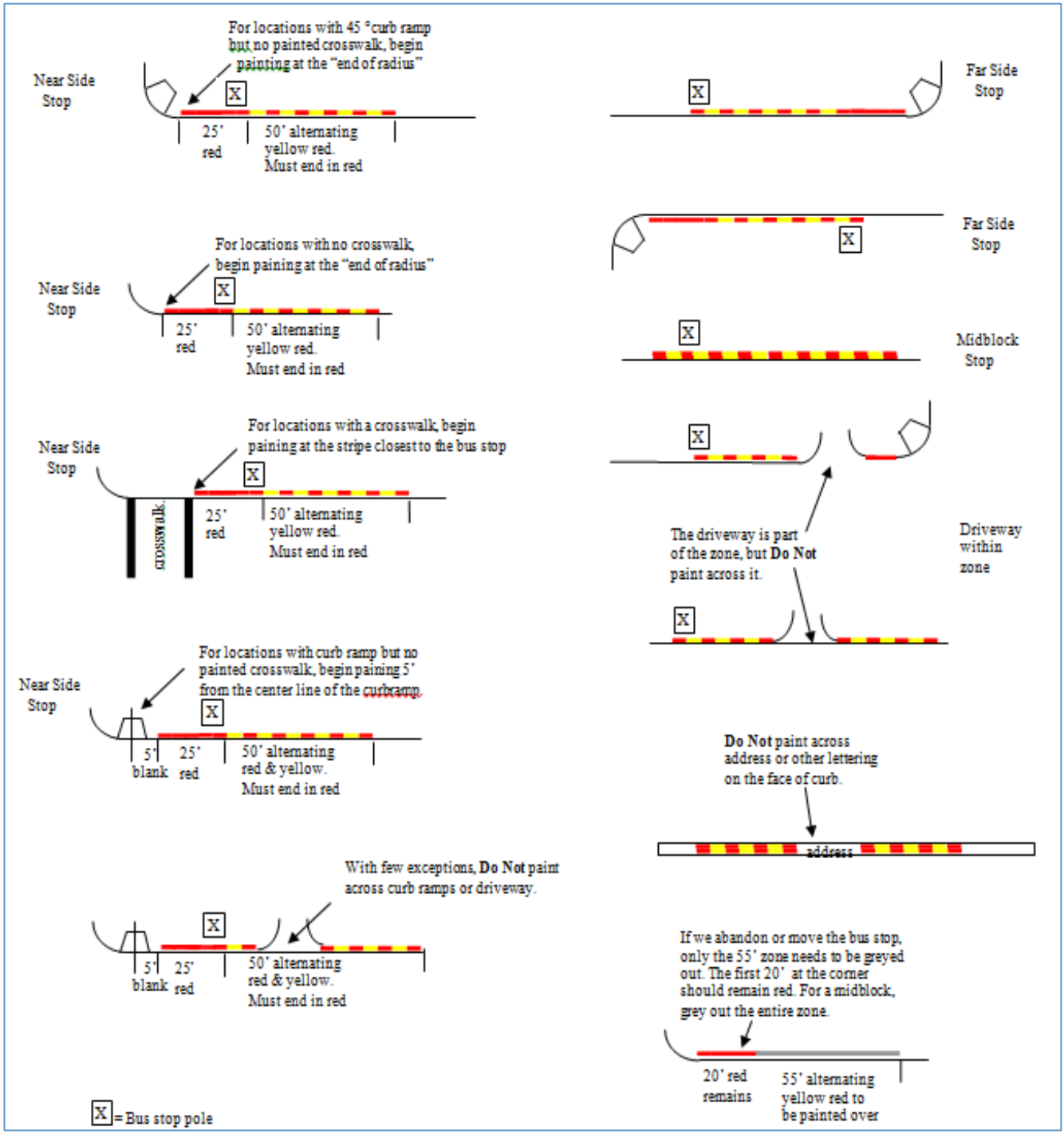
Bus zone lengths and locations are primarily dictated by Pierce Transit best practices, jurisdictional requirements, road conditions and parking configuration.

On Street Parking – continued

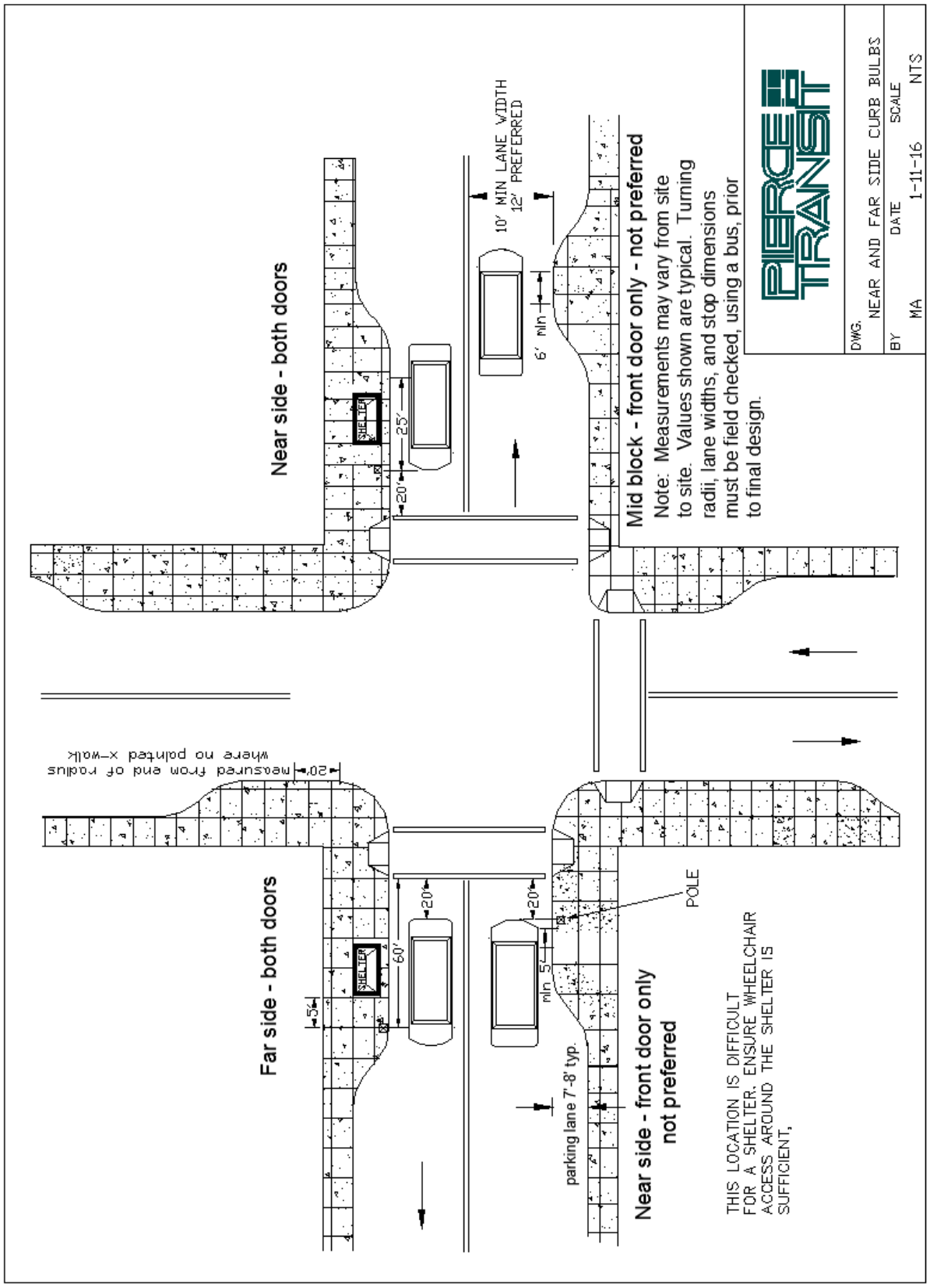


Curb Painting

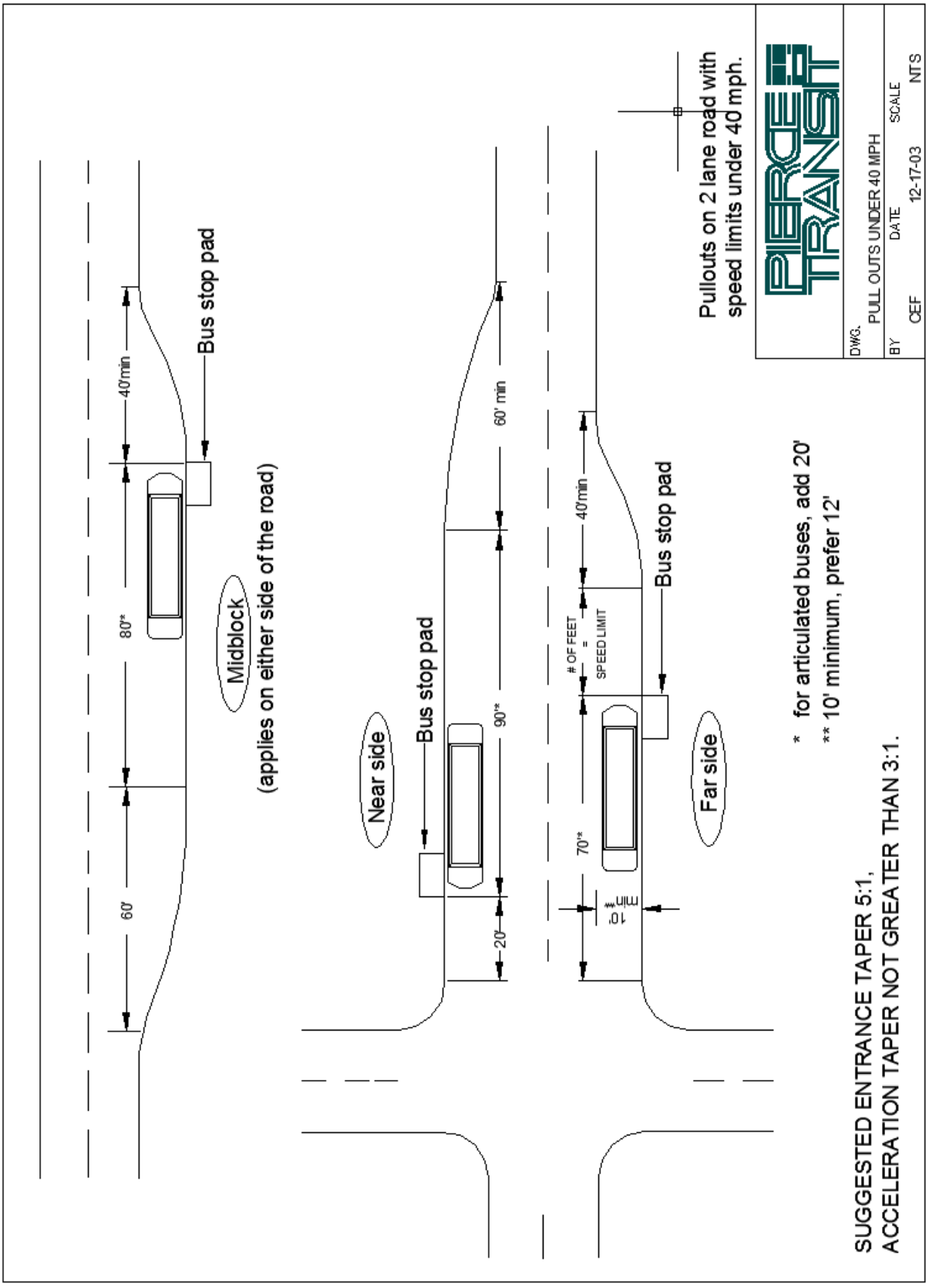
In general, Pierce Transit paints the full zone (75') when there is on street parking. The zone should begin at the bus stop pole if possible. If there is no on-street parking, either a 15' section of curb paint is done, or none at all.



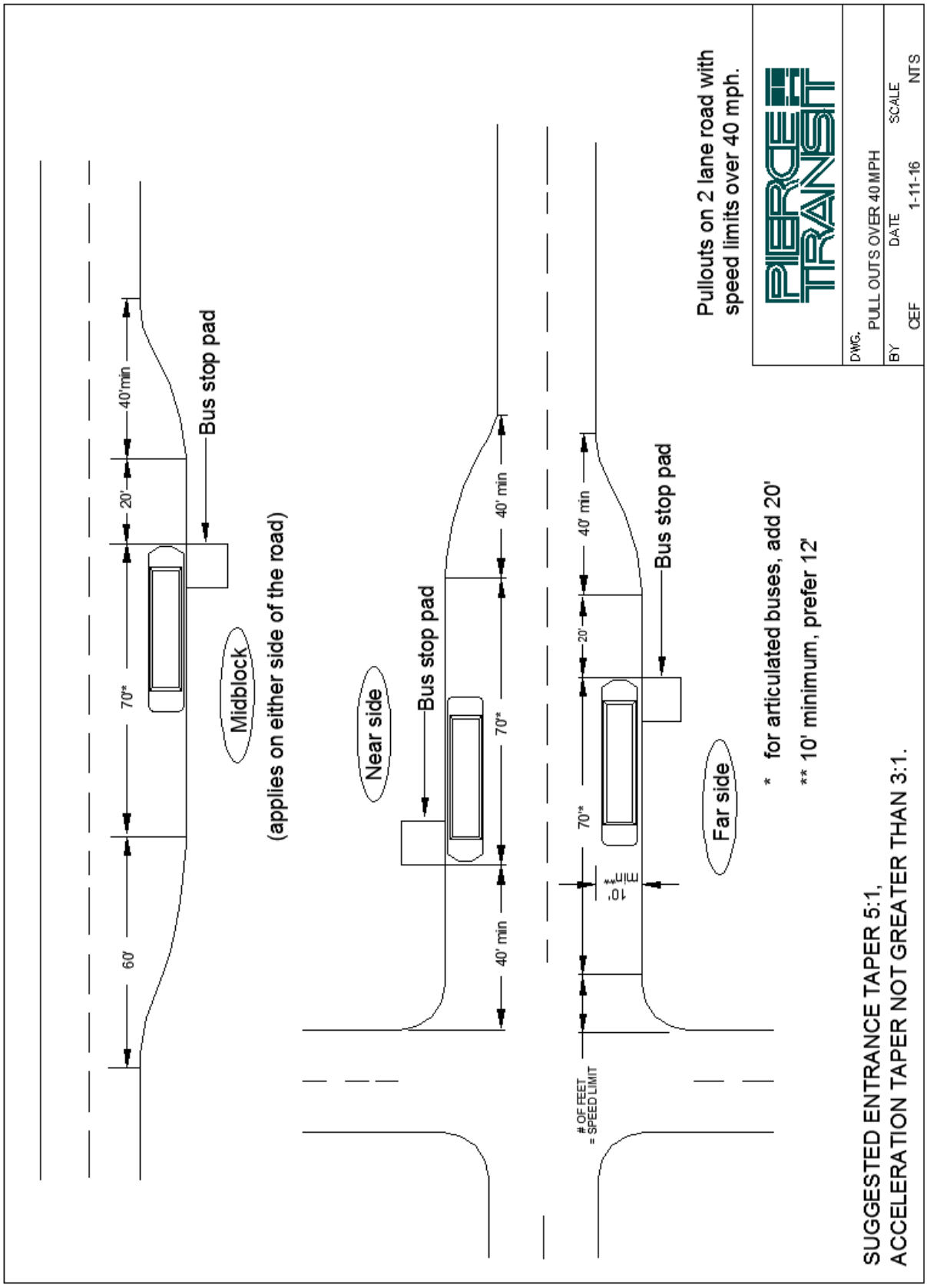
Curb Bulbs


Near side - both doors
10' MIN LANE WIDTH
12' PREFERRED
6' min
SHELTER
25'
20'
Mid block - front door only - not preferred
Note: Measurements may vary from site to site. Values shown are typical. Turning radii, lane widths, and stop dimensions must be field checked, using a bus, prior to final design.
PIERCE TRANSIT
DWG. NEAR AND FAR SIDE CURB BULBS
BY MA
DATE 1-11-16
SCALE NTS
measured from end of radius where no painted x-walk
20'
Far side - both doors
SHELTER
54'
60'
20'
20'
min 5'
POLE
parking lane 7'-8' typ.
Near side - front door only not preferred
THIS LOCATION IS DIFFICULT FOR A SHELTER. ENSURE WHEELCHAIR ACCESS AROUND THE SHELTER IS SUFFICIENT.

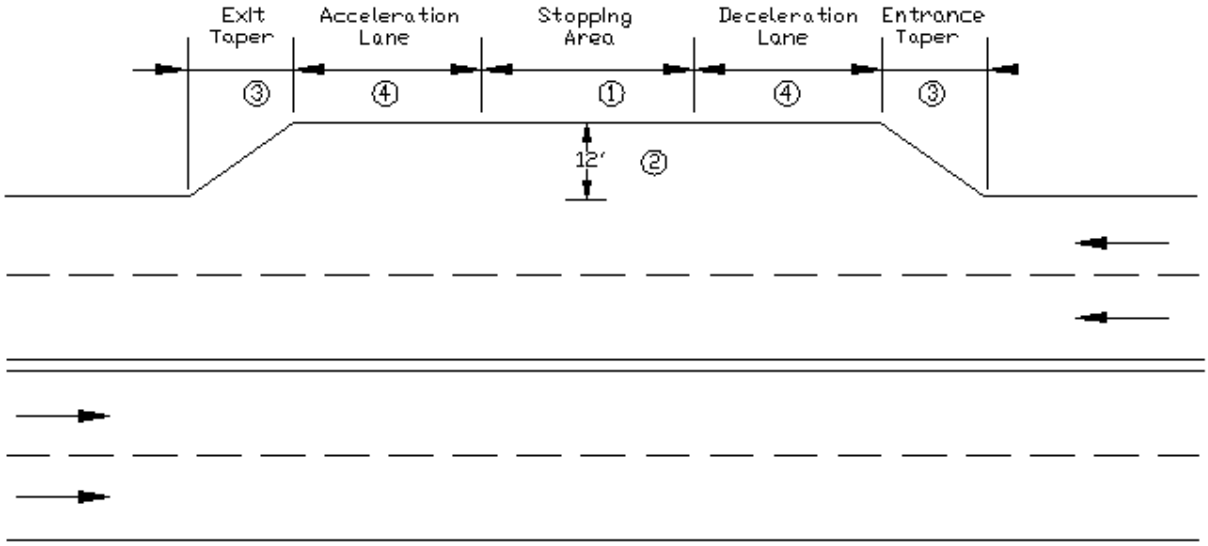
Pullouts under 40 MPH



Pullouts over 40 MPH



Pullout Dimension Details



Notes:

① Stopping area length consists of 50 feet for each standard 40-foot bus and 70 feet for each 60-foot articulated bus expected to be at the stop simultaneously.

② Pullout width is 12 feet preferred. These dimensions do not include gutter width.

③ Suggested taper lengths are listed in the table below. Desirable taper length is equal to the major road through speed multiplied by the width of the pullout. A taper of 5:1 is a desirable minimum for an entrance taper to an arterial street bus pullout while the merging or re-entry taper should not be sharper than 3:1.

④ Minimum design for a busy pullout does not include acceleration or deceleration lanes. Recommended acceleration and deceleration lengths are listed in the table below.

Through Speed (mph)	Entering Speed* (mph)	Length of Acceleration lane (feet)	Length of Deceleration Lane** (feet)	Length of Taper (feet)
35	25	250	184	170
40	30	400	265	190
45	35	700	360	210
50	40	975	470	230
55	45	1400	595	250
60	50	1900	735	270

* Bus speed at end of taper, desirable for buses to be within 10 mph of travel lane vehicle speed at the end of the taper.

** Based on 2.5 mph/sec deceleration rate.

SPECIAL SHELTER PROGRAMS----------

Business District & Neighborhood Program

Pierce Transit works closely with local jurisdictions, business districts and neighborhoods to support or reinforce economic development activities, the unique identity of those areas, and to include transit in district and neighborhood enhancements. It also gives us the chance to provide high quality transit services and potentially attract new riders. The Business District and Neighborhood Program allow for the customization of Pierce Transit shelters and other amenities in order to contribute to the vision already developed by these organizations.

PROGRAM PARAMETERS

Shelters and Associated Amenities

a. Pierce Transit will contribute the equivalent of the cost of a standard shelter package towards the cost of a business district or neighborhood district style shelter. The business district is expected to fund the difference. A shelter unit includes a standard shelter, a pole mounted trash can, a bench, and a shelter foundation. The price for amenities is established for the calendar year in which the agreements are made not the year of installation. Sales tax applies.

b. If Pierce Transit intends to replace a standard shelter or bench within a business or neighborhood district, the appropriate representative should be consulted and given the opportunity to have a custom design shelter installed instead. Pierce Transit would then contribute the cost of the standard designs only. The business district would contribute the difference.

c. Pierce Transit will assume ownership of, insure and maintain any shelter installed under this program, as we do for other shelters in the system.

d. Before Pierce Transit installs a shelter within an existing business district or neighborhood where a shelter design has already been established, Pierce Transit will contact the representative of that organization to determine if they wish to contribute to the installation of a business district shelter. If an agreement cannot be reached by the time the shelter installation is ready to proceed, likely the installation will be cancelled.

Custom Amenities not installed with Shelter

Pierce Transit will contribute the equivalent of the cost of Pierce Transit standard amenities toward the cost of business district or neighborhood amenities, when they are installed by or for Pierce Transit. Amenities include benches, pole mounted trash cans, ride guides and kiosks. In each case, the price for amenities established for the calendar year will apply to all agreements made in that year, and will not be dependent on the year of installation. If an item hasn't been purchased recently, it is recommended that a quote with current pricing be used as the basis for the agreement.

Advertising Shelter Program

A BRIEF HISTORY OF THE ADVERTISING SHELTER PROGRAM

By 2001, Pierce Transit's Marketing Department had coordinated with many of the local jurisdictions about advertising shelters and the majority were supportive of it. We began the site selection process with an advertising company. The advertising company's focus was visibility, not ridership. The concept was that Pierce Transit would install ad shelters at suitable locations using ridership and zoning restrictions as the primary criteria while the advertising company would focus on high visibility locations and zoning restrictions. Unfortunately, the advertising market sank near the end of 2001 and the program dissolved.

In spring 2003, the State passed a bill granting us the right to install advertising shelters on State Routes. This eliminated the concern that Pierce Transit wouldn't be able to install advertising shelters throughout the service area. However, it was complicated by an interpretation by the Attorney General whereby the State would be "legally obligated to collect 100% of the revenue generated by advertising at bus stop shelters along state routes, whether inside city limits or not." Because of this, Pierce Transit did not make the investment to provide electrical hookup to the ad shelters installed on SR7 and SR161. These shelters are used primarily for self-promotion.

By fall 2003, the Marketing Department felt the economy was stable enough to entertain the Advertising Shelter Program again and began the Request for Proposal bid process. The plan was that the advertising company would select locations from existing shelter sites. In 2006 we entered into an agreement with Titan whereby they install all the posters at all of the approved ad shelter locations. The overwhelming majority of ad shelters are within the City of Tacoma. In 2015 Titan changed its name to Intersection.

Some Possible Contract Elements

- A percentage of the profits are returned to Pierce Transit.
- A percentage of the profits are returned to the community.
- The advertising company maintains and repairs any damage to its shelters.
- Pierce Transit oversees construction of pads and coordinates with jurisdictions.
- The advertising company oversees the construction of the pads and coordinates with jurisdictions.
- The advertising company produces and installs the advertisements.

Some Possible Benefits to Pierce Transit

- The public benefits by the increase in the number of shelters in our service area.
- The advertising shelters are likely to be installed at locations that were not on our improvement list.
- There is little or no cost to us.
- Revenue source for us.

Art Shelters

Art shelters provide a way for local communities and schools to contribute to the unique appearance of their neighborhood transit facilities and provide a way to involve the community in maintaining the appearance and cleanliness of the shelter.

Any unique art added to Pierce Transit shelters must be durable, vandal resistant, and tolerant of routine power washing.

Any artwork applied to Pierce Transit shelters will be maintained by the organization responsible for the installation, and they will pay for any repairs or to refresh the coverings. A signed agreement, detailing who to contact and the response time for repairs must be in place.

Should the artwork be so damaged that routine maintenance will not restore it, Pierce Transit will notify the responsible organization that the artwork must be repaired or removed.

If at any time the condition of the artwork deteriorates or has been vandalized and is not repairable, or the repairs are prohibitively expensive, the artwork will be removed by Pierce Transit and offered to the responsible organization for disposal. If they do not want the artwork, or it cannot be repurposed, Pierce Transit will dispose of the artwork.

BUS STOP SECURITY----------

Issues & Procedures

In most cases, complaints about activity around and/or the appearance of bus stops or shelters fall into one of the following categories:

- Trespassing
- Loitering
- Noisy or vulgar language
- Damage to private or Pierce Transit property
- Trash
- Illegal activity
- Smoking within 25' of a bus stop or transit center amenity

FACTS BEARING ON THE ISSUE

1. Each year, we spend a significant amount of money replacing broken or vandalized glass in our shelters. For example in 2010 we lonely spent just over $18,000 but in general, we had suspended replacing glass because in 2008 we spent over $145,000 repairing vandalism. In some cases, removal of a bench or shelter has resulted in significantly reduced complaints and costs associated with maintenance.

2. Through 2002, Pierce Transit's standard shelter design consisted of a solid dark kick panel that provided an obscured view into the shelter. Beginning in 2003 the shelter design was changed to a clear kick panel. Very few solid panels remain. We are also beginning to use perforated metal panels in some highly vandalized locations.

STANDARD RESPONSE TO BROKEN SHELTER GLASS AND GRAFFITI

1. Track all vandalism in the individual bus stop files. Identify problem areas for increased cleanup and attention during the routine maintenance cycle.

2. Identify bus stops with a "high" number of incidents and begin an aggressive "watch" program. Currently, "High" is defined as more than one incident per month, or more than five per year. Facilities Maintenance will report problem bus stops to the Bus Stop Program for evaluation.

3. With some exceptions, Facilities Maintenance determines whether or not broken shelter glass should be replaced. The exceptions surround agreements with Business Districts or developers.

4. Once graffiti has been reported to Facilities, it is typically removed within three days. If the graffiti is offensive, every effort will be made to remove it as soon as practical.

5. If the vandalism is on a privately owned shelter, the property owner will be notified to remove it.

Issues & Procedures – continued

PROCEDURE FOR DEALING WITH ILLEGAL ACTIVITY

1. Post an "Unlawful Bus Conduct" and/or a "No Smoking" sign inside the shelter or at the bus stop.

2. Encourage Operators and Service Supervisors to regularly check on shelters along their routes and report problems.

3. Track all correspondence in the bus stop file. It is particularly important for custodians to report if they notice any of the following, since they are in the shelters every week:

- People are using the shelter as a toilet.
- Condoms, needles or syringes in or around the bus stop.
- A significant increase in trash or alcoholic beverage containers at or near the bus stop.
- Neighbors are voicing their concerns about the shelter or bus stop.

4. Once a shelter has generated a number of complaints, or is on its way to becoming a "nuisance shelter," the Bus Stop Program will analyze the complaints and determine how to address them.

VANDALISM TOOLBOX

Pierce Transit may draw from a "toolbox" of solutions to common vandalism and maintenance problems. Examples of some available tools are:

- Increase illumination
- Remove or install a different style bench
- Change shelter type
- Increase Supervisor surveillance
- Involve Security staff
- Involve the community
- Move or remove the shelter
- Move or remove the stop
- Play classical music

In unique circumstances, consider creating a Vandalism Task Force to develop mechanisms to discourage, catch and prosecute the vandals. At a minimum, the Task Force should include representatives from:

- Bus Stop Working Group
- Pierce Transit Security
- Local Police Liaison
- Cross District Association (in Tacoma)
- Safety & Training
- Marketing
- Citizens from the local neighborhood

BUS STOP MANAGEMENT LITERATURE----------

Inventory of Forms, Formats & Samples

Hard copies of forms, formats and samples are included on the next few pages.

Sample Request for Bus Stop Change (printed on yellow paper)

ROUTE REPAIR SLIP — Send to: Tina Vaslet (Bus Stop Program)

Name:_____ Emp#_____ Date:_____Time:_____

Bus Stop#_____Route#_____ Direction(southbound, eastbbound, etc)_____

Street_____ Cross Street_____

(Check applicable boxes)

ROUTE ITEM:

- ☐ Advertising Shelter Signs
- ☐ Bench
- ☐ Bike Rack/Locker
- ☐ Bus Stop Flag
- ☐ Bus Stop Pole
- ☐ Lighting
  - ☐ Ad Light
  - ☐ Blinky Light
  - ☐ Shelter Light
- ☐ Litter
- ☐ Parking/Cars in Zone
- ☐ Ride Guide
- ☐ Shelter Frame
- ☐ Shelter Glass
- ☐ Trashcan
- ☐ Trees/Shrubs
- ☐ Other_____

DEFECT:

- ☐ Bent/Down
- ☐ Broken
- ☐ Bulb burned out
- ☐ Curb paint needed
- ☐ Dirty
- ☐ Full
- ☐ Graffiti
  - ☐ Carving/Etching
  - ☐ Paint
  - ☐ Stickers
- ☐ Loose
- ☐ Missing
- ☐ Overgrown
- ☐ Vandalized
- ☐ Worn
- ☐ Wrong Information
- ☐ Other_____

ADDITIONAL INFORMATION_____

ROUTE REPAIR SLIP — Send to: Tina Vaslet (Bus Stop Program)

Name:_____ Emp#_____ Date:_____Time:_____

Bus Stop#_____Route#_____ Direction(southbound, eastbbound, etc)_____

Street_____ Cross Street_____

(Check applicable boxes)

ROUTE ITEM:

- ☐ Advertising Shelter Signs
- ☐ Bench
- ☐ Bike Rack/Locker
- ☐ Bus Stop Flag
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- ☐ Trashcan
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- ☐ Other_____

DEFECT:

- ☐ Bent/Down
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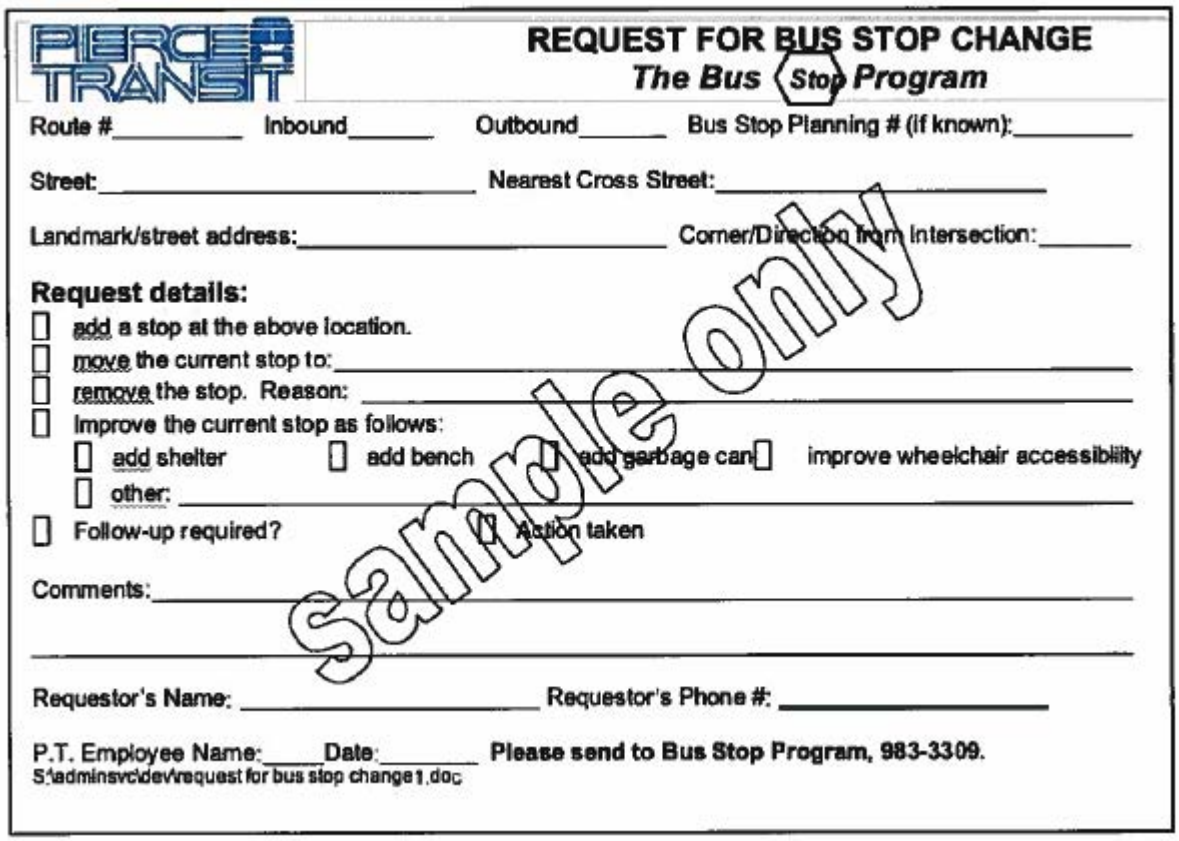
- ☐ Full
- ☐ Graffiti
  - ☐ Carving/Etching
  - ☐ Paint
  - ☐ Stickers
- ☐ Loose
- ☐ Missing
- ☐ Overgrown
- ☐ Vandalized
- ☐ Worn
- ☐ Wrong Information
- ☐ Other_____

ADDITIONAL INFORMATION_____

- **Route Repair Slip format, padded and printed on white paper**



PIERCE TRANSIT

REQUEST FOR BUS STOP CHANGE
The Bus Stop Program

Route #_____ Inbound_____ Outbound_____ Bus Stop Planning # (if known):_____

Street:_____ Nearest Cross Street:_____

Landmark/street address:_____ Corner/Direction from Intersection:_____

Request details:

- ☐ add a stop at the above location.
- ☐ move the current stop to:_____
- ☐ remove the stop. Reason: _____
- ☐ Improve the current stop as follows:
  - ☐ add shelter ☐ add bench ☐ add garbage can ☐ improve wheelchair accessibility
  - ☐ other: _____
- ☐ Follow-up required? ☐ Action taken

Comments:_____

_____

Requestor's Name: _____ Requestor's Phone #: _____

P.T. Employee Name:_____Date:_____ **Please send to Bus Stop Program, 983-3309.**

S:\adminsvc\dev\request for bus stop change1.doc

Sample only

- **Bus Stop inventory worksheet**

BUS STOP INVENTORY WORKSHEET

PLEASE FILL OUT BOTH SIDES OF FORM COMPLETELY

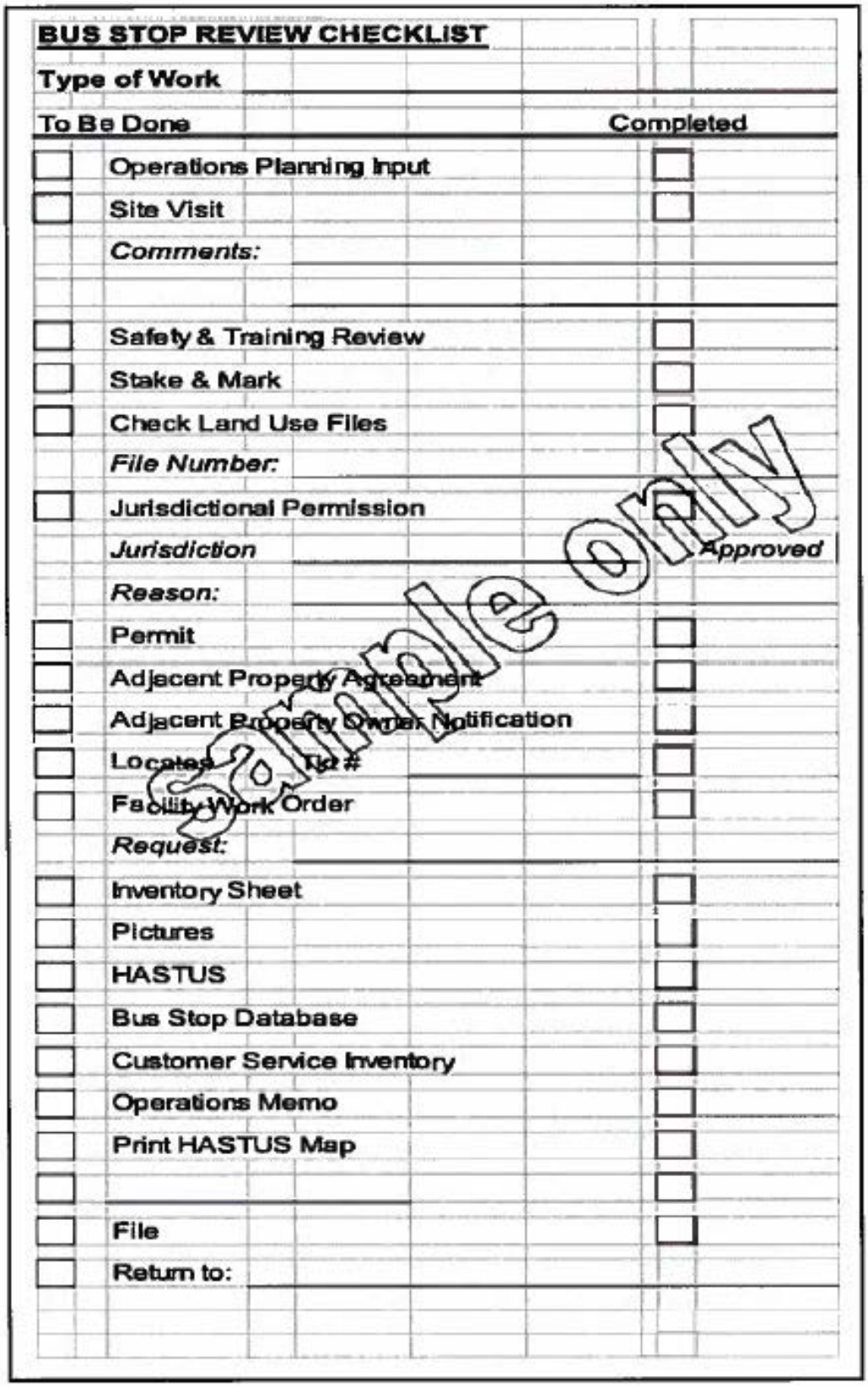
Time Point?			**Transfer Stop?**				**BUS STOP NUMBER**		
Date		Original	Update	*Update*			*Update*		
Stop Ownership		PT		ST			KCM		IT
Stop Designation									
Cross Streets									
Location of Stop	Nearside	Farside		**Corner**	NW		NE	SW	SE
	Midblock			**Side of Street**	N		S	E	W
Distance & Direction from Intersection									
Adjacent Address/Landmark									
Jurisdiction			***Permission***				***Zip Code***		
Thomas Guide Page	Grid		***T***	***R***	***S***		***Speed Limit***		
Pole Type LP	Plated	Ground	Shared	Other	***Facing***		B'flied	Toward	Away
ADA Accessible Y N			***Safety Devices***		None		Signal	X Walk	Audible
Passenger Landing		***Type***	Sidewalk	Dirt	Grass		Gravel	Asphalt	Other
		Width							
Curb/Gutter Y N		***Rolled Curb***	Y N		***Paint***		15'	Zone	None
Zone Description	Travel Lane	Shoulder	Parking Lane		Pullout		Transit Center		
Pad Y N		***Type***	Shelter	Bench	**Size**		L		W
		Type	Asphalt	Concrete	**Location**		Mono	Front	Back
Connector Pad Y N		***Size***	L	W	***Type***		Pavers	Asphalt	Concrete
Bench P S M I	None	Metal 6'	Metal 4'	Divided	Flip		Bus Dist	City	Other
Trash P S M I	None	Pole	Big Belly	32 Gal	Custom		Bus Dist	City	Other
Shelter P S M I	None	Std	Ad	BD	True Cant		Transit Ctr	Other:	
Size	Full	Cant	Dbl	*Light*	Wired		Solar	Private Wired	
Glass Type	Rotary	Std	Art	None			*Smoking sticker*	Yes	No
Replaced		Damage	Planned	Other					
Pax Info P S M I	None	Mini	Midi	iStop	Large		Kiosk	Tactile	Other

BusStopInventoryForms_1.xls Inventory Worksheet 7/12/2016

- **Bus Stop Safety Checklist**

BUS STOP SAFETY CHECKLIST			**Date**		
Bus Stop Number		**Routes Served**			
Stop Designation					
Action Considered	Add New	Move	Improve	Remove	
ADA Accessible	Y	N*	Why not?		
*If no, site must be improved before adding stop. All new, moved or improved stops must be ADA accessible.					
Sight Distance	Hill	Curve	Speed	Other	
Comments:					
Visibility	Trees	Signs	Bldgs	Other	
Comments:					
Traffic	Heavy Traffic	Multiple Driveways	Traffic Signals	Lane Config	
Comments:					
Roadway/Shoulder		Condition	Curb	Sidewalk	
Comments:					
Location	Nearside	Farside	Midblock	Distance from Left Turn	
Comments:					
Surroundings	Trees	Shrubs	Lighting	Other	
Comments:					
Safety & Training Comments					
Bus #		**Date**		**Initials**	

- **Bus Stop Review Checklist**



BUS STOP REVIEW CHECKLIST

Type of Work _____

To Be Done		Completed
☐	Operations Planning Input	☐
☐	Site Visit	☐
	Comments: _____	
☐	Safety & Training Review	☐
☐	Stake & Mark	☐
☐	Check Land Use Files	☐
	File Number: _____	
☐	Jurisdictional Permission	☐
	Jurisdiction _____ *Approved*	
	Reason: _____	
☐	Permit	☐
☐	Adjacent Property Agreement	☐
☐	Adjacent Property Owner Notification	☐
☐	Locates Tkt # _____	☐
☐	Facility Work Order	☐
	Request: _____	
☐	Inventory Sheet	☐
☐	Pictures	☐
☐	HASTUS	☐
☐	Bus Stop Database	☐
☐	Customer Service Inventory	☐
☐	Operations Memo	☐
☐	Print HASTUS Map	☐
☐	_____	☐
☐	File	☐
☐	Return to: _____	

- **Adjacent Property Owner Notification**

April 20, 2001

Mr. & Mrs. John Doe
[name of business here]
0000 Main Street
Anytown, USA 00000

RE: Proposed Bus Stop
0000 Main Street

Dear Mr. & Mrs. Doe:

In response to neighborhood requests, Pierce Transit will be adding a bus stop near your property located at 0000 Main Street, Anytown USA. The bus stop will be located within the existing right-of-way and will not encroach on the adjacent private property. Pierce Transit will install a metal pole and sign and maintain the stop.

Pierce Transit appreciates your support in improving your community's bus service.

If you have any questions or concerns about the stop, please contact me before May 15th, 2001 at (253) 581-8130 or madams@piercetransit.org.

Sincerely,

Monica Adams, Planner
Construction Projects

ADJ OWNER NOTIFY RTE61-1.DOC

- **Adjacent Property Owner Agreement**

ADJACENT PROPERTY OWNER AGREEMENT
BETWEEN
HOUSING AUTHORITY OF ANYTOWN
AND
PIERCE COUNTY PUBLIC TRANSPORTATION BENEFIT AREA CORPORATION

This Agreement, made and entered into, this _____ day of_____, 2004, by and between the HOUSING AUTHORITY OF ANYTOWN, 0000, E. Main, Anytown, USA, hereinafter called "Owner" and PIERCE COUNTY PUBLIC TRANSPORTATION BENEFIT AREA CORPORATION, 3701 96th St. SW, Tacoma, WA., a municipal corporation, hereinafter called "Pierce Transit".

WHEREAS, Pierce Transit will place a 10 foot shelter and concrete pad at the southeast corner of 0000 Main Street, using private property; and

WHEREAS, Owner owns the property located adjacent to the proposed shelter site described in Exhibit "A"; and

NOW, THEREFORE, in consideration of the covenants and agreements of the parties hereinafter set forth, the parties do hereby agree to the following:

1. Premises. Owner grants to Pierce Transit the right to install and use a pad and shelter on their property located on the southeast corner of Arlington Drive and Portland Ave as shown in Exhibit "A", as a passenger waiting area. The installation of this pad and shelter will be completed at no cost to Owner.

2. Term. This agreement shall remain in effect unless terminated by mutual consent or operation of law, whichever comes first.

3. Access. Owner authorizes Pierce Transit to access the shelter, and surrounding area via driveways, improved surfaces and landscaped areas surrounding the bench. Pierce Transit will repair any damage to the area caused by accessing the shelter and will restore the area to as good a condition, less reasonable wear and tear, as existed prior to accessing the bench when said damage is caused by Pierce Transit accessing the shelter.

4. Maintenance. Pierce Transit shall be responsible for maintenance of the shelter site and area as defined in Exhibits A.

5. Insurance. Pierce Transit agrees to include the described bench site within Pierce Transit's self-insured general liability program. Owner will promptly report any accident and/or claim to Pierce Transit and will cooperate with Pierce Transit in defense of a claim or lawsuit.

6. Indemnification. Pierce Transit shall indemnify and hold harmless Owner and its agents, employees and/or officers harmless from and shall process and defend at its own expense any and all claims, of whatsoever kind or nature, brought against Owner arising out of, in connection with, or incident to the execution of this Agreement resulting from the sole negligence of Pierce Transit. Provided, however, that if such claims are caused by or result from the concurrent negligence of (a) Pierce Transit and (b) Owner, its agents, employees and/or officers, this indemnity provision shall be valid and enforceable only to the extent of the negligence of Pierce Transit, and provided further, that nothing herein shall require Pierce Transit to hold harmless or defend Owner, its agents, employees and/or officers from any claims arising from the sole negligence of Owner and/or its agents, employees, and/or officers. This indemnification shall survive any termination of this Agreement until all obligations under this agreement are fulfilled.

- **Bus Shelter/Bus stop easement cover letter**

December 4, 2003

Housing Authority of Anytown
1000 Main St.
Tacoma, WA 98000

RE: Proposed Bus Stop Improvements at
0000 Main Street, Anytown USA

Dear Property Owner:

Pierce Transit wishes to add a passenger shelter adjacent to the property located at **0000 Main Street** in Anytown, USA. This is on the southeast corner, at our existing bus stop. Due to the lack of public right-of-way, we seek your authorization to place the concrete foundation and shelter on your property.

When placing a passenger amenity on private property, we ask our neighbors to participate in a Private Property Owner Agreement. This agreement outlines Pierce Transit's intent to maintain the bus stop and shelter and your willingness to participate in this needed passenger improvement. If at any time you request the removal of the shelter, it will be removed and the area will be returned to its former condition.

Enclosed are (3) copies of our agreement and a copy of the pad and shelter placement diagram. Please review the agreement and contact me if you have any questions. Otherwise, please sign and return (2) copies and keep the third for your records.

After the agreement has been finalized, and weather permitting, the installation should take place within the next 90 days.

Thank you for supporting public transportation in our community. I can be reached at 253.581.8130 or madams@piercetransit.org. I look forward to your prompt reply.

Sincerely,

Monica Adams, Planner
Construction Projects

ADDITIONAL REFERENCES----------

Laws, codes and publications

ADA Guidelines
Minimum 5' x 8' boarding area at bus stops
Maximum 2% cross slope
Maximum 8% slope for ramps

Bike Lanes
Pierce Transit's policy is that the bus will pull to the curb even if a bike lane is present. This prevents a bicyclist from trying to pass on the right while passengers are boarding/alighting.

Department of Justice **ADA Standards for Accessible Design** section 4.30

Guidelines for the Location and Design of Bus Stops, prepared for review by: Transit Cooperative Research Program, Transportation Research Board, National Research Council. Distributed by the Texas Transportation Institute, 1996.

KC Metro Transportation Facility Design Guidelines,

MUTCD 2B.10 item 6 - A bus stop sign may NOT be combined with a stop sign or railroad crossing

NCHRP Report 672, Chapter 6 pertaining to Round A Bouts

Puget Sound Regional Council (PSRC) Web site, www.psrc.org.

Revised Code of Washington RCW 46.61.560
Allows transit vehicles on a state highway outside an incorporated area to temporarily stop upon the roadway for the purpose of discharging and receiving passengers at a marked transit stop approved by the WSDOT (RCW 46.61.560). Requires drivers to yield the right of way to a transit vehicle that has signaled and is reentering the traffic flow (RCW 46.61.220).

Revised Code of Washington RCW 46.61.570
Among other things, prohibits parking in a designated bus zone, on or within 20'of a crosswalk, within an intersection, on railroad tracks or within 25'of the driveway entrance to a fire station, 50' from a railroad crossing, etc.

Title 6, Civil Rights Act of 1964, equality in level of service among different segments of the community.

Transportation Research Board **Highway Capacity Manual,** 2010.

Transportation Research Board Transit Cooperative Research Program, Report 19-Guidelines for Design and Construction of Bus Stops
The report offers guidelines on various issues including bus stop placement, safety checklists, amenity layout, etc.

Laws, codes and publications – continued

Washington Administrative Code 468-46
Requires WSDOT, upon receipt of a request for approval of a transit stop on a state highway outside an incorporated area, to attempt to find a suitable location at which transit vehicles may stop wholly off the roadway (WAC 468-46-010). It allows WSDOT to approve a temporary in-lane stop if a suitable location cannot be found within a reasonable and practical distance from the

proposed location (WAC 468-46-020). It requires an advance transit vehicle stop sign installed in all locations where the transit vehicle stop is not visible for 500' in advance of the stop. This sign is installed by WSDOT (WAC 468-46-040).

WSDOT Design Manual, Division 6, Section 1060,
Recommends pullouts when curb lane traffic volume exceeds 250 vehicles during the peak hours, traffic speed is greater than 45 MPH, passenger volume at the stop exceeds 20 boardings per hour, or there is a history of accidents at the proposed location.
WSDOT Design Manual Chapter 1430 Transit Facilities

WSDOT Traffic Manual Chapter 7 – Transit Vehicle Stop Zone Guidelines

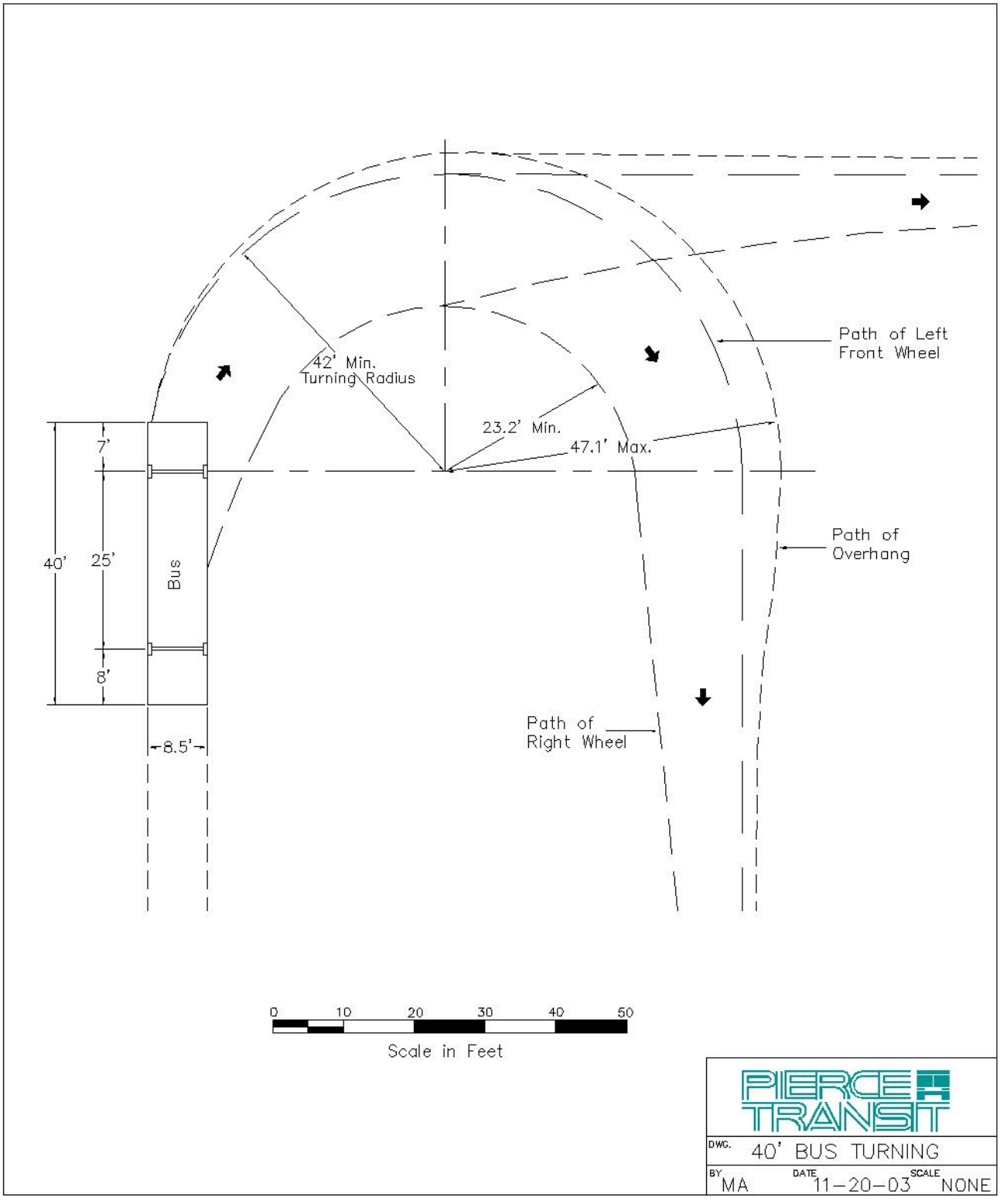
Facilities Maintenance Task Timelines

Task	Timeline	Notes
Install Pole	30 minutes	Plated or in-ground
Install Blinky Light	1 hour	
Install Bike Rack	1 hour	
Install Bike Locker	8 hours	
Install Solar Light	2-6 hours	
Print & Apply vinyl letters	30 minutes	
Assemble Shelter	2 hours	
Install Shelter	2-4 hours + 2 more for glass	
Paint bus zone curb	2-3 hours	Includes curb prep
Replace shelter pane	1-2 hours	
Powerwash Shelter	20 minutes	
Empty Trashcan	2 minutes	
Remove Graffiti	48 hours maximum	Sooner if offensive

BUS TURNING RADIUS----------

25' SHUTTLE Turning Radius – no template available

40' Bus Turning Radius – template



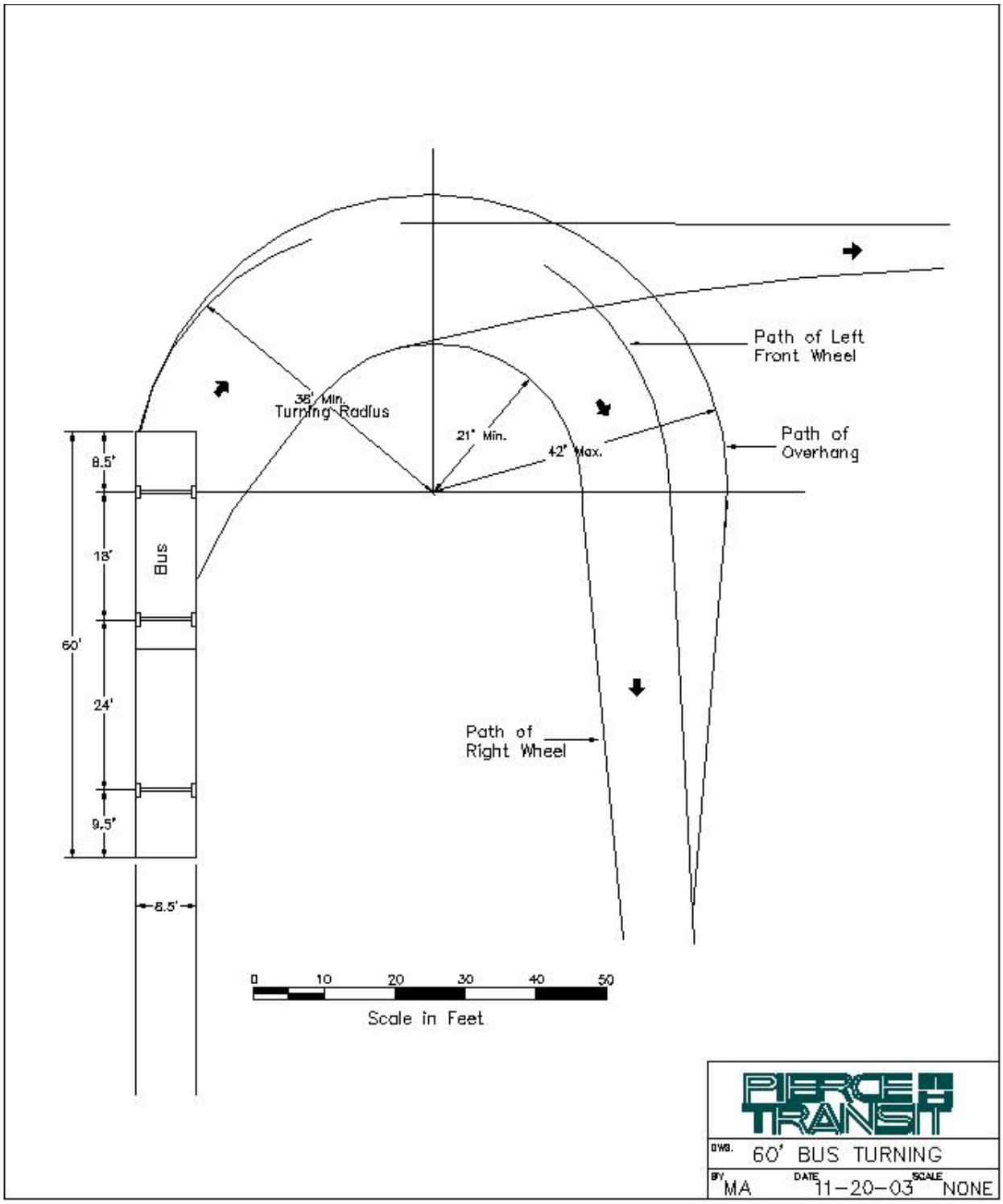
45’ MCI Bus Turning Radius – no drawing available

GENERAL DATA

The data below includes only general information on coach models covered by this manual.

VEHICLE LENGTH (Over Bumpers): ..... 39'-10" (12.14 m)
VEHICLE HEIGHT (Top of Roof Hatch): ..... 137.00" (3,479.80 mm)
VEHICLE WIDTH: ..... 102" (2,590.8 mm)
TURNING RADIUS:
RH TURN (At Front Bumper) ..... 44'-8" (13.61 m)
LH TURN (At Front Bumper) ..... 44'-8" (13.61 m)

60' Articulated Bus Turning Radius – template

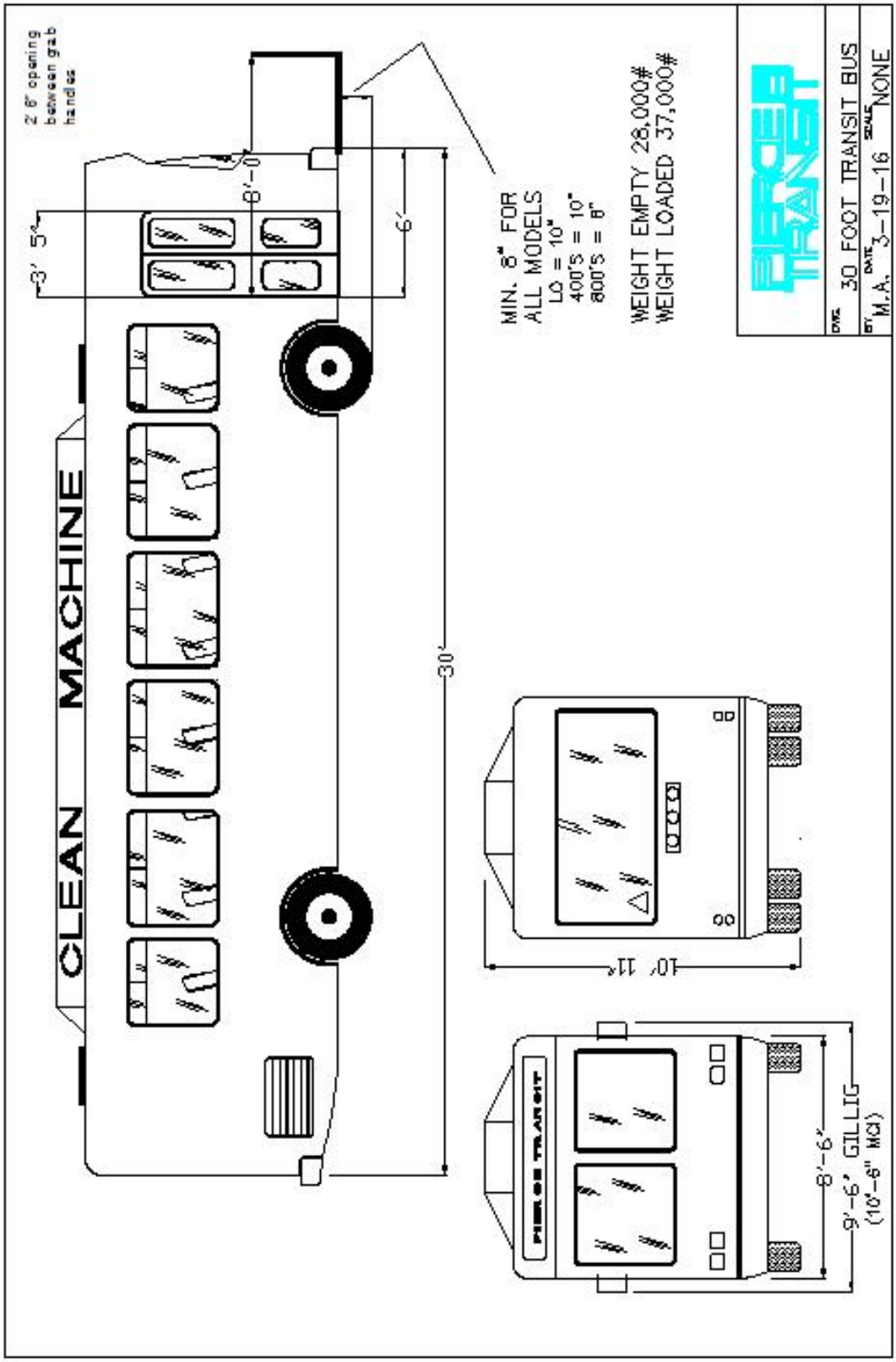


BUS DIMENSIONS & CLEARANCES----------

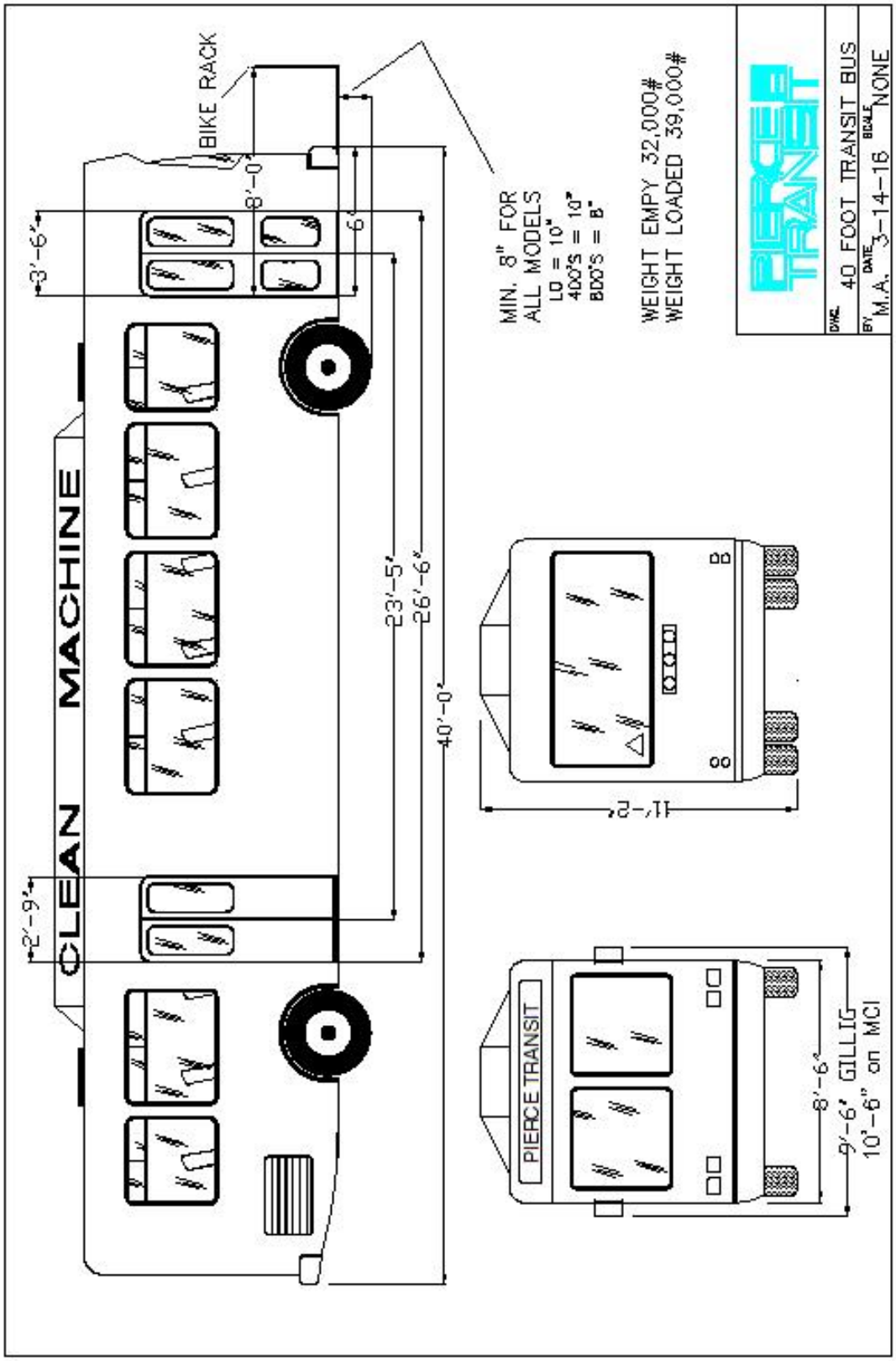
25' SHUTTLE Dimensions & Clearance – no template available

Turning Radius 27'-4"

30’ Bus Dimensions & Clearances

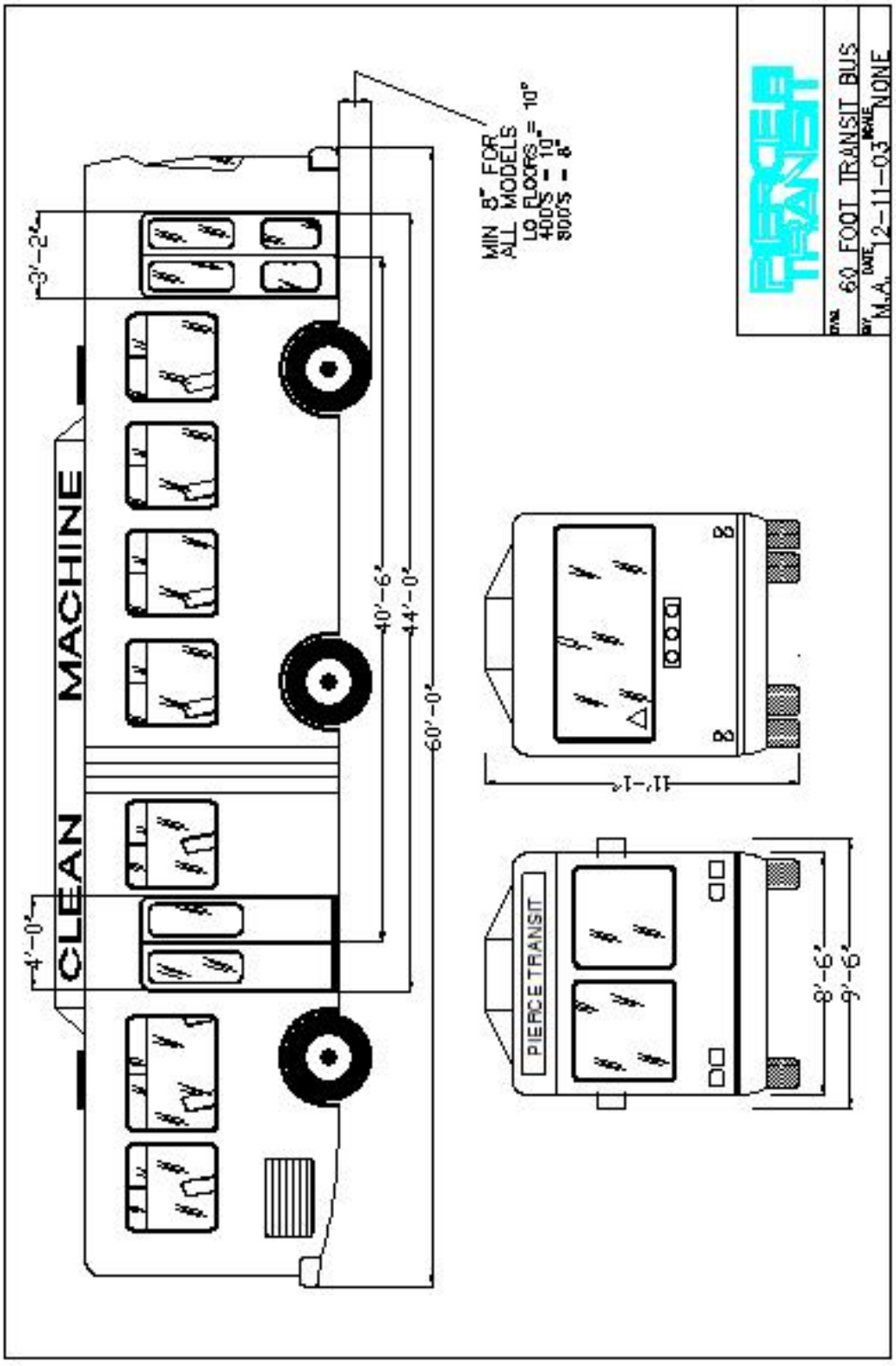


40′ Bus Dimensions & Clearances

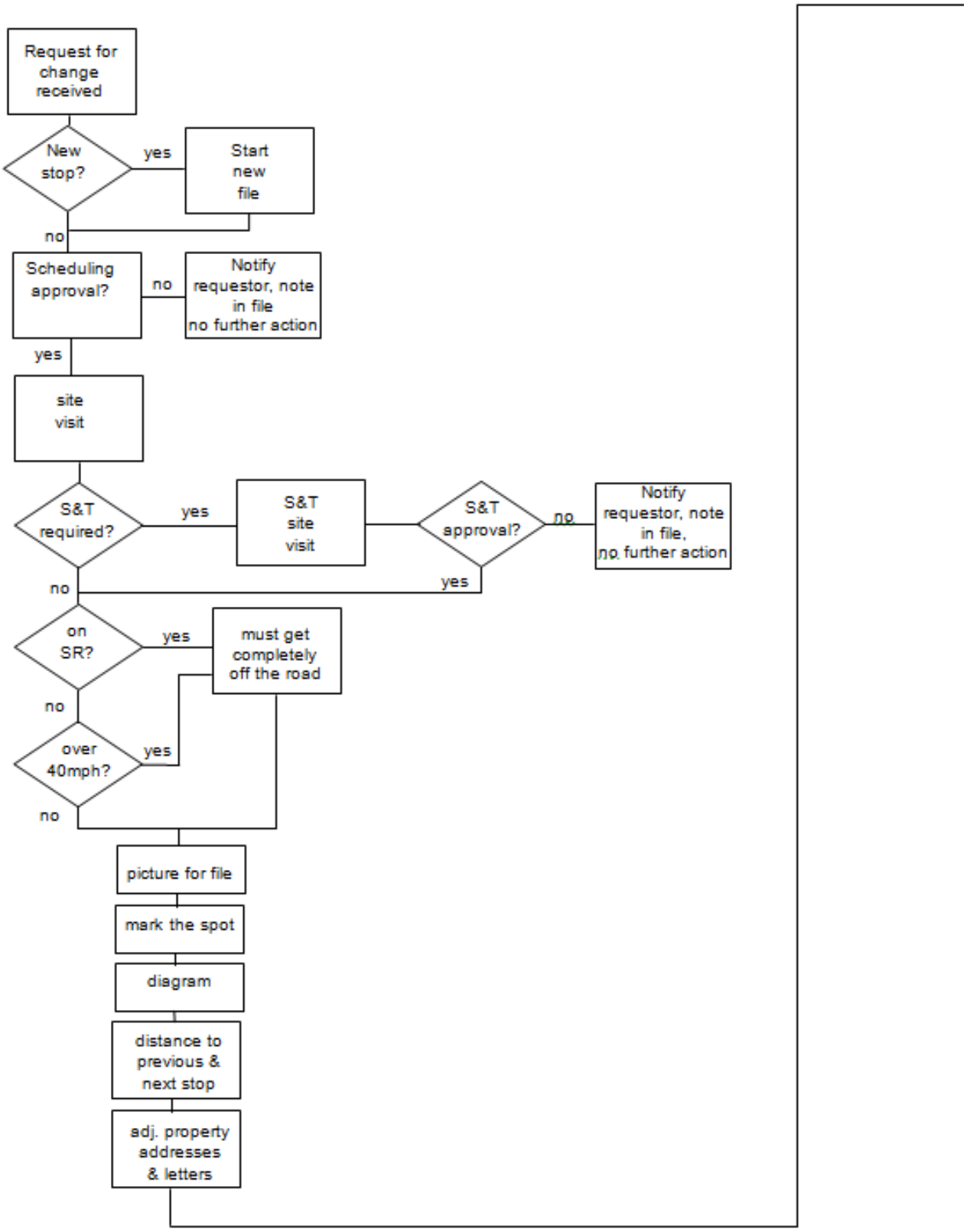


45′ MCI Bus Dimensions & Clearances – no drawing available

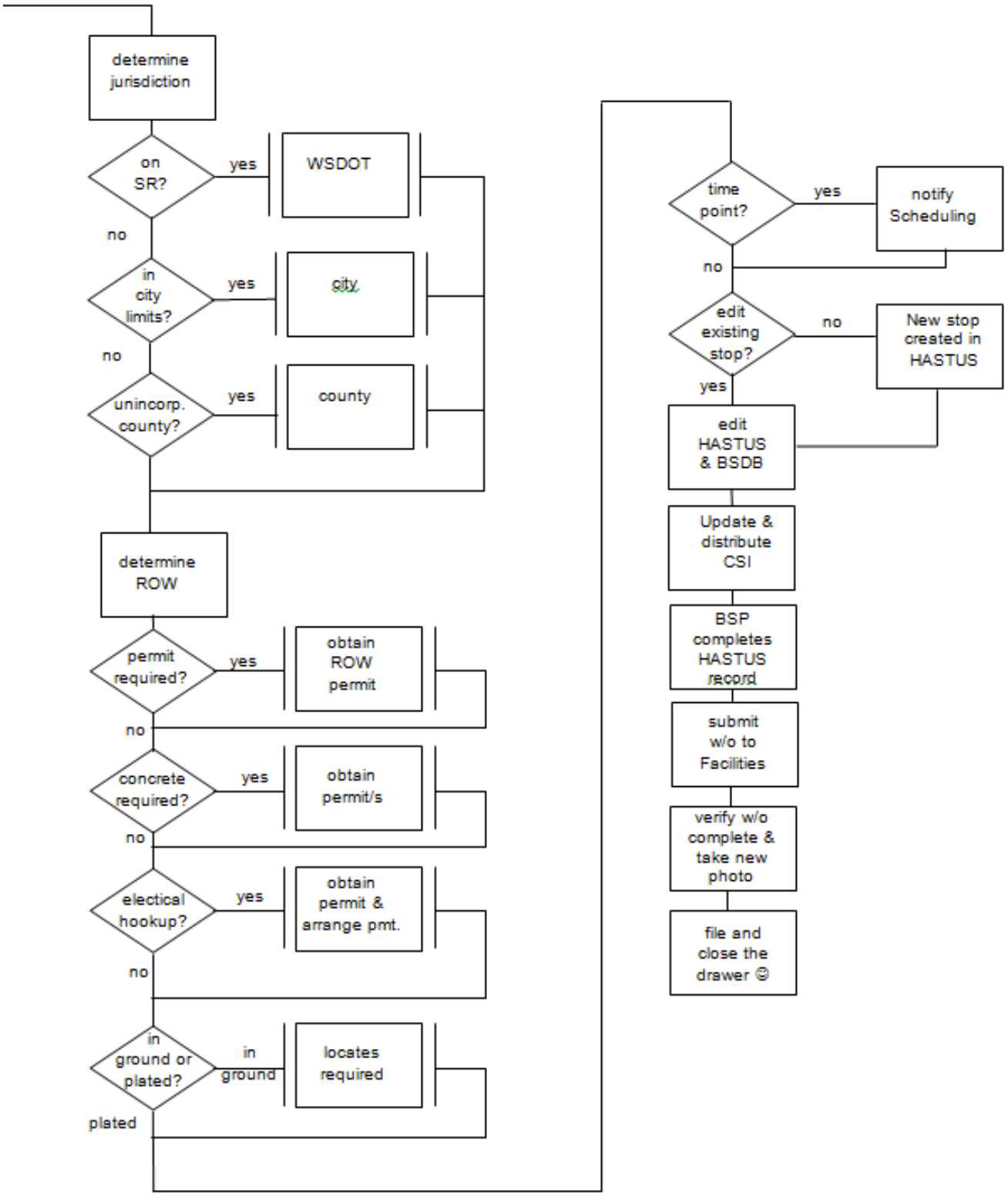
60’ Articulated Bus Dimensions & Clearances



BSP PROCESS FLOW CHART----------



BSP PROCESS FLOW CHART continued ----------



GLOSSARY----------

ADA or Americans with Disabilities Act: The Act, adopted in 1990, establishes guidelines to ensure accessibility to those with disabilities. It suggests that all transit stops meet minimum accessibility guidelines, among other topics. The key areas Pierce Transit must be cognizant of are: letter height on signage, slope of bus stop pads, ramps and sidewalks, maneuverable area at the bus stop and sign placement. Since 1994 Pierce Transit's policy is firm that no new bus stop may be added unless it meets minimum ADA guidelines. Other agencies allow various levels of accessibility.

APA or Automated Passenger Counter –a system of equipment that uses infrared light pulse and thermal radiation technologies to detect passenger boarding and alighting activity. Works in conjunction with GPS (global positioning system) and vehicle motion technology (AVL) to provide bus stop-level passenger activity data. APC equipment is installed on entire Pierce Transit Fixed Route Bus fleet and on most of Sound Transit Bus fleet.

Bus or Coach: Interchangeable terms for the transit vehicle.

BSP or the Bus Stop Program: This was formerly a group of several members of Construction Projects who administer bus stop related issues. It is now a Program made of a single member of Service Planning.

The Bus Stop Database: Written by our I/S department in 2002. It combines information from HASTUS, physical inventory and Marketing. It stores digital photos of each bus stop and can produce various reports.

Concrete Cure Time: The amount of time it takes concrete to cure to the point of being usable. For bus stop pads without a shelter, 24 hours. For bus stop pads with a shelter, 7 days. For transit pullouts, 14 days is the minimum, 28 days is preferable. These times may be shortened if special concrete mixes are used.

CSI or Customer Service Inventory: A report generated by HASTUS which is sorted by route and lists all of the active stops in sequential order. Primarily used by Customer Service Representatives and The Bus Stop Program.

Curb Setback: All jurisdictions within our service area require an 18" horizontal clearance between the curb face and the leading edge of the shelter roof (or any street furniture). Pierce Transit increased that to 2' to reduce the possibility of the shelter being hit by truck or transit mirrors. In 2002, Tacoma began suggesting a 3' setback, which Pierce Transit adheres to whenever possible.

Dwell Time: The length of time the coach is stationary while serving a stop.

Environmental Justice: Pertains to providing equal level of service regardless of income level. For example, having a disproportionate number of shelters in a mid-high income community and providing fewer shelters in a low-income area.

HASTUS: A transit vehicle and crew scheduling software package used to support transit scheduling, daily operations and customer information. Some of the features and functions of the program are used to support, create and maintain all bus stop records, manage itineraries, show bus stops and routing information (both visually and in text form), produce Customer Service Inventory pages and various reports.

In-ground Bus Stop Pole: When there are no sidewalks, or where sidewalks are less than 6' wide, an in-ground bus stop pole is used. A typical installation requires a hole approximately 20" in depth and 6" in diameter, which should allow a breakaway hole to be level with the top of the concrete when poured.

Jurisdictional Procedures Binder: A binder maintained by the Bus Stop Program which details the process for operating transit service within each of the jurisdictions we serve.

PT Styles Manual: A comprehensive guide for all Pierce Transit's publications, correspondence and signage. It dictates logo, color, font style, font color, and signage layout. It is maintained by Marketing.

Pass-by or Pass-up: When a passenger gets driven past and therefore misses the bus.

Plated Pole: This is a bus stop pole with a metal plate, approximately 1' square, welded to the bottom of the pole. It is drilled with 2 or 4 holes, which are used to install bolts and secure the pole to the sidewalk. This installation is preferred for a number of reasons: more flexibility for future relocation/replacement, less time consuming, less labor intensive, no destruction of landscaping and utility locates are not required.

PSRC or Puget Sound Regional Council: An association of cities, towns, counties, ports, and state agencies that serves as a forum for developing policies and making decisions about regional growth and transportation issues in the central Puget Sound region.

Pullout or Turnout: An area specially constructed or designated for the purpose of transit vehicle stopping. The area is separated from the traveled lanes. In general, Pierce Transit prefers not to use pullouts unless required by law or jurisdiction. Generally speaking, it takes more time to serve a pullout than by staying in the lane of travel. The bus may get trapped as cars queue at a traffic signal and fail to yield to the bus as it attempts to re-enter traffic.

RTA or Regional Transit Authority: Sound Transit is the local regional public transportation agency, delivering a mix of rail and mass transit to King, Pierce and Snohomish Counties.

Service Change or Shakeup: A predetermined date when route changes and Operator assignments are made. It happens two times a year. The RTA and the ATU agree upon the actual dates.

SHUTTLE: Specialized transportation for elderly and disabled. Minimum criteria must be met to qualify and there are varying levels of service (door-to-door, door-to-transit center) depending on need.

ST or Sound Transit: The local regional transit agency. See RTA.

Transit Vehicle: Refers to a van, minibus, or bus operated by a transit authority for public transportation.

TSP or Transit Signal Priority: A system comprised of an electronic receiver mounted on traffic signals at key intersections, and a transmitter mounted inside the bus. The cycle or timing of the traffic signal is altered to allow the bus to proceed through the intersection. The idea is that by allowing the bus to make it to the far side of the intersection to board/alight passengers, traffic won't be delayed twice: both as the bus performs its functions near side and then being stopped by the traffic signal. There is significant time and money saving for bus operations when TSP is utilized.

WSDOT: Washington State Department of Transportation.