

# BUS STOP LOCATION AND TRANSIT AMENITIES DEVELOPMENT GUIDELINES

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\_09/23/19\_

# Disclaimer

The purpose of this document is to develop criteria for designing and placing transit facilities and amenities. This document is not a set of design standards, typical build requirements or standard drawings. It is to be used as guidance on which to base transit design done by entities other than Valley Regional Transit (VRT), and as criteria for the placement and safe design of transit facilities and amenities. VRT does not own or control any of the public right of way on which it operates and as such cannot mandate requirements for what is built there. It can however, provide guidance on what the transit agency needs and requires in order to operate a transit network that is built by others. It cannot be overemphasized that these guidelines must be used in conjunction with sound evaluation of the facts and engineering judgment. VRT reserves the right to supersede or make exceptions to these guidelines based on individual elements or special context. In the instances of confusion, conflicting information, duplication or overlapping requirements, the user should default to the most conservative standards given out by VRT staff, state and/or local agency requirements, the American Association of State and Highway Transportation Officials (AASHTO) Guide for the Geometric Design of Transit Facilities on Highways and Streets, the AASHTO Guide to the Design of Park and Ride Facilities, the Public Right of Way Accessibility Guidelines (PROWAG) and guidance in this document. These guidelines are intended to be used for actions on new or revised transit stop locations or amenities.

Local authorities maintain their own standards and guidelines. These standards do not supersede or overwrite any locally accepted regulations, but rather provide transit specific guidance for VRT needs. This document should be referenced by local agencies and planning staff in order for these elements to be included and constructed as part of improvements done by private investment or agency improvements. Partner agencies generally maintain board member status on one of VRT's guiding boards or councils. This document is presented to those groups as a matter of course so that all partner agencies and their associated staff can be aware of updates or changes and can comment or request their own changes as needed as part of the approval process.

# Acknowledgements

This work was developed by staff and the VRT Regional Coordination Council (RCC) Sub-Committee taskforce. This taskforce included representation of neighborhood associations, the metropolitan planning organization, highway districts, local governments and municipalities, housing authorities, members of the community with disabilities, and individuals and families of low-income households. In 2018 the Regional Coordination Council was reformed as the Regional Advisory Council (RAC), which now performs all of the duties listed here originally assigned to the RCC.

# **Document Review and Update Policy**

The following procedure will be used to amend or update this document:

1. All changes and/or updates shall be submitted to the RAC as an information or memo item for their review and comment.

2. At the next RAC meeting the changes will be submitted for recommendation or additional comment period if needed.

3. Once the RAC board has had a chance to approve and/or comment on the changes, the information or memo item will go through the VRT board in the same fashion - in an initial meeting or presentation and then a secondary presentation for approval at the next VRT board meeting.

4. After revisions have been sent to both authorities, the online posted version will be updated with a new "Most Recent Revision" date.

# Introduction

This document summarizes the guidelines for bus stop and transit amenity design in VRT's service area and establishes a systematic process for the purpose of siting new bus stops and reviewing current bus stops. The document specifies the processes for making these decisions and sets the process for developing transit plans and for the review of projects that may affect transit operations. These guidelines and procedures also ensure that the bus stops receive the proper assessment and technical review before they are established, moved, or renovated.

# Background

VRT is a Regional Public Transportation Authority in southwest Idaho with a 28 member Board, made up of local and government representatives from Ada and Canyon Counties in southwestern Idaho. It currently operates transit services within the city limits of Boise, Meridian, Eagle, Star, Middleton, Garden City, Nampa and Caldwell. VRT was created as a single authority to be responsible for providing, aiding, and assisting public transportation in the Boise and Nampa urbanized areas, including financial review and facilitation of public transportation and its providers and providing public transportation by public modes of transportation. (Idaho Code, Title 40, Chapter 21). VRT may contract for services with public and private entities to carry out the purposes of Chapter 21 (40-2109(4)).

# **Purpose**

The purpose of this document is to outline procedures to efficiently design and respond to the requests for bus stop facilities and amenities; provide design standards and guidance to local developers and partner agencies; and develop the process to prioritize projects and provide current information to maintain good customer service and interagency relations.

# Goals

The goals of this document are to:

- Promote consistency in bus stop placement and design throughout the VRT service area
- Encourage local authorities to participate in the design of bus stops to be served by VRT
- Encourage members of the community to use public transportation by providing safe, comfortable and convenient transit facilities and amenities
- Provide a simple and transparent process for input, review and communication

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# Article I. Statement of Guidance

# Section 1.01 Bus Stop Siting and Review Guidelines and Procedures

These guidelines establish a systematic process for the purpose of siting new bus stop facilities/amenities and reviewing current bus stops. The guidelines specify the decision-making processes for developing transit plans and for the review of projects that may affect transit operations. These guidelines and procedures also ensure that the bus stop facilities/amenities receive the proper assessment and technical review before they are established, moved or renovated.

# Section 1.02 Requests for Changes in Bus Stop Facilities/Amenities

Concerns regarding existing or adding new bus stop facilities/amenities may originate from any number of sources. Requests applicable to this procedure include:

- 1. Adding and/or relocating a bus stop facility/amenity
- 2. Renovating a bus stop facility/amenity, and/or
- 3. Removal of a bus stop facility/amenity.

**Intake:** If the change request is received directly by VRT, VRT will process as described below. If the authority receives the change request, they are encouraged to initially review the request, and forward it to VRT with their recommendations. See exhibits for request forms.

**Review:** When VRT receives the request, VRT will consult with the affected authority as necessary and respond to the request. Both VRT and the local authority will review the request and determine if the stop should be added, relocated or renovated, requiring the placement or removal of amenities; or if the stop in question raises any safety or operational challenges. If the request is for an improvement or addition of amenities, the change will be considered alongside the rest of the network resources using Transit Asset Management scoring criteria.

If the issue with the stop affects the safety of VRT passengers, an analysis of the site by both VRT and the local authority should be performed expeditiously to identify alternatives that mitigate the condition. Careful consideration must be taken regarding relocation or removal of a stop due to the direct impact on persons using the stop on a daily basis.

**Implementation:** For change requests forwarded to VRT by an authority, VRT will notify the authority of its recommendation. VRT and the local authority will determine who will perform the required or needed work. If the local authority is required to perform work, such as placement of signs and/or painting of curbs, VRT will notify the authority of the required work to be completed. Notification of adjacent property owners will be made by the entity performing the work.

# Section 1.03 General, Community and Specific Plans

As local agencies and authorities create or update their general or community plans, there is generally an opportunity to incorporate transit planning into the planning process. VRT should be included early in the planning process and transit elements should be included in the plan. The transit element should include proposed bus routes, transit centers, etc.

**Plan Initiation:** Once the local authority begins the process to revise an existing or create a new plan, VRT should be informed or included. VRT should be invited to the meetings regarding transportation infrastructure projects involving access to communities, neighborhoods or developments. Initial drafts and scoping letters should be coordinated with VRT to ensure that transit needs are considered prior to the formal public review process.

**Review:** VRT should be provided the opportunity to review and respond to all proposed plan changes before and during the public review process.

**Implementation:** Local authorities will be responsible for implementing general, community, and specific plans as approved by their councils and commissions. Any amendments to these plans that will have a direct impact on the location of bus stop facilities/amenities should be forwarded to VRT for review and comment.

# Section 1.04 Development Plan Review

Development plans are processed by the member cities and counties on a regular basis; depending on the location of the projects in question these plans may directly impact bus stops and bus routes. In addition, authorities also use their Capital Improvement Programs (CIP) to build or improve streets that may affect transit or transit amenities. The intent of VRT and the Community Planning Association of Southern Idaho's (COMPASS) involvement in the development review process is to determine which plans are likely to affect transit service now or in the future so they can be reviewed and necessary space (Right-of Way) and amenities provided for needed bus stops and routes. Their involvement in this process will avoid reviewing plans which will not affect transit; avoid wasted effort and unnecessary delays to projects; and allow provision for existing stops to be brought up to required standards wherever reasonably possible. VRT and COMPASS should specifically be requested to comment on projects planned at the following locations:

- Identified Transit Corridors or corridors mentioned in documented plans that may be used by transit in the future
- Existing streets with transit routes
- Valley Connect 2.0 (VC2.0) Growth Scenario Corridors
- Major streets or corridors including all arterials and collectors
- Existing or proposed major activity centers, e.g. projects that affect streets serving high density residential, commercial, industrial areas, educational facilities, medical institutions or government service centers, etc.
- Streets that would logically connect to existing or planned transit routes or connecting areas which have or are planned to have transit service
- Projects that in the authority's opinion should be assessed for current or future transit needs.

The authority may follow a preferred method or course of action to request comment from VRT and COMPASS. To simplify the process, authorities may choose to send all development plans to both organizations which will then filter reviews based on criteria from the previous list of categories. VRT and COMPASS respectfully request the authority do all in its power to send VRT review requests based on the categories above. VRT will do all in its power to comment based on sound engineering or good judgment. VRT respectfully requests a reasonable time not less than fourteen (14) calendar days to provide written comments.

#### **Section 1.05 Construction Impacts**

Some projects will disrupt the street system and/or bus stops or routes during the construction process, even if there is no long term effect on transit operations or bus stops. Construction impacts may require temporary displacement of bus stops or routes, but no permanent route or stop changes. Prior to the start of construction, the authority or its representative should contact VRT as soon as possible prior to the start of construction. VRT staff will work with the authority to develop a plan that maintains reasonable transit access and operations while the project is being constructed. Projects that will create long-term impacts to the bus stops and routes should be coordinated with VRT at least 120 working days prior to the work being performed. Information should be sent to the VRT administration offices in hard copy or electronic format.

#### Section 1.06 Communications

At a minimum VRT will communicate short or long term changes and/or improvements to the community by notifications posted in the buses and on VRT websites. Major changes to routes such as closures or notable detours must be communicated to riders and general public thirty (30) days prior to the change. Partner agencies should make every attempt to have roadwork permit processes include this level of prior notification, whether performed by partner agency staff or private development. Temporary or Construction related detours should be coordinated with VRT well in advance (14 days minimum) to avoid federal compliance issues. Other means of communication may be used to notify the community, but are not required. See VRT Customer Service Standards for additional information.

VRT makes efforts to notify affected members of the public through web pages, advertisement and other postings, but in general, any physical or route based infrastructure or route changes should be communicated to members of the public who may be affected in any way. This may mean mailers, neighborhood signage or any number of notification types. Infrastructure changes should be communicated directly to adjacent property owners well in advance through mailers, door hangers or staff visits whenever reasonably possible. Partner agencies should follow these practices when adjusting, changing or affecting VRT network assets as part of their projects as well.

# Section 1.07 Resolution of Conflicts

The final decision on the location of bus stops is the responsibility of the controlling authority for the right of way, and may be dependent on legal agreements between VRT and the authority. If situations occur where the staff of VRT and that of the authority are unable to agree on proposed plans, bus stop locations, or other issues, the issue is to be raised to higher levels. A meeting will be held at the director level in an attempt to resolve issues. If the issue remains unresolved, an additional meeting will be held at the General Manager/City Manager/Executive Director level. If the issue is still unresolved, the authority, through its representative may address the issue to the VRT Board of Directors at the next regular meeting.

#### Section 1.08 Point of Contact

A table summarizing the point-of-contact for VRT is included in Section 7.01. These can be used as your first point of contact to address transit issues.

# Article II. Bus Stop Placement

Each bus stop location should take into consideration a number of factors including:

- spacing along the route
- consideration of authorities and officially recognized neighborhood associations
- location of the expected passenger traffic generator, either based on population density and/or specific use (i.e. major employment centers, government service centers, regional shopping centers, hospitals, etc.), for the stop
- traffic impacts and safety
- pedestrian safety and access to stops including pathways leading to and from bus stop areas that should be accessible routes including a level, firm surface, that is free of obstacles
- availability of adequate right-of-way to ensure that the bus stop meets the Americans with Disabilities Act (ADA) accessibility standards
- curb clearance adequate space for buses to stop, board and alight passengers, and allow for the bus to safely return to the traffic flow including future bus movements
- operational effectiveness issues (including relation to the nearest intersection, bus turning requirements, and re-entering the travel lane)
- at an intersection, the far side location of the intersection is preferred

Due to the number of factors involved, each new or relocated stop must be examined on a case-by-case basis. However, general guidelines for stop spacing and placement are as follows.

# Section 2.01 Stop Spacing

Although there may be limits to service and bus stop locations due to funding, bus stops should be spaced based on usage and need. VRT staff should be consulted or allowed to comment on all cases where it has been deemed necessary to place amenities outside of the following limits. Staff will use the list of characteristics noted under "Article II Bus Stop Placement" in deciding whether the distance or amount of amenities fit the current need and situation. Some exceptions to the standards listed below may be needed.

Stops should be provided no greater than 1/5-mile (0.2 miles) apart at:

- Major trip generators, which may include but are not limited to:
  - o Employment centers with 1,000+ employees
  - o Residential areas with 500+ units or minimum population density of 5000 per square mile
  - Retail centers with 400,000+ square feet of leasable space
  - Education centers with 2,500+ students
  - Major medical facilities with out-patient care
- Bus stops at transit system transfer points
- Intermediate stops based on the walking distance including:
  - o Central or high density areas with a maximum of 500 to 1500 feet of walking distance to the stops
    - 5,000+ persons/square mile
    - Residential areas over 18 Dwelling Units (DU's)/acre or commercial areas over 0.50 Floor Area Ratio (FAR)
  - Medium to low density or sub-urban areas with a maximum of 900 to 2,000 feet of walking distance to the stops
    - 3,500 5,000 persons/square mile
    - Residential: 7 to 18 DUs/acre, Commercial: 0.35 to 0.50 FAR
  - Low density to rural areas with a maximum of 1,500 to 3,000 feet of walking distance to the stops
    - less than 3,500 persons/square mile
    - Residential: Below 7 DUs/acre, Commercial: Below 0.35 FAR



### Section 2.02 Placement of Bus Stops

The proper location of stops is critical to the safety of passengers and motorists, and to the proper operation of the transit system. Bus stop locations are recommended by VRT, and approved by the local jurisdictions. Local authorities can suggest bus stop locations at their discretion.

It is important to consider the unique circumstances at each intersection when selecting bus stop locations, including:

- Proximity to major trip generators
- Presence of sidewalks and curb ramps leading to trip generators and nearby pedestrian circulation system
- Width, placement and condition of existing sidewalks
- Protected crossings at signalized or stop controlled intersections, or at crosswalks
- Convenient passenger transfers to other routes;
- Effect on adjacent property owners
- Possible conflict between buses, other traffic, pedestrians and cyclists
- Pedestrian activity through intersections
- Open and visible spaces for personal security and passenger visibility
- Street illumination
- Ability to restrict parking if needed, feasibility to move or provide parking and truck delivery zones
- Adequate curb space for the number of buses expected at the stop at any one time
- Volumes and turning movements of other traffic, including bicycles
- Proximity and traffic volumes of nearby driveways
- Street and sidewalk grade
- Ease for bus re-entering traffic stream
- Unusual intersection angles or predominant turning movements
- Proximity to rail crossings or emergency driveways
- Sight distance at adjacent intersections and driveways

Bus stops are generally located near intersections for safety and proximity to crosswalks. Locating bus stops on the far side of intersections is preferred to utilize signal prioritization and allow turning vehicles to pass through the intersections without conflicting with the bus. This maximizes pedestrian accessibility from both sides of the street and provides connection to intersecting bus routes. Under certain situations, bus stops may also be placed at a mid-block location, but only when there are no other options. See the Transit Cooperative Research Program (TCRP) Report 19 (R-19) Guidelines for the Location and Design of Bus Stops.

#### Section 2.03 Curb Clearance for Bus Stopping Zones

The preferred minimum requirements for curb clearance (this distance that should remain clear of parking stalls or other bus obstacles) for one, 40-foot bus can be as much as 140 feet depending on the existing configuration. It must be noted that these clearances are not always feasible in the urban environment of VRT; but should be aimed for wherever possible to ensure that buses have room to service the stop parallel to the curb with comfortable space to exit and reenter the travel lane. At an absolute minimum, for a far side or near side stop 65 feet of clearance from the intersection is required, at a midblock stop 120 feet is required for the bus to be able to curb around parked cars in the area. Reference TCRP R-19 or the AASHTO Guide for Geometric Design of Transit Facilities on Highways and Streets.

On streets where traffic moves quickly (45 miles per hour or more) or where there are areas of high congestion (as defined in cooperation with local jurisdictions), at stops where buses may need to lay over longer than the time it takes passengers to board and alight the bus and in areas where the impact of the bus blocking a travel lane creates unacceptable delay or potential hazard, the bus should not stop in the travel lane. These conditions may warrant consideration of a bus pullout (Bus Bay), paved shoulder, or other area of adequate curbside clearance at least 13 feet wide from

preferred by VRT as they make it very



difficult to return to the regular traffic lane, especially on high capacity corridors and should only be used when no other option is available. Pullouts or Bus Bays should be designed to follow AASHTO standards and are discussed in detail in Section VI – Design Parameters.

# Section 2.04 Abutting Property Owners / Tenants

All efforts will be taken to minimize the impact to each property owner, but vehicle and pedestrian safety will be the over-riding factor in determining the final bus stop location.

# Section 2.05 Parking Restrictions

Coordination of "No Parking" signage should be placed at bus zones when parking is expected to impact bus operations. The lack of parking restrictions could impact bus operations, traffic movement, safe sight distance, and safe and effective passenger access. Coordination of no parking signage should be done with the approval of the controlling authority but should be required as a condition of new route operation and funded as part of the new route creation budget.

# Section 2.06 Bus Stops and Driveways

Whenever possible, bus stops should not be placed where they will conflict with a driveway. However, if possible conflicts with a driveway are unavoidable:

- Every attempt to keep at least one exit and entrance open to vehicles ٠ accessing the property while a bus is loading or unloading passengers should be undertaken.
- When there are two driveways to a parcel on the same street, the downstream • driveway should be chosen as the conflict point forcing vehicles to turn behind the bus to access the parcel.
- It is preferable to fully rather than partially block a driveway to prevent vehicles from attempting to squeeze by the bus in a situation with reduced sight distance.
- Locate bus stops to allow good visibility for vehicles leaving the property and to minimize vehicle/bus conflicts. This is best accomplished by placing bus stops where driveways are behind the stopped bus.
- Ensure that passengers have a safe area to wait when loading must occur in or adjacent to a driveway.



# Section 2.07 Additional Factors in Selecting a Bus Stop Location

- Sidewalk Conditions Stops should be located and constructed to make use of existing sidewalk facilities, or new
  sidewalk facilities should be constructed to provide pedestrian access to the bus stop. At stops with heavy
  ridership, additional passenger waiting/standing areas should be constructed off of the main sidewalk so that
  waiting passengers do not block passage of other pedestrians.
- Crosswalks Bus stops should ideally be located close to existing crosswalks to encourage safe pedestrian crossings, but also located so that a stopped bus will neither block a crosswalk nor obstruct pedestrian visibility of oncoming traffic and vice-versa.
- Landscaping Issues The presence of trees and bushes at a bus stop may necessitate periodic trimming at the stop to prevent buses from hitting tree branches and bushes from encroaching on sidewalks. Tall bushes are also a potential security problem, and additional lighting should be considered at stops with this issue.
- Lighting Adequate lighting is important for passenger comfort and security as well as for visibility of waiting passengers to the bus and other oncoming traffic. Bus stops which are served after dark should be located where they will be illuminated at night, preferably from an overhead street light. If this is not possible, lighting should be installed at the stop.
- Limited Visibility Over Hills and Around Curves Bus stops should not be located over the crest of a hill, immediately after a road curve to the right, or at other locations that limit the visibility of the stopped bus to oncoming traffic.
- On-Street Parking Locating a bus stop in an area with existing curbside parking requires either removal of enough parking to permit the bus to pull off, service the stop, and re-enter the travel lane, or installation of a sidewalk extension or curb bulb to provide passenger access to the bus.
- Proximity to Major Trip Generators When feasible, a bus stop should be located to minimize walking distances to the activity center that is expected to generate the most ridership.
- Right-of-Way Considerations If a bus stop may be a future candidate for transit shelter or bench installation, a site should be selected that includes adequate right-of-way for constructing improvements.
- Transfer Locations Bus stops where transfer activity between routes is heavy, stops should be located to minimize street crossings of passengers transferring to other routes.
- Drainage Areas which tend to accumulate standing water should be avoided or improved.
- Bicycle Facilities To the extent feasible, bus stops should be located so they do not block bicycle travel lanes. Bus stops should also be located so that bicycle racks do not block pedestrian access to the bus boarding and alighting area.

# Article III. Basic Bus Stop Elements

# Section 3.01 Boarding and Alighting Area

Bus stop sites should be chosen or placed such that to the maximum extent practicable, lifts or ramps can be deployed on a firm, stable surface, so as to permit a wheelchair or mobility aid user to maneuver safely onto or off the bus and bus stop. Other items to consider in the design of boarding and alighting areas are:

 Dimensions: The minimum boarding and alighting area requirement for a bus stop (the area from which passengers board the bus and onto which passengers alight from the bus) is a continuous, unobstructed solid area contiguous to the curb that measures at least 5 feet parallel to the street and at least 8 feet perpendicular to the street where bus doors are expected to land. These are the minimum dimensions needed to deploy a lift or ramp and allow a customer in a wheelchair to board or enter the vehicle per ADA standards and requirements.



Figure 4 A.D.A. Loading Ramp

- To provide for rear-door alighting from larger buses and ADA lifts in the rear of smaller buses, the boarding and alighting area should be at least 30 feet long wherever possible.
- Stops where more than one bus is boarding/alighting passengers at the same time will need additional boarding and alighting areas to be determined by the size and placement of the buses serving each stop.
- Slope: The slope of the boarding and alighting area should be ADA compliant and must be parallel to the slope of the roadway in order for the bus wheelchair lift or ramp to be effectively deployed. Surface Material: The boarding and alighting area must be firm, stable, and slip-resistant. Concrete is the preferred surface for the boarding and alighting area. In newer developments where a new bus stop will be placed, a continuous surface poured monolithically from the curb and the sidewalk should be provided for the purposes of deploying a bus ramp or lift for wheelchairs or other mobility devices. In uncurbed shoulder areas, the boarding and alighting area may be constructed of asphalt.
- Height Relative to the Street: It is preferable that the boarding and alighting area be elevated above street level for pedestrian safety and ramp deployment.
- Clearances: A horizontal clearance between obstructions of 48 inches, and a vertical clearance of 84 inches should be maintained in all boarding areas.
- No obstructions are allowed in the entire boarding and alighting area, e.g. signage, benches, newspaper boxes, etc.

# Section 3.02 Pedestrian Considerations - Obstacles and Connectivity

To be fully useable, the boarding and alighting area (ADAAG, 10.2.1) must be connected to a sidewalk of sufficient width and condition for a person in a wheelchair to use (ADAAG 4.3, 4.5) - the narrowest useable width is four (4) feet. Curb cuts with slopes no steeper than 1 inch of level change across 12 inches (ADAAG, 4.8.2) of distance is needed where level changes occur (such as a crosswalk). If items such as newspaper boxes, utility poles, trash cans, and encroaching grass or bushes constrict a portion of the sidewalk to less than 4 feet, the sidewalk is not accessible to wheelchair users. If necessary, the existing sidewalk should be widened or new sidewalk constructed to ensure that customers are able to get to and from the bus stop. To the extent feasible, sidewalk connections around bus stops should provide safe pedestrian access to the passenger trip generators near the bus stop. If a sidewalk is not available at the stop location, the stop should be placed at the nearest firm and level surface that will allow a safe travel path. Site plans should be designed to facilitate the movement, and minimize the distances between the development and the transit services. Good pedestrian access can be achieved by considering the following guiding principles:

- Pedestrian routes to bus stops should be designed to meet the needs of all users (including disabled, elderly, and children).
- The pedestrian system should provide convenient connections between destinations including residential areas, schools, shopping centers, public services and institutions, recreation and transit.
- Provide a dedicated sidewalk and/or bike paths through new development that are safe and direct to the nearest bus stop or transit center.
- Minimize the distance between buildings and the bus stop through proximity and orientation. This can be encouraged by including transit accessibility concerns in zoning policies, setback guidelines, building orientation guidelines, and parking requirements to encourage transit-oriented development.
- Minimize the use of elements that restrict pedestrian movement such as meandering sidewalks, walled communities, and expansive parking lots. Pathways should be designed so pedestrians can traverse as straight a path as possible.
- Eliminate barriers to pedestrian activity. This includes unnecessary sound walls, landscaping, berms, or fences which impede pedestrian access or visibility. If there is restricted access, gates should be installed at access points.
- Pave pedestrian pathways and ensure they are accessible to everyone. Provide accessible circulation routes that include curb cuts, ramps, visual guides, signage (visual and Braille) and railings where needed. Place ADA compliant curb ramps at each corner of an intersection.
- Adequate drainage should be provided to avoid pooling and muddy conditions.
- Provide street lighting along bus stop access routes and safety lighting at intersections to promote safety and security for transit patrons. Ideally bus stops should be illuminated by street lighting, if not, consider installation of lighting at the bus stop.
- New residential development should provide breaks in walls between properties to allow pedestrian access to bus stops.
- In rural areas without sidewalks, a minimum 4 foot wide paved shoulder of decomposed granite, compacted and stabilized, should be provided if possible.
- At rural bus stops, a stable and compliant waiting area should be provided if possible. A solid surface 35 feet long and 8 feet wide is desirable, with a minimum of 5 feet long by 8 feet wide as needed for lift operation. A tactile warning device should be placed between the roadway and the bus waiting area to allow visually impaired pedestrian to identify the bus stop position.
- Where a bus stop serves as a transfer point, there should be a paved connection to the connecting route stops.
- Pathway slope should not exceed 1 foot vertical over 20 feet horizontal (5%). Pathway cross slope should not exceed 1 foot vertical over 50 feet horizontal 0(2%).
- A horizontal clearance of 60 inches is preferable, but a minimum of 48 inches, should be maintained along the entire pathway.
- A vertical clearance of 84 inches should be maintained along the entire pathway.



Sidewalks and paths require adequate surface width, and horizontal and vertical clearance.

#### Figure 5 Pedestrian Clear Zone

#### Section 3.03 Curb Ramps

Curb ramps are normally installed at corners or intersections to allow entrance to the street surface. Curb ramps are an integral part of the pedestrian access route leading to and from bus stop locations. Ramps should be designed to the most conservative guidance from local, state and federal ADA standards. Constructing bus stop improvements adjacent to or leading to non-compliant or failing curb ramps is not advisable. Out of compliance curb ramps should be reconstructed when bus stop improvements are constructed wherever possible.

#### Section 3.04 Signage

Bus stop signs indicate to passengers and drivers where buses stop, as well as publicize the available routes and service at the stop. See the VRT Customer Service Standards for additional information.

The sign must be securely mounted on its own post or a light standard, at an angle perpendicular to the street. The sign must be easily visible to the approaching bus driver. The bus stop sign should neither block nor be blocked by other authority signs. To prevent the sign from being struck by the bus and its mirrors, signs should be located so as not to impede bus mirrors and affect the pedestrian/cyclist path of travel (See ISPWC SD 1130). Signs on State Right of Way should be placed according to State regulations (breakaway posts, etc.). The header sign is the point at which the front of the bus should be aligned when the bus is servicing passengers and thus should be placed approximately one foot beyond the far side of the boarding and alighting area for stops served by front-lift buses. The bottom edge of the sign should be positioned at a height of at least 84 inches from the ground.

Each sign should contain the names of routes that service the stop as well as the telephone number to call for more information. In order for the bus stop sign to meet ADA minimum specifications for signs posted at 80 inches, the letters and numbers must meet ADA standards that specify that the characters have a width-to-height ratio between 3:5 and 1:1, and a stroke-to-width ratio between 1:15 and 1:10. These standards make signage accessible to persons with low vision. These requirements do not apply to route and schedule information posted at bus stops.

Route Information may be placed at bus stops that are near major trip generators or where they may attract additional ridership. Up-to-date route information will be posted as well as information about fares, holiday schedules if space is available.

# Section 3.05 Safety and Security

Traffic safety issues are discussed within the context of bus stop placement considerations.

Curbside safety and security issues include:

- location of storm drains and catch basins, which put passengers at risk of catching a foot under one when boarding or alighting the bus
- uneven surfaces, which could result in a fall
- slope of the terrain surrounding the boarding and alighting area, which can put passengers in danger of falling in an adjacent ravine or into the travel lane
- presence of hazardous objects, such as broken street furniture and jagged edges
- surface traction (for example, stone aggregate can be exceedingly slippery when wet for wheelchair users)
- water accumulation areas, which can also result in muddy and slippery surfaces
- overgrown bushes, which could potentially present a security hazard as well as encroach on the sidewalk and boarding and alighting area
- other obstacles in the sidewalk that, in addition to making it inaccessible, force pedestrians to walk in the street
- area lighting
- Landscaping

Bus stops that are served after dark should be lit to promote passenger safety and security and to improve visibility of waiting passengers to approaching bus drivers. Ideally, bus stops should be located to take advantage of existing street lights or other outside facility lighting. Alternately, installation of new lighting at the bus stop should be considered during design, construction or installation of new transit elements.

# Section 3.06 Newspaper and Vendor Boxes

Newspaper and vendor boxes can provide waiting transit customers with convenient access to reading material. However, newspaper boxes that obstruct access to the boarding and alighting area, sidewalk, shelter, or posted transit information must be removed or relocated. Boxes may not be inside bus stop boarding areas, shelters, etc., nor chained or otherwise affixed to the bus stop sign pole, shelter, or bench. Currently, laws or ordinance restricting placement of vendor boxes are instituted by the cities where they are located. Vendor boxes for free publications should be discouraged as they contribute to trash-related problems at bus stops.

While VRT does not specifically control placement of vendor boxes, VRT does not grant installation of newspaper or vendor boxes at any of its stops.

# Article IV. Passenger Amenities at Bus Stops

The design of bus stop waiting areas and amenities that enhance security and comfort play a significant role in a person's decision to use transit. Passenger amenities are installed at selected bus stops to improve passenger comfort and the relative attractiveness of transit as a transportation alternative. Permitting of advertising must follow Idaho Code for the right-of-way in question.

Selection of bus stops at which to install amenities takes into account a number of factors, including:

- average daily boarding
- proximity to major trip generators
- passenger transfer activity
- planned neighborhood improvements
- transit corridors
- equity among communities in the County
- customer and community requests

# Section 4.01 Shelters

Transit shelters are installed at selected bus stops to provide weather protection as well as seating for waiting passengers at bus stops with high ridership per VRT criteria. VRT has developed a shelter program that provides for the installation of shelters when funds become available. Shelters can also be provided by local authorities and may be required of development in the area of the stop; however VRT strongly encourages local authorities and others to be consistent in the shelter design selected by VRT. Maintenance of shelters not provided by VRT should be provided by the authority that constructs or requires the construction of the shelter. Shelters should match VRT design/standards. No advertising is allowed on the shelters except for VRT's service-related information. Contact the VRT Development Department to obtain the standards for shelter design. The suggested design/standards factors for shelters include:

- strength and durability of the structure and materials
- resistance of materials and paint treatments to weather conditions such as graffiti, cutting, fire, and other forms



Figure 6 Example Transit Shelter, Vista & Canal, Boise ID

of vandalism

• potential greenhouse effect of roof design during hot weather

- existence of, or provision of external lighting in the area, and provision of solar lighting for the shelter
  - wheelchair accessibility
  - ease of maintenance of the shelter and other amenities

• semi-transparent enclosure that allows a Coach Operator to see inside the shelter

# Section 4.02 Bus Benches

Bus stop locations that meet local, state, federal and ADA standards for bench installations will have benches installed. VRT provides non-advertising benches at select locations and

contracts to provide advertising benches at locations where advertising is allowed. Advertising benches provided by agencies other than VRT will not be allowed at bus stop locations without approval from VRT. Local communities may install non- advertising benches as an element of improved streetscape in downtown and historical areas where standard/advertising benches are not allowed due to code. Benches should be placed six to nine feet from the bus sign post so they do not create barriers to accessible bus boarding or sidewalk usage.

Benches should be anchored to prevent unauthorized movement. Benches should be installed in such a manner as to facilitate easy relocation in the event of bus route changes, street improvement projects, etc. See section 7.09 for more

information. They should be solid, durable, highly weather resistant and match VRT standard designs for non-advertising benches, unless approved by VRT.

#### Section 4.03 Trash Receptacles

VRT will not place or maintain trash receptacles at bus stops. There are small waste receptacles on each vehicle for riders but in general trash receptacles may be installed and maintained by local authorities or local communities as part of an improved streetscape, not by VRT. Trash receptacles located near bus stops must not create barriers to accessible boarding or sidewalk usage.

VRT relies on the private sector or local authorities to provide and collect trash receptacles. Developers and local authorities may design a special style of receptacle to fit into the landscape and complement the architectural style of their project or streetscape. Trash receptacles must be placed to maintain proper clearances for passage and wheelchair boarding areas.

#### Section 4.04 Lighting

Where feasible, bus stops should be located so that they will be illuminated by existing street lights. If a shelter is present, interior (solar lighting) is required to be installed with the shelter. External area lighting may also provide additional safety. The placement and maintenance of external lighting is the responsibility of local authority in charge of the street lighting system.

#### Section 4.05 Landscape Features

Landscaping can enhance the level of passenger comfort and attractiveness of transit, but should be positioned and maintained so that safety and accessibility are not compromised by encroaching bushes, uneven grass surfaces, etc. Tree branches that extend into the roadway below 11' should be trimmed back at least two feet from the curb; otherwise, they become an obstacle that the bus driver may or may not be able to avoid hitting. The area between the sidewalk and the curb at bus boarding areas should not be planted for at least 5 feet parallel to the street and eight feet perpendicular to the street must be solid to provide accessibility. VRT will not maintain landscaping. All landscaping will be installed and maintained by others.

#### Section 4.06 Intelligent Transportation Systems (ITS) Features

Installation of ITS features include:

- real-time "next-bus" arrival information
- Traffic Signal Prioritization
- electronic posting of schedules
- electronic media access to real time route information
- installation of panic buttons or call boxes

In preparation for such technologies new bus stop locations and improvements to existing stops should consider electrical and communications elements such as conduit for future use. Transit Signal Priority (TSP) equipment is installed on all VRT buses and TSP signal receiving equipment should be considered at all signal heads by controlling local authorities when reconstruction or design of signalized intersection equipment is being considered.

# Section 4.07 Transfer/Transit Centers

Transfer Centers are where multiple bus routes connect. The high volume of passengers and buses at these locations requires multiple or non-standard shelters, and provision of additional amenities. Route information needs to be provided for all routes, an area for sign holders, kiosks or other information delivery systems should be provided as well. Extra space for passenger waiting, along shelter or clear curb space, should be included in design. A standard of 8-10 square feet per peak load passenger should be used. Due to the variation in needs between the different Transfer Centers, each one should be designed specifically based on the proposed operation and locale of the center. See VRT Customer Service Standards for additional information.



Figure 7 Main Street Station Transit Center, Boise ID

### Section 4.08 Developer Responsibilities

When a development is constructed adjacent to an existing or proposed bus stop location or route, the developer should coordinate for providing amenities as described in this document. Authorities are encouraged to require the placement of shelters that conform to local transit standards for passenger recognition and ease of maintenance. Local cities should submit a copy of all street improvement and re-development plans to VRT to ensure proper coordination and placement of transit amenities. Specific corridors will require certain types of transit infrastructure, which should be included in all plans for construction on those corridors. See the section 5 relating to transit islands and the exhibits at the end of this document for more information.

#### Section 4.09 Bus Stop Maintenance

Well maintained bus stops are crucial to the image of the transit system. Damaged street furniture and trash build-up should be tended to immediately to create a positive impression for transit patrons and the general public. The owners of the downtown and historic street furniture have the obligation to maintain their furniture, and the controlling authority in question should be responsible for monitoring these items for compliance.

Maintenance frequency of not less than once per week should include:

- Full wash down of amenities/accessories once a month.
- Removal of all dirt, graffiti, and pasted material.
- Wipe down of glass surfaces.
- Removal and replacement of trash bags once a week. Should be performed more than once a week if trash accumulates frequently.
- Litter pick up around stop or shelter/accessories to a distance of 15 feet.
- Manual or chemical removal of weeds.
- Pruning of obstructing foliage.
- Touch up of marred paint.
- Verify shelter lighting levels and replacement of bad bulbs and ballasts.

#### Repair of items that pose a safety problem should be performed as soon as possible.

# Section 4.10 Bicycle Parking

Bicycle parking facilities, such as bike racks and storage lockers, should be provided at bus stops by local authorities or adjacent property owners for the convenience of bicyclists using transit. Bicycle parking facilities discourage the practice of locking bicycles onto bus facilities or onto adjacent property. By confining bicycles to one area, the racks or lockers can reduce visual clutter and maintain appropriate pedestrian clearances.

The suggested guidelines for the placement of bicycle parking facilities near bus stops are:

- Locate bike rack or lockers away from other pedestrian or bus patron activities to improve safety and reduce congestion
- Coordinate the location of bicycle parking facilities with existing on-site or street lighting
- Ensure parked bikes are visible at all times
- Do not locate bicycle parking where views are restricted by a bus shelter, landscaping, or existing site elements, such as walls
- Design and placement of bicycle parking facilities should complement other transit furniture at the bus stop
- Covered or weather protected parking locations are an important bonus to bicyclists

When selecting bicycle bike rack or locker devices, consider the following:

- Provide ability to lock bicycle frame and at least one wheel.
- Support bicycle without pinching or bending the wheel. If the wheel slot is too narrow, a mountain bike tire will not fit.
- Avoid scratching the paint on the frame of the bike.
- Provide a place to lean the bike while locking the bike.
- Locking procedure should be quick and easy to identify.
- Require minimal space.
- Design of bike rack or lockers device should not trap debris.
- Device should be easy to install but difficult to steal.

# Article V. Design Parameters

This section provides design guidelines for transit amenities.

# Section 5.01 Bus Pullouts / Bus Bays

Bus Bays are waiting or queueing areas designed to remove the bus from the regular flow of traffic. They are not preferred by VRT due to the difficulty they create in getting the transit vehicle back into the flow of traffic. If absolutely required, the design of bus pullouts must follow AASHTO design standards. In all cases where bus pullouts are proposed, VRT Development staff should be consulted prior to design to confirm the suitability of the design elements and the necessity for the facility. Unless approved by VRT the bus pullout should be placed downstream or on the far side of an intersection to make use of existing traffic signals for protection when re-entering traffic or to minimize the footprint of the Bus Bay by implementing a que-jump Bus Bay . The recommended width of a bus pullout is 13 feet wide from the edge of traveled way, with 11 feet as a minimum, to reduce sideswipe accidents.

On streets with bike lanes and with bus pullouts, either the pullout should be wide enough so that buses do not impede the bike lane or transit islands should be implemented (see exhibits for more information).

For more information on bus turnout designs and cross-sections see TCRP R-19 and the AASHTO Guide for the Geometric Design of Transit Facilities on Highways and Streets page 5-24, figure 5-15 and table 5-3 (also see section 7.06).

#### Section 5.02 Roundabouts

Roundabouts may provide significant difficulties for regular bus operations in that they do not provide a stop location for passengers to board and alight without affecting traffic. By their very nature, roundabouts are an intersection that is not designed for stopped vehicles, and buses are required to stop for the transit system to operate effectively. Additionally, roundabouts can be difficult for 40-foot long buses to traverse. For safe and efficient operation of buses through a roundabout, specific design elements must be guaranteed during the planning phase. The items of concern related to roundabouts and transit operations are the size of the roundabout, the type of curbing, and the placement of stops (see section 7.08).

- The size of a roundabout should accommodate all of the vehicles that will be using the facility. Dimensions are provided in article VII of this document to assist authority planners and designers in creating effective pathways for a 40-foot bus to operate through the roundabout.
- The type of curbing used specifically on the center island or truck apron should be some type of mountable curb, rolled or otherwise. This will allow the occasional errant vehicle the ability to roll up on the curb without shifting loads or passengers.
- The placement of stops at roundabouts is one of the few exceptions to VRT's preference of far side stops. If stops have to be placed at a roundabout, they should be placed prior to the entry of the roundabout and in an area that will allow safe movement of pedestrians and vehicles through the area while the bus is stopped.

#### Section 5.03 Bus Shelters

The following design and placement criteria will assist local authorities after it has been determined a shelter will be placed at an existing bus stop:

• Shelters should not be placed such that they block sight distance e.g. pedestrian cross walks, intersections or driveways.

- Minimum overhead canopy size of 72 square feet with a minimum width of eight feet is recommended.
- Minimum vertical clearance of 84" between the underside of roof and sidewalk surface is recommended.
- Minimum two feet clearance between front edge of overhead canopy and curb face is required.
- Shelter canopy should be waterproof with provisions for drainage away from waiting passengers and boarding area.
- Shelter should have owner's name and 24-hour telephone number displayed for emergency purposes.
- Seating for at least two people located under the shelter canopy is recommended.
- Clear floor space for people using wheelchairs is required within the shelter per ADA requirements.
- For passenger comfort and convenience, a lighting level of two foot candles is required in the shelter.
- Accessories can be added to the transit shelter and passenger boarding area (such as an emergency telephone, lean rail, bench, additional information panels, etc.) by a local authority. The authority will then be responsible for the accessories. Each item can be weighed to balance the concerns for greater passenger comfort and convenience versus concerns for security, maintenance and cost.
- The shelter should be located in reasonably close proximity to where the front door of the bus will open to facilitate timely passenger loading.
- The back of the shelter should be located no closer than 12 inches from a building face, wall, or other broad vertical surfaces to facilitate trash removal and panel cleaning.
- Shelters should not be placed between a regularly used building exit and the curb so that pedestrians retain direct access to the street from the building.
- Whenever possible, do not place shelters in front of building windows used for commercial purposes (e.g. advertising, display, business names, etc.).
- Shelters should be located to avoid exposing persons to splashing water from passing vehicles and runoff from adjacent buildings and landscaping.
- Shelters should be located so that their orientation provides as much protection as possible from wind and rain, and with consideration of the sun's angles to allow maximum shade during peak use in the morning and afternoon.
- Postings at shelters and amenities need to follow all local codes and ordinances for allowable advertising.
- See section 7.05 and the VRT Customer Service Standards for additional information.

# Section 5.04 Bus Stop Signs

Bus stop signs are placed to notify the general public where the bus will stop, to provide reference for coach operators, and to assist in marketing the system. To mark the location of all bus stops, VRT will provide and install bus stop signs. Some local jurisdictions require that they install the bus stop signs on VRT's behalf; in these cases VRT will provide the sign, post and anchor to be installed.

The bus stop sign shall:

- Identify the location as a designated bus stop.
- Provide route specific information for that location.

There are multiple criteria involved in placing a bus stop sign. Concerns for passenger and public safety, ADA requirements, convenience of bus stop location, bus stop visibility and passenger amenities must all be addressed in addition to requirements and regulations dictated by local authorities.

The following are general guidelines for bus stop sign locations and clearances:

- In no case should the post be located closer than 36 inches from the curb face
- Whenever possible, the bus stop sign should be located at the front of each bus zone
- Bus stop signs should be mounted on square Telspar style posts to guide visually impaired patrons to locate the exact location where the bus will stop
- Whenever possible bus stop signs should be placed independently of all other street signs to maintain transit stop identity
- The bottom of the sign should be seven feet above grade and no higher than 10 feet, consistent with the Manual on Uniform Traffic Control Devices (MUTCD) and the Idaho Standards for Public Works Construction (ISPWC) requirements (see section 7.07)

# Section 5.05 Bus Rapid Transit (BRT) Guidelines

Conventional urban bus operations often are characterized by sluggish vehicles inching their way through congested streets, delayed not only by other vehicles and traffic signals, but also by frequent and time-consuming stops to pickup and discharge passengers. Buses travel on average at only around 60 percent of the speeds of automobiles using the same streets due to the cumulative effects of having passenger boarding, having to reenter the traffic flow, and traveling at speeds not in accordance with coordinated traffic signal systems.

Low cost investments in infrastructure, equipment, operational improvements, and technology can provide the foundation for Bus Rapid Transit (BRT) systems that improve bus system performance. Conceived as an integrated, well-defined system, Bus Rapid Transit provides for faster operating speeds, greater service reliability and increased convenience, matching the quality of rail transit when implemented in appropriate settings. Improved bus service gives priority treatment to buses on urban roadways and would be expected to include some or all of the following features:

Bus lanes: a lane on an urban arterial or city street is reserved for the exclusive or near-exclusive use of buses.

Bus streets and busways: A bus street or transit mall can be created in an urban center by dedicating all lanes of a city street to the exclusive use of buses.

Bus signal preference and preemption (TSP): Preferential treatment of buses at intersections can involve the extension of green time or actuation of the green light at signalized intersections upon detection of an approaching bus. Intersection priority can be particularly helpful when implemented in conjunction with bus lanes or streets, because general-purpose traffic does not intervene between buses and traffic signals.

Traffic management improvements: Low-cost infrastructure elements that can increase the speed and reliability of bus service include traffic signal prioritization, bus boarding islands, bulb-outs and curb realignments.

Faster boarding: Conventional on board collection of fares slows the boarding process, particularly when a variety of fares are collected for different destinations and/or types of passengers. Alternatives include the collection of fares upon entering an enclosed bus station or shelter area prior to bus arrivals. This system would allow passengers to board through all doors of a stopped bus. A self-service or "proof-of-payment" system also would allow for boarding through all doors, but poses significant enforcement challenges. Prepaid "smart" cards providing for automated fare collection would speed fare transactions, but would require that boarding remain restricted to the front door of the bus. Changes in bus or platform design could provide for level boarding through the use of low-floor buses, raised platforms, or some combination thereof.

Although the only corridor that VRT has specific plans to convert to BRT is the State Street corridor between Eagle and downtown Boise, many of the BRT treatments identified here would also be appropriate for other transit priority corridors. ValleyConnect 2.0 identifies premium corridors in the intermediate and growth scenarios. These corridors

should be considered for additional transit amenity and infrastructure investments as described in this section and other sections. Those corridors are:

- Intermediate Scenario:
  - State Street between Hwy 55 and downtown Boise
  - Fairview between Eagle Road and downtown Boise
  - Vista between the Boise Airport and downtown Boise
- Growth Scenario:
  - State Street between Hwy 55 and downtown Boise
  - o Fairview between Eagle Road and downtown Boise
  - Vista between the Boise Airport and downtown Boise
  - Nampa/Caldwell Blvd between downtown Nampa and downtown Caldwell
  - o Overland between Federal Way and Ten Mile
  - o Chinden between Linder and Fairview
  - o Curtis/Veterans Memorial Parkway between State Street and Franklin
  - o Garrity/Idaho Center blvd. between downtown Nampa and the CWI
  - o 16<sup>th</sup> Ave S/Holly St between downtown Nampa and Greenhurst Rd.
  - I-84 between Garrity Exit in Nampa and downtown Boise transit priority investments on the freeway are of a different scale but typically include things such as HOV lanes, direct access ramps, shoulder running transit, in-line stations at overpasses etc.

#### Section 5.06 Bus Bulb-Outs & Transit Islands

Bus bulb-outs, also known as curb extensions, solve the problem of locating bus patron amenities in dense urban environments with considerable pedestrian traffic. A bulb-out is essentially a sidewalk extension through the parking lane that becomes directly adjacent to the travel lane, usually created near crosswalk areas to shorten or simplify the crossing area. When used as a bus stop, a bus will stop in the traffic lane instead of weaving into the parking lane therefore, they operate similarly to curb side bus stops. Moreover, when space limitations prevent the inclusion of amenities, bulb-outs create additional space at a bus stop for shelters, benches, and other transit patron improvements along sidewalks. Bulb-outs also provide enough space for bus patrons to comfortably board and alight from the bus away from nearby general pedestrian traffic. Finally, bulb-outs shorten the pedestrian walking distance across a street, which reduces pedestrian exposure to on-street vehicles and makes pedestrian travel quicker and more convenient for transit riders and members of the public. Bulb-outs should be considered at sites along crowded city sidewalks with high patron volumes, where parking along the curb is permitted.

Bulb-outs have particular application along streets with lower traffic speeds and/or low traffic volumes where it would be acceptable to stop buses in the travel lane. Collector streets in neighborhoods and designated pedestrian districts are good candidates for this type of bus stop. Bulb-outs should be designed to accommodate vehicle turning movements to and from side streets including transit vehicles.

Transit islands are similar to bulb-outs in that they allow the bus to stop in the travel lane in congested areas, but are usually implemented in areas where cycle tracks or protected bike lanes also exist along with possible on-street parking conflicts. Transit islands are designed to create a bus/bicycle/parking/vehicle movement coordination that will allow all modes to operate with minimal conflict. They serve to keep transit traffic from crossing over dedicated or buffered bike lanes by allowing transit riders to board and alight from an island space between the transit lane of travel and a bike

lane, thus separating the bus lane of travel from the bike lane by not requiring the bus to curb as it normally would (see examples in the exhibit section of this document).

Transit islands are required by VRT agency partners on many corridors in the VRT area of operation and are a part of VRT partner agency regional plans. Transit islands require specific design for each instance but should be implemented on the corridors in question and in any location with buffered or protected bike lanes either in use or planned for the future. Currently there are several corridors where – if improvements are being entertained, VRT requires transit islands to be created rather than the typical bus stops listed or noted in this document. Those corridors are:

- Main and Idaho Streets in Boise between Broadway/Avenue B and 16<sup>th</sup> Street
- Main and Fairview in Boise between Whitewater Parkway and 17th Street
- Capitol Blvd in Boise anywhere protected bike lanes are considered

# Section 5.07 Park and Ride Facilities

Park and Ride facilities are a great way for the traveling public to make use of a transit network when the transit network does not have service in all communities in a particular region. They can be served by numerous types of mobility providers including commuter vans, carpooling groups or transit agencies. As VRT is not the only agency to create, design or assist in the design of park and ride facilities there are numerous types of park and ride facilities in VRT's area of impact. Some are served by VRT and some are not. For the purposes of this document, guidelines have been provided only for facilities served by VRT.

Park and ride facilities can be as varied as the communities that are served by VRT. A main concern regarding the design of the park and ride is the accommodation of a large bus entering the facility. The preference is to board and alight passengers from a sidewalk abutting the street to avoid the excessive space needed to turn a large vehicle around for reentry into traffic. If boarding and alighting from a travel lane creates traffic or safety concerns, the facility must be designed to allow for proper boarding and alighting at a location inside the park and ride facility.

Other unique elements of a park and ride usually depend on what funding was or is available for the site or the maintenance and upkeep resources that are available to the site by the controlling authority. VRT does not have maintenance staff or contracts to provide landscape or facility management and must rely on the controlling authority to provide those services. Design of park and ride facilities that may be served by VRT should be coordinated with VRT's development staff from early in the design process and follow AASHTO's Guide for the Design of Park and Ride Facilities. Additionally, a park and ride facility should be highly bicycle and pedestrian friendly through connections to an outside transportation network with sidewalks and/or bicycle lanes, amenities on site including shelter, lighting, and seating.

#### Section 5.08 Bus Pads

Roadway pavements (or shoulders, if that is where the buses stop) need to be of sufficient strength to accommodate repetitive bus axle loads of up to 25,000 pounds. Exact pavement designs will depend on site-specific soil conditions. Areas where buses start, stop, and turn are of particular concern because of the increased loads associated with these activities. Using reinforced concrete pavement pads in these areas reduces pavement failure problems that are common with asphalt. The pad should be a minimum of 11 feet wide (12 feet desirable) with a pavement section designed to accept anticipated loadings. The length of the pad should be based on the anticipated length of the bus that will use the bus stop and the number of buses that will be at the stop simultaneously.

# Section 5.09 Construction Impacts to Bus Operations

Public Works and private development construction activities often impact bus operations and bus stops. Construction impacts caused by private development or public projects can be minimized through stipulations applied to the development. The following information attempts to reduce construction conflicts, provide information for the contractor, and guide local authority staff coordinating both design and construction work with the private development community. VRT considers construction coordination a local function, but is available to provide assistance if requested. VRT will participate in any decisions on construction that requires temporary stop closures, relocations, or route disruptions.

There are two predominant mechanisms for communicating transit needs to construction contractors. The first available and commonly used mechanisms are standard plans and specifications. They usually contain language requiring contractors to maintain access and signage, etc. Notes on the construction plans provide the second and often the most followed instructions to contractors and construction inspectors.

The Goal: To Provide safe access to and from the bus stop for both passengers and buses.

Typical standard plans and specifications should include the following notes:

- A minimum four (4) feet wide walkway should be provided to maintain passenger access to and from bus stops during construction.
- Temporary access to bus stop zones during construction should be approved by VRT in advance of construction activities.
- For minor roadway or shoulder impacts not expected to detour a transit route the contractor should notify VRT at least 5 working days in advance of all construction staging and impacts expected around transit stops to allow VRT to possibly close or temporarily relocate stops and related signage.
- The contractor should notify VRT at least 10 working days in advance of all notable detours or street closures affecting transit operations regardless of the duration of the closure. This will allow VRT sufficient time to plan detours and notify the general public and avoid compliance issues. More time is preferred, but 10 days for all notable detours or closures should be anticipated.
- The contractor should work with VRT to establish an approved temporary bus stop location outside of the work zone if needed. Temporary ADA access infrastructure may be needed.
- VRT will provide and post the appropriate temporary bus stop signage.
- The contractor should notify VRT at least 5 days in advance of construction completion so that permanent bus stop sign re-installations can be checked by VRT.
- Contractor may not remove any bus stop signs without prior authorization from VRT.
- All work should conform to ADA requirements including provisions for temporary access to and from bus stops.
- The contractor is responsible for all costs incurred for loss or damage to bus stop signs and hardware and street furniture.
- Temporary removal of street furniture to avoid damage and conflict during construction requires a 30 day advance notice to both the city and the owner of the street furniture.
- The contractor is responsible for construction of the passenger boarding pad on which street furniture will be placed. The pad must be designed and located in conformance with local authority standard details. Any necessary deviations from standard details require the written approval of the local authority.
- The contractor should receive approval from the local authority for the location of street furniture placement prior to construction of the passenger boarding area.
- Prior to final acceptance or release of certificate of occupancy, the local authority must be notified to inspect and approve all bus stop related improvements.
- A minimum of 48 hours advance notice to the local authority and VRT for final inspections is required.

In addition, the construction plans need to show existing and proposed bus stop locations. The following special provisions may be included in the permitting process, the inspection process, pre-construction conferences, or wherever it is most appropriate:

- Contractor should provide VRT with the name and telephone number of the contractor's construction manager prior to the commencement of all construction projects involving bus stops or bus route detours.
- Contractors should make every effort to schedule their work to minimize impacts and the duration of impacts to transit operations and the general public.
- The contractor is responsible for the construction of the passenger boarding area.
- A representative of VRT should be invited to the project's pre-construction conference.

# Article VI. Background Information

#### Section 6.01 Bibliography

AASHTO. Guide for the Design of Transit Facilities on Highways and Streets. Washington, DC: 2014

AASHTO. Guide for Park –and-Ride Facilities, 2<sup>nd</sup> Edition. Washington, DC: 2004

ADA Accessibility Guidelines (ADAAG) – http://www.access-board.gov/adaag/html/adaag.htm

Public Rights-of-Way Accessibility Guidelines (PROWAG) - <u>http://www.access-board.gov/guidelines-and-</u> standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines

Texas Transportation Institute, Texas A&M University, Texas A&M Research Foundation (1996) **TCRP Report 19** – <u>http://nacto.org/docs/usdg/tcrp\_report\_19.pdf</u>,

US Dept. of Justice - Transportation Requirements –<u>http://www.usdoj.gov/crt/ada/reg3a.html#Anchor-11861</u> Federal Transit Administration - ADA Information –<u>http://www.fta.dot.gov/transit\_data\_info/ada/14524\_ENG\_HTML.htm</u>

United States Access Board – <a href="http://www.access-board.gov/index.htm">http://www.access-board.gov/index.htm</a>

Transit Cooperative Research Program - http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\_rpt\_19-a.pdf

#### Section 6.02 Glossary of Terms

- AASHTO American Association of State and Highway Transportation Officials
- ADA Americans with Disabilities Act
- ADAAG ADA Accessibility Guidelines from the US Access Board: see <u>http://www.access-board.gov/adaag/html/adaag.htm</u>
- Bulb-out a curb extension from the sidewalk which allows buses to board passengers without leaving the travel lane; sometimes referred to as a nub
- Downstream past or after an amenity or intersection in question in the direction and flow of traffic
- Dwell time the time a bus spends at a stop, measured as the interval between its stopping and starting
- Farside stop a bus stop located immediately after an intersection
- Headway the interval between the passing of the front ends of successive buses moving along the same lane in the same direction, usually expressed in minutes
- ISPWC Idaho Standards for Public Works Construction
- Layover time built into a schedule between arrivals and departures, used for the recovery of delays and preparation for the return trip
- Midblock stop a bus stop within the block
- Nearside stop a bus stop located immediately before an intersection
- Notable detour or closure a construction detour that will cause the transit vehicle more than 5 minutes of route timing changes to complete
- Open bus bay a bus bay designed with bay "open" to the upstream intersection
- PROWAG Public Rights of Way Accessibility Guidelines
- Queue jump bus bay a bus bay designed to provide priority treatment for buses, allowing them to use right-turn lanes to bypass queued traffic at congested intersections and access a far side open bus bay
- Queue jump lane right-turn lane upstream of an intersection that a bus can use to bypass queue traffic at a signal
- Roadway geometry the proportioning of the physical elements of a roadway, such as vertical and horizontal curves, lane widths, cross sections, and bus bays
- Shelter a curb-side amenity designed to provide protection and relief from the elements and a place to sit while patrons wait for the bus.

- Sight distance the portion of the highway environment visible to drivers
- Street-side factors factors associated with the roadway that influences bus operations
- **TCRP** Transit Cooperative Research Program of the Transportation Research Board
- **Upstream** toward the source of traffic
- Waiting or accessory pad a paved area that is provided for bus patrons and may contain a bench or shelter

# **Article VII. Exhibits**

# Section 7.01 Point of Contact Information

# **Points of Contact**

# **Capital Projects**

	Regional Project Manager	Jacob Hassard	208.258.2705
Plannin	<b>g</b> Planning Manager	Stephen Hunt	208 258 2701
Mainte	nance	Stephen nunt	208.238.2701
	Transportation Services		
	Ada County	Dispatch	208.258.2746
	Canyon County	Dispatch	208.258.2780

Section 7.02 Change Request for Adding, Adjusting or Removal of a Bus Stop Location or Amenity

# Bus Stop / Bench and/or Shelter Request

Date Submitted:							
Contact Information Name: e-mail address: Address:							
Phone:							
Existing/Proposed Stop Location							
Address							
Cross Streets							
City _							
Requesting a: Bench							
Shelter							
What Routes use this stop?							
Is there:							
Existing Sidewalk?	Yes	or	No				
Cross Walk?	Yes	or	No				
Pedestrian Ramps?	Yes	or	No				
Any Additional Comments:							
VRT Response							
Date of Response:							
Determination:							

# Section 7.03 Minimum Bus Stop Site Layout Requirements and Dimensions



#### Figure 8 A.D.A. Loading Area Requirements



Figure 9 Bus Stop with A.D.A. Loading Area

# Section 7.04 Recommended Bus Stop Site Layout Elements and Dimensions



Figure 10 Example Bus Stop Elements, Overland & Curtis, Boise ID

# Section 7.05 Typical Shelter Bus Stop Elements and Recommendations



Figure 11 Example Bus Shelter Elements, Vista & Targee, Boise ID

#### Section 7.06 Minimum Bus Bay / Bus Pullout Dimensions

5-24

Guide for Geometric Design of Transit Facilities on Highways and Streets



Not to Scale

- (1) The bus stopping area should be 15 m (50 ft) for each standard 12.2-m (40-ft) bus and 21 m (70 ft) for each 18.3-m (60-ft) articulated bus expected to be at the stop at the same time.
- (2) The width of the bus bay should be at least 3.6 m (12 ft), excluding gutter width. A bus bay 3 m (10 ft) in width may be acceptable with traffic speeds less than 50 km/h (30 m.p.h.)
- (3) Taper lengths are a function of the street through speed and the width of the bus bay. Recommended taper lengths are listed in Table 5-3. A taper of 5:1 is the recommended minimum for an entrance taper from an arterial street into a bus bay. The recommended taper for re-entry into the traffic stream is not sharper than 3:1.

(4) Recommended acceleration and deceleration lane lengths are listed in Table 5-3.

Source: TCRP Project D-09 Task 7-4 Bus Pull-Outs, p. 12.

12000	Dis Wess	S.M.S.S.	Length					2462	
	Thru Speed	Thru Ente Speed Spee	Enter Speed	Entrance Taper	Decel. Lane	Stopping Area	Accel. Lane	Exit Taper	Total
Metric	km/h	km/h	m	m	m	m	m	m	
	<50	<30	5:1 min	None	15	None	3:1 max	40	
	60	40	50	55	15	75	50	245	
	70	50	65	110	15	215	65	470	
	80	60	70	145	15	295	70	595	
	90	70	75	180	15	425	75	770	
	100	80	80	225	15	580	80	980	
U.S.	mph	mph	ft	ft	ft	ft	ft	ft	
	<30	<20	5:1 min	None	50	None	3:1 max	130 min	
	35	25	170	185	50	250	170	825	
	40	30	190	265	50	400	190	1,095	
	45	35	210	360	50	700	210	1,530	
	50	40	230	470	50	975	230	1,955	
	55	45	250	595	50	1,400	250	2,545	
	60	50	270	735	50	1,900	270	3,225	

#### Table 5-3. Sample Bus Bay Dimensions (36)

Figure 5-15. Typical Bus Bay Dimensions (37)

Notes: 1. Entering speed to be within 15 km/h (10 mph) of through-speed at end of taper.

- Tapers based on standard 3.65-m (12-ft) bus bay width. 3.0-m (10-ft) minimum is acceptable for traffic speed under 50 km/h (30 mph)
- 3. Add 6.1 m (20 ft) to length of stopping area if it is to be used by 18.1-m (60-ft) long articulated buses.
- 4. Deceleration rate 4 km/h/sec (2.5 mph/sec).

Note – these dimensions are the minimum requirements. Local agency or authority requirements may also apply.

# Section 7.07 Required Bus Stop Sign Details (from ISPWC)



Note – these dimensions and elements are minimum requirements. Local agency or authority requirements may also apply.



# Section 7.08 Minimum Roundabout Dimensions for Transit Use

VERTICAL CURB & GUTTER

4" YELLOW

IRE WIDTH (MIN,

13:

E

PEDESTRIAN RAMP WITH DETECTABLE DOMES (TYP

ISLAND

D CENTRAL RUCK APRON

₽

1

IELD LINE

ÿ

BEGIN 4" YELLOW

1

1. ALL PAVEMENT MARKINGS SHALL BE PEF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

NOTES:

TRUNCATED DOMES (REFER IDAHO STANDARDS FOR PUB

LEGEND:

4" WHITE (TYP)

Ь

SHEET 1

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY ADD FILE NAME DRAWING DATE: SEPTEMBER 201:

> DESIGN CHECKED B. SHEA B, SHEA

DESIGNED DETALED DRAWING CHECKED 7. PIEF

# Section 7.09 Bus Bench Placement Detail

**Bench Placement Guide** 



Valley Regional Transit's Bus Stop Location and Transit Amenities Development Guidelines

Section 7.10 Examples Transit Islands



Figure 12 Example Transit Island Concept



Figure 13 Example Transit Island



Figure 14 Example Transit Island, Idaho & 1<sup>st</sup>, Boise ID



Figure 15 Example Transit Island Conceptual Design