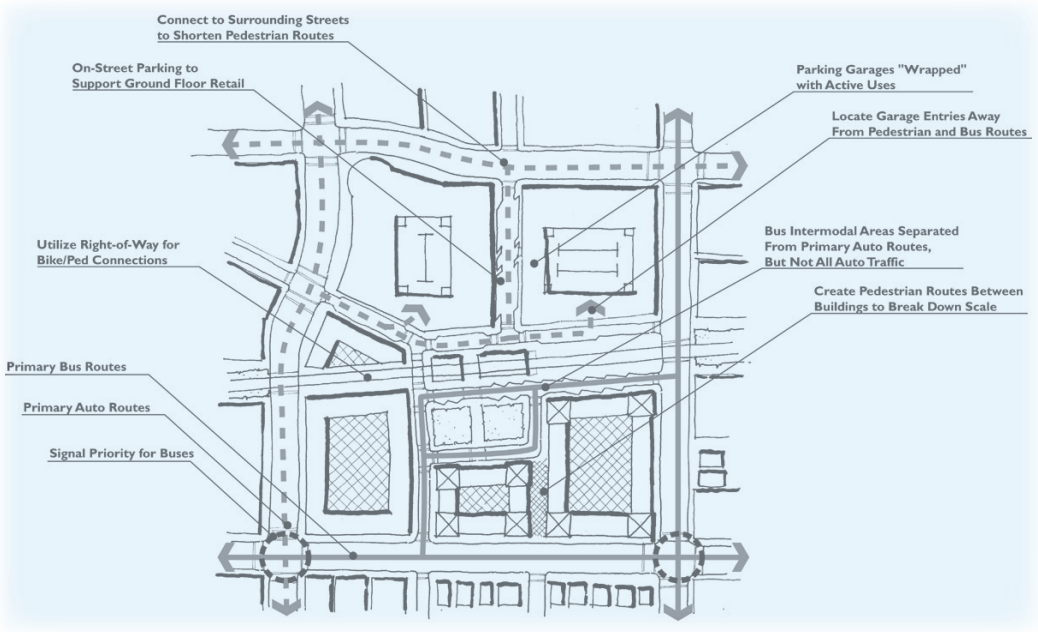





BART

Bay Area Rapid Transit

# BART Station Access Guidelines

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## Project Team

### BART Staff

Harley Goldstrom, Department Manager, Customer Access
Laura Timothy, Senior Planner & BART Project Manager, Customer Access

### Consultants

Nelson\Nygaard Consulting Associates
Jeffrey Tumlin, Project Manager
Adam Millard-Ball, Lead Author

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# CHAPTER 1. INTRODUCTION

BART is the backbone of regional transit services in the Bay Area. It encompasses 39 stations and 95 miles of track in four densely populated Bay Area counties, carrying around 300,000 passengers each weekday. The extension to San Francisco International Airport, due to open in 2003, and planned extensions to Warm Springs, San Jose and Oakland International Airport, will further enhance BART's role.

BART is much more than a regional transit provider. It has a major influence on local transportation, land use, economic development and quality of life in the region.

BART, however, is much more than a regional transit provider. It has a major impact on land use and local transportation in the region, particularly in the immediate neighborhoods around stations. In many cases, BART acts as a major catalyst for better pedestrian and bicycle facilities and bus services in the cities it serves. At the same time, access trips to BART can have a significant impact on vehicle traffic levels around stations, while parking lots often occupy much of the prime real estate in the station area. BART also has a major influence on economic development opportunities and quality of life in the communities it serves, allowing the creation of new jobs and housing without increasing regional traffic congestion and air pollution.

## Defining Access

**"Access" refers to both the trip to the station, and from the station to the final destination.**

Access is defined to the portion of BART riders' trips between their origin, such as home or work, and the station faregates, and between the faregates and their final destination. It includes both the trip to the station to catch a train, and the final leg of the journey from the station to the ultimate destination. The entire journey may involve many modes, such as walk-bus-BART-walk, or drive-BART-bus-walk. These guidelines consider access at all times of day, not just in the morning peak.

Improving access to and from BART is critical to meeting ridership goals and serving customer needs. Potential riders will be lost if they cannot reach the station because parking lots are full or no feeder bus services are available. Potential riders may also be lost if access constraints mean that the door-to-door journey involving BART becomes more expensive, time consuming, unreliable or frustrating than an alternative means of travel, such as driving the entire way.

## Role of Access Guidelines

**These Access Guidelines are intended to map out how BART can optimize access to stations by all modes.**

These Access Guidelines are intended to map out how BART can optimize access to stations by all modes. The guidelines are designed to provide a clear framework to assist BART staff and contractors in designing facilities at both new and existing stations. As such, they focus on physical design, rather than issues such as integrated ticketing and parking pricing.

The guidelines are also intended as a resource for BART's partners such as cities, counties and other transit agencies, indicating how BART and its partner agencies can work together to provide a "seamless journey" that can compete with the private automobile, and offer a high level of customer satisfaction to riders who do not have an alternative means of transportation. Indeed, many of the guidelines apply to local streets and roads out of BART's control.

The Access Guidelines are intended to indicate how BART and its partners can work together to provide a seamless journey, that can compete with the private automobile.

The guidelines are intended to bring clarity and cohesion to BART's existing policies on station access, providing additional detail and guidance where appropriate. A large number of relevant policies have been adopted at various times by the BART Board, while others have been incorporated into specific plans such as agreements with partner agencies or Comprehensive Station Plans. Other standards are simply long-standing practice by BART staff, but have never been adopted as policy by the Board. This document aims

to bring this existing body of guidance into a single, easily referenced source, and also provide a means of resolving any tensions or conflicts among them. A companion document, Guidelines for Transit Oriented Development, will address wider issues of station area planning. These will be an important complement to the Access Guidelines, particularly in terms of pedestrian-friendly building and site design.

## Document Structure

The following chapter discusses BART's existing access policies. It also considers the context for each mode, in terms of the key constraints to improving access. Chapter 3 presents the detailed mode-by-mode access guidelines, which form the heart of this document. Finally, Chapter 4 recognizes that achieving the best practice described in these guidelines is not always possible at all stations, for a variety of reasons. For example, there may be financial and land use constraints, and there are often also basic tensions between the needs of different users of the roadway system. This chapter provides examples of optimal design that benefit the maximum number of riders and implement BART's policy goals.

## Project Development and Review

**These guidelines do not constitute a prescriptive standard, but aim to promote best practice and provide practical guidance.**

These guidelines do not constitute a prescriptive standard, but aim to promote best practice and provide practical guidance on implementing BART's access policies. At the same time, however, the project development and review process within BART should demonstrate how the Access Guidelines are being implemented. For projects that are outside BART jurisdiction, the local jurisdiction's review process needs to be taken into account.

All BART projects that impact access to stations should provide Access Circulation Diagrams and supporting

Access Guideline information as part of the internal project development, design, and review process. These guidelines will be incorporated into BART Standards and will follow the standard review process. Access Circulation Diagrams will also support the process of working with local jurisdictions that have land use and planning authority in areas where BART stations are impacted by development. At a minimum, they should provide the following information:

- Drawings that identify specific access routes and circulation patterns for each of the access modes. These should at a minimum include dimensions of facilities, signage, pavement markings, traffic controls and wayfinding facilities. Volumes and turning movements should be included as appropriate.
- Identification of access issues and items that need coordination or resolution with outside agencies.
- Identification of the amount, size, location and access to and from all parking facilities. As well as all-day commuter parking, this should include bicycle, short stay/pick-up, and carpool parking in concert with local jurisdictions.

Supporting documentation should also identify those elements of the Access Guidelines that have not been possible to fully implement, with explanation.

# CHAPTER 2. POLICY CONTEXT

While many BART stations were originally designed as park-and-ride facilities, BART's access policy has evolved considerably since they opened in the 1970s to give greater weight to alternatives to driving and parking at the station. Similarly, local jurisdictions' views on development around transit have also evolved since the 1970s. BART's Strategic Plan, adopted in 1999, reflects these changes, and provides a clear statement of policy and future direction. It calls for improvements to station access by all modes through the promotion of alternatives to driving alone, and linking access to other key strategic goals such as increasing ridership. The Strategic Plan identifies the following access objectives:

**BART's Strategic Plan calls for improvements to station access by all modes through the promotion of alternatives to driving alone.**

- Improve access via taxis, shuttles, buses, walking, bicycles, and other transit.
- Promote innovative access strategies, such as the station car and the bicycle station.
- Work with local communities to promote transit-oriented development, enhanced destinations, and multiple-purpose stops for reverse commute and off-peak riders (e.g., one-stop shopping).
- Develop carpooling strategies involving preferential parking privileges.
- Improve coordination of transit schedules and fares.
- Explore/promote new technologies to improve access to existing stations, such as the Automated Guideway Transit (AGT) systems.
- Anticipate growth of demand that exceeds station through-put capacity and identify strategies to alleviate anticipated bottlenecks in station throughput capacity.


Access objectives in the Strategic Plan include developing a preferential carpool parking program, and improving the coordination of transit schedules and fares.

Improving access to and from BART by foot, bicycle, transit and carpool also helps to achieve the broader Strategic Plan goals of maximizing use of the system, encouraging transit-oriented development and other growth near stations, and improving physical linkages to concentrations of employment and other activities.

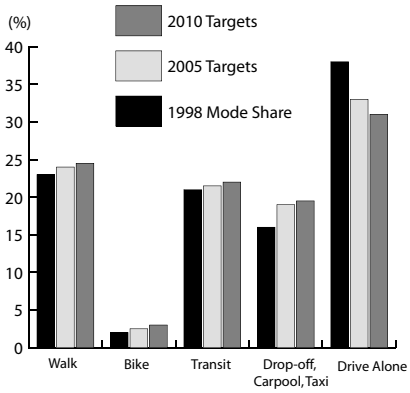
**BART needs to build effective partnerships to provide seamless transportation services.**

In many cases, BART has only partial control – or none at all – over a means of access. BART can manage its parking facilities, for example, but may not be able to convince a local transit operator to offer timed transfers with BART trains. BART can improve bicycle parking at its stations, but bike access, along with roadway access, is generally outside its purview. BART therefore needs to build effective partnerships with local jurisdictions and other transit agencies to provide seamless transportation services, so that customers can move easily and quickly to destinations throughout BART's service area. This is essential in order to avoid perceived changes in the level of service that passengers receive as they pass between areas controlled by different organizations – or, worst of all, through a zone claimed by no agency.

## Access Targets

Systemwide targets for individual access modes were adopted by the BART Board in May 2000, as part of the "Access Management and Improvement Policy Framework". The targets were defined by estimating how mode of access will change with expected ridership increases and by considering how BART can influence access modes. The context for BART's Access Targets was identified as follows:

- Improving BART station access is necessary to meet Strategic Plan goals
- Land use and transportation conditions around stations heavily influence the access modes used
- BART is such an attractive alternative to driving for so many trips, that access constraints such as lack of parking capacity have not prevented ridership growth
- BART can influence mode access, such as creating a shift from driving to feeder transit, through its own initiatives and collaborations with others
- Due partly to funding shortfalls for the construction of new parking garages, more complex access strategies are needed to meet the ridership targets set in BART's financial and service plans




BART's Access Targets envisage park-and-ride accounting for a falling share of access trips, reflecting its position in the access hierarchy.

Figure 2-1 displays BART's Systemwide Mode Share Targets for 2005 and 2010. The targets are for the existing BART system (excluding the SFO extension) for AM peak only.

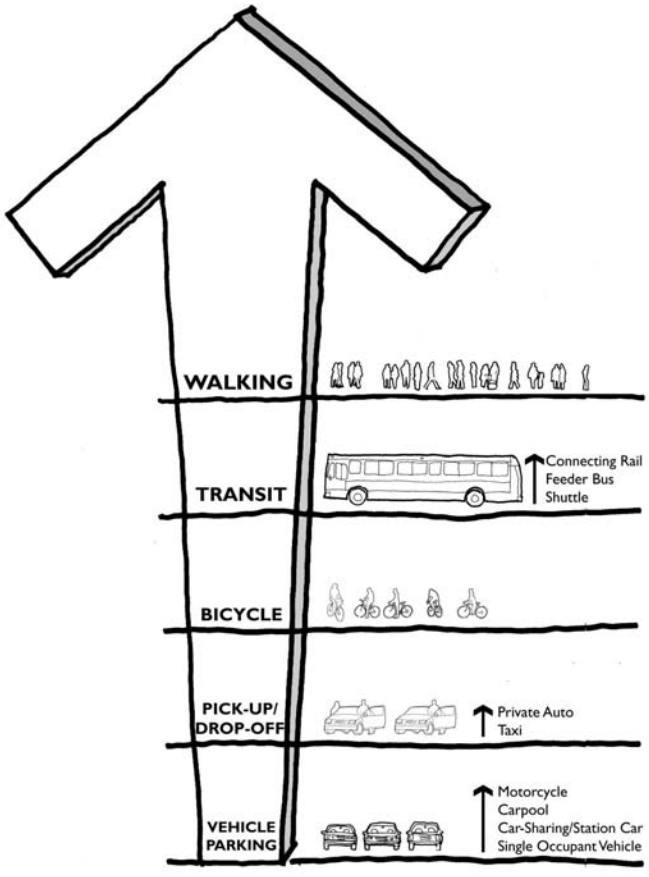
**Figure 2-1 Systemwide Access Targets (AM Peak)**

| Mode | 1998 Mode Share | 2005 Targets | 2010 Targets |
|---|---|---|---|
| Walk | 23.0% | 24.0% | 24.5% |
| Bike | 2.0% | 2.5% | 3.0% |
| Transit | 21.0% | 21.5% | 22.0% |
| Drop-off, Carpool, Taxi | 16.0% | 19.0% | 19.5% |
| Drive Alone | 38.0% | 33.0% | 31.0% |

## Access Hierarchy

Achieving these targets and the Strategic Plan goals make a formal access hierarchy essential. The hierarchy makes explicit many of the assumptions in the Strategic Plan and the Access Management and Improvement Policy Framework. The hierarchy, established through these Access Guidelines, will help resolve competing demands for funding and for physical space. It emphasizes low-cost, high capacity modes – that is, those modes that produce the highest ridership and revenue benefits for BART at the least cost. The policy context and constraints for each mode are discussed in turn below. The hierarchy is shown in Figure 2-2.

**Figure 2-2 Access Hierarchy**



## Walking

Walking has close to zero environmental impacts, and brings important benefits to surrounding communities. Pedestrian traffic supports local businesses, and makes a station community a more vibrant, livable, human-scale place. Most importantly, the presence of other pedestrians in a station area improves personal safety more than any other factor, even for those who are simply walking to their car. Encouraging walking is also an important strategy to promote social equity, as there are no additional costs to the passenger for fuel or bus fares.

### *Key Considerations*

The overriding constraint in increasing the share of walking trips is the number of origins and destinations within walking distance of the station. In general, passengers are willing to walk up to one half-mile to access rail services, and for each additional 0.3 mile further from the station, the probability of walking drops by 50%. Density, local retail and the absence of major arterials have been found to be three of the most important factors influencing walk trips to BART, together with individual characteristics such as gender and availability of a car.[1]

This means that walking trips can best be encouraged through transit-oriented development close to stations. As discussed in the companion document Guidelines for Transit Oriented Development, BART advocates for dense, infill development with lower parking requirements around its station in order to achieve these walking goals.

Secondary constraints against walking trips include engineering, personal safety and urban design fac-

**Walking**

**1998 Mode Share:**
23.0% *(Systemwide)*

**Highest:**
72.1% *(16th Street & Mission)*

**Lowest:**
0.5% *(Dublin/Pleasanton)*

**2005 Target:** 24.0% *(Systemwide)*

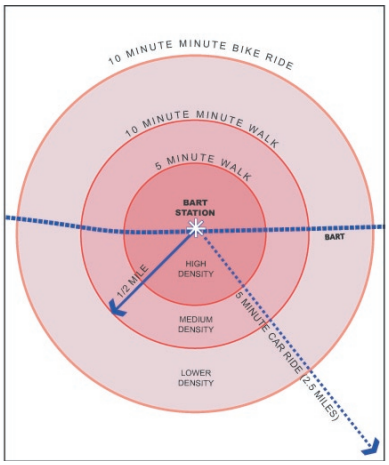
**2010 Target:** 24.5% *(Systemwide)*

*All figures are AM peak.*

**Walking trips can best be encouraged through transit-oriented development close to stations.**

[1] Loutzenheiser, David (1997), Pedestrian Access to Transit. A Model of Walk Trips and Their Design and Urban Form Determinants Around BART Stations. Paper presented at Transportation Research Board Annual Meeting, Washington, D.C.

tors: Is the station area designed with pedestrians in mind, with generous, direct sidewalks and appropriate crossings? Does it feel safe to walk there at all times of day and night? Is the walk interesting and attractive? If even one of these factors is missing, the typical half-mile walking distance to a station may shrink considerably. Alternatively, by providing comfortable, interesting walking environments, riders may even be encouraged to walk to BART from beyond this half-mile radius.




Land within a half mile radius from the station, equivalent to a 10-minute walk, offers the best opportunities for transit oriented development to boost walking trips to BART.

The following issues are therefore essential to consider when designing pedestrian access to a station:

- **Directness and speed of route.** Passengers want direct walking routes, with minimum delays when crossing streets.
- **Safety and security.** Passengers need to perceive that their route is secure and visible to other road users, particularly in the evening. Highway safety is also important, particularly when crossing busy arterials. Overall roadway design issues are discussed in the section below on automobile access.
- **Pedestrian-friendly design.** Lighting, building setbacks and orientations, and sidewalks are important determinants of whether a pedestrian feels like an "unwelcome guest", or perceives that the street is designed to meet their needs. They should be designed at a "human scale".
- **Information.** Occasional travelers in particular need wayfinding information to reach local destinations.

At stations serving special events facilities, however, longer walking distances to the station could be beneficial in some circumstance. Patrons will naturally spread out more over longer distances, helping to reduce surges that could overwhelm station facilities and trains.

## Transit

Feeder transit service is the major alternative to driving to the station for riders living more than a half mile from the station. It can expand the catchment area of a station considerably – particularly for riders who do not have access to a car. Feeder transit is also important for the elderly and persons with disabilities, who may have difficulty in walking to the station.

Transit connections at BART stations are provided by a multitude of different operators. Some are designed as dedicated feeder routes, particularly private shuttles (discussed separately below). On many routes, however, the majority of passengers are not transferring to or from BART and the priority is often to minimize delays to through passengers. In certain circumstances, such as Capitol Corridor and other Amtrak services, BART may even act as a feeder mode to longer distance rail.

Most transit operators provide service independent of BART, and while BART can improve transfer facilities on its own property, it should also work to influence schedules and routes of other operators. This means that partnerships with other transit operators are key to improving transit access to BART.

### *Shuttle Services*

Shuttles provide a useful complement to regular transit service, particularly to sites such as hospitals, large employers, shopping districts, office parks and schools. Some offer timed transfers with a limited number of peak-period BART trains, but many simply circulate. Most provide free service to eligible riders.

In general, it is preferable to serve employment destinations via regular feeder bus services, as these have the greatest potential to serve other riders. Care should be taken not to duplicate existing bus transit

**Transit**

**1998 Mode Share:**
21.0% *(Systemwide)*

**Highest:**
69.3% *(Montgomery)*

**Lowest:**
2.7% *(North Berkeley)*

**2005 Target:** 11.5% *(Systemwide)*

**2010 Target:** 22.0% *(Systemwide)*

*All figures are AM peak.*

**On many routes, the majority of passengers are not transferring to BART and the priority is to minimize delays to through passengers.**


Shuttles provide an important complement to regular transit service, in particular to link BART stations to employment sites. However, care needs to be taken not to duplicate existing services. [San Leandro]

services when designing shuttle routes. However, in many cases – particularly where regular transit is infeasible due to cul-de-sacs, a discontinuous street grid or lack of sidewalks – shuttles may be the most effective and efficient option.

### *Off-Street vs. On-Street Provision*

**There should be a presumption in favor of on-street provision at new stations and when redesigning transfer facilities.**

A fundamental choice for bus transfers lies between on-street and off-street facilities. In general, there should be a presumption in favor of on-street provision at new stations and when redesigning transfer facilities. Such streets may include existing city streets at more urban station locations, or new streets that are created on BART property as part of a transit oriented development project. On-street facilities are the most efficient in terms of space, and minimize route deviations which increase travel times for through passengers. On-street facilities also help to activate the sidewalk, creating a more pedestrian-oriented neighborhood.

BART stations are often important transfer hubs between different bus routes, as well as from bus to BART. [Pittsburg/Bay Point]

However, there are often good reasons to provide off-street bus transfer facilities. In many cases, the decision will be a tradeoff between the needs of through passengers and BART transfers, and it should reflect the relative volumes of each group of passengers. Off-street provision, or a combination of on-street and off-street, may be particularly appropriate in the following instances:

- Stations where many buses must lay over or wait to provide timed transfers, and there is insufficient curbspace to provide for this on-street.
- Stations where the entrance is set back a significant distance from the sidewalk, in order to minimize the distance the passenger needs to walk.

### *Rail-to-Rail Connections*

Compared to many other regions in the United States, the Bay Area has invested heavily in rail transit to meet the demand for attractive, high-capacity public transportation. While BART extends into four – and soon five – counties and carries the largest number of rail patrons, other systems provide both regional and local services that generate significant ridership. These include Caltrain, the Altamont Commuter Express (ACE), Amtrak's Capitol Corridor and San Joaquins, Muni light rail and cable cars, and VTA light rail. Creating a rail system that is usable not just in the BART service area but throughout the region requires seamless coordination. This includes not just fare and schedule coordination, but also a transparent physical interface between stations.

NextBus or similar systems provide real-time information on bus arrivals, helping passengers decide whether they have time to buy coffee or a newspaper, for example. [Stonestown Muni station]

### *Key Considerations*

For transit to be a competitive access mode to BART, it must provide passengers with a "seamless journey". Passengers are not interested whether service is provided by BART or a different agency. Instead, they want the same quality of service, without noticeable "tidemarks" or changes in service levels between different operators. The following passenger expectations in particular are key to address:

- Minimal and predictable wait times between modes. Passengers tend to consider time spent waiting for a bus or train as more burdensome than time actually spent traveling. Giving passengers real-time information about bus, BART and connecting rail arrival times helps alleviate this burden.
- Short walk distances and safe, direct routes between the BART platform and connecting services.
- Coordinated ticketing that avoids the inconvenience and cost penalty of purchasing separate tickets.
- Staff members who are knowledgeable about all transit services from a station, regardless of which agency provides them.
- Secure, comfortable environment at the bus or streetcar stop or rail platform. This is one of the most important

Existing transfer arrangements between BART and other transit agencies are often be cumbersome and poorly publicized. New technology, such as the Translink smartcard, offers a promising alternative. [Powell]

components of the station as this is where the passengers spend a considerable portion of their time. Passengers need to clearly know where they can stand safely. Creating safe waiting areas for passengers transferring from BART to bus is particularly important, and it is ideal if these bus waiting areas are within view of the BART station agent.

## Bicycle

**Bicycle**

**1998 Mode Share:**
2.0% *(Systemwide)*

**Highest:**
8.4% *(Embarcadero)*

**Lowest:**
0.0% *(Powell, Colma)*

**2005 Target:** 2.5% *(Systemwide)*

**2010 Target:** 3.0% *(Systemwide)*

*All figures are AM peak.*

Promoting bicycling is one of the most efficient ways to increase the catchment area of a BART station. While passengers tend to be willing to walk a maximum of a half mile to the station, equivalent to about a 10-minute walk, they can travel more than two miles by bicycle in the same amount of time. Improving bicycle access also requires relatively little land, capital investment or operating funding, and bicycle travel has almost no environmental impacts. The typical "bike shed" for a station area is a four mile radius. This creates a catchment area 64 times the size of the catchment area.

Bicycling can also be used at the destination end of the BART trip. Passengers can take their bicycle on the BART train outside of peak times, and reach their final destination that may not be within walking distance. Alternatively, they may choose to use folding bicycles, which can be taken on BART at any time, or leave a bicycle overnight at the destination station, eliminating the need to take it on the train. Rental bikes at destination stations can also be a useful option.

**The typical "bike shed" for a station area is a four mile radius.**

Bicycle access to BART should cater for a "design bicyclist", who is not comfortable cycling on streets with heavy auto or bus traffic. When designing bicycle facilities, it may be helpful to think of this design bicyclist as a middle-aged person carrying groceries or packages. At the same time, however, it is also important to cater to more aggressive cyclists, who may prefer the travel time advantage of cycling on busy arterials if alternative routes are less direct.

The BART Bicycle Access and Pedestrian Plan, published in August 2002, provides a comprehensive discussion of the potential for increasing bicycle mode share to stations. The guidelines for improving bicycle access in this document are adapted from this plan.

### *Key Considerations*

BART passengers who arrive by bicycle – or who would like to cycle to the station – have the following key needs and expectations:

- **Access.** Bicyclists need to know the most direct, safest route to and from the BART station, and must be able to quickly locate parking areas.
- **Convenient, Available Parking.** Sufficient bicycle parking to meet demand should be located near the station entrance within sight of the station agent and/or in a heavily traveled area. There should be no barriers between the bicycle parking and the station entrance. In order to encourage casual cycling, it is important that bicycle parking be available without prior reservations.
- **Secure, Sheltered Parking.** Passengers should be confident that a bicycle left at a BART station will not be stolen, vandalized or exposed to the rain, even if it is left for 10 hours or more.

Poorly placed bicycle parking, out of sight from the station agent and passers by, does not offer riders the security that their bicycle will still be there when they return. Such racks are often underutilized.

## Drop-Off/Pick-Up

Drop-off/pick-up or kiss-and-ride trips are an efficient, low cost means of access to BART stations. Accommodating drop-off/pick-up trips does not require major capital investments and generally has minimal operating costs. The mode provides the benefits of auto access – a wide catchment area – without the drawback of requiring the same amount of space for vehicle storage in the station area.

### *Key Constraints*

The key constraint to increasing the share of drop-off/pick-up trips is the need for satisfactory conditions in households, i.e., the availability of a driver to make a dedicated trip to the station, or pass the station en route to another destination.

**Drop-Off/ Pick Up**

**1998 Mode Share:**
11% *(Systemwide)*

**Highest:**
19.2% *(19th Street Oakland)*

**Lowest:**
4.0% *(Montgomery)*

**2005 Target:** 12.5% *(Systemwide)*

**2010 Target:** 12.5% *(Systemwide)*

*All figures are AM peak.*

Curb space is also a constraint to accommodating drop-off/pick-up trips. While space needs to drop off passengers in the morning peak are minimal, cars generally need space to wait for their passengers to arrive in the afternoon peak. At many stations, these lines of waiting cars are considerable. If space is not provided for pick-up vehicles to pull out of traffic and safely stop, they can also disrupt traffic flow and delay other vehicles. This is a particular issue for buses, if bus stops are used informally as a drop-off area.

## Taxi

**Taxi**

**1998 Mode Share:**
0% *(Systemwide, 185 Trips)*

**Highest:**
0.9% *(Concord)*

**Lowest:**
0.0% *(Multiple Stations)*

**2005 Target:** 1.0% *(Systemwide)*

**2010 Target:** 1.5% *(Systemwide)*

*All figures are AM peak.*

While the high cost of taxis mean that they will be rarely the first choice of access mode for regular commuters, they provide an important complement to other options. They give riders the security that they will be able to avoid walking late at night or in the rain, and reach their final destination if they miss their bus. Taxis are also important for occasional travelers who may be unfamiliar with the area, and are a critical component of the paratransit system. BART has adopted detailed Taxi Rules for drivers to ensure convenient, orderly pickups.

## Parking

### Carpool

**Carpool**

**1998 Mode Share:**
5% *(Systemwide)*

**Highest:**
12.7% *(Pittsburgh-Bay Point))*

**Lowest:**
0.0% *(Montgomery)*

**2005 Target:** 5.5% *(Systemwide)*

**2010 Target:** 5.5% *(Systemwide)*

*All figures are AM peak.*

Most commuter parking spaces generate a single roundtrip on BART each weekday, since most vehicles parking in BART facilities contain only the driver. The number of riders generated by a single space can thus be doubled or more if the space is used by a carpool. Many riders will naturally carpool to BART, for example if a household owns just one vehicle and two people commute by BART.

However, BART has sought to raise carpooling above this “natural” level through the Carpool to BART program, which is currently administered in partnership with RIDES for Bay Area Commuters. Each carpooler

needs to register in advance and obtain a BART Carpool Parking Permit. They are then eligible to use carpool-only spaces, provided that at least two carpool permits are displayed per vehicle. Carpool-only spaces, which allow riders to arrive and park after regular spaces are generally full, are available at selected stations.

Note that "carpool" in these Access Guidelines refers to carpooling to BART, rather than to casual carpooling. BART policy is to discourage casual carpools, where drivers and passengers meet at BART stations and drive the entire way to their destinations.

### *Key Considerations*

The ability of individual riders to carpool is constrained by their ability to find carpool partners who live close by and have similar work schedules. While RIDES for Bay Area Commuters provides assistance in finding suitable matches, this requires potential participants to register with the program. Administration and enforcement of reserved spaces also represent a constraint.

The availability of High Occupancy Vehicle (HOV) lanes and off ramps on highways that provide access to stations can also provide a significant incentive to carpool to BART.

## Car-Sharing

Car-sharing is a short-term mobility service that provides access to a private car, without the need to own one. It consists of a network of cars and trucks for people to use on a pay-per-use basis. Car-sharing has the potential to increase ridership by allowing people to take BART for part of their journey, before picking up a car at a station and driving the final leg. For example, a San Francisco resident might take BART to Rockridge, pick up a car-sharing vehicle and drive to their final destination. In this way, car-sharing may

Car-sharing has great potential to increase BART ridership, through allowing combined BART-CarShare trips. People can pick up a car at the station and drive to final destinations, even if they are not be accessible by transit. [Rockridge]

be able to expand the catchment area of BART stations, allowing riders to use BART even if their final destination is not within walking distance or a bus ride of a station.

BART is currently undertaking a one-year pilot program in partnership with City CarShare, with two vehicles in BART parking lots at each of the Glen Park and Rockridge stations. Other stations such as 16th Street Mission, Embarcadero and Lake Merritt also have car-sharing in city-owned parking facilities nearby or on-street outside the station. Car-sharing is also included in the Pleasant Hill Access and Comprehensive Station Plans.

If car-sharing vehicles are located in BART parking facilities, as at Rockridge and Glen Park, they displace commuter vehicles, which in turn means a loss in ridership. The precise impacts of car-sharing are still uncertain, therefore, and BART and City CarShare are currently overseeing an independent evaluation of the net impact on BART ridership and revenue.

**Single Occupant Vehicle**

**1998 Mode Share:**
38% *(Systemwide)*

**Highest:**
74.2% *(Lafayette))*

**Lowest:**
0.0% *(Powell)*

**2005 Target:** 33.0% *(Systemwide)*

**2010 Target:** 31.0% *(Systemwide)*

*All figures are AM peak.*

## Single Occupant Vehicle

Accommodating park-and-ride vehicles at BART stations allows Bay Area residents living far from stations to patronize the system. However, because driving alone requires vehicle storage in the station area, it is the least efficient and most costly means of access to BART stations. Vehicle parking at BART station costs more than $1 per day per space in operating costs such as cleaning, maintenance and enforcement, and capital costs are even greater. Including the opportunity costs of devoting land to parking that could otherwise be used for revenue- and rider-generating development brings the actual cost of parking to approximately $8 a day at a typical station.[2] Therefore, drive-alone access to BART is unique in that it is the one mode that is to be discouraged. The targets set

by the BART Board call for the proportion of drive-alone access trips to fall from 38% in 1998 to 31% in 2010.

Nearly 40% of riders access BART by driving alone and parking at the station. Many of these riders may be able to access the station by walking, cycling, transit and carpooling, particularly as improvements to these other modes take effect. However, a large number of riders have no realistic alternative to driving. The major challenge, therefore, is to retain these riders while encouraging others to use other access modes.

**A large number of riders have no realistic alternative to driving. The major challenge is to retain these riders while encouraging others to use other access modes.**

From an environmental perspective, to the extent that drive-alone BART riders do not complete their journey by car, the reduction in vehicle-miles-traveled and congestion is environmentally beneficial. However, park-and-ride trips still have negative environmental impacts, such as traffic congestion in station areas and the water quality effects of paving over large surfaces with asphalt. In addition, much of the emissions generated by automobiles come from cold starts – a one-mile trip emits 70 per cent as much pollution as a ten-mile trip. Parking facilities also have social impacts – drive-alone riders are unlikely to patronize station area businesses, and the dearth of activity in parking areas makes them a frequent location for criminal activities.

Active uses, such as retail or housing with windows facing the street, can wrap the first floor of a parking garage. They help provide natural surveillance and an interesting, attractive pedestrian environment. [Walnut Creek]

In recent years, the lack of availability of parking at BART station areas has been a source of frustration for many BART patrons and has contributed to customer turnover. Of the 28 BART stations that provide automobile parking, most fill by 9 AM, with some filling before 7:30 AM. This may also increase peak loadings on BART trains at times when the system is at capacity, since passengers may have to arrive earlier than they

[2] Assumes $2.1 million land and capital cost per acre, 100 spaces per acre, 7.5% interest over 30 years, See Appendix A.

otherwise would to be sure of finding a parking space. While the overall number of peak-period passengers may be the same, the peak may be compressed and accelerated, particularly at park-and-ride oriented stations.

### *Parking Charges*

**The BART Board approved the first systemwide charges for parking in June 2002.**

One of the driving forces behind BART's access initiatives emphasizing alternative modes was ridership growth that contributed to 100% utilization rates during the day at many BART parking lots. In anticipation of the opening of the extension to San Francisco International Airport, to test programs for better managing parking demand and to address a budget shortfall, the BART Board approved the first systemwide charges for parking in June 2002. Since December 2002, BART patrons have had the option of purchasing a monthly parking permit guaranteeing parking up to 10 AM in a convenient location for $63. After 10 AM, any unused spaces are open to all riders.

**Since December 2002, reserved parking spaces have been available for BART riders, guaranteeing a space until 10 AM on payment of a monthly fee.**

As the program is now scoped, BART will not reserve greater than 25% of station parking inventory at any one station. Remaining spaces at BART stations will remain free of charge and available on a first-come, first-served basis. The exception is in San Mateo County, where stations will also offer monthly reserved spaces, but BART/SamTrans will charge $2 a day or $42 a month for the remaining unreserved spaces. There are provisions for increasing or decreasing the monthly fee at all stations based upon the sales rate of permits.

The experience of charging for parking at all spaces in San Mateo County, and for some spaces throughout the rest of the system will provide BART with a better understanding of the financial incentives to access stations via alternatives to single occupant vehicles. The parking pricing as currently structured is intended primarily as a revenue generator, but also

as a mechanism for encouraging shift to higher capacity modes.

In January 2001, BART adopted policies establishing a 24-hour parking limit at all stations except for designated long term paid parking at certain East Bay Station facilities. This was done to reflect potential growth in demand for parking for greater than 24 hours related to the commencement of service on the SFO extension.

### *Non-BART Parking*

At many stations, non-BART facilities are an important addition to the parking supply for riders. At West Oakland station, private parking offers an alternative when BART lots are full, for customers who are willing to pay. At other stations, riders may park on street or in municipal parking facilities. However, this may result in BART riders competing for space with station area residents, employees and customers. To help manage these conflicts, BART has developed a Parking Management Toolkit to help local communities consider strategies for managing on-street parking. The toolkit includes the following strategies:

- Permit parking programs
- Enforcement
- Merchant programs
- Time limits and restrictions
- Urban design/signage/traffic calming
- Assignment of parking location
- Parking charges
- Parking Benefit Districts
- Restriping for more spaces
- Addition of off-street parking

Residential Permit Parking programs and other measures in the Parking Management Toolkit can reduce the impact of BART commuter parking on neighborhood residents. [Balboa Park]

### *Key Considerations*

The primary constraints to accommodating more park-and-ride vehicles at BART stations are the high cost of increasing parking supply, together with the Board policy to focus on alternative modes of access. The marginal cost of structured parking at existing BART station areas can easily reach $25,000 and up per parking space. In the Bay Area, surface parking is typically even more expensive than a parking structure, when the value of the land is factored in.

A secondary constraint to accommodating more parking is that fact that at many stations, BART generates significantly more ridership and revenue from a combination of joint development and investing in feeder transit and/or bicycle and pedestrian improvements than from surface parking.

**Calming measures such as narrow lanes and tighter curb radii may be useful tools to reduce vehicle speeds and the impacts on other road users.**

BART stations with a significant amount of parking are also major generators of peak period auto traffic in the station area. This means that the impact of this traffic on pedestrians, cyclists and transit riders must also be considered. In many cases, calming measures such as narrow lanes and tighter curb radii may be useful tools to reduce vehicle speeds and the impacts on other road users.

In general, parking to serve riders in a given catchment area should be located at stations with good highway access and where transit oriented development is more challenging. The appropriate amount of parking will depend on the station context, and the policies of the local jurisdiction.

**Real-time information about parking space availability – and alternative parking locations – would be particularly valuable to motorists.**

BART passengers arriving by car have the following key expectations and needs:

- **Ability to find a space.** Drivers want to be able to find a space without spending considerable time driving in search of space either in a lot or on station area streets. Real-time information about parking space availability – and alternative parking locations – would be particularly valuable to motorists.

- **Moderate travel time approaching station.** Passengers do not want to their commute times lengthened by congestion on streets approaching BART stations.
- **Safety and security.** For driving BART passengers, this has three elements: the driving to stations and parking spaces should feel safe from the threat of vehicle accidents; drivers want to feel safe moving from their car to the faregate; and drivers should feel that their property is secure while parked in the station area.
- **Comfortable as a pedestrian.** Drivers must eventually become pedestrians to access the station.

## Systemwide Programs

### Accessibility for Persons with Disabilities

These guidelines focus on access for all riders, and do not specifically address accessibility for passengers with disabilities. Accessibility issues are the subject of legally binding requirements, and are covered separately in the following documents:

**Accessibility issues are the subject of legally binding requirements, and are covered separately.**

- The US Department of Transportation's Final Rule published in 1991, implementing the Americans with Disabilities Act of 1990 (ADA).
- California State Title 24 accessibility standards and guidelines.

Persons with disabilities access BART in most of the same ways as other riders. BART therefore seeks to encourage designs that go beyond the ADA, in order to make access easier for all riders as well as to improve services to those with disabilities

### Art in BART

Art for transit accomplishes several goals. It can humanize an organization and spaces which might otherwise be large and impersonal. It can forge strong links with the community and reinforce the physical partnership with the neighborhood it serves. Most fundamentally, art can make station areas more attractive places to be, which is particularly important in providing a good pedestrian environment and welcoming places to wait for feeder bus services.

**Art can make station areas more attractive places to be, which is particularly important in providing a good pedestrian environment.**

The original Art in BART program was initiated in the 1970's to place works of art in BART stations as a complement to the varied station designs. A BART Art Council, comprised of local arts professionals, was established to provide design counsel to the BART Board of Directors for the selection of art to be placed in 15 stations. An initial investment of $170,000 from BART, and matching funds from the National Endowment for the Arts, funded the initial stages of the Art in BART Program. Since that time, BART has acquired a collection of 23 pieces of artwork at 18 stations. Newer works of art have been funded through federal guidelines, which allocate one percent of construction costs for public art in federally funded projects, or through donations made by community organizations.

Art can humanize an environment, forge strong links with the community, and make station areas more attractive for pedestrians and waiting bus passengers. [16th Street/Mission]

With the adoption of the Strategic Plan, the BART Board expressed an interest in reestablishing an arts program. In Spring 2000, staff developed draft guidance for proposed program implementation. The program policies reflect the Strategic Plan goals, with an emphasis on design excellence, customer service, and community participation. In keeping with these goals, the Art in BART Program:

- Enhances public use, enjoyment and appreciation of the BART system by sponsoring visual, literary and performing arts projects, and by acquiring artwork of the highest quality for placement in the BART system.
- Develops a good neighbor policy by utilizing the creative talents of artists to help mitigate the impacts of BART stations or services.
- Encourages collaborations between artists and architects in the design of new or remodeled facilities and public spaces.
- Provides opportunities for artists to create public spaces which serve as community gathering or exhibit places.
- Increases outreach to local communities through their participation in the Art in BART program.
- Develops and maintain effective advocacy partnerships between BART, artists, and related constituencies.

## Crime Prevention Through Environmental Design (CPTED)

BART and its Police Department endorse the concept that the design of stations and station areas can make an area less attractive for potential criminal activity. The Police Department has made a series of design recommendations for the purpose of addressing actual crime as well as the public's perception of crime. A number of these items relate to access planning at BART stations:

- Provide enhanced lighting in parking lots, parking structures, walkways, bus stops and stations
- Discourage the use of pedestrian tunnels
- Limit designs that require pedestrians to cross through bus zones or bus access points
- Locate passenger drop-off zones and taxi zones in areas that allow easy access to the stations and businesses
- Helps define stations as part of a community by including art through community input from the station area planning process, local neighborhood groups or local jurisdiction efforts
- Design lots, drop-off zones, and bus zones so that buses and cars do not mix

**The design of stations and station areas can make an area less attractive for potential criminal activity.**

Crime prevention and safety are primary concerns of station site design. These recommendations call attention to conditions that, at low levels of station activity and development, may present an inhospitable or intimidating environment, especially for pedestrians. However, as stations become more dynamic centers of activity, and as pedestrian volumes increase while land availability decreases, some of these recommendations may not be able to be implemented fully. They may need to be reconsidered so that a variety of functions can be allowed to co-exist in limited space.

## Development of Access Plans

In response to peak period access constraints primarily at home-origin BART stations and to implement BART's access strategy, the BART Board asked

staff to develop Access Plans for the stations in the core system. One of the primary functions of these Access Plans is to establish a format and process for identifying station access concerns and making recommendations in a collaborative process with the local community. Access Plans are intended to reduce reliance on automobile access and to promote other modes while focusing primarily on AM peak period access constraints. However, the plans are expected to benefit all trips to and from BART.

**Subsequent Access Plans and/or Comprehensive Station Plans will provide a key mechanism for implementing these Access Guidelines in specific station contexts.**

Comprehensive Station Plans are also being developed for core system stations. They follow an in-depth planning process and address not only access issues but also station area planning and capacity concerns. At many stations, subsequent Access Plans and/or Comprehensive Station Plans will provide a key mechanism for implementing these Access Guidelines in specific station contexts.

# CHAPTER 3. ACCESS GUIDELINES

## Wayfinding

All passengers are pedestrians for at least part of the journey. Passengers who access the station by car or bus, for example, must walk from the parking lot, drop-off zone or bus stop to the faregates. This section of the guidelines concentrates on the wayfinding experience in the immediate station area, defined as the journey between the faregates and the bus stop, parking lot, drop-off zone or bicycle racks, or the sidewalk network of the local jurisdiction.

### Principle: Pedestrian routes should be direct and designed to minimize conflicts

- Locate facilities in a logical progression. For arriving passengers, information should come first on the primary route, followed by ticket purchase and then faregates.
- Minimize walking distances, while ensuring that sufficient circulation space is provided. People will always seek to take the shortest route to reach their destination even if they are not supposed to go that way.
- Avoid changes in direction and blind corners, which can disorient passengers.
- Minimize level changes or avoid them altogether wherever practicable. Where necessary, ramps, small inclinations, escalators or elevators should be provided instead of or as well as steps.
- Keep pedestrian routes clear of structural elements such as pillars.
- Site information points such as real-time information displays to avoid impeding pedestrian flows. Adequate space should be provided to allow customers to stand out of travelways while reading displays. The bottom of a stairway, for example, is an inappropriate location.
- Avoid pedestrian-pedestrian conflicts, particularly between arriving and departing passengers, through careful location of faregates and ticket machines. For example, the entry faregates should be on the same side as the ticket machines. At subway stations, the down escalator should also be on this side.

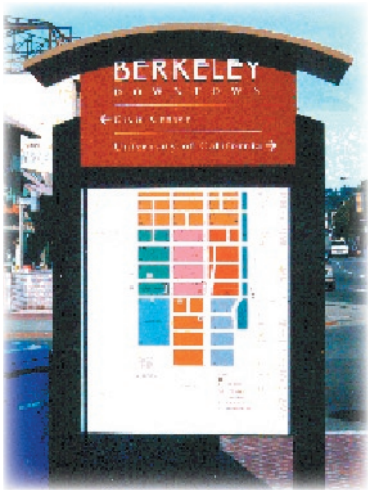
Pedestrians will always seek to take the shortest route, even if this brings them into conflict with streetcars, buses or other motor vehicles. This means it is important for pedestrian links to be as direct as possible. [Balboa Park]

- Wherever possible, provide multiple access routes. Providing routes from different directions can reduce walking distances and help distribute the flow of people during peak travel periods.
- Provide public art and natural features such as planting where appropriate. However, care should be taken to ensure that these facilities do not obstruct pedestrian routes, disrupt sight lines or provide hidden alcoves or "lurking spaces".
- Introduce traffic calming measures as necessary to control vehicle speed in the station area.

## Principle: Passengers should feel a strong sense of security.

**The station agent should be able to command a view of all entrance points and circulation areas.**

- Ensure that station agents and other staff provide a highly visible presence. The station agent should be able to command a view of all entrance points and circulation areas. Where not feasible, the use of CCTV and "Help Points" should be considered.
- Avoid blind corners, alcoves and "lurking spaces".
- Ensure that minor repairs and the removal of evidence of vandalism are carried out promptly. This includes replacing damaged signs or information displays, removing graffiti, replacing light bulbs, setting and repairing clocks, and ensuring that vending machines, ATMs and telephones are in full working order.



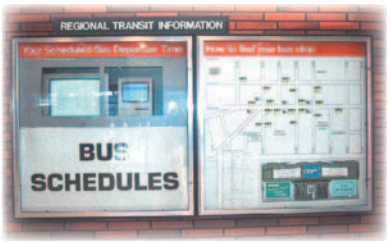

Local area maps help orient passengers unfamiliar with a neighborhood. Signs and maps should also be provided within stations. [Downtown Berkeley]

## Principle: Passengers should be able to quickly and easily orient themselves

- Minimize the need for wayfinding signage by providing direct line-of-sight connections along pedestrian desire lines where possible, particularly to bus stops, connecting rail platforms and parking areas. The use of transparent materials can enable passengers to see the place they wish to walk to, and promote feelings of personal security.
- Each station should contain prominently displayed maps of the surrounding area to enable customers to locate destinations.
- Each station should contain prominently displayed station plans, showing the locations of parking, transit connec-

tions, bicycle racks, car-sharing services, and passenger amenities.

- Provide wayfinding signage within stations, particularly to parking areas, bus and rail transfer points and key local destinations.
- Ensure that wayfinding signage on BART property is consistently branded at a system-wide level, including the size, font, color scheme and standard symbols. Nationally recognized symbols and pictograms should be used where appropriate.
- Typefaces should be large enough to be legible, and signs should not be obscured by other signs or equipment. Lighting should be designed so as to not reflect off the sign, creating a distracting glare.
- Use innovative wayfinding techniques such as lighting, arrows on floors and use of color in architectural finishes where appropriate.
- The station should be prominently visible at some distance, particularly in terms of signing. Even if it is incorporated into other built structures, it should have a distinctive street presence. The primary station name should be integrated into the station architecture at the main entrance.
- Station agents and other staff should be able to provide basic information about the local area, to support information displays provided at key exits.
- Provide wayfinding signs on key streets within several blocks of a station, particularly if the station is not readily visible.




Wayfinding maps within stations should direct passengers to bus stops, parking garages, bicycle facilities and important local destinations. [Oakland City Center]

Dual-side portals minimize walking distances to nearby destinations. By orienting passengers towards their destinations as they emerge from the station, they eliminate backtracking, and also ensure that the station is visible from multiple directions. [Kendall Square, Boston]

## Walking

### Principle: Create a network of safe, direct and appealing walking routes to the station

- Pedestrians should be able to exit directly onto the street sidewalk. Unless they are going to their car or a bus, they should not have to pass through a parking area or bus transit center. Where this is not possible, pedestrian routes and crossing points should be clearly marked and be as direct as possible.

Countdown indicators can improve pedestrian safety and encourage walk trips to BART. In San Francisco, they have cut collisions between vehicles and pedestrians by around two-thirds. [Castro Muni station]

Median refuges and corner bulbouts reduce crossing distances for pedestrians, and help to slow traffic speeds. [Downtown Berkeley]

Off-street pedestrian routes, with little or no natural surveillance from windows facing the path, tend to attract few pedestrians, particularly at night. [Balboa Park]

- In downtown areas, use dual-side street entrances (portals) where feasible to shorten the actual and perceived walking distance to the station. Portals should be located on the same side of the street as popular destinations, and as close as possible to them.
- Provide boldly marked crosswalks on pedestrian desire lines. Signalization should be considered on major streets. Signalized crosswalks should preferably include countdown-style indicators and audible signals. Median refuges should be provided where appropriate, but crosswalks should not be staggered.
- Pedestrian safety should not be compromised to accommodate greater auto volumes. Double right turn lanes and free right turn lanes should be avoided throughout the station area and particularly along primary pedestrian routes.
- Provide lighting at a pedestrian scale
- Provide sidewalks that are wide enough to cater for expected pedestrian volumes, particularly around bus stops. However, they should not be so wide that they feel empty and "dead".
- Provide trees, seating and other street furniture where appropriate to humanize a route. Shade or shelter from the wind may be a priority in different neighborhoods, depending on prevailing climactic conditions.
- Art should be used to humanize a route, provided that it does not create "lurking spaces".
- Provide on-street parking where appropriate as a buffer between pedestrians and motor vehicles. However, it should not be provided where the space is required for bus, taxi or drop-off/pick-up operations.
- Use sidewalk bulbouts where appropriate to minimize crossing distances and slow traffic speeds by narrowing turning radii.
- Avoid off-street pedestrian routes, including over- and undercrossings, particularly if they are indirect or no natural surveillance is provided through overlooking windows. Where essential, lighting and security cameras should be provided.

## Principle: Continue pedestrian routes into and through BART property

- All pedestrian routes that arrive at the station should continue past the BART property line to the faregates.
- BART stations should not interrupt pedestrian routes. Where there are routes on either side, they should continue through BART property, allowing non-riders to take the most direct route, even if it runs through the station.

Pedestrian routes should continue through BART property to link destinations on either side. Stations should not be 'islands'. [Pleasant Hill plan]

## Principle: Promote transit-oriented development close to BART stations

- Consider the potential for dedicated entrances for buildings above or immediately adjacent to BART stations, such as the underground entrances from Powell station. However, care should be taken not to drain large volumes of pedestrians from public spaces, where these are important to provide a vibrant environment, support retail and improve perceived safety.
- Promote transit-oriented development on BART-owned and other property close to stations, both as a strategy to bring new riders within walking distance of the station and improve the pedestrian environment. Development should be prioritized on surface parking lots and lots with large setbacks that detract from the pedestrian environment. Detailed guidelines are provided in a companion document, Guidelines for Transit Oriented Development.
- Transit-oriented development should focus street-facing windows and "active" uses such as storefronts along primary pedestrian routes. Long stretches of inactive uses such as parking lots, parking garages and blank walls should be avoided.
- Promote amenities that will serve transit riders such as coffee shops, newsstands, ATMs and dry cleaners, particularly in the immediate station area and on key pedestrian routes to the station. Services closest to the station should be most oriented to travel needs. However, it is important to ensure that tenants do not block pedestrian routes with signboards, trash containers or other fixtures, and that commercial signage does not detract from the usefulness of wayfinding and other important passenger information.

Surface parking lots create 'dead' space, that discourages pedestrian access trips. They also consume land that at some stations may be better utilized for revenue- and rider-generating joint development. [Union City]

As well as providing services for passengers, vendors improve perceived security through natural surveillance.

## Rail, Bus and Other Transit

Transit access to BART includes a range of different modes:

- Intercity and commuter rail, such as the Capitol Corridor and Caltrain
- Light rail
- Future Bus Rapid Transit
- Bus
- Private shuttles
- Paratransit
- Other existing or proposed technologies, such as the Oakland Airport Connector, SFO Airtrain and Alameda gondola

**Special attention should be given to facilitating rail-to-rail connections, since they cannot easily be reconfigured once built.**

In general, the same principles apply for improving access by all of these modes, such as timed connections and coordinated ticketing. However, some modes also have their own specific needs, such as rail-to-rail cross-platform transfers, which are discussed individually below. Rail systems require significant capital investments and cannot easily be reconfigured once built. Therefore, special attention should be given to facilitating rail-to-rail connections.

### Principle: Platforms and bus stops should be within close proximity and enjoy safe access

- Maintain a presumption in favor of on-street bus stops, unless off-street facilities are necessary to accommodate layovers or transfers, or avoid passengers having to walk through a parking lot.
- Locate bus stops to minimize walking distances to faregates and avoid the need to cross roadways, particularly busy arterials. Where a highway needs to be crossed, the bus stop should be located adjacent to a marked crosswalk. Passengers should not have to cross more than one major roadway.
- Transit stops should be immediately visible upon exiting the faregates.

On-street bus transfer facilities are to be preferred where possible. They reduce travel times for through bus passengers, and help activate the street. [Downtown Berkeley]

- Bus stops should not be located where they will block crosswalks, obstruct traffic signals or be obscured from motorists, bicyclists and pedestrians.
- Provide sufficient bus bays or curb space to meet peak demand and expected future growth. Where infrequent services mean pulse scheduling is required, with all buses present to load and unload simultaneously, this should be accommodated. However, bays can be shared between different routes and operators, including paratransit vehicles, in order to minimize the amount of space needed.
- Ensure that stops are located logically, so that different routes traveling in the same general direction are grouped together.
- Discourage layovers at BART stations. Where these are essential for operational reasons, however, sufficient layover space should be provided to meet peak demand. Layovers should not occur along key curbspace at the station entrance.
- Buses should be able to access off-street transfer facilities via congestion-free routes, such as dedicated lanes, where possible. However, they do not need to be segregated from other traffic if there are no travel time impacts.
- Sawtooth-style bus bays are generally preferable to straight curbs because they allow for more independently accessible bus stops over a given length of curb. Where sidewalk width is limited, however, straight-curbs are preferable.
- Provide sufficient circulation space and waiting areas to accommodate peak demand and allowances for surges. This is particularly important where the transfer is between two rail systems that could involve sizeable number of passengers.

While there should be a presumption against off-street bus transfer centers, they are sometimes necessary to cater for "pulse" scheduling on infrequent routes, and ease timed transfers. [Hayward]

**Buses do not need to be segregated from other traffic if there are no travel time impacts.**

## Principle: Prioritize feeder transit service in order of transfer activity

- Locate transit services with the highest degree of transfer activity closest to BART. In general, this means the most frequent services, whether bus, rail or another mode.
- Locate services with high volumes of transfer activity so that passengers perceive both to lie within the same sta-

Where cross platform connections are not feasible, the transfer should require a maximum one minute walk, and provide line-of-sight visual connections.[SEPTA, Philadelphia]

tion, where possible. For rail, this means cross-platform transfers. Where not possible, minimize walking distances between platforms and provide direct line-of-sight connections.

- Bus stops with the highest rate of bus-BART transfers should be located closest to the station faregates.
- Facilitate bus-bus transfers and simplify bus-BART transfers by minimizing distances between bus stops.

Rail-to-rail transfers should only require passengers to cross the platform, where possible. [MacArthur]

### Principle: Rail-to-rail connections should be short, direct and convenient

- The best connection would consist of a cross-platform transfer, as at the MacArthur or Millbrae stations
- If cross-platform transfers cannot be accommodated, provide rail-to-rail connections within the same facility, such as those between Muni Metro and BART in downtown San Francisco
- If physical constraints mean that neither of these options is feasible, ensure that access to connecting rail services is direct and visible from at least one BART station entrance. The transfer should not involve a walk of more than one minute.
- Where rail-to-rail transfers necessitate longer walking distances, consider moving sidewalks to reduce the perceived separation and cut travel times.
- Where rail boarding areas are not directly adjacent to each other, connection paths should offer protection from inclement weather, or example using overhead canopies. Paths should be well lit and wide enough to make patrons feel secure. Crossing vehicular travel lanes should be avoided.
- Minimize level changes to reduce travel time and facilitate travel by all patrons, especially seniors, people with disabilities and riders with luggage.

Transfer centers consume valuable land and create "dead" space close to the station, and should therefore be kept as small as possible. Care should be taken not to interpret "ideal" bay requirements and sizes as minimum standards. [El Cerrito del Norte]

### Principle: Ensure that roadways meet geometric design and other transit vehicle requirements

- Where transit agencies providing feeder service to BART stations have developed their own design standards or guidelines for bus-related facilities, such as AC Transit,

these should be adhered to. However, care should be taken not to interpret "ideal" requirements as minimum standards.

- In other cases, the most appropriate guidelines for turning radii, clearances and stop placement should be used. Examples include AC Transit and Tri-Met.

## Principle: Provide a comfortable, safe waiting environment for intermodal transfers, including adequate information

- Provide real-time information on connecting bus and rail services. As well as at stops, this information should be provided in the station itself where possible, so that passengers know if they have to hurry to the bus stop.
- Focus attention on bus stops where passengers wait to transfer from BART to bus. These stops should be located in the safest and most comfortable area.
- Provide easily understandable maps and schedules for connecting bus and rail services at stops and in prominent locations in the station itself.
- Where feasible, "talking" signs should be installed to indicate which bus(es) stop in each bay.
- Incorporate education about connecting transit services into BART training for staff members who work directly with customers. Ensure that station agents have access to information about fares, routes and schedules of other transit agencies serving the BART station.
- Provide weather protection, seating, lighting and trash cans at all bus waiting areas. Bus shelters should be designed to provide the maximum shelter from wind, rain and, where appropriate, shade.
- Shelters should be designed so waiting passengers can easily see oncoming vehicles.
- Waiting areas may be incorporated into the entrances of adjacent buildings, where appropriate, provided that these are secure and give passengers a clear view of the transit stop.

Shelters such as these, with high roofs and no side walls, provide little protection from wind or rain, and should be avoided. [Lake Merritt]


The best bus shelters provide protection from wind and rain, while still allowing passengers a clear view of oncoming vehicles. [Glen Park]

# Bicycle


Clear signage can help encourage cycling trips to BART.

## Principle: Work with local jurisdictions to provide direct, safe and well-marked routes to BART stations

- Ensure that routes to and from BART stations have bicycle lanes, if possible, or wide curb lanes at a minimum, and that all actuated traffic signals near the BART station can be activated by bicycles.
- Ensure that routes to and from BART stations are attractive to the "design bicyclist" – an inexperienced cyclist who is uncomfortable cycling on arterials with high traffic volumes, even where bicycle lanes are provided.
- Work with local jurisdictions to provide signage to the BART station from adjoining streets and bikeways.
- All bicycle-related signs should be integrated with signage for other modes, as feasible, and should not interfere with pedestrian, ADA or vehicle circulation.
- Provide area maps in the station locating surrounding streets, popular destinations and existing bikeways.
- Use the latest AASHTO "Guidelines for the Development of Bicycle Facilities" as a standard.

## Principle: Provide direct, safe and well-marked access through BART property to bicycle parking and fare gates

- Work with local jurisdictions to insure that actuated traffic signals at vehicle entrances to the BART station are bicycle-sensitive for all movements leading into and exiting the station, and that the location of bicycle-sensitive loop detectors are identified with bicycle loop detector pavement markings.
- Provide bicycle/pedestrian entrances into BART property at each intersection adjacent to BART property.
- Provide mid-block bicycle/pedestrian entrances where appropriate.
- Ensure that bicycle routes through station property minimize conflicts between bicyclists, pedestrians, automobiles and buses. The provision of alternative routes means that cycling on the sidewalk should not be necessary. Sidewalks shall be used as bicycle routes only when no alternative options are available, and only when they

**Sidewalks shall be used as bicycle routes only when no alternative options are available, and only when they have been designed to safely accommodate the expected volumes.**

have been designed to safely accommodate the expected volumes of bicycle and pedestrian traffic.

- Provide stair channels to allow riders to wheel bicycles up and down stairs

To encourage riders to bike to BART and deter theft, bike racks should be located in well-lit areas in full view of passing pedestrians. Ideally, they should be covered and within sight of the station agent.

## Principle: Provide secure, conveniently located bicycle parking facilities to meet demand

- Provide adequate Class I parking [bicycle lockers and attended parking] to meet demand.
- Provide adequate Class II parking ["U" and wave racks] to meet demand, including seasonal fluctuations.
- Locate bicycle parking in secure, well-lit locations along bicyclists' "desire lines" from major bikeways to the station entrance. If it is not possible to site bicycle parking within view of the station agent, it should be located in areas with high pedestrian flows or where other informal surveillance is possible. However, the first priority is to ensure adequate space for pedestrian circulation, and racks or lockers should not impede pedestrian flows.

**Bicycle parking should be located in areas with high pedestrian flows or where other informal surveillance is possible.**

- Locate bicycle parking where there is existing weather protection such as a roof or awning, where possible. Consider the potential for providing covered parking in other locations.
- Locate bicycle parking so that cyclists do not have to dismount and walk, but can ride up to it. This means that bike routes should continue as close as possible to the faregates. Signs requiring cyclists to dismount generally have limited effectiveness.
- At stations with high volumes of cyclists, consider the potential for a staffed bike station.
- Provide bicycle racks in the paid area, where this will not interfere with circulation.

Where feasible, bicycle parking within the paid area provides the maximum security. [16th Street/Mission]

## Principle: Ensure that all future station projects maximize the attractiveness of bicycling

- Design all projects that affect the station and surrounding areas in compliance with the criteria, recommendations and evaluation checklist in the Bicycle Access and Parking Plan.

- Provide safe and direct bicycle access through the transit village to the BART station. Wherever possible, separate bicycle routes from those for pedestrians and motor vehicles.
- Provide bicycle access through all areas of the transit village. Avoid the designation of pedestrian-only zones which exclude bicycles. Although it is appropriate to lock bicycles in heavy pedestrian areas, it is important not to disrupt main bicycle routes.

**Although it is appropriate to lock bicycles in heavy pedestrian areas, it is important not to disrupt main bicycle routes.**

- Design parking garages to avoid major conflicts with bicycle and pedestrian traffic at structure entrances and exits. Where bicycle routes must cross garage entrances/exits, provide additional traffic control or calming devices to alert motorists to the bicycle crossings.
- During periods of construction, maintain direct and safe access routes from adjoining communities to the BART station. Provide well-marked detours when normal access routes are closed.
- During periods of construction, maintain adequate parking supply to meet current demand. Insure that all temporary construction bicycle parking conforms to recommended placement criteria.

## Drop-Off/Pick-Up/Taxi

**Principle: Drop-offs and pick-ups should be located so they do not conflict with bus traffic and other traffic and pedestrian movement in the station area.**

Safe loading and unloading areas for cars to pick up and drop off passengers are important to avoid traffic hazards. [Balboa Park]

- The drop-off area and taxi stand should be located as close as practicable to the faregates. However, bus, shuttle and paratransit services are a higher priority for this curbspace.
- Clearly marked zones for taxis and drop-off/pick-up should be provided.
- Drop-off and pick up areas should be located for safety and to minimize congestion impacts. Drivers should be able to stop without impeding traffic flow or delaying transit vehicles.
- Pedestrian crossings of the drop-off lane should include a stop sign and a marked crosswalk, to allow pedestrians to cross easily and safely.

**Principle: Drop-off and pick-up trips should proceed comfortably and in an orderly manner.**

- The automobile drop-off/pick-up area should be sized to meet demand, since typically there are a large number of cars waiting to pick up passengers in the PM peak at BART stations. However, it will not be possible to meet unconstrained demand in most instances, due to other competing demands for space.
- Taxi stands should be highly visible from the BART station entrances.
- The capacity of taxi stands should reflect the importance of taxi trips for a particular station.
- The pedestrian area should be designed with enough space to accommodate passengers waiting to be picked up. The waiting area should have pedestrian-level lighting, seating and weather protection, and should be visible from the station agent's booth. It may be possible to combine transit and drop-off waiting areas, providing that automobiles do not delay transit vehicles.
- Signage should direct both vehicles and passengers exiting stations to drop-off and pick-up areas.
- The telephone numbers for taxi providers in the area should be displayed and public telephones should be provided.

Taxis provide an important complement to other access options, giving riders the security that they will be able to reach their final destination.

## Park-and-Ride

Park-and-ride includes provision for motorcycles and carpools, as well as single occupant vehicles. In most cases, the guidelines will be the same for all three access modes. However, where practicable, priority should be given to motorcycles and carpools, due to their higher position in the access hierarchy. Both motorcycles and carpools require less space per rider than single occupancy vehicles.

**Real-time signage can make the most efficient use of parking facilities, by directing drivers to lots with available space.**

**A catchment area of one-quarter mile from fare-gates should be considered as acceptable locations for BART patron parking. That is, parking does not need to be provided directly adjacent to the station.**

### Principle: Work with local jurisdictions to design local streets to provide safe, attractive routes for pedestrians and cyclists, while accommodating auto traffic volumes

- Use tools such as reduced lane widths, tighter curb radii, on-street parking and plantings to achieve a design speed of 25 mph on local streets surrounding the station.
- Employ the street design standards of the ITE "Traditional Neighborhood Development Street Design Guidelines" and the "Street Design Manual" currently being finalized for adoption by the Congress for the New Urbanism and ITE.
- Encourage the expansion of the regional high occupancy vehicle (HOV) lane network, including dedicated HOV on- and off-ramps to provide connectivity to BART stations.

### Principle: Locate parking for different users in line with the access hierarchy

- Carpool and motorcycle parking should be located in an area that is closer to the station faregates than the majority of the at-large parking spots. In garages, carpool and motorcycle parking should be on the first or second floors.
- Reserved spaces for car-sharing services should be in high-profile locations, in an area that is closer to the station faregates than the majority of the at-large parking spots. Where clearly visible locations are available, car-sharing spaces can be provided on street.
- A catchment area of one-quarter mile from fare-gates should be considered as acceptable locations for BART patron parking. That is, parking does not need to be provided directly adjacent to the station.
- Where parking facilities regularly fill to capacity, provide signage to other parking options at the same station or in the same travelshed, including non-BART owned facilities. Where there are several parking facilities at a station, provide real-time signage directing drivers to lots with available space.
- Provide reserved spaces for midday use, in order to support off-peak ridership


Permit zones can prioritize space for carpool parkers, helping to increase ridership, and midday parking, helping to shift ridership to off-peak periods.

- Design parking so that it can be shared with other users, where appropriate. For example residential or entertainment users may be able to use BART parking at evenings and weekends.

## Principle: Provide a comfortable experience for drivers as they move from parking spot to faregates

- Parking aisles and internal roadways should be designed as comfortable and safe walking environments, with lighting and landscaping. The design speed for vehicles should be 5 mph, using tight turning radii at corners, narrow lanes and other design features, to slow cars.
- Direct pedestrian bridges from garages to station are not necessary. Instead, safe, well-marked surface-level routes should be provided.
- Not all roadways on BART station property need to accommodate emergency vehicles or service vehicles such as cash handling trucks. Emergency access can often be provided through pedestrian areas, using knock-down bollards. Designated service routes should be provided.
- Pedestrian pathways through the parking lots should be indicated with sidewalks, trees, and/or surface markings.

The impact of parking garages on the pedestrian environment and streetscape can be dramatically reduced by wrapping them in retail and housing, as in this photo simulation by Urban Advantage. [Pleasant Hill]

## Principle: Minimize the impact of parking on the attractiveness of other modes

- Garages should be designed with separate entrances and exits, where possible, so that where pedestrians and bicyclists are crossing these border areas they only have to pay attention to traffic traveling in one direction, not two.
- Entrances to garages and lots should be designed for slow entry speeds, using raised crosswalks, speed bumps, or raised domes.
- Parking structures should have street facing windows or active uses such as retail on the ground floor, particularly on the sides facing major pedestrian corridors.
- Parking entrances and exits should not be located on major pedestrian corridors, if access can be provided from an alternative street.

# CHAPTER 4. PLANNING FOR IMPERFECTION

Many of the guidelines for individual access modes are complementary and mutually reinforcing. Well-sited bicycle racks and lockers, for example, both provide secure parking for bicyclists and remove a potential obstruction for pedestrians, while improvements to pedestrian facilities will generally create a neighborhood that is more supportive of transit ridership.

**Space requirements need to be balanced among different modes. Parking, off-street bus transfer facilities and retail amenities all demand land in the immediate station area.**

In other cases, however, space requirements need to be balanced among different modes. Parking, off-street bus transfer facilities and retail amenities all demand land in the immediate station area, and limited curbspace must be allocated between buses, paratransit, private shuttles, taxis and drop-off/pick-up. In addition, transit oriented development – which is one of the best ways to create an attractive pedestrian environment and generate more walk trips to transit – often competes directly for space with parking facilities.

While demands for physical space represent the most obvious conflict, there are also other tensions between the requirements of particular modes. Most of these relate to the impact of automobile traffic and parking facilities on transit, cyclists and pedestrians. The more auto-oriented a station, the less potential there is to improve access by foot, bicycle and transit. For example:

- Blank walls of parking structures and dead space created by surface parking lots deter pedestrian trips.
- Wide arterial streets and others with high traffic volumes are a major barrier to pedestrians and cyclists, and also transit riders if they need to cross the street.
- Curb cuts to access parking facilities interrupt sidewalks and bicycle lanes. If left turns are allowed, curb cuts can delay buses waiting behind left-turning vehicles.

These tensions should be resolved through individual Station Access Plans, taking into account the local

context. In general, however, the three following guiding principles should be used to determine which mode takes preference:

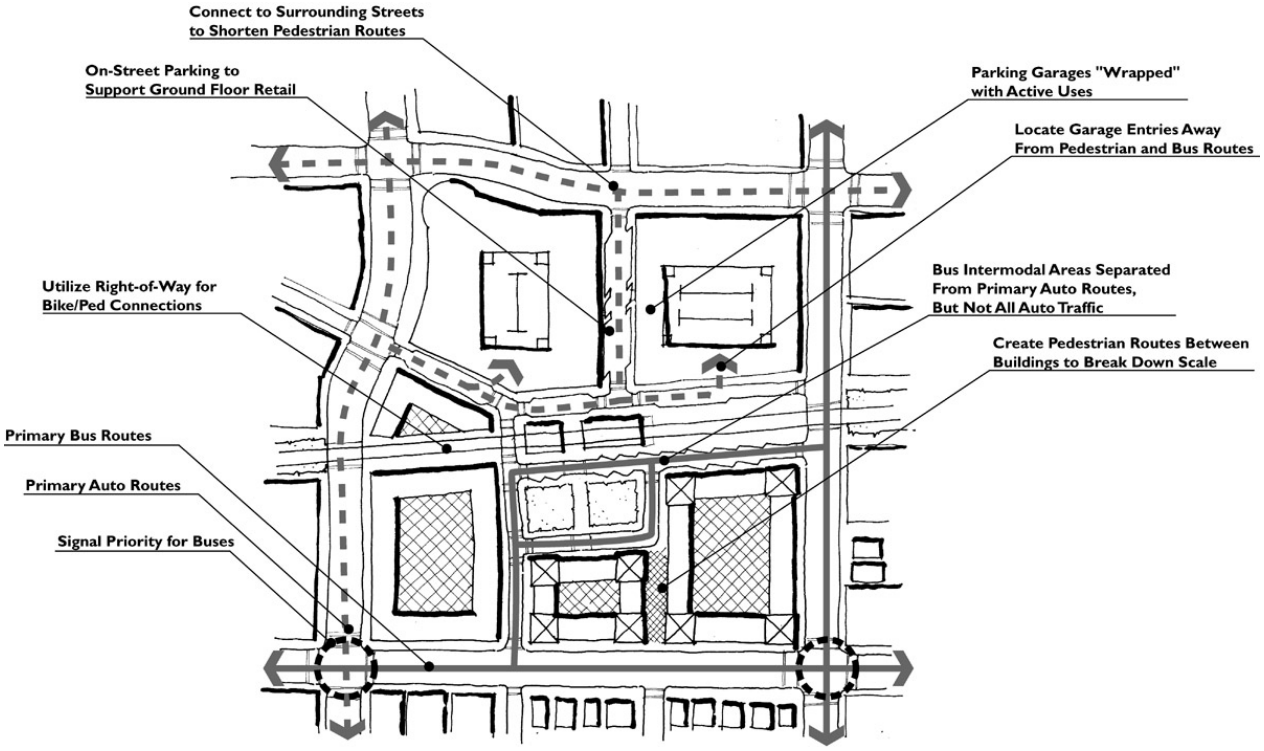
- **Position in the hierarchy of access modes.** Pedestrian access should be the highest priority, with provision for single-occupancy vehicles made only once other modes have been accommodated.
- **Cost per new rider.** Improvements that will do most to increase ridership at the lowest cost should be prioritized. To the extent possible, costs should be compared on a consistent basis across all modes, taking into account both operating and capital expenses, and land values and the opportunity costs of forgone joint development.
- **Context.** At some stations, particularly on the suburban edge, transit oriented development and pedestrian access improvements are more challenging. In many cases, this is due to auto-oriented, discontinuous street networks and stations that lie in freeway medians. Since it important to maintain provision for the many riders who have no alternative to driving and parking at a BART station, automobile access concerns can be given greater weight at these stations.

**Pedestrian access should be the highest priority, with provision for single-occupancy vehicles made only once other modes have been accommodated.**

## Managing Tradeoffs

The management of these conflicts and tradeoffs between different modes is partly determined by overarching decisions on the amount of parking supply, the characteristics of the surrounding street network, and the station's importance as a transfer center between different transit services. However, it is also strongly influenced by detailed design decisions. Figures 4-1 and 4-2 outline some illustrative design solutions at four specific areas of the station where the conflicts are often particularly acute.

## Figure 4-1 Station Area Access Priorities




## Figure 4-2 Faregate Area Access Priorities