DESIGNING TRANSIT ACCESSIBLE COMMUNITIES study

# DESIGNING TRANSIT ACCESSIBLE COMMUNITIES STUDY

## Management Committee
## February 12, 2014

MARICOPA ASSOCIATION of GOVERNMENTS

**For information, discussion and possible recommended acceptance of the Designing Transit Accessible Communities Study.**


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DESIGNING TRANSIT ACCESSIBLE COMMUNITIES study

- Absent access to affordable travel options, seniors face isolation, a reduced quality of life and possible economic hardship.
- A 2004 study found that seniors age 65 and older who no longer drive make 15 percent fewer trips to the doctor, 59 percent fewer trips to shop or eat out, and 65 percent fewer trips to visit friends and family, than drivers of the same age.

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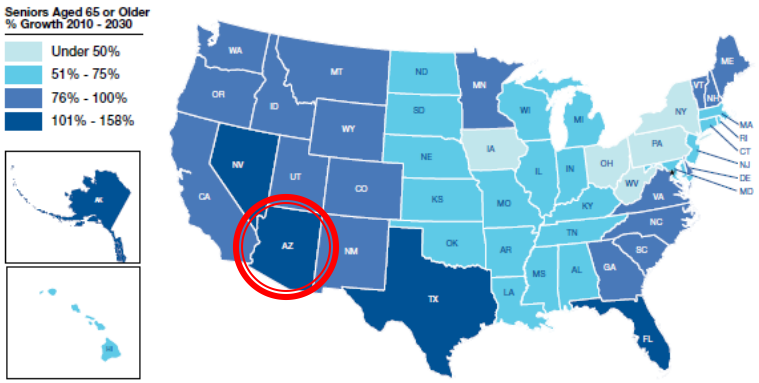
# II. Aging in Place, and Implications for Transportation

The baby boom generation is the largest in U.S. history.[7] In 2011, the first wave will turn 65, with the last baby boomers not reaching 65 until 2030. Moreover, members of this generation are expected to live well into their 80s, signaling unprecedented demographic changes that will last for decades. The metropolitan rankings presented in this report are only the leading edge of a demographic phenomenon that will have substantial consequences for our nation's surface transportation system.

According to data from the U.S. Administration on Aging, the percentage of the U.S. population age 65 and older increased by more than 12.5 percent from 1999 to 2009.[9] U.S. Census Bureau data indicate that the number of Americans age 65 and older will increase to more than 71 million by 2030 – when the senior population will reach its peak.[10] This will elevate seniors from 12 to 20 percent of the nations total population.[11] As Figure 1 illustrates, this trend will continue across the country, with some states experiencing dramatic increases in their senior population by 2030.

Figure 1: Projected Growth of Seniors Age 65 or Older, 2010-2030[8]




7 Op. cit. 1

8 Op. cit. 5

9 U.S. Administration on Aging, "A Profile of Older Americans: 2010" Available at http://www.aoa.gov/aoaroot/aging_statistics/Profile/index.aspx

10 Op. cit. 5

11 Ibid.



## Seniors Aged 65 or Older % Growth 2010 - 2030

- Under 50%
- 51% - 75%
- 76% - 100%
- 101% - 158%

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# Transportation and the New Generation

## Why Young People Are Driving Less and What It Means for Transportation Policy

FRONTIER GROUP U.S. PIRG Education Fund

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**America's young people are decreasing the amount they drive and increasing their use of transportation alternatives.**

- According to the National Household Travel Survey, from 2001 to 2009, the annual number of vehicle-miles traveled by young people (16 to 34-year-olds) decreased from 10,300 miles to 7,900 miles per capita—a drop of 23 percent.
- In 2009, 16 to 34-year-olds as a whole took 24 percent more bike trips than they took in 2001, despite the age group actually shrinking in size by 2 percent.
- In 2009, 16 to 34-year-olds walked to destinations 16 percent more frequently than did 16 to 34-year-olds living in 2001.
- From 2001 to 2009, the number of passenger-miles traveled by 16 to 34-year-olds on public transit increased by 40 percent.
- According to Federal Highway Administration, from 2000 to 2010, the share of 14 to 34-year-olds without a driver's license increased from 21 percent to 26 percent.

**Young people's transportation priorities and preferences differ from those of older generations.**

- Many young people choose to replace driving with alternative transportation. According to a recent survey by KRC Research and Zipcar, 45 percent of young people (18-34 years old) polled said they have consciously made an effort to replace driving with transportation alternatives—this is compared with approximately 32 percent of all older populations.
- Many of America's youth prefer to live places where they can easily walk, bike, and take public transportation. According to a recent study by the National Association for Realtors, young people are the generation most likely to prefer to live in an area characterized by nearby shopping, restaurants, schools, and public transportation as opposed to sprawl.
- Some young people purposely reduce their driving in an effort to curb their environmental impact. In the KRC Zipcar survey, 16 percent of 18 to 34-year-olds polled said they strongly agreed with the statement, "I want to protect the environment, so I drive less." This is compared to approximately 9 percent of older generations.

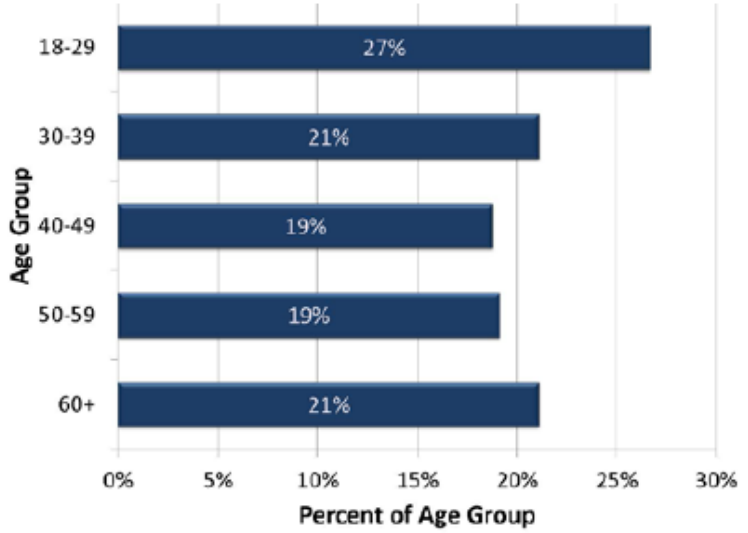
**The trend toward reduced driving among young people is likely to persist as a result of technological changes and increased legal and financial barriers to driving.**

- *Technology:*
  - Communications technology, which provides young people with new social networking and recreational possibilities, has become a substitute for some car trips.
  - Improvements in technology make transportation alternatives more convenient. Websites and smart phone apps that provide real-time transit data make public transportation easier to use, particularly for infrequent users. Meanwhile, technology has opened the door for new transportation alternatives, such as the car-sharing and bike-sharing services that have taken root in numerous American cities.

Many young people choose to replace driving with alternative transportation. According to a recent survey by KRC Research and Zipcar, 45 percent of young people (18-34 years old) polled said they have consciously made an effort to replace driving with transportation alternatives — this is compared with approximately 32 percent of all older populations.

**Figure 8: Young People Most Value Social Amenities within Walking Distance**

In the National Association for Realtors survey, participants were asked to rate the importance (on a scale of "very important," "somewhat important," "not very important," and "not at all important") of having nine specific social amenities (e.g., restaurants) within walking distance of their homes. The percentages of participants that answered "very important" for each amenity are averaged by age group and displayed below.




- In a survey by the Urban Land Institute in 2011, nearly two-thirds of 18 to 32-year-olds polled said living in communities that were walkable was either essential (14 percent) or preferable (50 percent).[42]
- In the National Association for Realtors survey discussed above, people between the ages of 18 and 29 valued having social amenities—such as grocery stores, restaurants and doctors' offices—in walking distance more than people in other age groups.[43] (See Figure 8.)
- In the same survey, people between the ages of 18 and 29 were at least 25 percent more likely than older populations to highly value having bus routes and rail lines within walking distance of their homes. (See Figure 9.)

- In a survey by the Urban Land Institute in 2011, nearly two-thirds of 18 to 32-year-olds polled said **living in communities that were walkable was either essential** (14 percent) **or preferable** (50 percent).
- In the same survey, people between the ages of 18 and 29 were at least 25 percent more likely than older populations to **highly value having bus routes and rail lines within walking distance** of their homes.

# Transit Accessibility

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Transit Accessibility is…
the segment of an individual trip that occurs between an origin or destination point and the transit system.

~ Source: American Public Transit Association

# Surveys Collected *(April 2012)*

1. Shade Trees (68%)
2. Bus Schedule Information (64%)
3. Streetlights (60%)
4. Landscaping (55%)
5. Bicycle Lanes (52%)
6. Bicycle Parking (51%)
7. Curb Extensions (50%)
8. Medians (43%)
9. Decorative Pavement (41%)
10. Art (40%)

# Shading

## Issue

Adequate shading can improve uncomfortable environmental conditions like heat and sun. In the MAG region, sun protection is a key function of shelters. Depending on the orientation of the bus shelter (south facing, north facing, etc.), time of day, and transit service time, a typical bus shelter may or may not provide relief from direct sunlight. In these circumstances other shading strategies such as locating the bus stop near an existing tree can be considered. *TCRP Report 19c* provides detailed guidance on the shade of bus stop areas.

It is important to recognize that the movement of the sun will impact the effectiveness of the shade improvement. Before selecting a treatment visit the site during the period(s) of peak activity. Stop level transit ridership data and pedestrian counts will be useful in determining the periods of peak activity.

## Importance

During the field survey, transit riders were asked if an increase in shade trees would make them more likely to ride the bus more often; **68% of transit riders said they would ride the bus more often if additional shade was provided.** Only 21% of riders thought there were a lot of trees and plants.

At all case study locations only partial shade was provided during certain periods of the day but not during all hours of daylight. At most case study locations at least partial shade was provided from the bus shelter; at bus stops where a shelter was not provided a nearby shade tree provided partial shade. None of the case studies had adequate shade pedestrian or bicycle routes in the catchment area.

## Improvement Considerations

Various strategies for providing shade at transit stops have been discussed in previous sections including the siting of benches to take advantage of existing shade and the design and orientation of shelters. In addition to shade at the bus stop location, consideration should be given to providing adequate shade on bicycle and pedestrian routes that connect to bus stops.

**Street Trees with Grates** | Shade trees planted in tree wells are common in urban areas where on-street parking may be directly adjacent to the planting area. Shade trees with grates can be installed which maintain a larger sidewalk space for pedestrian, strollers and handicapped individuals.

Tree wells are typically used in urban areas or areas with high turnover of street parking.

A landscaped strip between the curb and sidewalk is more common in suburban settings.

**Landscape Strip** | Streets with a landscape strip can be enhanced by planting street trees in the space between the sidewalk and curb. This location can provide shade both to the sidewalk and to on-street bicycle lanes (if applicable). When si
can be planted on b
shade throughout th
Landscape strips tha
need to be at least 3
clearance radius aro
tree litter, fruit charac
to building structures
seasonal growth wh
species can have ma
sidewalks, cars, ped

**Shade Trees** | Whenever possible, landscape transit, pedestrian and bicycle areas with shade trees rather than palm trees. Palm trees provide little to no shade.

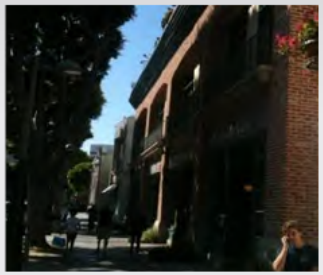
**Sidewalk-oriented Buildings** | The design and orientation of buildings, particularly with regard to setback and height, can have a significant impact on the level of shade provided at transit stop and along sidewalks in
Structures may also
stretches to provide
exposure. Depending
ing (i.e. north, south,
he sun, buildings with
back line can provide
ory building has a
shade tree.

/ used on private
o provide shade
nd the public sidewalk.
Canopies have also been used on roadways in some urban settings.

68% of transit riders said they would ride the bus more often if additional shade was provided.

## Planning/Policy Guidance

- Install trees to maximize shade opportunities while considering the natural and built environmental impacts.
- Some cost effective strategies for planting street trees include:
  - Locating bus stops in locations where they will benefit from existing shade trees.
  - Prioritizing the planting of street trees that will serve existing bus shelters and sidewalks.
- Wide and/or detached sidewalks allow for a buffer zone that can include tree wells in urban areas or a continuous landscaped strip in more suburban settings.
- Shade can be a consideration during private development design and review and the implementation of public improvements within the public right-of-way. Identifying the appropriate strategy requires consideration of capital cost, maintenance and contextual factors such as aesthetics and the number of pedestrians and transit users who will actually benefit from the investment.
- Provide appropriate landscaping that does not interfere with pedestrian and bicycle accessibility.



The combination of tree wells and sidewalk-oriented buildings provides consistent shade throughout most of the day.

Sidewalk oriented development provides shaded connection between bus stops and building entrances.
Source: City of Chandler, Green Building Program

Canopies provide shade from the public sidewalk to the building entrance.

## Cost

The table below lists the estimated unit construction costs for shade that may be included at transit stops. The potential application of each feature by prototype is highlighted.

Table 24: Cost of Shade & Potential Prototype Application

| Feature | Description | Unit | Unit Cost | Application for Prototypes | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Urban Core | Urban Retail | Urban Res. | Sub. Retail | Sub. Res. |
| Shading | Standard shelter w/ seating, lighting, bicycle rack, concrete pad, trash receptacle | Each | $16,000 | | | | | |
| | Enhanced shelter w/ seating, side screens, lighting, bicycle rack, concrete pad, trash receptacle | Each | $25,000 | | | | | |
| | Custom shelter w/ seating, side screens, interior lighting, stop area lighting, bicycle rack, concrete pad, trash receptacle | Each | $35,000 | | | | | |
| | Shade tree (irrigated) | Each | $750 | | | | | |
| | Landscape buffer w/ shade tree (irrigated) | Sq. Ft. | $3.00 | | | | | |
| | Tree well with cover | Each | $250 | | | | | |
| | Custom shade structure | Each | $5,000 | | | | | |

# Shelter

## Issue

Bus shelters provide protection shade, seating, protection from the elements, and serve as a visual guide for transit stops. The Transportation Research Board published a report titled *Guidelines for the Location and Design of Bus Stops* which demonstrated the importance of shelter location, design, and pavement materials used. The report states that both **asphalt and concrete increase air temperature by several degrees because of the material's ability to retain and reflect heat. Temperatures at bus stops can often exceed actual air temperature by several degrees.** The report also states where shelters should be located based on accessibility factors such as bus stop transfer distances.

Within the MAG region, local jurisdictions determine bus shelter designs. There are a variety of designs that can accommodate different passenger volumes and various site demands. In the MAG region, sun protection is a key function of shelters. Depending on the orientation of the bus shelter (south facing, north facing, etc.), time of day and transit service time, a typical bus shelter may or may not provide relief from direct sunlight. In these circumstances other shading strategies such as locating a shelter near an existing tree can also be considered.

## Importance

The field survey did not ask specific questions related to shelters. In *Evaluating Transit Stops and Stations from the Perspective of Transit Users* 749 transit users were surveyed at 12 transit stops and stations around metropolitan Los Angeles; **69% respondents reported shelter to protect them from the sun or rain as being important, also, it was the highest ranked in terms of importance of all five amenities surveyed** (Iseki, H., Taylor, B. D., 2010).

Most case study locations provided bus shelters and bus stops. Some locations had bus shelters installed but bus service was not provided. At these locations bus transfer distances were long which resulted in riders missing transfers or cutting through developments to reach the next bus stop. One location had no shelter, only a bus sign and a shade tree. None of the case study locations included shelters designed for southern climates.

## Improvement Considerations

Like bus benches, bus shelters may be supported by advertising or constructed using entirely public funds. Transparent screening is an important element of both of the examples below, as visibility is an important security feature and it also allows passengers to see approaching buses from behind the screen.

Furthermore, **shelters can be coordinated with landscaping to provide maximum protection from the elements** and to enhance the visual quality of the bus stop. Shade trees reduce heat at a site and provide additional shade for patrons waiting outside the shelter. To increase rider comfort consider using low heat gain materials and finishes.

**Standard Bus Shelter** | Transit agency requirements for bus shelters may include:

- Shelter location,
- Pedestrian access (i.e., direct sidewalk to the shelter),
- Visibility for vehicles and waiting passengers,

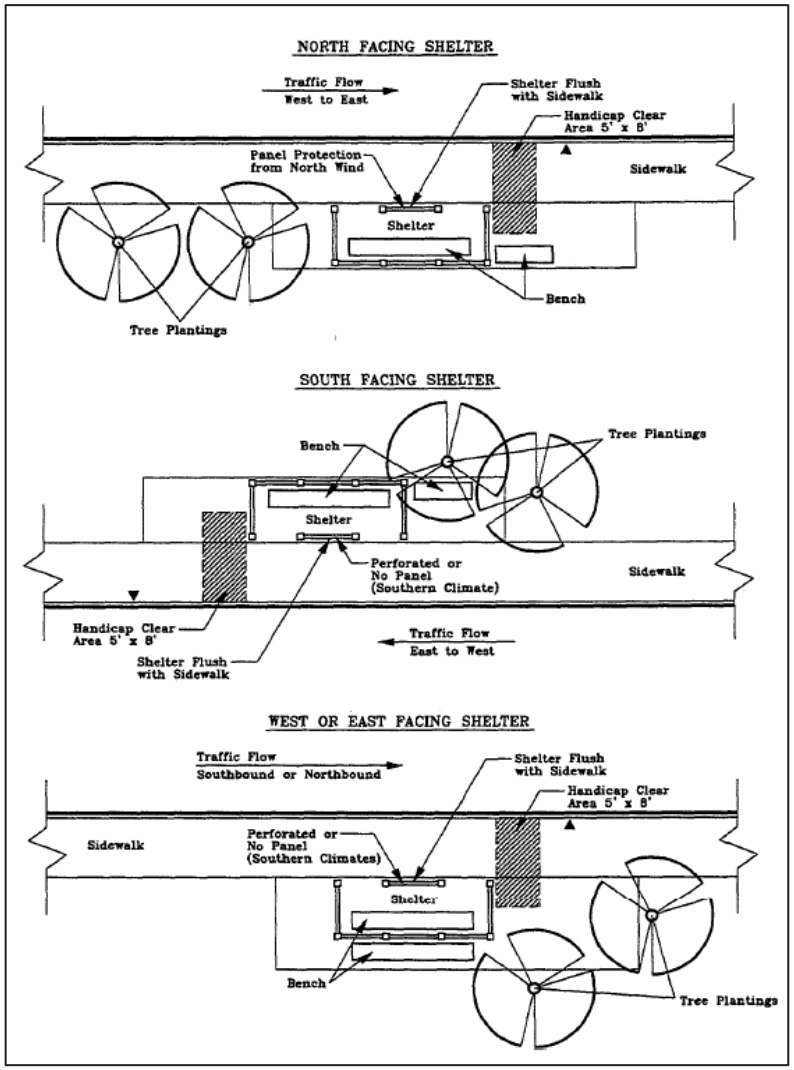
Furthermore, shelters can be coordinated with landscaping to provide maximum protection from the elements and to enhance the visual quality of the bus stop.

configured with a screen placed between the street and bench to protect waiting passengers from direct sunlight; this configuration would be most applicable for east or west facing stops and where there are few trees or buildings to block the sun. Prefabricated trellis panels may be used in the construction of transit shelters which offer both aesthetic and thermal benefits. Vertical panels and seating areas can be staggered to maximize shade opportunities throughout the day.

4:00 p.m.
EAST FACING

2:00 p.m.
EAST FACING

The City of Scottsdale conducted a sun exposure study as part of the conceptual design for standard bus sh
The resulting design is similar to concept designs included in TCRP Report 19c (referenced above).




Conceptual Shelter Design for Southern Climates

Source: **TCRP Report 19c - Guidelines for the Location and Design of Bus Stops**

# Information Signage


| | |
|---|---|
| Format | message, phone text. |
| Information Delivery Media | Telephone, personal computer, mobile device, signage, kiosk. |

NSIDERATIONS

be implemented in several formats and with various combinations of information. It is ransit stops include a full bundle of information for transit riders including: a bus stop and destinations, transit system schedule, transit system map, transit system provider's if applicable, the park-and-ride location. Furthermore, bus stops and routes with high onsider adding real-time travel information. The types of information signage shown mples of the possible design and format to provide the information. Overall, transit system uld be as consistent as possible throughout the entire transit system.




sk
dule

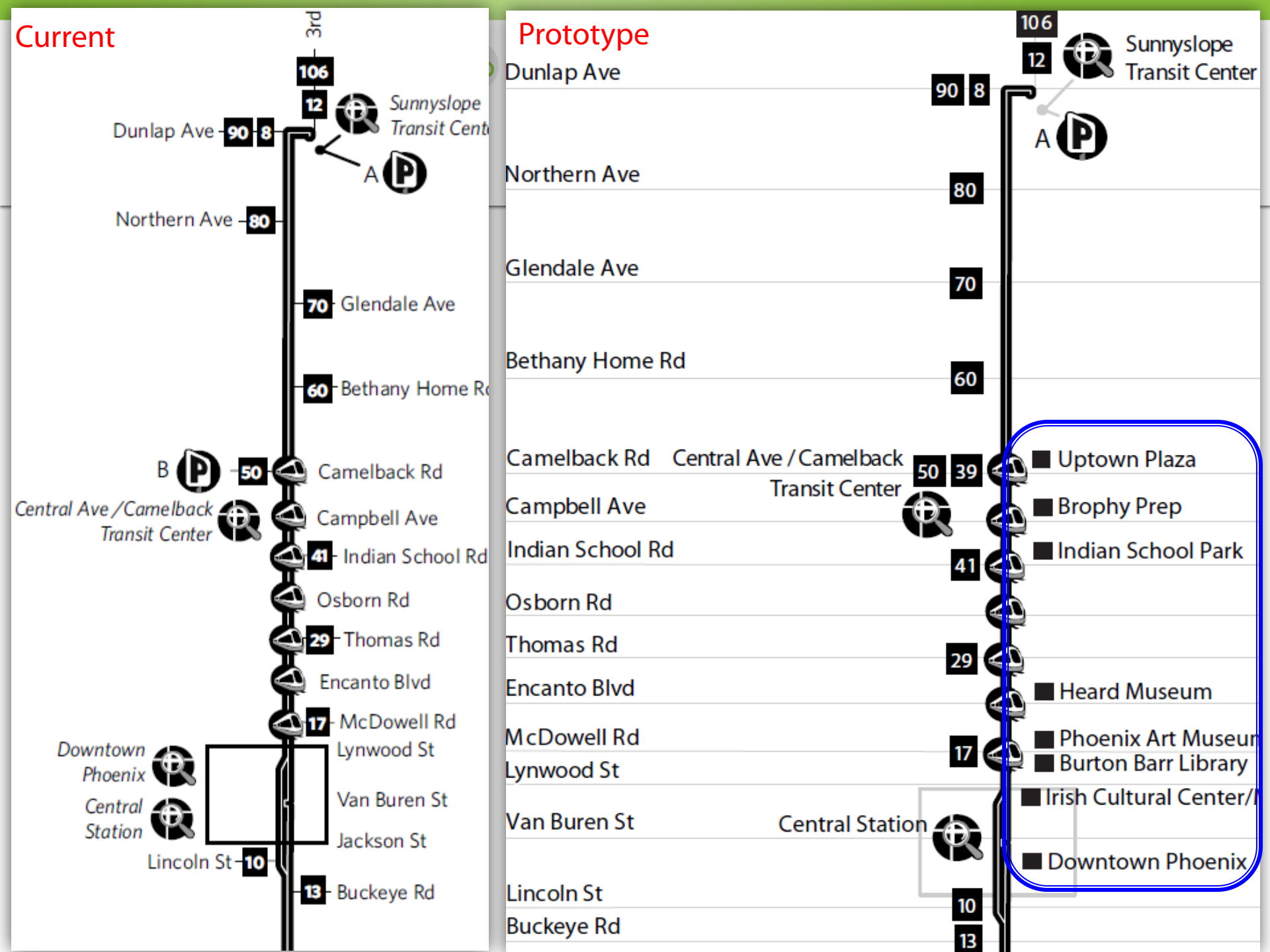
Existing post-mounted bus s sign with bus route numbe
Proposed post-mounted bus stop sign with bus route numbers and destinations.

Post-mounted information box with route map.

) **Number and Destinations** | As , the existing post-mounted e bus route number. These o include the route name and long the route.

Information Kiosk | Each b us stop can include an information kiosk houses the transit system schedule and the system map. This may be another location to consider for the transit provider's contact information.

**Contact Information Signage** | Each bus stop can include the transit provider's contact information with the bus stop number. This sign provides another means for riders to get information regarding their bus route and bus stop. Many bus stops in the greater Phoenix area already include this sign. In addition to providing a phone number, these signs can be enhanced to include a QR code which would direct smart phone users to a website providing updated information on the bus route and bus stop.


Current
3rd
106
12
Sunnyslope
Transit Cent
Dunlap Ave
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8
A
Northern Ave
80
70
Glendale Ave
60
Bethany Home R
B
50
Camelback Rd
Central Ave /Camelback
Transit Center
Campbell Ave
41
Indian School Rd
Osborn Rd
29
Thomas Rd
Encanto Blvd
17
McDowell Rd
Downtown
Phoenix
Lynwood St
Central
Station
Van Buren St
Jackson St
Lincoln St
10
13
Buckeye Rd
Prototype
Dunlap Ave
Northern Ave
Glendale Ave
Bethany Home Rd
Camelback Rd
Central Ave / Camelback
Transit Center
Campbell Ave
Indian School Rd
Osborn Rd
Thomas Rd
Encanto Blvd
McDowell Rd
Lynwood St
Van Buren St
Central Station
Lincoln St
Buckeye Rd
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Sunnyslope
Transit Center
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41
29
17
10
13
Uptown Plaza
Brophy Prep
Indian School Park
Heard Museum
Phoenix Art Museum
Burton Barr Library
Irish Cultural Center/
Downtown Phoenix

# Bicycle Access

## Issue

Bicycle access is important in any city and within the MAG region. Access is an important extension of any transit system as it improves mobility, extends and enhances transit service quality, and reduces reliance on automobiles. Some of the common challenges to providing good bicycle access include street crossings, lack of bicycle lanes or paths, perceived dangerous roadways, constrained right-of-way, station characteristics, network connectivity, transit agency policies, and surrounding land uses.

## Importance

When asked if certain improvements would increase their use of transit, **52% of riders indicated adding a bicycle lane would increase their use of the transit system.**

Of the case study locations only the Urban Residential and Suburban Residential stops provided direct access for bicyclists to the bus stops via on-street bicycle lanes. The Suburban Retail stop had an off-street bicycle trail but no means of connecting from the trail to the bus stop. In addition to on-street and off-street facilities, bicyclists can often safely ride along local and collector streets that have lower traffic volumes and lower traffic speeds; however, none of the case study bus locations provided bicycle access from collector and local streets to the bus stop.

## Improvement Considerations

Bicycle access improvements may include on-street or off-street bicycle facilities and can be focused on gaps or weak links in the bikeway network, particularly those situated between a transit stop and a major activity center. Existing or proposed bicycle paths can provide wayfinding signage to nearby transit stops and include marked and/or signalized crossings of major roadways to facilitate the use of bicycle paths to access transit.

Bicycle lanes on Southern Avenue in addition to vehicular travel lanes. Bicycle lanes can be installed by reducing the number of vehicular lanes from four to three or reducing vehicle travel lane widths.

Interim FHWA approved green paint denotes the "conflict zone" where buses and motorists will cross the bicycle lanes in order to pick up passengers or make right turns.


Buffered or protected bicycle lanes create greater separation between bicyclists and adjacent vehicular traffic and have been shown to attract new riders.

**Bicycle L**anes | Bicycle lanes may be provided along major arterials ar width. Bec paths wi treatmen being us conflict z may incl paveme

**Bike Lane** bicycle a creates ma located b space should be considered between parking and bike lanes.

Bicycle Paths | Bicycle paths are off-street routes that provide

at intersections with high volumes of traffic. See the Crossings section of this toolkit for additional details.

When asked if certain improvements would increase their use of transit, 52% of riders indicated adding a bicycle lane would increase their use of the transit system.

# Bicycle Parking

When asked if certain improvements would increase their use of transit, 51% of riders indicated adding a bicycle parking would increase their use of the transit system.

consideration should be given to routes and stops with high bicycle activity and when the exterior bicycle racks are at capacity.

## IMPORTANCE

When asked if certain improvements would increase their use of transit, **51% of riders indicated that adding bicycle parking would increase their use of the transit system.**

Of the case study locations, few bus stops provided bicycle racks or other bicycle parking facilities. Occasionally adjacent private developments would provide a bicycle rack. Exterior bicycle racks on buses were often at or near capacity and the transit agency does not accommodate interior bicycle storage. Additional bicycle racks may be needed, particularly at locations with low frequency transit service.

**Bicycle Corrals** | Bicycle corrals are typically installed in an on-street parking space. This option is attractive to some business owners who see the conversion of a single car parking space into 8-12 bicycle parking spaces as an opportunity.

**Bicycle Cellar/Transportation Station** | Bicycle stations are major investments that are typically incorporated into larger transportation facilities. They can include a variety of bicycle parking options such as racks, lockers, and bike sharing facilities as well as personal lockers, showers, bicycle repair, rentals, and accessories, as well as other pedestrian amenities. The Bicycle Cellar at Tempe Transportation Station is an example of this type of facility.

**Bicycle Lids and Lockers** | A bicycle lid or locker is a secured box that stores a single bicycle which can be locked to prevent theft and vandalism and protect the bicycle from environmental conditions. This improvement is commonly considered one of the highest standards of bicycle safety and can be placed at locations where numerous cyclists are parking and storing their bicycles for extended periods of time.

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a bus stop number, route(s)
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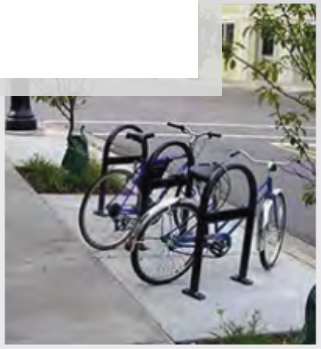

Sidewalk bicycle racks.

Bicycle corrals.

Tempe Transportation Station

PASSENGER Transport

THE SOURCE FOR PUBLIC TRANSPORTATION NEWS AND ANALYSIS

JANUARY 24, 2014



## INSIDE



## NEWS HEADLINES

### Report Offers Ways to Facilitate Transit Ridership for Bicyclists

How can public transit planners accurately address the needs of riders who combine bicycling with bus or rail?

Given that many bicyclists place a high value on the ability to blend transportation modes, the Mineta Transportation Institute (MTI) has published a free, peer-reviewed report that provides policy recommendations that respond to the needs of these riders.

The report, Perceptions of Bicycle-Friendly Policy Impacts on Accessibility to Transit Services: The First and Last Mile Bridge, recognizes recent efforts many public transit agencies have made to combine bicycles and transit, including installing bicycle racks on transit vehicles and implementing bicycles-on-trains policies.

Highlights include the following recommendations for public transit planners:

## CLASSIFIEDS

# Adjacent Lan

## Issue

Adjacent land use is a
when creating or impr
Developments with lar
or gated communities
pedestrians and bicycl

## Importance

During the field survey
bus stop was close to
riders thought the bus
destination point.

Of the case study loca
provided direct access
Residential stop provi
uses but no direct acc
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access to adjacent lan
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Recent research has
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- Bus Transit and Lan

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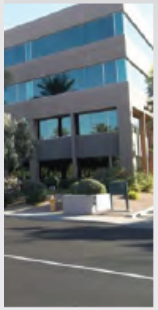

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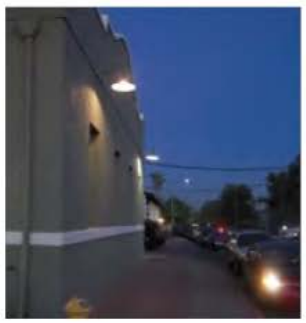
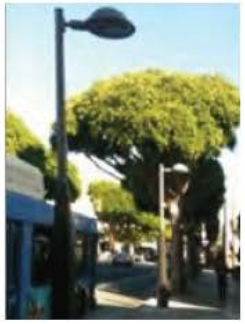
# 6.1 Implementation Checklist

Included in the following pages is a checklist of topics that have been recommended when considering the placement, replacement or upgrade of bus transit stops. The checklist is for all stakeholders in the design, development, installation, and maintenance of bus transit stops, including: planners, transit providers, city design review staff, and private developers. Below is a checklist illustrating all topics to be taken into consideration when planning for, locating, and building a bus transit stop. The checklist includes core elements identified in the DTAC study that make an effective transit stop.

| Topics for Consideration | Check All That Apply |
|---|---|
| Have you **coordinated** with member agency staff? | ☐ Transit operations staff<br>☐ Facilities staff<br>☐ Street planner/engineer<br>☐ Development review/services<br>☐ Safety/Safe Routes to School<br>☐ Bicycle/Pedestrian<br>☐ Other/parks and recreation/maintenance, etc |
| Did you consider **location**? | ☐ At intersection (bus bay/acceleration lane).<br>☐ Mid-block (with pedestrian crossing).<br>☐ Close to targeted development.<br>☐ Ease of transit transfer.<br>☐ Potential conflict with pedestrian/bicyclists/auto users |
| Did you consider **lighting**? | ☐ Reviewed applicable lighting standards.<br>☐ Freestanding street light located near bus stop.<br>☐ Freestanding pedestrian light.<br>☐ Pedestrian light attached to street light pole.<br>☐ Pedestrian light attached to building. |

*Lighting Examples*



| Topics for Consideration | Check All That Apply |
|---|---|
| Have you **coordinated** with member agency staff? | ☐ Transit operations staff<br>☐ Facilities staff<br>☐ Street planner/engineer<br>☐ Development review/services<br>☐ Safety/Safe Routes to School<br>☐ Bicycle/Pedestrian<br>☐ Other/parks and recreation/maintenance, etc |
| Did you consider **location**? | ☐ At intersection (bus bay/acceleration lane).<br>☐ Mid-block (with pedestrian crossing).<br>☐ Close to targeted development.<br>☐ Ease of transit transfer.<br>☐ Potential conflict with pedestrian/bicyclists/auto users |
| Did you consider **lighting**? | ☐ Reviewed applicable lighting standards.<br>☐ Freestanding street light located near bus stop.<br>☐ Freestanding pedestrian light.<br>☐ Pedestrian light attached to street light pole. |

# Project Contact

**For information, discussion and possible recommended acceptance of the Designing Transit Accessible Communities Study.**

**Alice Chen**
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