



DESIGNING TRANSIT ACCESSIBLE COMMUNITIES STUDY

Transit Committee
November 8, 2012





Transit Accessibility

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



Project Overview – Goals & Objectives

- Identify the challenges faced by users getting to transit.
- Recommend improvements, policies and guidelines to enhance transit accessibility.
- Provide measures and strategies for local governments to create transit accessible and livable neighborhoods.
- Identify options and provide a regional framework for applying for federal grants.



Transit Accessibility

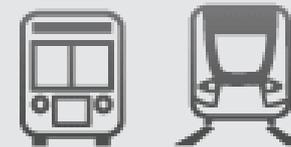
ACCESS HIERARCHY

WALKING

(PRIMARY ACCESS MODE)



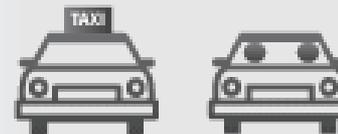
TRANSIT ROUTE TRANSFER



BIKE



PICK-UP
DROP-OFF



VEHICLE
PARKING





Case Study Methods

- Stakeholder Input
- Review of Demographic and Built Environment Data in GIS
- Intercept Surveying of Bus Riders
- Field Reviews
- Technical Working Group – Transit, bike/ped, street, land use, Safety, rail



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Stakeholder Workshop





Stakeholder Workshop

ISSUES & CONCERNS SUMMARY

Issue	Facilities	Human Services	Special Needs	Transportation
ADA	<ul style="list-style-type: none"> • Accessible path of travel – someone with disabilities • Maneuvering onto the bus • Providing a pad for convenient waiting • Improve “Stop” network, minimize specialized • ADA transport • Recent stops are of higher standard, need to retrofit and agree on one uniform standard 	<ul style="list-style-type: none"> • No safe place to transfer paratransit users to bus (Hospital and Sun City route 106) • ¼ mile limitation when there are no other fixed routes in the area • Core (LRT) gets amenities outside areas have lower investment • Mobility Center is good, lessens anxiety 	<ul style="list-style-type: none"> • Long distance to transit • Dial-a-ride timeliness • Not all stops are ADA compliant • Have volunteers help those with disabilities access transit • If fed. gov, classifies someone as with a disability they should qualify for assistance not just to go to the mobility center • Increase ADA compliance in unserved and underserved areas 	<ul style="list-style-type: none"> • Dial a ride provides a safety net • Access for wheel chairs • Gated Communities have green belts to access bus stops more easily, however, these are not ADA accessible
Bike	<ul style="list-style-type: none"> • Have bike lanes to bus stops-collector/arterial • Local Streets are Bikeable • Need racks at stop in case bus' rack is full 	<ul style="list-style-type: none"> • Racks on busses are desirable and fill up fast • Lack of paths 		<ul style="list-style-type: none"> • Light rail crowded with bikes • Bike racks on transit vehicles • Bike transit is an issue especially for transit dependent, design to increase capacity • Bike sharing program • Bike lockers • More frequent service reduces crowding/capacity issues
Sidewalk/Walkability	<ul style="list-style-type: none"> • Improve safety of Sidewalks (8th most dangerous for pedestrians in USA) • Too spread out and too many traffic lanes (0 walkable) • Streetscape gives a pleasant and safe feel • Scottsdale has high standards 10' sidewalks 5' categories • Avoid rough spots (i.e decorative or windy) • Wide and smooth 	<ul style="list-style-type: none"> • Connected sidewalk is missing • Too long between stops • Lack of trails • Smooth surface connected sidewalk 	<ul style="list-style-type: none"> • Stray animals make pedestrians feel uncomfortable 	<ul style="list-style-type: none"> • More density increases pedestrian access • Lack of accessible sidewalks • Master planned communities lack interconnectivity, direct access leads to connectivity • Historical areas want to remain rural (bridal paths no sidewalk improvements etc) but are in the heart of the city • Difficult to cross streets (esp. seniors & dis.) • Short signal phase • Wide car focused streets • Road construction detours pedestrians • Obstacles in public right of way



Case Study Methods

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Overview of Bus Stop Categories

MOST



LEAST

Category Ranking	Category Name	Defining Characteristics	Number of Stops	Percent of Total Bus Stops
1	Metropolitan Core	<ul style="list-style-type: none"> • Some Retail • Very High Employment Density • Average Population Density • Multiple High Frequency Transit Routes 	898	15.4%
2	Urban Retail	<ul style="list-style-type: none"> • Retail • High Employment Density • Average Population Density • High Frequency Only During Peak Period 	865	14.9%
3	Urban Residential	<ul style="list-style-type: none"> • No Retail • High Employment Density • Average Population Density • A Single High Frequency Transit Route 	460	8.7%
4	Suburban Retail	<ul style="list-style-type: none"> • Retail • High Employment Density • Average Population Density • Majority of Stops without High Frequency Transit Service 	1,955	33.6%
5	Suburban Residential	<ul style="list-style-type: none"> • No Retail • Low Employment Density • Low Population Density • No High Frequency Transit Service 	1,648	28.3%

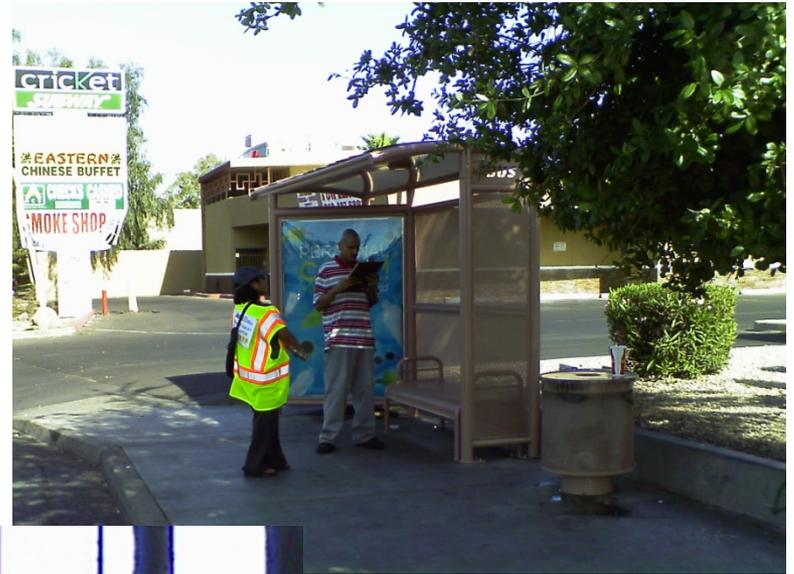


Case Study Methods

- Stakeholder Input
- Review of Demographic and Built Environment Data in GIS
- **Intercept Surveying of Bus Riders**
- Field Reviews
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Survey





Survey

Address (please be specific e.g. 123 W. Main Street) _____

Zip Code _____

If you do not know the exact address, please indicate the nearest major cross-streets, and corner of those streets: Streets: _____ & _____

Corner: NW NE SW SE

3. How will you travel to your next destination?

Walk Bike Drive

4. How far will you travel?

₁ Up to ¼ mile (0-2 blocks) ₃ ½ - ¾ mile (5-6 blocks) ₅ 1 – 2 miles (9-16 blocks)
₂ ¼ - ½ mile (3-4 blocks) ₄ ¾ - 1 mile (7-8 blocks) ₆ More than 2 miles (17+ blocks)

5. How long will it take you to get there? minutes

6. Using a scale from 1 to 5, with 1 being *Very Likely* and 5 being *Very Unlikely*, how likely is it that you would walk or ride a bike to this bus stop MORE FREQUENTLY if there were more... (Place an "X" under the rating that applies).

<i>If there were more...</i>	Very Likely 1	2	3	4	Very Unlikely 5	Don't Know 6
a. Trees that provided shade?						
b. Landscaping or other plants?						
c. Medians in the middle of the street?						
d. Street lights along the sidewalk?						
e. Curb extensions at intersections?						
f. Colored or decorative pavement on the sidewalk?						
g. Bicycle parking?						
h. Bicycle lanes?						
i. Art or decorated trash bins?						
j. Schedule info at bus stops?						

7. How comfortable do you feel when traveling to/from this bus stop?

₁ Very Comfortable ₂ Somewhat Comfortable ₃ Uncomfortable ₄ Very Uncomfortable

8. How safe do you feel about traveling to/from this bus stop?

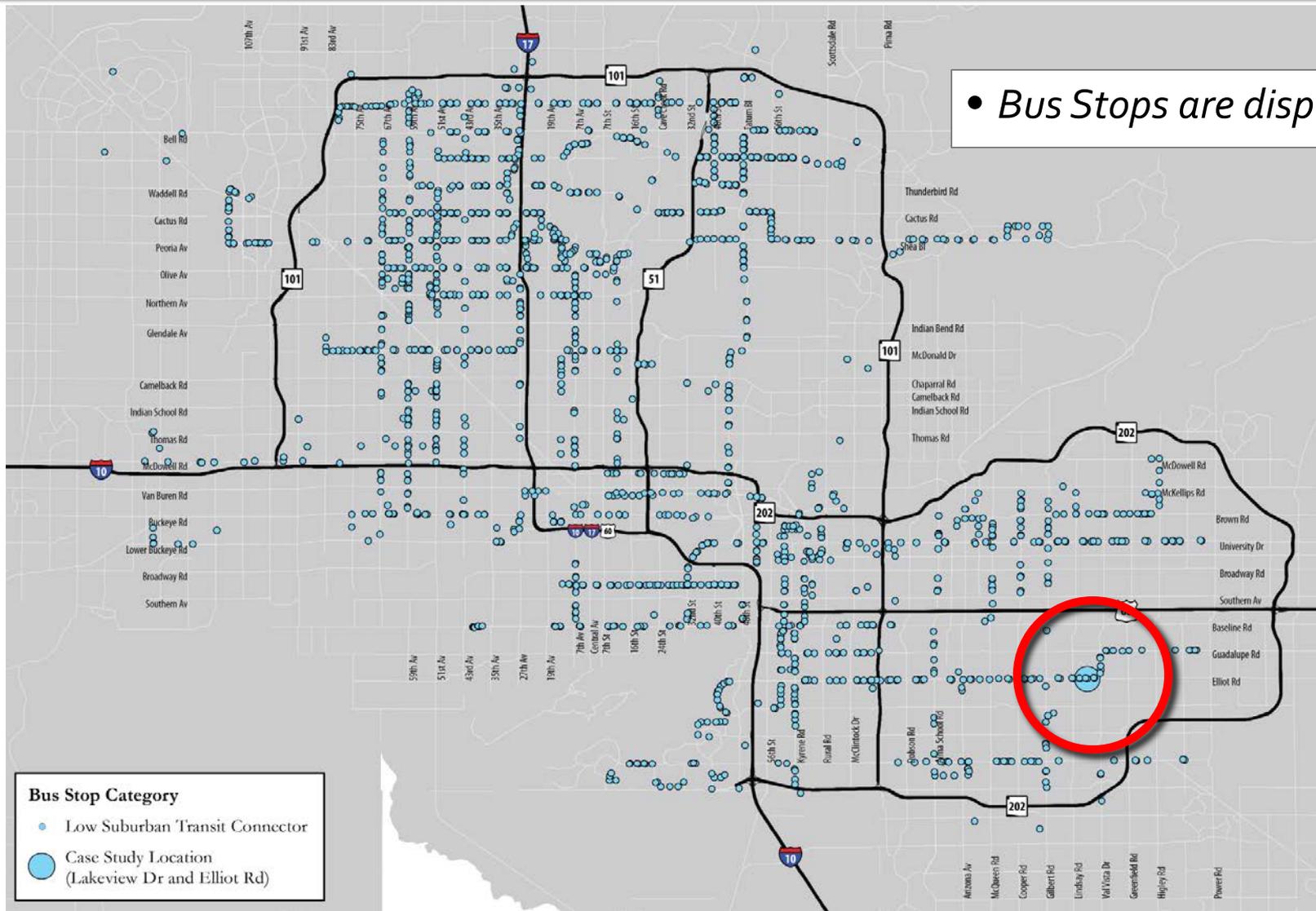


Case Study Methods

- Stakeholder Input
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- **Field Reviews**
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Suburban Residential



• *Bus Stops are dispersed*

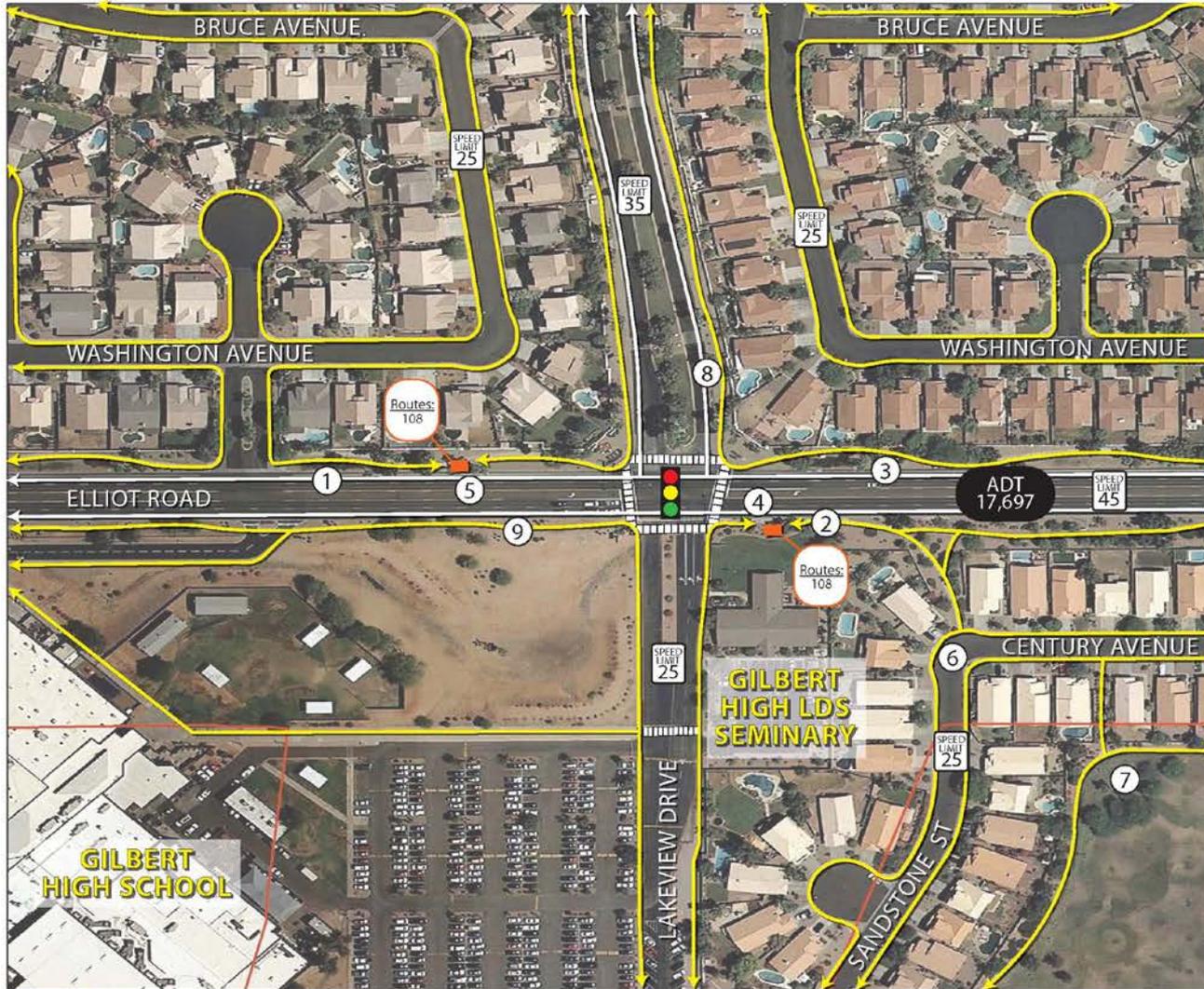
Bus Stop Category

- Low Suburban Transit Connector
- Case Study Location (Lakeview Dr and Elliot Rd)



ELLIOT ROAD & LAKEVIEW DRIVE

DESIGNING TRANSIT ACCESSIBLE COMMUNITIES STUDY



Elliot Lakeview

Date: 7/2/2012



① Bike Lane Adjacent to WB Bus Stop
② Bike Lane Adjacent to EB Bus Stop
③ Sidewalk on North Side of Elliot



④ EB Bus Stop
⑤ WB Bus Stop



⑥ Pedestrian Access East of EB Bus Stop
⑦ Pedestrian Access to Val Vista Place Park



⑧ Lakeview Drive
⑨ Jogger on Elliot Road

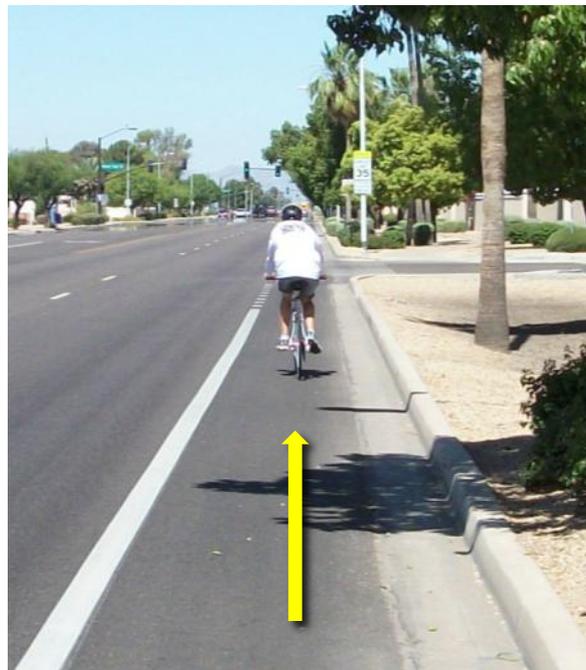


+ Favorable Conditions

Bus Stop Furnishings & Landscaping Shading



Bike Lanes



Wide, Detached Sidewalk



Pedestrian Connections



Textured Paving at Crosswalk



— Deficiencies

Minimal Landscaping



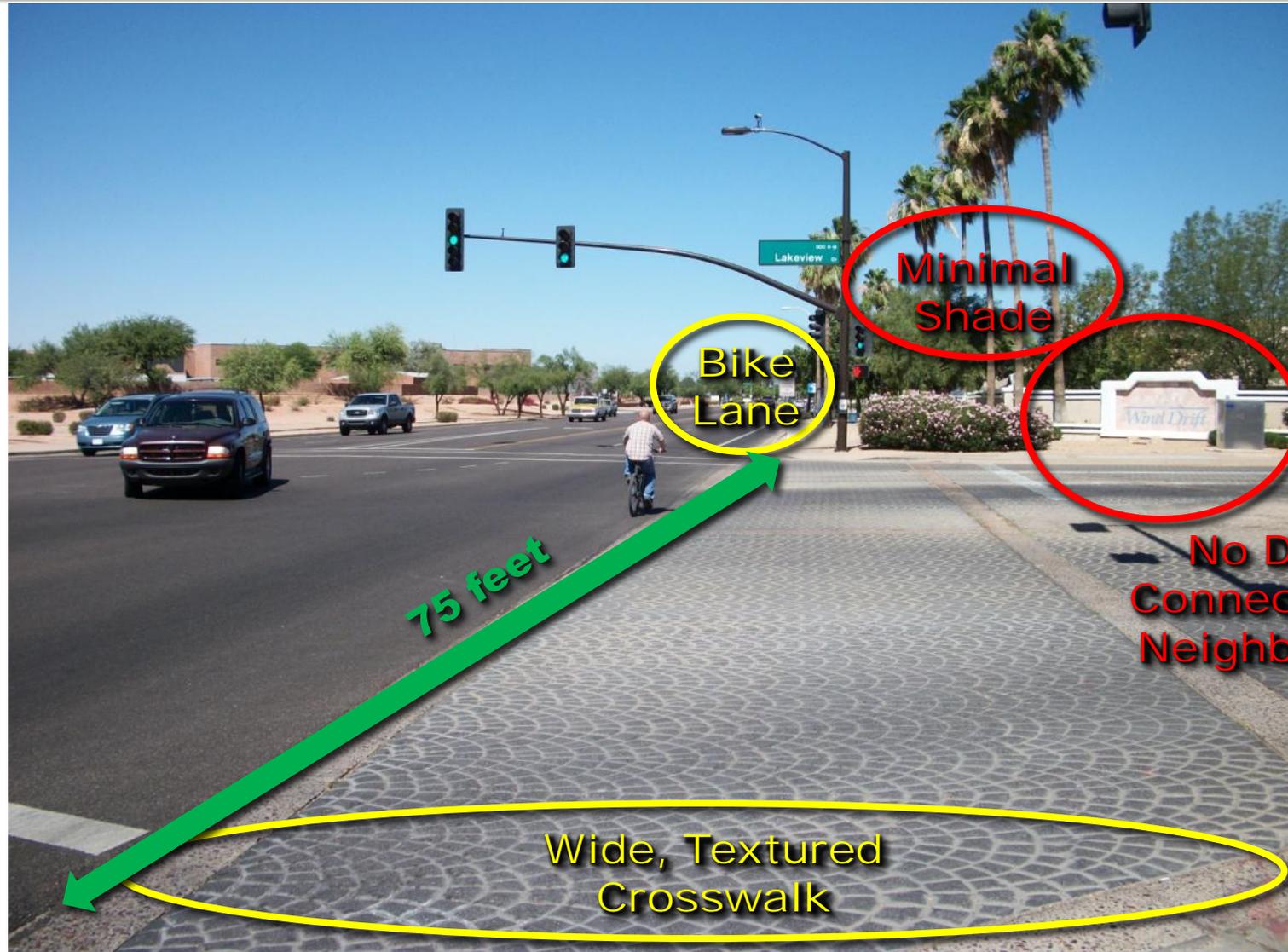
Large Intersections

No Shade





Elliot Road at Lakeview Drive



Bike Lane

Minimal Shade

No Direct Connection to Neighborhood

75 feet

Wide, Textured Crosswalk



ELLIOT ROAD & LAKEVIEW DRIVE

Elliot Road





What will make you walk/ride more often?

Ranking of Features

Shade Trees	72%
Bus Schedule Information	72%
Streetlights	57%
Landscaping	43%
Curb Extensions	43%
Art	43%
Bicycle Parking	29%
Bicycle Lanes	29%
Colored Pavement	29%
Medians	29%

*(Percent who said **Very Likely** or **Likely**)*



What will make you walk/ride more often?

Ranking of Features

Shade Trees	72%
Bus Schedule Information	72%
Streetlights	57%
Landscaping	43%
Curb Extensions	43%
Art	43%
Bicycle Parking	29%
Bicycle Lanes	29%
Colored Pavement	29%
Medians	29%

*(Percent who said **Very Likely** or **Likely**)*



How do you feel about your trip to the bus stop?

Ranking of Level of Agreement

Bus stop close to home/work/shopping	29%
Easy to make connections	29%
Good sidewalks	29%
Bus stop is safe	29%
Well maintained	29%
Good lighting	14%
Interesting things to see	14%
Light traffic	14%
Good bike paths	14%
Lots of trees and plants	14%
Easy to park and ride	0%

*(Percent of respondents who **agree** with statement)*



Near Misses?

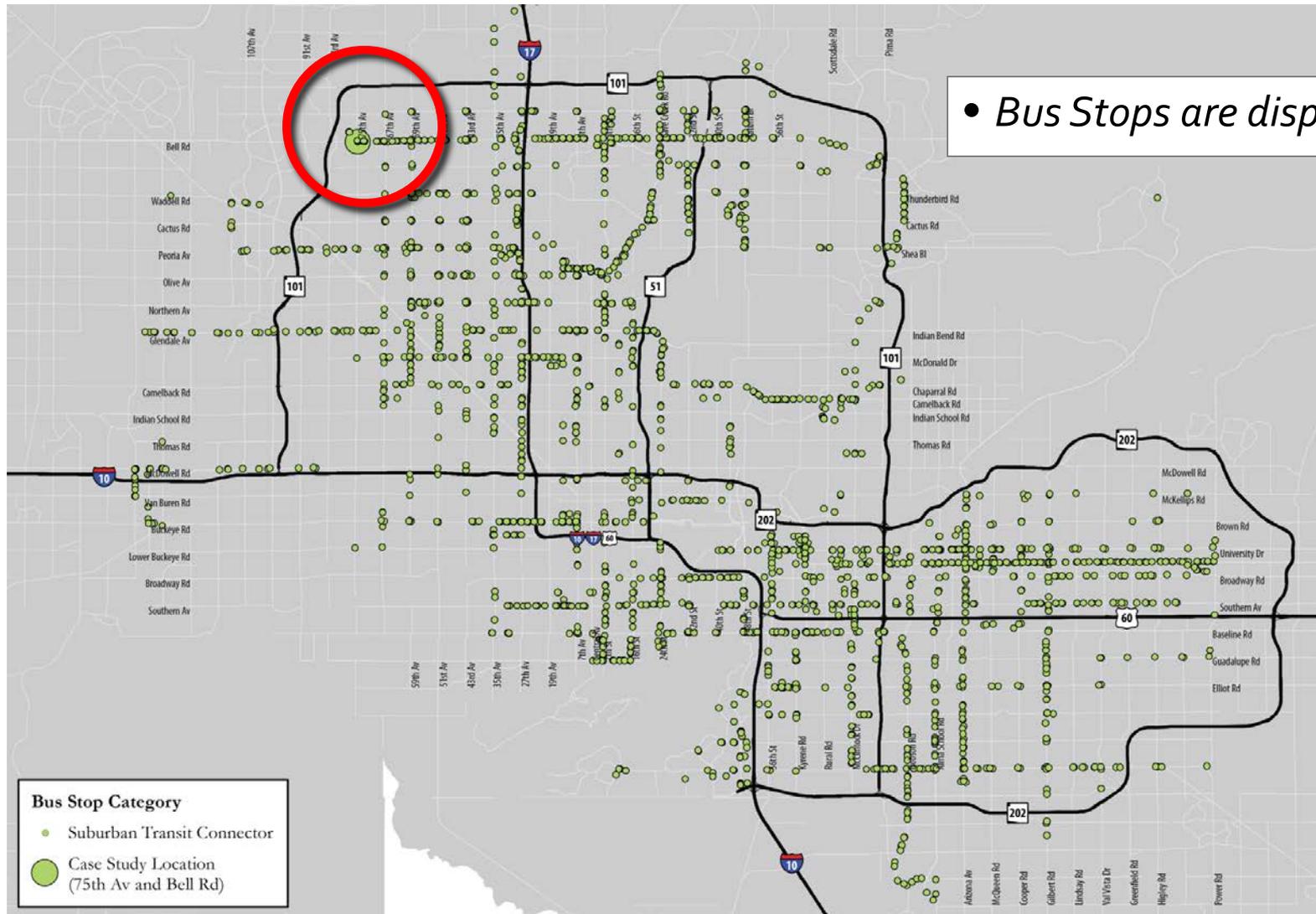
Almost been hit by a car when crossing the street to/from bus stop? 0%

Vehicle come too close while crossing the street to/from bus stop? 29%

“Doored” by a car while riding a bike 29%



Suburban Retail



• *Bus Stops are dispersed*



75TH AVENUE & BELL ROAD

DESIGNING TRANSIT ACCESSIBLE COMMUNITIES STUDY



① Connections to Adjacent Land Use



② Pedestrian Refuge



③ Bus Bay



④ Unused Bus Stop



⑤ NB Bus Stop



⑥ Pedestrian Passageway



⑦ Pedestrian Crosswalk



⑧ Detached Sidewalk

75th/Bell

Date: 7/10/2012





Eastbound Bus Bay





Eastbound Bus Stop



No Lighting

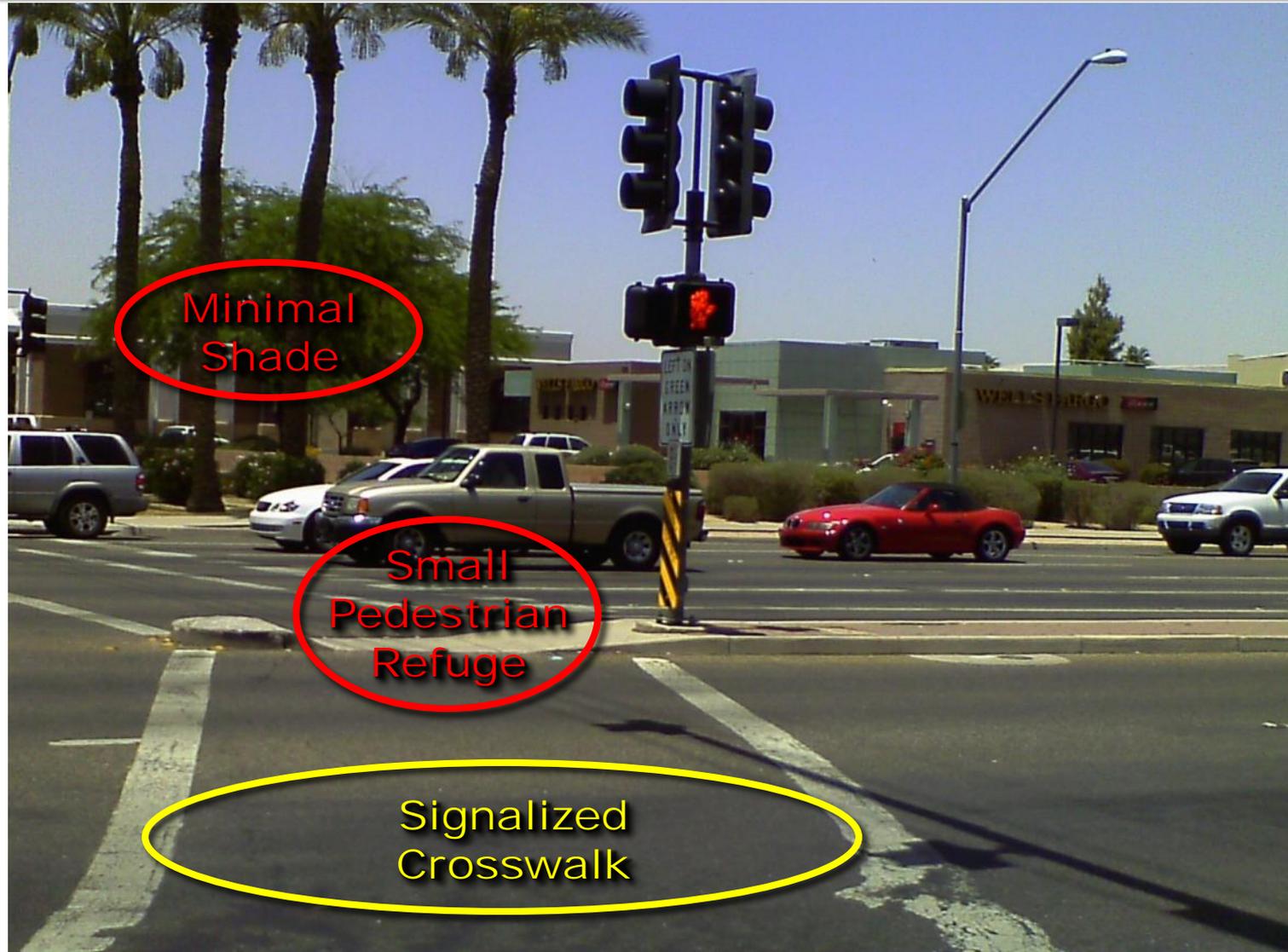
System Signage

Shelter Shade

Litter



75th & Bell Intersection



Minimal
Shade

Small
Pedestrian
Refuge

Signalized
Crosswalk



What will make you walk/ride more often?

Ranking of Features

Bus Schedule Information	41%
Shade Trees	37%
Bicycle Lanes	34%
Bicycle Parking	30%
Curb Extensions	26%
Streetlights	19%
Landscaping	19%
Art	15%
Colored Pavement	11%
Medians	7%

*(Percent who said **Very Likely** or **Likely**)*



What will make you walk/ride more often?

Ranking of Features

Bus Schedule Information	41%
Shade Trees	37%
Bicycle Lanes	34%
Bicycle Parking	30%
Curb Extensions	26%
Streetlights	19%
Landscaping	19%
Art	15%
Colored Pavement	11%
Medians	7%

*(Percent who said **Very Likely** or **Likely**)*



How do you feel about your trip to the bus stop?

Ranking of Level of Agreement

Good sidewalks	44%
Bus stop is safe	44%
Well maintained	44%
Easy to make connections	41%
Bus stop close to home/work/shopping	33%
Good lighting	30%
Easy to park and ride	26%
Good bike paths	26%
Lots of trees and plants	26%
Interesting things to see	22%
Light traffic	19%

*(Percent of respondents who **agree** with statement)*



Near Misses?

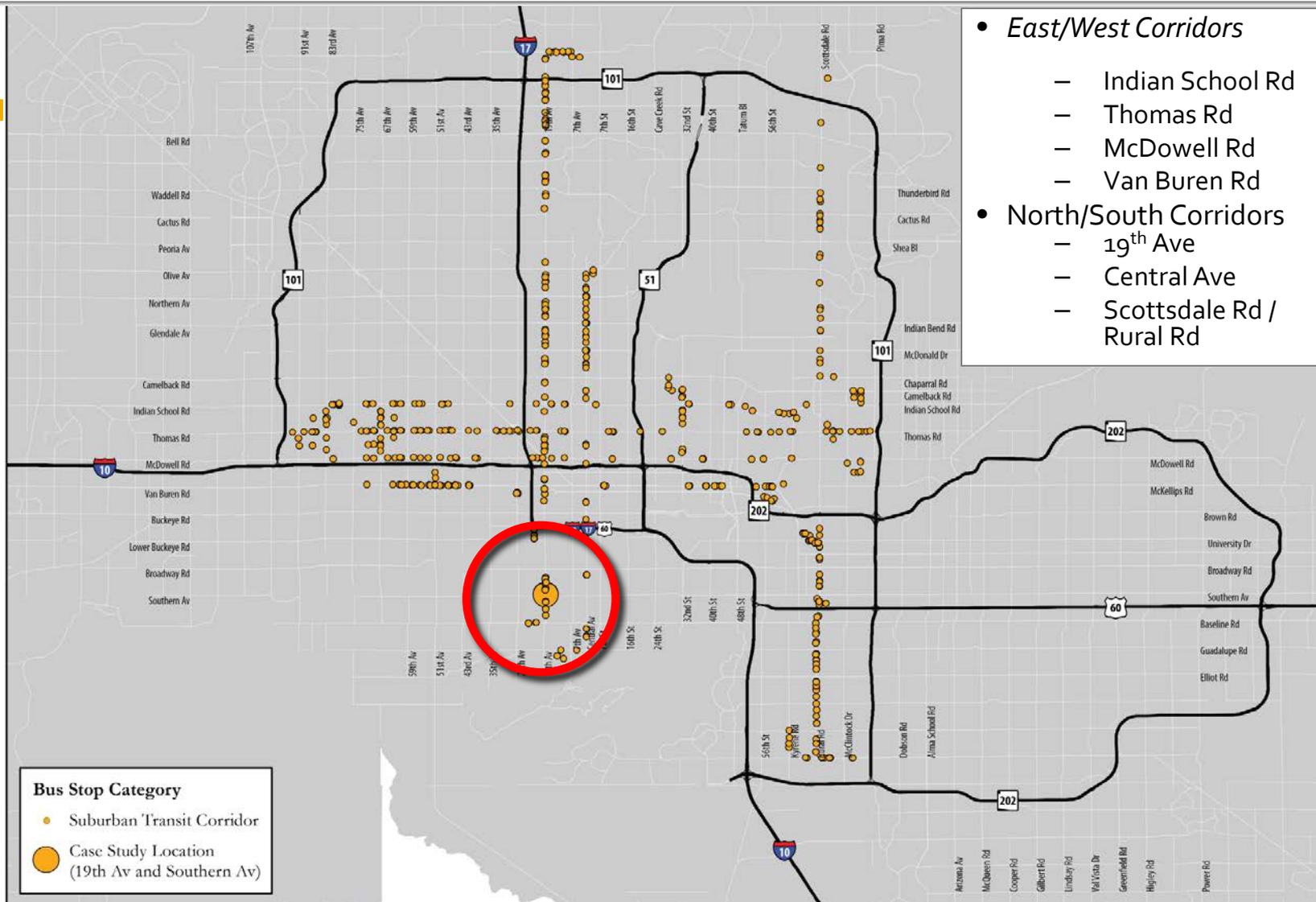
Almost been hit by a car when crossing the street to/from bus stop? 15%

Vehicle come too close while crossing the street to/from bus stop? 22%

“Doored” by a car while riding a bike 0%



Urban Residential



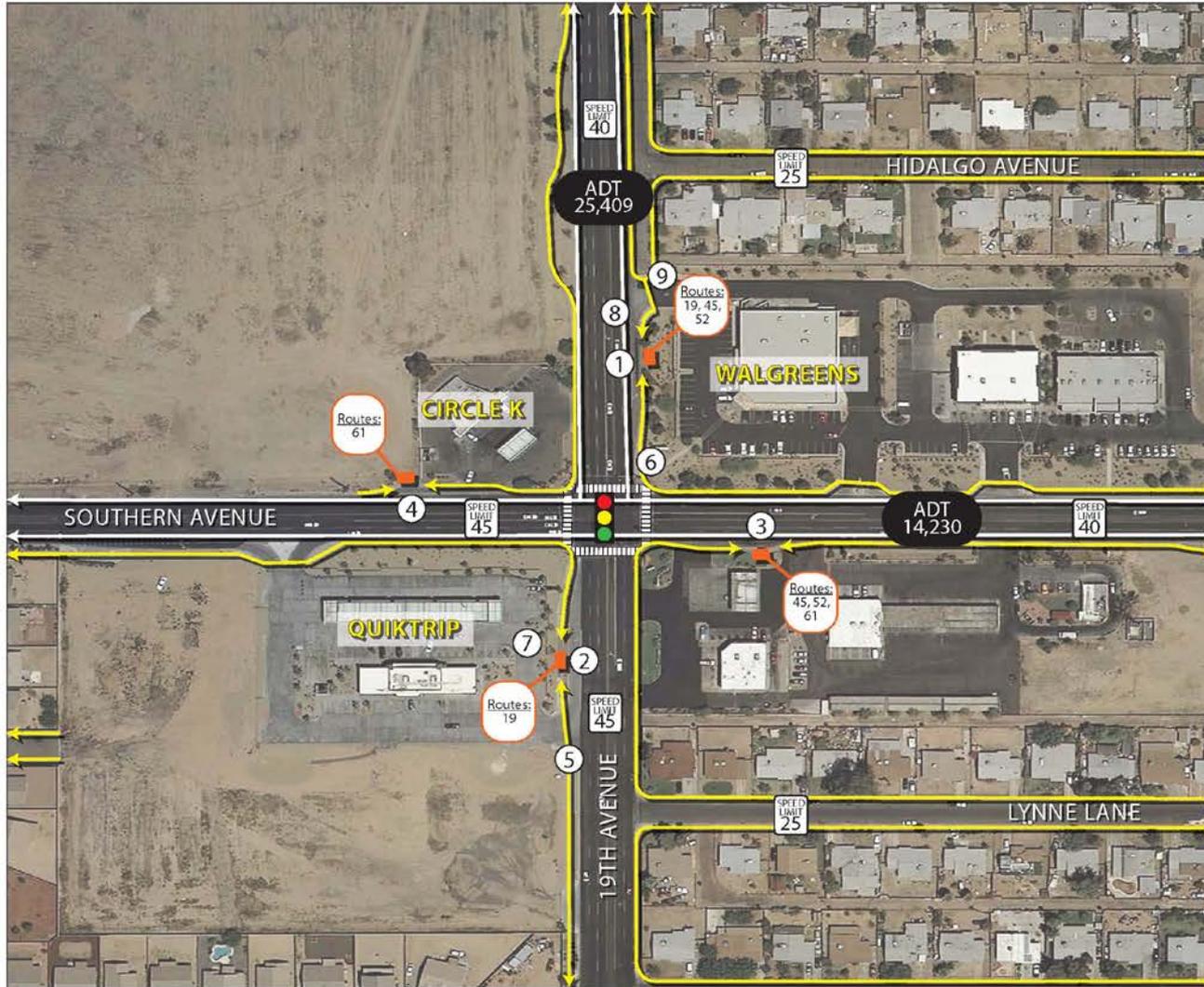
- *East/West Corridors*
 - Indian School Rd
 - Thomas Rd
 - McDowell Rd
 - Van Buren Rd
- *North/South Corridors*
 - 19th Ave
 - Central Ave
 - Scottsdale Rd / Rural Rd

Bus Stop Category

- Suburban Transit Corridor
- Case Study Location (19th Av and Southern Av)



19TH AVENUE & SOUTHERN AVENUE



① NB Bus Stop



② SB Bus Stop



③ EB Bus Stop



④ WB Bus Stop



⑤ Bike Lane and Sign for Unmarked Crossing



⑥ Pedestrian Access of NE Corner



⑦ Pedestrian Access Near SB Bus Stop



⑧ Bike Boarding at NB Bus Stop



⑨ Crosswalk Across Driveway Near NB Stop

19th/Southern

Date: 7/2/2012





What will make you walk/ride more often?

Ranking of Features

Streetlights	70%
Bus Schedule Information	69%
Shade Trees	65%
Bicycle Lanes	53%
Landscaping	49%
Curb Extensions	47%
Bicycle Parking	42%
Colored Pavement	40%
Art	31%
Medians	31%

*(Percent who said **Very Likely** or **Likely**)*



What will make you walk/ride more often?

Ranking of Features

Streetlights	70%
Bus Schedule Information	69%
Shade Trees	65%
Bicycle Lanes	53%
Landscaping	49%
Curb Extensions	47%
Bicycle Parking	42%
Colored Pavement	40%
Art	31%
Medians	31%

*(Percent who said **Very Likely** or **Likely**)*



How do you feel about your trip to the bus stop?

Ranking of Level of Agreement

Good sidewalks	49%
Bus stop is safe	49%
Bus stop close to home/work/shopping	37%
Good lighting	36%
Easy to make connections	32%
Good bike paths	27%
Well maintained	22%
Interesting things to see	20%
Lots of trees and plants	20%
Light traffic	18%
Easy to park and ride	16%

*(Percent of respondents who **agree** with statement)*



Near Misses?

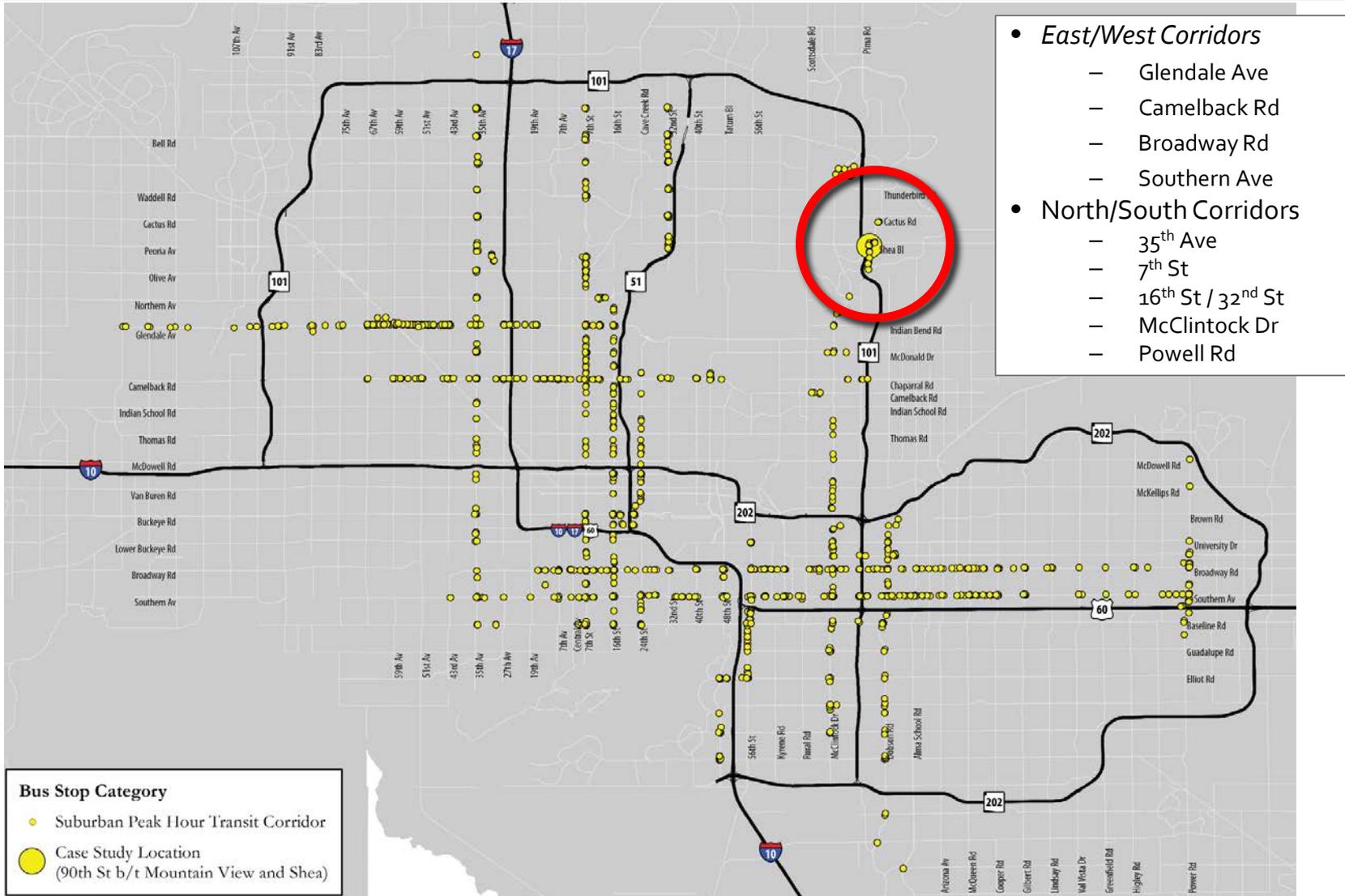
Almost been hit by a car when crossing the street to/from bus stop? 16%

Vehicle come too close while crossing the street to/from bus stop? 36%

“Doored” by a car while riding a bike 3%



Urban Retail



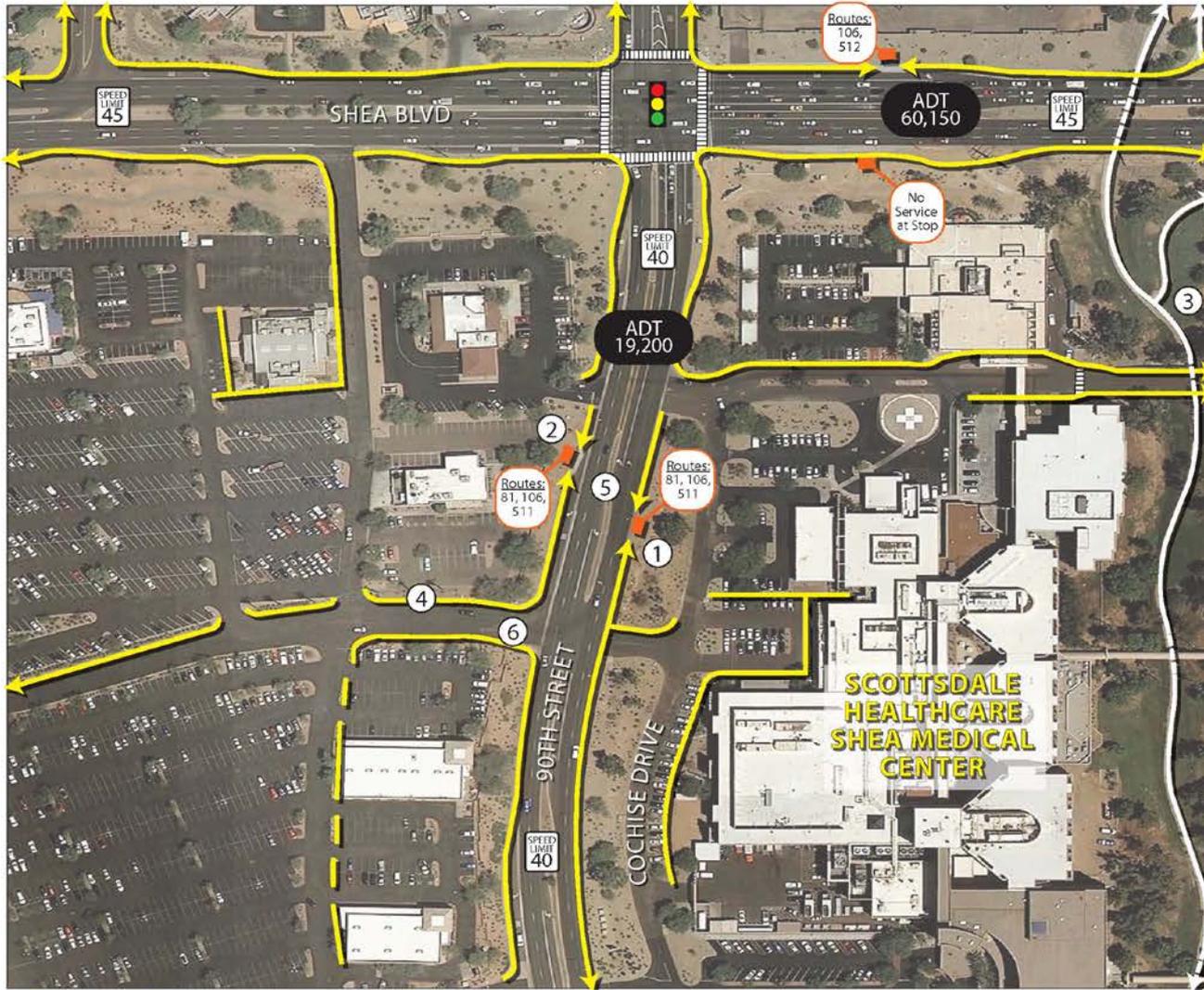
- *East/West Corridors*
 - Glendale Ave
 - Camelback Rd
 - Broadway Rd
 - Southern Ave
- *North/South Corridors*
 - 35th Ave
 - 7th St
 - 16th St / 32nd St
 - McClintock Dr
 - Powell Rd

Bus Stop Category

- Suburban Peak Hour Transit Corridor
- Case Study Location (90th St b/t Mountain View and Shea)



90TH STREET & SCOTTSDALE FIESTA



① NB Bus Stop



② SB Bus Stop



③ Bike Path



④ Sidewalk Access to Scottsdale Fiesta



⑤ Jay Walking Between Stops



⑤ Jay Walking Between Stops



⑥ Unmarked Crosswalks



⑥ Unmarked Crosswalks

90th/Scottsdale Fiesta

Date: 7/2/2012





What will make you walk/ride more often?

Ranking of Features

Shade Trees	89%
Streetlights	78%
Bus Schedule Information	56%
Medians	56%
Bicycle Lanes	56%
Bicycle Parking	56%
Landscaping	44%
Colored Pavement	33%
Curb Extensions	22%
Art	11%

*(Percent who said **Very Likely** or **Likely**)*



What will make you walk/ride more often?

Ranking of Features

Shade Trees	89%
Streetlights	78%
Bus Schedule Information	56%
Medians	56%
Bicycle Lanes	56%
Bicycle Parking	56%
Landscaping	44%
Colored Pavement	33%
Curb Extensions	22%
Art	11%

*(Percent who said **Very Likely** or **Likely**)*



Near Misses?

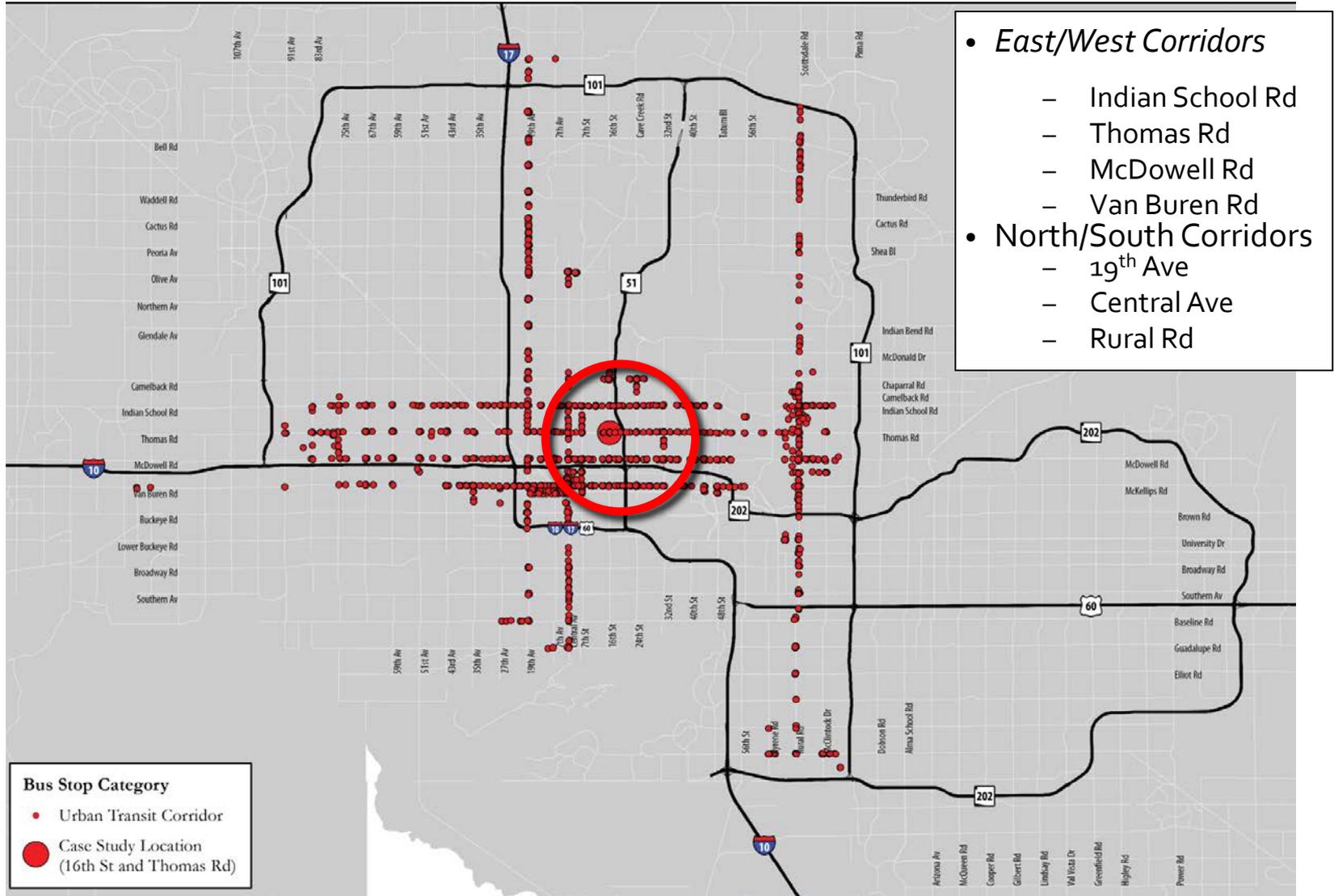
Almost been hit by a car when crossing the street to/from bus stop? 22%

Vehicle come too close while crossing the street to/from bus stop? 44%

“Doored” by a car while riding a bike 11%

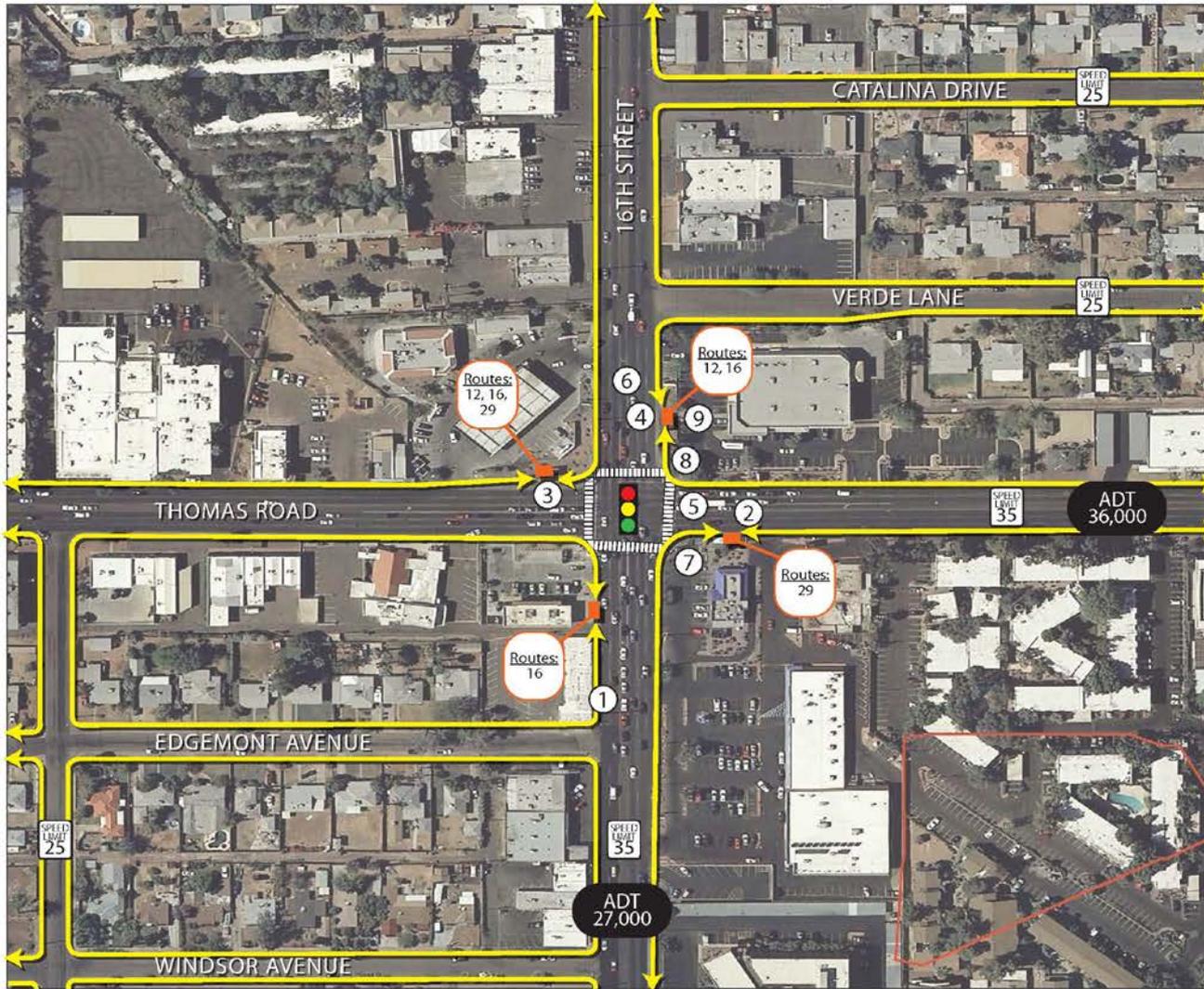


Metropolitan Core





16TH STREET & THOMAS ROAD



16th/Thomas

Date: 6/15/2012



① SB Bus Stop



② EB Bus Stop



③ WB Bus Stop



④ NB Bus Stop



⑤ Pedestrians Crossing Thomas



⑥ Bus Patron Looking for Bus



⑦ Shade and Seating Near EB Bus Stop



⑧ Bike on Sidewalk



⑨ Pedestrian Access to Adjacent Development



Deficiencies



Attached 4' Sidewalk & No Bike Lane

Lack of Bus Schedule Information at all Locations



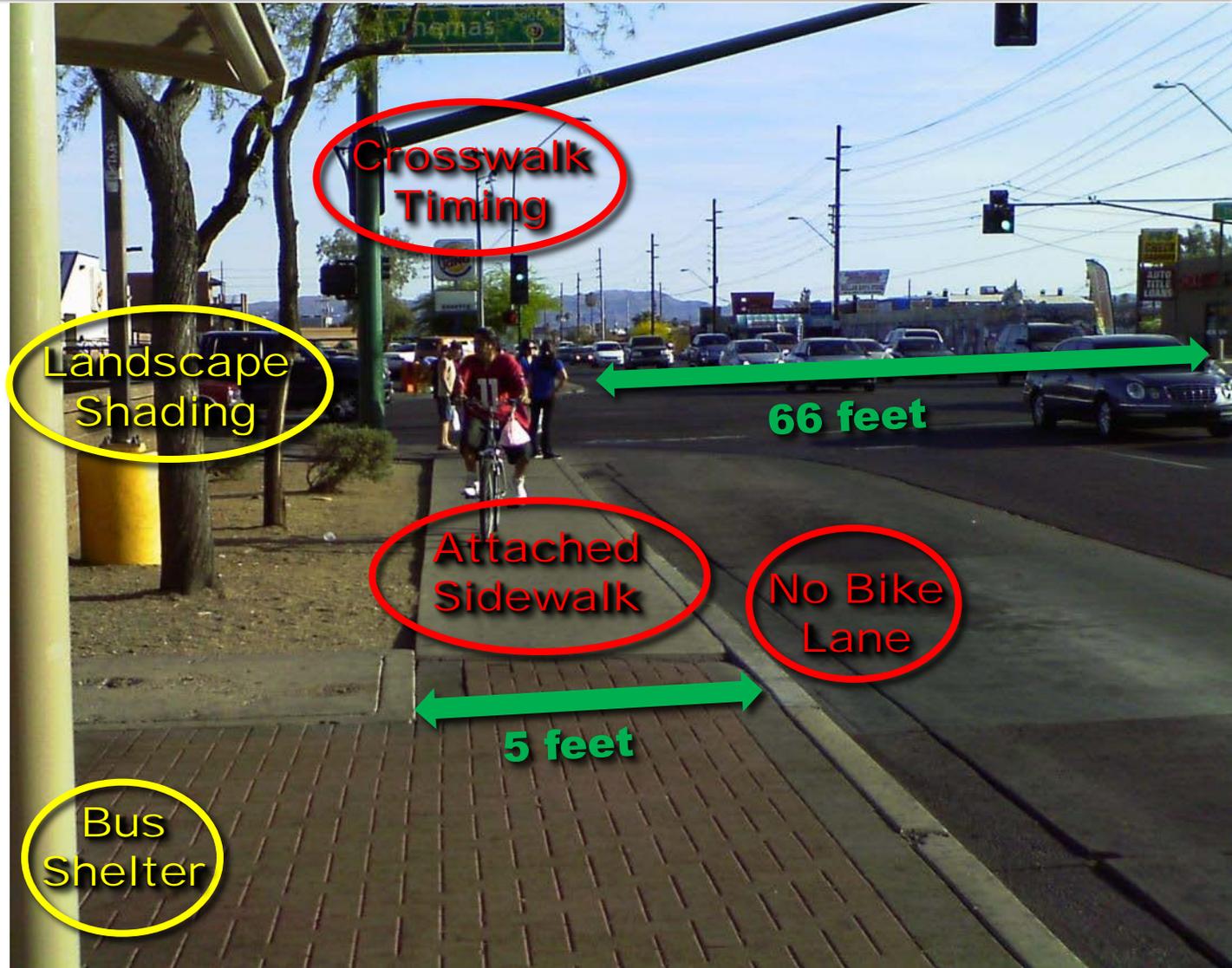
System Information at Wrong Side of Shelter





16TH STREET & THOMAS ROAD

Northbound Bus Stop





What will make you walk/ride more often?

Ranking of Features

Shade Trees	57%
Bus Schedule Information	52%
Streetlights	42%
Bicycle Parking	39%
Bicycle Lanes	39%
Landscaping	38%
Curb Extensions	37%
Colored Pavement	29%
Art	28%
Medians	26%

*(Percent who said **Very Likely** or **Likely**)*



What will make you walk/ride more often?

Ranking of Features

Shade Trees	57%
Bus Schedule Information	52%
Streetlights	42%
Bicycle Parking	39%
Bicycle Lanes	39%
Landscaping	38%
Curb Extensions	37%
Colored Pavement	29%
Art	28%
Medians	26%

*(Percent who said **Very Likely** or **Likely**)*



How do you feel about your trip to the bus stop?

Ranking of Level of Agreement

Bus stop close to home/work/shopping	37%
Easy to make connections	32%
Good sidewalks	31%
Bus stop is safe	31%
Good lighting	27%
Well maintained	22%
Interesting things to see	20%
Easy to park and ride	16%
Light traffic	13%
Good bike paths	12%
Lots of trees and plants	11%

*(Percent of respondents who **agree** with statement)*



Near Misses?

Almost been hit by a car when
crossing the street to/from bus stop? 31%

Vehicle come too close while crossing
the street to/from bus stop? 36%

“Doored” by a car while riding a bike 7%



Summary

Metro Core		Urban Retail/Commercial		Urban Residential		Suburban Residential		Suburban Retail/Commercial	
Shade Trees	57%	Shade Trees	89%	Streetlights	70%	Bus schedule Information	41%	Shade Trees	72%
Bus Schedule Information	52%	Streetlights	78%	Bus Schedule Information	69%	Shade Trees	37%	Bus Schedule Information	72%
Streetlights	42%	Bus Schedule Information	56%	Shade Trees	65%	Bicycle Lanes	34%	Streetlights	57%
Bicycle Parking	39%	Medians	56%	Bicycle Lanes	53%	Bicycle Parking	30%	Landscaping	43%
Bicycle Lanes	39%	Bicycle Lanes	56%	Landscaping	49%	Curb Extensions	26%	Curb Extensions	43%
Landscaping	38%	Bicycle Parking	56%	Curb Extensions	47%	Streetlights	19%	Art	29%
Curb Extensions	37%	Landscaping	44%	Bicycle Parking	42%	Landscaping	19%	Bicycle Parking	29%
Decorative Pavement	29%	Decorative Pavement	33%	Decorative Pavement	40%	Art	15%	Bicycle Lanes	29%
Art	28%	Curb Extensions	22%	Art	31%	Decorative Pavement	11%	Decorative Pavement	29%
Medians	28%	Art	11%	Medians	31%	Medians	7%	Medians	29%



Summary – Shade Trees

Metro Core		Urban Retail/Commercial		Urban Residential		Suburban Residential		Suburban Retail/Commercial	
Shade Trees	57%	Shade Trees	89%	Streetlights	70%	Bus schedule Information	41%	Shade Trees	72%
Bus Schedule Information	52%	Streetlights	78%	Bus Schedule Information	69%	Shade Trees	37%	Bus Schedule Information	72%
Streetlights	42%	Bus Schedule Information	56%	Shade Trees	65%	Bicycle Lanes	34%	Streetlights	57%
Bicycle Parking	39%	Medians	56%	Bicycle Lanes	53%	Bicycle Parking	30%	Landscaping	43%
Bicycle Lanes	39%	Bicycle Lanes	56%	Landscaping	49%	Curb Extensions	26%	Curb Extensions	43%
Landscaping	38%	Bicycle Parking	56%	Curb Extensions	47%	Streetlights	19%	Art	29%
Curb Extensions	37%	Landscaping	44%	Bicycle Parking	42%	Landscaping	19%	Bicycle Parking	29%
Decorative Pavement	29%	Decorative Pavement	33%	Decorative Pavement	40%	Art	15%	Bicycle Lanes	29%
Art	28%	Curb Extensions	22%	Art	31%	Decorative Pavement	11%	Decorative Pavement	29%
Medians	28%	Art	11%	Medians	31%	Medians	7%	Medians	29%



Summary – Bus Schedule

Metro Core		Urban Retail/Commercial		Urban Residential		Suburban Residential		Suburban Retail/Commercial	
Shade Trees	57%	Shade Trees	89%	Streetlights	70%	Bus schedule Information	41%	Shade Trees	72%
Bus Schedule Information	52%	Streetlights	78%	Bus Schedule Information	69%	Shade Trees	37%	Bus Schedule Information	72%
Streetlights	42%	Bus Schedule Information	56%	Shade Trees	65%	Bicycle Lanes	34%	Streetlights	57%
Bicycle Parking	39%	Medians	56%	Bicycle Lanes	53%	Bicycle Parking	30%	Landscaping	43%
Bicycle Lanes	39%	Bicycle Lanes	56%	Landscaping	49%	Curb Extensions	26%	Curb Extensions	43%
Landscaping	38%	Bicycle Parking	56%	Curb Extensions	47%	Streetlights	19%	Art	29%
Curb Extensions	37%	Landscaping	44%	Bicycle Parking	42%	Landscaping	19%	Bicycle Parking	29%
Decorative Pavement	29%	Decorative Pavement	33%	Decorative Pavement	40%	Art	15%	Bicycle Lanes	29%
Art	28%	Curb Extensions	22%	Art	31%	Decorative Pavement	11%	Decorative Pavement	29%
Medians	28%	Art	11%	Medians	31%	Medians	7%	Medians	29%



Summary – Street Light

Metro Core		Urban Retail/Commercial		Urban Residential		Suburban Residential		Suburban Retail/Commercial	
Shade Trees	57%	Shade Trees	89%	Streetlights	70%	Bus schedule Information	41%	Shade Trees	72%
Bus Schedule Information	52%	Streetlights	78%	Bus Schedule Information	69%	Shade Trees	37%	Bus Schedule Information	72%
Streetlights	42%	Bus Schedule Information	56%	Shade Trees	65%	Bicycle Lanes	34%	Streetlights	57%
Bicycle Parking	39%	Medians	56%	Bicycle Lanes	53%	Bicycle Parking	30%	Landscaping	43%
Bicycle Lanes	39%	Bicycle Lanes	56%	Landscaping	49%	Curb Extensions	26%	Curb Extensions	43%
Landscaping	38%	Bicycle Parking	56%	Curb Extensions	47%	Streetlights	19%	Art	29%
Curb Extensions	37%	Landscaping	44%	Bicycle Parking	42%	Landscaping	19%	Bicycle Parking	29%
Decorative Pavement	29%	Decorative Pavement	33%	Decorative Pavement	40%	Art	15%	Bicycle Lanes	29%
Art	28%	Curb Extensions	22%	Art	31%	Decorative Pavement	11%	Decorative Pavement	29%
Medians	28%	Art	11%	Medians	31%	Medians	7%	Medians	29%



Summary - Bicycle

Metro Core		Urban Retail/Commercial		Urban Residential		Suburban Residential		Suburban Retail/Commercial	
Shade Trees	57%	Shade Trees	89%	Streetlights	70%	Bus schedule Information	41%	Shade Trees	72%
Bus Schedule Information	52%	Streetlights	78%	Bus Schedule Information	69%	Shade Trees	37%	Bus Schedule Information	72%
Streetlights	42%	Bus Schedule Information	56%	Shade Trees	65%	Bicycle Lanes	34%	Streetlights	57%
Bicycle Parking	39%	Medians	56%	Bicycle Lanes	53%	Bicycle Parking	30%	Landscaping	43%
Bicycle Lanes	39%	Bicycle Lanes	56%	Landscaping	49%	Curb Extensions	26%	Curb Extensions	43%
Landscaping	38%	Bicycle Parking	56%	Curb Extensions	47%	Streetlights	19%	Art	29%
Curb Extensions	37%	Landscaping	44%	Bicycle Parking	42%	Landscaping	19%	Bicycle Parking	29%
Decorative Pavement	29%	Decorative Pavement	33%	Decorative Pavement	40%	Art	15%	Bicycle Lanes	29%
Art	28%	Curb Extensions	22%	Art	31%	Decorative Pavement	11%	Decorative Pavement	29%
Medians	28%	Art	11%	Medians	31%	Medians	7%	Medians	29%



Overall Ranking

1. Shade Trees (58%)
2. Bus Schedule Information (55%)
3. Streetlights (46%)
4. Bicycle Lanes (42%)
5. Bicycle Parking (38%)
6. Landscaping (38%)
7. Curb Extensions (35%)
8. Decorative Pavement (30%)
9. Art (27%)
10. Medians (26%)

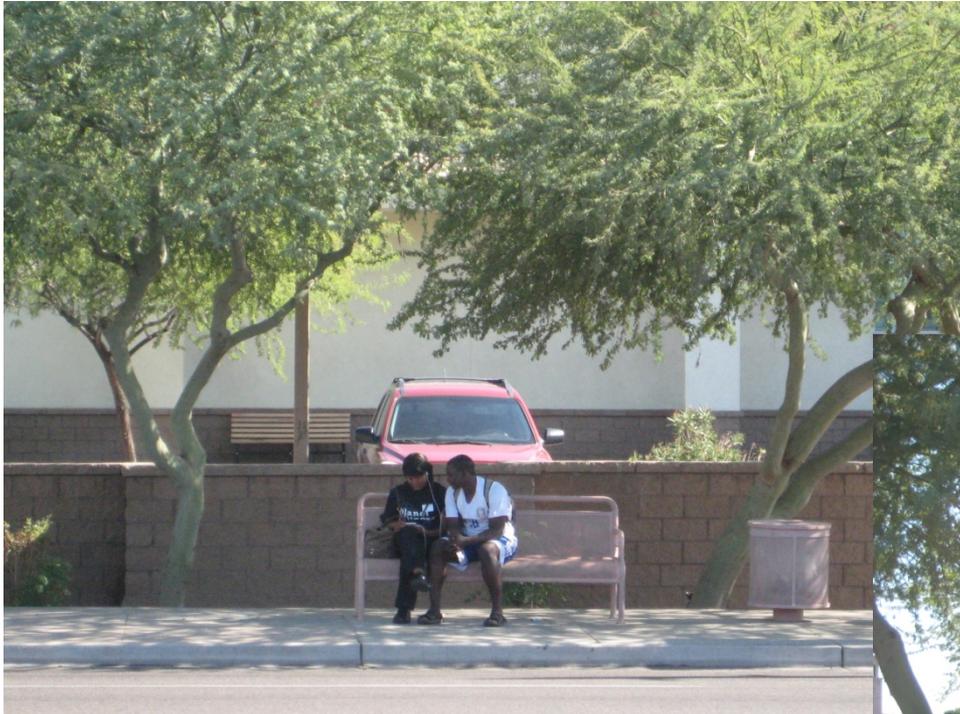


Next Steps

1. Tool box
2. New Bus Stops
3. Infill development
4. Street improvements
5. New Communities



Natural Shade





Vs. shelter shade





Shade



4:00 p.m.
EAST FACING
SCALE: 1/8" = 1'-0"



12:00 p.m.
EAST FACING
SCALE: 1/8" = 1'-0"



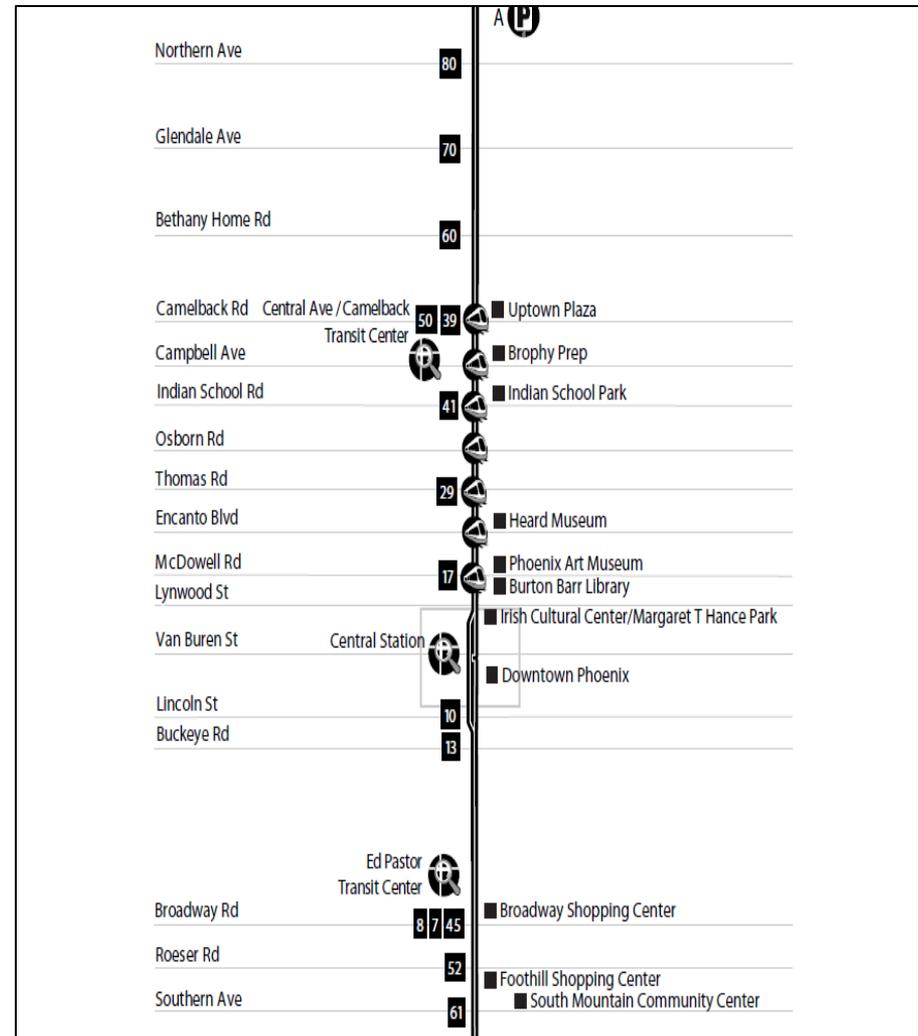
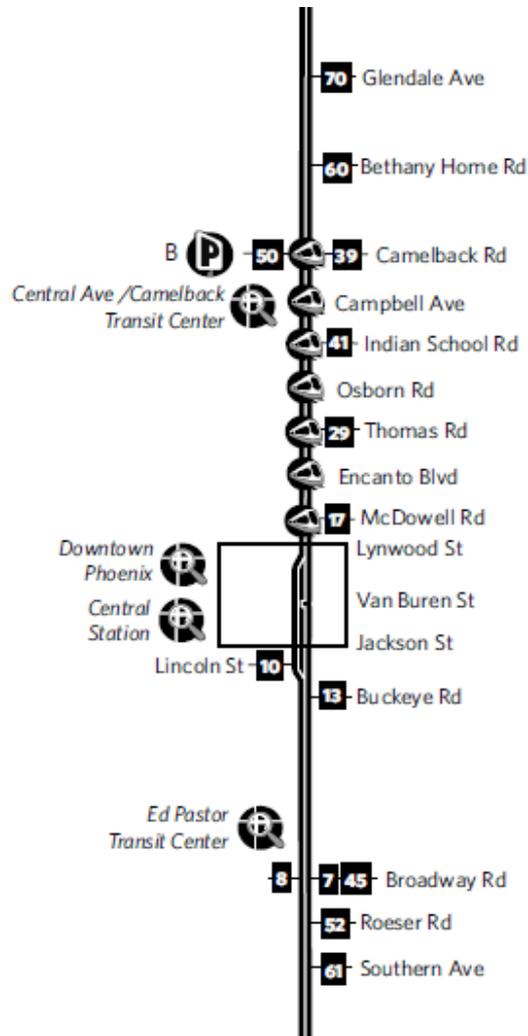
2:00 p.m.
EAST FACING
SCALE: 1/8" = 1'-0"



9:00 a.m.
EAST FACING
SCALE: 1/8" = 1'-0"

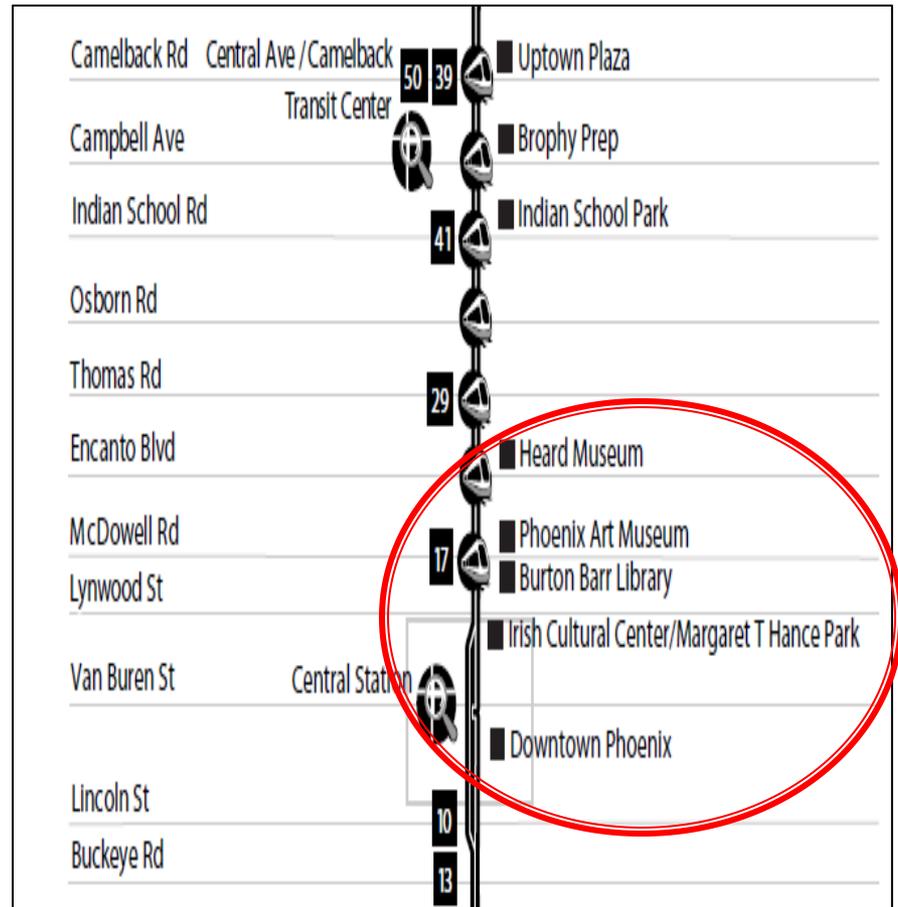
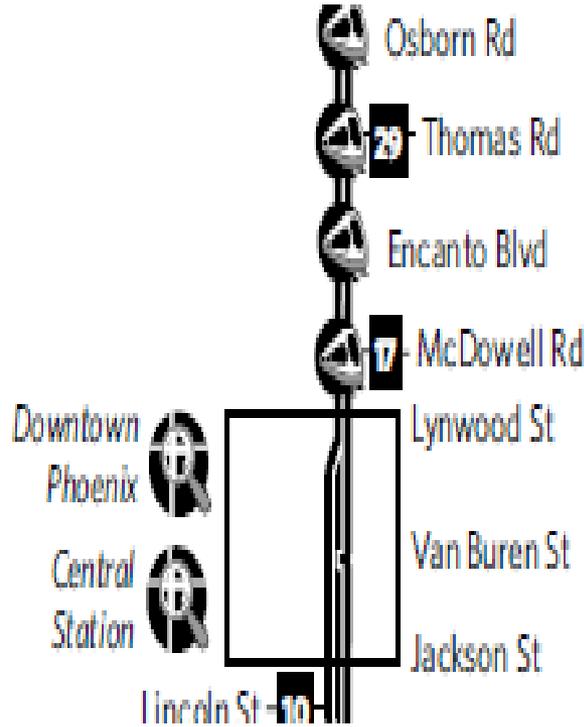


Information





Information





Information



BUS

Route 0
Central Ave



602-253-5000
Transit Information



BUS

0 **Central Ave**
*Sunnyslope - Downtown
Phoenix - Ed Pastor TC*

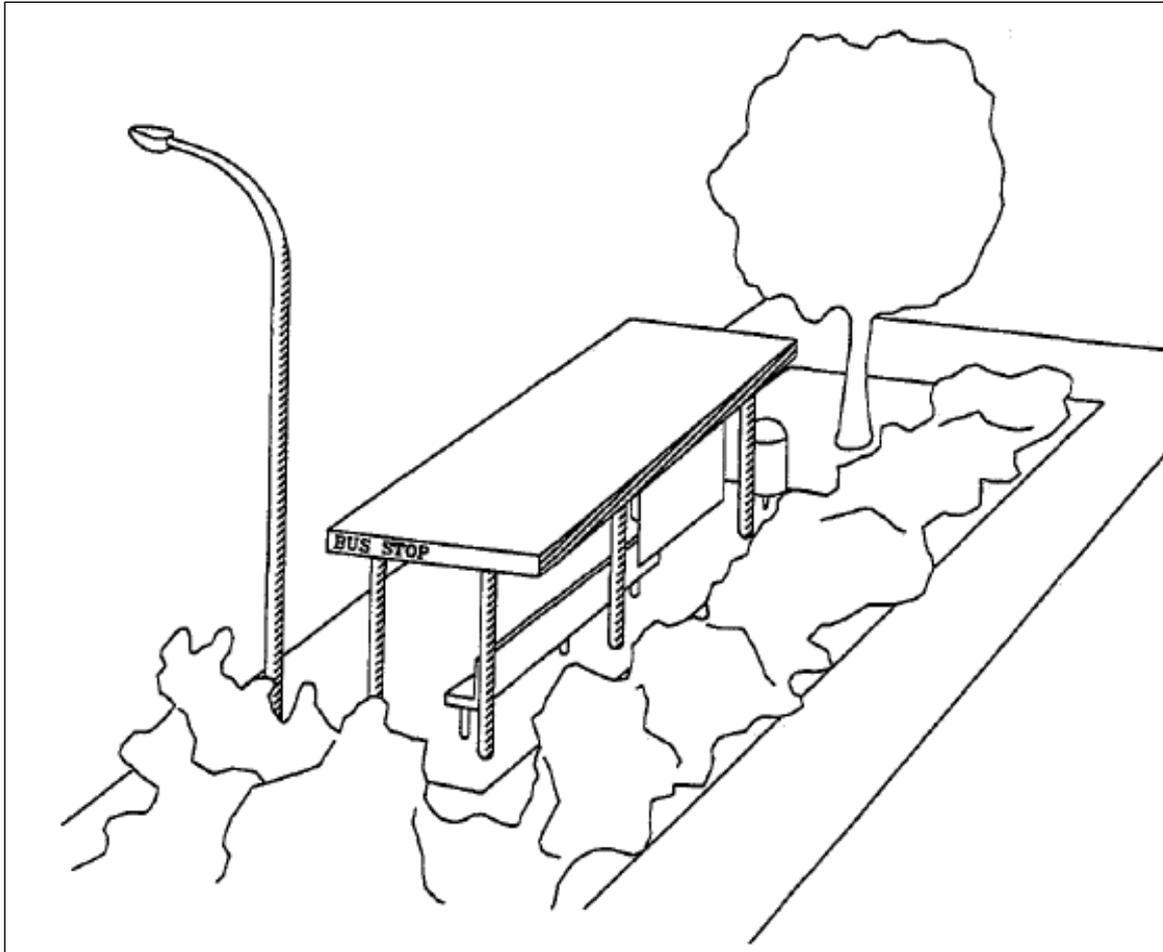
1 **Washington
Central Station**
Capital Mall - Sky Harbor



602-253-5000
Transit Information

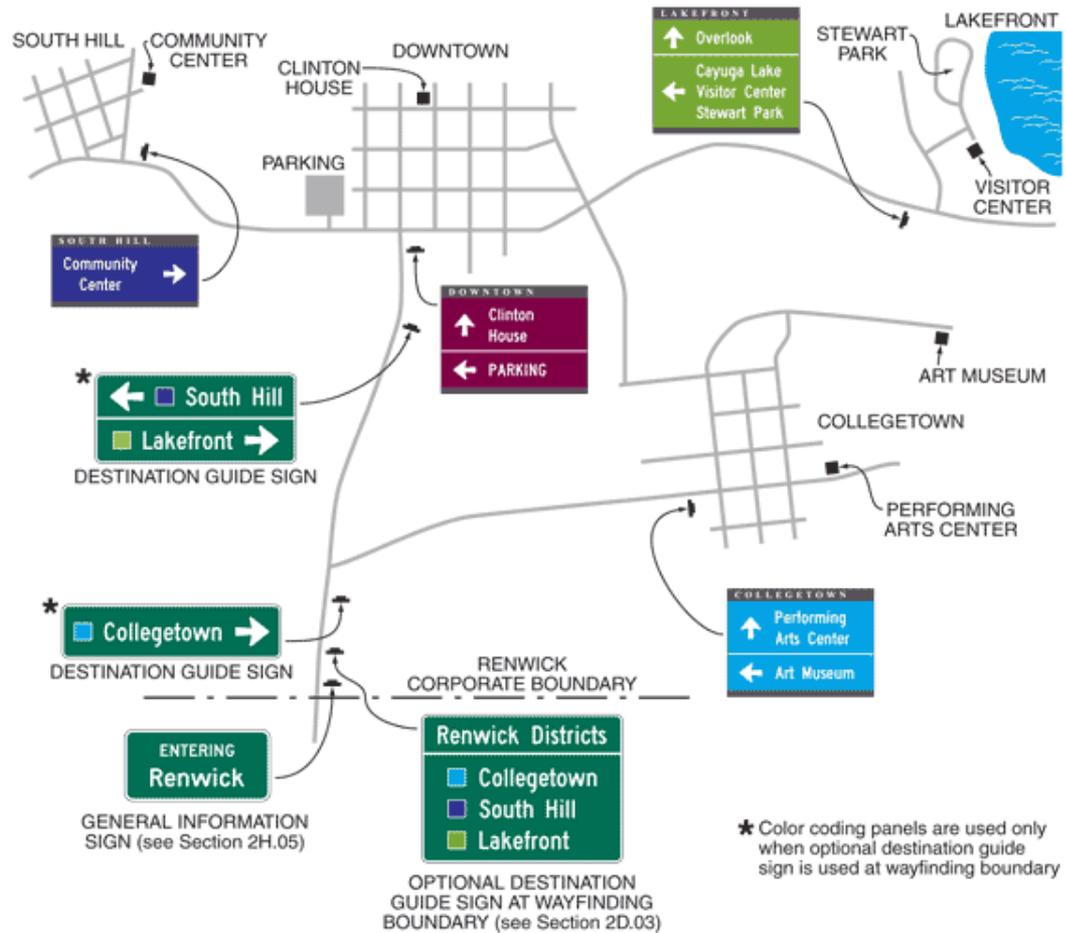


Lighting





Bicycling as extension of transit





Building Design



The [City of Tempe Transportation Master Plan](#) (pp. 2-2 & 2-3) includes design criteria for new development promoting pedestrian-friendly design:

- Encourage pedestrian and transit-user access to buildings by locating buildings at the minimum setback for arterial and arterial to collector intersections. The distance between bus stops and building entrances shall be minimized by using minimum setback requirements for locations of buildings on the site.
- Encourage pedestrian and bicycle access to the main building entrances from all sides of the site by providing more links to street frontages.
- Encourage buildings to locate closer to street intersections by minimizing the amount of parking allowed at street frontages, or by locating all parking behind or to the side of buildings.
- Encourage mixed-use development, allowing people to work where they live.



Buildings





Bicycle Access

As bicycles cannot be accommodated within the street, bicycles will need to travel along sidewalks to connect from the bus stop to the bicycle route located on an adjacent local street.



Enhanced Sidewalk

Sidewalks should be at least 10' wide and detached from driving lanes when adjacent to major street intersections or when adjacent to a bus stop. Widening the sidewalk accommodates a heavier flow of pedestrian traffic. Detaching the sidewalk from the street edge provides a buffer which improves pedestrian safety.



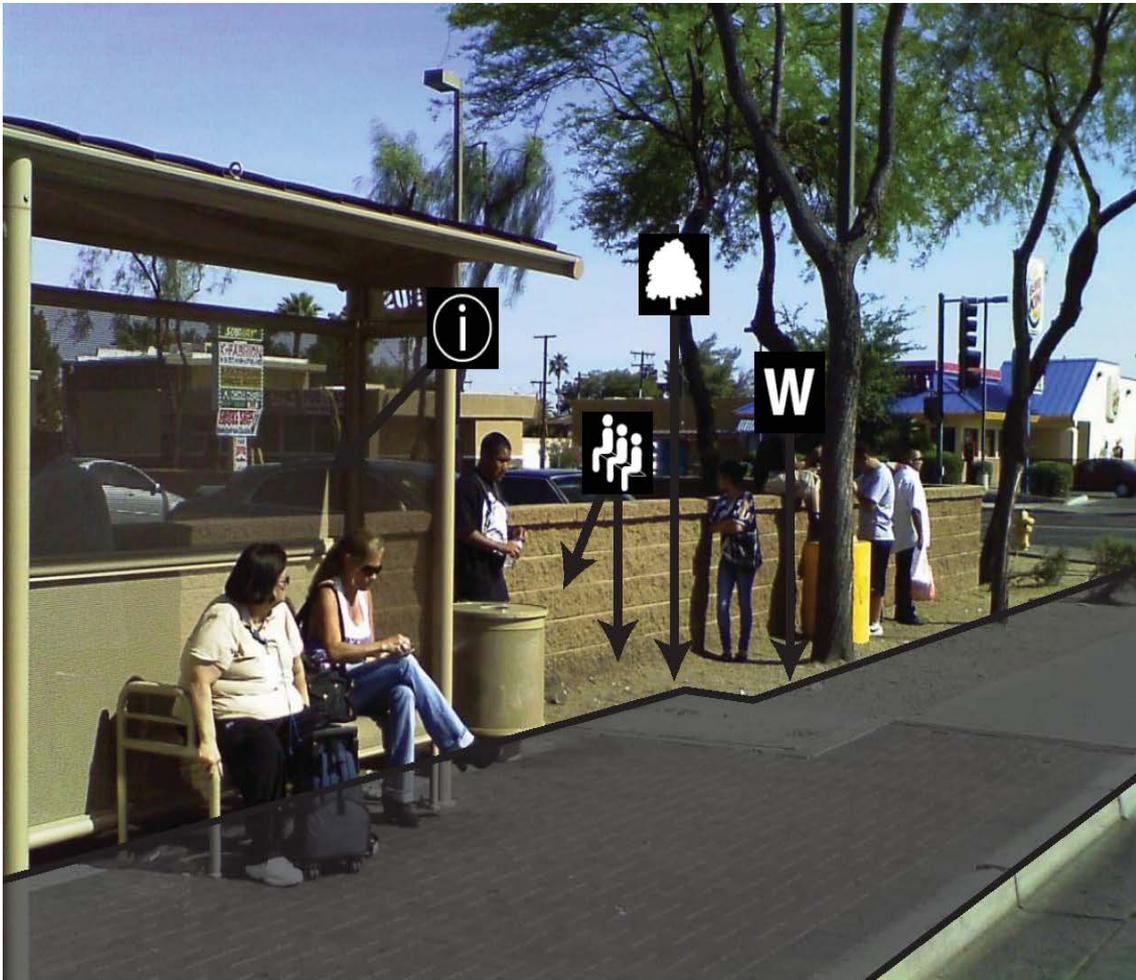
Crosswalk/Reduced Corner Radii

Crosswalks should be striped according to ADA standards and should have a signalized crossing system that improves safety for pedestrians crossing the street. Reducing the turning radius at intersections requires drivers to slow down before making right-turns, which improves the safety of the pedestrian crosswalk.



Bicycle / Pedestrian Wayfinding

Wayfinding signage should be placed near bus stops and should direct pedestrians or bicyclists towards nearby destinations and pedestrian/bicycle friendly routes.



Landscape Shading

Shade trees should be installed near bus stops or adjacent to arterial intersections to maximize the available shade throughout the day.



Enhanced Sidewalk

Sidewalks should be at least 10' wide and detached from driving lanes when adjacent to major street intersections or when adjacent to a bus stop. Widening the sidewalk accommodates a heavier flow of pedestrian traffic. Detaching the sidewalk from the street edge provides a buffer which improves pedestrian safety.



Information Signage

Transit system information signage should be provided at bus stops to notify riders of the bus schedule and the bus routes. Additionally, transit provider contact information should be provided so riders can access additional information.



Seating

Seating should be provided under a nearby shade tree to improve pedestrian comfort. Lower walls should be designed to provide additional seating in high transit usage areas.



Bicycle / Pedestrian Wayfinding

Wayfinding signage should be placed near bus stops and should direct pedestrians or bicyclists towards nearby destinations and pedestrian/bicycle friendly routes.



Landscape Shading

Shade trees should be installed near bus stops to maximize the available shade throughout the day.



Enhanced Sidewalk

Sidewalks should be at least 10' wide and detached from driving lanes when adjacent to major street intersections or when adjacent to a bus stop. Widening the sidewalk accommodates a heavier flow of pedestrian traffic. Detaching the sidewalk from the street edge provides a buffer which improves pedestrian safety.



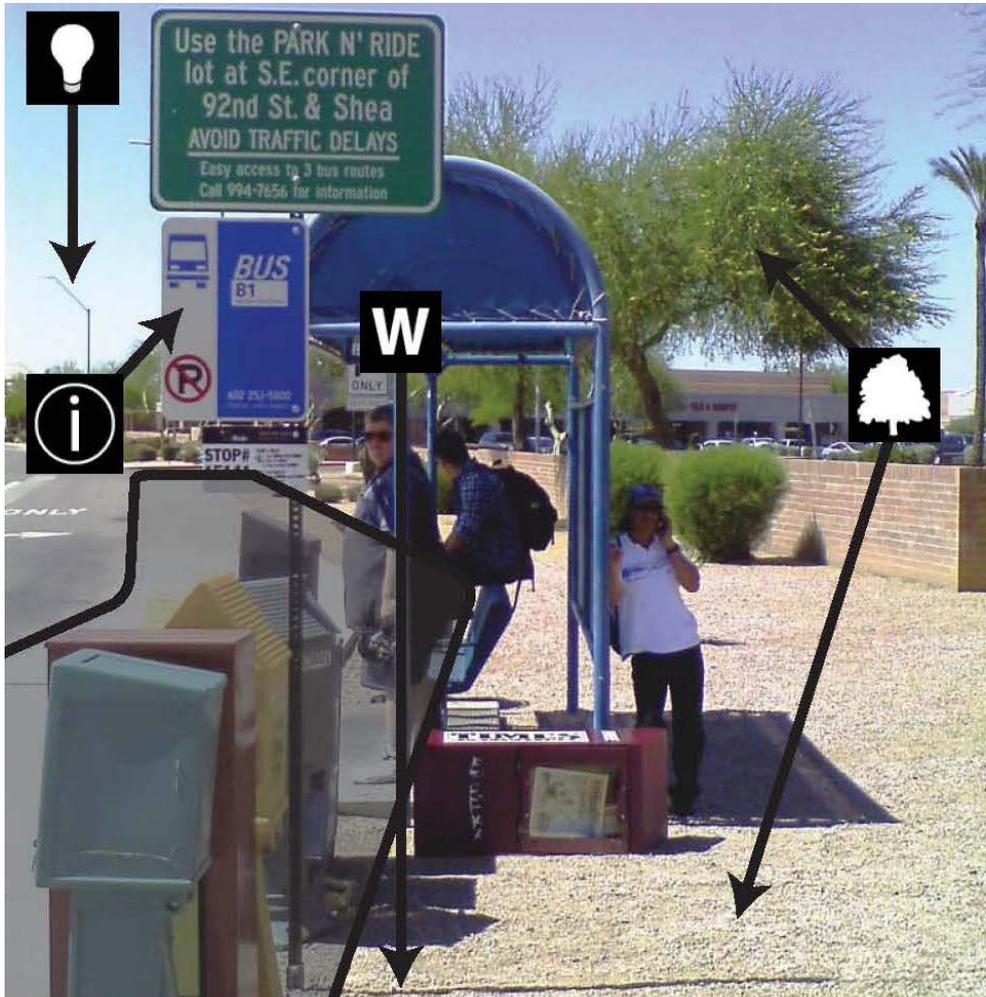
Crosswalk/Pedestrian Refuge

Crosswalks should be striped according to ADA standards and should have a signalized crossing system that provides increased safety for pedestrians crossing the street. Pedestrian refuges are highly encouraged along multi-lane roadways with significant traffic volumes and intermediate- to high-travel speeds. Pedestrian refuges can be created at median islands with a minimum width of 4', although an 8' median is preferred; it is important that there be enough room for someone pushing a stroller and for wheelchairs. The pedestrian refuge must comply with ADA standards.



Pedestrian Lighting

Pedestrian-scale lighting can be added to existing street lights to improve lighting along adjacent sidewalks.



Landscape Shading

Shade trees should be installed near bus stops or adjacent to arterial intersections to maximize the available shade throughout the day. Shading the sidewalk and bus stop could have been accomplished when developing the adjacent properties.



Pedestrian Lighting

Pedestrian-scale lighting at bus stops can improve the appearance in the evening hours and improve safety for pedestrians and motorists. Pedestrian-scale lighting can be added to existing street lights to improve lighting along adjacent sidewalks.



Enhanced Sidewalk

Sidewalks should be at least 10' wide and detached from driving lanes when adjacent to major street intersections or when adjacent to a bus stop. Widening the sidewalk accommodates a heavier flow of pedestrian traffic. Detaching the sidewalk from the street edge provides a buffer which improves pedestrian safety.



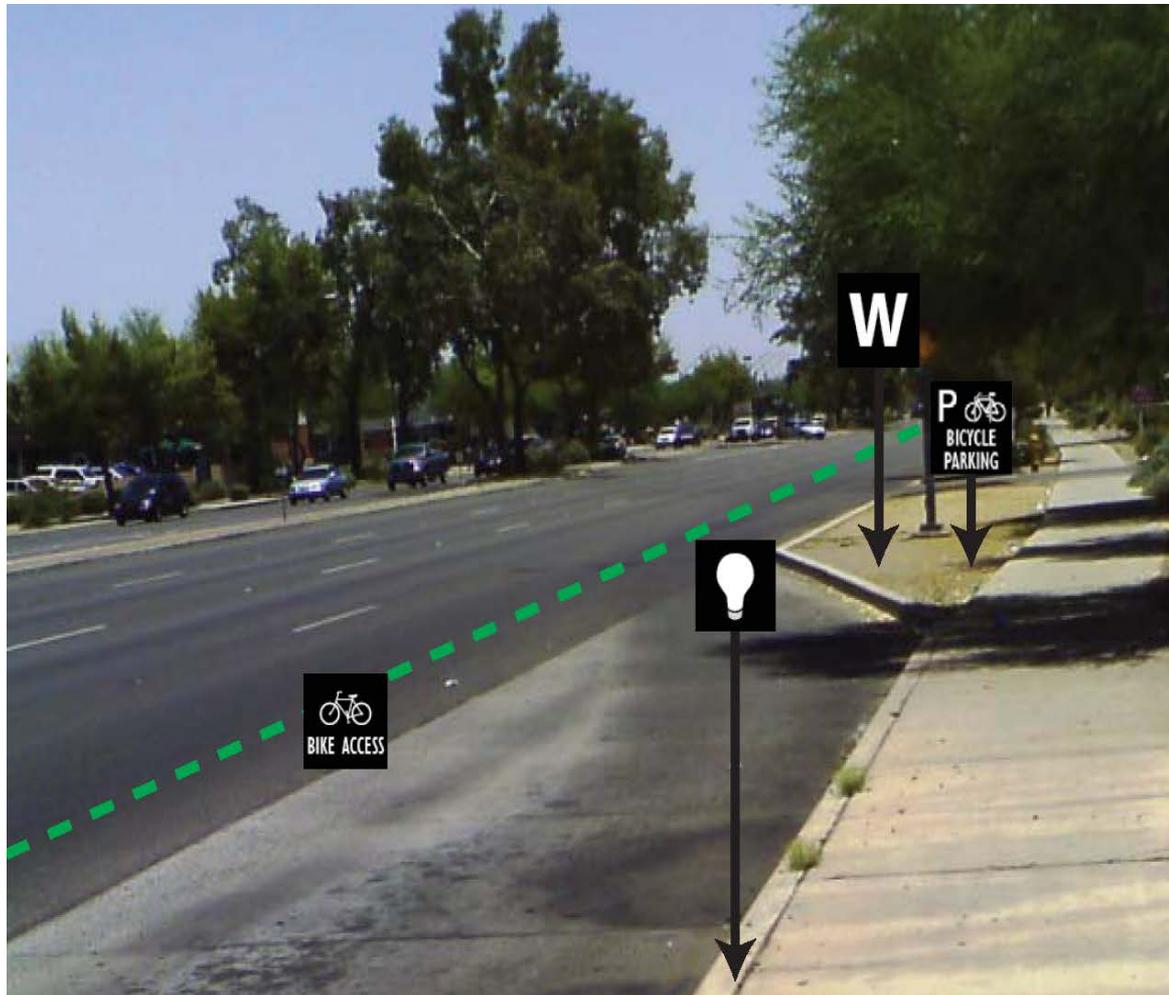
Information Signage

Transit system information signage should be upgraded to include route numbers and final destinations.



Bicycle / Pedestrian Wayfinding

Wayfinding signage should be placed near bus stops and should direct pedestrians or bicyclists towards nearby destinations and pedestrian/ bicycle friendly routes.



Pedestrian Lighting

Pedestrian-scale lighting near the bus stop improves the appearance of the bus stop in the evening hours and the likeliness the bus driver will see transit riders and stop at the bus stop. Just outside of this picture is an existing street light; a pedestrian light can be installed on the existing street light.



Bicycle Access

Skunk Creek Trail is located just south of the 75th and Bell case study location and provides a regional connection, an additional means of transportation, and acts as an extension of the transit system. The dashed line indicates that bicycle access should be improved between the transit facilities and the trail; this can be done by reducing lane widths to as narrow as 10' wide to accommodate an on-street route or by enhancing the sidewalks to provide room for bicyclists.



Bicycle Racks

Bicycle racks or other bicycle parking facilities should be provided along routes where bicycle ridership is high.



Bicycle / Pedestrian Wayfinding

Wayfinding signage should be placed near bus stops and should direct pedestrians or bicyclists towards nearby destinations and pedestrian/bicycle friendly routes.



Landscape Shading

Shade trees should be installed near bus stops to maximize the available shade throughout the day. Palm trees provide little to no shade.



Crosswalk/Pedestrian Refuge

Crosswalks should be striped according to ADA standards and should have a signalized crossing system that provides adequate time for pedestrians to safely cross the street. Pedestrian refuges are highly encouraged at multi-lane intersections with significant traffic volumes and intermediate- to high-travel speeds. Pedestrian refuges can be created at median islands with a minimum width of 4', although an 8' median is preferred; it is important that there be enough room for someone pushing a stroller and for wheelchairs. The pedestrian refuge must comply with ADA standards.



Next Steps

1. Tool box
2. **New Bus Stops**
3. Infill development
4. Street improvements
5. Final Report/2nd Stakeholder meeting



New Bus Stop Check List

Concept	Detail	Yes/No
Lighting	Are there opportunities to utilize existing lighting from buildings or the street?	
	Are there opportunities to retrofit an existing utility pole to include pedestrian scale lighting.	
Schedule Information		
Seating	Existing seating from retaining walls	
Shelter	Overhangs or buildings that can serve as shelter	
Shade	Are there trees, overhangs or buildings that can serve as shelter	
Adjacent Land Use	Is this a place with pedestrian activity and not just a set distance from the last bus stop?	
Bicycle Access		
Bicycle Parking	Is there a retail business nearby that can provide or be retrofitted to provide bicycle parking?	
Crossings	Is there a pedestrian crossing near by.	
Buffer	Can you place the bus stop/shelter away from the roadway to provide a buffer	



Next Steps

1. Tool box
2. New Bus Stops
3. Infill development
4. Street improvements
5. Final Report/2nd Stakeholder meeting



In-fill Development Check List

Concept	Detail	Yes/No
Lighting	Install lighting in the path of transit patrons or may be waiting	
Information		
Seating	Small retaining wall that can double as seating	
Shelter	Provide a climate appropriate shelter	
Shade	plant trees closer to the sidewalk	
Adjacent Land Use	Shaded pedestrian plaza to entrance of building or orient buildings to sidewalk and parking along side and back	
Bicycle Access	Wide sidewalks, wayfinding signs	
Bicycle Parking	Bicycle parking	
Crossings	Development designed to provide shade at cross walk for waiting patrons	
Wide sidewalk with	Easement that includes a wide sidewalk >10 feet	
Buffer	Tree wells as buffer against roadway. (also provides shade)	



Next Steps

1. Tool box
2. New Bus Stops
3. Infill development
4. Street improvements
5. Final Report/2nd Stakeholder meeting



Street Improvement Check List

Concept	Detail	Yes/No
Lighting	N/A	
Information	N/A	
Seating	N/A	
Shelter	N/A	
Shade	Trees should be planted between roadway and sidewalk to serve as buffers and shade	
Adjacent Land Use	Clear, shaded pedestrian path to the entrance of building or orient buildings to sidewalk and parking along side and back	
Bicycle Access	Widen sidewalks by narrowing lanes or put in bike lanes when possible Bike Lanes	
Bicycle Parking	N/A	
Crossings	Pedestrian safety island when roadway width exceeds XXX lanes. Decrease curb radii.	
Wide sidewalk with Buffer	Easement that includes a wide sidewalk >10 feet and tree wells as buffer against roadway.	
Lighting	N/A	



Next Steps

1. Tool box
2. New Bus Stops
3. Infill development
4. Street improvements
5. Final Report/2nd Stakeholder meeting



Project Contact

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[**http://www.azmag.gov/Projects/Project.asp?CMSID
=4215**](http://www.azmag.gov/Projects/Project.asp?CMSID=4215)