3rd Street Promenade

# City of Phoenix
# 3rd STREET PROMENADE PEDESTRIAN IMPROVEMENTS

Prepared for:
City of Phoenix
Maricopa Association of Governments

Prepared by:
The Otak Team

May, 2010

# Table of Contents


1

## Introduction

1.1 Purpose . . . . . 1-1
1.2 Process . . . . . 1-1
1.3 Public/Stakeholder Involvement . . . . . 1-2
1.4 Outcome of Study . . . . . 1-2

2

## Site Inventory and Analysis

2.1 Existing Conditions . . . . . 2-1
- Land Use . . . . . 2-1
- Transit Overlay District . . . . . 2-1
- Pedestrian Environment . . . . . 2-2
- Pedestrian Amenities . . . . . 2-2
- Connectivity . . . . . 2-2
- Road Geometry and Vehicular Traffic . . . . . 2-3
- Vehicular Traffic Volume . . . . . 2-3
- Vehicular Access Points and Parking . . . . . 2-4

2.2 Opportunities and Challenges . . . . . 2-6
- Character Areas . . . . . 2-6
- Multi-modal Street . . . . . 2-6
- Pedestrian Environment and Amenities . . . . . 2-6
- Connectivity . . . . . 2-7
- Utility Conflicts . . . . . 2-7
- Maintenance . . . . . 2-7

2.3 Influential Studies Applicable to 3rd Street Promenade . . . . . 2-7
- Downtown Urban Form Project. . . . . 2-7
- Connected Oasis Study . . . . . 2-7
- Transit Overlay District . . . . . 2-7
- Traffic Study February 2009 . . . . . 2-8

3

## Pedestrian Facilities Assessment

3.1 Introduction. . . . . 3-1
3.2 Project Boundary . . . . . 3-1
3.3 Existing Pedestrian Conditions . . . . . 3-1
- Sidewalk Locations . . . . . 3-2
- Sidewalk Widths . . . . . 3-2
- Buffers and Planting Strips . . . . . 3-2
- ADA Sidewalk Ramps and Accessible Routes . . . . . 3-2
- Pedestrian Obstructions . . . . . 3-3

3.4 Design Needs . . . . . 3-3
- Access/Connectivity Benefit . . . . . 3-4
- Environmental Benefit . . . . . 3-4

3.5 Land Acquisition . . . . . 3-4
3.6 Pedestrian Need and Latent Demand . . . . . 3-4

## 4 Recommendations and Design Guidelines

4.1 Overall Vision . . . . . 4-1
4.2 Corridor Design . . . . . 4-2
Street Geometry - A Road Diet . . . . . 4-2
Sidewalk Width . . . . . 4-2
Street Trees . . . . . 4-3
Planting Strips and Tree Grates . . . . . 4-3
Site Furnishings . . . . . 4-4
Wayfinding . . . . . 4-4
Lighting . . . . . 4-5
Bike Lanes . . . . . 4-5
Pedestrian Crossings . . . . . 4-7
4.3 Key Corridor Principles . . . . . 4-8
Environmental Sustainability . . . . . 4-8
Climate Mitigation . . . . . 4-11
Pedestrian Comfort and Quality of Life . . . . . 4-12
Business Viability . . . . . 4-13
4.4 Proposed Design Guidelines . . . . . 4-15
Corridor Wide Elements . . . . . 4-17
North Gateway . . . . . 4-19
Urban Corridor . . . . . 4-21
Transition Corridor . . . . . 4-23
Historic Corridor . . . . . 4-25
South Gateway . . . . . 4-27

## B Bibliography

References . . . . . B-1

## Figures


Figure 2.1 Two Existing Urban Forms . . . . . 2-1
Figure 2.2 Pedestrian Connectivity - Destinations and Origins . . . . . 2-3
Figure 2.3 Existing Conditions and Character Area Map . . . . . 2-5
Figure 2.4 City of Phoenix Traffic Study Results-3rd Street Between Monterey Way and Cheery Lynn Road . . . . . 2-9
Figure 2.5 City of Phoenix Traffic Study Results-3rd Street Between Oak Street and Monte Vista Road . . . . . 2-10
Figure 2.6 City of Phoenix Traffic Study Results-3rd Street Between Roanoke and Windsor Avenue. . . . . 2-11
Figure 2.7 City of Phoenix Traffic Study Results-3rd Street Between Osborn Road and Indian School Road . . . . . 2-12
Figure 2.8 Site Inventory Photographs - Indian School Road to Osborn Road . 2-13
Figure 2.9 Site Inventory Photographs - Osborn Road to Thomas Road . . . . 2-14
Figure 2.10 Site Inventory Photographs - Thomas Road to Oak Street . . . . . 2-15
Figure 2.11 Site Inventory Photographs - Oak Street to McDowell Road . . . . 2-16
Figure 3.1 Pedestrian Environment and Project Study Area . . . . . 3-1
Figure 4.1 Typical Street Geometry Plans . . . . . 4-2
Figure 4.2 Pedestrian/Amenities/Building Zones . . . . . 4-2
Figure 4.3 Sidewalk Retrofit Options . . . . . 4-3
Figure 4.4 Example of Wayfinding Elements . . . . . 4-5
Figure 4.5 Bicycle Lanes Need to be Wider When Next to Parallel Parking . . 4-6
Figure 4.6 Examples of Striped Crossings at Intersections . . . . . 4-7
Figure 4.7 Two-Stage Crossings . . . . . 4-7
Figure 4.8 Directional Ramps. . . . . 4-8
Figure 4.9 Examples of Sidewalk Ramp Retrofits in Areas with Right-of-Way and Utility Constraints. . . . . 4-9
Figure 4.10 Water Harvesting Concepts . . . . . 4-9
Figure 4.11 Permeable Paving . . . . . 4-9
Figure 4.12 Controlled Access . . . . . 4-12
Figure 4.13 Examples of Pedestrian-Friendly Development with Parking . . . . 4-13
Figure 4.14 Example of Buffer Between Parking and Sidewalk. . . . . 4-14
Figure 4.15 Example of Parallel Parking. . . . . 4-14
Figure 4.16 North Gateway Typical Section . . . . . 4-18
Figure 4.17 North Gateway Concept Plan. . . . . 4-18
Figure 4.18 Urban Corridor Typical Sections . . . . . 4-20
Figure 4.19 Urban Corridor Concept Plan. . . . . 4-21
Figure 4.20 Transition Corridor Typical Sections . . . . . 4-22
Figure 4.21 Transition Corridor Concept Plan. . . . . 4-23
Figure 4.22 Historic Corridor Sections . . . . . 4-25

Figure 4.23 Historic Corridor Concept Plan . . . . . 4-24
Figure 4.24 South Gateway Typical Sections . . . . . 4-26
Figure 4.25 South Gateway Concept Plan . . . . . 4-27

## Charts

City of Phoenix Traffic Count Summary - 3rd Street Between Monterey Way and Cheery Lynn Road . . . . . 2-9
City of Phoenix Traffic Count Summary - 3rd Street Between Oak Street and Monte Vista Road . . . . . 2-10
City of Phoenix Traffic Count Summary - 3rd Street Between Roanoke Avenue and Windsor Avenue . . . . . 2-11
City of Phoenix - 3rd Street Between Osborn Road and Indian School Road . . 2-12
Chart 3-1 Intuitive Approach Latent Demand Assessment . . . . . 3-5
Chart 3-2 Intuitive Approach Roadside Pedestrian Condition Assessment . . . . 3-7
Chart 4-1 Street Tree Recommendations . . . . . 4-3
Chart 4-2 Modifiying Intersections to Accomodate Bike Lanes Evaluation . . . . 4-6
Chart 4-3 Bench Material Surface Temperatures . . . . . 4-12

# Introduction 1

THIS PAGE INTENTIONALLY LEFT BLANK

# Introduction 1

As part of the Maricopa Association of Governments (MAG) Pedestrian Design Assistance Program, 3rd Street, within the City of Phoenix, was selected as one of the 2008 sponsored pedestrian improvement projects. The project site is located between Indian School Road on the north and McDowell Road on the south, and is herein called 3rd Street Promenade. The study area also includes a review of pedestrian connectivity between places of origin and destination along 3rd Street Promenade and within 1/4 mile of project site, from Indian School Park on the north, Deck Park on the south, 7th Street on the east, and Central Avenue on the west.

Located between the mass transit corridor on Central Avenue, and the major arterial, 7th Street, 3rd Street serves as a pedestrian connector and as an alternative vehicular route into downtown Phoenix. However, as a pedestrian corridor, it lacks many pedestrian facilities. These include; continuous sidewalks, consistent shade, site furnishings, pedestrian lighting, sidewalk ramps in some locations, and consistent crossing facilities. Also, in some locations, pedestrian facilities, such as sidewalk widths and sidewalk ramps, need to be upgraded to comply with current ADA standards and guidelines.

*Photo: View south, sidewalk gap north of Virginia*

As downtown Phoenix continues to redevelop, spurred on by the completion and early success of the light rail and the success of the downtown ASU campus, 3rd Street Promenade is an excellent opportunity to strengthen pedestrian connectivity and create:

- a signature corridor that serves all modes of transportation; motorists, transit, and pedestrians;
- a walkable corridor that links neighborhoods, businesses, and places of interest;
- a destination with a unique character consisting of pedestrians, restaurants, and shops that has a strong identity, creating a sense of place[1].

## 1.1 Purpose

*Photo: Existing sidewalk and landscaping*

The purpose of this project is to examine the current pedestrian conditions and develop a set of guidelines that can be implemented within the public right-of-way. The guidelines will create a pedestrian-friendly corridor with a unique character. The project will focus on approaches that promote the development of a street that encourages pedestrian movement and connectivity between points of origin and destination. It will also identify key features that will make this corridor a signature street that is safe for all users, sensitive to its unique history, and an asset to both the business community and surrounding neighborhoods. The plan will recognize the street as an important public resource that can offer a variety of social, civic, and economic benefits to the entire community.

## 1.2 Process

This project is the result of a collaborative effort between the City of Phoenix, MAG, and the 3rd Street Business Alliance, a newly formed coalition of business owners who were instrumental in the initiation of this project.

---

1 A set of characteristics that make a place special or unique, as well as to those that foster a sense of authentic human attachment and belonging.

In 2008, the City of Phoenix sponsored this project for a MAG pedestrian design assistance grant. The grant application was based on a previous study developed by Ellermann Schick & Bruno and Hoskin Ryan Consultants for the 3rd Street Business Alliance. Key principles identified in this study included: destination/branding, linkages, and livability. That study reflected a global approach to the corridor, looking at features that could be developed both by the City and private entities.

This study is limited to improvements that can be implemented within the existing right-of-way and maintained by the City of Phoenix, or through a partnership with the 3rd Street Business Alliance. Additionally, this study focused primarily on the improvements that could be made to enhance the pedestrian experience along the corridor. The process for this study included:

- Site Inventory and Analysis and Pedestrian Assessment;
- Concept Development;
- Recommendations and Design Guidelines.

## 1.3 Public/Stakeholder Involvement

An important component of this project was inclusion of City Agencies and Staff, Public and Stakeholders, and Maricopa Association of Governments in the overall process. Interaction with City Agencies and Staff included a kick-off meeting, telephone conversation, workshop participation, and periodic meetings held throughout the project duration. Monthly updates were provided to MAG and the City project manager. Agency, Public, and Stakeholder involvement included two public/stakeholder workshops that were conducted on the following dates:

- November 19th and 25th, 2008
- January 27th and 29th, and February 2nd, 2009

The first set of workshops were conducted to verify existing conditions, review analysis, and gather additional information from stakeholders and the public. The second set of meetings was to review concept development and provide input and direction on the design guidelines.

## 1.4 Outcome of Study

In general, many of the neighboring residents, business community, and various City departments support this project. A high priority was placed on transforming 3rd Street Promenade into a walkable street that protects the character of existing neighborhoods, historic districts, business entities, and creates a comfortable pedestrian environment.

As an important corridor within the City of Phoenix, 3rd Street Promenade is ripe for transition due to its proximity to light rail and Phoenix's Downtown Urban Form Project. Its current geometric dimensions, existing traffic volume, and its location make it a good candidate for a road diet with on-street parking. Incorporating shade will be important for pedestrian comfort and should be provided by both street trees and building arcades. Sidewalks should be widened and constructed in places where they do not exist to allow for continuous pedestrian circulation. Directional sidewalk ramps should be incorporated at all intersections and brought up to current ADA and City of Phoenix standards.

Finally, the study will reinforce the 3rd Street Business Alliance and the City of Phoenix's vision of creating a signature corridor. It will unify the corridor with common elements, such as street trees, furnishings, and sidewalks, while also developing five distinct character areas that respond to existing road geometry, surrounding land use, and influential traffic patterns.

*Photo: New Development along 3rd Street*

# Site Inventory and Analysis

2

THIS PAGE INTENTIONALLY LEFT BLANK

# Site Inventory and Analysis

A site inventory of the project area was performed to understand the existing conditions of 3rd Street Promenade. Once collected, the data was analyzed and opportunities and constraints that exist along the 3rd Street Promenade were identified. Stakeholders had the opportunity to provide input and feedback during the weeks of November 16, and November 24, 2008.

As Central Avenue continues to transform in response to the addition of the light rail, 3rd Street will likely handle more vehicular and pedestrian overflow traffic. Undeveloped property along 3rd Street will evolve the street's character as it is developed. Since this corridor borders the Downtown Urban Form Project, which implemented guidelines to create a walkable downtown core, 3rd Street Promenade should reinforce this pedestrian-friendly approach by extending the pedestrian environment north and influencing the activities and development in this study area.

## 2.1 Existing Conditions

3rd Street Promenade is a 2-mile long collector street which runs through Midtown Phoenix. It parallels the light rail located a quarter mile west on Central Avenue. 3rd Street Promenade provides neighborhood connections to places such as St. Mary's High School, Steele Indian School Park, and La Hacienda, Ashland Place, Alvarado, and Los Olivos historic districts, Heard Museum, Phoenix Art Museum, Margaret T. Hance Park, Khalsa Primary School, and numerous businesses and residences.

*Photo: View north, setback sidewalk at St. Mary's High School*

### A. Land Use

Land use is very important in creating a walkable 3rd Street Promenade and as a place of destination. While this study doesn't make recommendations on proposed land uses, it does recognize and encourage the development of land uses that support the key project goals, such as mixed-use projects. However, existing land use does influence the pedestrian environment of the corridor.

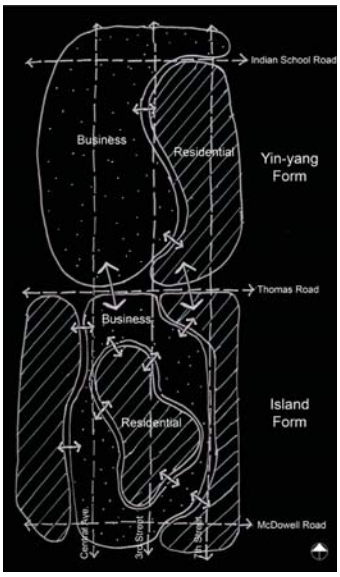



*Figure 2.1: Two Existing Urban Forms*

Existing land use north of Thomas Street currently exists as a "yin-yang" interplay between business and residential use. In this area, several plans have been developed that would convert single-family homes directly adjacent to the corridor into mixed-use and business developments. Consequently, a strong residential presence along the corridor is not anticipated north of Thomas Street.

However, south of Thomas Street, a stronger residential presence exists. Several residential districts are designated historic districts and therefore the buildings and neighborhoods are protected from redevelopment. These neighborhoods exist along the corridor with businesses located along the major intersections and along Central Avenue and 7th Street, creating a residential island within the southern portion of the study area.

### B. Transit Overlay District

3rd Street Promenade is also influenced by the Transit-Overlay-District (TOD) created as part of the light

rail system recently developed in Phoenix, Tempe, and Mesa. The eastern parts of the corridor exist within the TOD boundary, while the western side exists outside the TOD boundary.

### C. Pedestrian Environment

The existing pedestrian environment of 3rd Street Promenade is influenced by two distinct development patterns, pre-WWII and post-WWII. The pre-WWII development consists of a development pattern with wider sidewalks, planting strips between the curb and sidewalk, buildings fronting the street, a smaller street geometry with narrower travel lanes (10' minimum in much of the study area), and neighborhoods supported by local businesses.

Post-WWII development consists of a development pattern reflecting a higher reliance on vehicles. Sidewalks were placed at the back of curb and in some instances were never constructed, larger building setbacks, multiple business access points, parking lots fronting the street, and neighborhood development which faced inward rather than engaging the corridor.

This resulted in different pedestrian environments along the corridor, with the south part study area generally having a more pedestrian-friendly environment and the north being less pedestrian-friendly with more of a focus on vehicular movement.

*Photo: Existing tree-lined streets and historic neighborhood with setback sidewalks*

*Photo: Noted gap in pedestrian system*

A more detailed inventory of the existing pedestrian facilities within the project site, including a pedestrian level of service analysis using the MAG Latent Demand Model, is included in Section 3 of this report.

### D. Pedestrian Amenities

There are few pedestrian amenities such as benches, trash receptacles, lighting, bike racks, and open spaces along the corridor. Additionally there is relatively little shade along the corridor, outside the area between Palm Lane and Virginia Street. This makes for an uncomfortable pedestrian experience when using the street as a pedestrian corridor, especially during the warm and hot months as there is little or no relief from the sun for long stretches. Additionally, the sun exposed intersections make it uncomfortable for pedestrians while waiting to cross the street.

### E. Connectivity

Strong connections exist between 3rd Street Promenade and adjacent neighborhoods. However, connectivity between neighborhoods across from each other along 3rd Street Promenade is limited. Signalized intersections occur at approximately 1/4-mile intervals, except at Oak Street and Clarendon Avenue which are not signalized. This restricts crossing opportunities for pedestrians and causes 3rd Street to act as a barrier between neighborhoods. This is especially apparent around Oak Street which connects Monterrey Park Elementary School and St. Mary's High School with 3rd Street Promenade and 7th Avenue to the east.

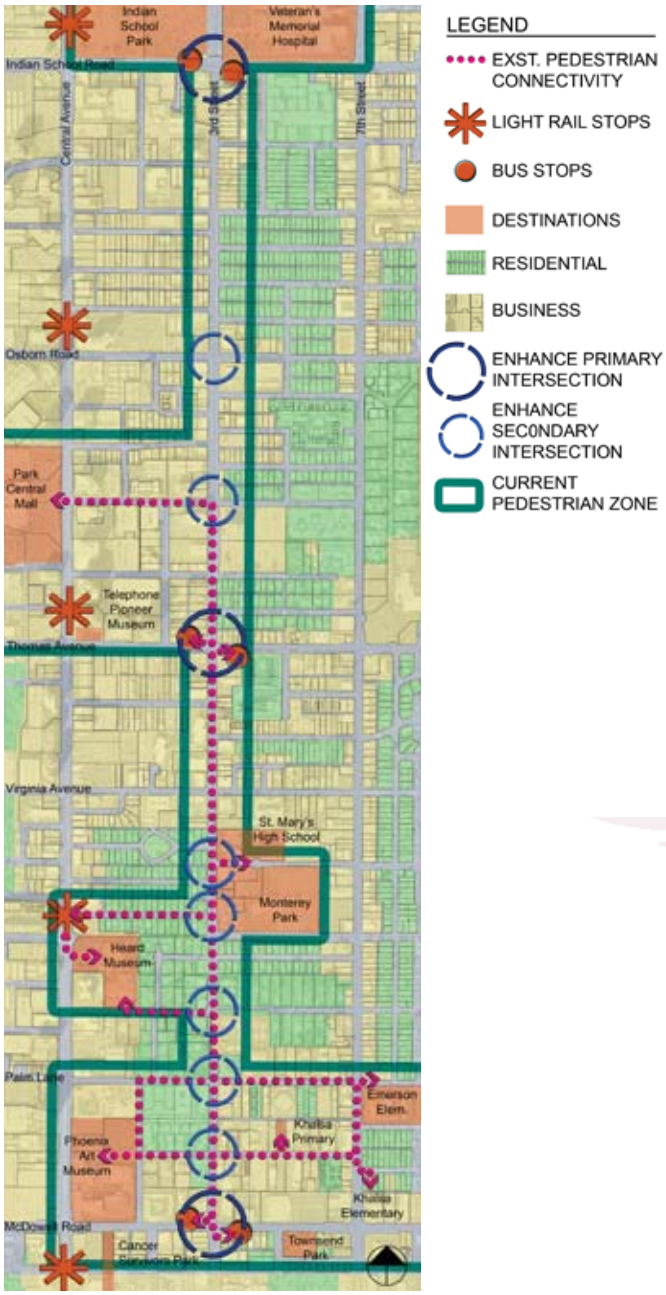



*Figure 2.2: Pedestrian Connectivity - Destination and Origins*

Several major destinations, such as regional and neighborhood parks, museums, library, retail and commercial businesses, and schools, exist along the corridor or within a 1/4-mile radius of the project site. Pedestrian's circulation to destinations is generated from points of origin along the corridor and within a 1/4-mile radius of the project site, including the residential neighborhoods, businesses, light rail stops along Central Avenue, and bus stops along Indian School Road, Thomas Road, and McDowell Road.

## F. Road Geometry and Vehicular Traffic

3rd Street is a collector street with a varying width between 50 and 75 feet wide. Travel lanes are narrow, minimum 10' wide, and a two way left turn lane exists throughout most of the corridor, between Indian School Road and Oak Street, which serves as a dual left turn lane, except at major and minor intersections. Between Oak Street and McDowell Road, there are no center medians, but the road geometry is widened at the McDowell Street intersection to allow for left and right turning movements. It is a manageable corridor scale and comfortable for pedestrians and motorists. Existing narrow intersections are crossed quickly. However, at intersections with major arterials, the crossings become less comfortable. Currently, there are no dedicated or shared bicycle lanes along the length of the corridor. Also while the posted speed is 35 mph, higher than allowed traffic speeds are typical along the corridor creating discomfort for pedestrians.

## G. Vehicular Traffic Volume

Between February 2009 and July 2009, the City of Phoenix conducted traffic counts along 3rd Street between McDowell and Indian School Road. The City took traffic counts at four locations, between Monte Vista Road and Oak Street, Windsor Avenue and Roanoke Avenue, Monterey Way and Cheery Lynn Road, and Osborn Road and Indian School Road. Traffic volumes varied between these locations with a

*Photo: Existing narrow sidewalk with utilities and business access*

high of 19,500.5 average daily trips between Roanoke Avenue and Windsor Avenue and 12,054 between Osborn Road and Indian School Road.

Based on these numbers, the current road geometry of two lanes north and south bound plus a center left turn lane, 3rd Street has adequate capacity and is a good candidate for a lane reduction. The actual traffic counts and speed distribution charts are shown on Pages 2-8 through 2-11.

### H. Vehicular Access Points and Parking

There are many business and residential driveways along the corridor. In many locations, these driveway ramps exist within the sidewalk width. Additionally, several of the businesses along the corridor incorporate recessed parallel parking or angled parking in front of their buildings. This type of parking, along with the driveways, pose a challenge for pedestrians and ADA compliance.

In summary, the existing conditions of 3rd Street can be summed up with the following characteristics:

- Narrow and discontinuous sidewalks (north of Thomas Street).
- Wide sidewalks with planting strips (south of Thomas Street).
- Utility and urban infrastructure obstructions.
- Lack of shade from street trees or building canopies (north of Virginia Street and south of Palm Lane).
- Angled or parallel parking conflicts with pedestrian paths.
- Large building setbacks.
- Minimal building frontage.
- Parking lots adjacent to sidewalks.
- Multiple vehicular access points.
- Existing sidewalk ramps are not up to current ADA standards.
- No pedestrian lighting.
- Limited pedestrian amenities such as benches, trash receptacles, bike racks, etc.
- Limited crossing facilities.

*Photo: Existing utilities limit clear footpath width*

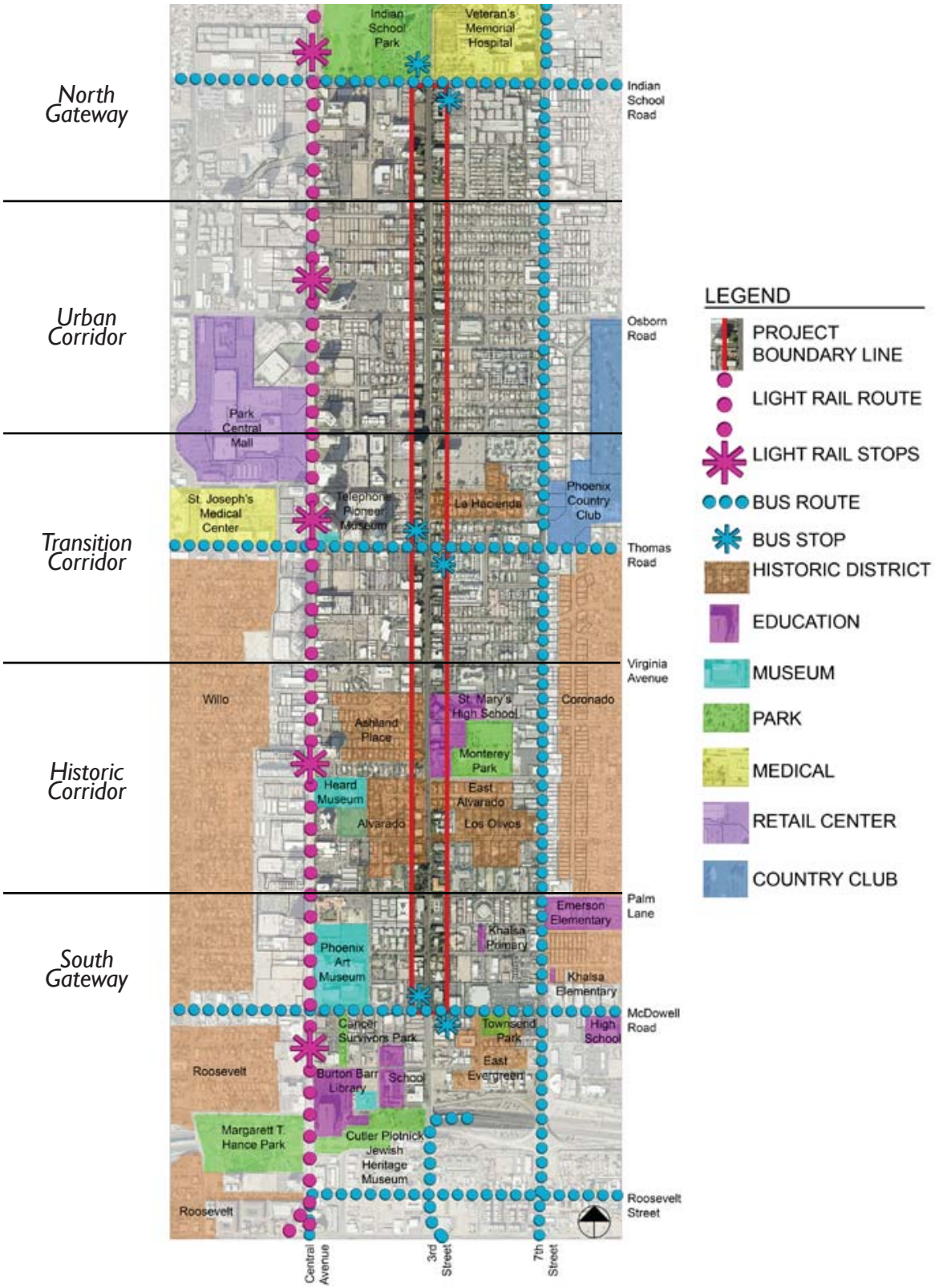



*Figure 2.3: Existing Conditions and Character Area Map*

## 2.2 Opportunities and Challenges

*Photo: Many modes of transportation use the corridor*

The existing conditions of the corridor and study area offer many opportunities to create a signature corridor for Phoenix. The following outlines opportunities and challenges that will help reinforce 3rd Street Promenade to become a signature corridor.

### A. Character Areas

In analyzing the study area, it became apparent that this existing land use, along with road geometry, and traffic patterns, influence the corridor's character and as such, create five distinct character areas. These areas are:

- North Gateway, located between Indian School Road and Clarendon Avenue;
- Urban Corridor located between Clarendon Avenue and Earll Drive;
- Transition Corridor located between Earll Drive to Virginia Avenue;
- Historic Corridor located between Virginia Avenue and Palm Lane;
- South Gateway located between Palm Lane and McDowell Road.

Figure 2.3 illustrates these areas along with other existing conditions and opportunity information.

The southern part of 3rd Street Promenade can be enhanced to highlight the existing park-like character of the area allowing pedestrians to "stroll" to their destinations. The northern part of the corridor is adjacent to existing high-rise office space and retail dictating a more urban environment. The corridor links two significant open space projects in the downtown area: Steele Indian School Park and Margaret T. Hance Park.

### B. Multi-modal Street

A potential exists to redevelop 3rd Street as a true multi-modal transportation corridor that is pedestrian and bicycle friendly. The existing road geometry will allow for the incorporation of dedicated or shared bicycle lanes along the entire length, with some potential modification at the major intersections. However, in order to add dedicated bicycle lanes, the dedicated left turn at-grade median would either need to be removed or reconfigured. Since it is likely that 3rd Street Promenade will experience a higher level of pedestrian, bicycle, and vehicular activity as a result of light rail operation on Central Avenue, incorporating bicycle lanes is a great opportunity to develop 3rd Street as a multi-modal corridor.

### C. Pedestrian Environment and Amenities

*Photo: Utilities obstructions*

Only portions of the corridor are shaded. 3rd Street Promenade will benefit from adding shade to the whole corridor in order to offer relief from the sun in warm and hot months. Since some areas have very limited right-of-way and may not accommodate the desired pedestrian facilities outlined in this report, the City may need to partner with adjacent property owners to create a desirable solution. Solutions may include such elements as building canopies, street trees, trees planted along sidewalks on private property, and shade structures at intersections with pedestrian crossing facilities.

### D. Connectivity

Several schools and museums are located south of Virginia Avenue on or near 3rd Street. Many students and museum-goers are expected to be generated from the light rail stop at Central and Encanto between Vernon and Hoover as well as the desired paths that may develop from schools east of 7th Street to the light rail. To enhance this connectivity, additional intersection crossings and/or mid-block crossings between Palm Lane and Virginia should be evaluated for feasibility. Additionally, with redevelopment along the corridor, more retail and commercial uses are expected north of Thomas Road and specifically around Osborn and Earll which connects to Park Central Mall. As retail core develops in either area, enough foot traffic may develop to warrant additional intersection crossings. In order to implement additional intersection crossings, additional pedestrian and vehicular traffic studies must be conducted within the planned area.

### E. Utility Conflicts

There are many existing utilities along the corridor, including visible utilities such as overhead power lines, SRP irrigation structures, private irrigation equipment, such as backflow preventors, and private utility cabinets. Additionally there are many underground utilities within the right-of-way. These utilities may pose conflicts with recommendations outlined in this report.

### F. Maintenance

Many of the recommended pedestrian amenities that will create a unique corridor will require maintenance that the City currently cannot provide. The Parks Department maintains only arterial streets for the City of Phoenix Street Transportation Department (STD). STD does not have landscape maintenance crews to maintain other corridors. If non-standard improvements are incorporated into the right-of-way, private property owners will have to enter into an agreement with the City to maintain all amenities over and above City Standards.

## 2.3 Influential Studies Applicable to 3rd Street Promenade

Several other studies, reports, and guidelines completed for the City of Phoenix have been considered and have influenced the analysis and guidelines developed for 3rd Street Promenade. Listed below are a few notable publications.

### A. Downtown Urban Form Project

The Downtown Urban Form Project incorporates zoning regulations that include sustainability standards to address the urban heat island by requiring the use of appropriate materials and incorporation of shade throughout downtown. This provision has been made to create a comfortable pedestrian environment so that people may enjoy activities within walking distance from the light rail stations and other destination points within the downtown area.

3rd Street Promenade is situated at the northeast corner of the Urban Form Project boundary. It is a natural extension of the pedestrian-friendly environment envisioned in that area.

### B. Connected Oasis Study

A downtown study completed for the City of Phoenix looked at opportunities for increasing shade through a "connected oasis" in order to provide comfort for pedestrians during the warm and hot months of the year. The existing mature vegetation at the south section of 3rd Street Promenade is a natural transition into the "connected oasis" system envisioned within the boundaries of Downtown.

### C. Transit Overlay District

Parts of the west side of the 3rd Street Promenade are in a Transit-Overlay District (TOD-1), which is a zoning overlay, that primarily applies to commercial

and residential areas. This district was created to encourage an appropriate mixture and density of activity around transit stations. This was done to promote alternative modes of transportation and mitigate the effects of congestion and pollution by decreasing automobile dependency. The Transit-Oriented District development standards apply to new development or site plan modifications.

The fact that some of the project area lies within the TOD-1 District supports the vision of 3rd Street Promenade as a location that offers the "live, work, play" experience.

### D. Traffic Study February 2009

The City of Phoenix conducted a traffic study in February and July 2009. The data received during this study are shown on Pages 2-9 through 2-12. The study indicates that 3rd Street currently has adequate capacity.

# City of Phoenix
# Traffic Count Summary

Study ID: 6468
Study Status: Posted

**Location :** On 3RD ST Between MONTEREY WAY And CHEERY LYNN RD
**Placed @ :** LITE POLE #204042 ON EAST SIDE
**Study Start :** N: Feb 03, 2009, S: Feb 03, 2009
**Study Length :** 48 hours
**Neighborhood :**
**Project Status :**

**Average Amount of Traffic**

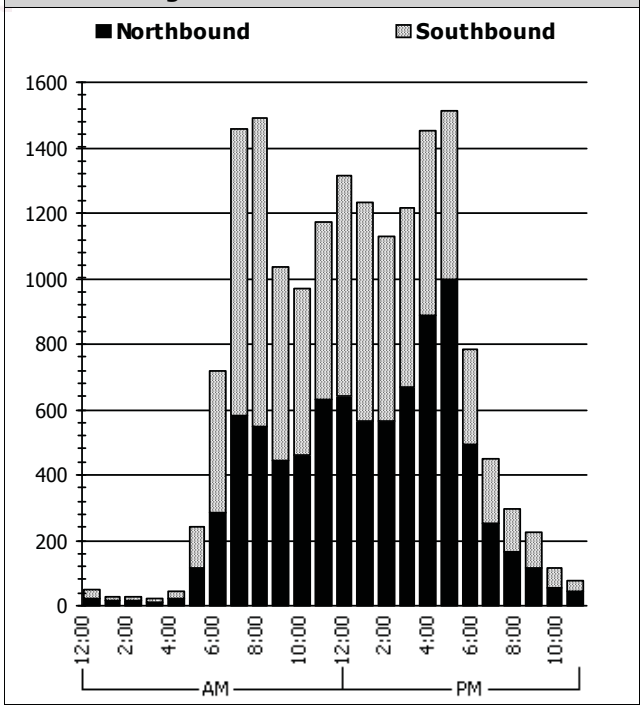
| Begin | North | South | Total | Avg. Speed |
|---|---|---|---|---|
| 12:00am | 22.5 | 25.5 | 48.0 | 31.8 |
| 01:00 | 17.0 | 9.0 | 26.0 | 32.3 |
| 02:00 | 14.5 | 13.0 | 27.5 | 29.2 |
| 03:00 | 9.0 | 12.0 | 21.0 | 33.0 |
| 04:00 | 22.5 | 22.0 | 44.5 | 36.5 |
| 05:00 | 116.5 | 123.5 | 240.0 | 35.4 |
| 06:00 | 287.0 | 433.5 | 720.5 | 34.6 |
| 07:00 | 578.5 | 881.0 | 1459.5 | 35.1 |
| **08:00** | **546.0** | **945.5** | **1491.5** | **34.5** |
| 09:00 | 441.5 | 594.5 | 1036.0 | 33.2 |
| 10:00 | 459.0 | 512.5 | 971.5 | 33.1 |
| 11:00 | 630.0 | 542.0 | 1172.0 | 32.5 |
| 12:00pm | 640.0 | 673.5 | 1313.5 | 31.9 |
| 01:00 | 565.5 | 667.0 | 1232.5 | 33.0 |
| 02:00 | 563.5 | 564.0 | 1127.5 | 32.7 |
| 03:00 | 668.5 | 546.5 | 1215.0 | 33.3 |
| 04:00 | 885.5 | 568.0 | 1453.5 | 32.6 |
| **05:00** | **996.5** | **514.0** | **1510.5** | **32.6** |
| 06:00 | 491.5 | 291.0 | 782.5 | 34.0 |
| 07:00 | 251.5 | 200.5 | 452.0 | 35.0 |
| 08:00 | 165.0 | 129.0 | 294.0 | 36.2 |
| 09:00 | 114.0 | 108.5 | 222.5 | 34.5 |
| 10:00 | 54.5 | 60.5 | 115.0 | 34.5 |
| 11:00 | 43.5 | 35.0 | 78.5 | 33.3 |
| **Daily Total** | **8583.5** | **8471.5** | **17055.0** | |

**Speed Distribution (mph)**

| | North | South | Average |
|---|---|---|---|
| Average | 33.8 | 33.1 | 33.5 |
| 15% | 28.8 | 26.7 | 27.8 |
| 30% | 31.5 | 30.5 | 31.0 |
| 50% | 34.2 | 33.6 | 33.9 |
| 70% | 37.1 | 36.8 | 37.0 |
| 85% | 39.5 | 39.4 | 39.5 |
| % over 35 mph | 42.9 | 40.0 | 41.5 |
| % over 40 mph | 11.9 | 11.5 | 11.7 |
| % over 45 mph | 1.9 | 1.8 | 1.9 |

Posted Speed: 35

**Average Number of Vehicles Per Hour**




City of Phoenix | Street Transportation Department | Traffic Operations Division

*Figure 2-4: City of Phoenix Traffic Study Results*

## City of Phoenix
## Traffic Count Summary

Study ID: 6470
Study Status: Posted

**Location :** On 3RD ST Between OAK ST And MONTE VISTA RD
**Placed @ :** LITE POLE #3918 ON WEST SIDE
**Study Start :** N: Feb 03, 2009, S: Feb 03, 2009
**Study Length :** 48 hours
**Neighborhood :**
**Project Status :**

**Average Amount of Traffic**

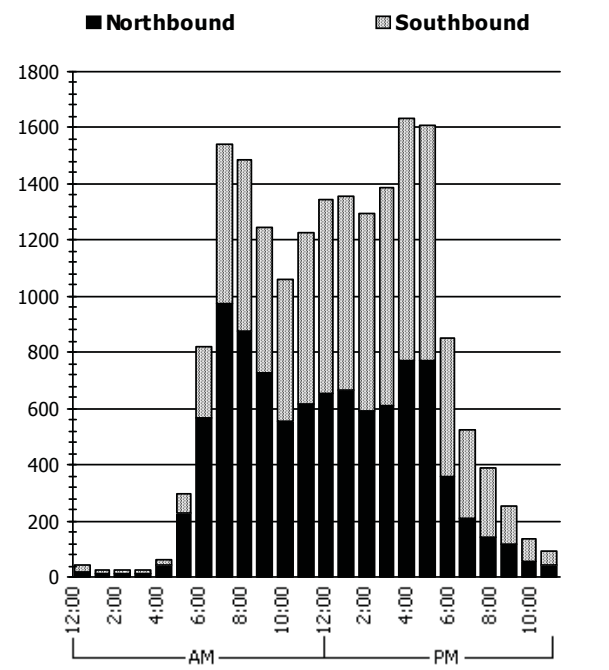
| Begin | North | South | Total | Avg. Speed |
|---|---|---|---|---|
| 12:00am | 21.0 | 24.0 | 45.0 | 39.9 |
| 01:00 | 14.0 | 13.0 | 27.0 | 40.6 |
| 02:00 | 11.5 | 11.5 | 23.0 | 42.5 |
| 03:00 | 12.0 | 11.0 | 23.0 | 43.9 |
| 04:00 | 44.0 | 19.0 | 63.0 | 40.7 |
| 05:00 | 229.5 | 68.5 | 298.0 | 41.0 |
| 06:00 | 570.0 | 250.0 | 820.0 | 39.5 |
| **07:00** | **975.0** | **566.0** | **1541.0** | **38.9** |
| 08:00 | 878.0 | 606.5 | 1484.5 | 39.2 |
| 09:00 | 726.5 | 516.5 | 1243.0 | 39.2 |
| 10:00 | 553.0 | 504.5 | 1057.5 | 39.2 |
| 11:00 | 614.0 | 612.5 | 1226.5 | 38.5 |
| 12:00pm | 656.0 | 685.0 | 1341.0 | 38.6 |
| 01:00 | 663.5 | 695.5 | 1359.0 | 38.8 |
| 02:00 | 590.5 | 705.0 | 1295.5 | 39.7 |
| 03:00 | 612.0 | 775.0 | 1387.0 | 39.5 |
| **04:00** | **771.5** | **862.0** | **1633.5** | **39.0** |
| 05:00 | 771.5 | 835.0 | 1606.5 | 38.6 |
| 06:00 | 359.5 | 491.0 | 850.5 | 39.0 |
| 07:00 | 207.0 | 314.0 | 521.0 | 39.5 |
| 08:00 | 143.5 | 242.0 | 385.5 | 39.9 |
| 09:00 | 116.5 | 136.5 | 253.0 | 39.6 |
| 10:00 | 58.5 | 76.0 | 134.5 | 39.9 |
| 11:00 | 43.0 | 49.5 | 92.5 | 40.1 |
| **Daily Total** | **9641.5** | **9069.5** | **18711.0** | |

**Speed Distribution (mph)**

| | North | South | Average |
|---|---|---|---|
| Average | 38.7 | 39.6 | 39.2 |
| 15% | 34.0 | 34.7 | 34.4 |
| 30% | 36.2 | 36.7 | 36.5 |
| 50% | 38.4 | 39.2 | 38.8 |
| 70% | 41.0 | 42.0 | 41.5 |
| 85% | 43.6 | 44.2 | 43.9 |
| % over 35 mph | 80.7 | 83.8 | 82.3 |
| % over 40 mph | 35.7 | 43.4 | 39.6 |
| % over 45 mph | 6.7 | 9.8 | 8.3 |

Posted Speed: 35

**Average Number of Vehicles Per Hour**




City of Phoenix | Street Transportation Department | Traffic Operations Division

*Figure 2-5: City of Phoenix Traffic Study Results*

# City of Phoenix
## Traffic Count Summary

Study ID: 6469
Study Status: Posted

**Location :** On 3RD ST Between ROANOKE AVE And WINDSOR AVE
**Placed @ :** SPEED LIMIT SIGN ON EAST SIDE
**Study Start :** N: Feb 03, 2009, S: Feb 03, 2009
**Study Length :** 48 hours
**Neighborhood :**
**Project Status :**

**Average Amount of Traffic**

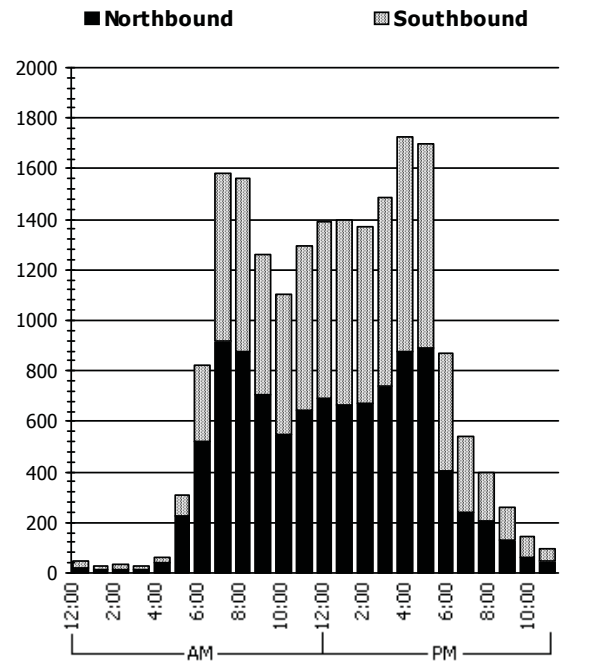
| Begin | North | South | Total | Avg. Speed |
|---|---|---|---|---|
| 12:00am | 22.0 | 25.5 | 47.5 | 38.6 |
| 01:00 | 17.0 | 13.5 | 30.5 | 40.1 |
| 02:00 | 15.5 | 15.5 | 31.0 | 39.8 |
| 03:00 | 12.0 | 12.5 | 24.5 | 37.2 |
| 04:00 | 42.5 | 18.5 | 61.0 | 43.0 |
| 05:00 | 226.0 | 84.0 | 310.0 | 41.2 |
| 06:00 | 519.0 | 302.0 | 821.0 | 38.6 |
| **07:00** | **915.5** | **664.5** | **1580.0** | **37.6** |
| 08:00 | 876.0 | 682.5 | 1558.5 | 37.6 |
| 09:00 | 706.0 | 557.0 | 1263.0 | 37.1 |
| 10:00 | 547.0 | 556.5 | 1103.5 | 37.1 |
| 11:00 | 645.0 | 650.5 | 1295.5 | 36.5 |
| 12:00pm | 688.5 | 704.0 | 1392.5 | 35.9 |
| 01:00 | 667.5 | 731.5 | 1399.0 | 36.2 |
| 02:00 | 673.5 | 693.5 | 1367.0 | 36.7 |
| 03:00 | 739.0 | 744.5 | 1483.5 | 36.6 |
| **04:00** | **874.0** | **851.0** | **1725.0** | **36.0** |
| 05:00 | 888.0 | 810.5 | 1698.5 | 36.3 |
| 06:00 | 401.0 | 467.5 | 868.5 | 37.4 |
| 07:00 | 243.0 | 301.0 | 544.0 | 37.8 |
| 08:00 | 207.5 | 192.0 | 399.5 | 37.7 |
| 09:00 | 132.5 | 126.5 | 259.0 | 38.4 |
| 10:00 | 64.0 | 77.5 | 141.5 | 38.1 |
| 11:00 | 46.0 | 50.5 | 96.5 | 38.9 |
| **Daily Total** | **10168.0** | **9332.5** | **19500.5** | |

**Speed Distribution (mph)**

| | North | South | Average |
|---|---|---|---|
| Average | 39.6 | 34.2 | 36.9 |
| 15% | 33.5 | 28.9 | 31.2 |
| 30% | 36.2 | 31.9 | 34.1 |
| 50% | 39.1 | 34.5 | 36.8 |
| 70% | 42.2 | 37.1 | 39.7 |
| 85% | 44.6 | 39.2 | 41.9 |
| % over 35 mph | 78.8 | 45.1 | 62.0 |
| % over 40 mph | 43.4 | 9.1 | 26.3 |
| % over 45 mph | 12.5 | 1.1 | 6.8 |

Posted Speed: 35

**Average Number of Vehicles Per Hour**




City of Phoenix | Street Transportation Department | Traffic Operations Division

*Figure 2-6: City of Phoenix Traffic Study Results*

# On 3RD ST Between OSBORN RD & INDIAN SCHOOL RD

**Council District: 4** | Daily Volumes Adjusted for Month and Day | **Posted 2010/11 Volume Map**

*NORTHBOUND On 3RD ST* *(Station: 3411)*

| Period Ending | Mon 06/29/09 | Tue 06/30/09 | Wed 07/01/09 | Thu 07/02/09 | Fri 07/03/09 | Sat 07/04/09 | Sun 07/05/09 | Avg |
|---|---|---|---|---|---|---|---|---|
| 0100 | | 21 | 27 | | | | | 24 |
| 0200 | | 15 | 15 | | | | | 15 |
| 0300 | | 10 | 13 | | | | | 12 |
| 0400 | | 4 | 10 | | | | | 7 |
| 0500 | | 20 | 21 | | | | | 20 |
| 0600 | | 77 | 70 | | | | | 74 |
| 0700 | | 233 | 216 | | | | | 224 |
| 0800 | | 296 | 303 | | | | | 300 |
| 0900 | | 267 | 303 | | | | | 285 |
| 1000 | | 290 | 301 | | | | | 296 |
| 1100 | | 307 | 326 | | | | | 316 |
| 1200 | | 416 | 473 | | | | | 444 |
| 1300 | 448 | 490 | | | | | | 469 |
| 1400 | 408 | 417 | | | | | | 412 |
| 1500 | 352 | 387 | | | | | | 370 |
| 1600 | 436 | 408 | | | | | | 422 |
| 1700 | 604 | 657 | | | | | | 630 |
| 1800 | 709 | 780 | | | | | | 744 |
| 1900 | 325 | 349 | | | | | | 337 |
| 2000 | 203 | 194 | | | | | | 198 |
| 2100 | 126 | 138 | | | | | | 132 |
| 2200 | 89 | 112 | | | | | | 100 |
| 2300 | 92 | 55 | | | | | | 74 |
| 2400 | 41 | 47 | | | | | | 44 |
| | | | | | | | **Total:** | 5949 |

*SOUTHBOUND On 3RD ST* *(Station: 3411)*

| Period Ending | Mon 06/29/09 | Tue 06/30/09 | Wed 07/01/09 | Thu 07/02/09 | Fri 07/03/09 | Sat 07/04/09 | Sun 07/05/09 | Avg |
|---|---|---|---|---|---|---|---|---|
| 0100 | | 24 | 22 | | | | | 23 |
| 0200 | | 9 | 14 | | | | | 12 |
| 0300 | | 8 | 9 | | | | | 8 |
| 0400 | | 5 | 14 | | | | | 10 |
| 0500 | | 45 | 31 | | | | | 38 |
| 0600 | | 129 | 130 | | | | | 130 |
| 0700 | | 408 | 389 | | | | | 398 |
| 0800 | | 719 | 652 | | | | | 686 |
| 0900 | | 721 | 690 | | | | | 706 |
| 1000 | | 519 | 482 | | | | | 500 |
| 1100 | | 407 | 381 | | | | | 394 |
| 1200 | | 396 | 420 | | | | | 408 |
| 1300 | 462 | 479 | | | | | | 470 |
| 1400 | 449 | 411 | | | | | | 430 |
| 1500 | 339 | 337 | | | | | | 338 |
| 1600 | 324 | 326 | | | | | | 325 |
| 1700 | 326 | 337 | | | | | | 332 |
| 1800 | 253 | 282 | | | | | | 268 |
| 1900 | 196 | 205 | | | | | | 200 |
| 2000 | 140 | 128 | | | | | | 134 |
| 2100 | 109 | 122 | | | | | | 116 |
| 2200 | 77 | 89 | | | | | | 83 |
| 2300 | 47 | 54 | | | | | | 50 |
| 2400 | 48 | 44 | | | | | | 46 |
| | | | | | | | **Total:** | 6105 |

**North/South Combined ADT: 12054**
**Total ADT (All Directions): 12054**

Figure 2-7:
City of Phoenix Traffic Study Results

# inventory - indian school road to osborn road

*Figure 2-8: Site Inventory Photographs - Indian School Road to Osborn Road*

*Figure 2-9: Site Inventory Photographs - Osborn Road to Thomas Road*

# inventory - thomas road to oak street

*Figure 2-10: Site Inventory Photographs - Thomas Road to Oak Street*

*Figure 2-11: Site Inventory Photographs - Oak Street to McDowell Road*

# Pedestrian Facilities Assessment

3

THIS PAGE INTENTIONALLY LEFT BLANK

# Pedestrian Facilities Assessment

3

In conjunction with the site inventory and analysis outlined in Section 2, this section provides analysis of the potential need for pedestrian improvements along 3rd Street. The analysis is based on the pedestrian need and latent demand outlined in the MAG Pedestrian Plan 2000 which includes various tools to assess where pedestrian facility improvements are most needed. To understand the pedestrian needs for the project area, a Pedestrian Latent Demand Model was developed, using the Scenario 2 method which is used to determine the existing pedestrian level of service within the project areas. In turn, this then outlines the minimum improvement needed to provide pedestrians with a comfortable experience when using the corridor.

*Photo: View North at Indian School Road Park Entrance*

The following sub-sections, along with Section 2, outline the process, analysis, and design needs for pedestrian enhancement improvements along 3rd Street.

## 3.1 Introduction

3rd Street, between Indian School Road and McDowell Road in the City of Phoenix, was chosen as a location for a MAG sponsored pedestrian study and design project. This project will explore a number of ways through which the pedestrian experience within the right-of-way can be improved.

A number of key project and area stakeholders, including the 3rd Street Business Alliance, have recognized the need for pedestrian improvements along 3rd Street. These improvements will assist the City and the 3rd Street Business Alliance to create a signature street that is a pedestrian-friendly corridor that supports a live, work, and play mixed-use area.

## 3.2 Project Boundary

The project study area extends from Indian School Road on the north to McDowell Road on the south, and located between Central Avenue on the west and 7th Street on the east. The proposed improvements for this project are limited to the area of 3rd Street between existing right-of-way lines.

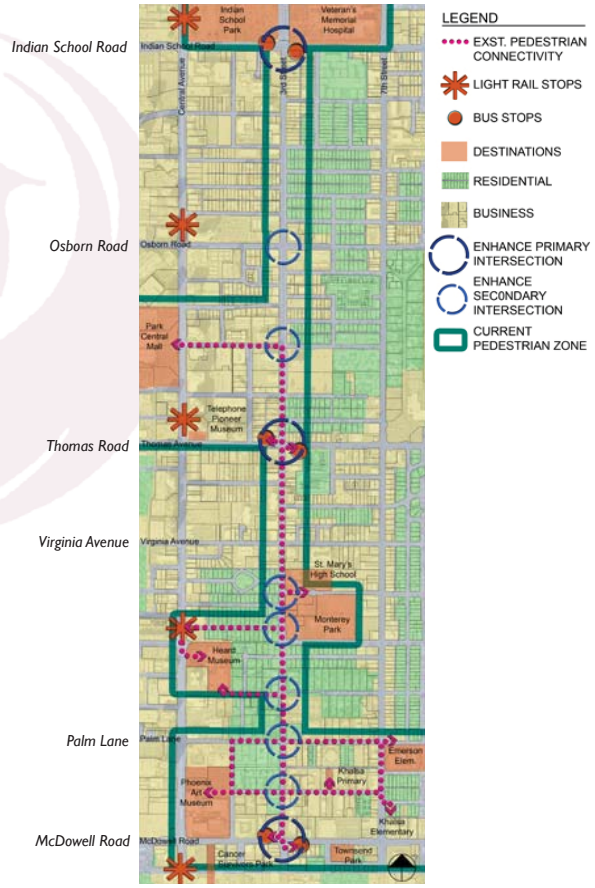



*Figure 3.1: Pedestrian Environment and Project Study Area*

## 3.3 Existing Pedestrian Conditions

An existing condition inventory and analysis of the study area, which influences the pedestrian experience, is discussed in detail in Section 2. This section is an inventory of the existing pedestrian facilities within the right-of-way. Generally, the existing pedestrian facilities are adequate. This section of the study inventories the sidewalk locations and widths, buffers and planting strips, ADA ramps, and obstructions.

Photo: View South Towards Virginia Avenue Gap in Sidewalk

### A. Sidewalk Locations

Sidewalks exist through out much of the corridor, but are absent in a few locations; approximately 340 feet north of Palm Lane on the west side, 140 feet north of Virginia on the west side, 110 feet south of Alvarado on the west side, and several small areas at minor intersections such as Monte Vista Road.

### B. Sidewalk Widths

Photo: View North, Setback Sidewalk at St. Mary's High School

Sidewalk widths vary throughout the area. They are generally between 4 and 6 feet wide but are as narrow as 3 feet wide between Hoover Avenue and Vernon Avenue, and as wide as 10 feet between Roanoke Avenue and Verde Lane.

### C. Buffers and Planting Strips

Planting strips of varying width exist throughout the corridor, but are most prevalent in the historic neighborhoods. They are generally between 4 to 5 feet wide, but are as narrow as 2 feet and as wide as 15 feet. South of Thomas Street they are mainly planted with lawn, although there are several locations with street trees and lawns and some locations with shrubs and decomposed granite. North of Thomas, the planting strips are primarily decomposed granite either with or without shrubs. However there are several locations where lawn is still planted, particularly around larger businesses.

Photo: Narrow Sidewalk between Hoover and Vernon Avenue

Photo: Existing On-street Parking on 3rd Street

In addition to the planting strips, which provide a buffer between the pedestrian and moving traffic, there are also several locations with on-street parking which also provides a barrier between the pedestrian and moving vehicles. These mainly occur between Osborn Road and Earll Drive and consist of both parallel parking and angled parking.

### D. ADA Sidewalk Ramps and Accessible Routes

Most intersections throughout the corridor have sidewalk ramps at all corners, except at Weldon Street on the west side, the northwest corner of Mitchell Street, Alvarado Road, and Monte Vista Road. Ramps tend to be diagonal and do not have detectable warning pavers incorporated into the ramps. At Thomas Road and McDowell Road, the pedestrian ramps are constructed with concrete pavers.

There are numerous driveway crossings throughout the corridor which interrupt

Photo: Examples of Sidewalk Ramps

*Photo: Example of Driveway Crossings with Excessive Cross Slope*

pedestrian circulation. When these are located in areas with planting strips, the sidewalk remains level, with driveway ramping up to sidewalk level in the planting strip width. However, when there is no planting strip, driveway crossings are incorporated into the sidewalk width and have excessive cross slopes which do not meet ADA standards.

### *E. Pedestrian Obstructions*

*Photo: View South near Hoover Street., Utilities Limit Width of Pedestrian Clear Zone*

In addition to discontinuous and narrow sidewalks, there are numerous utility obstructions which interrupt the pedestrian space and make an area difficult to travel through. From Indian School Road to Alvarado Road on the west side and from Catalina Street to Oak Street on the east, there are power lines and poles located within the right-of-way. The poles are located within the planting strips where they exist. However, there are several locations where the poles are located in the sidewalk, which is generally only 5 feet wide. At these locations there is not adequate clear space for pedestrian movement. Additionally there are other utilities located adjacent to or in the sidewalks which further restrict clear paths for pedestrian circulation.

*Photo: Existing power line pole obstructing sidewalk*

## 3.4 Design Needs

According to the MAG Pedestrian Latent Demand Model, the project has a pedestrian Level of Service C - average conditions for pedestrians, see charts on the following pages. At a minimum, an upgrade of pedestrian facilities are recommended to provide a comfortable area for pedestrians as well as amenities to provide for pedestrian comfort. Sidewalk connections and ADA accessible sidewalk ramps at all corners should be installed. Barriers between traffic and pedestrians should be added where possible to create a comfortable walking environment. The following list highlights recommendations listed within the MAG Pedestrian Policies and Design Guidelines, and are important guidelines applied universally to this project to achieve minimal pedestrian facilities and increase pedestrian comfort:

- a 6-foot wide walkway, visually and functionally separate from the path of vehicles;
- a walkway surface that is smooth, slip-resistant and without cracks, indents, or steep grades;
- clear of protruding objects;
- walkways that go around driveway crossings;
- all intersection corners and changes in elevation have ramps;
- the walkway is physically separated from vehicular traffic by at least one vertical or horizontal elements;
- at least one footcandle of lighting at intersections and crosswalks;
- pedestrian crossings

*Photo: Driveway Crossing Example*

with vehicular traffic have a defined crosswalk;
- traffic signals are timed for a walking speed of 2.8 feet per second;
- minimum 50 percent shade coverage along the route and at gathering nodes.

These improvements will enhance the overall pedestrian environment along the corridor and will have the following benefits.

### A. Access/Connectivity Benefit

Continuous sidewalks and ADA ramps will allow for uninterrupted sidewalks and ADA ramps. Accessible movement on both sides of the street increasing access to locations along each side. The routes will be brought up to ADA standards and become accessible to everyone.

### B. Environmental Benefit

Physical activities, such as walking, running, and roller blading, to local destination points will increase as a response to a continuous route. Research has indicated that people are more likely to walk to local destination facilities when they feel safe and not challenged.
Less carbon emissions and an overall improvement in the air quality will be a result of offering alternative modes of transportation.

## 3.5 Land Acquisition

No new right-of-way will be acquired as part of the recommendations included in this report. As such, the method and estimate of cost for acquisition and preparation for redevelopment have not been developed. Additionally since no acquisition is identified, there will not be any proceeds of revenues from its disposal to developers.

Additional improvements are discussed in Section 4 of this study.

## 3.6 Pedestrian Need and Latent Demand

In order to further explore the opportunities and challenges that exist along 3rd Street from Indian School Road to McDowell Road, and meet the requirements set by MAG for a pedestrian improvement study, the following latent demand assessment and roadside pedestrian conditions assessments were completed. Based on these assessments, 3rd Street ranks as a "Destination" street with a high latent demand and has a pedestrian Level of Service C. Thus the project area can be categorized as a "Moderate Priority" for pedestrian improvements outlined above and in Section 4 of this study.

| Chart 3-1: Intuitive Approach Latent Demand Assessment | | | |
|---|---|---|---|
| **Characteristics** | **Variable within Pedestrian TAZ (1/4 mile of the project Site)** | **Possible Scores** | **Project Scores** |
| ***1) Land Use Mix*** (residential densities, retail, office, public, quasi-public, industrial, other. Agricultural and inaccessible open space not counted as a land use) | 5 or more land uses | 3 | **3** |
| | 2 - 4land uses | 2 | - |
| | 1 land use | 1 | - |
| | Agricultural or inaccessible open spaces | 0 | - |
| ***2) Public Schools and Universities*** | 4000 + students | 3 | - |
| | 1500 - 3999 students | 2 | **2** |
| | < 1499 students | 1 | - |
| | No schools | 0 | - |
| ***3) Public Facilities*** | 3 or more facilities | 3 | **3** |
| | 2 facilities | 2 | - |
| | 1 facility | 1 | - |
| | No facilities | 0 | - |
| ***4) Public Parks*** | Regional park | 3 | **3** |
| | Community park | 2 | - |
| | Neighborhood park | 1 | - |
| | No parks | 0 | - |
| ***5) Urban Trails and Bikeways*** | Regional trail or bikeway | 3 | - |
| | Community trail or bikeway | 2 | - |
| | Local trail or bikeway | 1 | **1** |
| | No trail or bikeway | 0 | - |
| ***6) Population Density (Dwelling Units per Acre)*** | 8 + DU/AC | 3 | **3** |
| | 4 - 8 DU/AC | 2 | - |
| | < 4 DU/AC | 1 | - |
| ***7) Income Level (Annual Household)*** | < $18,600 | 3 | - |
| | $18,600 - $42,300 | 2 | **2** |
| | $42,300 or more | 1 | - |
| ***8) Age Demographics*** | Area has many young and/or many older pedestrians | 3 | - |
| | Area has average number of young and/or older pedestrians | 2 | **2** |
| | Area has few young and/or older pedestrians | 1 | - |

| Chart 3-1: Intuitive Approach Latent Demand Assessment | | | |
|---|---|---|---|
| **Characteristics** | **Variable within Pedestrian TAZ (1/4 mile of the project Site)** | **Possible Scores** | **Project Scores** |
| ***9) Bus Stop*** | More than one | 3 | **3** |
| | One | 2 | - |
| | None | 1 | - |
| ***10) Employment Values Within MAG's Traffic Analysis Zonal Data (Jobs Per Square Mile)*** | 4,000 or more | 3 | **3** |
| | 1,500 - 4,000 | 2 | - |
| | < 1,500 | 1 | - |
| ***11) Trailhead And Park And Ride Lots*** | > 100 parking spaces | 3 | - |
| | 50 - 99 parking spaces | 2 | - |
| | < 50 parking spaces | 1 | - |
| | No trail head or park and ride lots | | **0** |
| ***12) Bus Or Light Rail Transit Station*** | Bus and light rail transit station | 3 | **3** |
| | Bus or light rail transit station | 2 | - |
| | No station | 1 | - |
| ***12) Light Rail Transit Stop*** | More than one | 3 | **3** |
| | One | 2 | - |
| | None | 1 | - |
| ***Total*** | | 42 | **31** |

***Score of 29-42 = Destination =*** Highest latent demand = areas of high intensity with a wide variety of land uses= downtowns, major university campuses, areas around large regional shopping malls, newly built "town centers".
***Score of 22-28 = Comfort =*** Moderate latent demand = high intensity areas with a single or limited mix of land uses.
***Score of 0-21 = Safety =*** Low latent demand - areas of low to medium intensity with little to no mix of land uses

## Chart 3-2: Intuitive Approach Roadside Pedestrian Conditions Assessment

| Characteristics | Variable | Possible Scores | Project Scores |
|---|---|---|---|
| ***1) Amount of Motor Vehicle Traffic*** | < 10,000 Average Daily Traffic | 3 | - |
| | 10,000 to 17,500 ADT | 2 | - |
| | 17,501 to 30,000 ADT | 1 | **2** |
| | 30,001 ADT | 0 | - |
| ***2) Posted Speed of Motor Vehicle Traffic*** | < 30 mph | 3 | - |
| | 30 - 40 mph | 2 | **2** |
| | 41 - 50 mph | 1 | - |
| | > 55 mph | 0 | - |
| ***3) Percentage of Heavy Vehicles (Trucks)*** | < 2% | 3 | **3** |
| | 2 - 4% | 2 | - |
| | > 4% | 1 | - |
| | | 0 | - |
| ***4) Number of Travel Lanes*** | 1 lane | 3 | - |
| | 2 - 3 lanes | 2 | - |
| | 4 lanes | 1 | **1** |
| | 6 lanes | 0 | - |
| ***5) Presence of a Paved Shoulder, Bike Lane, or On-street Parking*** | Paved shoulder w/parking | 3 | - |
| | Paved shoulder w/bike lane | 2 | - |
| | Paved shoulder of min. 4' width | 1 | - |
| | No paved shoulder | 0 | **0** |
| ***6) Width of Buffer Between Sidewalk and Roadway*** | 0' | 3 | - |
| | 11' - 49' | 2 | - |
| | 5' - 10' | 1 | **1*** |
| | < 4' | 0 | - |
| ***7) Trees or Other "Protective" Barriers in the Buffer*** | < 10' on-center or continuous | 3 | - |
| | 11' - 40' on-center | 2 | - |
| * Buffer widths and trees are averaged over the entire site. Some areas do not have trees or buffers. | 41' - 60' on-center | 1 | **1*** |
| | > 60' on-center | 0 | - |
| | | | |
| ***Total*** | | 21 | **10** |

***Score of 16-21 = Level of Service A = Destination =*** the best conditions for pedestrians.
***Score of 12-15 = Level of Service B = Comfort =*** above average conditions for pedestrians.
***Score of 8-11 = Level of Service C = Safety =*** average conditions for pedestrians.
***Score of 4-8 = Level of Service D = Safety =*** below average conditions for pedestrians.
***Score of < 4 = Level of Service F = Safety =*** worst conditions for pedestrians.

THIS PAGE INTENTIONALLY LEFT BLANK

# Recommendations and Design Guidelines

# 4

THIS PAGE INTENTIONALLY LEFT BLANK

# Recommendations and Design Guidelines

4

This section outlines the recommendations and design guidelines for 3rd Street Promenade. 1) The overall vision; 2) The description of elements to be applied to the whole corridor; and 3) The final section outlines how these guidelines are to be applied to each of the five (5) character areas of 3rd Street Promenade.

## 4.1 Overall Vision

Through the public outreach process outlined in Section 1, the following vision for 3rd Street Promenade was developed:

***A signature street that is a pedestrian-friendly corridor supporting a live, work, and play mixed-use district.***

There are social, economic, and environmental benefits of pedestrian-friendly streets. They promote a live-work-play environment through the incorporation of such elements as on-street parking, street trees, and generous sidewalks. Additionally, adjacent development provides appeal to people on foot. Such establishments are encouraged on 3rd Street. However, the vision for 3rd Street Promenade is not only to become a pedestrian street, but instead, to become a signature corridor and a destination.

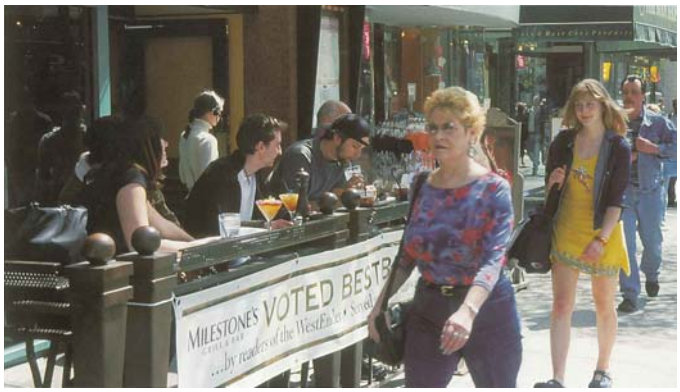



*Photo: Outdoor Seating and Vibrant Street Life*

There are several factors that contribute to making a signature corridor that go beyond how a corridor looks.

*Photo: Street Fair in Downtown Tempe*

Signature corridors accommodate a mix of travel modes; including pedestrian, bicyclist, transit, and motorist. They reinforce effective relationships between the public right-of-way and adjacent private property. They serve as a community core for parades, festivals, marathons, races, and other special events. They are full of color and life. Finally, they are remembered for their vegetation and enhanced quality of life.

The overall vision for 3rd Street Promenade is supported by combinations of continuous elements that develop a signature corridor that reads as one district while also incorporating design concepts that provide a level of distinction within each of the five character areas: North Gateway, Urban Corridor, Transition Corridor, Historic Corridor, and the South Gateway. These character areas, which are described in detail in Section 2, respond to surrounding existing land use, along with road geometry, and traffic patterns. They respond to the existing form, dimensions, and building setbacks within each area. They also create interest and destinations for cyclists and pedestrians. Most importantly the areas work together to create a unique identity for the corridor.

The establishment of this corridor as a signature street will rely on public-private partnerships developed between the City of Phoenix (COP) and the 3rd Street Business Alliance. This study makes recommendations for

improvements that can be implemented and maintained within the City right-of-way. Other improvements, including incorporation of sidewalk cafes, proposed within this section may not be maintained by the City and the introduction of non-standard elements will need to be maintained by property owners and/or 3rd Street Business Alliance to create destinations and retail for users as well as reinforce the character and connectivity established by the streetscape.

## 4.2 Corridor Design

The elements incorporated into the streetscape design will develop a character for 3rd Street Promenade that supports the overall vision. These elements will create an identity for the corridor while also providing a level of distinction for each character area. The following sections outline the major elements to be incorporated into the design guidelines.

### *A. Street Geometry - A Road Diet*

The existing street geometry of two lanes in each direction and a center left turn lane (2+1+2) has a carrying capacity that exceeds the current volume of traffic that exist. Based on this information and on the traffic study conducted in 2009 discussed in Section 2.1.G, 3rd Street is an ideal candidate for a Road Diet. Therefore, it is recommended that the street geometry be adjusted to one lane in each direction, a center left turn lane (1+1+1), and bike lanes in each direction. However, to maintain capacity at intersections, the current geometry will be retained at McDowell Road, Thomas Road, Osborn Road, and Indian School Road. The bike lanes at these locations will need to transition into the intersection as outlined in Section 4.2.H.

Due to cost constraints, the existing curbs will be retained. Thus, while there will be a road diet in the number of lanes, the overall width of asphalt will remain the same as existing. Lanes will be widened and restriped from the current minimum of 10-foot wide to a minimum of 14-foot wide. A minimum 6-foot wide bike lane will be provided in each direction. Figures 4.1 and 4.2 illustrate typical plan views of the new lane geometry for the corridor.

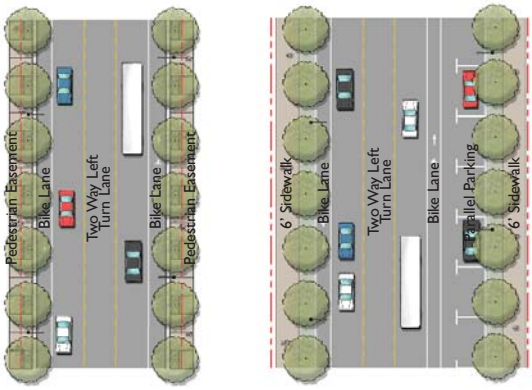



*Figure 4.1: Typical Street Geometry Plans*

Since the overall curb to curb street width will remain the same, the new geometry will present opportunities for additional parallel parking. This is encouraged at locations where the parallel parking supports businesses and the existing curb to curb dimensions allow for its inclusion. Existing angled parking should be removed and replaced with parallel parking. As redevelopment occurs along the corridor, it is recommended that new businesses identify opportunities for and incorporate on-street parallel parking into the redevelopment plans. However, parallel parking should not be included at the detriment of sidewalk width or bike lane width. Several existing locations have been identified for parallel parking along the street.

### *B. Sidewalk Width*

Sidewalks within the 3rd Street Promenade boundary should have a minimum 6-foot unobstructed width. Sidewalks in the historic area that are less then 6 feet wide, should be maintained with an additional width that

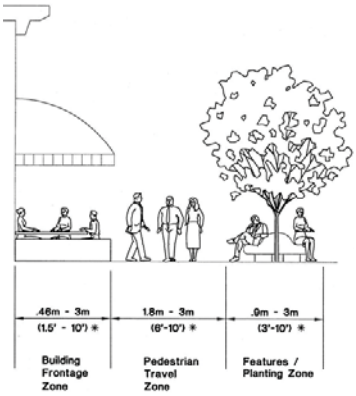



*Figure 4-2: Pedestrian/Amenities/ Building Zones*

is added to achieve the 6-foot minimum requirement. In areas that do not pass through historic districts, but are limited by right-of-way width, a 10-foot wide sidewalk beginning at back of curb is desirable. In this condition, 4'x8' tree grates should be used to provide street trees.

## C. Street Trees

Trees can help define and unify the street as a district. As they mature, they create a canopy over the street, providing shade and aesthetic appeal.

It is important to consider the quality of shade in the summer and the importance of sunlight in the cooler months. History has shown that disease and pests can destroy beautifully tree-lined streets when planted as a monoculture. For these reasons, 3rd Street Promenade should be planted with a minimum of three species of street trees. At least one species should be evergreen to provide a lush appearance year-round while the others should be deciduous to provide dense shade in the summer while allowing for sun in cooler months. See Street Tree Recommendations Chart 4-1.

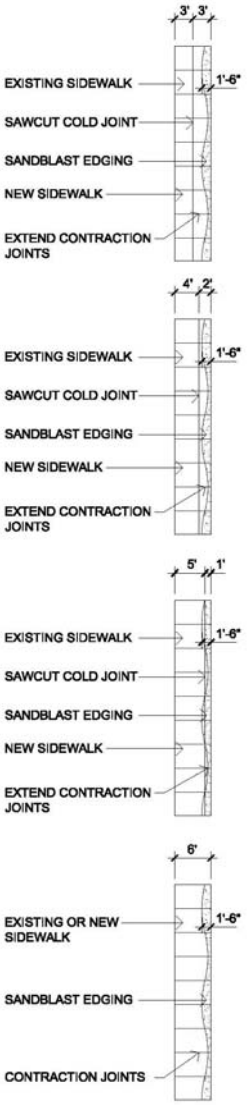



*Figure 4-3: Sidewalk retrofit options*

## D. Planting Strips and Tree Grates

Providing adequate space for street trees is important to establish healthy trees and reduce overall streetscape maintenance. This will be accomplished by providing either planting strips where space is available, or introduction of tree grates, allowing for a continuous row of street trees. Additionally, as discussed in the next section, the planting strips and tree grates also provide a buffer between the pedestrians and motorists.

### Planting Strips

Planting areas already exist in several places along 3rd Street, between the back of curb and sidewalk, creating a welcome buffer for pedestrians. Some are as wide as 15 feet in the historic districts along 3rd Street and some extra areas contain turf and can remain if in a historic district and maintained by the property owner. Planting strips not within the historic neighborhoods, should include decomposed granite and approved ADWR Low Water-Use plant material, if not maintained by property owners. The minimum width for proposed planting areas should be 6 feet, but will vary in size for the length of the project area.

### Tree Grates

**Chart 4-1: Street Tree Recommendations**

| Photo | Name | Characteristics |
|---|---|---|
| | Quercus virginiana<br>Southern Live Oak | Evergreen<br>Single Trunk<br>40' Mature Spread |
| | Pistacia x 'Red Push'<br>Red Push Pistache | Deciduous<br>Single Trunk<br>40' Mature Spread |
| | Ulmus parvifolia cv. 'Sempervirens'.<br>Chinese Evergreen Elm | Deciduous<br>Single Trunk<br>40' Mature Spread |

*Chart 4-1: Recommended Street Trees*

*Photo: Tree Grates in Sidewalk*

Tree grates should be used in areas of limited right-of-way where sidewalks may not be set back to achieve the minimum width for a planting strip. Evenly spaced trees in grates should create a buffer for pedestrians.

## E. Site Furnishings

Site furnishings will help articulate the character difference between the more residential southern section of the 3rd Street Promenade and the higher density character of the northern section. In the three most northern zones, the North Gateway to the Transition Corridor, the site furnishings, including benches, trash receptacles, and tree grates, should have sleek contemporary lines suggesting modern simplicity and an urban environment. In both of the two southern zones, the Historic Core to the South Gateway, the bench type should be similar or preferably the same to the site furnishings in the other three sections. However, the materials or color of the site furnishings could be different to contrast the residential character of the southern zone.

*Furnishings: Contemporary Design with Perforated Metal and Wood for Historic Areas*

Adjacent businesses can bring a street to life by providing relatively small areas adjacent to the sidewalk for seating, shade, weather protection, and cafes. This study encourages businesses to develop these activities to help activate the streetscape.

In order for site furnishings to be installed within the right-of-way, the 3rd Street Business Alliance, or other entity, will need to develop a maintenance program for such items.

*Photo: Examples of Benches Adjacent to Footpath*

## F. Wayfinding

Wayfinding signs are used to help navigate visitors through the district corridor and define the district's boundary. They promote the area's identity and help create a sense of place. Businesses can use this identification system for cooperative district advertising and event sponsorship.

In order to serve as a unifying element, the wayfinding brand created for 3rd Street Promenade should be the same throughout the whole corridor. This study recommends wayfinding signage including banners, orientation maps, and directional signs. Wayfinding would be mounted on street light poles or freestanding poles.

As with the site furnishings, in order for the wayfinding system program to be installed within the right-of-way, the 3rd Street Business Alliance or other entity, will need to develop a maintenance program for such items.

*Figure 4.4: Example of Wayfinding Elements*

## G. Lighting

Pedestrian level lighting should be added which encourages pedestrian activity into the evening hours. They can be installed in addition to taller street lights. This study proposes the incorporation of pedestrian lighting along both sides of 3rd Street Promenade.

Pedestrian fixtures should be installed on existing street/utility light poles, at a minimum and paired across the street. New pedestrian scale light poles should be located mid-way between existing poles. Since APS maintains the lighting along the corridor, it is recommended that one of their standard fixtures, the Colonial Salem fixture manufactured by General Electric, be used for ease of replacement and maintenance. This fixture is available with induction lighting which will provide a long lasting, white light for the corridor. Since lighting technology is rapidly changing, studyies should be conducted to see if the fixtures could be modified to incorporate LED when technology is available. This will help reduce energy cost and be more sustainable.

*Photo: Standard APS Colonial Salem Light Fixture for Pedestrian Lighting*

Currently, APS and the City of Phoenix are testing a BetaLED fixture as a street light. If the testing goes well, 3rd Street Promenade should be considered a candidate for replacement of the existing cobra head fixture with this new fixture. Since LED also produces a white light, this would help change the nighttime character of the street and reinforce the concept of a signature corridor, both day and night.

As an alternative option, Metal Halide fixtures could replace the existing High Pressure Sodium fixtures and still accomplish the change in light color. This can easily be accomplished with pedestrian lights, but in order to modify the existing street lights, a full photometric analysis will be required to determine if modifying the fixture type will still provide the required foot-candles for 3rd Street Promenade. Also, if a public-private partnership, and/or maintenance agreement can be developed between the 3rd Street Business Alliance and the City, a more contemporary pedestrian fixture could be installed.

Finally, to comply with standards set by the Historic Preservation Office, street lights that resemble historic street lights will not be used unless it is proven that historic lighting existed along any part of 3rd Street Promenade. Therefore, in a similar role as "wayfinding", lighting along 3rd Street will serve to define the boundaries of 3rd Street Promenade and serve as a cohesive element within the corridor.

All new lighting shall comply with dark sky ordinances and recommendations.

## H. Bike Lanes

Bicycle facilities are recommended as a way to help unify the 3rd Street Promenade corridor. They will assist in creating greater comfort for pedestrians, by providing a buffer between them and vehicular traffic and possibly slow traffic by causing street width to "appear" narrow. They also can increase business customer base and provide better connectivity between places of origin and destination.

*Photo: Example of Bicycle Lane at Intersection*

Running parallel with the light rail on Central Avenue, the bicycle lanes on 3rd Street will also support the multi-modal transportation options on the east side, similar to the way 3rd Avenue bicycle lanes support light rail on the west side. They will provide links between the regional transportation system, neighborhoods, schools, and important regional destinations such as Indian School Park, Margaret T. Hance Park, and ASU Downtown Campus.

Finally, they support the concept of developing 3rd Street Promenade as a multi-modal corridor. They will provide residents of the adjacent neighborhood with an additional mode of transportation other than vehicles or light rail for commuting into Downtown Phoenix.

Two types of bicycle facilities are proposed for the 3rd Street corridor, dedicated striped lanes and shared lane markings. While the geometry will allow for dedicated striped bicycle lanes throughout much of the corridor, at major intersections, Indian School Road, Osborn Road, Thomas Road, and McDowell Road, the intersection configuration does not provide adequate space for dedicated bicycle lanes. There are several methods allowed to incorporate bicycle facilities at these intersections. The following list and Chart (4-2) illustrates the options for these intersections and discuss the pros and cons of each option:

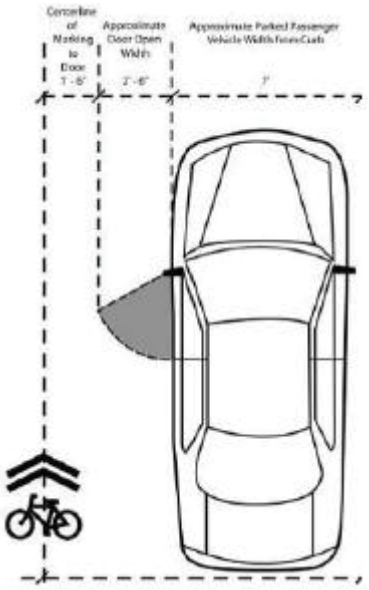


*Figure 4.5: Bicycle Lanes Need to be Wider When Next to Parallel Parking*

- Remove right turn lane at the intersection and re-stripe intersection with bike lanes (traffic study and striping study required);
- Merge bicycle traffic with vehicular traffic by using a shared lane marking;
- Remove curb and widen the intersections as needed to accommodate bike lanes; or
- Provide bike ramps on either side of the street intersections with wider sidewalks/multi-use paths so that cyclists can exit out of the roadway and cross at a crosswalk.

**Chart 4-2: Modifying Intersections to Accommodate Bike Lanes Evaluation**

| Options | Pros | Cons |
|---|---|---|
| Eliminate right turn lane and restripe to include bike lane. | Limited costs include required COP studies and cost of restriping.<br><br>Separation maintained between bicycles and vehicles. | Traffic flow will be impacted. |
| Merge bicycle traffic with vehicular traffic at intersections and stripe lanes with Shared Lane Markings. | Limited costs include required COP studies and cost of restriping.<br><br>Traffic flow is not impacted. | Consistent separation of transportation modes offers the highest level of safety. Safety could be compromised. |
| Remove curb and widen intersections to accommodate bike lanes. | Separation maintained between bicycles and vehicles.<br><br>Traffic flow is not impacted. | Cost of project must include curb removal and replacement and potential relocation of other infrastructure. |
| Provide ramps to sidewalks before intersections to allow bicycles to exit road and cross intersections at pedestrian crosswalk. | Separation maintained between bicycles, pedestrians, and vehicles.<br><br>Traffic flow is not impacted. | Cost of project must include ramp construction. |

*Chart 4-2: Bike Lanes at Major Intersections*

Since incorporation of bicycle lanes will have an impact on the current lane configuration, particularly the left turn lanes, further study is necessary to determine feasibility of incorporating bicycle lanes or routes on 3rd Street. Additionally, modification to intersections could potentially require adjustments to the traffic signals.

## I. Pedestrian Crossings

Providing crossing facilities at major and minor intersections is an important element in the development of a pedestrian-friendly corridor and multi-modal street. Pedestrians of all mobilities must have enough time to safely and comfortably cross the street in a timely manner. Crosswalks should be provided at all signalized intersections and additional studies should be undertaken to verify if additional crossings can be provided at minor intersections associated with desired paths from light rail stops to points of destination along the corridor. Key points include:

- At Clarendon to provide better connectivity between businesses on Central Avenue and 3rd Street and the light rail stop between Osborn and Clarendon.
- At Hoover Street to accommodate potential increase in pedestrian traffic from students using light rail stop at Encanto Avenue.
- At Coronado Road to provide better connectivity between the Phoenix Art Museum and 3rd Street.

These crossings should be developed as two stage crossings as illustrated in Figure 4.7.

### Crosswalks

Crosswalks are designated parts of the roadways used by pedestrians to cross the street. They are most effective when easily identified by drivers and pedestrians. Any improvements to the crosswalks and their locations must follow current City of Phoenix guidelines and standards.

At a minimum, additional striped crosswalks are proposed at all controlled intersections. This report also recommends that enhanced designs be incorporated at 1/4 mile intersections. These designs will help distinguish the corridor through the use of various decorative crossing treatment or textured surfaces. These could include text, images, art patterns, and/or colors and should be explored as a way of enhancing the streetscape character.

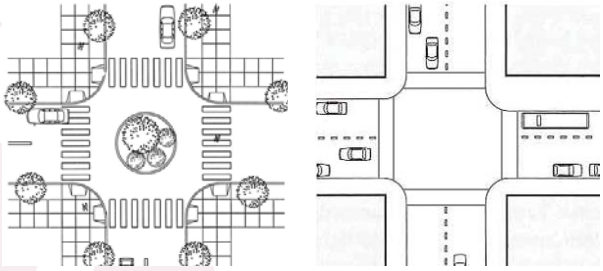


*Figure 4.6 Examples of Striped Crossings at Intersections.*
*Note: High Visibility Crosswalks should be Used Only as Directed by COP*

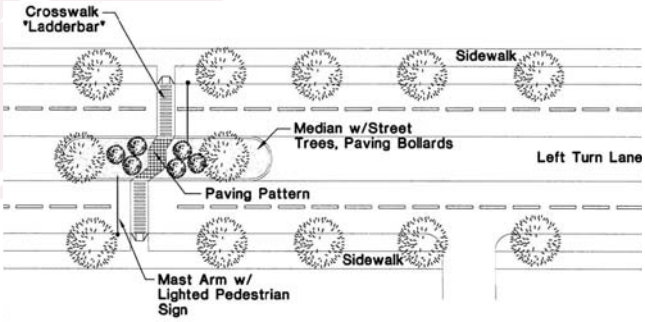



*Figure 4.7: Two-Stage Crossing*

*Photo: Two Stage Crossing in London*

This study also recommends exploring two stage crossings at larger intersections. A two-stage crosswalk requires the construction of a median refuge so that pedestrians may cross half of the street at a time and wait in the protected median space to cross the

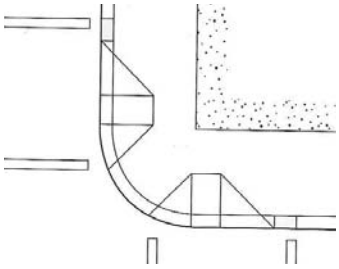


*Figure 4.8: Directional Ramps*

remainder of the street. The City of Phoenix has installed several two stage crossings that consist of concrete medians surrounded with signs and pedestrian barriers. Pedestrian signal heads should incorporate count down timers per MUCTD and COP policy so that pedestrians are aware of the signal timing and can cross the street safely.

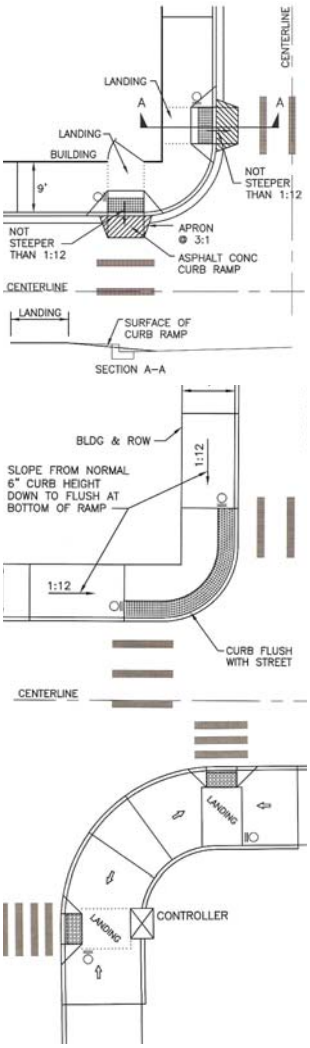



*Figure 4.9: Examples of Sidewalk Ramp Retrofits in Areas with Right-of-Way and Utility Constraints.*

### *Sidewalk Ramps*

This study recommends the incorporation of directional ramps at all corners where feasible and where conflicts do not exist. Directional ramps, also called perpendicular ramps, consist of two ramps installed at a corner on a 90 degree angle from each other. These types of ramps allow foot traffic to easily continue on course without changing direction.

Ramps should comply with current MAG and City of Phoenix standards, and incorporate detectable warning pavers at the base of the ramp.

It is recognized that installation of directional ramps will be difficult, depending on existing right-of-way and utility conflicts at each corner. When designing the sidewalk ramps, current COP standards shall be used. It is also recommended that the design reference the special report developed by Public Rights-of-Way Access Advisory Committee, "Accessible Public Rights-of-Way, Planning and Designing for Alterations". This report has developed several design solutions on retrofitting ramps into urban conditions with right-of-way, utility, and other constraints that may be incorporated while still maintaining COP requirements.

## 4.3 Key Corridor Principles

Improving the quality of life along 3rd Street Promenade by making it a pedestrian-friendly corridor that supports a live, work, play mixed-use district is the main goal of this study. By implementing the guidelines outlined in Section 3.4 of this report, pedestrian improvements within the right-of-way will contribute to these efforts which are supported by the 3rd Street Business Alliance and surrounding residents. Additionally, as redevelopment and improvements occur, incorporating "Green Street" principles into these improvements will develop a unique corridor that creates a sense of place for the community.

There are many different definitions of a Green Street ranging from developing streets to dealing with storm water to creating streets that promote and advocate for the use of alternative transportation. 3rd Street Promenade will draw upon key principles of Green Streets from around the United States to promote a desert sustainable corridor. Key components in developing 3rd Street Promenade into a vibrant "Green Street" include efforts toward environmental sustainability, climate mitigation, pedestrian comfort and quality of life, and business viability.

### *A. Environmental Sustainability*

A recent trend in creating signature streets relates to the integration of environmentally-friendly and sustainable principles such as recycled materials, energy efficient lighting, water harvesting, and low water consuming

and native plant material. Environmentally responsible design conserves energy, responds to climate, and provides comfortable and attractive conditions for corridor travelers. Several principles are included in these recommendations:

- Encourages alternative modes of transportation, reducing carbon emissions.
- Reduce suburban sprawl by providing amenities along the corridor.
- Use of locally manufactured material/recycled materials for site furnishings.
- Environmentally-friendly materials and manufacturers.
- Native plant material to reduce maintenance and water consumption.
- Energy efficient lighting.
- Heat attenuation.
- Longevity and durability.

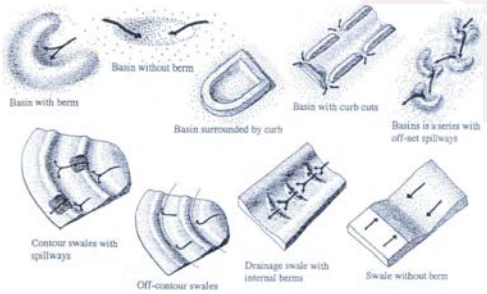



*Figure 4.10: Water Harvesting Concepts*

3rd Street Promenade is envisioned as an area that values the environment and is aware of the climate challenges that face our urban core. It will be an area that values the history of the land on which it is built. There is an opportunity to apply sustainability principles to the 3rd Street Promenade where possible and utilize the incorporated sustainable principles as an educational tool throughout the corridor. Additional streetscape elements that contribute to creating an environmentally-friendly and sustainable streetscape solution can be incorporated throughout the corridor design through the following principles.

### Porous Material

While cost constraints limit the ability to reconstruct the street in the near-term, a long-term goal for this project could be to include reconstruction of portions of the street to include porous pavements. Locations where this could occur could be in parallel parking bays, bicycle lanes, and two way left turning lane. These could be constructed with porous concrete or porous asphalt to allow for ease of maintenance and construction.

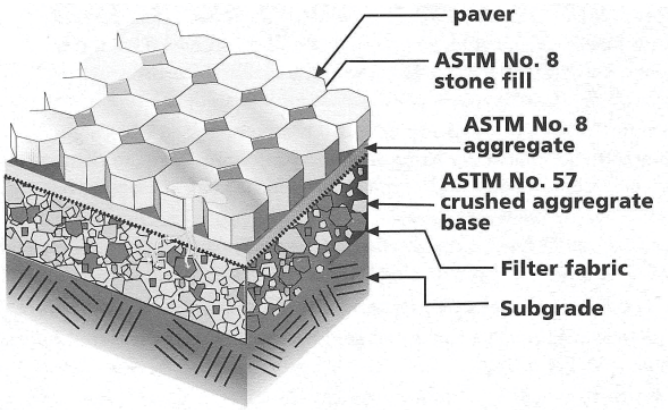



*Figure 4.11: Permeable Paving*

In addition to the road bed, porous concrete could also be incorporated into the sidewalk. Either as the new sidewalk portion as illustrated in Figure 4-3, or as two complete concrete panels at tree locations. This would allow for water and air to circulate through the pavement and promote tree root growth. As an alternative, brick or concrete pavers set on a sand setting bed as illustrated in Figure 4-11 would be placed adjacent to the trees.

*Photo: Pervious Concrete*

### Recycled and Recyclable Materials

The use of recycled materials and recyclable products is an important tool of sustainability. For example, metal is the world's most recycled material and it can be used throughout the corridor in streetscape furnishings.

*Photo Use of Recycled and Environmentally-friendly Materials in Site Features*

### Environmentally-friendly Materials/ Manufacturers

Use of environmentally-friendly materials is important. For example, finishes should be free of heavy metals and manufacturers should be known for their environmentally-friendly practices. Proposed materials should reinforce and demonstrate environmentally-friendly practices and guidelines.

### Native and Arid Adaptive Species and Water Efficiency, Reuse, and Conservation

All plant material to be used within the public realm of 3rd Street should be desert and heat tolerant landscape materials. Plant material should be selected from the approved list outlined in the Arizona Department of Water Resources Low Water Use and Drought Tolerant Plant List. The proper use of water within the streetscape setting will allow plant material to become established and acclimated to this unique and harsh environment. Irrigation can be used to maintain the plant material, however, rain harvesting and reuse techniques will be implemented to supplement the irrigation system and educate the public in the benefits of using rain water and reuse.

### Longevity and Durability

Another sustainability principle to be incorporated into the development is the use of the materials, finishes, and products that are long-lasting and very durable. These materials, finishes, and products should require minimal maintenance and should be easy to repair, replace, or refinish if necessary. They should be resistant to damage, graffiti, and long-term wear typical of urban conditions.

### Local Materials

In addition to using environmentally-friendly materials, it is also important to use materials manufactured locally or within the region. The goal of this principle is to limit the environmental cost related to transportation of materials from far away places.

### Energy

Energy consumption within the streetscape is an opportunity to institute and illustrate sustainability principles along 3rd Street Promenade. While some of the other principles illustrated above are more integrated into the streetscape and thus less noticeable to the general public, energy consumption and use of renewable energy elements are very visible and can be used to educate the public about energy consumption. The use of small wind turbines and solar panels incorporated into built elements such as shelters, arcades, and monuments, can harvest the power of wind and sun to power pedestrian and accent lighting and irrigation adjacent to these elements.

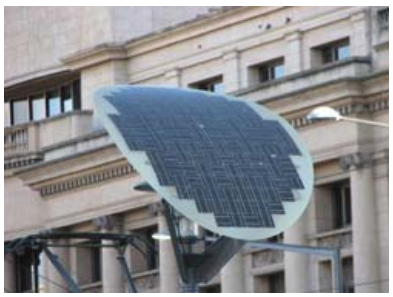


*Photo: Solar Panel for Pedestrian Lighting*

When pedestrian light fixtures are incorporated into the streetscape design through private development, they could utilize solar panels incorporated into the site plan to power the fixtures, with approval from COP. These panels could be incorporated into the light fixture themselves, or with adjacent architecture

such as arcades, shade canopies, or building facades. Development will need to be coordinated with the City on location of necessary utility infrastructure such as battery cabinets, conduit, transformers, and other elements necessary to power the pedestrian lighting.

### Heat Attenuation

3rd Street Promenade is affected by reflective heat from the concrete and asphalt. During the cool months it can benefit users, but during the hot months, it can make an already uncomfortable temperature more difficult to tolerate. Minimizing concrete and asphalt while maximizing vegetation within and adjacent to the right-of-way will help create a more comfortable macro-climate. Providing consistent shade and creating areas for rest will also make the corridor more comfortable in hot months. Finally, the use of materials for items such as benches that resist high temperatures in the hot months will also make the corridor more usable and comfortable.

## B. Climate Mitigation

The southwest desert climate of Phoenix requires unique approaches to the streetscape design. Particular attention should be paid to providing comfort for pedestrians. Several key concepts to mitigate the climate have been developed and are as follows.

*Illustrative: Example of Shade Structures*

### Climate Protection for Pedestrians

Pedestrians and other travelers along 3rd Street Promenade should be made as comfortable as possible. The introduction of shade and shelter in as many locations as possible will encourage use of the corridor. Shade should be provided primarily through the incorporation of trees, but can also include building canopies, building or freestanding arcades, and shade structures. When locating these elements, attention should be paid to existing urban infrastructure and pedestrian mobility.

*Photo: Example of Building Canopies*

### Landscaping

Trees, vertical green screens, and landscaping not only provide shade along the corridor, but also provide macro-climatic cooling, mitigating the effects of the extreme summer temperatures in the region. Trees and vegetation give off water through transpiration that evaporates and cools surfaces and their surrounding air making it more comfortable for users.

### Colors

Incorporation of color lends a level of distinction to the corridor, whether incorporated in pavement, vegetation, or shade canopies. Colors also have an effect on the climate. Colors that are light reflect heat rather then absorb it as darker colors do. Use of lighter colors for pavement can help reduce the heat island effect and improve air quality. For the 3rd Street Promenade it is recommended that lighter colored paving colors be selected for their high solar reflectance index which helps reduce the heat island effect.

### Materials

Similar to colors, different materials absorb and release heat differently affecting the surrounding environment. Studies conducted in the Phoenix area have illustrated that perforated metal is one of the coolest surfaces to sit on. Perforations allow air to circulate around the metal, and in combination with the use of lighter colored metal, this helps mitigate heat retention. Analysis should be done when selecting site furnishings and paving material

| Chart 4-3: Bench Material Surface Temperatures | | | | | | |
|---|---|---|---|---|---|---|
| Product | Surface Temp °F | Color | Ambient Temp °F | Relative Humidity | Sky | Wind |
| Wood Bench (Ipe) | 161° | Dark Brown Stain | 104° | 28% | Clear | WNW at 6MPH |
| Off the Shelf Precast Concrete | 136°. | White | 104° | 28% | Clear | WNW at 6MPH |
| Taliesen Bench | 152° | Tan | 104° | 28% | Clear | WNW at 6MPH |
| Compressed Wood | 148° | Light Tan | 104° | 28% | Clear | WNW at 6MPH |
| Color Precast Concrete Bench | 149° | Dark Brown | 104° | 28% | Clear | WNW at 6MPH |
| Slatted Metal Bench | 137° | Black | 104° | 28% | Clear | WNW at 6MPH |
| Perforated Metal Bench | 138° | Brown | 104° | 28% | Clear | WNW at 6MPH |

*Chart 4-3: Bench Material Surface Temperatures: Source: Testing - Otak, Inc 2006, Temperature and Humidity - weather.com; Procedure: Using a Horiba Infrared Thermometer IT-330*

to mitigate excessive heat build up and provide comfort to users.

## C. Pedestrian Comfort and Quality of Life

Our public realm[1] directly influences our overall quality of life of our cities. Improvements to it have a direct impact on form, liveliness, and general quality of life. Enhancements to the public realm can create an environment that provides greater comfort for pedestrians, making an area more usable and inviting. Several key principles to enhance the public realm are included in the study. These include buffers between pedestrian and vehicular traffic, access management, shade, and inclusion of public art which are discussed below.

### Access Management

Access management is an important concept that helps create a safe and comfortable pedestrian-friendly environment. As adjacent properties develop, developers should consider the access points to their property in order to minimize the frequency pedestrians must cross through driveways. This will also help reduce the potential for conflicts between vehicles and pedestrians, making pedestrians feel more comfortable and safe.

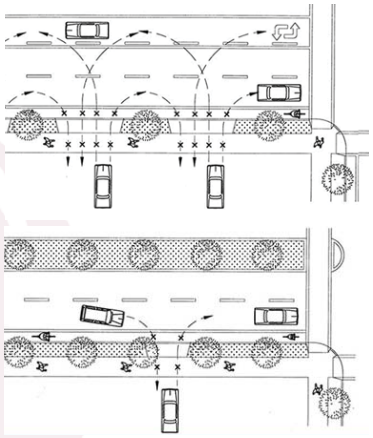


*Figure 4.12: Controlled Access*

### Buffers Between Pedestrians and Vehicular Traffic

Pedestrians feel more comfortable when a buffer exists between the sidewalk and moving traffic. Several corridor-wide elements have been incorporated to create an effective buffer, including planting strips and tree grates, bike lanes, on-street parking, and bulb-outs.

- Trees, planting strips, and tree grates provide a physical and visual buffer between pedestrians from traffic.
- Bike lanes buffer pedestrians from traffic, slow traffic by causing street width to "appear" narrow, increase business customer base, and increase connectivity.
- On-street Parking: Parallel parking can replace existing angled parking and provide a buffer from traffic for pedestrians.
- Bulb-outs are planting or hardscape divisions between parallel parking spaces and corners. They serve many purposes including a buffer between pedestrians and vehicular traffic and can provide enough space for trees and shade.

1 The public space, generally considered the space located between the property right-of-way and the roadway.

### Shade

Pedestrians should be made as comfortable as possible. The introduction of shade and shelter in as many locations as possible will encourage pedestrians and other travelers to use the corridor. Several elements have been included in the design guidelines to assist with providing shade. These include:

- Trees: Evergreen trees will offer year-round protection while deciduous trees will allow warmth during cooler months of the year.
- Shade Structures: Freestanding shade structures should also be considered along the sidewalk or at intersections to provide shade for pedestrians as they wait to cross the street.
- Canopies and Arcades: As development occurs, new buildings should be encouraged to include canopies or arcades to provide shade on the adjacent sidewalk.

*Photo: Bulb-outs and on-street parking*

Design approaches to the shade structures and shelters must be sensitive to pedestrian mobility and accessibility needs, allowing for at least the minimum horizontal and vertical clear space requirements and maximizing clear space wherever possible.

### Public Art

3rd Street Promenade is an appropriate area for public art. As it continues to evolve, it will become a local neighborhood destination with high regional visibility due to the light rail and mixed-use buildings currently planned for this area. Public art could include items such as site furnishings, in-ground lights, shade structures, sculptures and light installations.

*Photo: Public Art Incorporated into Sidewalks*

### D. Business Viability

Blending 3rd Street Promenade cohesively with adjacent properties and businesses is an important objective of these design guidelines. Preserving vehicular access where needed, enhancing pedestrian access to businesses, relocating signs, preserving enhancing visibility to business signing, and blending landscape treatments along the streetscape with existing landscapes on adjacent properties are all important considerations.

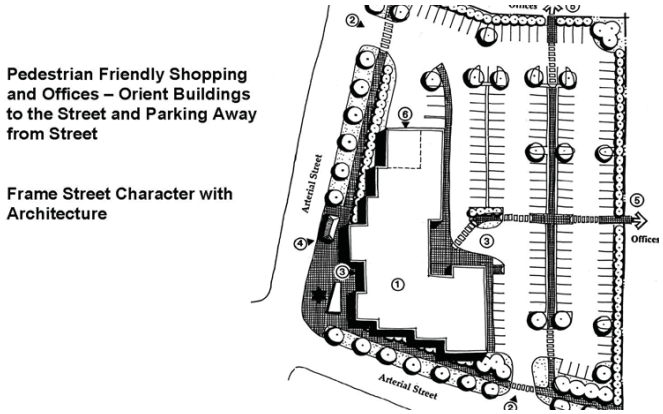



*Figure 4.13: Example of Pedestrian-friendly Development with Parking*

Landscape and streetscape design along business frontages should include enhancements, where possible, through the use of accent lighting, landscaping, and low seating walls, working in cooperation with adjacent property owners.

Opportunities for these types of improvements should be evaluated on a case-by-case basis in final design through coordination with adjacent property owners. If these types of improvements become infeasible due to budget availability, private property owners should be encouraged to install these improvements separately, following the design guidelines for the corridor to ensure consistency.

Street trees and landscaping should be arranged so that clear views of business signing are provided. These arrangements will allow for visibility windows to the businesses, including their primary signs and access ways.

### Parking

An important component for business viability is the incorporation of parking. If people, vehicles, and deliveries cannot easily get around 3rd Street Promenade, then visiting the area could become inconvenient. Providing a well-planned circulation and parking system can overcome this problem. As adjacent properties are developed, it is recommended that a parking study be performed for 3rd Street Promenade that ensures safe, convenient, and adequate parking areas that are not accessed directly off of 3rd Street. The parking areas should be linked with pedestrian access to business, public spaces, and commercial districts.

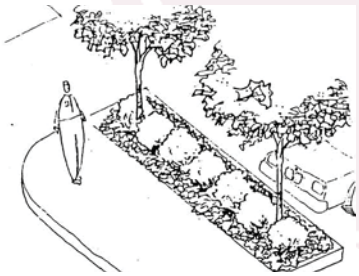


*Figure 4.14: Example of Buffer Between Parking and Sidewalk*

Developers should be encouraged to locate their buildings and entrances off of 3rd Street. If parking lots are incorporated into their site plans, buffers should be provided between the parking lots and sidewalks. Existing parking lot spaces that exist within the right-of-way should be removed. Buffers, either landscaping that is maintained by the property owner, or site walls, should be added between existing parking lots and sidewalks.

Additionally, the potential exists to reorganize on-street parking from the existing angled parking, which often projects into the pedestrian zone and creates an uncomfortable feeling for pedestrians, to parallel parking, which provides a buffer between pedestrians and moving vehicles. Additionally, there are several other locations where parallel parking can be incorporated, expanding the overall total on-street parking within the corridor. This parking is important and good for businesses, allowing parking directly in front of their business.

**Parallel Parking Provides an Excellent Buffer between Traffic and Pedestrians**

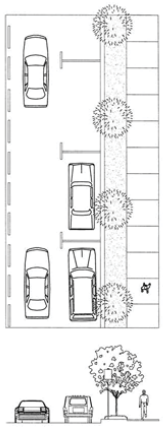


*Figure 4.15 Example of Parallel Parking*

*Illustrative: Example of mixed-use development with parallel parking*

### Mixed-Use Development

A key principle to changing the character of 3rd Street and accomplishing the overall vision listed on Page 4-1, is to encourage redevelopment along the corridor to be mixed use. This type of development encourages the incorporation of three or more

significant uses which support one another and are integrated into a coherent building or site. Along 3rd Street it is recommended that these uses include retail, office, residential, and commercial uses. Mixed-use redevelopment will support the vision in the following ways:

- Activate the urban areas throughout 3rd Street.
- Create more uses during all hours of the day.
- Increase housing options for diverse household types.
- Reduce dependence on automobiles.
- Provide opportunities for alternative travel options.
- Develop a sense of place.

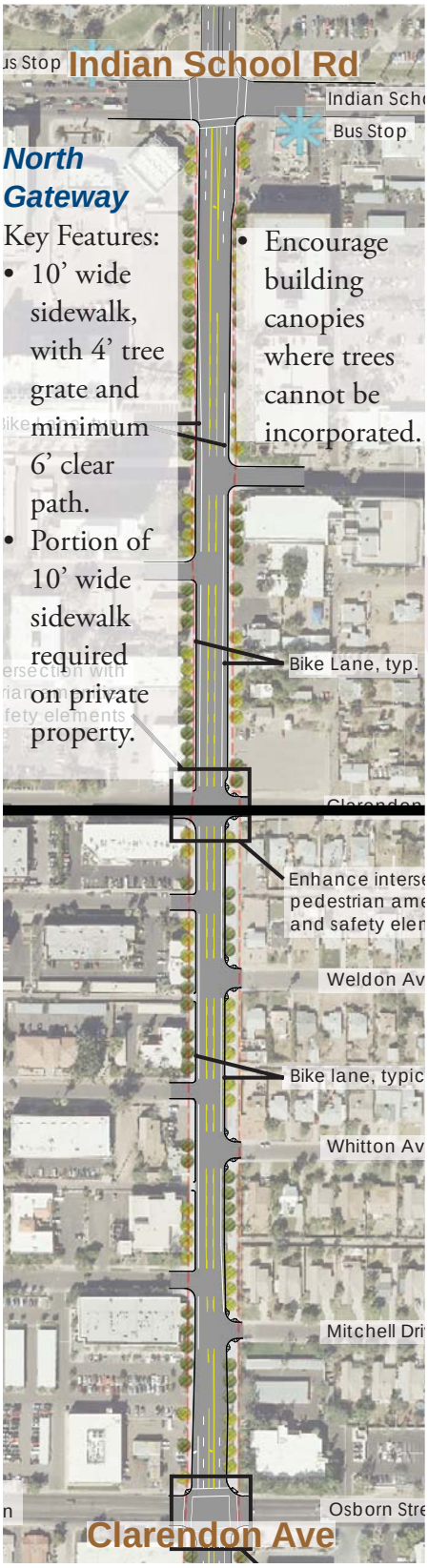
As redevelopment occurs throughout the corridor, it is important that the scale be considerate of existing historic neighborhoods, while also providing continuity along the corridor. This will reinforce 3rd Street Promenade as a signature corridor that is pedestrian-friendly and a destination that has a unique sense of place.

*Illustrative: Example of mixed-use development with outdoor cafes and building canopies*

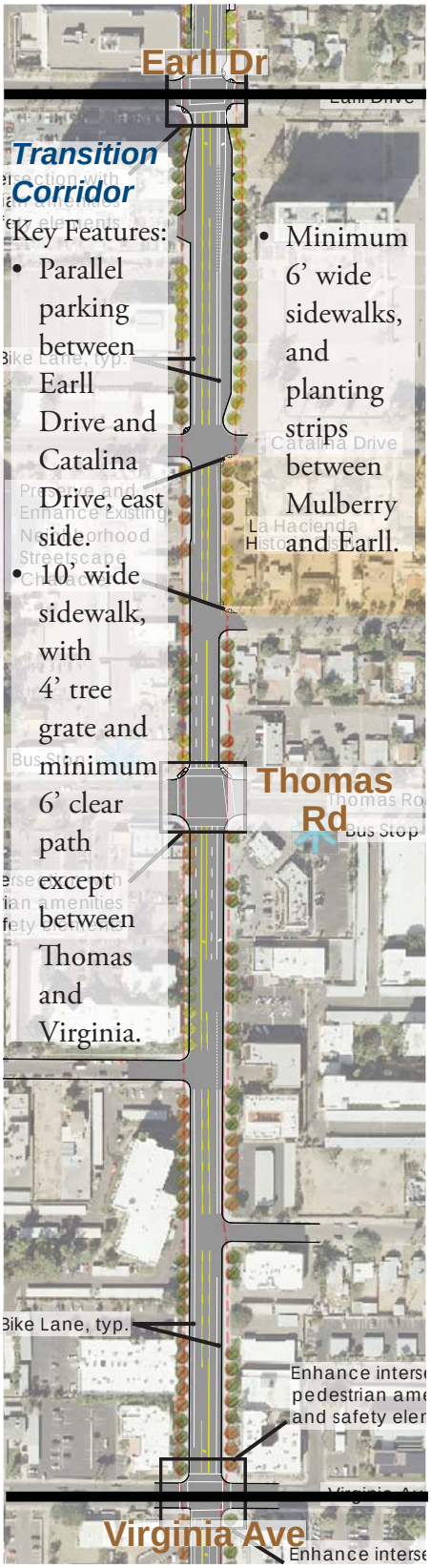
## 4.4 Proposed Design Guidelines

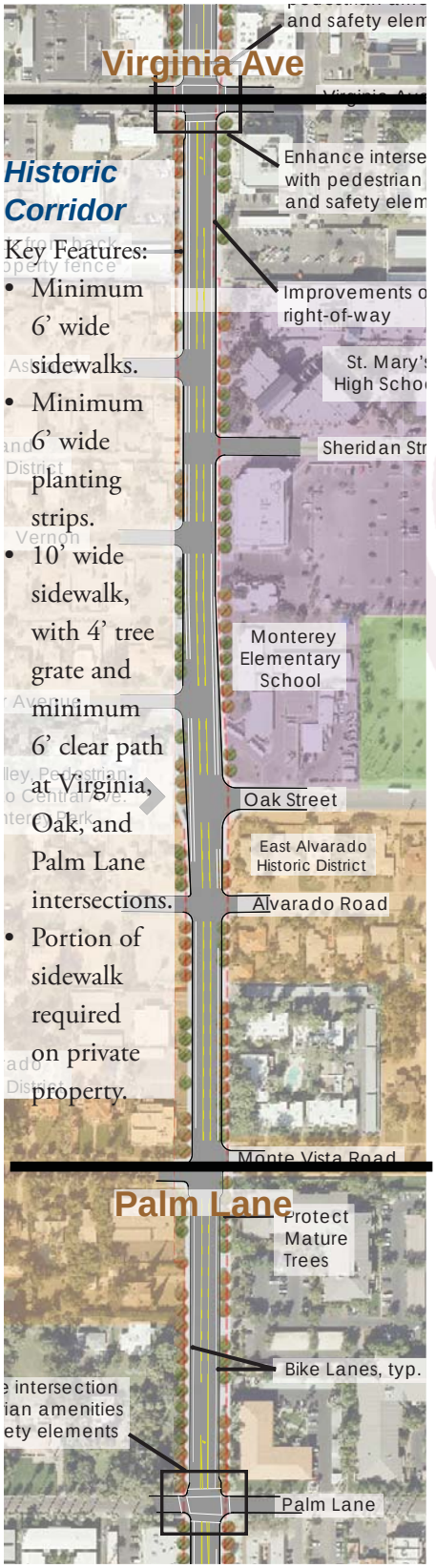
As illustrated on the preceding figures, elements outlined in Section 4.2 and several of the key principles outlined in Section 4.3 have been incorporated into the overall design of the corridor. These elements and principles help unify the corridor, while also provide distinction between the five character areas. These are grouped by elements which could be developed and implemented by the City of Phoenix, within the existing right-of-way, and elements that would require development and maintenance by a private entity, such as the 3rd Street Business Alliance.

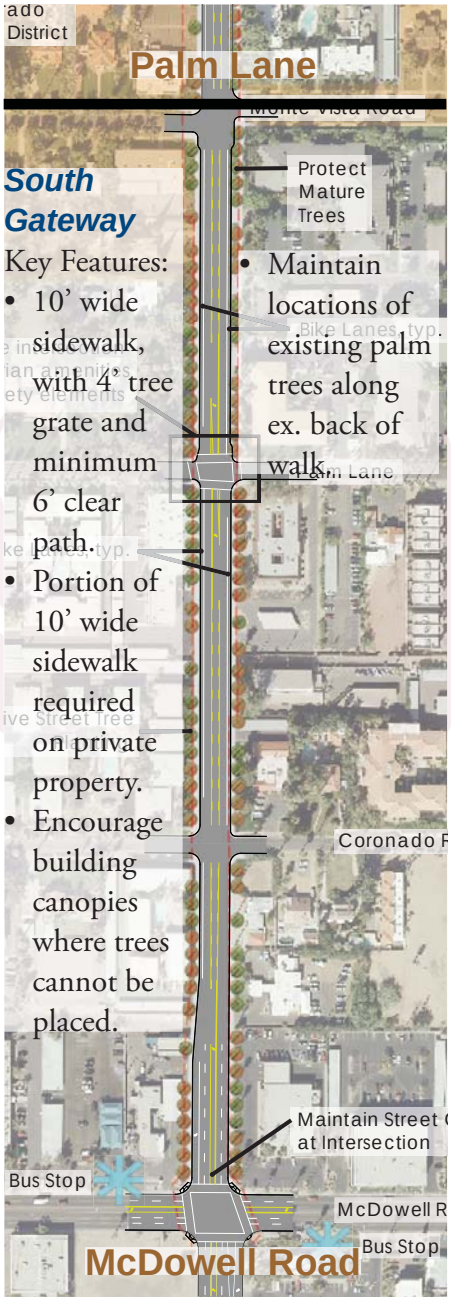
Each character area has been given a specific set of guidelines to achieve the vision for 3rd Street Promenade. These guidelines address opportunities and constraints specific to each area. The following page lists the elements and principles that have been included into each character area of the 3rd Street Promenade.


Indian School Rd
Indian Sch
Bus Stop
North Gateway
Key Features:
• 10' wide sidewalk, with 4' tree grate and minimum 6' clear path.
• Portion of 10' wide sidewalk required on private property.
• Encourage building canopies where trees cannot be incorporated.
Bike Lane, typ.
Enhance intersc pedestrian ame and safety elen
Weldon Av
Bike lane, typic
Whitton Av
Mitchell Dri
Osborn Stre
Clarendon Ave

Clarendon Ave
Enhance intersc pedestrian ame and safety elen
Weldon Av
Bike lane, typic
Whitton Av
Mitchell Dri
Osborn Rd
Enhance intersc pedestrian ame and safety elen
Mulberry St
Urban Corridor
Key Features:
• Minimum 6' wide sidewalks.
• Minimum 6' wide planting strips.
• Parallel parking south of Osborn.
• Parallel parking between Monterrey Way and Cheery Lynn Road, west side.
• Parallel parking between Cheery Lynn Road and Earll Drive, east side.
Earll Dr


Earll Dr
Transition Corridor
Key Features:
• Parallel parking between Earll Drive and Catalina Drive, east side.
• 10' wide sidewalk, with 4' tree grate and minimum 6' clear path except between Thomas and Virginia.
• Minimum 6' wide sidewalks, and planting strips between Mulberry and Earll.
Catalina Drive
Thomas Rd
Bike Lane, typ.
Enhance intersc pedestrian ame and safety elen
Virginia Ave




## A. Corridor Wide Elements

### City of Phoenix

- Continuous minimum 6' wide sidewalk.
- Pedestrian zone separated by at least one vertical element, i.e. curb, a planting strip, or trees in tree grates.
- Continuous bike lane.
- Maintain minimal width travel lanes.
- Directional ramps at all controlled intersections.
- Striped sidewalks.
- APS approved pedestrian lighting.

### 3rd Street Business Alliance

- Wayfinding elements.
- Street furnishings, such as benches, trash receptacles, and bicycle racks.
- Street tree implementation and maintenance.
- Irrigation systems(s) for planting strips.
- Shade structures and building canopies and/or arcades.
- Cafes and outdoor space adjacent to buildings and outside the right-of-way.

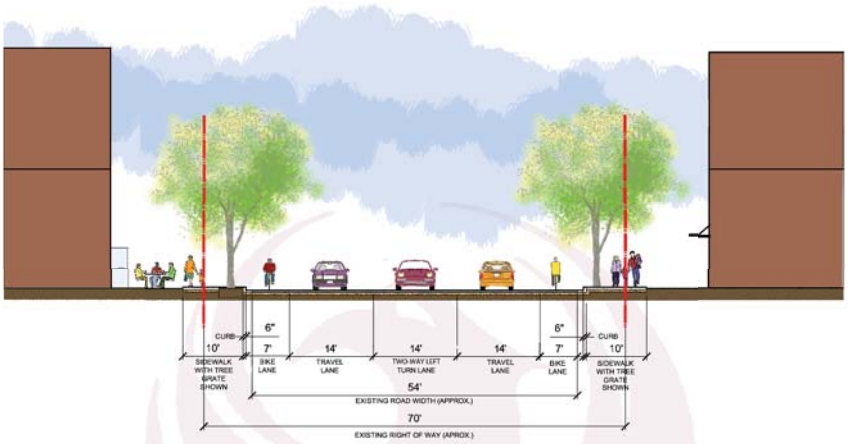



*Figure 4.16: North Gateway Typical Section*

## B. North Gateway

3rd Street Promenade from Indian School Road to Clarendon Avenue represents the gateway to Third Street and serves as an entrance into Steele Indian School Park. This area is constrained by existing overhead power lines along the west side of the street that often interrupt the existing sidewalk. In the meantime, it is important for property owners to help ease pedestrian movement by enabling wider sidewalks and installing set-back sidewalks where possible. It is recommended that these utility lines be placed underground as funding becomes available.

Building scale and vegetation height play an important role in climate control and visual character of this area. Because of the urban and commercial character, most of the tree plantings will be incorporated into the sidewalk using tree grates. In these instances, a 6' minimum width of the sidewalk must remain clear for pedestrian use. Buildings are encouraged to face 3rd Street and be built up to the right-of-way line. They should also offer structural shade for the sidewalk with a canopy, arcade, or other alternative. Surrounding businesses and restaurants should be encouraged to provide outdoor seating throughout this space.

### Specific Guidelines for North Gateway

- Install a 10' minimum width sidewalk and in areas that a tree grate is incorporated, secure a 6' minimum free and clear in area;
- Place trees and tree grates at an appropriate spacing;
- At locations where a 10' wide sidewalk with tree grates does not fit within right-of-way, secure pedestrian access easements that allow 10' sidewalks to be constructed outside the right-of-way;
- At locations where easements cannot be obtained, provide a minimum 6' wide sidewalk at the back of the curb;
- Encourage future development to build up to the right-of-way with no setback unless plazas, open space, or other pedestrian amenities are provided. Maintain minimum 6' clear sidewalk;
- Minimize vehicular entrances off of 3rd Street;
- Encourage structural shade such as awnings or arcades from new development.

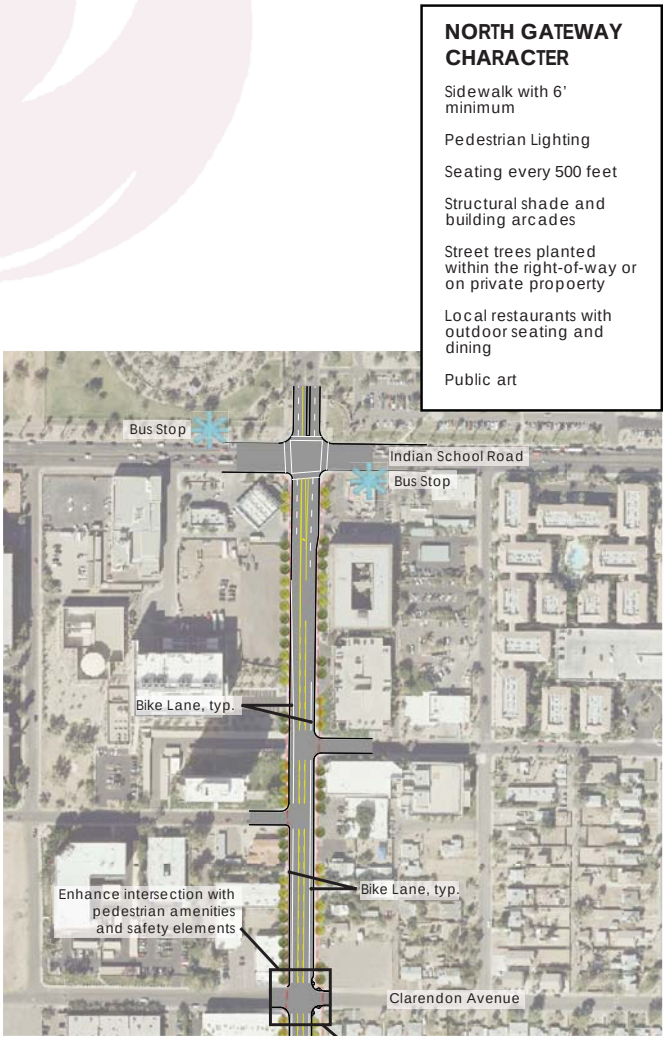
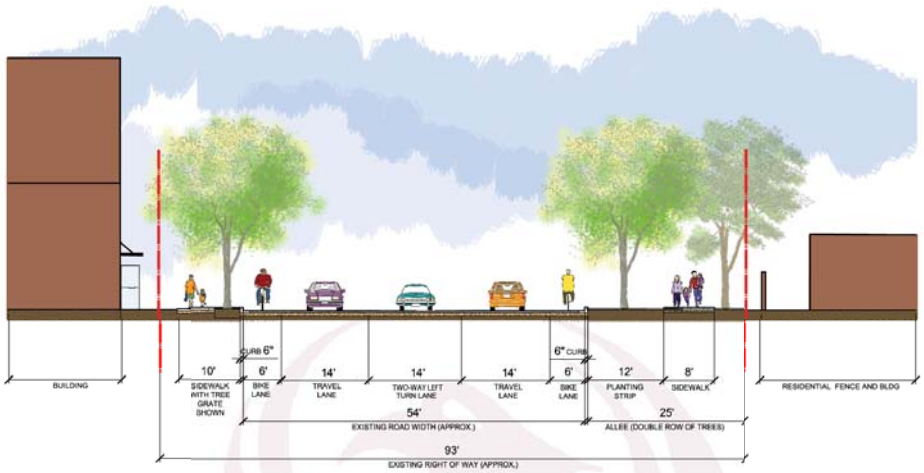
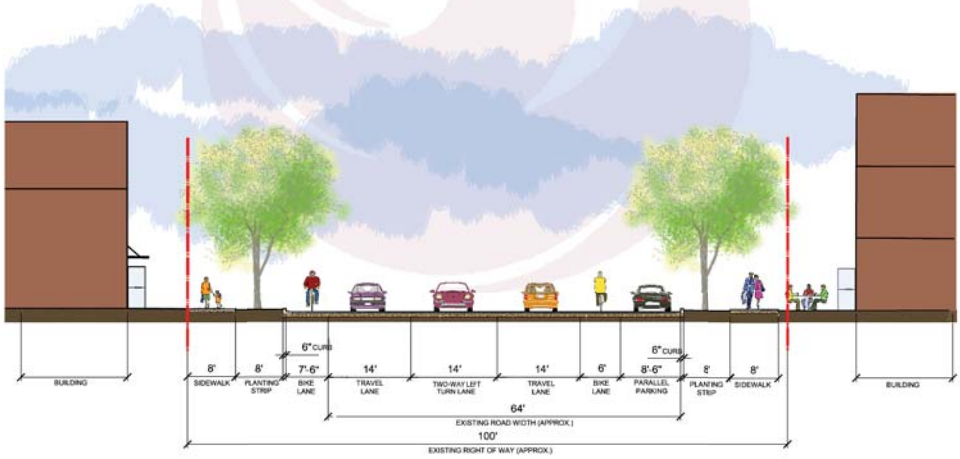


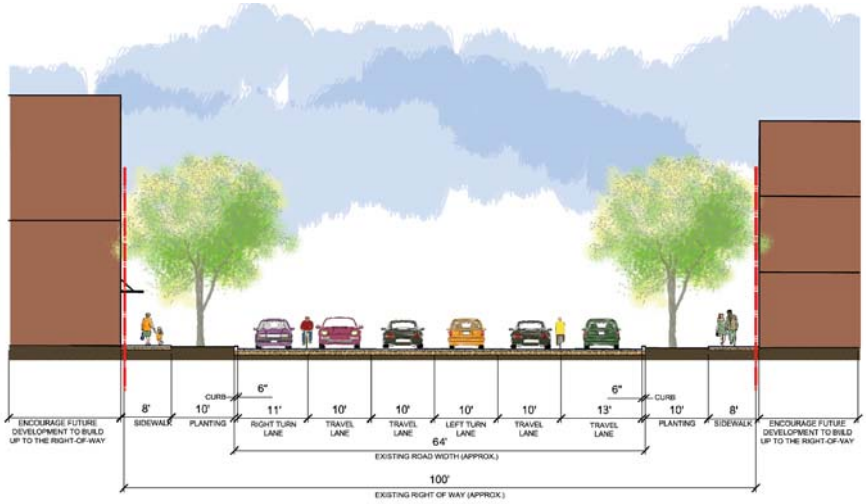

*Figure 4.17: North Gateway Concept Plan*




*Clarendon to South of Mitchell*




*Mulberry to Earll*




*Intersection: Osborn and 3rd Street*

*Figure 4.18: Urban Corridor Typical Sections*

## C. Urban Corridor

This area should become the retail heart of 3rd Street Promenade with connections to Park Central Mall, light rail, and Steele Indian School Park. This area prioritizes pedestrians and should be used for festivals and street fairs.

Located between Clarendon and Earll, this area is also constrained by existing overhead power lines. It is recommended that these lines be placed underground as funding becomes available.

As in North Gateway, building scale and vegetation height play an important role in climate mitigation and visual character for this area and trees will line each side of the street. Because of the urban commercial character of this area, tree plantings will be incorporated into the sidewalk using tree grates. However, where space is available, planting strips with minimum dimensions of 6' should be installed.

Developers are encouraged to construct buildings up to the right-of-way line and face entrances and outdoor space toward the corridor, thus activating the street. Surrounding businesses and restaurants will be encouraged to provide seating throughout this area. When street trees are used, a 6' minimum width of the sidewalk must remain clear and unobstructed for pedestrian use. They should also offer structural shade for the sidewalk with an awning, arcade, or other alternatives.

### Specific Guidelines for Urban Corridor

- See parallel parking locations on Page 4-14;
- Provide planting areas at corners to define on-street parking and enhance pedestrian crossings;
- Install a 6' minimum width sidewalk setback from the curb with a planting strip;
- Install a 6' minimum width planting strip with trees appropriately spaced;
- Encourage future development to build up to the right-of-way with no setback unless plazas, open space, or other pedestrian amenities are provided as part of the site plan. Maintain minimum 6' clear sidewalk;
- Minimize vehicular entrances off of 3rd Street;
- Encourage structural shade such as awnings or arcades from new development;
- Encourage use of in-ground lights and wall-mounted lights only on private property maintained by owner.

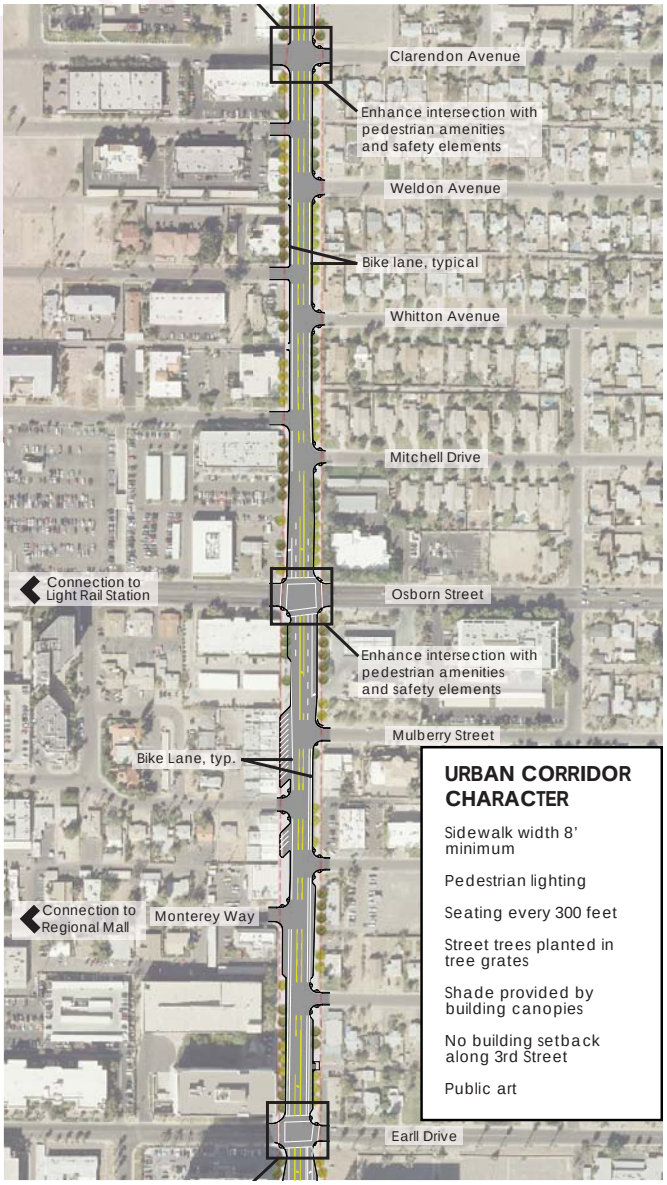
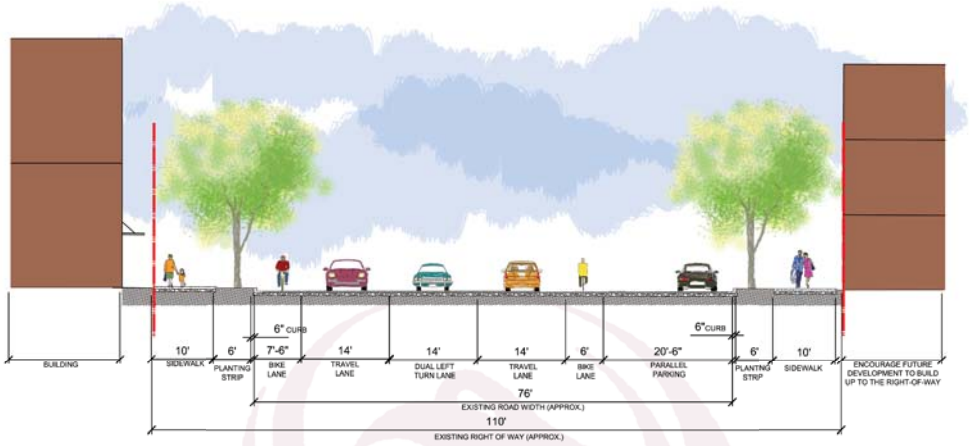
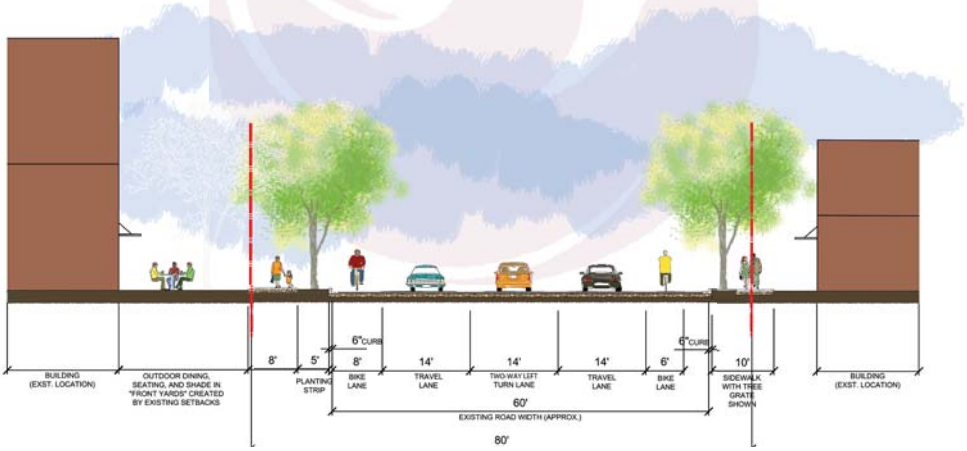


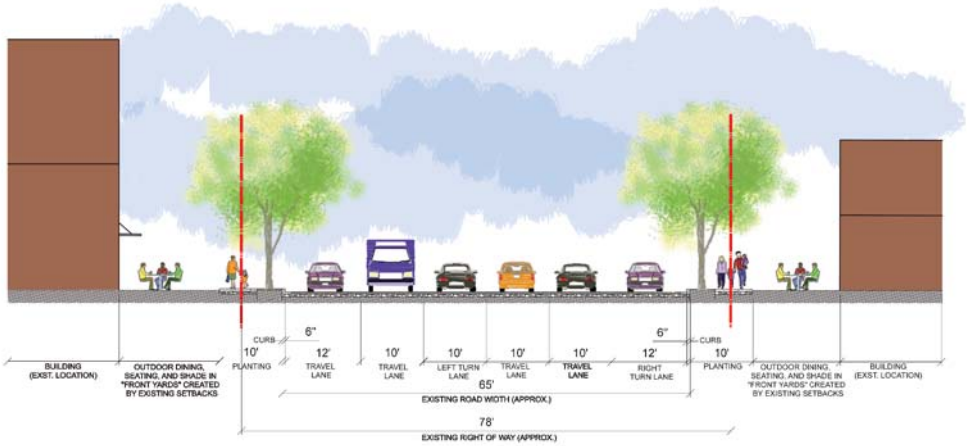

*Figure 4.19: Urban Corridor Concept Plan*




*Earll to Catalina*




*Catalina to Virginia*




*Intersection: Thomas and 3rd Street*

*Figure 4.20: Transition Corridor Typical Sections*

## D. Transition Corridor

This area located between Earll and Virginia, serves as the transition area of 3rd Street Promenade between its urban retail area and its historic area. Greatly affected by the high traffic volumes of Thomas Road, this area will benefit from implementing traffic calming techniques that create a safe pedestrian environment. Building scale and vegetation height play an important role in traffic calming for this area.

Because of the urban and commercial character of this area, most of the tree plantings will be incorporated into the sidewalk using tree grates. In these instances, a 6' minimum width of the sidewalk must remain clear and unobstructed for pedestrian use. If existing overhead power line poles remain or are relocated underground, then they will have to be taken into account for the final design. It is recommended that these power lines be placed underground as funding becomes available. Proposed design solutions should not sacrifice recommendations to accommodate existing poles, rather work around them to minimize impact.

### Specific Guidelines for the Transition Corridor

- Parallel parking between Earll Drive and Catalina Drive, east side;
- Install a 10' minimum width sidewalk and in areas that a tree grate is incorporated, secure a 6' minimum free and clear in area, except between Thomas and Virginia;
- Install a minimum 6' sidewalk and minimum 6' planting strip with trees appropriately spaced between Thomas and Virginia;
- At locations where a 10' wide sidewalk with tree grates does not fit within right-of-way, secure pedestrian access easements that allow 10' sidewalks to be constructed outside the right-of-way;
- At locations where easement cannot be obtained, provide a minimum 6' wide sidewalk at the back of the curb;
- Locate parking structures after major intersections;
- Minimize vehicular entrances located off of 3rd Street;
- Maintain building and sidewalk setbacks as well as dimensions in historic district areas;
- Encourage and allow building setback variation in areas without historic designation to provide visual interest along the street;
- Encourage structural shade such as awnings or arcades from new development;
- Encourage use of in-ground lights and wall-mounted lights only on private property maintained by owner;
- Encourage buildings to be setback from right-of-way to allow for private plazas and green open spaces.
- Incorporate parallel parking between Mulberry and Earll Street on the west side.

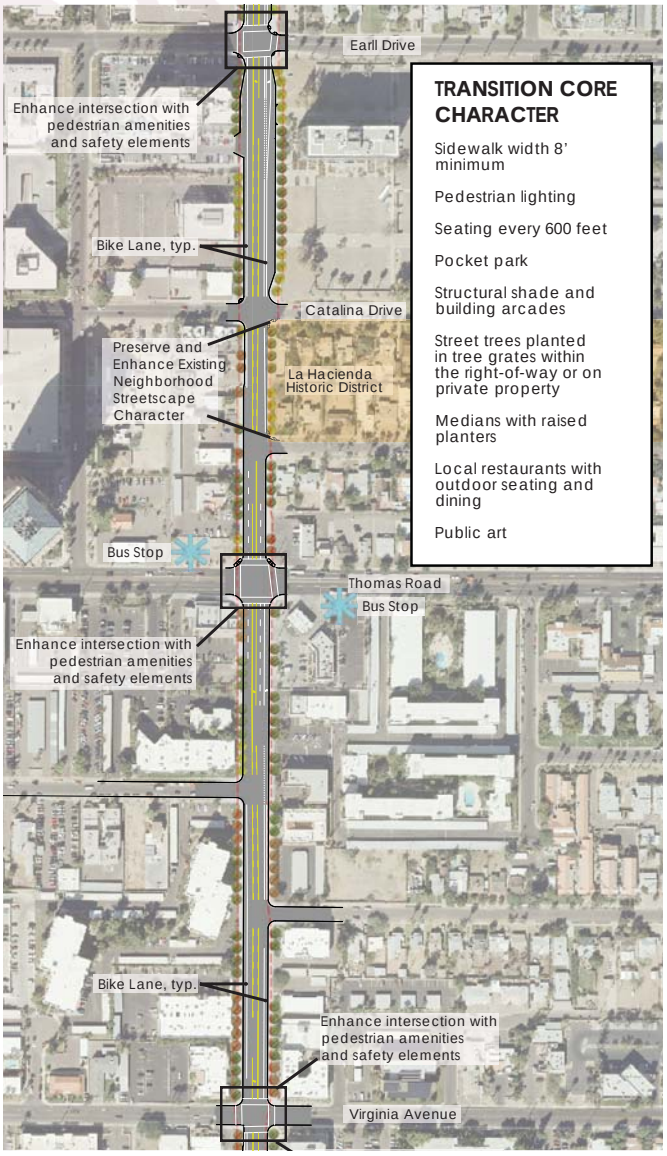
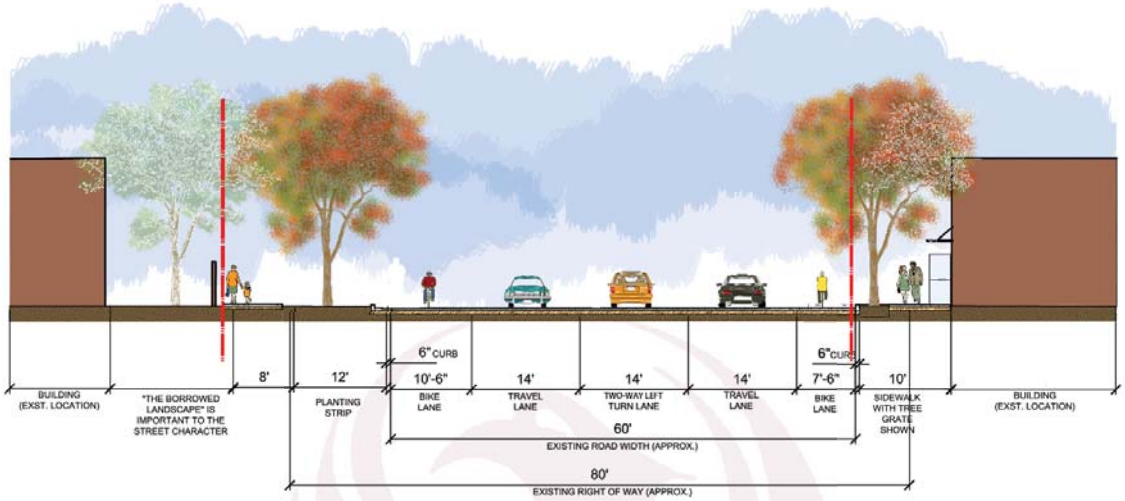
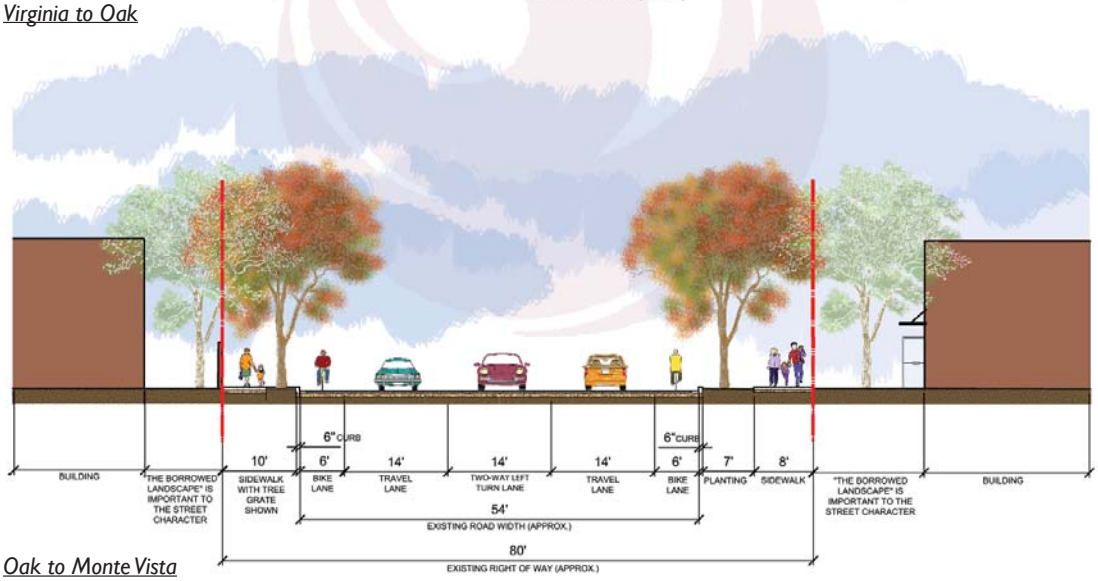


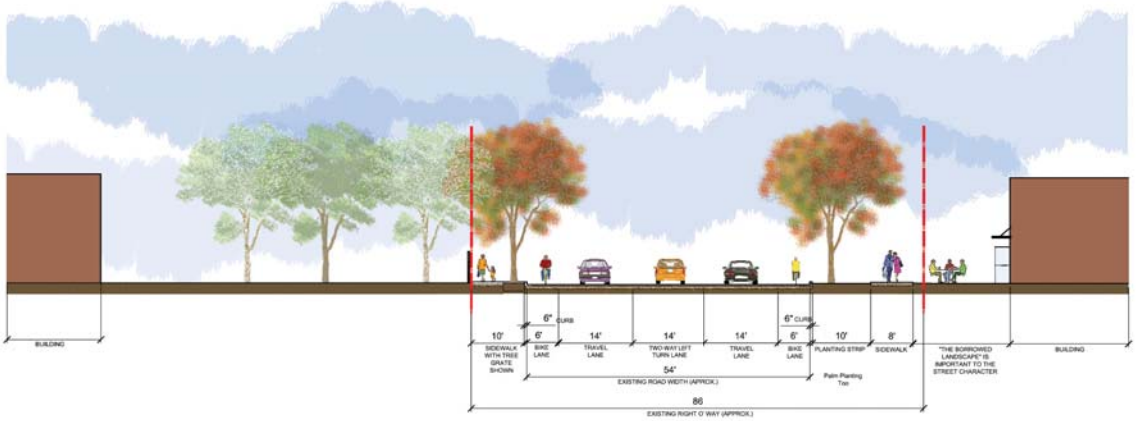

*Figure 4.21: Transition Corridor Concept Plan*




*Virginia to Oak*




*Oak to Monte Vista*




*Monte Vista to Palm*

*Figure 4.22: Historic Corridor Typical Sections*

### E. Historic Corridor

The Historic Corridor is a result of the City Beautiful Movement which swept the nation in the early 1900's. The 3rd Street Promenade Historic Corridor runs from Virginia south to Palm Lane. It provides a calm and quaint area for pedestrians, motorists, and bicyclists. Mature trees line the streets. Sidewalks are setback from the street and separate pedestrians from vehicle traffic with tree-lined planting strips. These planting strips vary in width from 5' to 15' wide, and should be preserved. New planting strips of the same width should be installed in locations where planting strips do not exist. If existing right-of-way dimensions will not accommodate a matching width, then the width of a new planting strip should be maximized. The minimum width of planting strips in this area is 6'.

A strong east/west spine connecting Central Avenue and 7th Street occurs along Virginia Avenue. As use of light rail increases, there is also the potential for another strong east/west connection to develop at Hoover Street, connecting the Encanto Light Rail Station with St. Mary's High School. This report recommends additional studies be undertaken to verify if additional crossings can be provided at minor intersections at this location.

Finally, a plan should be adopted to ensure that new trees are planted regularly in anticipation of the loss of older trees. This corridor's character is dependent on the mature landscape of the adjacent properties and, as such, the landscape setback requirement shall be maintained and development will not be encouraged to encroach on the right-of-way. Property owners should recognize the impact of their property's landscape to the streetscape and should agree to maintain its mature, lush character.

#### Specific Guidelines for Historic Corridor

- Install a 6' minimum width sidewalk;
- Install a 6' minimum width planting strip with trees;
- Maintain building and sidewalk setbacks as well as their historic dimensions within historic district boundaries;
- Maintain any existing 15' planting strips between curb and sidewalk;
- Encourage outdoor space for business uses;
- Minimize entrances off of 3rd Street;
- Maintain landscape setback between building and right-of-way.
- At locations where sidewalk does not fit within right-of-way, secure pedestrian access easements.

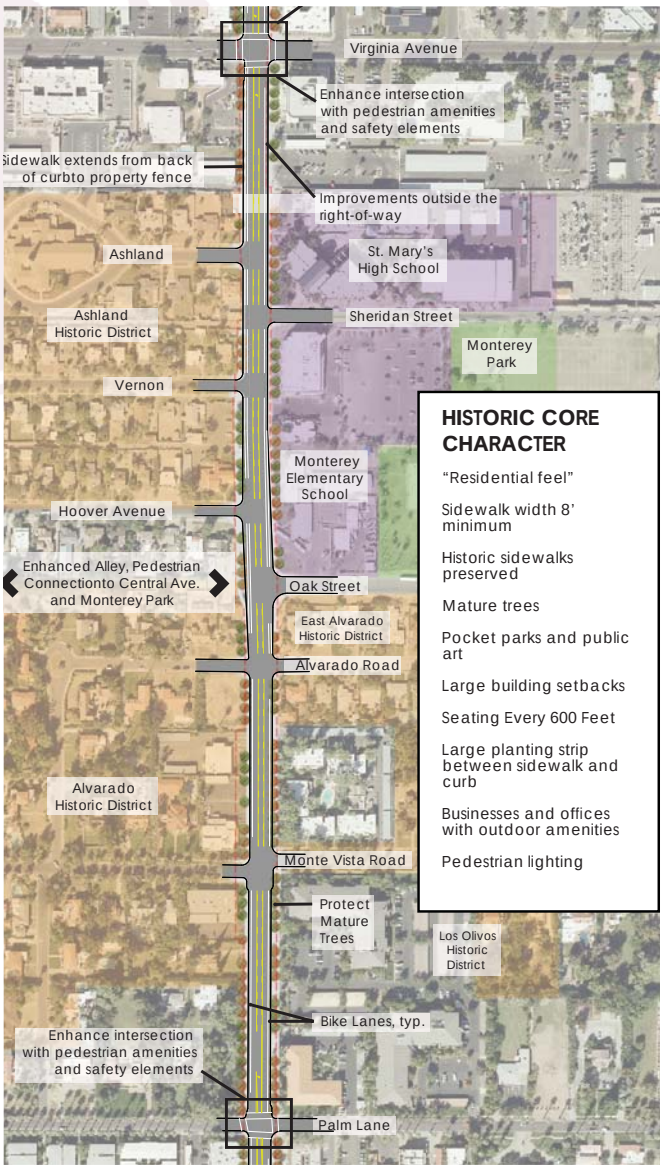
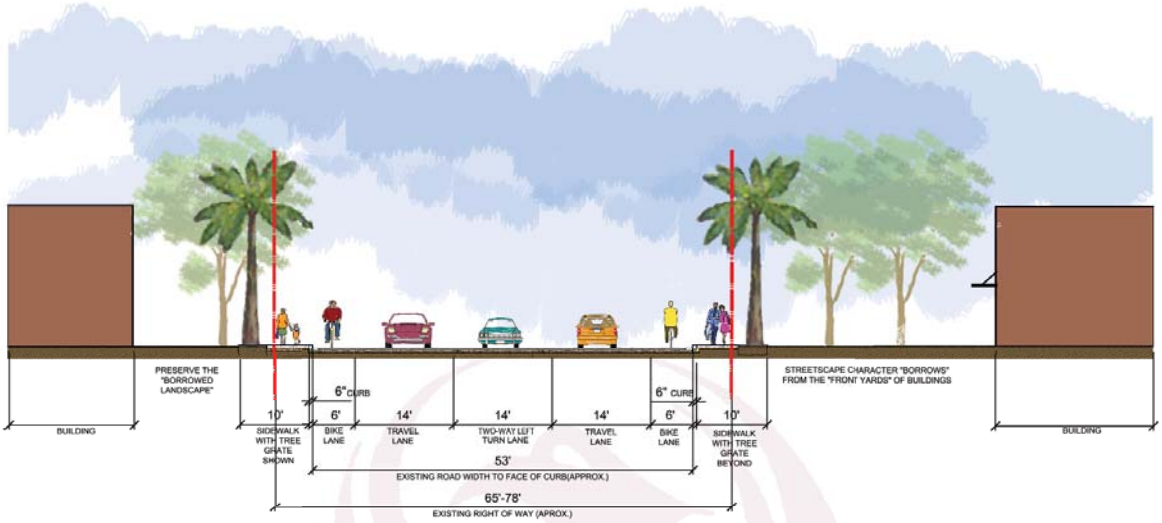
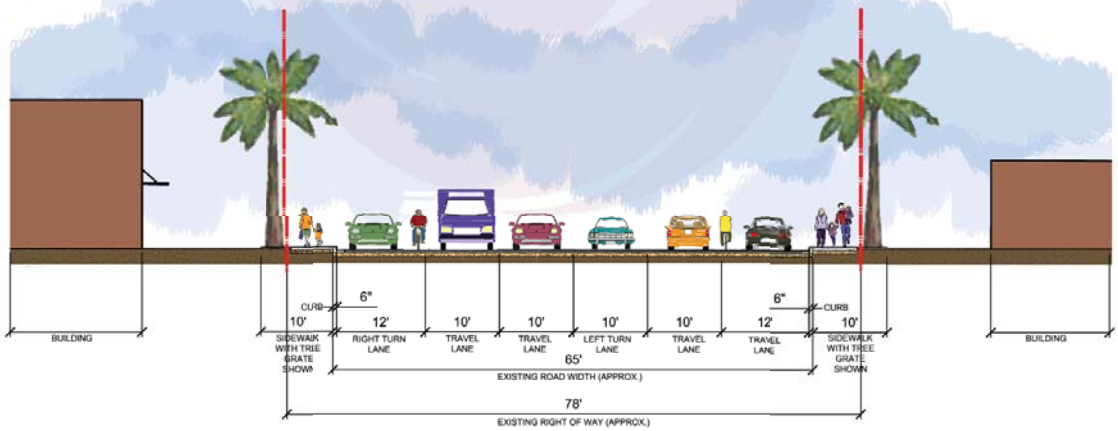



*Figure 4.23: Historic Corridor Concept Plan*




*Typical Historic Corridor Character*




*Intersection: McDowell and 3rd Street*

*Figure 4.24: South Gateway Typical Sections*

## F. South Gateway

This section is the southern entrance to 3rd Street Promenade and is notably affected by traffic entering and exiting McDowell Road from 3rd Street. Located between Palm Lane and McDowell Road, it is a direct connection to the City of Phoenix's Downtown Urban Form Project and a natural extension of pedestrian-friendly streets and destinations located in walkable proximity.

This corridor's character is heavily dependent on the mature landscape of the adjacent properties and, as such, the landscape setback requirement shall be maintained and development will not be encouraged to encroach on the right-of-way. Property owners should be encouraged to maintain its mature, lush character. Overhead power lines exist on both sides of the street. It is recommended that these utility lines be placed underground as funding becomes available.

### Specific Guidelines to South Gateway

- Install a 10' minimum width sidewalk and in areas that a tree grate is incorporated, secure a 6' minimum free and clear in area;
- Place trees and tree grates at an appropriate spacing;
- Maintain locations of existing palm trees along existing back of walk;
- At locations where a 10' wide sidewalk with tree grates does not fit within right-of-way, secure pedestrian access easements that allow 10' sidewalks to be constructed outside the right-of-way;
- At locations where easements cannot be obtained, provide a minimum 6' wide sidewalk at the back of the curb;
- Encourage public/private partnerships that allow 10' sidewalks to be constructed and/or provide planting strips between curb and sidewalk to protect pedestrians from vehicular traffic with a 6' minimum sidewalk;
- Encourage future development to build up to the right-of-way with no setback unless plazas, open space, or other pedestrian amenities are provided. Maintain minimum 6' clear sidewalk;
- Minimize vehicular entrances off of 3rd Street;
- Encourage structural shade such as awnings or arcades from new development;
- Encourage use of enhanced pavement on sidewalks, which would be maintained by property owner, encourage use of alternative materials for pedestrian scale crosswalks.

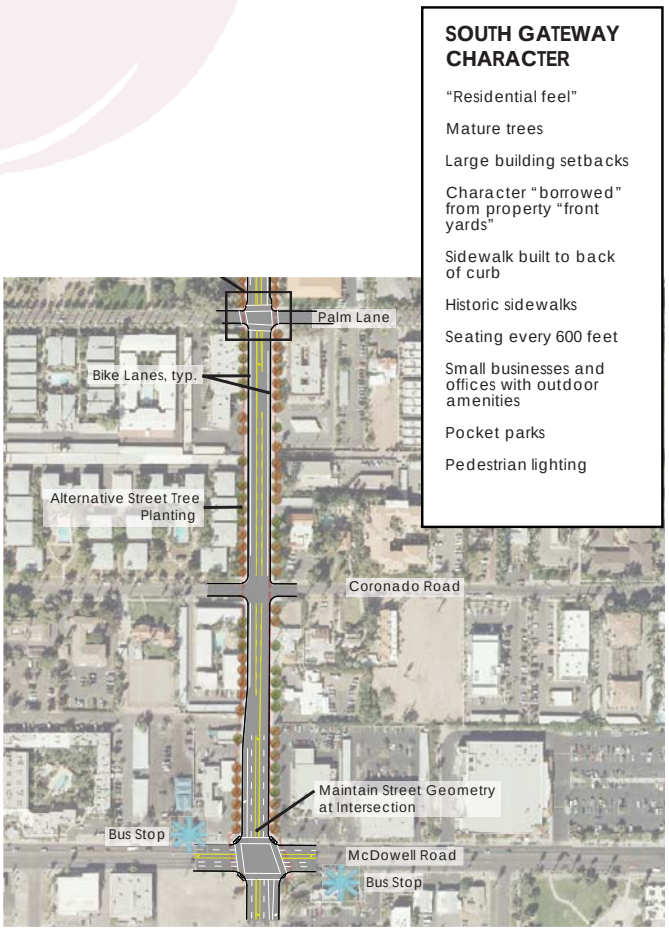



*Figure 4.25: South Gateway Concept Plan*

THIS PAGE INTENTIONALLY LEFT BLANK

# Bibliography B

THIS PAGE INTENTIONALLY LEFT BLANK

# Bibliography B


Jennifer Rosales, PE, ***Road Diet Handbook: Setting Trends for Livable Streets***, Parsons Brinckerhoff Inc., 2007.

Bruce K. Ferguson, ***Porous Pavements***, Taylor & Francis Group, 2005.

Jan Gehl, Lars Gemzoe, Sia Kirknaes & Britt Sternhagen Sondergaard, ***New City Life***, The Danish Architectural Press, 2006.

Allan B. Jacobs, ***Great Streets***, MIT Press, 1995

Public Rights-of-Way Access Advisory Committee, ***Special Report: Accessible Public Rights-of-Way, Planning and Designing for Alterations***, Public Rights-of-Way Access Advisory Committee, 2007

International Code Council, ***American National Standard, Accessible and Usable Buildings and Facilities,*** International Code Council, Inc., July 2007

Emina Sendich and American Planning Association, ***Planning and Urban Design Standards,*** John Wiley & Sons, Inc., 2006

City of Phoenix, ***Downtown Phoenix Urban Form Project,*** 2008

City of Phoenix, ***The Connected Oasis: "The Big Idea",*** July 2008

City of Phoenix, ***Traffic Study for 3rd Street,*** February 2009.

City of Phoenix, ***General Plan***, 2004

City of Phoenix / Valley Metro, ***Transit Oriented Design In Phoenix, 2006***

Maricopa Association of Governments, ***Regional Bikeway Master Plan***, July 2007.

Maricopa Association of Governments, ***Pedestrian Policies and Design Guidelines***, April 2005.

Urban Dencity, Hoskin Ryan Consultants, Ellermann, Schick & Bruno, ***3rd Street Promenade***, 2008

Arizona Department of Water Rsourcess, ***Low Water Use, Drought Tolerant Plant List***, May 2007

THIS PAGE INTENTIONALLY LEFT BLANK