FINAL STUDY REPORT

Phoenix Comprehensive Downtown Transportation Study

Prepared as part of the Central Phoenix Transportation Framework Study

for

The City of Phoenix

In Association With

&

Building A Quality Arizona

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EXECUTIVE SUMMARY

The Downtown Phoenix Comprehensive Transportation Study (DPCTS) was undertaken to identify and evaluate potential roadway, transit, bicycle, pedestrian, and parking improvements associated with Phoenix's downtown street and transportation system. The City of Phoenix study complements the broader Central Phoenix Transportation Framework Study (CPHX) sponsored by Maricopa Association of Governments (MAG). The focus of this study was to develop, investigate, and analyze various transportation scenarios, based on strategies identified by City Street Transportation Department staff, stakeholders, and the general public, including residents, businesses, other City departments, and interested groups.

Goal and Objective

The primary goal of the DPCTS was to provide a new vision for downtown access and a multi-year mobility plan for improving the downtown transportation system. The primary objective was to determine the potential for improving the movement of people and goods into, out of, and within Downtown Phoenix based on assessment of myriad opportunities and constraints. The driving force behind this study is that better mobility and access will benefit area businesses, residents, and downtown development. Thus, attention also was given to enhancing economic opportunities as they related to the attractiveness of Downtown Phoenix as a place – a destination – to live, work, recreate, and enjoy community events.

This study of the Downtown Phoenix transportation system sought to examine issues associated with: typical daily and weekend mobility factors; event-related conditions that demand the most from available transportation modes and services; and parking utilization and access, particularly under event conditions. The process evolved through a series of five key steps:

Public Participation

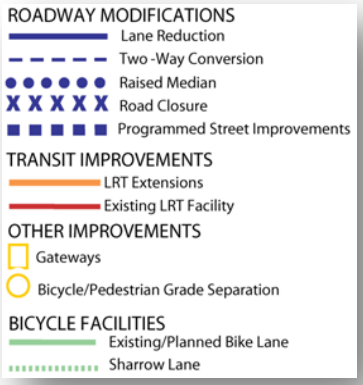
Given the intent of the study to define alternative improvement scenarios for the purpose of identifying solutions to known and perceived transportation system issues, City staff relied on four sources to gain necessary information regarding transportation system and service conditions within the downtown: an Executive Planning Committee, an Event Management Committee, stakeholders, Focus Groups, and the general public .

Data Collection

City staff examined the physical and operational characteristics of the existing transportation infrastructure, which is an interconnected, multimodal network, consisting of freeways, streets, transit, bicycle facilities, and pedestrian facilities. Also, a number of projects and studies geared toward identifying improvements in downtown Phoenix were reviewed to ensure suggested improvements would be compatible with or improve further the recommendations or accomplishments of these prior efforts. As event management is a critical function for Downtown Phoenix and the success of area businesses, a special data collection process was devised to gain first-hand knowledge of how the downtown street system operates during major events and how available parking is utilized.

Strategies and Scenarios

Armed with an abundance of knowledge regarding the physical and operational characteristics of the downtown transportation system, the examination of potential improvements to access, circulation, and connectivity was initiated with identification of a nominal universe of solutions. Multiple design concepts and treatments were considered feasible, available, and appropriate, and two alternative scenarios were developed that included different subsets of the potential improvement strategies: Scenario A focused on a road diet and median improvements along 7th Avenue and 7th Street; Scenario B focused on Central Avenue closure and conversion of 3rd Avenue, 5th Avenue, 3rd Street, and 5th Street to two-way operations.



The various potential access, circulation, and connectivity improvements incorporated in the two scenarios were tested and evaluated to determine the feasibility of proposed strategies to form a plan of action. The testing process employed a special focused area model derived from MAG's TransModeler microsimulation analysis tool. This tool uses origin-destination (O-D) data from MAG's Regional Travel Demand Model to redistribute vehicle trips on the downtown street system in response to changes in number of lanes, directional travel, and predicted congestion. In addition, other evaluations focused on a number of Special Topics that ultimately could influence implementation of improvement strategies.

Recommendations

Recommended improvement/enhancement actions for the Downtown Transportation Improvement Program have been defined for three implementation timeframes representing three action phases. Each timeframe consists of a combination of street and street-related (e.g., bicycle lanes, pedestrians enhancements) projects designed to increase accessibility to/from the downtown and mobility within the downtown. Various elements of each action phase are intended to add street capacity, permit expansion of the bicycle infrastructure, enhance the pedestrian environment, or improve connectivity between and among the different modes of travel serving the study area.

Phase 1: 0 - 5 Years

Phase 1 includes 19 projects in 10 corridors plus one project involving improvements in various areas throughout the study area – installation of bike share facilities – and another that would create enhanced pedestrian crossings on 7th Street. The overall focus of Phase 1 centers on transitioning 3rd and 5th avenues and 3rd and 5th streets from one-way to two-way thoroughfares. In addition, specific bicycle connections to downtown would be created:

- 3rd Street would become a bicycle corridor into and out of downtown; and
- Bike lanes on Washington and Jefferson streets would be connected between 7th Avenue and 7th Street, to provide a continuous throughway.

These improvements will help area circulation, business access and increase residents' transportation options.

Phase 2: 6 - 10 Years

Phase 2 includes 11 projects in nine corridors plus one project involving creation of Downtown Entry Points, often referred to as "Gateways," at select locations within the study area. The overall focus of Phase 3 centers on improvements to streetscape and infrastructure along 7th Avenue and 7th Street on the outer boundaries of

the study area. Other improvements would help to create safer, more efficient connectivity for pedestrians and add transit, bicycle, and pedestrian amenities along Central Avenue between Van Buren and Washington streets.

In addition, 3rd Street, south of Jefferson Street, would become a two-way street, improving connections to ASU's Downtown Campus from the south and providing more convenient access for residents and businesses in the Warehouse District. These changes were developed with input from downtown stakeholders, including the Phoenix Suns and Arizona Diamondbacks, to ensure needed access to these important entertainment venues.

Phase 3: 11+ Years

Phase 3 includes six projects in five corridors plus one project – Downtown Circulator Service – that would enhance mobility throughout the downtown and another that would provide more efficient connectivity with potential future commuter rail service on the UPRR at the historic Union Station. The overall focus of Phase 3 is on Central Avenue. It is recommended that Central Avenue be reconfigured to allow only limited access for cars and deliveries (as may be appropriate or necessary), with added emphasis on other modes of transportation. The east side of Central Avenue would include improved bus passenger facilities, wider sidewalks, and potential areas for business activity. In turn, 1st Street, 7th Street, and 7th Avenue would serve as the primary north-south downtown access corridors. Additionally, achieving improved circulation by changing certain one-way streets to two-way streets would encourage greater land use density and permit expansion of downtown circulator service to enhance connections for residents and employees of downtown businesses to high activity areas, light rail transit, and express bus routes.

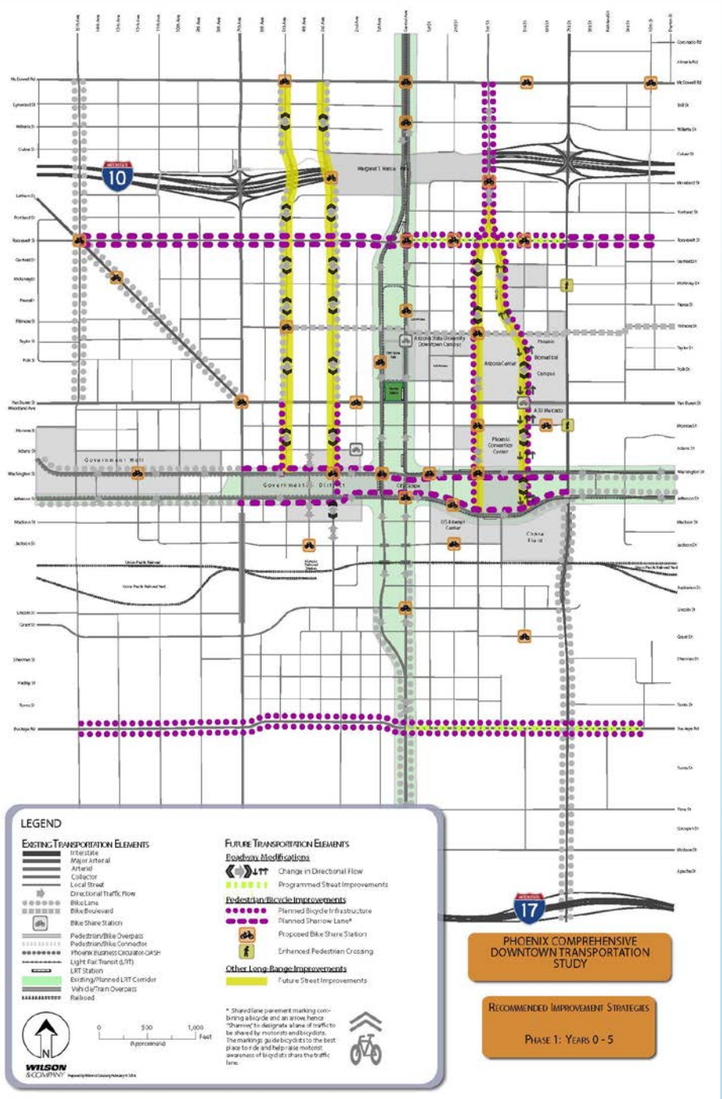
Downtown Events Management

The Downtown Events Management Plan, or "Sunburst Plan," essentially is a protocol developed to manage the distribution of inbound and outbound event traffic using the downtown street network, freeway access points, and parking facilities. The focus of the Sunburst Plan is to minimize travel delays and potential impacts of traffic flows on pedestrian movements. Impacts on event traffic due to light rail transit and bus operations were examined, goals for special event ingress and egress were evaluated and updated to reflect current conditions in the downtown, and methods of traffic flow management were analyzed to identify potential costs savings and economic opportunities.

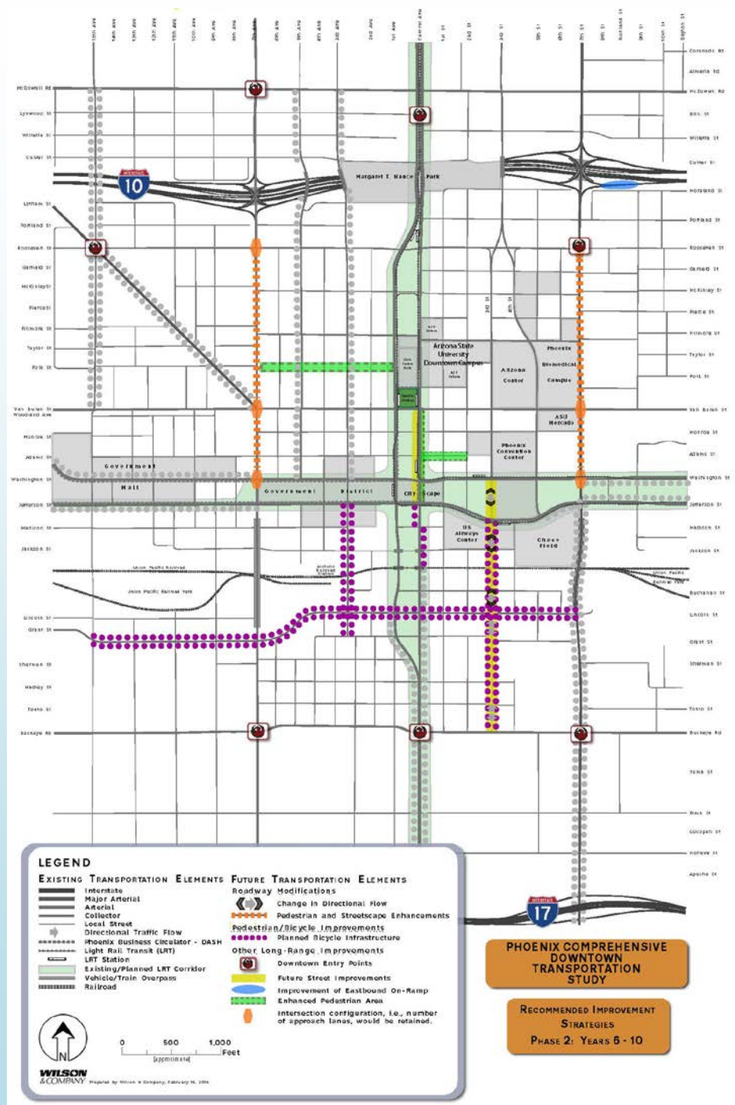
Three specific recommendations were derived through this study; each of these recommendations will be examined in greater detail as part of Phase 2:

- Close a portion of 3rd Street during events to help maintain pedestrian safety;
- Increase westbound access opportunities to downtown during events by keeping a through lane on Washington Street open; and
- Ensure safe access for area residents at the Summit and future residential complexes near Chase Field and U.S. Airways Center by modifying 3rd Street to provide one northbound lane to Jackson Street from Lincoln Street and two lanes southbound to Lincoln, south of Jackson Street.

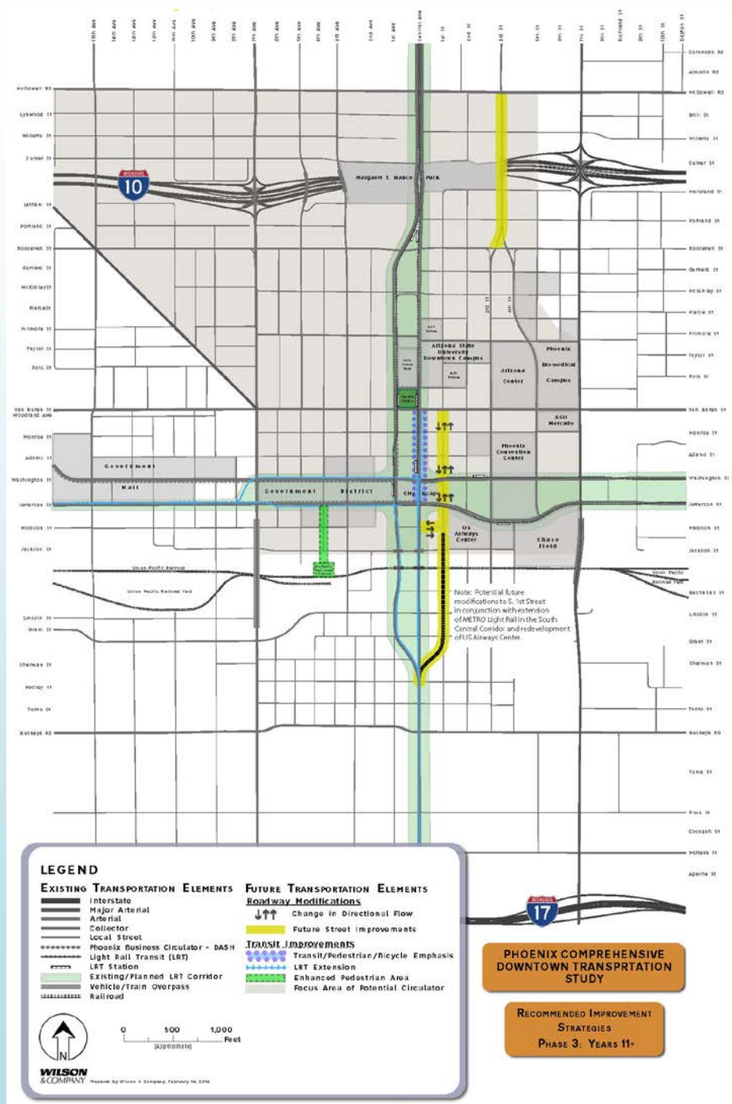
Downtown Transportation Improvement Program Recommendations



Phase 1: Years 0 - 5



Phase 1: Years 0 - 5



Phase 3: Years 11+

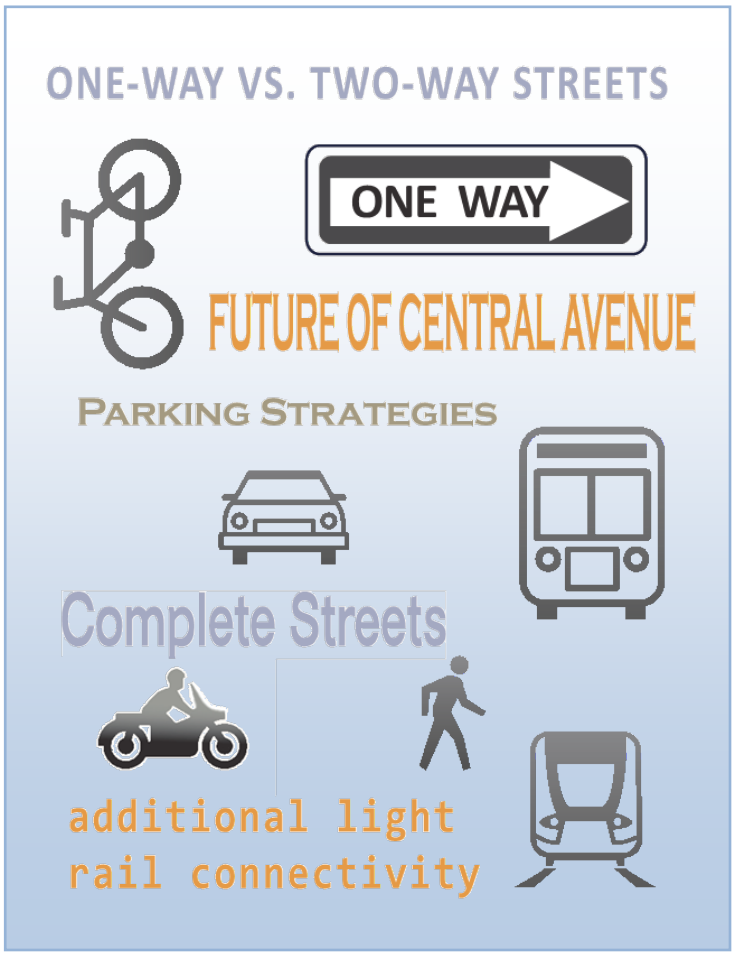
DOWNTOWN PHOENIX COMPREHENSIVE TRANSPORTATION STUDY

1.0 Background

The Downtown Phoenix Comprehensive Transportation Study (DPCTS) was undertaken to identify and evaluate potential roadway, transit, bicycle, pedestrian, and parking improvements associated with Phoenix's downtown street and transportation system. The study was accomplished by the City of Phoenix as a complement to the Central Phoenix Transportation Framework Study (CPHX) sponsored by Maricopa Association of Governments (MAG). The study developed, investigated, and analyzed various transportation scenarios, based on strategies identified by City staff, stakeholders, and the general public. The study brought together numerous stakeholders, including residents, businesses, city departments and other groups, to provide a new vision and multi-year plan for downtown.

1.1 Study Purpose

The primary purpose of the DPCTS was to determine the potential of improving the movement of people and goods into, out of, and within Downtown Phoenix. Better mobility and access benefits area businesses, residents, and downtown development. Attention also was given to enhancing economic opportunities as they relate to the attractiveness of Downtown Phoenix as a place to live and work as well as a destination.



To accomplish this, the study focused on evaluating current street usage patterns, potential changes to driving habits, pedestrian behavior, and transit service — including bus and light rail. This information was relied on to generate a set of recommendations for near-, mid-, and long-term improvements to the downtown transportation infrastructure A key element in the development of the improvement scenarios was coordination with other concurrent studies developed for Downtown Phoenix. This involved a collaborative approach designed to ensure consistency in ideas, analysis, and recommendations amongst the various planning efforts.

Equally important in development of the improvement scenarios was coordination with various stakeholders and the public. The City conducted an extensive public input process that included stakeholder focus groups, community open houses, and meetings with residents and downtown organizations. Altogether more than 40 meetings were held with hundreds of residents providing feedback, and helping develop the study recommendations

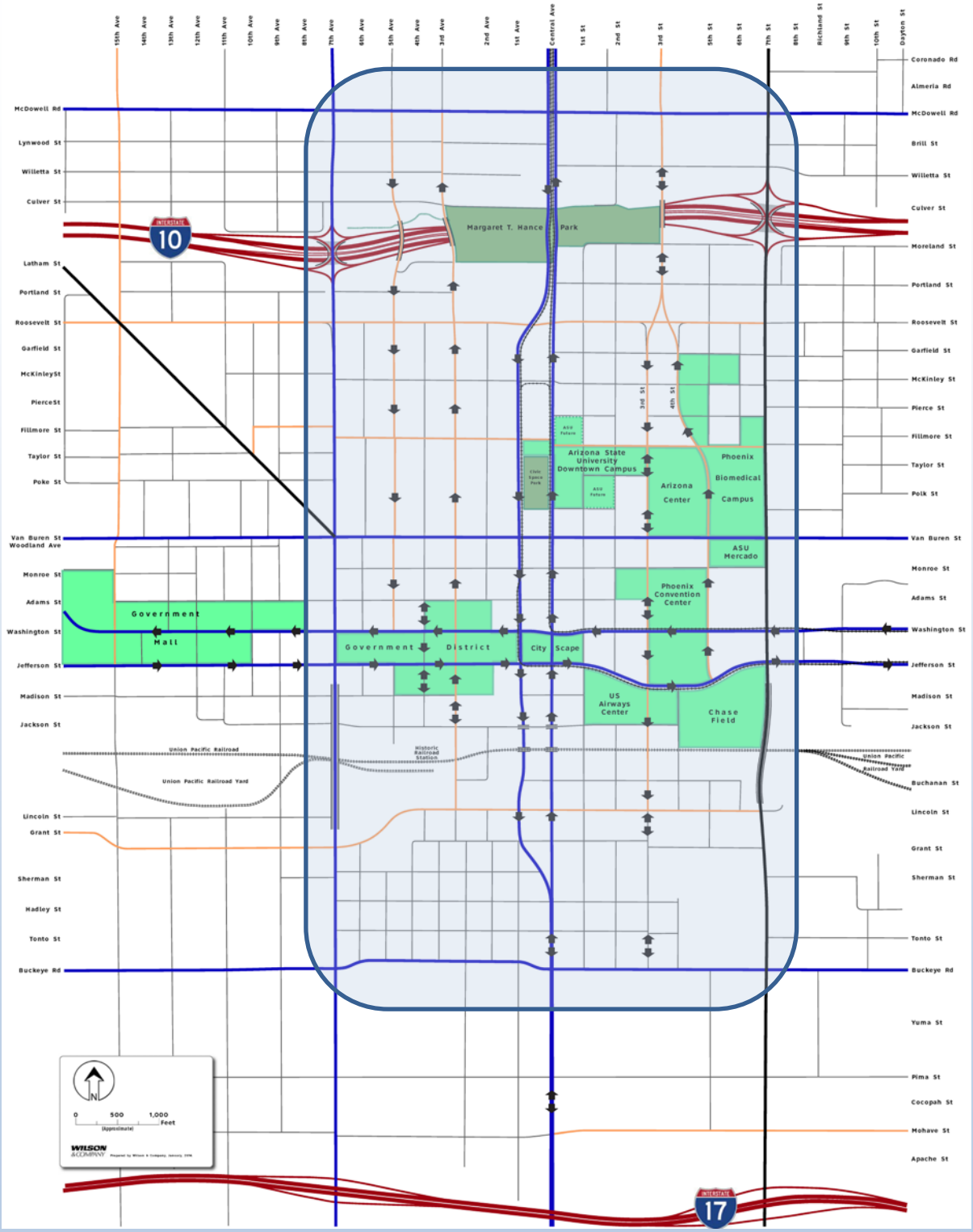
City staff worked to capitalize on current plans and initiatives to craft final recommendations, building on the Street Transportation Department's Complete Streets policy and draft Bicycle Master Plan, as well as citywide planning efforts, such as Reinvent Phoenix and PlanPhx. Potential improvement strategies incorporated multimodal elements and included: enhanced bicycle access and facilities; enhanced pedestrian accommodations and amenities; modifications to the directional flow of traffic on downtown streets; additions or reductions of traffic lanes in concert with redefinition of the way streets meet mobility needs.

The study examined what potential transportation improvement strategies or system modifications could be made to support all users of the City's rights-of-way – motorists, transit vehicles, transit passengers, pedestrians, and bicycles – as well as the needs of commercial trucking and freight. Resulting Recommended Transportation System Improvement Scenarios incorporate an assortment of strategies and projects phased for implementation over three timeframes: 0-5 years, 5-10 years, and long-range (beyond 10 years).

1.2 Study Area

The study area (**Figure 1.1**) adopted for assessment of the downtown transportation system focused on the Central Avenue corridor and Van Buren Street, the historic center of Phoenix. The study area is bounded by: McDowell Road to the north; Buckeye Road to the south; 7th Avenue to the west; and 7th Street to the east.

FIGURE 1.1 STUDY AREA



2.0 Study Goals

Three goals adopted for the study focus on improving accessibility and mobility in Downtown Phoenix.

- Support the efficient and effective movement of people among downtown venues and destinations.
  - Define near-term actions to enhance daily travel into, out of, through, and within the downtown.
  - Identify long-term solutions for supporting a sustainable downtown economy.
- Build more livable streets
  - Identify action that will enhance the pedestrian experience.
  - Define appropriate transportation system linkages and connectivity to support a safer, more efficient downtown travel network.
- Enhance economic opportunities
  - Define modifications to the downtown event management protocols in response to recent and future development activity.
  - Identify transportation system improvements that will support a sustainable multimodal travel network.

3.0 Study Process

3.1 Scope of Work

This study of the Downtown Phoenix transportation system sought to examine issues associated with: typical daily and weekend mobility factors; event-related conditions that demand the most from available transportation modes and services; and parking utilization and access, particularly under event conditions. The process evolved through a series of five key steps:

Initial activities focused on collecting information as a basis for documenting **existing conditions** and examining the efficiency of downtown transportation operations. Data collection included:

- Roadway and Traffic Operations;
- Parking Availability and Location;
- Transit Routes and Ridership;
- Land Use and Development Pattern; and
- Events.

Once study area conditions were established, a multi-step process was followed to arrive at a set of phased improvement recommendations. First, a series of stakeholder and public engagement meetings were held to define the "universe" of **strategies** that could be applicable to the downtown. Examples of potential strategies to perceived transportation issues associated with non-event conditions included:

- Central Avenue closure (Washington Street to Jefferson Street);
- Central Avenue or 1st Street High-Capacity Transit (HCT) service;
- Additional light rail transit (LRT) connectivity and/or a new downtown circulator;
- Conversion of streets from one-way to two-way traffic;
- Complete Streets and modification of street cross-sections to accommodate on-street parking or bicycles; and
- "Road Diet" opportunities (*Application of the road diet concept generally involves reducing vehicular capacity to permit reallocation of right-of-way for other uses, such as: bike lanes; pedestrian islands; bulb outs at intersections; wider sidewalks; and/or parking*).

These strategies were used to define three distinct improvement **scenarios** which were then again shared with stakeholders and the public to gauge feedback on study area priorities. In addition, a series of **special topics** were specifically investigated, including:

- Roadway geometry associated with the conversion of one-way streets to two-way;
- Potential cross-sections for roadway restriping for bike lanes;

- Future of Central Avenue;
- Transit Issues, including future light rail extensions and turnarounds, redevelopment of Central Station, and the feasibility of local circulator service; and
- Minor modifications to the Downtown Event Management Plan to respond to selected strategies.

Ultimately, the process resulted in recommendations for improvements defined within a **phased plan** consisting of three time frames.

3.2 Public and Stakeholder Outreach

This study followed a non-traditional approach to identifying, examining, evaluating, and recommending transportation solutions for Downtown Phoenix. As noted in the Study Purpose earlier, the intent of the study was to define alternative improvement scenarios for the purpose of identifying solutions to known and perceived transportation system issues. This study, therefore, relied on a three-tiered approach to obtain necessary information. Specifically, inputs were sought from three sources, regarding transportation system and service conditions within the study area.

Committee Coordination

Presentations were made to several standing committees through the course of the study process. However, regular meetings at key project milestones were convened with two key committees:

Executive Planning Committee (EPC) – This group consisted of key City of Phoenix staff responsible for or familiar with specific current issues relating to transportation systems, traffic management, alternative modes, and safety. The EPC was engaged at major milestones during the study to review and comment on key findings and recommendations.

Event Management Committee – This committee consists of representatives from the various event venues, as well as representatives from the City of Phoenix Police Department responsible for executing the Downtown Event Management Plan.

Stakeholders

This group consisted of five subgroups defined to give focus and representation to specific issues and concerns relating to transportation system definition and operation in the study area:

- Residents/Neighborhoods/Planning Groups;
- Downtown Businesses and Associations;
- Downtown Parking Operator;
- Venues;
- Public/Private Transportation Operators.

Each of these subgroups participated in the study as an individual Focus Group. Focus Group sessions were used to identify issues and provided a forum for discussing potential solutions. The five Focus Groups also were an important source of direct information relating to transportation system operations in the study area.

Public

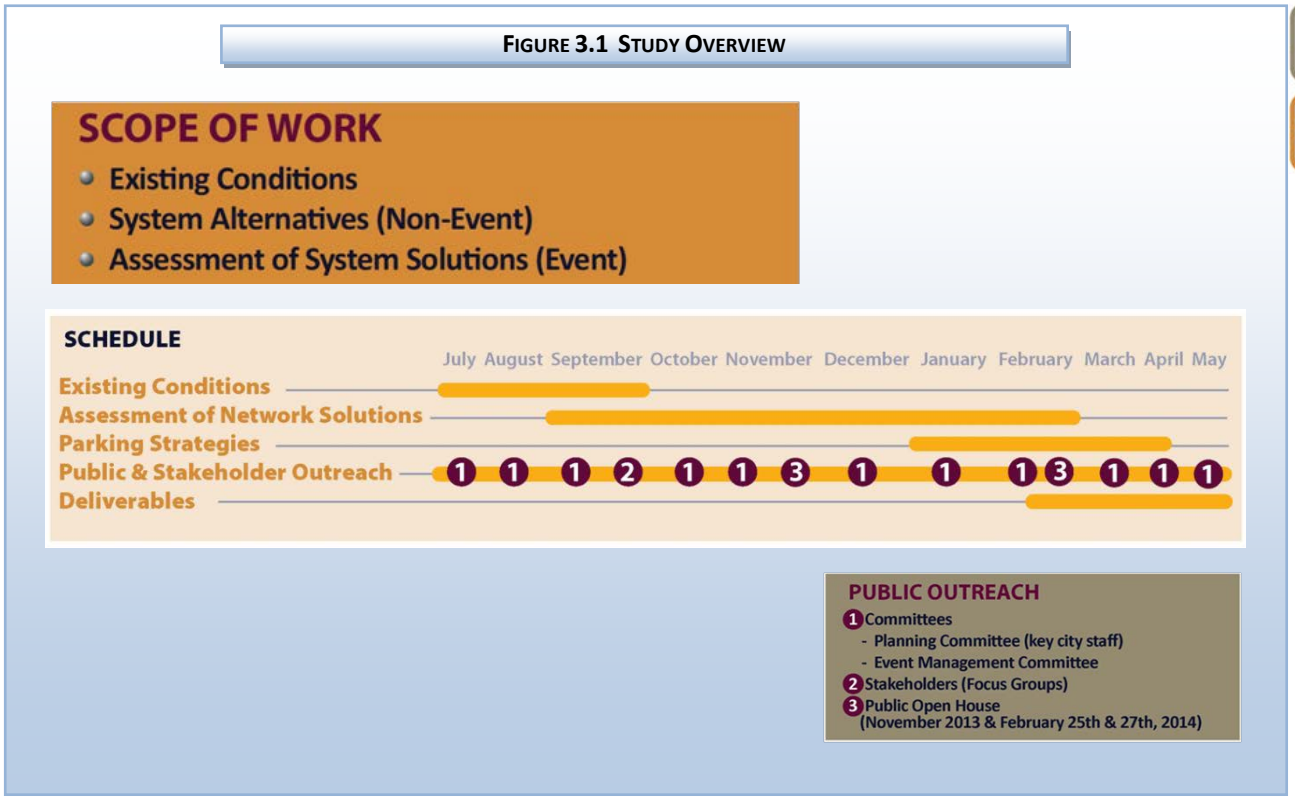
The general public also was invited to participate in examination of downtown transportation issues and given the opportunity to express concerns and offer potential solutions. Four Open House events were held to provide an appropriate forum for soliciting feedback and facilitating effective interchange between the public,

City staff, and consultants. The first two open houses offered the opportunity for the public to get answers to questions, contribute to defining study objectives, and express views and opinions regarding potential strategies for improving the functionality of city streets, transit service, bicycle travel, and pedestrian mobility in the study area. The next two open houses gave the public an opportunity to examine and respond to recommended strategies expressed as alternative improvement scenarios for three timeframes: near-term (0-5 years), mid-term (5-10 years), and long-range (11+ years). Improvement scenarios included enhanced pedestrian and bicycle facilities, modifications to the direction of travel on certain streets, change in the number of lanes of selected streets, and redefinition of the way streets meet mobility needs.

3.3 Schedule

The study schedule extended over a period of approximately one year. The relationship between the scope of work and schedule is shown in **Figure 3.1**. Identification and assessment of downtown transportation network solutions to known and perceived issues occupied the bulk of the study process – six months. During this period, there were six series of committee meetings, five Focus Group sessions, and two public open houses.

FIGURE 3.1 STUDY OVERVIEW



4.0 Existing Conditions

The assessment of existing conditions included actions to gain full understanding as to how the downtown transportation system functioned and the efficiency and effectiveness with which it functioned. Major elements were described and mapped. At the same time, numerous project reports and studies were reviewed to provide a basis for evaluating feasibility and compatibility of proposed strategies relative to other improvement actions recently completed or planned. This activity also included a data collection program to obtain first-hand, in-the-field information regarding event management and traffic activity during events, including parking facility utilization.

4.1 Existing Transportation Infrastructure

The existing downtown transportation system is an interconnected, multimodal network providing alternative means for traveling into and out of Downtown Phoenix, as well as traveling between and among downtown destinations (**Figure 4.1**). The foundation of the transportation system is the grid street network, which is comprised of high-capacity Interstate and Arterial roadways and METRO Light Rail, which largely function to provide ingress and egress to the downtown. These roadways are supported by a grid of Collector and Local streets that support mobility and access to destinations within the downtown. The Phoenix Business Circulator – DASH, like the Collector and Local streets, supports mobility between destinations in the Central/1st avenues and Washington/Jefferson streets corridors.

Existing bicycle lanes and related infrastructure provide access to the study area, but these facilities generally stop at the boundary of the study area. Lanes on N. 3rd and N. 5th avenues penetrate to W. Washington Street in the Government District, and lanes on S. 1st and S. Central avenues penetrate to Lincoln Street and the Union Pacific Railroad (UPRR) line between Jackson and Buchanan streets, respectively. However, no bicycle lanes are available to support mobility among various downtown destinations. Three Bike Share Stations recently were installed in the study area to facilitate bicycle travel and enhance mobility options for downtown area workers, students, and visitors.

4.2 Completed and Ongoing Projects

A number of projects/studies geared toward identifying improvements in Downtown Phoenix have been completed, are ongoing, or anticipated.

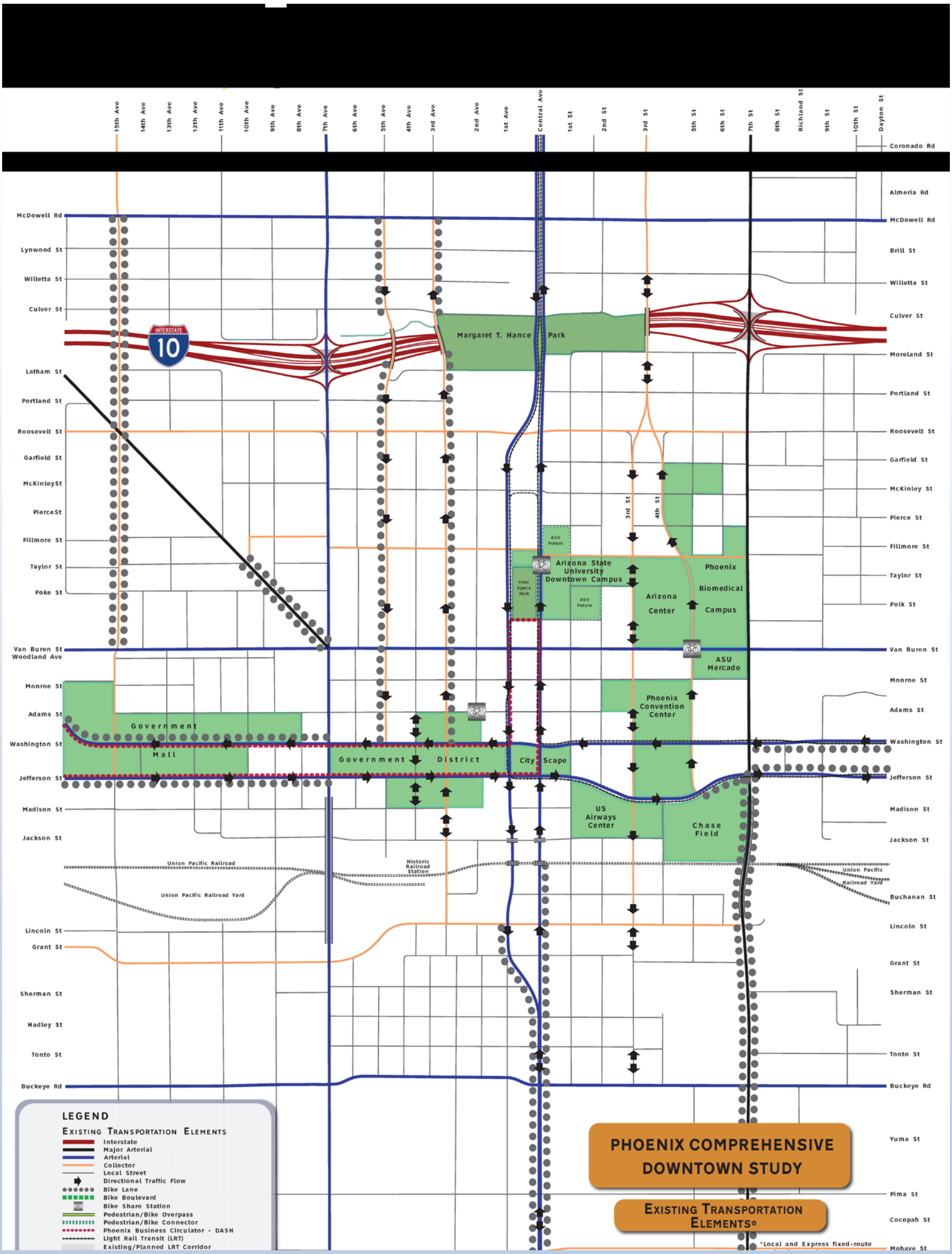
4.2.1. Transportation Infrastructure

Central Phoenix Transportation Framework Study – The focus of this study is to develop an environmentally sustainable, multimodal transportation system to serve the core area of the Phoenix metropolitan area (within the Loop 101/Loop 202 circumferential freeway system) well into the future. The Downtown Phoenix Comprehensive Transportation Study is an important augmenting activity of this larger study.

Capitol/I-10 West Light Rail Extension – This project will extend METRO Light Rail service 11 miles west from downtown Phoenix through the State Capitol area to N. 79th Avenue I-10 West (Papago Freeway). The new line would directly connect with existing METRO Light Rail lines operating on 1st Avenue/Central Avenue and Washington/Jefferson streets.

South Central Avenue Corridor Alternatives Analysis – This planning activity is focused on evaluation of several high-capacity transit (HCT) options, including light rail transit (LRT), bus rapid transit (BRT), and modern streetcar, for implementation in the S. Central Avenue Corridor. It is anticipated the new service would directly connect with existing METRO Light Rail lines operating on 1st Avenue/Central Avenue and Washington/Jefferson streets.

FIGURE 4.1 EXISTING TRANSPORTATION SYSTEM AND SERVICES



Downtown Event Management Plan – "Sunburst" – The Sunburst Plan was conceived and created in the 1990's to provide smooth, evenly distributed traffic flows throughout Downtown Phoenix, especially on days and evenings when multiple events are scheduled. This Downtown Phoenix Comprehensive Transportation Study included evaluation of current and near-term travel conditions associated with events to identify potential alternative transportation improvement strategies for enhancing multimodal travel in the study area during both non-event and event conditions.

Greening Lower Grand Avenue – This plan set the stage for developing environmentally and economically sustainable designs along lower Grand Avenue between the Interstate 10 (I-10) overpass and the intersection at Van Buren Street and 7th Avenue. The design concepts encourage safer pedestrian and bicycle activity while maintaining on-street parking and providing space for a future streetcar or trolley. The project, sponsored by the U.S. Environmental Protection Agency, serves as an example for streetscape improvements in arid regions.

Bike Master Plan – The draft plan developed during this ongoing planning activity documents all existing bicycling infrastructure and results in a proposed set of projects to expand the system and create connectivity across the city and neighboring communities. Cycling routes used to travel to and from major Phoenix destinations, including the study area, potential new routes, and barriers to traveling via bicycle in the city will be investigated. The Bike Master Plan also provides a framework for developing appropriate bicycle facilities to support the Bike Share Program.

Bike Share Program – This program, initiated in December, 2013, through implementation of CycleHop, is designed to promote bicycles as a non-polluting form of transport, reduce bike theft and vandalism, and make it easier for persons to move between transit stops and destinations with the downtown area. This program is meant to augment current transit services in Phoenix and is seen as particularly supportive of the young urban professionals and students working or residing in the downtown area.

Phoenix Union Station

Source: Cygnusloop99 at Wikipedia.

Historic Union Station – Local planning activities of the Maricopa Association of Governments (MAG) relating to implementing commuter rail service and renewing inter-city passenger rail service for the Phoenix metropolitan area have included revitalization of Union Station. However, there are no definitive plans or actions expected in the near future.

Complete Streets Initiative – The City of Phoenix Street Transportation Department developed two Complete Streets ordinances that were adopted by the City Council. Complete Streets is a design concept adopted to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. These ordinances and the associated draft policy were key to evaluating potential solutions to downtown transportation issues. The adopted ordinances, dated July 2, 2014, are provided in **Appendix A**.

Buckeye Road: Central to 16th Street - The proposed improvements on Buckeye Road extending from Central Avenue on the west to 16th Street on the east encompasses approximately 1.5 miles. The ultimate project improvements will consist of paving, storm drain, sidewalk, curb and gutter, ADA ramps, streetlights, landscaping, signal modification and bike lanes for the project corridor.

Warehouse District Study – The Warehouse District in downtown Phoenix consists of many older buildings that once served a variety of important economic functions and supported the families in nearby neighborhoods. Although many of these buildings have been neglected and no longer are suitable for most modern business and industrial activity, the City along with other communities around the nation has initiated efforts to evaluate opportunities for adaptive reuse of these buildings. An important step in this direction has

been accomplished with completion of a study titled "Reactivating Phoenix's Historic Warehouse District," dated June, 2014. This study presents needed analyses of the District's current conditions and opportunities for adaptive reuse, reactivation strategies for reuse that include improvements in streetscapes and connectivity with other activity centers, and Plan of Action supported by an index of available funding and assistance sources for implementing improvement initiatives.

4.2.2. Development Projects and Initiatives

Roosevelt Row – This study focused on evaluating vehicle, bicycle, and pedestrian traffic flows on Roosevelt Street between N. 5th Avenue and N. 7th Street. The study resulted in identifying low-cost modifications with the potential to improve operations and a comprehensive set of design guidelines for both public and private improvement actions.

Central Station – The Phoenix City Council Transportation and Infrastructure Committee approved actions to develop Central Station to include transit-oriented development (TOD) in a high-rise building. This project will maintain transit service functions while enhancing the value of the property to the community.

1st Street Streetscape Study, Van Buren Street to Moreland Street – This study, essentially a Pilot Study – focused on identifying a set of preferred urban design improvements and treatments that could be implemented to enhance the attractiveness of downtown streets and livability of the downtown area, as a whole – actions that could be undertaken in conjunction with new development or through direct public or private capital investment.

CityScape – This $600 million mixed-use development provides 600,000 square feet of office and commercial space, as well as the Hotel Palomar, in the heart of Downtown Phoenix at the future crossroad of north-south and east-west METRO Light Rail operations. The development also includes CityScape Residences – 224 luxury apartments atop the Hotel Palomar.

Adams Street Reactivation Study – This study was undertaken to identify opportunities to activate and encourage development of the two blocks of Adams Street between Central Avenue and S.2nd Street in Downtown Phoenix.

UL2 Residences – This mixed-income family apartment complex completed in 2013 includes 63 affordable units and seven market-rate units.

Adams Street, Downtown Phoenix, Arizona

Source: Adams Street Activation Study Update, Downtown, Aviation and Redevelopment Subcommittee, City of Phoenix Community and Economic Development, June 18, 2013.

Phoenix Biomedical Campus – The master plan for this ongoing development includes 6.5 million square feet of space for health- and research-related activities expected to result in 14,000 jobs in the downtown area.

Historic U.S. Post Office

Source: Downtown Phoenix Development Activity, First Quarter 2014, City of Phoenix Economic Development Department.

Luhrs Marriott Courtyard/Residence Inn – The repurposing of the historic Luhrs Tower, which is on the METRO Light Rail line, will create a dual-purpose hotel servicing short- and long-term stays in the downtown area.

ASU-Downtown Phoenix Campus – Continuing development of the Downtown Campus of Arizona State University (ASU) eventually will support a 15,000 student body over nine city blocks supported by an equally significant number of faculty and staff.

Fillmore Post Office/ASU Student Center – Renovation of this historic U.S. Post Office is a prime example of adaptive re-use by supporting a growing downtown community of residents and

students. The building now is home to a large student study space, ASU Career Services, ASU police, while still functioning as the area's postal facility.

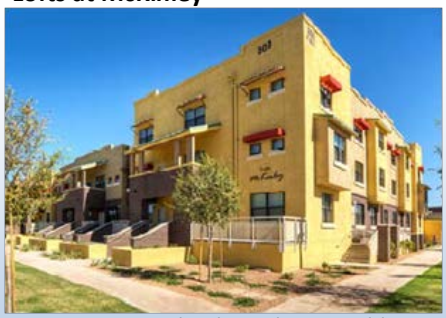
Valley National Bank Building – This historic building, also on the METRO Light Rail line, is planned to be repurposed as a 150-room select service hotel.

City Space – City Space is a new public park directly north of Central Station, located in the heart of the ASU-Downtown Phoenix Campus. The repurposed A.E. England Building provides classrooms, meeting space, and a coffee house. The park also includes an entertainment venue.

Roosevelt Point Student Housing – This $52 million student housing project provides housing for 609 students.

Lofts at McKinley – This 60-unit affordable senior residential development adds additional downtown residents to the increasing dynamic of downtown Phoenix.

Lofts at McKinley



Source: Downtown Phoenix Development Activity, First Quarter 2014, City of Phoenix Economic Development Department.

YMCA/ASU Student Rec Center – The new 64,000 square foot ASU Downtown Phoenix Campus Recreation Center (Y@ASU) is a five-story complex featuring a large gym, weight room, and rooftop pool. It is located just south of and connected with the Lincoln Family Downtown YMCA. In addition to supporting downtown residents and ASU students, Y@ASU will house the Exercise & Wellness Program of ASU's School of Nutrition and Health Promotion.

Reinvent Phoenix – This project, funded in part through a Community Challenge Planning Grant from the U.S. Department of Housing and Urban Development (HUD), aims to create a new, livable model for urban development along the METRO Light Rail line in Downtown Phoenix. TOD concepts already have been prepared. These will be augmented by plans for five other defined areas along the LRT line with the expectation of increased LRT ridership and interaction with the Downtown.

Reinvent Phoenix Street Conversion Concept

Source: Transit-Oriented Development Initiatives, Transit District Planning Program, City of Phoenix presentation at AzTA/ADOT 2012 Transit Conference, April 24, 2012.

Hance Park Master Plan/Oasis-Plaza Project – This project is focused on a re-visioning of Hance Park to create a unique, public space – a great outdoor room – to attract local residents and visitors alike for special events, festival, and simply convening. An adjunct to this grand plan is development of enhanced pedestrian corridors and areas within Downtown Phoenix integrally linked with Oasis Plaza in Hance Park.

Oasis Plaza Concept for Hance Park

Source: Hance Park Master Plan – Final Report, City of Phoenix, March 27, 2012.

4.3 Data Collection

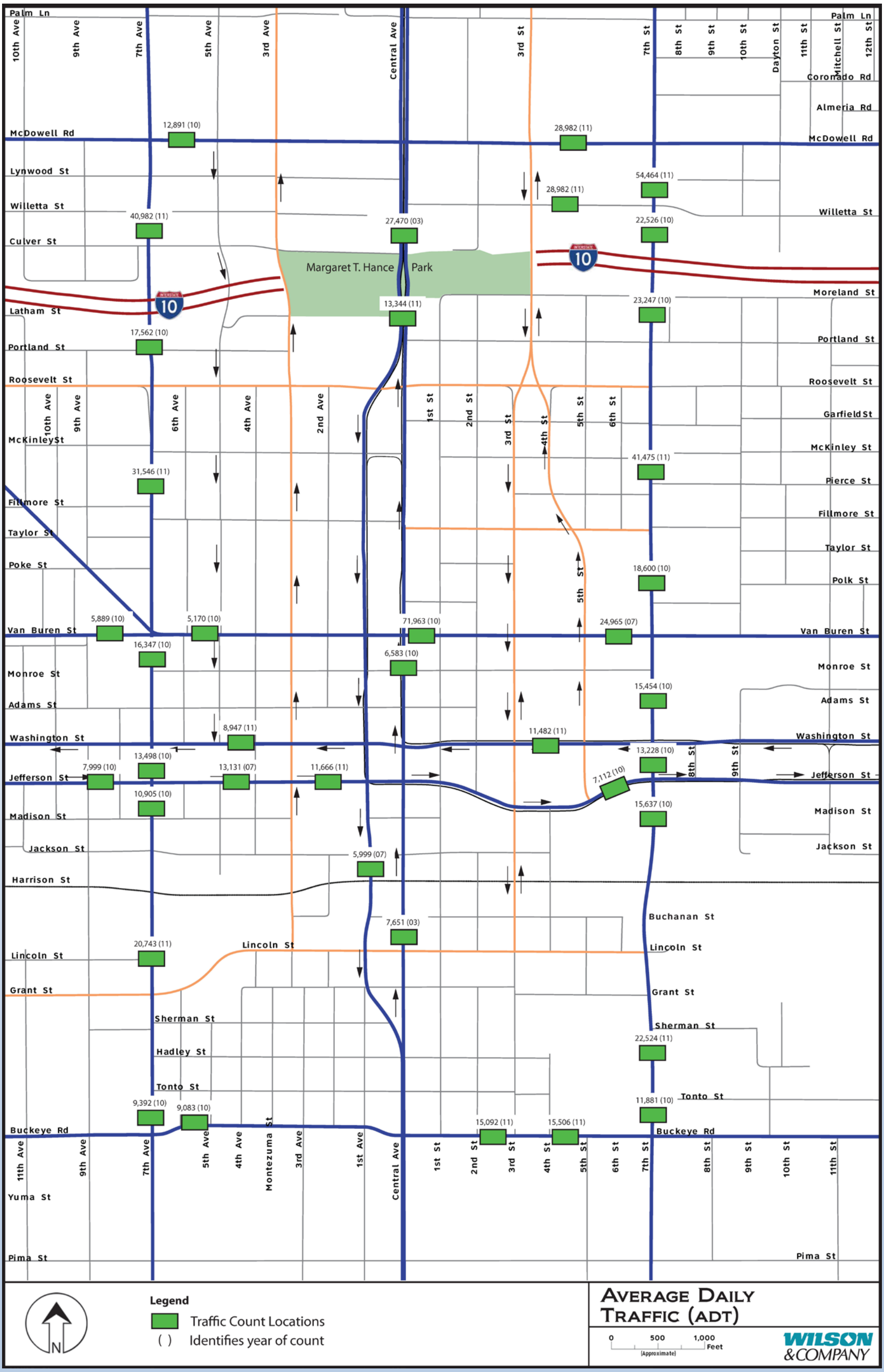
Examination of the existing downtown transportation system focused on gathering data regarding operational characteristics of the travel network. METRO Light Rail is a fixed-route service based on substantial community investment in trackage, stations, and street right-of-way. Also, future LRT lines through the downtown already are on the drawing boards. The issue of continued bus service at Central Station is a future consideration, which likely will involve collaborative planning with City of Phoenix Public Transit and Street Transportation departmenes, Valley Metro, the operation of METRO Light Rail. Similarly, the routing and operation of Fixed Route Bus, Express Bus, and Circulator Bus services were considered beyond the scope of this study. Sidewalks supporting pedestrian movements are in place throughout the downtown. While enhancements to pedestrian corridors were addressed, they do not, for the most part, directly impact street operations. Considerable information is available regarding the daily operation of the downtown street system. Therefore, the data collection efforts were focused on the downtown street system and the utilization of available parking during major events, which represents a significant and relatively frequent traffic operations issue for the study area.

4.3.1. Daily, Non-Event Traffic

Traffic counts for study area streets have been counted numerous times over the years. **Figure 4.2** shows the counts available for the study area. Excluding traffic levels on Interstate 10, the highest recorded level of traffic is directly east of Central Avenue on E. Van Buren Street. A traffic volume of almost 72,000 vehicles per day was recorded at this location in 2010. Other high volume locations include: N. 7th Avenue between McDowell Road and Interstate 10 (40,982 in 2011); N. 7th Street between McDowell Road and Interstate 10 (54,464 in 2011); and N. 7th Street between McKinley and Pierce streets.

The volume of existing peak-period, daily (i.e., non-event) traffic was derived from data supporting MAG's TransModeler network for the AM and PM periods. The MAG TransModeler network provides information for downtown intersections for the two periods: 7:00 AM to 8:55 AM; and 4:00 PM to 5:55 PM. Information was obtained in the form of left turns, through movements, and right turns for all operating approaches.

FIGURE 4.2 AVERAGE DAILY TRAFFIC IN THE STUDY AREA



4.3.2. Event Traffic

Counts for event traffic conditions were scheduled to coincide with the size of downtown events, as defined in **Table 4.1**. The three-tier structure for traffic counts is derived from the Sunburst Plan, which provides guidance regarding the staffing level required for three event conditions, as defined by expected attendance. In addition, 50 intersections were identified initially to be the object of traffic movement counts; ultimately, individual traffic counts were conducted for 45 intersections. All intersections are listed in **Table 4.2**.

TABLE 4.1
TIER I, II, AND III TRAFFIC MANAGEMENT PLAN

Event Class	Anticipated Attendance	Traffic Control Officers
TIER I – Small Event	<15,000	24+/-
TIER II – Mid-Size Event	15,000 – 30,000	28+/-
TIER III – Large Event	>30,000	32-34

Notes:

- TIER III coverage can occur at the discretion of the Police Lieutenant in charge of Sunburst Plan implementation when there are two simultaneous events with expected attendance less than 30,000 attendances.
- Approximately ten (10) additional officers are paid by the Diamondbacks organization for days when games are accompanied with fireworks. Approximately ten (10) fireworks events occur each year. Driveways from private parking structures are controlled by off-duty police officers with permission to close lanes, as necessary.

Source: Sunburst Traffic Management Plan, Phoenix Police Department

Counts for large event conditions included all 45 intersections, as shown in **Figure 4.3**. Pedestrian movements were counted at ten select intersections immediately impacted by large events. In addition, traffic movements at ten select intersections were observed and analyzed based on video recordings using Miovision technology. The mid-size event conditions are slightly less burdensome on the downtown street network and, therefore, traffic impacts are less severe. Thus, intersection movement counts were conducted at only 25 of the 50 intersections identified (**Figure 4.4**). Pedestrian movements were counted at only six of the intersections. However, Miovision recordings were conducted at the same ten intersections selected for counting under the large event conditions, primarily because the recording equipment was in place, and the service easily extended for additional counts. Due to the massive amount of information obtained, collected data is not included as an appendix to this report but is available for electronic distribution to those who have an interest.

4.4 Parking Utilization

Consistent with the survey of events according to size, a parking survey was conducted to determine usage and direction of travel associated with downtown parking facilities for the Tier I and Tier II Events. Data obtained is available for electronic distribution. **Figure 4.5** and **Figure 4.6** show the locations of parking facilities surveyed for Tier I and Tier II events, respectively.

TABLE 4.2
DATA COLLECTION PLAN: LARGE EVENT (TIER II & III) & SMALL-SIZE EVENT (TIER I) LOADING AND UNLOADING

1. W. McDowell Road/N. 7th Avenue*
2. McDowell Road/Central Avenue
3. E. McDowell Road/N. 7th Street
4. I-10/N. 7th Avenue Interchange – 10 movements at Interchange*
5. I-10/N. 5th Avenue (5th Avenue, One-Way SB) – 4 movements
6. I-10/N. 3rd Avenue (3rd Avenue. One-Way NB) – 3 movements
7. I-10/N. 7th Street Interchange - 10 movements at Interchange
8. W. Roosevelt Street/N. 7th Avenue
9. W. Roosevelt Street/N. 5th Avenue (5th Avenue, One-Way SB) – 3 movements
10. W. Roosevelt Street/N. 3rd Avenue (3rd Avenue, One-Way NB) – 3 movements
11. Roosevelt Street/N. 1st Avenue and N. Central Avenue (1st Avenue, One-Way SB & Central Avenue, One-Way NB) – 3 movements
12. E. Roosevelt Street/N. 3rd Street and N. 5th Street (3rd Street, One-Way SB & 5th Street, One-Way NB) – 3 movements
13. E. Roosevelt Street/N. 7th Street
14. W. Van Buren Street/Grand Avenue/N. 7th Avenue – 5 Approaches **
15. W. Van Buren Street/N. 1st Avenue (1st Avenue, One-Way SB)
16. Van Buren Street/N. Central Avenue (Central Avenue, One-Way NB)
17. E. Van Buren Street/N. 5th Street (5th Street, One-Way NB)
18. E. Van Buren Street/N. 7th Street
19. W. Washington Street/7th Avenue (W. Washington Street, One-Way WB)
20. W. Washington Street/3rd Avenue (3rd Avenue, One-Way NB & W. Washington Street, One-Way WB)
21. W. Washington Street/1st Avenue (Dropped)*
22. Washington Street/S. Central Avenue (Central Avenue, One-Way NB & W. Washington Street, One-Way WB)*
23. E. Washington Street/1st Street (Dropped)*
24. E. Washington Street/2nd Street (W. Washington Street, One-Way WB)*
25. E. Washington Street/3rd Street (Dropped)*
26. E. Washington Street/5th Street (5th Street, One-Way NB & W. Washington Street, One-Way WB)*
27. E. Washington Street/7th Street (W. Washington Street, One-Way WB)*
28. W. Jefferson Street/S. 7th Avenue (W. Jefferson Street, One-Way EB)
29. W. Jefferson Street/S. 1st Avenue (1st Avenue, One-Way SB & W. Jefferson Street, One-Way EB)*
30. Jefferson Street/S. Central Avenue (Dropped)*
31. E. Jefferson Street/S. 1st Street (1st Street, One-Way SB & W. Jefferson Street, One-Way EB)*
32. E. Jefferson Street/S. 2nd Street (Dropped)*
33. E. Jefferson Street/S. 3rd Street (3rd Street, One-Way SB & W. Jefferson Street, One-Way EB)*
34. E. Jefferson Street/S. 4th Street (W. Jefferson Street-One Way EB)
35. E. Jefferson Street/S. 5th Street (5th Street, One-Way NB & W. Jefferson Street, One-Way EB)*
36. E. Jefferson Street/S. 7th Street (W. Jefferson Street, One-Way EB)*
37. W. Madison Street/S. 1st Avenue (1st Avenue, One-Way SB)
38. Madison Street/S. Central Avenue (Central Avenue, One-Way NB)
39. W. Grant Street/S. 7th Avenue
40. W. Lincoln Street/S. 1st Avenue (1st Avenue, One-Way SB)*
41. Lincoln Street/S. Central Avenue (Central Avenue, One-Way NB)*
42. E. Lincoln Street/S. 3rd Street (3rd Street, One-Way SB north of Lincoln Street)*
43. E. Lincoln Street/S. 7th Street */**
44. W. Buckeye Road/S. 7th Avenue **
45. Buckeye Road/S. Central Avenue (Central Avenue, One-Way NB)
46. E. Buckeye Road/S. 7th Street **
47. E. Buckeye Road/I-10 SB Frontage Road (One-Way) – 2 movements
48. E. Buckeye Road/I-10 NB Frontage Road (One-Way) – 2 movements
49. S. 7th Street/I-17 WB Frontage Road (One-Way) – 2 movements
50. S. 7th Street/I-17 EB Frontage Road (One-Way) – 2 movements

* Mid-Size Event Study Area intersection
** Two person count location

FIGURE 4.3 LARGE EVENT STUDY AREA INTERSECTIONS

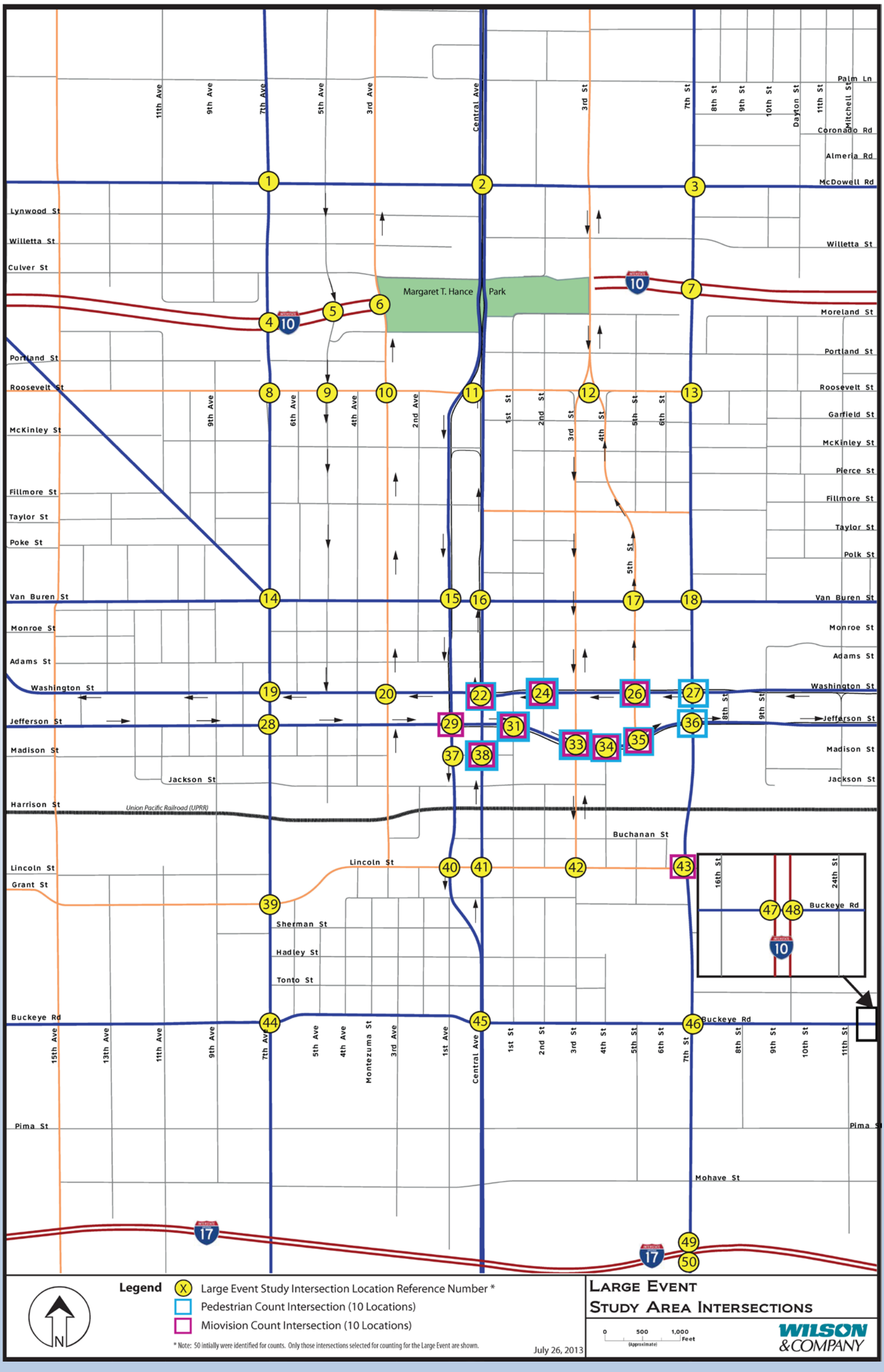


FIGURE 4.4 MID-SIZE EVENT STUDY AREA INTERSECTIONS

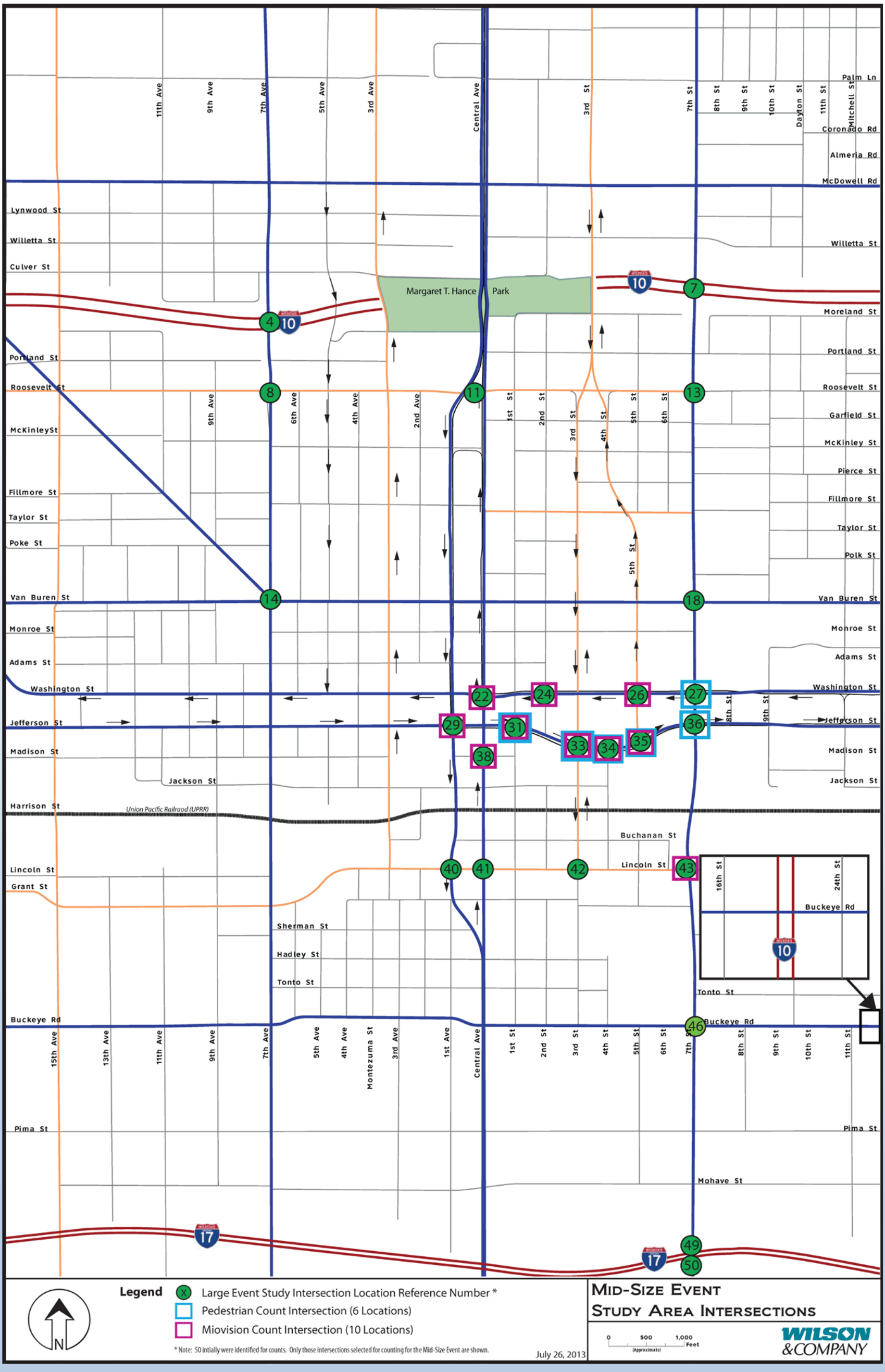


FIGURE 4.5 TIER II PARKING FACILITIES INVENTORY

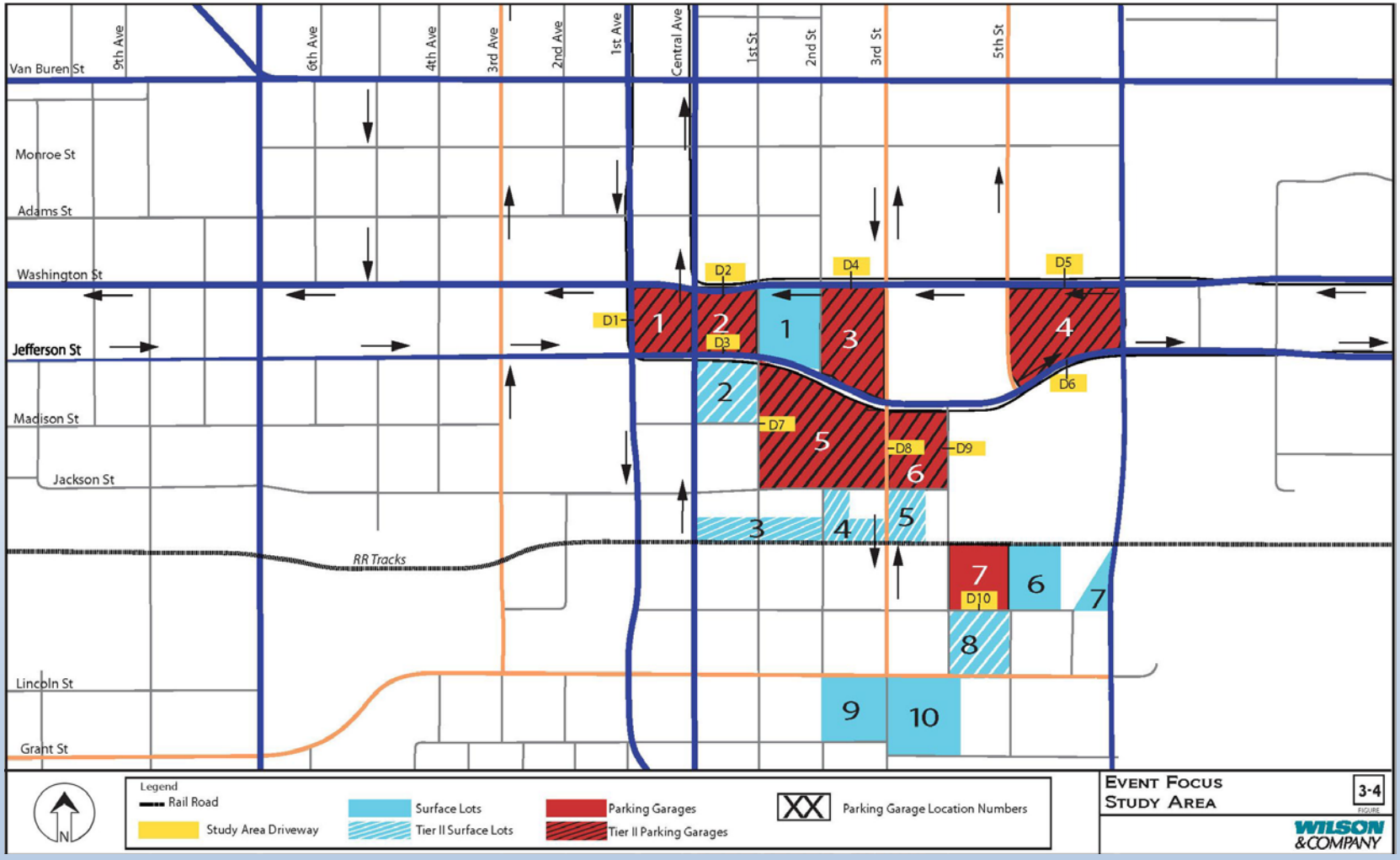
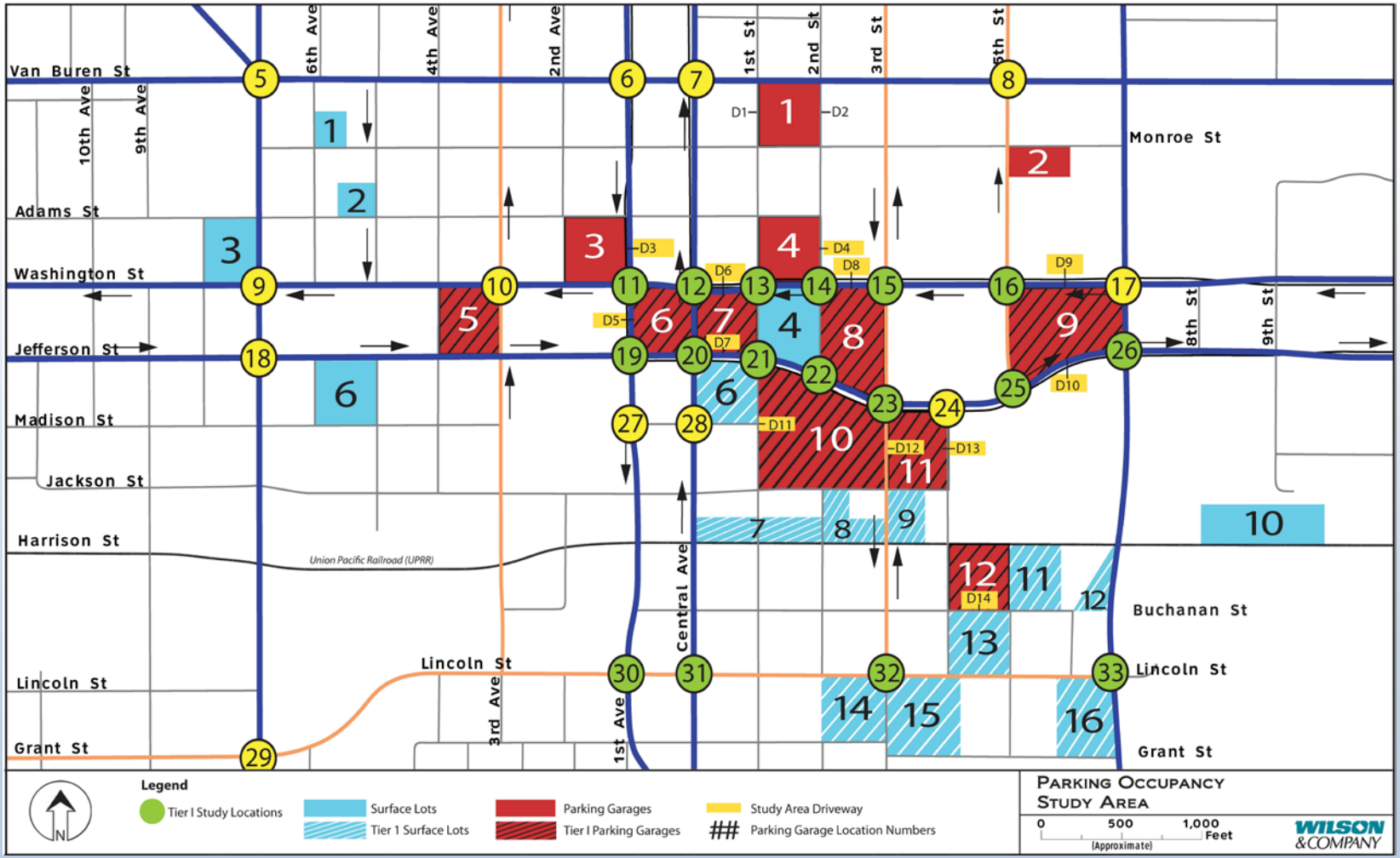


FIGURE 4.6 TIER I PARKING FACILITIES INVENTORY



5.0 Potential Travel Network Solutions

5.1 Potential Improvement Strategies

Examination of potential improvements to downtown access, circulation, and connectivity was initiated with identification of a nominal universe of solutions. Relying on feedback from Focus Group meetings (see detailed discussion of these meetings in Chapter 9), numerous potential improvement strategies were developed. Strategies focused on:

- Policy decisions to link transportation strategies to livability and economic development initiatives;
- Conversion of one-way streets to two-way operations;
- Additional bicycle lanes/routes;
- Identification of "Gateway" locations for entry into the downtown;
- Central Avenue closure (Washington Street to Jefferson Street);
- Central Avenue or 1st Street High-Capacity Transit (HCT) service;
- Additional LRT connectivity and/or expanded downtown circulator service;
- Complete Streets applications and modification of street cross-sections to accommodate on-street parking and/or bicycles as well as expanded pedestrian travel ways; and
- "Road Diet" opportunities (*Application of the road diet concept generally involves reducing vehicular capacity to permit reallocation of right-of-way for other uses, such as: bike lanes; pedestrian islands; bulb outs at intersections; wider sidewalks; and/or parking*).

Multiple design concepts/treatments for street cross-section modification were considered feasible, available, and appropriate for achieving desired improvements to the downtown transportation system. **Figure 5.1** shows the range of options investigated.

City staff and the project team were presented a map illustrating the "universe" of potential improvement strategies identified during the Focus Group Meetings (**Figure 5.2**). This review activity provided the basis for defining two improvement scenarios incorporating distinct combinations of potential strategies.

5.2 Improvement Scenarios

As the study progressed, other concepts were defined and incorporated, as appropriate, in response to continuing stakeholder inputs and feedback. Two alternative improvement scenarios ultimately were developed that included different subsets of available strategies. Scenario A focused on Central Avenue closure and conversion of 3rd Avenue, 5th Avenue, 3rd Street, and 5th Street to two-way operations (**Figure 5.3**). Scenario B focused on implementing a Road Diet with median improvements along 7th Avenue and 7th Street (**Figure 5.4**). The City staff and project team provided the following feedback.

- The proposed 5th Street turnaround for LRT service will not infringe on the current street width. The track is proposed to occupy the current pedestrian/sidewalk area. MERTO Light Rail could use 11th Street for the turnaround, but it is further out of direction.
- Improvement strategies/concepts also should consider modifying posted speeds to enhance the downtown travel experience.

FIGURE 5.1 STREET CONVERSION CONCEPTS

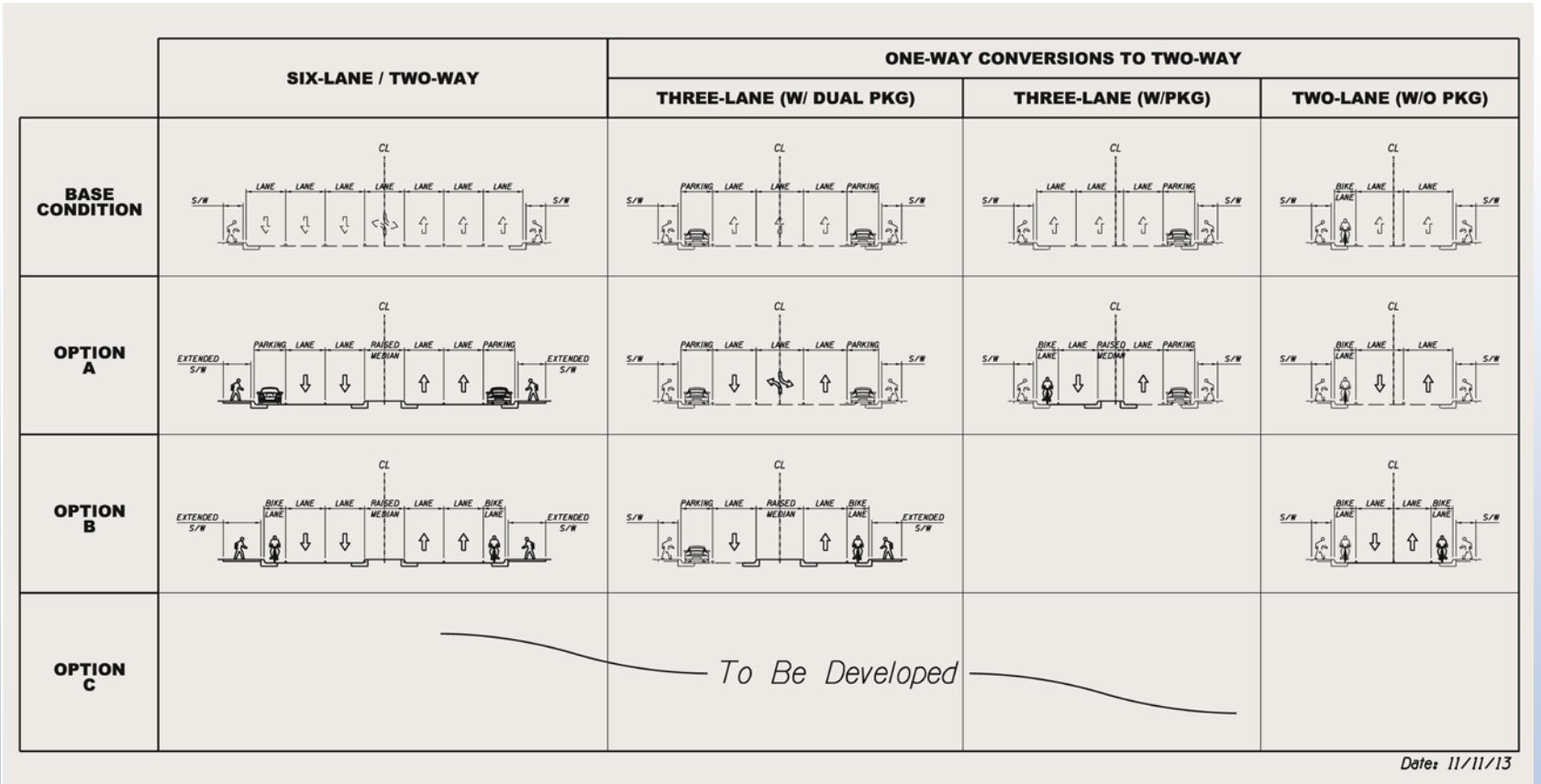


FIGURE 5.2 POTENTIAL DOWNTOWN CIRCULATION/CONNECTIVITY IMPROVEMENT: UNIVERSE OF IMPROVEMENT CONCEPTS

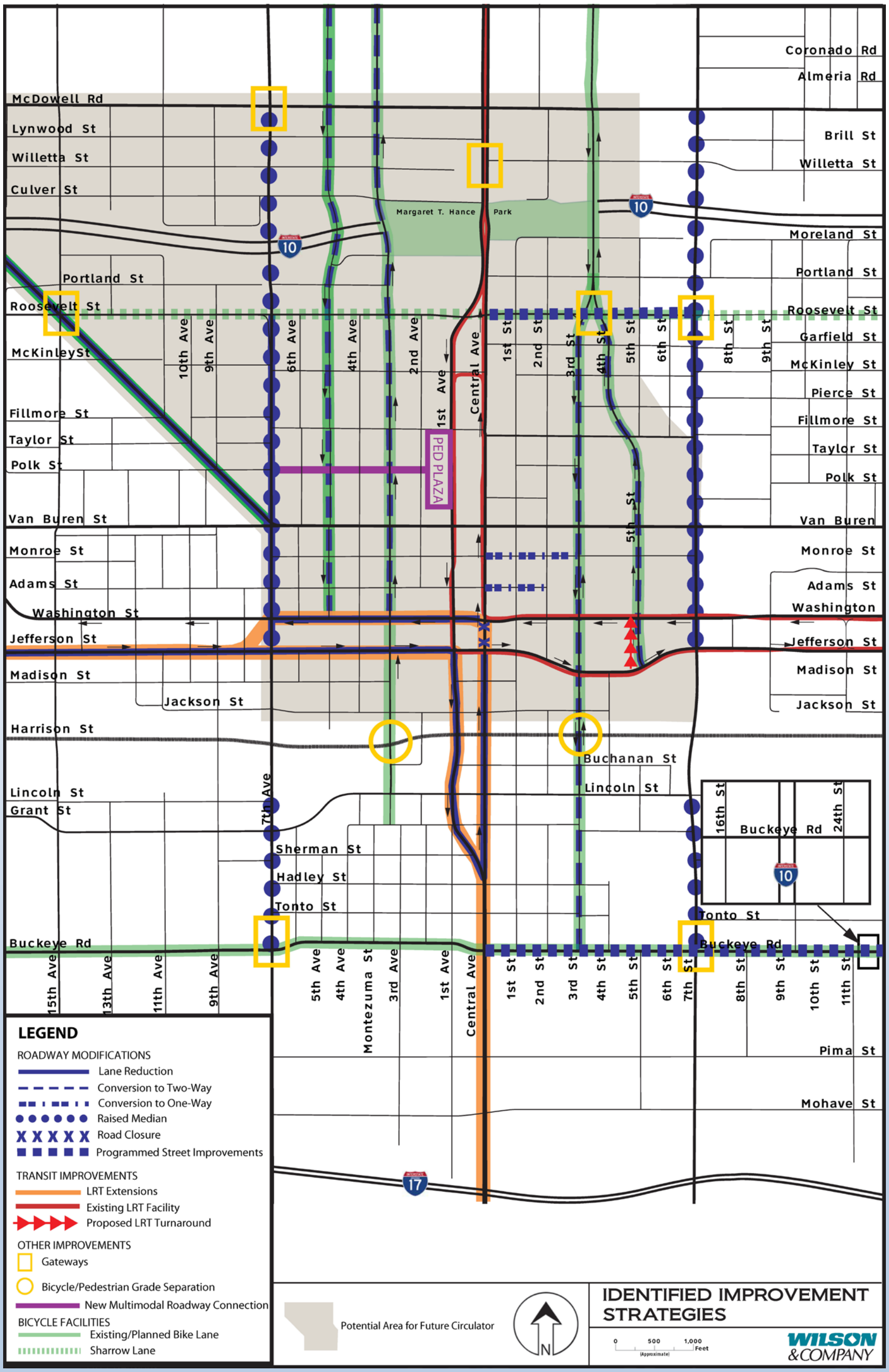


FIGURE 5.3 POTENTIAL DOWNTOWN CIRCULATION/CONNECTIVITY IMPROVEMENT: SCENARIO A

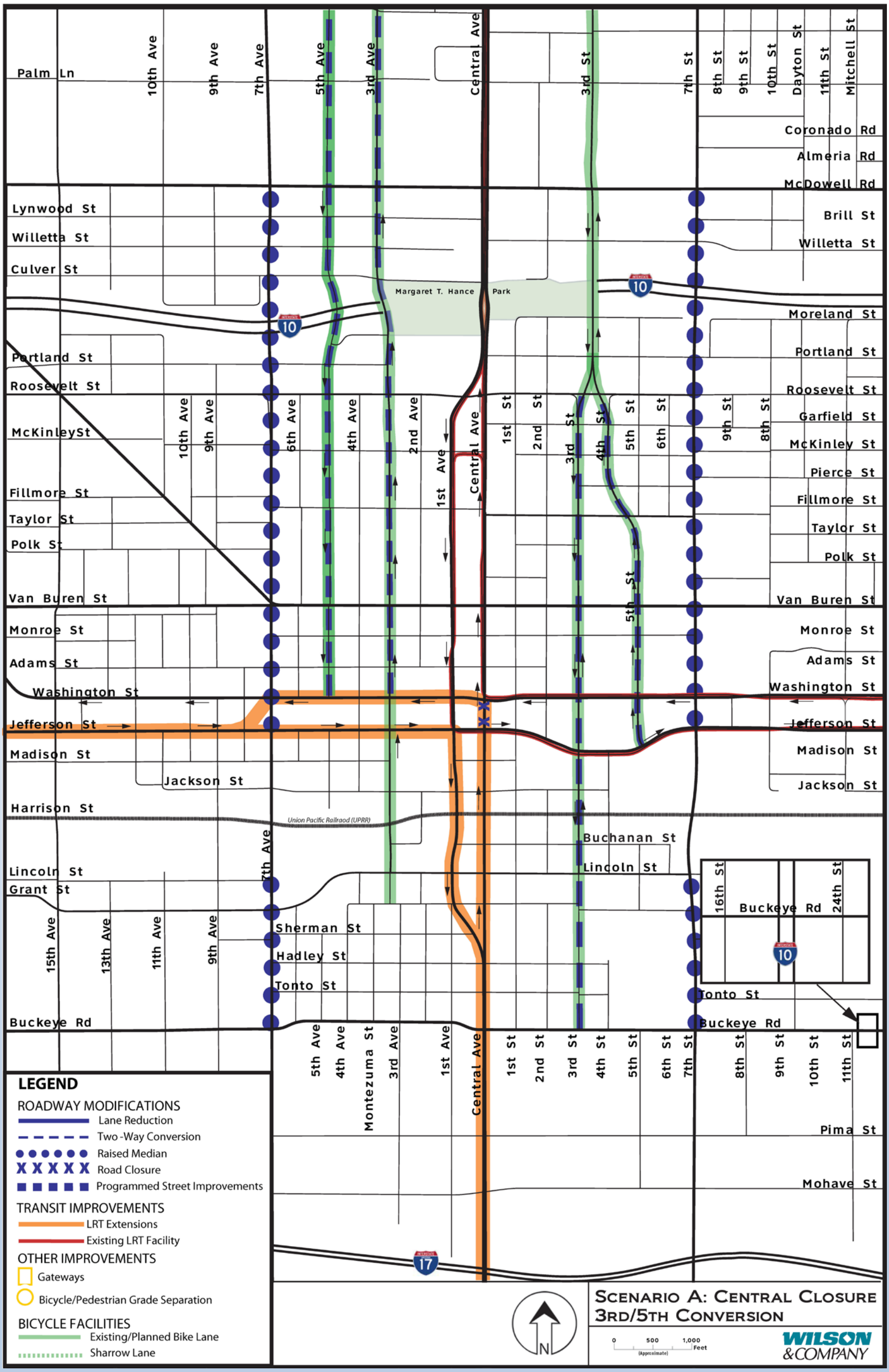
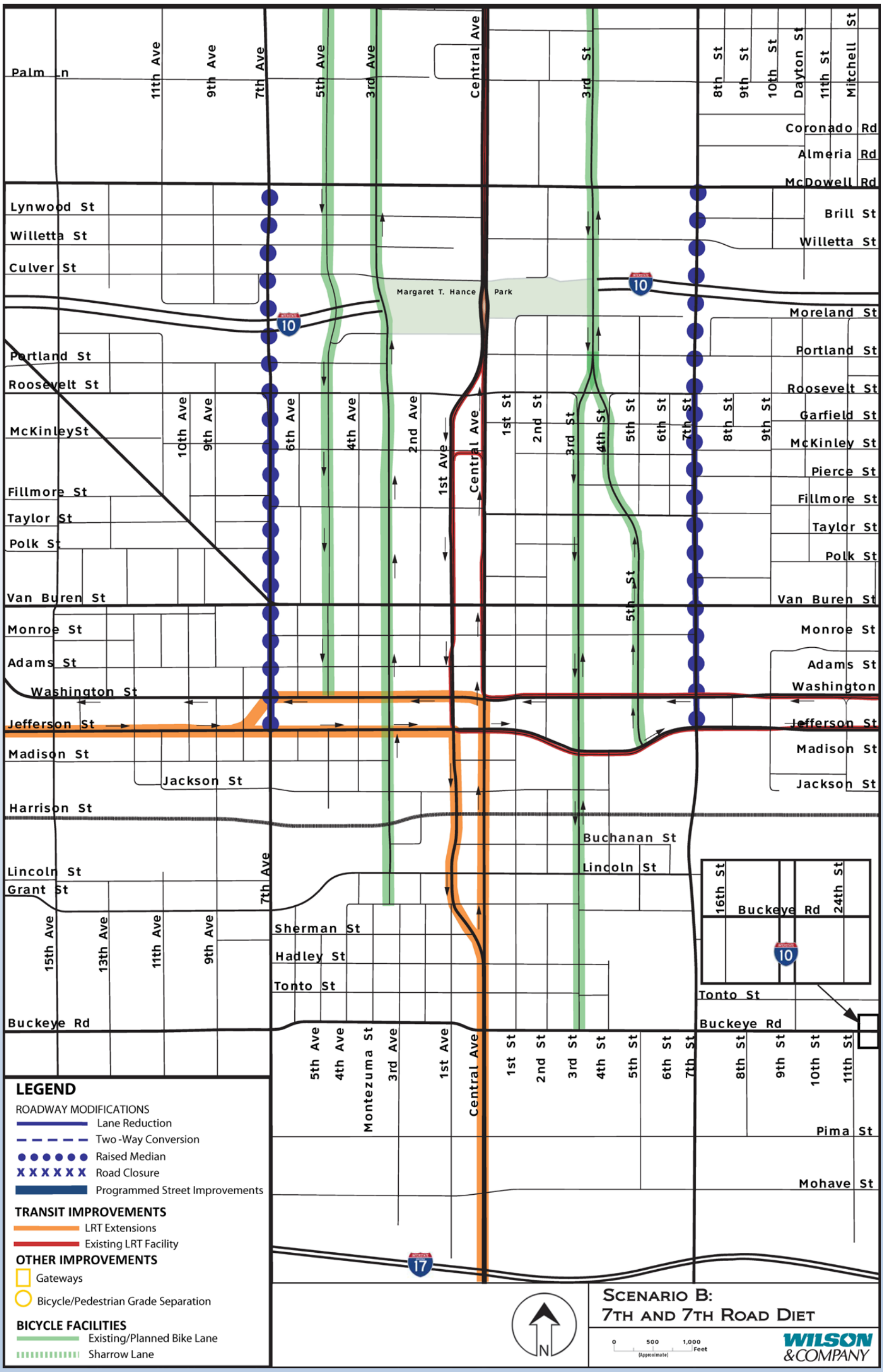


FIGURE 5.4 POTENTIAL DOWNTOWN CIRCULATION/CONNECTIVITY IMPROVEMENT: SCENARIO B



- Improvement strategies/concepts should include narrowing of 3rd Street and 5th Street to incorporate bike lanes or parking, regardless of whether one-way or two-way operation is proposed.
- The MAG representative indicated the agency is conducting a pilot study to identify level of service appropriate for the Complete Streets concept. The DPCTS should include consideration of the proposed criteria during evaluations of alternatives.
- Fillmore Street should be identified as a Bicycle Boulevard.
- The existing LRT lines should be depicted on the maps.
- FY 2017 has funding included for updating the downtown traffic management system (TMS). Potential locations for dynamic message signs (DMS) to direct event traffic to alternate freeway access points (e.g., Buckeye Road at I-10) should be identified.
- The concept of downtown "Gateways," so travelers would recognize they are entering the downtown, was appealing, along with potential strategies to modify 7th Avenue and 7th Street. However, the DPCTS needs to address alternate routes that vehicles would travel, if capacity is reduced in these corridors.

Table 5.1 provides a summary listing of potential improvement strategies/concepts identified to address issues brought to light through discussions with City staff, the project team, and downtown stakeholders, as well as responses offered by the Focus Groups. Two generalized scenarios for effecting improvement are identified in **Table 5.1**.

TABLE 5.1
ALTERNATIVE DOWNTOWN CIRCULATION/CONNECTIVITY IMPROVEMENT SCENARIOS

Potential Circulation/Connectivity Improvements	Universe of Strategies	Scenario A Central Avenue Closure & 3rd/5th Conversions	Scenario B 7th Avenue & 7th Street Road Diet
Lane modifications on S. Central Avenue, S. 1st Avenue, W. Washington Street, and W. Jefferson Street in preparation for future expansion of the light rail transit (LRT) system.	❍	❍	❍
5th Street modifications to accommodate a future LRT turnaround	❍	❍	❍
Two-way traffic on N. 5th Avenue, N. 3rd Avenue, N. 3rd Street, and N. 5th Street	❍	❍	
Landscaped median on 7th Avenue and 7th Street	❍	❍	❍
Narrowing of 7th Avenue and 7th Street to four travel lanes between Jefferson Street and Roosevelt Street	❍		❍
Closure of S. Central Avenue to vehicular traffic between Washington Street and Jefferson Street	❍	❍	
Bicycle lanes on N. 5th Avenue, N. 3rd Avenue, N. 3rd Street, N. 5th Street, Roosevelt Street, and Buckeye Road	❍	❍	❍
Programmed street improvements on Roosevelt Street and Buckeye Road	❍	❍	❍
Lane reductions and bicycle lanes on Grand Avenue	❍		
One-way traffic on E. Monroe Street and E. Adams Street between Central Avenue and 3rd Street	❍		
Extension of W. Polk Street between N. 7th Avenue and N. 2nd Avenue	❍		
Expanded Downtown Business Circulator – DASH routes	❍		

5.3 Scenario Testing

The various potential circulation/connectivity improvements identified in **Table 5.1** above were subjected to testing and evaluation to derive data regarding the feasibility of the proposed strategies and permit formulation of a plan of action. Testing focused on the following aspects of the downtown transportation system operation, although other actions, i.e., strategies/concepts, were not excluded:

- One-way vs. two-way streets;
- Modification of roadway cross-sections to accommodate bike lanes or on-street parking, based on the Road Diet approach;
- Future of Central Avenue –
    - Closure between Washington and Jefferson streets, or
    - High-Capacity Transit (HCT) Corridor;
- Additional LRT connectivity –
    - State Capitol/Phoenix I-10 West Extension along Washington and Jefferson streets to I-10, and
    - South Central Extension along Central Avenue and/or 1st Street.

Testing was accomplished through application of a focused area model derived from MAG's TransModeler microsimulation analysis tool. The tool uses origin-destination (O-D) data from MAG's Regional Travel Demand Model to redistribute trips on the downtown roadway system in response to changes in number of lanes, directional travel, and resulting congestion. Several general observations resulted from the scenario testing.

- Conversion of 3rd Avenue, 5th Avenue, 3rd Street, and 5th Street to two-way travel did not result in insufficient capacity on the roadway network.
- While a decrease in the number of travel lanes in some portions of the 7th Avenue and 7th Street corridors seemed feasible, the existing intersection configurations (including both through and turn lanes) would still be required at most intersections to provide acceptable levels of service.
- Closure of Central Avenue to automobile traffic would require an increase in connectivity and capacity on a parallel route. 1st Street was considered to be the prime candidate.
- Additional LRT connectivity was assumed to result in a decrease in the number of travel lanes on Washington and Jefferson streets. Additional reduction in capacity resulting from restriping of remaining lanes for dedicated bicycle lanes would likely result in poor levels of service.

5.4 Special Topics

Analyses of several special topics related to implementation of various improvement strategies was conducted concurrently with the testing of improvement scenarios. Special topics included:

- Roadway geometry associated with the conversion of one-way streets to two-way;
- Potential cross-sections for roadway restriping for bike lanes;
- Future of Central Avenue;
- Transit issues, with a focus on future LRT extensions and turnarounds, redevelopment of Central Station, and the feasibility of expanded local circulator service; and

- Minor modifications to the Downtown Event Management Plan to respond to selected strategies.

5.4.1. 3rd Street/4th Street/5th Street

Conceptual geometric layouts were developed to illustrate the feasibility of converting 3rd Street and 5th Street to two-way travel while adding bicycle lanes and maintaining opportunities for on-street parking. The concept was coordinated with ongoing plans for improvements to Roosevelt Street. Drawings are provided in **Appendix B**.

5.4.2. Washington Street/Jefferson Street & Central Avenue

Conceptual geometric layouts were developed to illustrate the feasibility of creating dedicated bike lanes on Washington and Jefferson streets between 7th Avenue and 7th Street. Drawings are provided in **Appendix B**.

5.4.3. Central Avenue (Fill out)

Several alternative concepts were developed to enhance transit, pedestrian, and bicycle travel on Central Avenue between Washington Street and Van Buren Street. Drawings developed for Washington Street and Jefferson Street (discussed above) also include intersection concepts at Central Avenue associated with potential repurposing of the available right-of-way on Central Avenue. Drawings are provided in **Appendix B**.

5.4.4. Transit Issues

A variety of issues associated with downtown circulation/connectivity relate to transit service and operations. These issues were researched and investigated in the context of the suggested strategies and resulting improvement scenarios. A separate Technical Memorandum detailing these issues in provided in **Appendix C**. The Technical Memorandum documents existing transit services and facilities in the study area, summarizes planned extensions of the LRT system and improvements to bus service, and discusses other key issues relevant to transit service in downtown.

Currently, transit services within the study area are comprised of the METRO Light Rail service, five freeway-oriented RAPID BRT routes, fourteen Express Bus routes, one Limited Stop route, ten local routes, and the no-fare DASH circulator service to the State Capitol. The Phoenix Dial-a-Ride service is provided for persons who cannot used fixed-route transit services. Each of these services is provided during the weekdays at least, and some are provided seven days a week. The study area has a total of 142 transit stops plus various capital facilities, including the substantial infrastructure of the METRO Light Rail system with its tracks, overhead catenary, and stations – the most active station being Central Station.

Planning is progressing on actions to modify transit service in the study area. These plans include: expansion of the METRO Light Rail system; potential realignment of RAPID BRT routes; and two potential capital improvements that would affect downtown bus service. There are several other key issues related to transit service and facilities in the study area that are discussed in detail in the aforementioned Technical Memorandum. Significant transit issues addressed during the DPCTS are summarized below.

METRO LIGHT RAIL SYSTEM EXPANSION

Planned improvements to the METRO Light Rail system include two future extensions –

Capitol/I-10 West Extension: a westward extension along Jefferson Street to the State Capitol area, continuing in the median of I-10 Corridor to the N. 79th Avenue and an existing park-and-ride (P&R);

South Central Corridor: a southward extension along S. 1st Avenue and Central Avenue from the Washington-Jefferson couplet to Baseline Road.

Special Event LRT Service

Special events at US Airways Center and Chase Field served by the 3rd Street/Jefferson METRO Light Rail Station have created capacity issues. A turnaround at McKinley Street between Central Avenue and N. 1st Avenue, north of this station, permits LRT trains to provide extra service (i.e., additional trains) for the east-west riders and stations in the communities of Tempe and Mesa. The same is not true for north-south riders and stations in central and north Phoenix. Demand during events, however, justifies the need for an additional turnaround at either N. 5th Street or N. 11th Street east of the 3rd Street/Jefferson Stations. This new turnaround would permit extra service for north-south travelers. These turnarounds designed to directly serve special event capacity needs could be used a large number of days each year for several hours during each use.

Central Avenue Closure

A proposal has been made to close Central Avenue between Washington and Jefferson Streets permanently to all vehicles to provide a more walkable space and to accommodate special events, especially since completion of the CityScape development. Consideration of this option revealed that permanent closure of this block of Central Avenue would increase BRT operating cost and add to passenger travel time. Also, the proposed closure would affect future alignment of the South Central LRT Extension. Seasonal closure of Central Avenue would have less impact, due to a relatively short duration; however, consideration of this type of closure would need to be coordinated with evaluation of alternatives alignments for the South Central LRT Extension.

Changes to Streets Connecting Study Area and Downtown with I-10

Changes to the 7th Avenue and 7th Street cross-sections are being considered with the intent to develop an improved street system that works well for commuter and special event traffic, now and into the future. Changes to 3rd and 5th Avenues also are being considered with the intent to provide more local access and greater opportunities for bicyclists and pedestrians to use the street. Proposed changes resulting in any reduction in number of lanes or changes of the current one-way traffic patterns to two-way directional flows have the potential to adversely affect service currently provided on peak-period transit routes. Nevertheless, opportunities exist to respond to these proposed changes by rerouting buses.

New I-17 DHOV Ramps

Direct High-Occupancy Vehicle (DHOV) ramps are being contemplated to enhance access for commuters and buses on I-17to/from Washington and Jefferson streets. The DHOV ramps would provide the RAPID BRT vehicles the advantage of serving the State Capitol area soon after leaving the freeway, rather than first running though Central Station and downtown. However, efficient use of the DHOV ramps would require provision of direct HOV connector ramps at The Stack – the I-10/I17 Interchange. Discussions with City transit staff and Valley Metro indicate support for the I-17 DHOV ramps, if these direct HOV connector ramps can be provided.

Redevelopment of Central Station

As noted earlier, the City of Phoenix currently is considering options for redeveloping Central Station, the primary transit hub in Downtown Phoenix and the study area. A critical design goal for transit centers involves bringing buses together as closely as possible for convenient transfers. Central Station currently has a mix of stop locations within the station area proper and on the surrounding streets. The City's transit staff has developed a plan for relocating buses to the adjacent streets, opening up the space now used for operating buses to redevelopment as a multi-purpose complex. While this proposal would enhance the value of the property occupied by Central Station, it would decrease the safety and security of transferring patrons.

CENTRAL AVENUE TRANSIT MALL

In light of increased LRT activity associated with the Capitol/I-10 West and South Central LRT extensions in the downtown area, it has been suggested that Central Avenue should be converted to a Transit Mall. This would be a means of accommodating the additional LRT trains on Central Avenue, which would affect traffic operations. The Transit Mall would be dedicated to LRT and buses and general traffic would be excluded. Potential redevelopment of the Central Station site (as noted above) would need to be coordinated with this action, because the change in bus stop locations and bus operations would influence traffic control and the capacity of surrounding streets.

LOCAL CIRCULATOR SERVICE

The high outdoor temperatures in the Phoenix area justifies establishment of better connectivity among key event venues, commercial centers, and residential areas to each other via local shuttle/circulators service running through Central Station. The no-fare DASH circulator service has been stopped in the past, because some people would ride the free service for extended periods of time to escape the heat. This practice seems to discourage other riders from using the service. To address this specific concern, a new rubber-tired shuttle service or streetcar system could be evaluated that would require a fare, even if nominal, to discourage the practice of riding the bus during hotter months. Cashless fare collection technology could make payment simple for all users, and enhance operational efficiency. Furthermore, tickets could be sold in hotels and downtown entertainment and meeting venues to enhance customer convenience.

5.4.5. Modifications to the Downtown Event Management Plan

The Downtown Event Management Plan – "Sunburst" Plan – has not been updated since its development in the 1990's. Extensive development and redevelopment in the downtown area has resulted in the additional of several new high-intensity office/commercial complexes and new parking structures. Thus, the street network and access to/from downtown properties has change significantly in the past 20 years. In addition, the METRO Light Rail service operates on Washington and Jefferson streets and 1st and Central avenues. These changes needed to be re-examined to determine how the Sunburst Plan should be revised to facilitate the most efficient and effective movement of traffic into and out of downtown during major events. Potential modifications to the Sunburst Plan needed taken into consideration and coordinated with proposed transportation improvement/enhancement actions developed for the study area.

6.0 Recommendations

Recommended improvement/enhancement actions for Downtown Phoenix ultimately have been defined for three implementation timeframes representing three action phases, as noted earlier. Each timeframe consists of a combination of street and street-related (e.g., bicycle lanes, pedestrians enhancements) projects designed to increase accessibility to/from the downtown and mobility within the downtown. Identified projects are intended to add street capacity, permit expansion of the bicycle infrastructure, enhance the pedestrian environment, or improve connectivity between and among the different modes of travel serving the study area.

6.1 Phase 1: 0 - 5 Years

The initial phase of the Downtown Transportation Improvement Program includes 19 projects in 10 corridors plus one project involving improvements in various areas throughout the study area – installation of bike share facilities – and another that would create enhanced pedestrian crossings on 7th Street. The overall focus of Phase 1 centers on transitioning 3rd and 5th avenues and 3rd and 5th streets from one-way to two-way thoroughfares. In addition, specific bicycle connections to downtown would be created:

- 3rd Street would become a bicycle corridor into and out of downtown; and
- Bike lanes on Washington and Jefferson streets would be connected between 7th Avenue and 7th Street, to provide a continuous throughway.

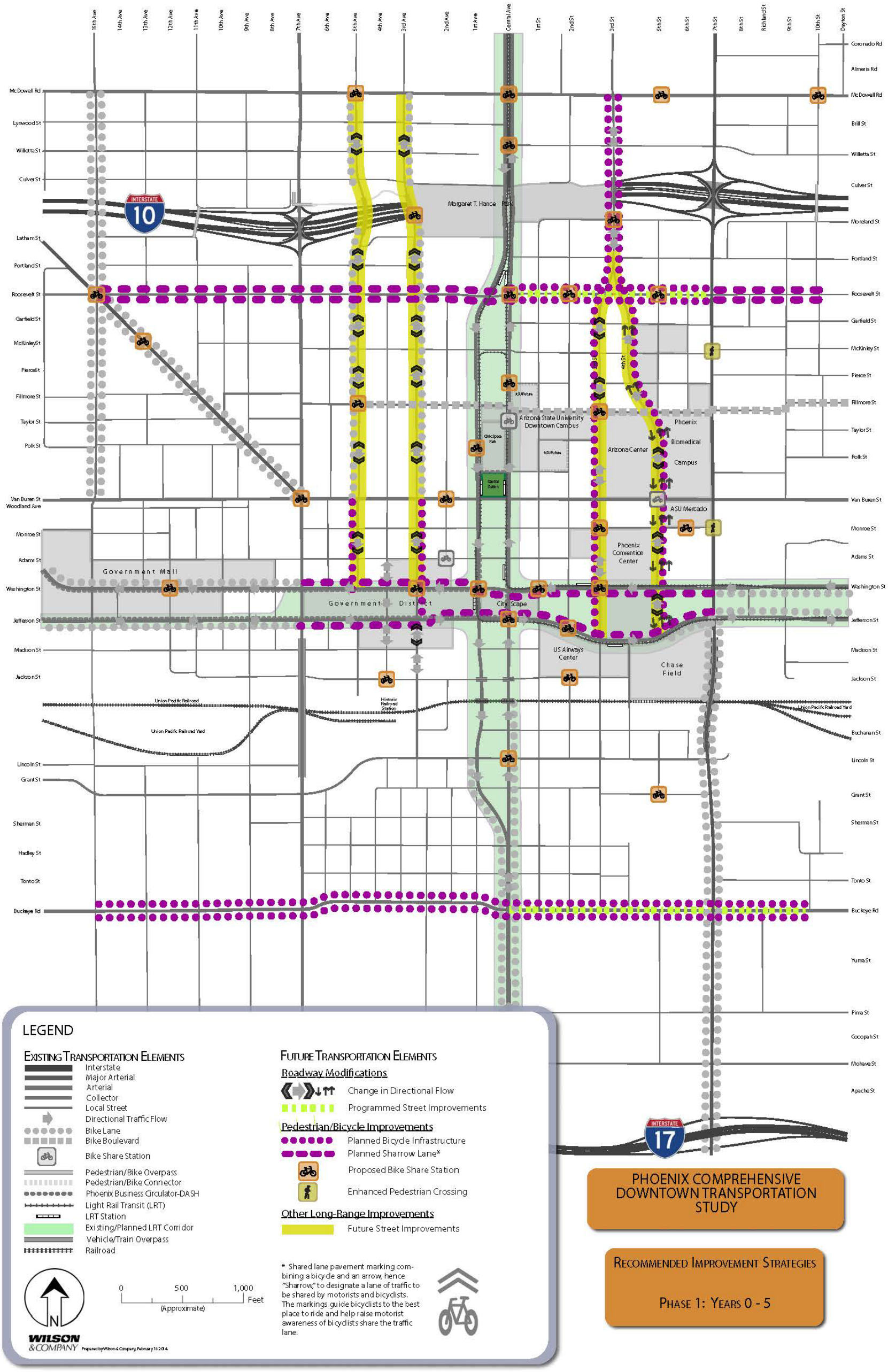
These improvements will help area circulation, business access and increase residents' transportation options. **Table 6.1** identifies projects recommended for implementation during the first five years. **Figure 6.1** shows the locations of these improvement projects within the study area.

TABLE 6.1
PREFERRED IMPROVEMENT SCENARIO PHASE 1: YEARS 0 - 5

Improvement Corridor	Segment	Project Description
N. 5th Avenue	W. McDowell Road to W. Washington Street	• Change in traffic flow from one-way southbound to two-way southbound/northbound
N. 3rd Avenue	W. McDowell Road to W. Washington Street	• Change in traffic flow from one-way southbound to two-way southbound/northbound
N. 5th Avenue	W. Van Buren Street to W. Washington Street	• Southbound bike lane
N. 3rd Avenue	W. Van Buren Street to W. Jefferson Street	• Northbound bike lane
N/S 3rd Street	E. McDowell Road to E. Jefferson Street	• Change in traffic flow from one-way southbound to two-way northbound/southbound between E. Roosevelt Street and E. Fillmore Street • Northbound bike lane – E. Portland Street to E. McDowell Road • Southbound bike lane – E. McDowell Road to E. Jefferson Street
N. 4th Street Connector	E. Roosevelt Street to E. Fillmore Street	• Lane reduction from three lanes northbound to two lanes northbound • Northbound bike lane
N/S 5th Street	E. Fillmore Street to E. Jefferson Street	• Northbound bike lane • Change in traffic flow from one-way northbound to two lanes northbound and one lane southbound
W/E Roosevelt Street	N. 15th Avenue to N. 10th Street	• Eastbound and westbound Sharrow lanes: ▪ N. 15th Avenue to N. Central Avenue ▪ N. 7th Street to N. 11th Street • Eastbound and westbound bike lanes – N. Central Avenue to N. 7th Street • Programmed street improvements – N. Central Avenue to N. 7th Street
W/E Washington Street	7th Avenue to 7th Street	• Westbound Sharrow lane
W/E Jefferson Street	S. 7th Avenue to S. 7th Street	• Eastbound Sharrow lane
W/E Buckeye Road	S. 15th Avenue to S. 10th Street	• Eastbound and westbound bike lanes • Programmed street improvements – S. Central Avenue to S. 10th Street
Various	Downtown Area	• Install bike share stations at multiple locations • Provide enhanced pedestrian crossing areas on 7th Street

Prepared By: Wilson & Company, June 20, 2014.

FIGURE 6.1 RECOMMENDED IMPROVEMENT ACTIONS FOR PHASE 1: 0 - 5 YEARS



6.2 Phase 2: 6 - 10 Years

The second phase of the Downtown Transportation Improvement Program would include 11 projects in nine corridors plus one project to create distinct Downtown Entry Points, often referred to as "Gateways," at select locations within the study area. The overall focus of Phase 2 centers on improvements to streetscape and infrastructure along 7th Avenue and 7th Street on the outer boundaries of the study area. Other improvements would help to create safer, more efficient connectivity for pedestrians and specifically add transit, bicycle, and pedestrian amenities along Central Avenue between Van Buren and Washington streets.

In addition, 3rd Street, south of Jefferson Street, would become a two-way street, improving connections to ASU's Downtown Campus from the south and providing more convenient access for residents and businesses in the Warehouse District. These changes were developed with input from downtown stakeholders, including the Phoenix Suns and Arizona Diamondbacks, to ensure needed access to the important entertainment venues that support these two professional athletic teams and other major events. **Table 6.2** identifies projects recommended for implementation within the next six to 10 years. **Figure 6.2** shows the locations of these improvement projects within the study area.

TABLE 6.2
PREFERRED IMPROVEMENT SCENARIO PHASE 2: YEARS 6 - 10

Improvement Corridor	Segment	Project Description
N. 7th Avenue	W. Roosevelt Street to W. Van Buren Street	• Streetscape improvements • Reduction in posted speed • Potential raised median with access control
S. 3rd Avenue	W. Grant Street to W. Jefferson Street	• Northbound and southbound bike lanes
Central Avenue	Jefferson Street to Van Buren Street	• Conversion of roadway to provide one northbound travel lane, one bus-only lane, a bicycle lane, and enhanced pedestrian area
Central Avenue	UPRR Tracks to Jefferson Street	• Northbound bike lane
3rd Street	Jefferson Street to Buckeye Road	• Change in traffic flow from one-way southbound to two-way northbound/southbound between E. Jefferson Street and E. Lincoln Street • Northbound and southbound bike lanes
N. 7th Street	E. Roosevelt Street to E. Van Buren Street	• Streetscape improvements • Reduction in posted speed • Potential raised median with access control • Potential modifications to Interstate 10 eastbound on-ramp to provide additional storage at the ramp meter
Polk Street	7th Avenue to Central Avenue	• Enhanced pedestrian area
Adams Street	Central Avenue to 2nd Street	• Enhanced pedestrian area
Grant and Lincoln Streets	S. 15th Avenue to S. 7th Street	• Eastbound and westbound bike lanes
Various	Downtown Entry Point Locations: ▪ W. Roosevelt Street and Grand Avenue ▪ N. 7th Avenue and W. McDowell Road ▪ N. Central Avenue and Lynwood Street ▪ E. Roosevelt Street and N. 7th Street ▪ S. 7th Avenue and W. Buckeye Road ▪ S. Central Avenue and Buckeye Road ▪ S. 7th Street and E. Buckeye Road	• Potential Entry Point Strategies ▪ Signage ▪ Reduction in posted speed ▪ Landscaping ▪ Art

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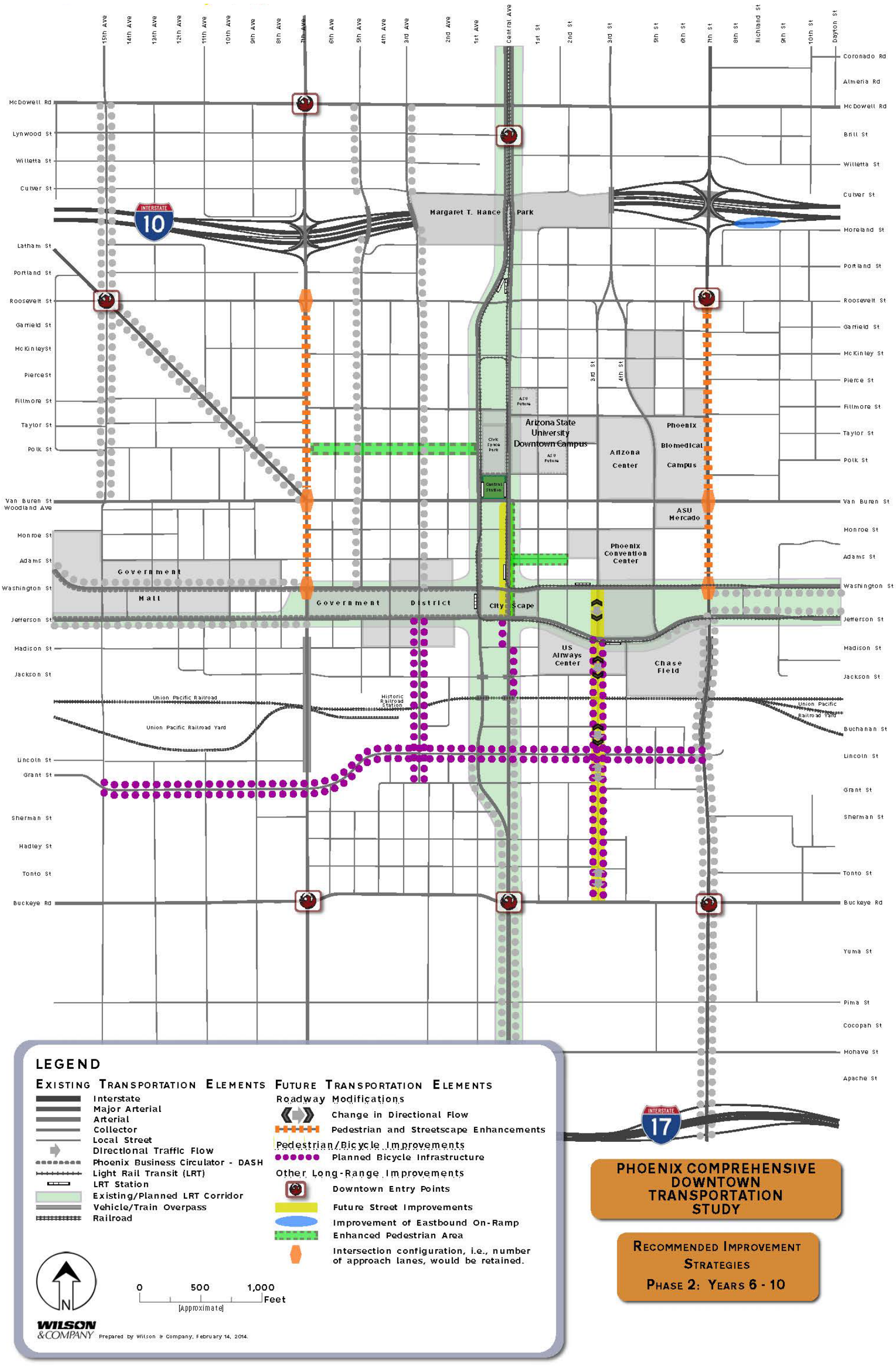
FIGURE 6.2 RECOMMENDED IMPROVEMENT ACTIONS FOR PHASE 2: 6 - 10 YEARS



6.3 Phase 3: Long-Term, Years 11+

Regional commuter traffic is increasing on Washington and Jefferson streets and First and Central avenues, which are key corridors for the regional bus access to downtown and LRT operations. Future LRT lines – Capitol/I-10 West and South Central Phoenix – will impact travel capacity of these downtown access corridors. Therefore, it is imperative that long-term travel through the center of downtown be addressed. The final phase of the Downtown Transportation Improvement Program would include six projects in five corridors plus one project – Downtown Circulator Service – that would enhance mobility throughout the downtown and another that would provide more efficient connectivity with potential future commuter rail service on the UPRR at the historic Union Station.

The overall focus of Phase 3 would be on Central Avenue, which would become a limited access street for cars with added emphasis on other alternative modes of transportation. The east side of Central Avenue would include improved bus passenger facilities, wider sidewalks, and potential areas for business activity. In turn, 1st Street, 7th Street, and 7th Avenue would serve as the primary north-south downtown access corridors. Additionally, achieving improved circulation by changing certain one-way streets to two-way streets would encourage greater land use density and permit expansion of Downtown Circulator Service to enhance connections for residents and employees of downtown businesses to high activity areas, LRT service, and express bus routes. **Table 6.3** identifies projects recommended for implementation beyond 10 years, i.e., Years 11+. **Figure 6.3** shows the locations of these improvement projects within the study area.

TABLE 6.3
PREFERRED IMPROVEMENT SCENARIO PHASE 3: LONG-TERM, YEARS 11 +

Improvement Corridor	Segment	Project Description

Central Avenue	Jefferson Street to Van Buren Street	• Additional Transit/Bicycle/Pedestrian emphasis in conjunction with increased LRT activities associated with planned LRT extensions:
		  • One bus-only lane
		  • One northbound travel lane (limited to delivery vehicles and parking structure access)

1st Street	E. Jefferson Street to E. Fillmore Street	• Change in traffic flow from two-way, northbound/southbound to two lanes northbound in conjunction with conversion of Central Avenue (see above project) • Provide direct connections to/from Central Avenue south of E. Jefferson Street and north of E. Fillmore Street
N. 3rd Street	E. McDowell Road to E. Roosevelt Street	• Future street improvements as part of the N. 3rd Street Promenade Project
Planned South Central Phoenix LRT Extension	S. 1st Avenue and S. Central Avenue	• Potential roadway modifications on S. 1st Avenue and S. Central Avenue to accommodate future LRT lines
Planned Capitol/ I-10 West LRT Extension	W. Washington Street and W. Jefferson Street	• Potential roadway modifications on W. Washington Street and W. Jefferson Street to accommodate future LRT lines

Various	Downtown Area	• Potential Expansion of Downtown Circulator Service
		  ▪ Interim: Rubber-tire Streetcar
		  ▪ Ultimate: Fixed Guideway
		• Enhanced pedestrian connectivity from Jefferson Street LRT station to Historic Railway Station and future commuter rail

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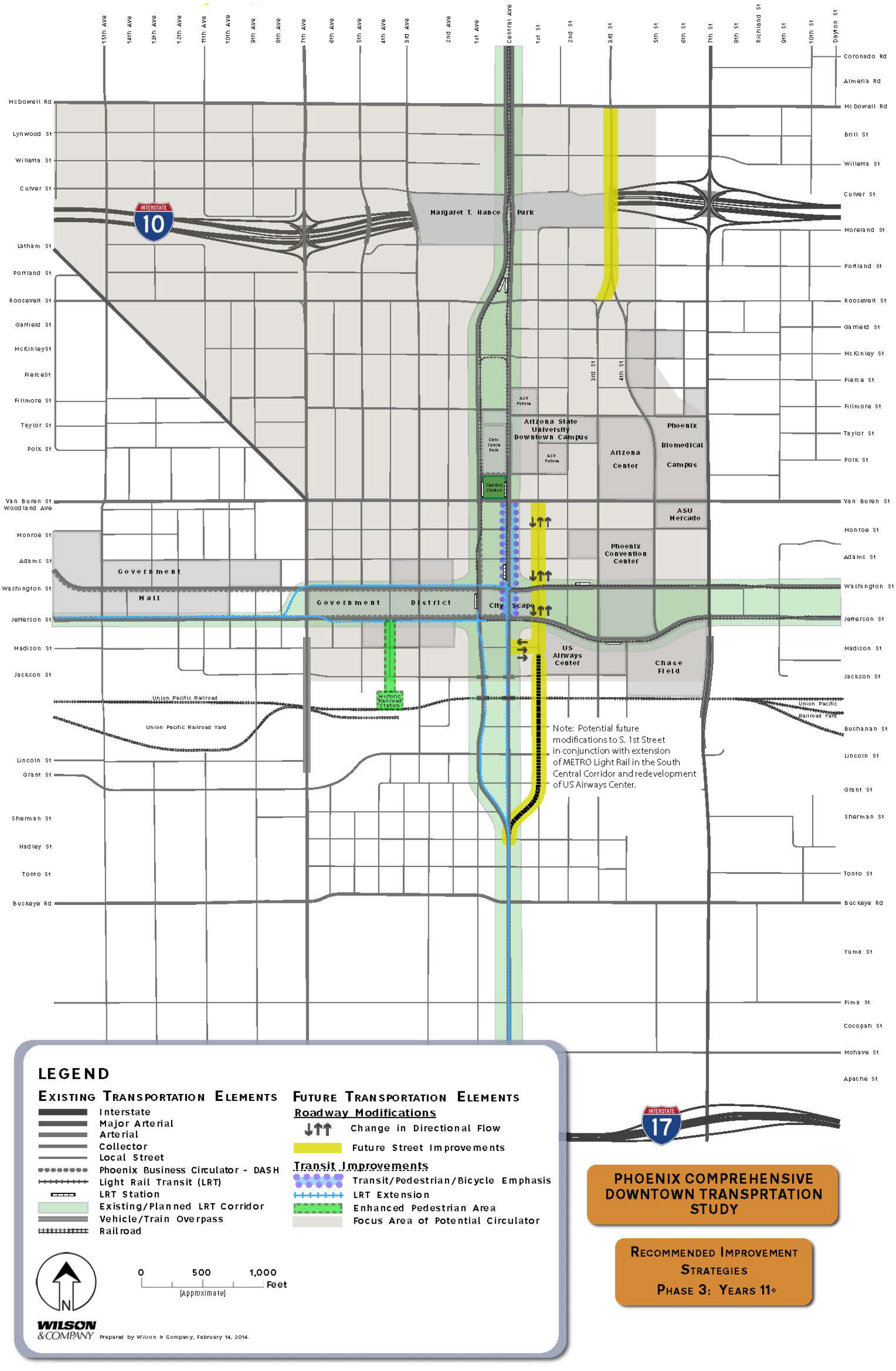
FIGURE 6.3 RECOMMENDED IMPROVEMENT ACTIONS FOR PHASE 3: LONG-TERM, YEARS 11+



6.4 Downtown Events Management Plan

The Sunburst Plan essentially is a protocol developed to manage the distribution of inbound and outbound event traffic based on the available downtown street network, freeway access points, and parking facilities. The focus of the Sunburst Plan is to minimize travel delays and potential impacts of traffic flows on pedestrian movements.

Since its creation in the 1990's, downtown land uses have changed dramatically and development has increased significantly. In addition, the METRO Light Rail line and enhanced bus services have changed the original paradigm on which the downtown access and traffic management was based. Therefore, the City's DPCTS project team undertook evaluation of potential changes to the Sunburst Plan with the following objectives as the focus:

- Optimize existing traffic plan efficiency using enhanced technology and public education techniques;
- Optimize pedestrian and bicycle opportunities and favor those movements in traffic control, when possible;
- Optimize parking garage and lot entry and exit time delays;
- Minimize impacts to businesses and residents; and
- Maintain positive experience for event goers.

Special Event Traffic Flow Management

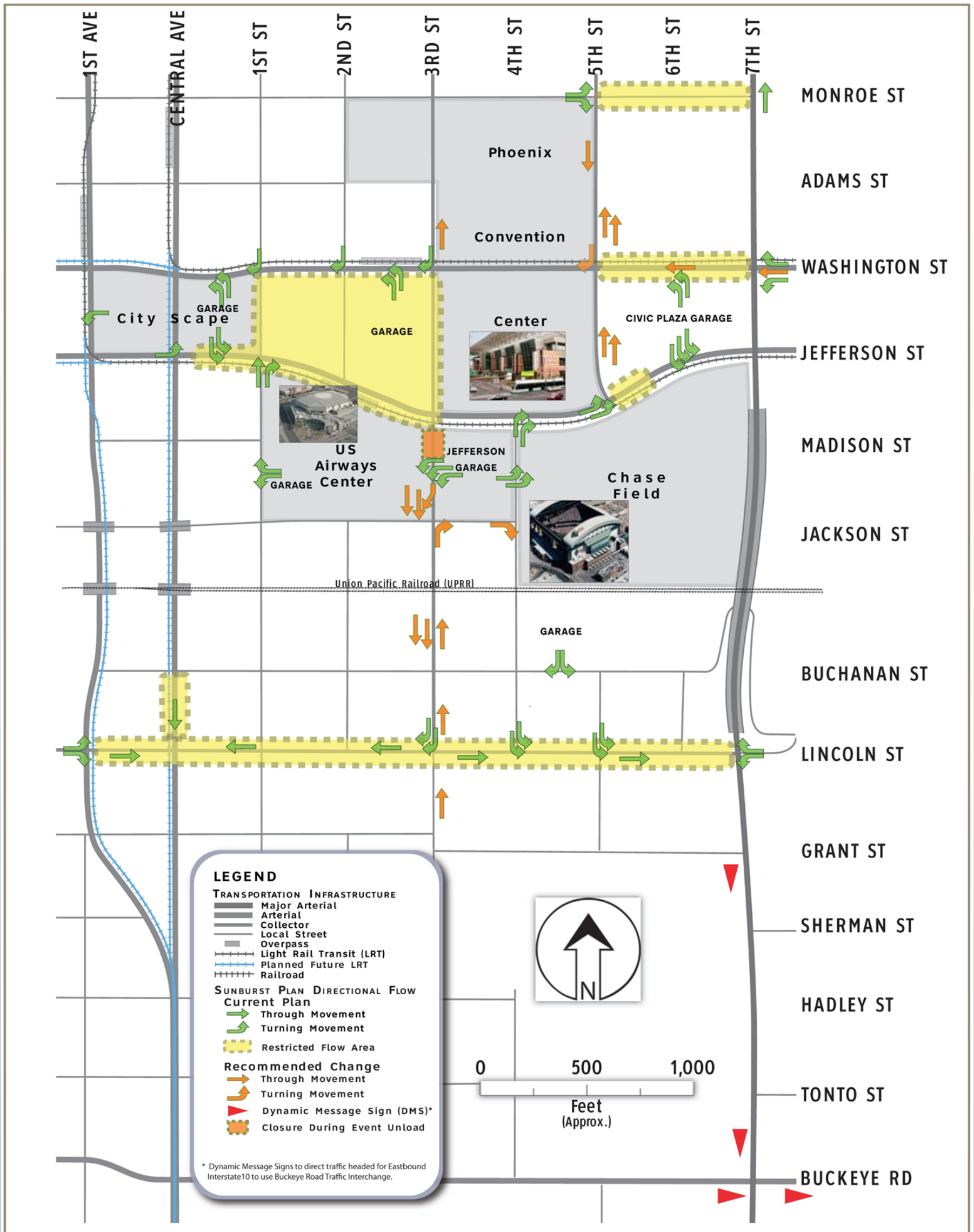
Source: Sunburst Traffic Plans.

As part of the process, impacts of LRT service and bus operations were examined, goals for special event ingress and egress were evaluated and updated to reflect current conditions in the downtown, and methods of traffic flow management were analyzed to identify potential costs savings. Opportunities to support economic activity in the downtown area around the major venues also were identified.

Three specific recommendations were derived from the evaluation of the Sunburst Plan. Each of the following recommendations will be examined in greater detail as part of Phase 2:

- Close a portion of 3rd Street during events to help maintain pedestrian safety;
- Increase westbound access opportunities to downtown during events by keeping a through lane on Washington Street open; and
- Ensure safe access for area residents at the Summit and future residential complexes near Chase Field and U.S. Airways Center by modifying 3rd Street to provide one northbound lane to Jackson Street from Lincoln Street and two lanes southbound to Lincoln, south of Jackson Street.

FIGURE 6.4 RECOMMENDED CHANGES TO "SUNBURST PLAN" (PHASE 2 - 6 - 10 YEARS)



7.0 Results of Public & Stakeholder Outreach

Public and stakeholder outreach was oriented to gaining insights from stakeholders through Focus Groups and the general public through Open Houses. These functions allowed the public to view and discuss with the DPCTS project team both issues of transportation and potential solutions or improvement strategies.

7.1 Focus Groups

The purpose of engaging Focus Groups was to attain greater insight into downtown traffic conditions during events, understand issues related to those conditions, and identify possible solutions. Six Focus Groups were planned and five were held: Residential/Neighborhoods/Planning; Downtown Businesses and Associations; Downtown Parking Operators; Venues; and Public/Private Transportation Operators. The Educational/Research Institutions Focus Group was cancelled, due to lack of interest.

Focus Group participants were given an explanation of the Downtown Phoenix Comprehensive Transportation Study with the explicit objective being to investigate and analyze potential multimodal transportation improvements in the downtown area. Focus Group participants were advised that the study also would develop, analyze, and package transportation scenarios (e.g., potential lane or street closures, high capacity transit, restriping, etc.) to accommodate event and non-event conditions. Specific attention was given to implementing certain changes to event traffic control, i.e., the Sunburst Plan, prior to the 2014 baseball season as well as the NFL Experience events associated with the 2015 Super Bowl. The Focus Group sessions generally began with the identification of known issues follow by open discussion to reveal any issues yet uncovered. The discussion was followed by examination and discussion of potential solutions or improvement strategies and geographical definition (i.e., establishment of limits) of those solutions.

Focus Group activity yielded a variety of common themes or issues relating to downtown transportation, specifically: affects on economic activity and viability, pedestrian movements, parking, and transit. Other generalized aspects or attributes of the downtown transportation system also were discussed. The principal themes derived from Focus Group discussions are highlighted below. Additional details regarding the activities and results derived from the five Focus Groups are presented in **Appendix D**. Prior to convening the Focus Groups, an electronic questionnaire was distributed to stakeholders invited to participate. Twenty-one competed questionnaires were returned, providing guidance for Focus Group discussions. A copy of the questionnaire and results of the survey are provided in documentation presented in **Appendix D**.

Economic Vitality

- A balance needs to be achieved between events and business vitality and neighborhoods.

Streets

- Speeds should be reduced to be more compatible with neighborhood activity and enhance the downtown experience.
- Elimination of key one-way streets should be considered to alleviate neighborhood accessibility issues relative to traffic volumes, but potential impacts need to be evaluated.
- Major impacts on transit service would result from closure of Central Avenue, as requested by developers of CityScape.

Policies

- The "Road Diet" should be considered.
- Potential improvement strategies should be "context sensitive" solutions.

- The Complete Streets concept should be applied, where appropriate.

Pedestrians

- Dynamic policies for the movement of people are critical.

Multimodal Transportation

- There is a need to think beyond just automobiles; all modes of travel need to be considered.

Parking

- Parking fees should be increased; consider a scaled parking fee.
- Parking is difficult when participation at events increases parking demand
- Shared parking arrangements/opportunities should be evaluated for the different downtown venues.
- The Convention Center and other venues should consider coordinating "pre-sold" parking passes to mitigate impacts when there are multiple events.
- The one-way streets result in difficulties locating parking facility entrances; people get lost.
- Pathway or wayfinding techniques (signs, directional graphics, and audible methods used to direct travel) should be investigated that could provide parking information early on (e.g., at freeway exits and "Gateways") for persons accessing the downtown for events and other purposes.
- Alternatives should be identified when a parking lot is full and the lot closes, only allowing pre-sold parking passes.
- Transit use, especially METRO Light Rail travel, should be promoted heavily as a viable alternative to relieve congestion associated with participation in events and event activity.

Specific Improvements

- There should be better green striping, i.e., green-colored bike lanes, to improve bicycling safety.
- Re-imagine 7th Street and 7th Avenue to re-establish equalization of the streets and their relationship to neighborhoods.
- Improved gateways would enhance the downtown's identity.
- There need to be improvements in the 3rd/5th Streets Warehouse District – there are no sidewalks, lighting is poor, the area lacks landscaping, and ambient conditions generally are poor.
- East/west connectivity needs improving; specifically, 16th Street to 19th Avenue on Roosevelt would benefit from creation of a Bike Boulevard and better pedestrian accommodations.
- There needs to be improved connectivity south from the Central Business District (CBD) down to Baseline Road.

Example of Green Striping

Source: Photo of Bryant Avenue South in Minneapolis, MN, from Green & Shared Roadway Bicycle Markings, Oakland, CA, City of Oakland Public Works Agency, October, 25, 2012.

- Consider landscaped medians on 7th Street and 7th Avenue; medians soften the streetscape and facilitate safer pedestrian crossings.
- Traffic signal synchronization should be improved, where feasible, as there is a need for consistency in traffic flow.
- There needs to be better east/west connectivity between 1st Avenue and 7th Avenue in the area bounded by Fillmore on the north and Van Buren on the south.

Sunburst Plan Improvements:

- A policy shift should be evaluated that changes "flush people from downtown" to "experience and extend your stay in downtown."
- Traffic flow needs to be improved, while addressing the need for pedestrian safety.
- It is not clear why vehicles cannot go west on Washington Street, but, instead, are required to take 7th Street north when baseball games let out; this issue needs to be addressed.

System Modifications

- Signalization improvements could help time consistency for transit.
- Signal timing associated with LRT movements should be evaluated.

Transit Improvements

- There is a need to preserve Central Avenue and Washington/Jefferson streets for effective transit service in the downtown.
- Traffic directional changes (e.g., one-way to two-way) need to be coordinated with requirements of transit serving the downtown.
- There is a need to accommodate and improve bus movements on downtown streets and throughout the study area.
- There is a need to better accommodate peak-hour transit buses on downtown streets - the bus/passenger vehicle mix is a real problem.
- Potential signal phasing modifications should be considered to improve transit movements.

7.2 Public Open Houses

Open Houses were conducted to elicit input from the public regarding suggested roadway, transit, bicycle, and pedestrian improvements for Downtown Phoenix. Specifically, input was sought from residents, commuters and business owners regarding their regular travel activities in and around the study area as well as travel during special events. Two Open Houses were conducted to assure reasonable opportunity for the public to attend and discuss the study products:

- 4:00 – 7:00 p.m., Tuesday, November 12; and
- 11:30 a.m. – 1:30 p.m., Thursday, November 14.

The Media Release and the Invite posted on the CPHX project Web site announcing the Open Houses are presented in **Appendix E**. A summary of the study, i.e., a FAQ sheet, posted on the bqAZ Web site and accessed via a link in the Invite also is provided.

Members of the DPCTS project team, i.e., City staff and consultants, were on hand to answer questions and discuss the various attributes of suggested improvements as well as receive information regarding other issues or concerns associated with the downtown transportation system. Input received during the Open Houses was carefully noted and integrated into the process of developing the recommendations presented in Chapter 6.