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Central Avenue Complete Street Plan and Design Toolkit

First Street to Girard Boulevard

October 2013

Prepared For:
The City of Albuquerque Council Services

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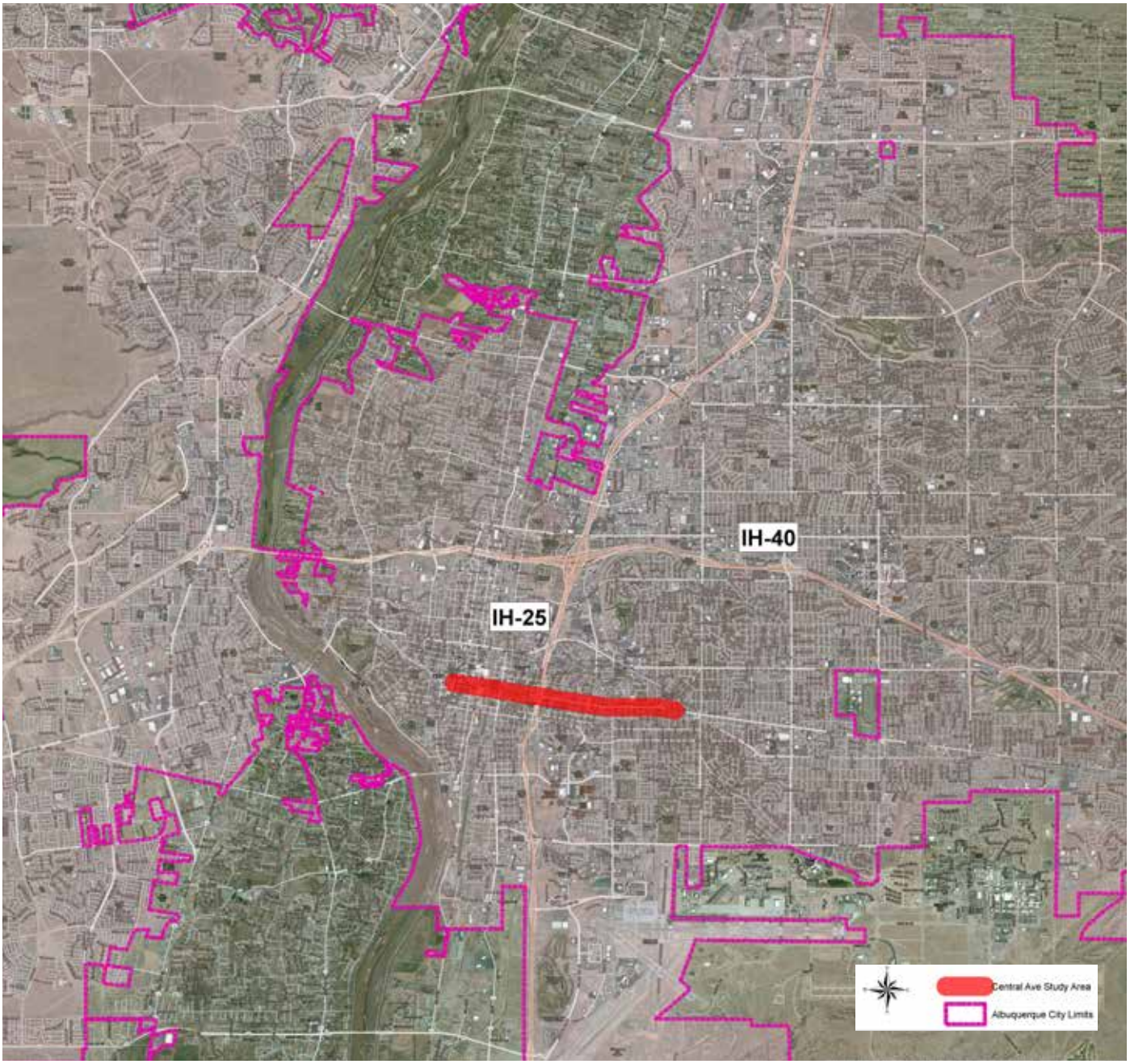
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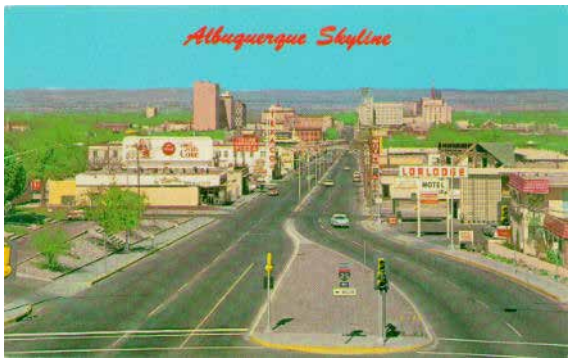
IH-25
Central Ave Study Area
Albuquerque City Limits

Purpose and Goals



From its prehistoric roots as a Native American trading route to its iconic mid-20th Century role as part of Route 66, Central Avenue continues to serve as the city's most significant urban thoroughfare. In its latest incarnation, Central Avenue offers the best transit service in the City, cementing its status as Albuquerque's main axis of commercial development and transportation.

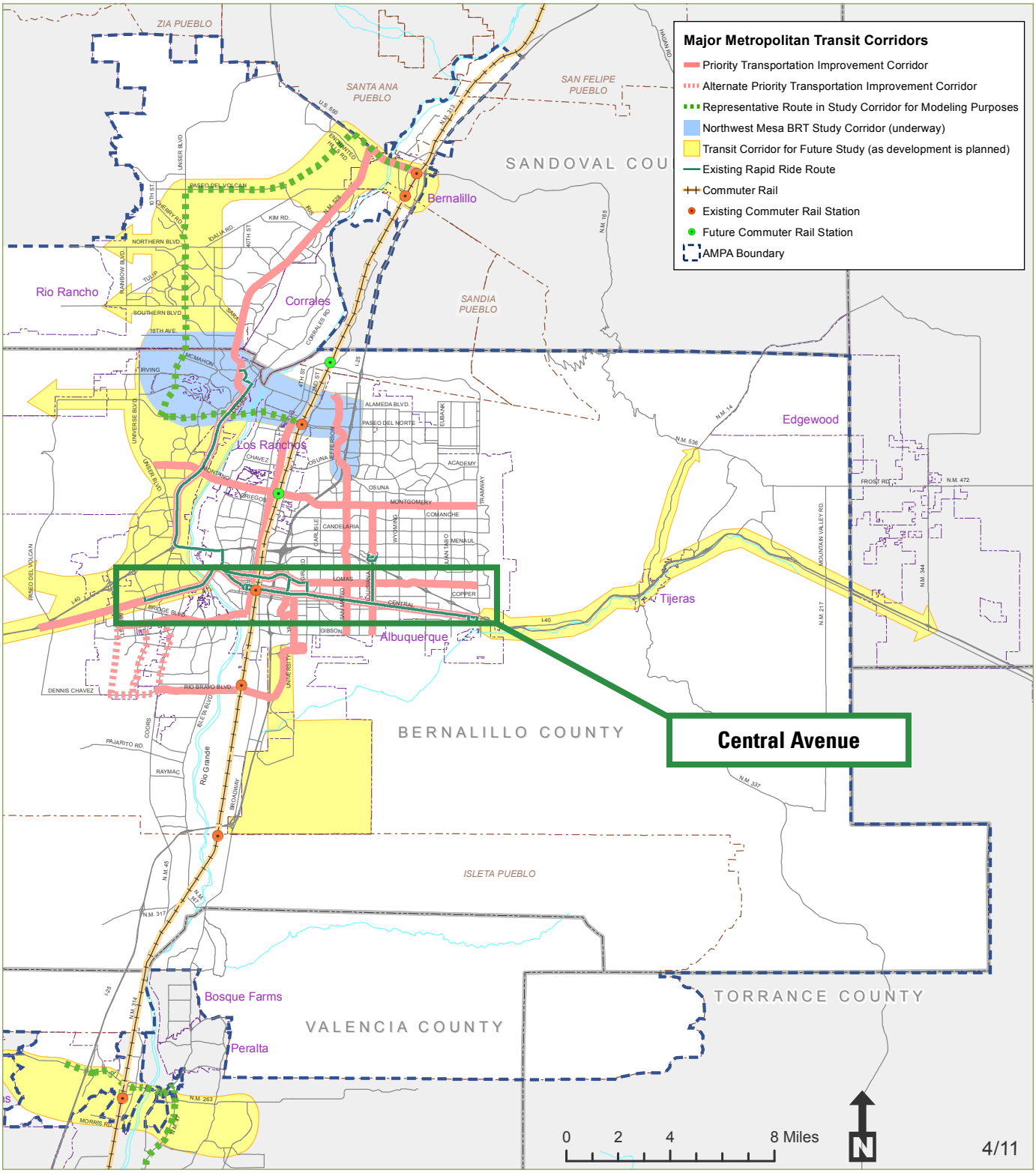
This study considers a segment of the corridor linking several of the city's key post-railroad neighborhoods from 1st Street in Downtown to Girard Boulevard east of the University of New Mexico. These historic neighborhoods retain much of their unique character as early suburbs or commercial service areas for Route 66 travelers. As locals and visitors rediscover them, a unique opportunity exists to catalyze redevelopment in concert with a growing interest in the Route 66 heritage and a new focus on alternative transportation modes as the City grapples with traffic congestion and growth.

Even along this famed emblem of personal vehicle travel, new enhanced mass transit systems move increasing numbers of road users between the major activity centers linked by Central Avenue and commuter rail services to points north and south.

Goals of this Process:

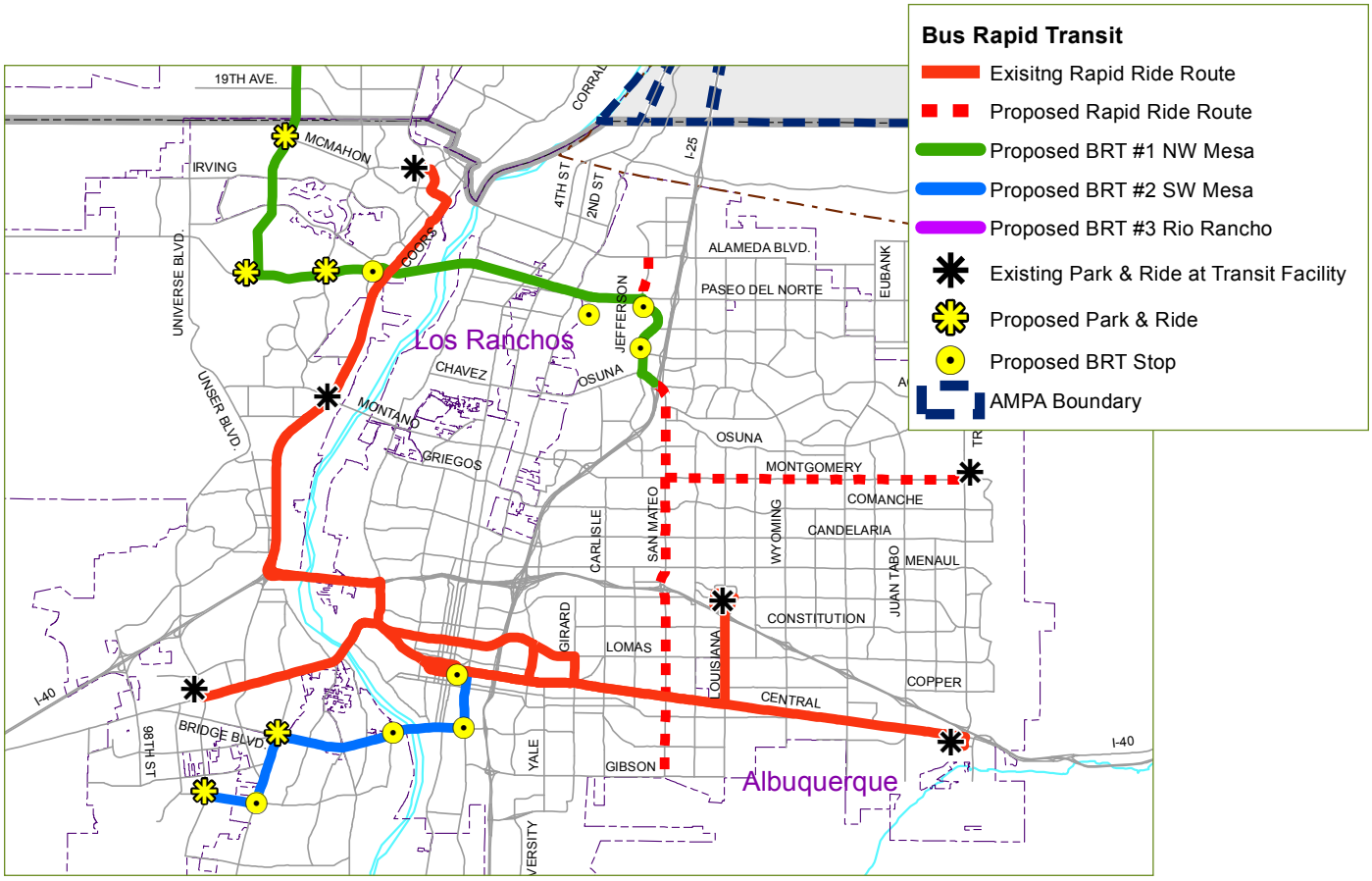
The goals being used to guide the content and focus of the Central Avenue Complete Street Plan and Design Toolkit from First Street to Girard Boulevard are:

1. **To improve the overall safety and multi-modal functionality of the corridor;**
2. **To increase options for pedestrians and transit users by improving facilities along the length of the corridor;**
3. **To catalyze and support future development/ redevelopment of properties along the corridor by creating a high-quality public realm;**
4. **To improve the quality of life of area residents and create a sense of place through the design and construction of a safe and attractive roadway.**



Major Metropolitan Transit Corridors, 2035 Metropolitan Transportation Plan

The Importance of Being Central Avenue



Bus Rapid Transit Map, Proposed and Existing, 2035 Metropolitan Transportation Plan

Central Avenue in Past and Current Planning Efforts

This study is informed by past and concurrent planning efforts within the city by various entities along this corridor as well as studies that intersect the corridor. These studies include long range transportation and bike plans, studies by the county and regional governments and the applicable comprehensive and zoning plans for the corridor and the neighborhoods it serves.

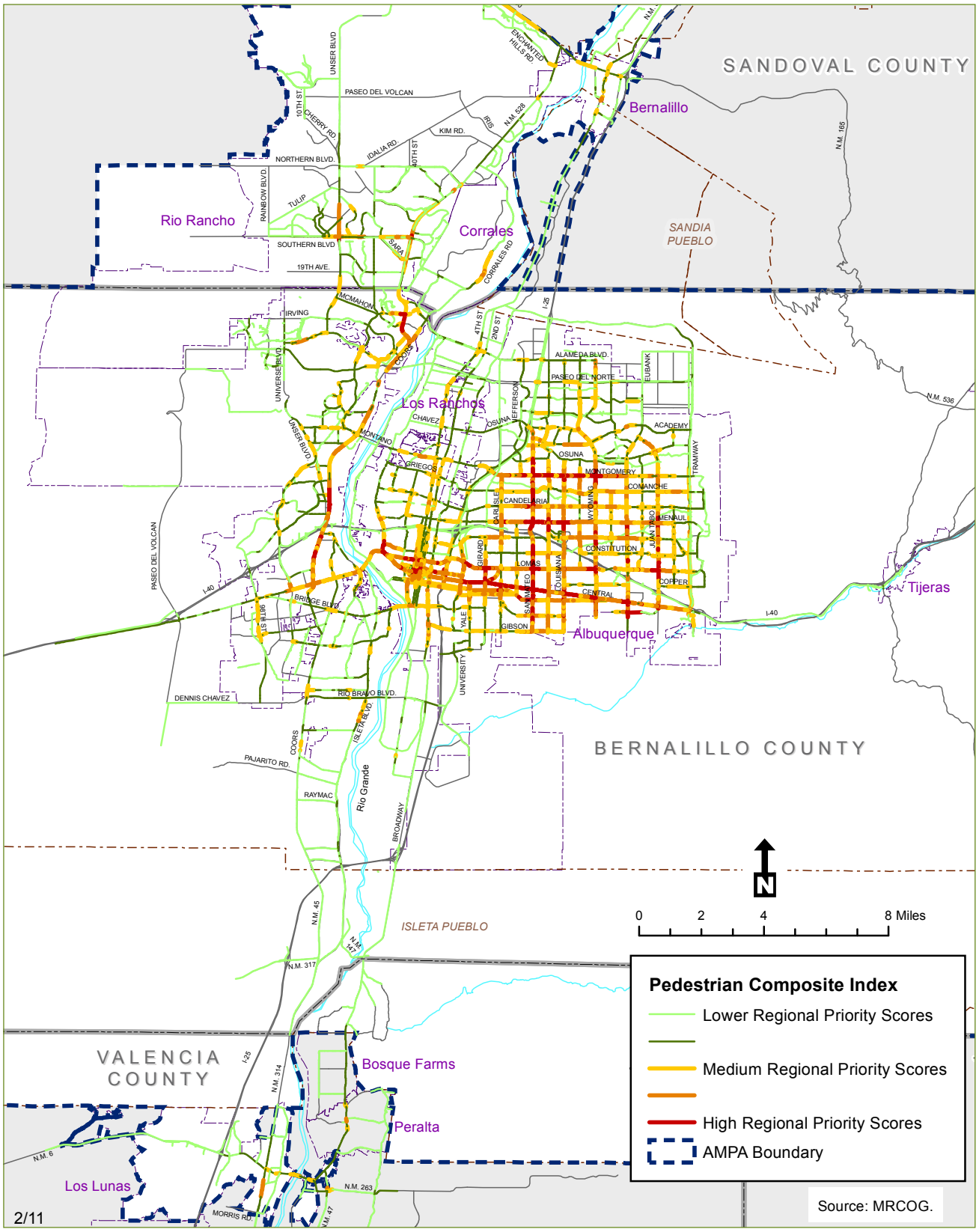
Previous Studies

2035 Metropolitan Transportation Plan

The 2035 Metropolitan Transportation Plan promotes expanded transit and alternative modes of transportation, integrated land use and transportation planning, and maximizing the efficiency of existing infrastructure. Population and employment projections from the MTP indicate that the area is increasingly urbanizing (one in two NM residents will reside in Albuquerque by 2035), but job growth will increase at a slower rate than population growth (48% for jobs to 75% for population). This development will contribute to a doubling of Vehicle Miles Traveled (VMT) per day by 2035 (from 16 million VMT per day to 32 million VMT per day), unless travel behaviors change. The report made two categories of recommendations, as shown in Table 1, to moderate the VMT growth, manage congestion, and improve air quality.

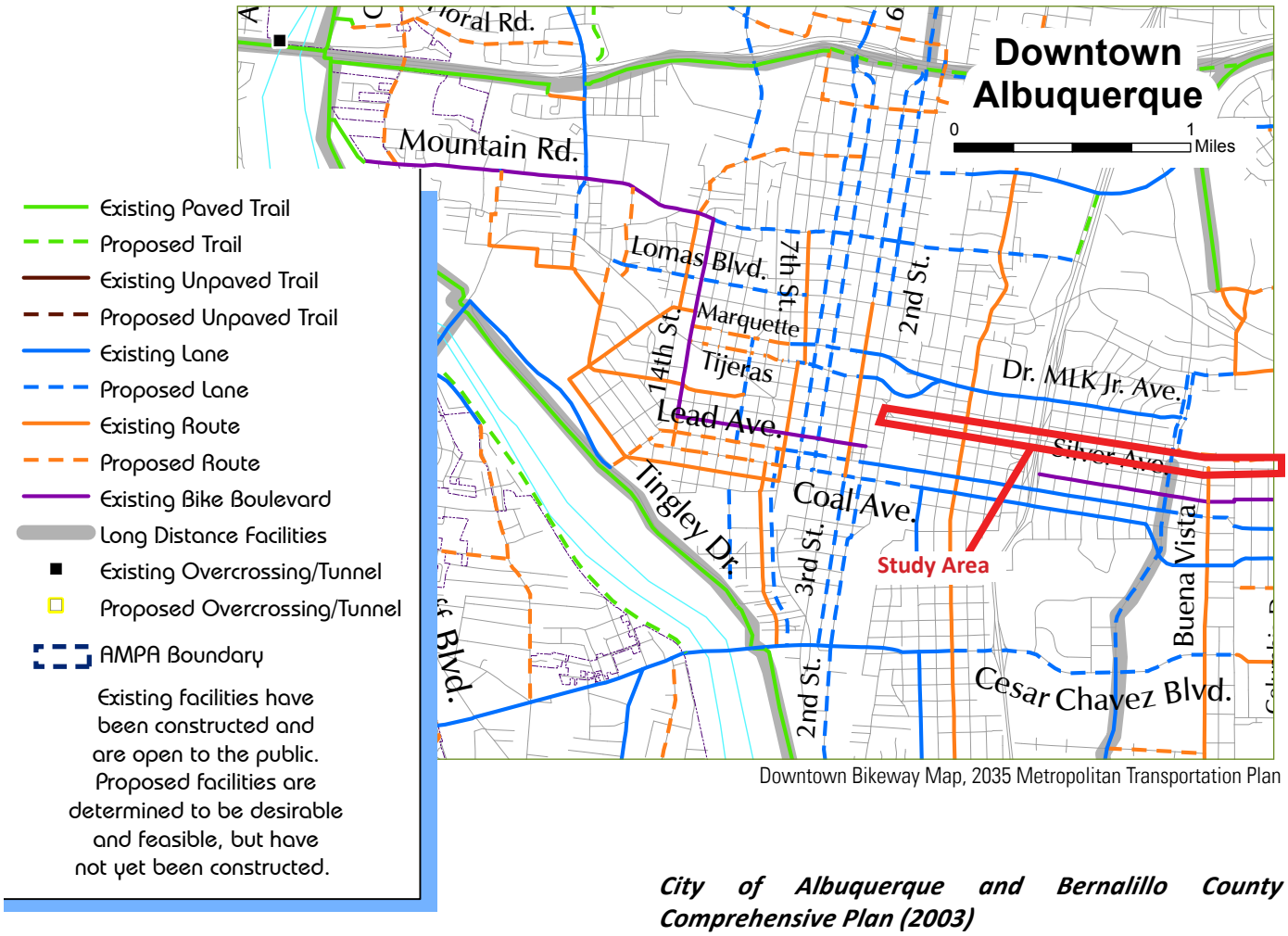
Table 1: 2035 MTP Recommendations

Systems Management Strategies	*Demand Management Strategies*
Signal Timing	Ridesharing
Signal Optimization	Biking
Managed Lanes	Walking
High Occupancy Vehicle Lanes (HOV)	Public Transit
	Parking Management



Pedestrian Composite Index, 2035 Metropolitan Transportation Plan

The Importance of Being Central Avenue



Downtown Bikeway Map, 2035 Metropolitan Transportation Plan

2035 Long Range Bikeway System

The Long Range Bikeway System map depicts proposed and existing bike facilities developed over the course of studies beginning in the early 1970's. It also defines the specifications of different types of bike facilities such as bike lanes, trails and bike routes. Of particular note, Central Avenue (outlined in red) is not a proposed route.

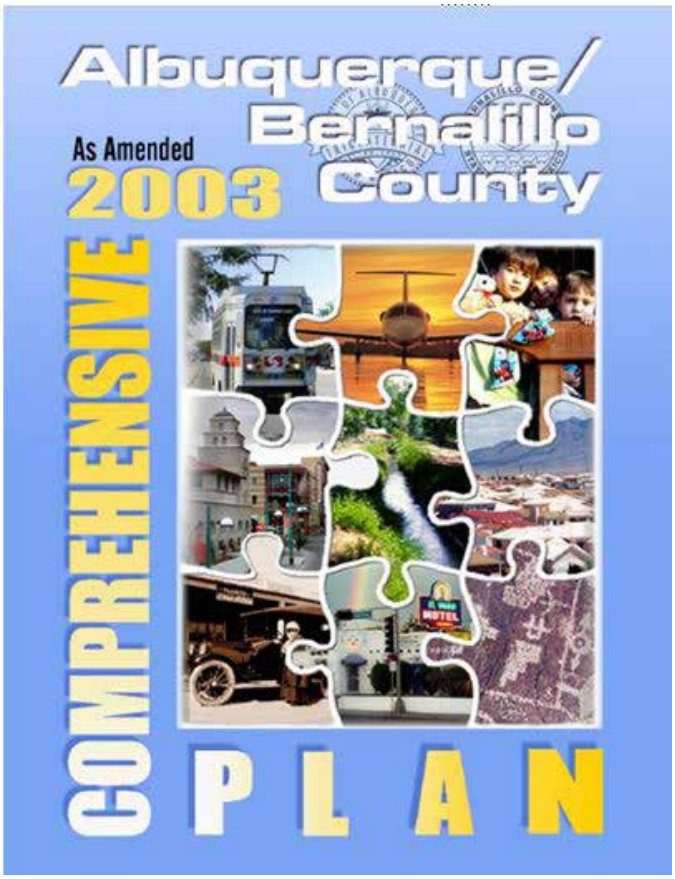
MRCOG Future Albuquerque Area Bikeways and Streets (FAABS)

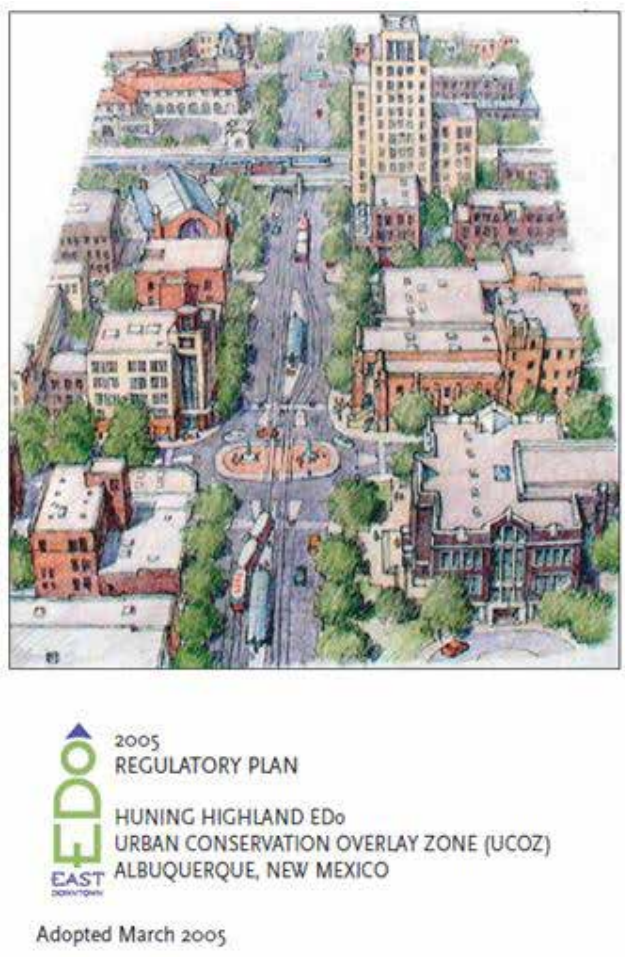
The FAABS plan contains all the future Bikeways and Streets within the Albuquerque Metropolitan Planning Area. The FAABS Map shows how Central Avenue transitions from a collector west of I-25 to a principle Arterial east of the Interstate. Appendix G of the FAABS Plan outlines the issues addressed in the planning process which includes: ensuring economic vitality, improving safety for motorized and non-motorized users, increase accessibility and mobility options, and enhance integration and connectivity across modes.

City of Albuquerque and Bernalillo County Comprehensive Plan (2003)

The Albuquerque/Bernalillo County Comprehensive Plan, updated in 2013, sets the vision for the city to follow in the future to guide zoning, land use and transportation decisions. A key strategy in the future of Albuquerque is establishing 'Activity Centers' that would be nodes of mixed use connected by major transit corridors. An example of an Activity Center is UNM (University of New Mexico) which would function as vibrant, transit-oriented, urban places that encourage walking to destinations throughout the center. Major Transit Corridors, like Central Avenue, serve multiple travel modes including mass transit, pedestrians, bicycles and vehicles.

Activity Centers provide a rational framework for the efficient allocation of public and private resources. These nodes encourage the concentration of land uses for greater efficiency, stability, image, diversity and control while protecting the city's existing single-family residential areas. The Comprehensive Plan envisions Central Avenue as a transit oriented east/west corridor and a priority area for infill and redevelopment





City of Albuquerque Zoning Code

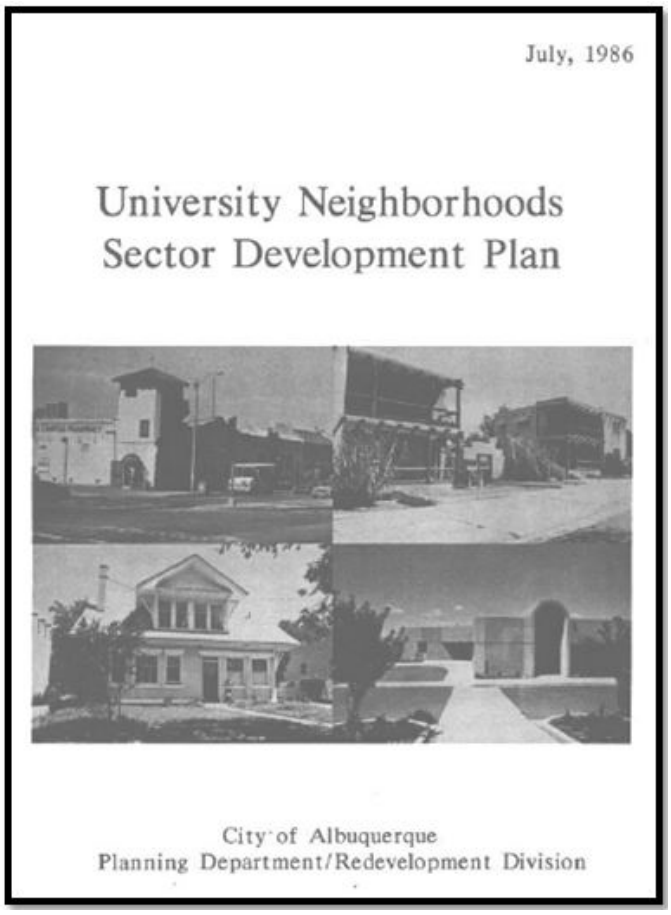
The City of Albuquerque Zoning Code sets land use regulations for areas of the City not regulated by Sector Development Plans, including parts of the Study Area. Relevant to Central Avenue it also sets the parking requirements which do not always encourage the most walkable and aesthetically pleasing environment. For example, current off-street parking requirements are one space per 200 SF of net leasable area for office uses, 200 SF for the first 15,000 SF of net leasable retail and service uses and one space per bath but not less than two spaces for dwelling units built after 2002.

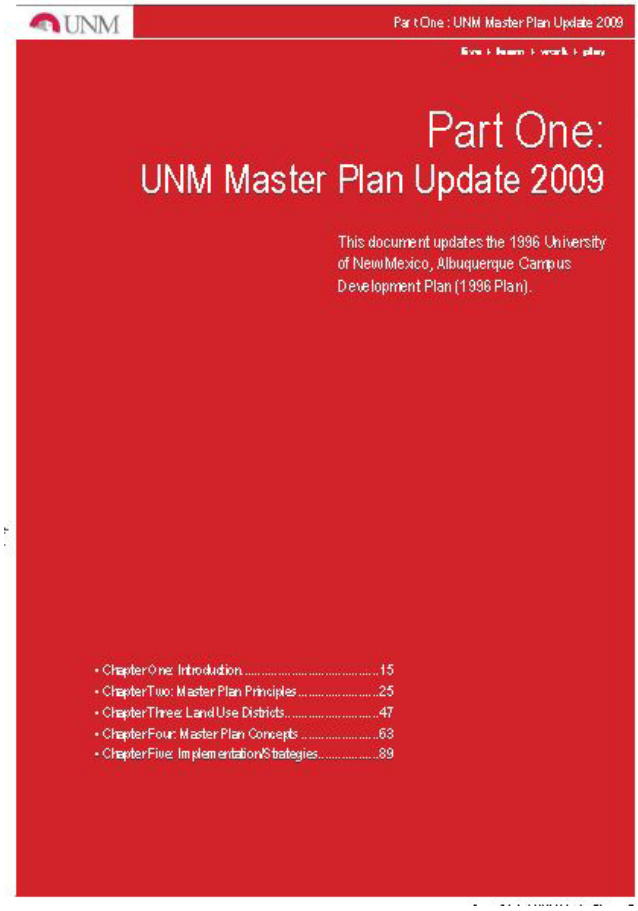
These regulations discourage the reduction of automobiles by being so aggressive in the requirement, compared to other urban cities focused on increasing transit modes. For instance, the City of Fort Worth, Texas has recently removed all requirements for non-residential parking, with the rationale that the market will adequately supply the needed parking. The City has not second guessed the decision and development continues.

East Downtown (EDo) Master Plan/Regulating Plan (2005)

The EDo Master Plan and Regulating Plan was an extensive plan completed in 2005 to shape a vision for the EDo and Huning Highland areas. The plan calls for a pedestrian first environment with wide sidewalks, buildings framing streets, clean, safe and inviting storefronts, street trees and shade, appropriate street furniture, on-street parking, outdoor dining, and street lighting. This would help shape a street that would have slower car speeds, but higher vehicle parking capacity and a neighborhood that could accommodate a park once environment. The plan encourages an urban environment that combines the historic neighborhoods and many of the original pedestrian scale buildings and frontages along Central Avenue.

The Importance of Being Central Avenue





University Neighborhoods Sector Development Plan (1986)

The University Neighborhoods Sector Development Plan was completed in 1986 with the intent of protecting the neighborhood and its historic housing stock. The Plan calls facade improvements along Central Avenue and pedestrian improvements to sidewalks and streetscape on Central Avenue. The plan specifically calls for bus shelters and benches.

The plan was written with many of the elements of a complete street in mind for Central Avenue, well before the term had been coined to reflect today's understanding of a complete street.

UNM Master Plan (2009)

The University of New Mexico Master Plan Update from 2009 centers around three primary themes: synthesize, connect and create. These "big ideas" require coordination and investments in transportation. The plan specifically calls for increased "transit options between campuses and coordination with other transit providers" and to "participate in regional transit planning and ongoing transportation studies." Part of that solution is to increase transit and bike options for the Central Campus and make East/West pedestrian connections on the Central Campus more visible and direct.

Presbyterian Hospital Master Plan (1995)

The Presbyterian Hospital Master Plan is to be used as a "road map" for near and long term development of the main Presbyterian Hospital Campus. The plans intent is to be effective for the short term but flexible for the long term. Part of that flexibility is manifested in a series of development alternatives that share three commonalities:

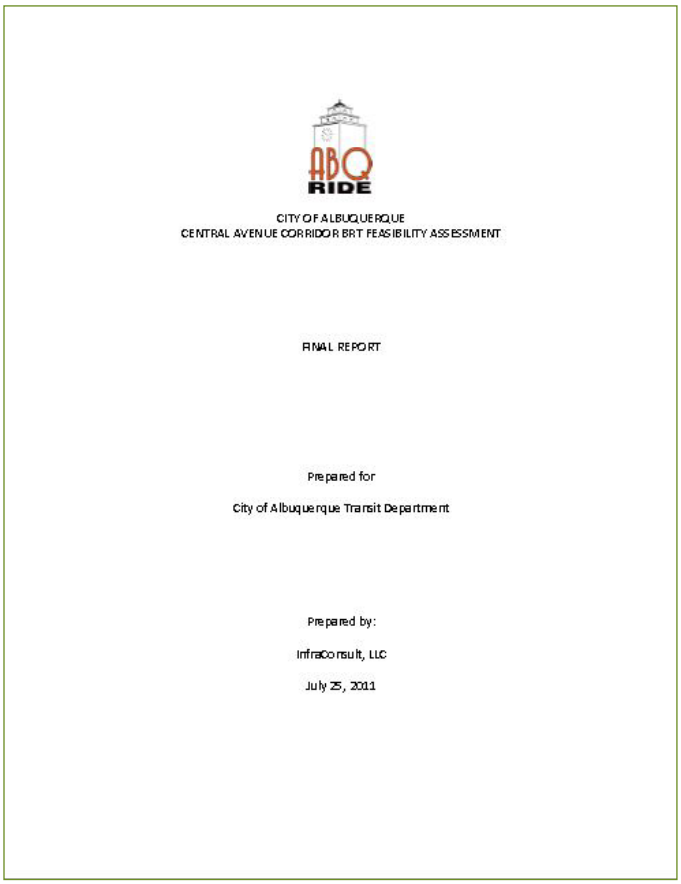
- A public entryway that includes a green area.
- Parking that is visible and easy to access by visitors.
- Hotel/Mixed-use development in future phases on Central Avenue.

Overall the plan calls for development to respond to the neighborhood context by:

- Locating the most intense development away from existing residential areas.
- Mixed use commercial qualities to reinforce the existing character of of Central Avenue,.
- Increased structured parking to meet parking demands closer to buildings and open up existing surface parking for future development.

The Presbyterian Hospital Master Plan seeks to respond to neighborhood concerns and context while at the same time allowing the medical center to fulfill its mission:

- To deliver cost-effective quality healthcare to the community.
- To promote a good fit with the neighborhood.
- To create a sense of place.
- To create an identity for Presbyterian in the community.



City of Albuquerque Central Avenue Corridor Bus Rapid Transit (BRT) Feasibility Assessment (2011)

This study evaluated the feasibility and impacts of a proposed BRT along Central Avenue from 98th Street to Tramway Blvd. The first section of the study provided background information and characteristics of BRT. Of particular note is the study's assertion that station location will play a key role in successfully integrating BRT into a "Complete Street." The study states that the "recommended BRT station width for a center station is 14 feet with a constrained width of 12 feet. For a split platform configuration, the preferred width is 10 feet and a constrained width of 8 feet." The plan also addresses street furnishings and pedestrian amenties at stations by suggesting that stops include "shelters, seating, public art and trash receptacles."

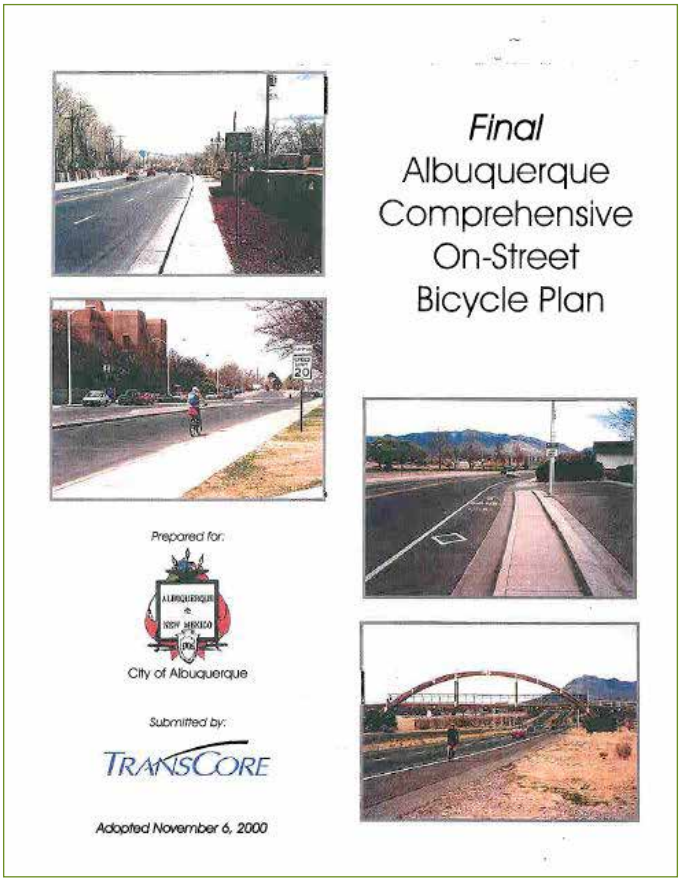
Task 2 of the study evaluated Central Avenue itself, including the allocation of right-of-way to various users and how the road would function with BRT. The report makes recommendations

based on existing conditions and what would function best for the BRT with the caveat that many of the details like station location and type would be worked out in later studies.

The recommendation from the report for the UNM section from Girard Boulevard to University Boulevard is for a BRT located in the median with a center station, which would require the elimination of the median (left turn bays) and the westbound transit only lane. At intersections, inclusion of left-turn bays may necessitate the elimination of some on-street parking.

The next section from University Blvd. to 1st Street passes through the Hospital District and East Downtown (EDo). During public meetings held to discuss BRT, residents and property owners in the EDo area indicated their desire for a reduction in the existing number of lanes along Central Ave. in this location to slow traffic and allow allocation of some of the the narrow right-of-way for other users, such as cyclists and pedestrians.

The BRT study maked that narrow configuration recommendation but also states that the alternative is to accommodate a median guideway. This treatment would require: removal of on-street parking; reduction in sidewalk widths to an average width of approximately seven feet; and elimination of the median to maintain two travel lanes in each direction. This alignment does not promote a pedestrian friendly environment, which conflicts with the primary goal of the EDo Master Plan.



Albuquerque Comprehensive On-street Bicycle Plan (2000)

The Albuquerque Comprehensive On Street Bicycle Plan is an update to a pervious Trails and Bikeways plan in the early 1990's to a system that began in 1974. The plan evaluates deficiencies in the bike system and benefits of a comprehensive and connected bike system. It sets a goal of having 5% of commute trips by bike in 2005 and 10% by 2020. The plan shows bike facilities on Lead and Coal, similar to how they currently exist, and calls for further study for a Central Avenue Bicycle Corridor from Old Town to Nob Hill. The plan states that adding bicycle facilities to this corridor would provide needed connectivity, especially for the high use area between UNM and Nob Hill and would "enhance the attractiveness of this corridor."

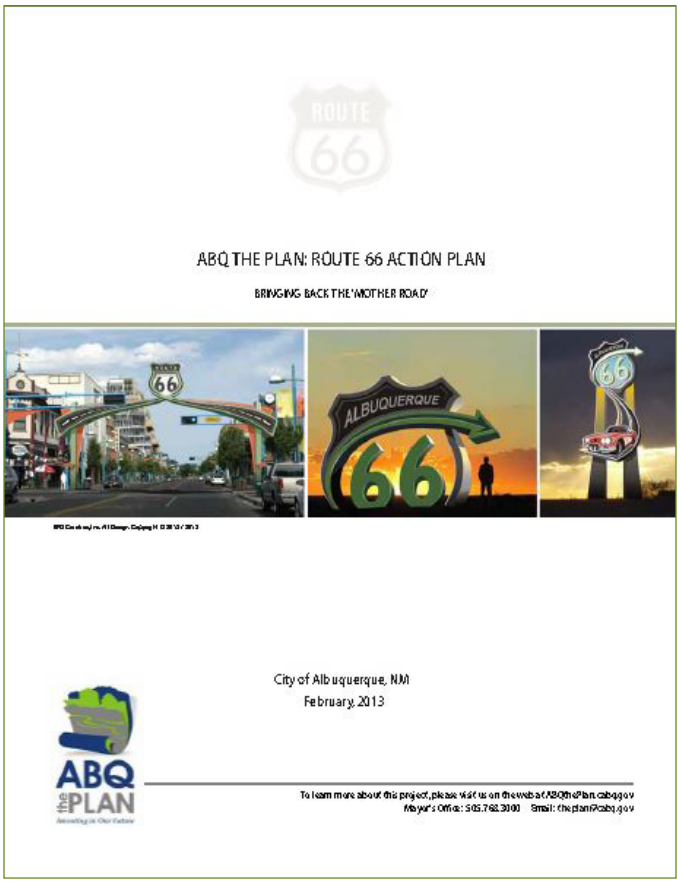
Table 2: Complete Streets Goals Compared to previous studies

Complete Streets Goals	*2035 Metropolitan Transportation Plan*	*2035 Long Range Bikeway System*	*MRCOG Future Albuquerque Area Bikeways and Streets (FAABS) Plan*	*Albuquerque and Bernalillo County Comprehensive Plan*	*Albuquerque Zoning Code*	*EDo Masterplan/ Regulating Plan*
Safety and multi-modal functionality	●	●	●	●		●
Increase options for pedestrians and transit users	●	●	●	●		●
Catalyze and support future development/ redevelopment				●		●
Improve the quality of life of area residents and create a sense of place	●			●	●	●

Table 3: Complete Streets Goals Compared to previous studies, continued

Complete Streets Goals	*University Heights Sector Plan*	*University of New Mexico Master Plan*	*Presbyterian Hospital Master Plan*	*Central Avenue Corridor BRT Feasibility Assessment*	*Albuquerque Comprehensive On-street Bicycle Plan (2000)*
Safety and multi-modal functionality	●	●		●	●
Increase options for pedestrians and transit users	●	●		●	●
Catalyze and support future development/ redevelopment	●	●	●		
Improve the quality of life of area residents and create a sense of place	●		●		●

The Importance of Being Central Avenue



Current Studies

Route 66 Action Plan

Commissioned as part of the Mayor's "ABQ The Plan" project to explore public investments citywide, the Route 66 Action Plan aims to promote historic Route 66 as a tourist destination and create a 'sense of place' in Albuquerque. The plan has goals of preserving historical legacy, placemaking, economic investment and tourism. This is done in the physical environment along the corridor via numerous action items. The plan specifically calls for maintaining a quality level of service for all users and incorporating "a strong network of pedestrian and bicycle improvements to support diverse transportation choices" which would include the "development of a Bus Rapid Transit system (BRT) along Central Avenue." Any pedestrian wayfinding or infrastructure should reinforce the Route 66 identity along Central Avenue yet develop a flexible streetscape palette that responds to individual neighborhood character and distinctiveness. To improve the pedestrian experience low walls could be used "to frame the street edge and mask vacant lots and parking." In addition public art could be installed on orphan signs and blank sides of existing buildings. This would help to "establish a comprehensive series of gateways at significant points along Route 66, introducing activity nodes, the crossroads, and key entry and exit points along the road." The overall goal would be to create constant development along the corridor and minimize development gaps along Central Avenue by establishing a façade improvement program for existing businesses and implement a streamlined approval process for development.

NMDOT Interstate Highway 25 Accessibility Study

The South IH-25 Access Study spans 12 miles from the Big I to the NM 47 (Broadway Boulevard) interchange. The primary objectives are to improve traffic flow and safety through additional capacity and better lane utilization. Focus is on lane management, lane additions, frontage roads, and ramp relocations and improvements. New and/or improvements to existing interchanges are also part of the study. The study will define the short term and long term needs.

ABQ Ride – Central Avenue Bus Rapid Transit (BRT) Study

Led by the City's Transit Department (ABQ Ride), this study builds on the aforementioned 2011 Feasibility Assessment and aims to address the feasibility of a Bus Rapid Transit system along much of Central Avenue within city limits. Such a system would employ pre-board payment, dedicated facilities (where possible) and signal prioritization to enable service speeds rivaling conventional motor vehicle travel. The study has involved several rounds of public meetings to solicit input on station locations, alignment of transit-only lanes in the right-of-way where space allows, and other characteristics. Depending on the availability of federal and other funding, ABQ Ride envisions having such a service up and running within five years, replacing some of the existing Rapid Ride express bus system. ABQ Ride has coordinated closely with the Central Avenue: 1st to Girard Boulevard Complete Street project team as it considers this complex and narrow segment of the corridor.

UNM/CNM/Sunport BRT Study

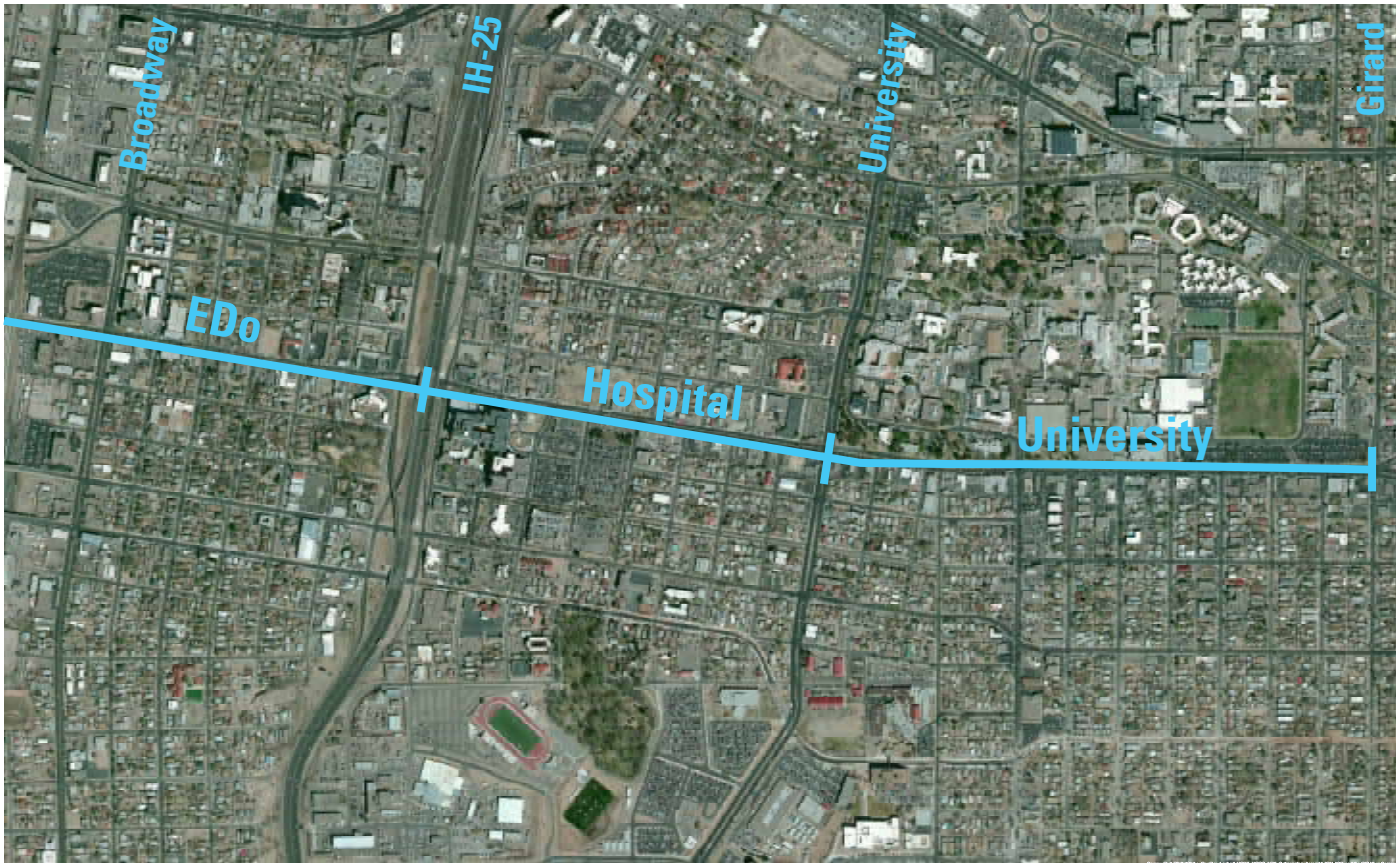
The Mid-Region Council of Governments (MRCOG) is studying route alternatives for a proposed Bus Rapid Transit system running between the University of New Mexico, Central New Mexico Community College and the Albuquerque Sunport. This project's study area constitutes the largest activity center in the city, attracting an estimated 74,000 students and employees daily. MRCOG hopes to show potential BRT routes that would connect those visitors to biking and walking facilities, as well as proposed new enhanced east-west transit services on Central Avenue and other local and regional transit systems. As of late 2013, the study had narrowed the potential routes down to two alternatives: University Boulevard and Yale Boulevard..

Project Study Area, MRCOG North/South BRT Study

Table 4: Complete Streets Goals Compared to Current Studies

Complete Streets Goals	*I-25 Access Study*	*MRCOG North/ South BRT Study*	*ABQ Ride Central Avenue BRT Study*	*ABQ The Plan/ Route 66 Plan*
Safety and multi-modal functionality	●	●	●	●
Increase options for pedestrians and transit users	●	●	●	
Catalyze and support future development/ redevelopment		●		●
Improve the quality of life of area residents and create a sense of place		●	●	●

Existing Conditions Assessment



Study Area Map

The Location

The study area for the Central Avenue Complete Street Plan and Design Toolkit is divided into three distinct sub areas, each with its own unique character. The westernmost sub area is East Downtown (EDo) from First Street to I-25. The central section is the Hospital area near Presbyterian Hospital from I-25 to University Boulevard. The eastern segment abuts the southern edge of the main campus of the University of New Mexico, from University Boulevard to Girard Boulevard. Each of these areas is adjacent to established historic neighborhoods with respective sector plans and neighborhood plans.

This study does not propose changes to the existing single-family residential cores of these neighborhoods. However, where they are not already governed by Sector Development Plans or other regulations, it will reflect on appropriate transitions between future new development and redevelopment, both residential and commercial, along the Central Avenue corridor and established residential areas.

Study Area Weekday Traffic Volume

Study Area Travel Time by different modes of transportation

Traffic Conditions

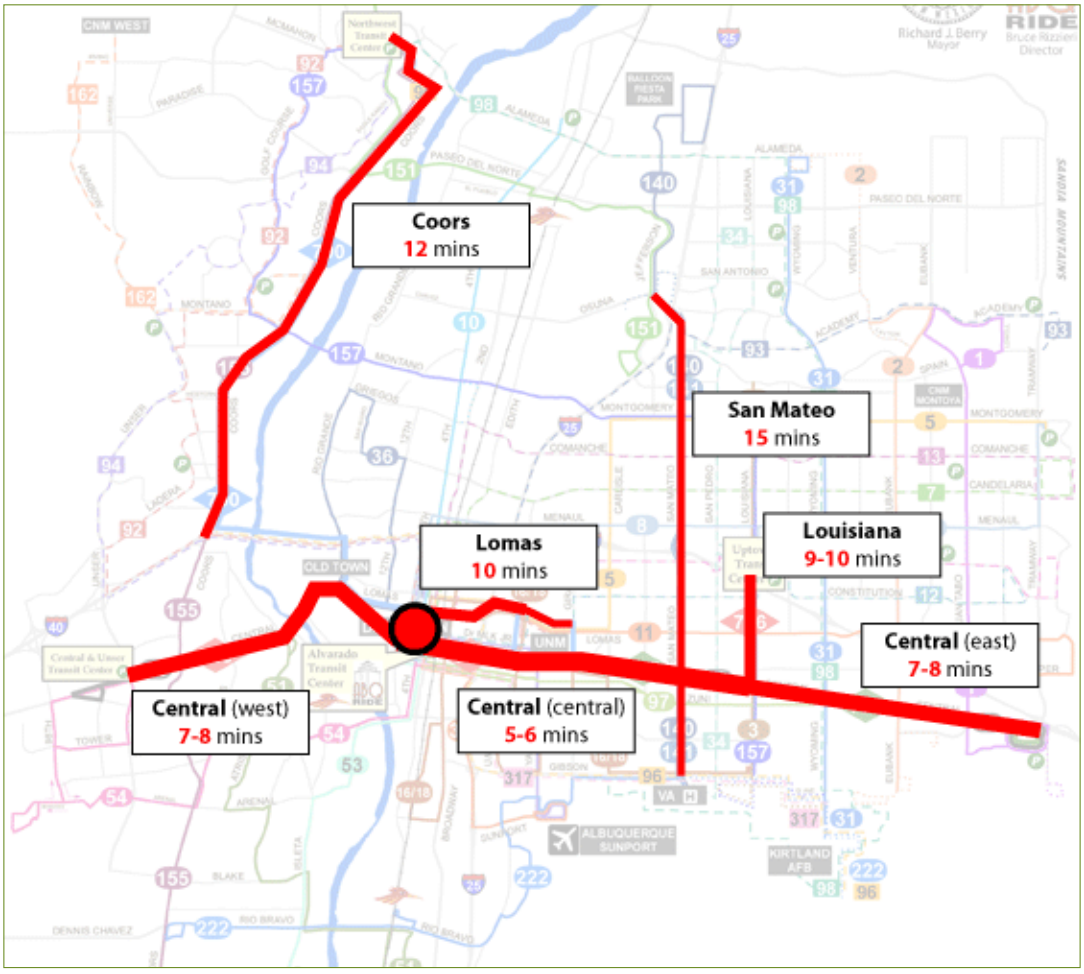
Central is the primary connection between many of the City's busiest neighborhoods and activity centers. Generally traffic volumes increase from west to east, approaching UNM. Traffic volume is added to Central Avenue from I-25 and the major north south connectors like Broadway Boulevard, University Boulevard and Yale Boulevard.

Transit Conditions

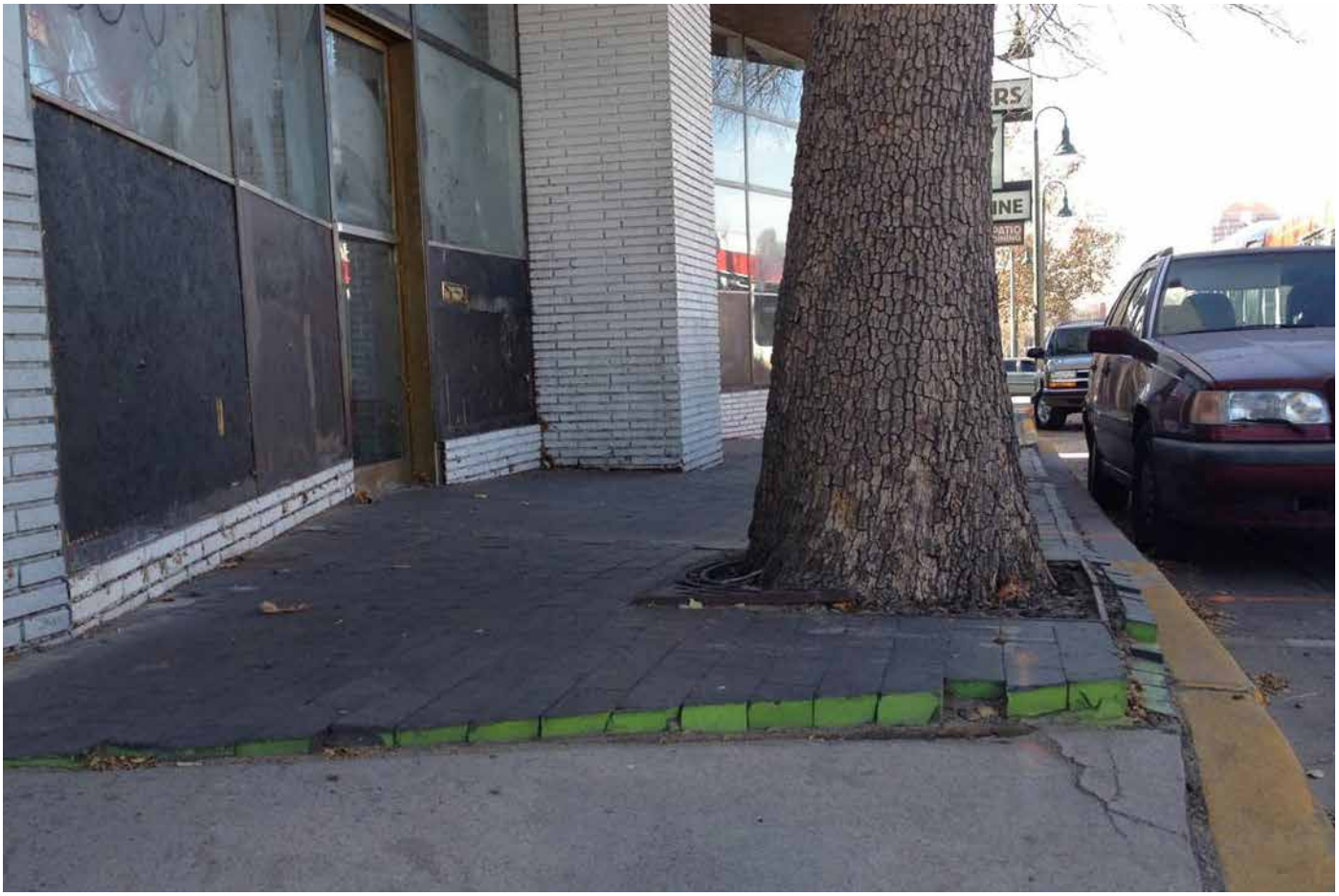
The Central Avenue corridor is one of the primary transit corridors in the city, serving in excess of 40% of the total daily boardings system-wide. Services affecting the 1st Street to Girard Boulevard study area include several Rapid Ride articulated express bus routes serving stops located approximately one mile apart, as well as the local "66" bus, which serves stops located approximately every two blocks.

Table 5: Central Avenue Daily Transit Use

Transit Stop	*Daily Boardings and Alightings*
1st (Across from A.T.C)	4,389
Yale	1,951
Cornell	1,927
Edith	549
University	468
Girard	440
Cedar	373
Broadway	318
Mulberry	313



Transit Corridor s with peak service intervals of 15 minutes or less



Pedestrian Conditions

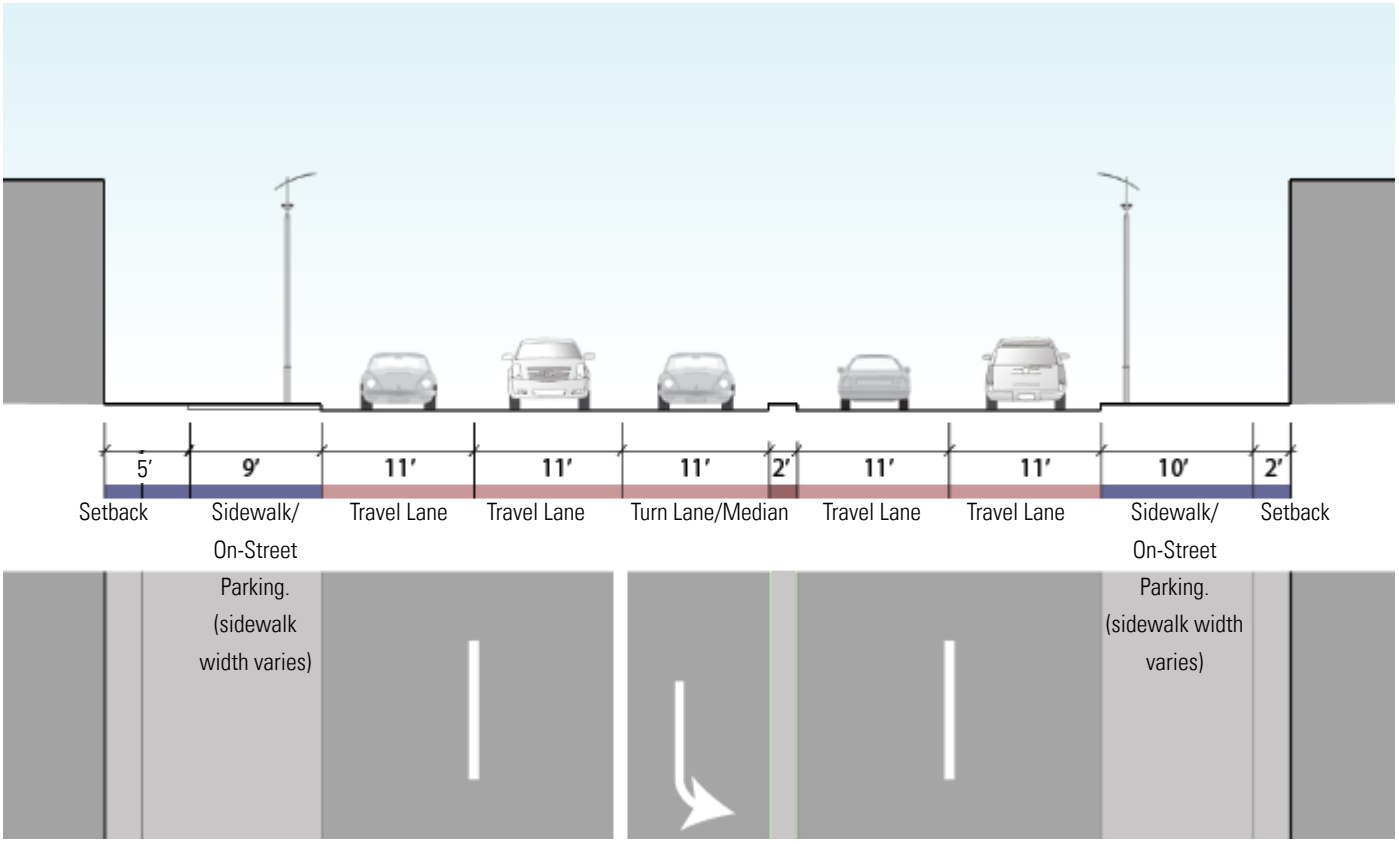
Despite Central Avenue's importance to patrons of transit and the growing number of small shops and businesses that abut it in the study area, pedestrians are poorly served by narrow and damaged sidewalks, excessive block lengths and unprotected crossings.

Within the study area, there were 77 Vehicle collisions with pedestrians between 2000 and 2011. Predictably, the locations where five or more crashes occurred are all located in the UNM district, where pedestrian and vehicle traffic are the highest and the crossing distances are the widest at up to 82 feet.

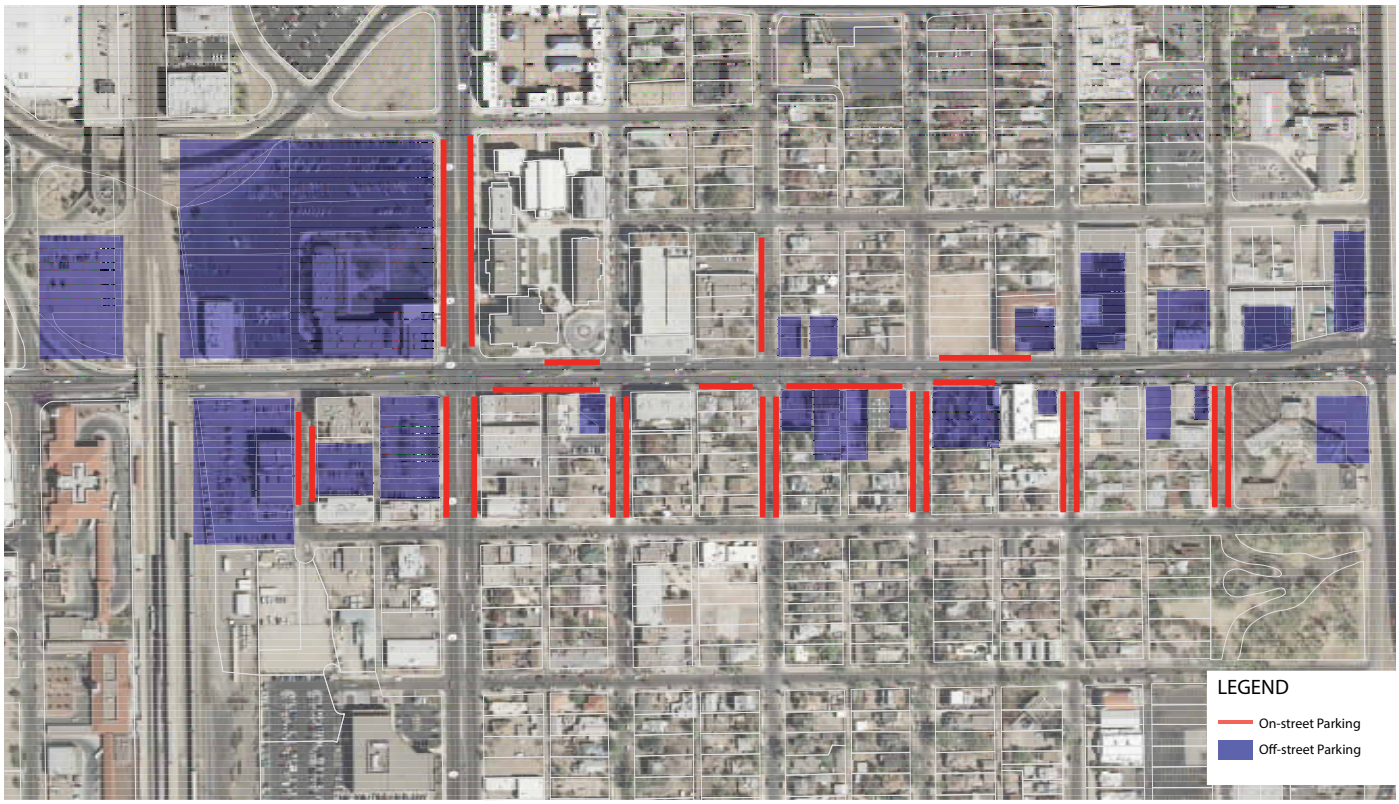
High numbers of accidents occurred near Central Avenue's intersection with Girard Boulevard (8), Cornell Drive (6), Harvard Drive (6) and Yale Boulevard (12) with fatalities occurring at Oak Street and Yale Boulevard.

Bicycle and Pedestrian Crash Hot Spots (2000-2011)

EDo Sub Area Existing Aerial Map showing lot arrangement and transit stops. = Rapid Ride = Rt. 66 Local



EDo Sub Area representative cross section of Central Avenue showing typical conditions (looking West)



EDo Sub Area Existing Parking Map highlighting on-street and off-street surface parking

EDo Sub Area – First Street to I-25

EDo (East Downtown) is defined by the section of Central Avenue that runs from First Street to I-25. The EDo corridor bisects the historic residential neighborhoods of the Huning Highland Addition. Development along the corridor is regulated by both the EDo Urban Conservation Overlay Zone (UCOZ) Regulating Plan and the Huning Highland Sector Development Plan, which was updated in 2005 to reflect new neighborhood visions for the Central Avenue corridor. This stretch of Central Avenue is a mixture of retail, multifamily, restaurant and hotel uses.

Central Avenue in this area covers a distance of approximately 0.6 miles and includes undercrossings of Interstate 25 and the New Mexico Rail Runner Express tracks. The roadway is 66 feet of paving from curb to curb, including the raised median. The existing cross section varies with intermittent on-street parking, (where on-street parking exists, it reduces sidewalk width) raised medians and turn lanes, while consistently maintaining two driving lanes in each direction.

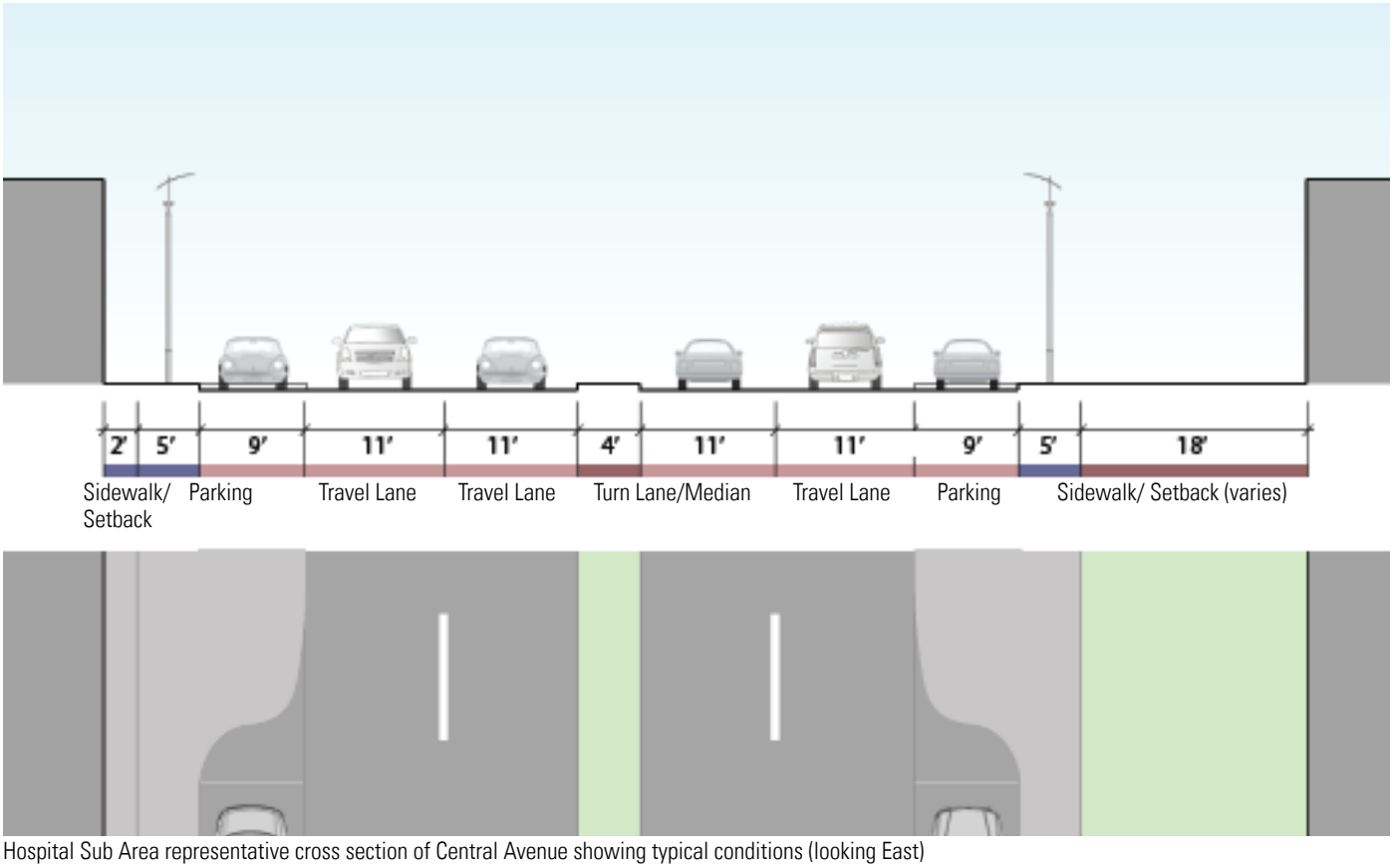
The building form and range of uses along this section of Central leads to a moderate level of transit and pedestrian use. New private infill development and improvements to the public realm could help increase pedestrian traffic and use of other modes of transportation.

General condition assessment:

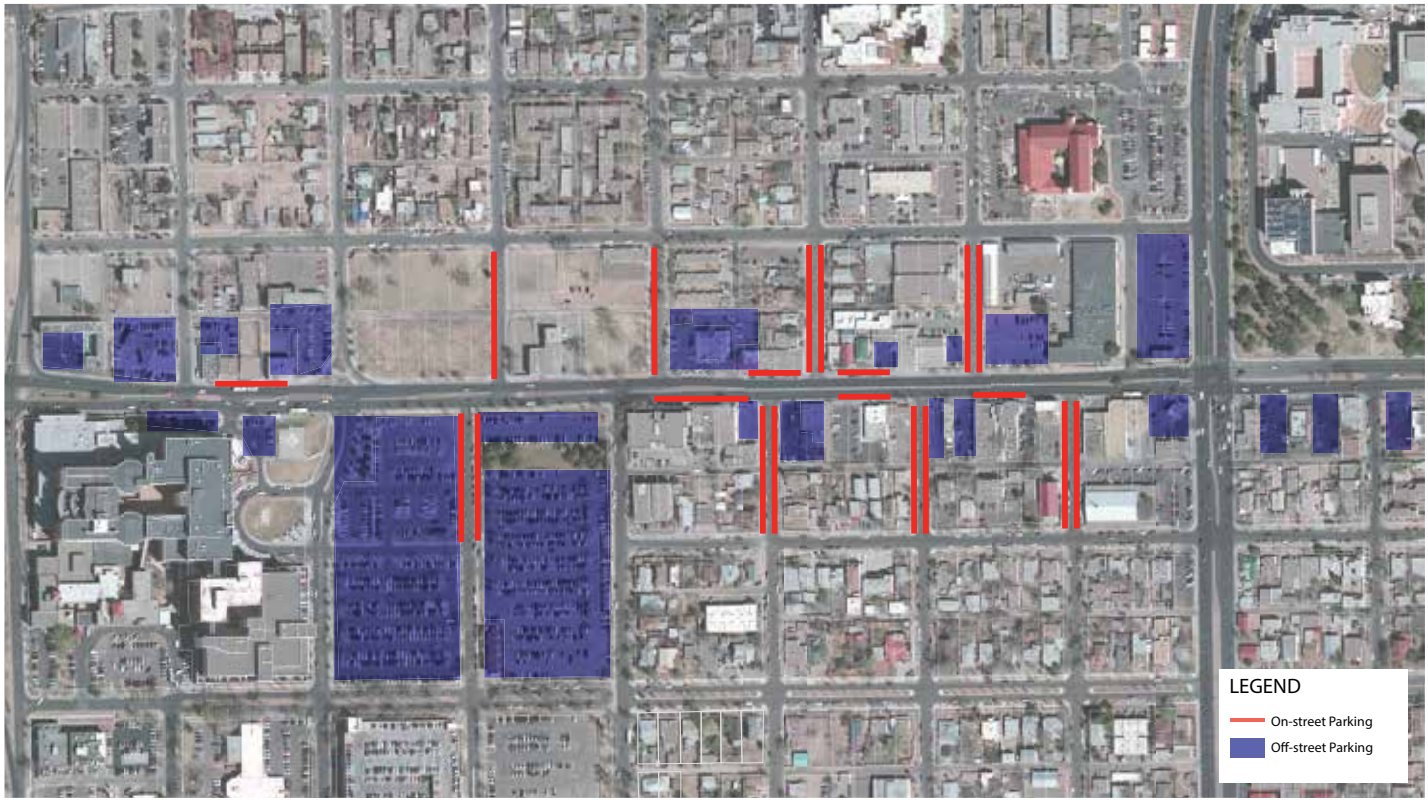
- Lacking street trees, or existing trees too obstructive
- Poor pedestrian underpass at rail crossing
- Minimal approved pedestrian crossings and narrow curbed medians do not provide refuge for crossing.
- Narrow sidewalks along corridor, particularly along the southern side of Central Avenue, where the clear distance of the sidewalk can be as narrow as 4 feet. Some improved areas are accommodating sidewalks up to 10 feet wide.
- A portion of the sidewalks are in the private property setbacks.
- Too few on-street parking on Central Avenue, where retail establishments are fronting. On-street parking is abundant on side streets, but generally are fronted by residential and not the ideal arrangement for supporting retail on Central Avenue as primary parking locations.
- No wayfinding or district identifiers within the right-of-way
- No bike lanes along Central Avenue
- Insufficient lighting under I-25 overpass

Hospital Sub Area Existing Aerial Map showing lot arrangement and transit stops

= Rapid Ride = Rt. 66 Local



Hospital Sub Area representative cross section of Central Avenue showing typical conditions (looking East)



Hospital Sub Area Existing Parking Map highlighting on-street and off-street surface parking

Hospital Sub Area – I-25 to University

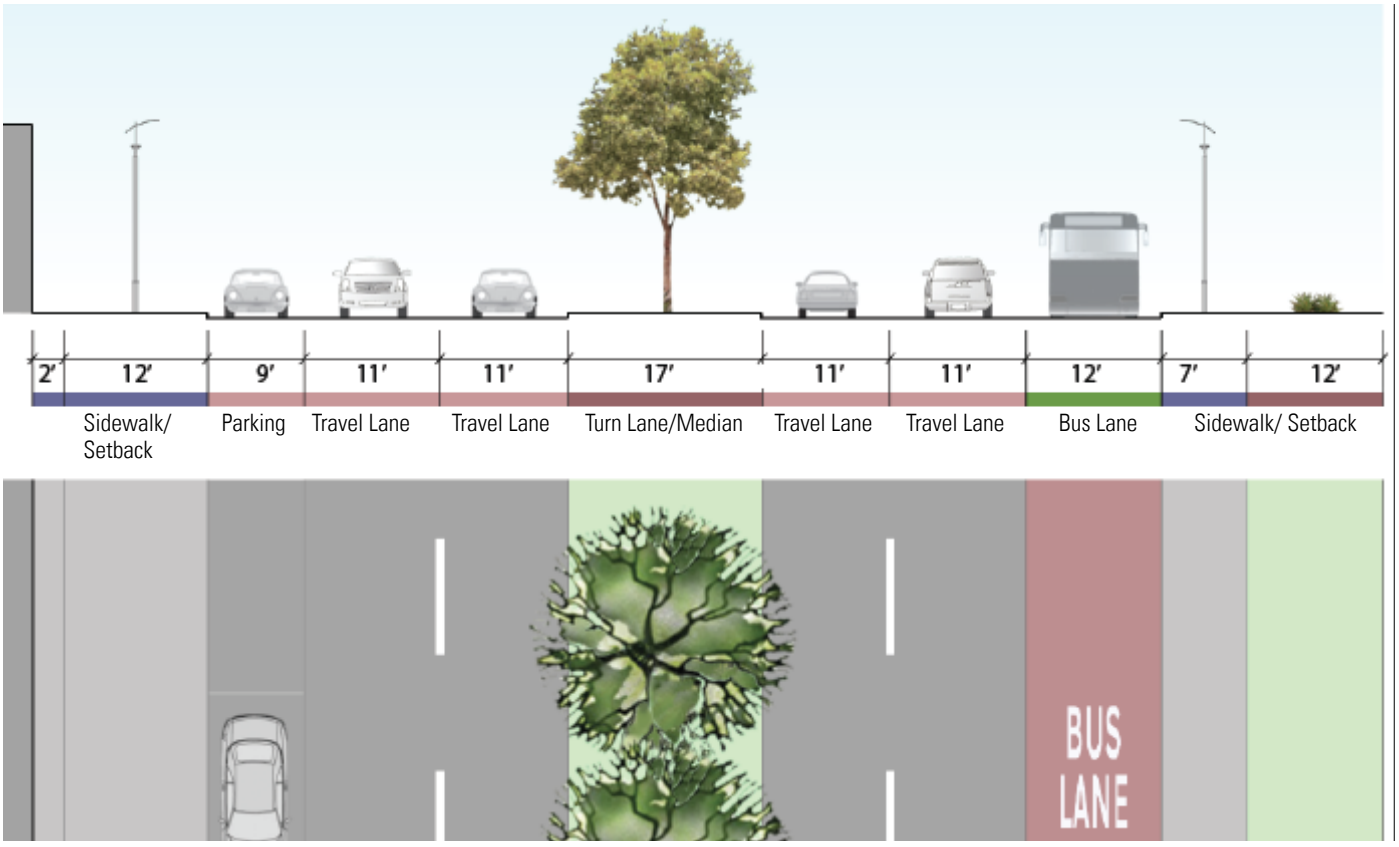
Though some sidewalk improvements have been made in recent years, the current streetscape on the 0.6-mile segment of Central Avenue from I-25 to University generally favors automobile travel. The western end of this segment is characterized by a large hospital and its surface and structured parking to the south and unused structures and vacant lots to the north, leaving pedestrians somewhat exposed on sidewalks. Development at the eastern end of this segment contains numerous restaurants and retail establishments that create more of a sense of "enclosure" along the street. Closed medians designed to keep traffic moving at the east end of the segment invite speeding and make it difficult for pedestrians to cross Central.

General condition assessment:

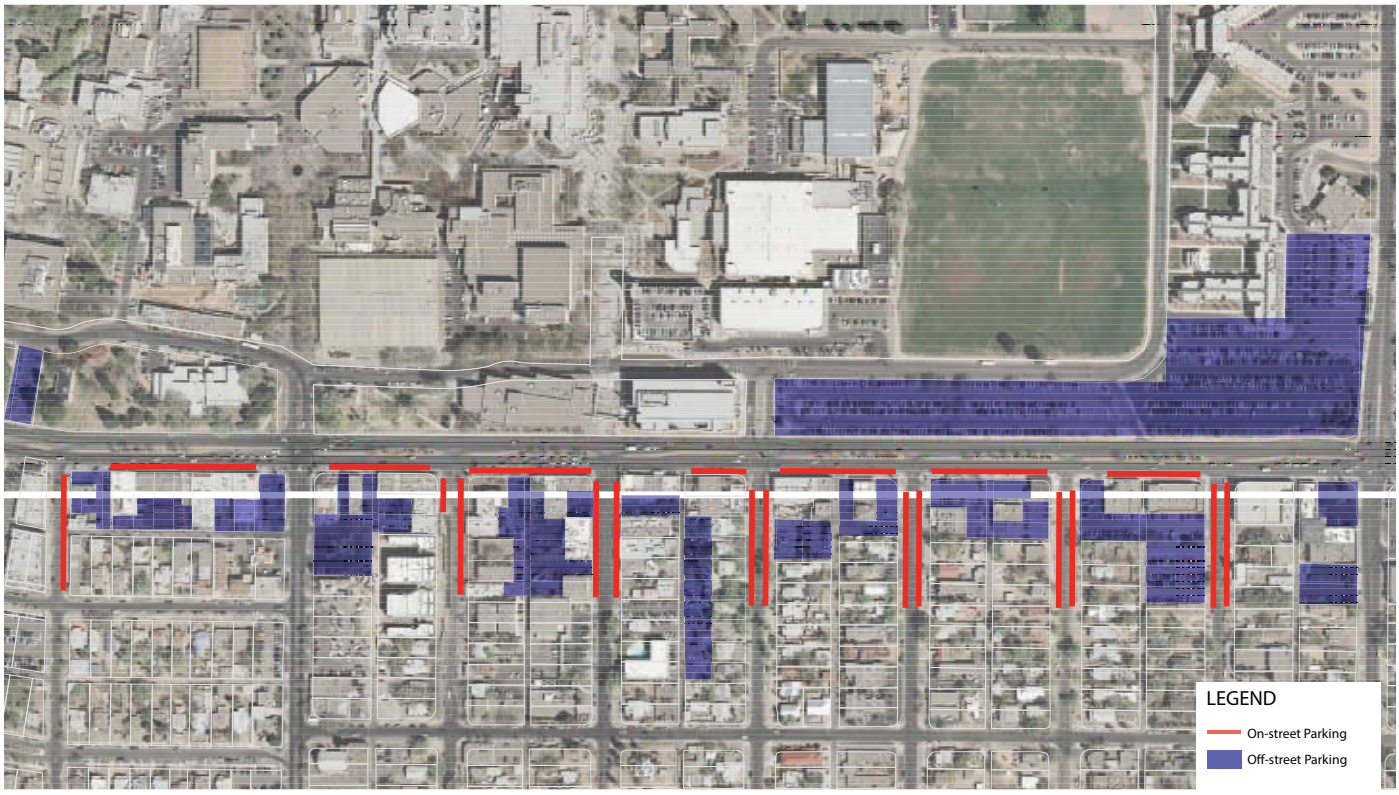
- Narrow sidewalks near hospital
- A portion of the sidewalks are in the private property setbacks.
- Lack of pedestrian crossings and intersections allows cars to speed; no median for pedestrian refuge.
- Lacking street trees, or existing trees too obstructive
- Insufficient lighting under I-25 overpass
- No bike lanes along Central Avenue
- No wayfinding or district identifiers within the right-of-way
- Too few on-street parking on Central Avenue, where retail establishments are fronting. On-street parking is abundant on side streets and not the ideal arrangement for supporting retail on Central Avenue as primary parking locations.

University Sub Area Existing Aerial Map showing lot arrangement and transit stops

= Rapid Ride = Rt. 66 Local



University Sub Area representative cross section of Central Avenue showing typical conditions (looking west; note that the 12' setback on the north side of the street is measured from building line to inner edge of the 7' public sidewalk ROW)



University Sub Area Existing Parking Map highlighting on-street and off-street parking

University Sub Area – University to Girard Boulevard

Central Avenue from University to Girard covers a distance of approximately 0.8 miles. The roadway is 82' wide from curb to curb, and features include a wide landscaped median with left turn pockets, and two driving lanes in each direction. Additionally, the eastbound side has curbside on-street parking and the westbound side, fronting on the University of New Mexico campus, has a curbside transit-only lane.

General condition assessment:

- Limited signalized intersections make pedestrian crossing difficult and encourage vehicle speeding
- A portion of the sidewalks are in the private property setbacks.
- Lacking street trees or existing trees too obstructive
- No bike lanes along Central Avenue
- No wayfinding or district identifiers within the right-of-way
- Too few on-street parking spaces on Central Avenue
- Utility poles, trashcans, etc in the sidewalk
- Dangerous pedestrian crossings at Yale Boulevard, Cornell Drive and Stanford Drive

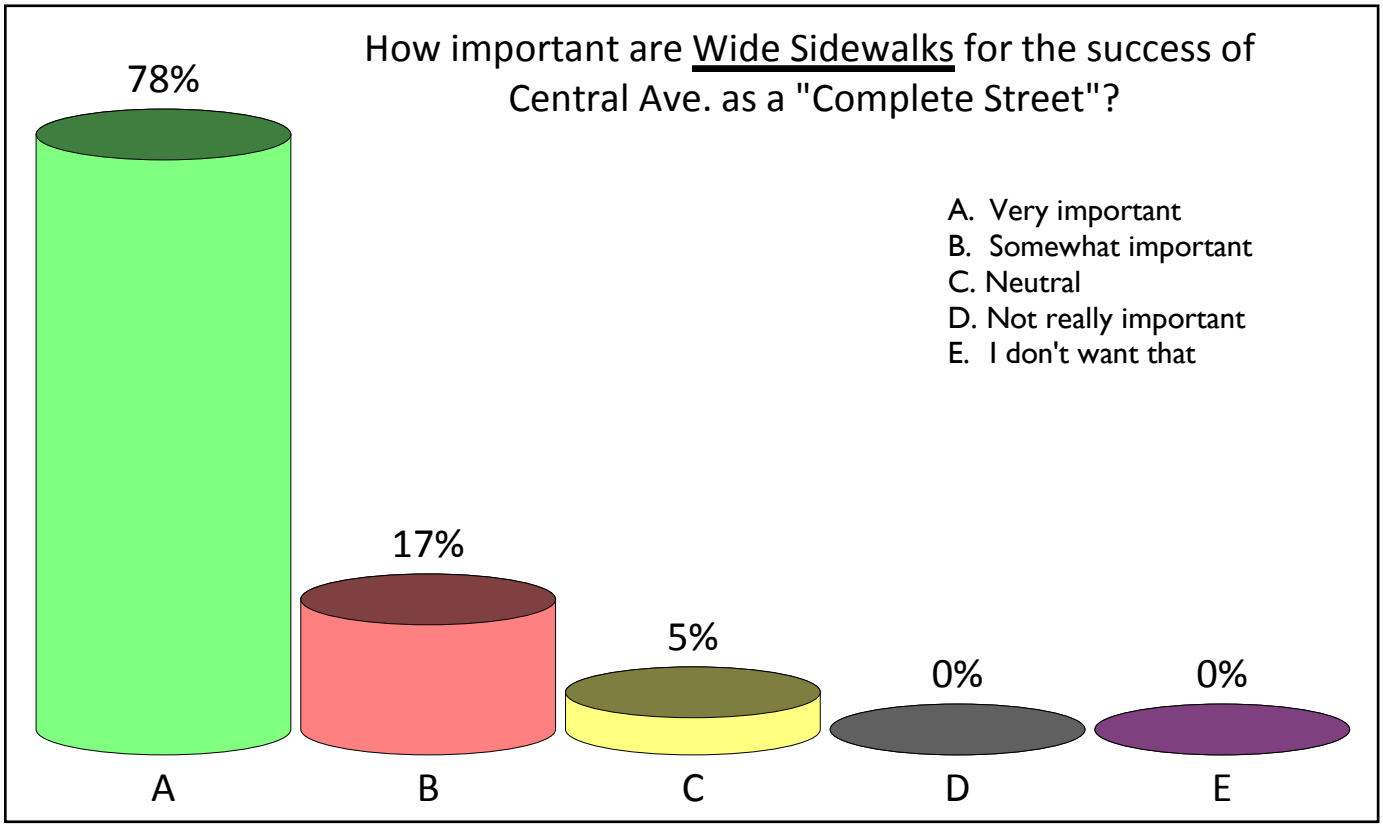
Public Input and Workshop

A public meeting and workshop were held in February 2013. The meeting began with a presentation on "Complete Streets" and the context-sensitive elements that apply to complete streets in general. After the "Complete Streets" informative presentation an "Existing Conditions" presentation on Central Avenue, specific to the study area was given.

Following the "Existing Conditions" Presentation, a non-scientific poll was conducted using a real-time audience response system. Questions were asked in four sets, beginning with two practice questions followed by demographic questions asking what neighborhood people lived in and what their primary mode of transportation was. The Third section asked what elements were important for Central Avenue to be successful as a "Complete Street."

A complete public participation report showing questions asked and audience response is included as Appendix A of this document.

In addition, three tables were set out with maps of each segment. Small groups broke out to mark or comment on the existing conditions of Central Avenue in their segment.



Public Comments (unedited)

1st to I-25

- Add Street Trees
- Renovate Pedestrian underpass at rail crossing
- Add striped crosswalks at un-signalized intersections
- Widen sidewalks along corridor
- Add roundabout at Central and Broadway
- Replace travel lane with on-street parking along most of corridor
- Add "yield to pedestrian" signs
- Add entry feature in median at I-25 and Central
- Change street to being one lane in each direction with center turn lane, widened sidewalk and add bike lanes
- Improve street lights to be similar to those in Nob Hill (in keeping with Historic Character)
- Improve lighting under I-25 overpass

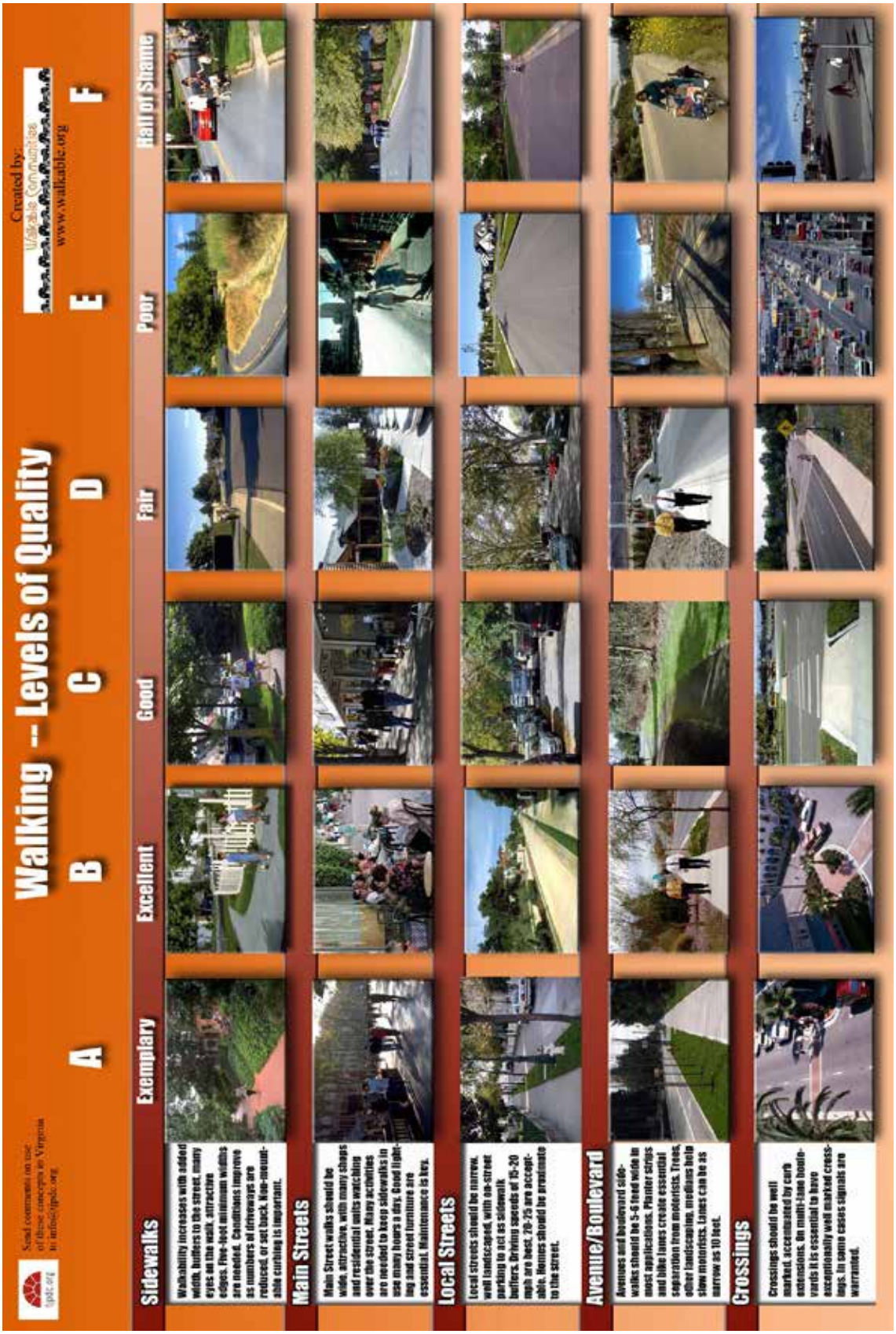
IH25 to University

- Widen sidewalks near hospital
- Add left turns to section between Maple and Pine
- Respect Neighborhood plans for Central
- This is the forgotten section of Central
- Lack of intersections and left turns causes cars to speed
- Tie Sycamore St. into the street grid and add a signal
- Public doesn't always agree with mentality of road engineers. Need to be able to translate desire of public to city officials
- Make sure changes to Central do not impact historic areas near Central

University Boulevard to Girard Boulevard

- Sidewalk between University and Terrace Street contains power poles, trashcans, etc. in the pedestrian walk zone which results in an unsafe pedestrian environment.
- Add pedestrian refuge at Yale crossing
- Add striped crossing at Yale
- Add striped crossing at Harvard, Cornell and Stanford
- Restore grid by connecting Princeton through UNM surface parking lot to Redondo Dr.
- Add raised pedestrian table across Central between Columbia and Princeton
- Add stripped crossing at Central Avenue and Girard Boulevard
- Buses are too close to the sidewalk (Widen sidewalk)
- Convert Silver into bus/ bike corridor
- Mass transit on Central corridor is good
- Improve midblock crossing on Harvard
- Add bike lanes to Central Avenue

Proposed Sub Area Improvements



Dan Burden (2003)

Preface to the Analysis

What is Level of Service?

[Excerpted from the TDM Encyclopedia, Victoria Transport Policy Institute, http://www.vtpi.org/tdm/tdm129.htm]

Level of Service refers to the speed, convenience, comfort and security of transportation facilities and services as experienced by users. Level-Of-Service (LOS) ratings, typically from A (best) to F (worst), are widely used in transport planning to evaluate problems and potential solutions. Because they are easy to understand (they are similar to the schools grades), Level-Of-Service rating often influence transport planning decisions. Such ratings systems can be used to identify problems, establish performance indicators and targets, evaluate potential solutions, compare locations, and track trends.

Current planning tends to evaluate transportation system performance based primarily on motor vehicle traffic speed and delay. Transportation engineers often produce maps showing roadway links and intersections considered to have excess traffic congestion (Level-of-Service rating D or worse), which is used to prioritize roadway expansion projects. This methodology is criticized as being technically flawed and biased because it ignores the following:

- Other transportation problems besides traffic congestion, such as parking congestion, traffic accidents, increased consumer costs from automobile-dependent transportation systems, inadequate mobility for non-drivers, excessive energy consumption, pollution emissions and inadequate physical fitness and health.
- The tendency of increased vehicle traffic volumes and speeds to increase problems such as traffic accidents, pollution emissions and sprawl.
- Negative impacts that wider roads and increased vehicle traffic speeds tend to have on walking and cycling travel. (Cortright 2010)

Multi-Modal Level of Service Indicators

This Complete Street Plan and Design Toolkit utilizes Multi-Modal Level of Service Indicators in its analysis. The development and use of Multi-Modal Level-of-Service Indicators is consistent with current trends toward more comprehensive and balanced transport planning that considers diverse modes and impacts (Cambridge Systematics 2010). Such indicators can help respond to users' preferences and expand the range of solutions that can be considered in transport planning. For example, travelers may sometimes be willing to accept lower speeds for increased convenience and comfort, and improvements to other modes besides roadway. Application of Multi-Modal Level-Of-Service standards supports infill development by allowing roadway LOS ratings to decline provided that LOS ratings for other modes such as walking or biking improve, thus creating more public tax base and private development potential.

The poster on the previous page shows one element — walking — of the Multi-Modal Level of Service Indicators. Where does your area of Central Avenue fall within the walkability analysis?

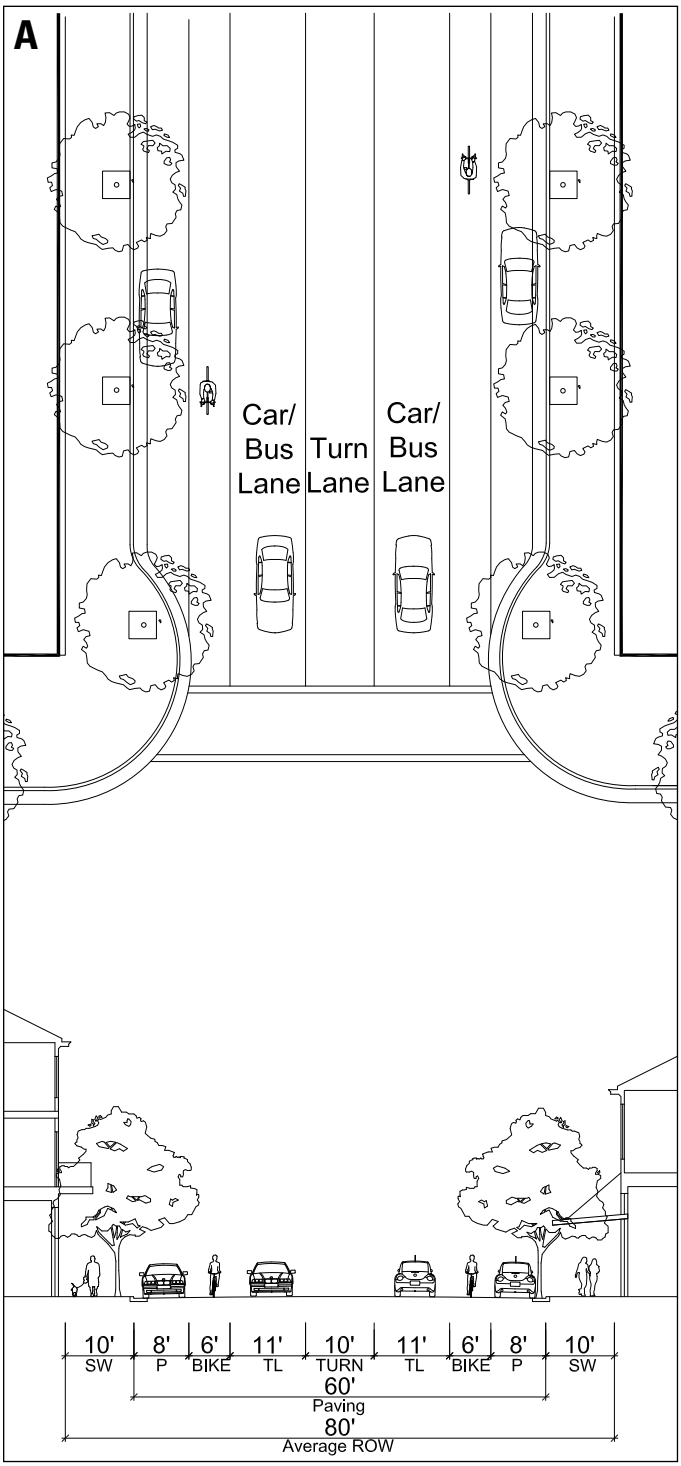
References

Dan Burden (2003), Level of Quality (LOQ) Guidelines, Walkable Communities (www.walkable.org/library.htm); at www.tjpdc.org/transportation/walkability.asp. Shows graphically roadway design features that optimize pedestrian and cyclist access, safety and mobility, and transit station accessibility.

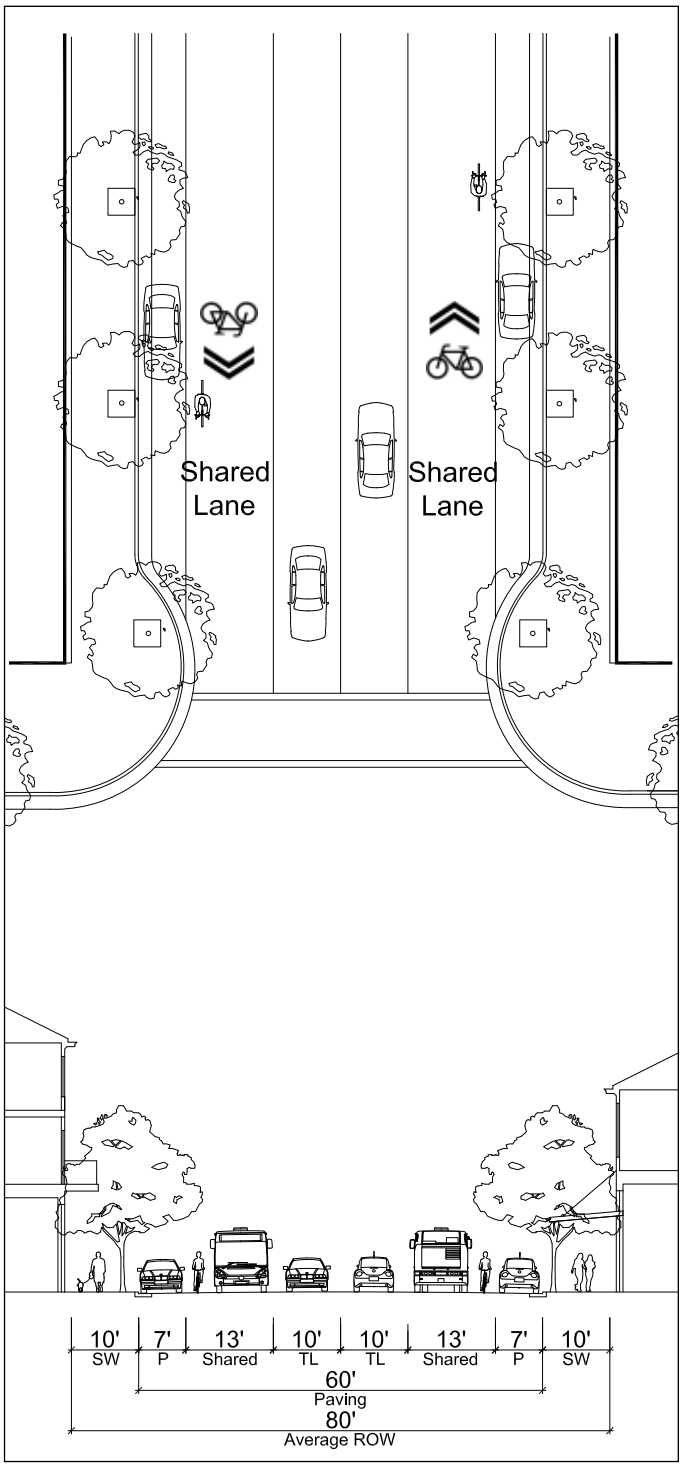
Cambridge Systematics (2010), Measuring Transportation Network Performance, NCHRP 664, TRB (www.trb.org); at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_664.pdf.

Joe Cortright (2010), Driven Apart: How Sprawl is Lengthening Our Commutes and Why Misleading Mobility Measures are Making Things Worse on Wednesday, CEOs for Cities (www.ceosforcities.org); at www.ceosforcities.org/work/driven-apart.

EDo Sub Area – Proposed Street Sections



EDo Sub Area Proposed 3-Lane Section with one (1) auto/transit through lane and bike lanes in each direction, with center turn lane



EDo Sub Area Proposed 4-Lane Section with one (1) auto through lane and one (1) shared BRT/bike through lane (with bike sharrow) in each direction

EDo Sub Area – Recommended Typical Sections

Improvements to the EDo Sub Area are constrained by the existing right-of-way and the existing development pattern. Due to the existing urban form and right-of-way constraints of this western segment, it will be difficult to design a "perfect alignment" that fully meets the needs of all modes of transportation.

For this section, we have therefore identified two potential conditions for complete street improvements that are both technically viable but which balance the needs of transportation modes in different ways, as described below

Three-Lane Section with Bike Lanes

This cross-section would provide one (1) Auto/Transit Through Lane and one (1) Bike Lane in each direction, along with a Center Turn Lane

This condition will:

- Provide more convenient and comfortable travel for bicyclist;
- Enhance transit operations by providing a dedicated boarding lane for transit vehicles. Transit vehicles and autos would continue to share the through lanes; and
- Maintain appropriate vehicle operations for this land use context, by preserving a center turn lane that helps keep an even traffic flow and throughput, but also keeps traffic speeds low due to frequent bus stops.

It is important to note that this proposed three-lane cross-section would be adequate to accommodate peak-hour vehicle volumes and average daily traffic (ADT). Maximum peak-hour capacity on a 3-lane segment is generally between 2,000 and 2,400 vehicles hourly. Currently traffic data shows AM peak travel on this segment of Central Ave. to be at 1,500 vehicles and PM peak travel at 1,900, both of which are well below the 2,000 to 2,400 vehicle capacity for a three lane segment.

PM peak-hour are typically about 8% to 10% of Daily volumes. For that reason, theoretical discussions of "daily" capacity are typically based on "peak hour times 10." Therefore, the maximum capacity for a 3-lane segment (2-lane with center turn-lane) is generally between 20,000 and 24,000 vehicles per day. The precise capacity is a function of side-street volumes, signal settings and peak-hour turning movements, etc. This segment of Central Avenue, east of Broadway Boulevard and west of IH-25, has low side-street volumes, so the capacity per lane on Central Ave. will be on the higher end of the range due to fewer red-lights, vehicle turn outs, and other flow disruptions. The next page shows a 3-Lane section where a transit stop occurs along the EDo stretch.

Four-Lane Section with Shared BRT/Bike Through Lanes

This proposed cross-section would provide one Auto Through Lane in each direction and one Shared BRT/Bike Through Lane (with Bike Sharrow pavement markings) in each direction. This condition would allow a dedicated transit lane to be incorporated and allow a free-flow auto lane.

This proposed condition will:

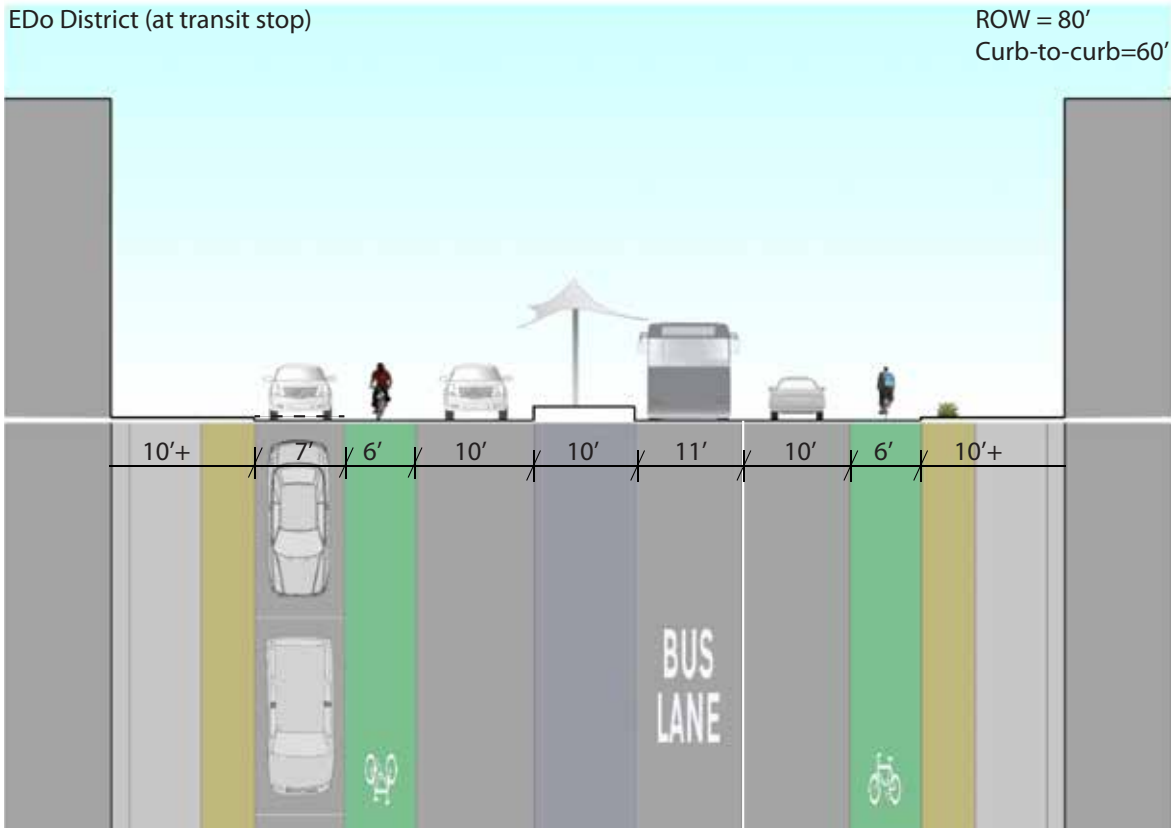
- Provide a lower level of comfort and convenience for bicyclists traveling along the corridor, because bikes would be sharing the same lane with buses, and modal conflicts could arise due to "leapfrogging" effect caused by speed differentials of these modes.
- Enhance transit operation by providing a dedicated transit lane. However it is unclear that a dedicated transit lane is needed in this segment due to low traffic volumes. A similar amount of travel-time savings for transit could potentially be achieved by re-timing signals along this segment to reduce signal time for cross-streets thereby reducing red time for buses on Central Ave.
- Likely reduce efficiency of vehicle operations, as the center turn lane would be removed. Left turns could either be prohibited, or if allowed to occur from the through travel lanes would certainly obstruct traffic flow.

Street improvement from other cities

EDo Sub Area – Key Moment Sections

B EDo District (at transit stop)

ROW = 80′
Curb-to-curb=60′



This diagram shows how stations for an enhanced transit system, such as Bus Rapid Transit, would be configured in the EDo segment if travel lanes were reduced to one in each direction.

EDo Sub Area – Proposed Improvements

The following recommendations are consistent with either of the typical sections provided on the previous pages. The map shows these recommendations along the EDo segment.

Sidewalks:

- Sidewalks must be improved for a safer pedestrian environment.
- Where sidewalks cannot be expanded, they should be repaired and leveled for general ADA compliance and a more comfortable experience for the general public.
- Sidewalks in Edo were replaced with brick pavers in the early 1990s. Where existing brick pavers are in use, they should be maintained in a state of good repair.
- Where sidewalks need to be repaired and capital or maintenance costs for brick pavers is cost prohibitive, stamped concrete with a pattern that resembles the existing brick pavers should be considered as a lower-maintenance, lower-cost alternative. While brick pavers are the preferred treatment from a placemaking and aesthetic standpoint, it is most important that sidewalks be brought up to a state of good repair to improve pedestrian connectivity and comfort for all sidewalk users and meet all applicable regulations for public rights of way.
- Bulb-outs on intersecting streets will allow pedestrians to be seen clearer, prior to stepping out into the travel lanes, improving vehicle sight distance.
- Crosswalks must be enhanced along this segment of Central Avenue to reduce modal conflicts and collision "hotspots", at the locations shown on the improvements graphic on the preceding page.

Parking:

- On-Street parking must be expanded along Central Avenue to support retail that faces Central Avenue
- Due to the narrow right-of-way, it is recommended that parallel parking be used and not angled parking, except when the adjacent property is being redeveloped and set back from the parcel line to accommodate the necessary sidewalk clear distance
- Bulb-outs on intersecting streets will help identify parking or bus pull-outs and prevent drivers from turning into that area to make right turns, slowing traffic in the meantime

Public Transportation:

- Public transportation must share lanes with autos in order to efficiently integrate into the narrow EDo right-of-way
- Free right turns, such as the westbound turn at 1st Street, is not supportive of a complete street. This free right can be removed and the excess right-of-way can be used to develop the property at the corner and provide better pedestrian access to the parcel
- Stops for Rapid Ride or Local 66 bus service are recommended at Broadway Boulevard and High Street, stops should always be placed after the intersection, rather than before and should pull out into protected pull-in areas

Street Trees or Shade Structures:

- Street trees must be replaced with less obstructive species
- Where trees are not available or able to be maintained shade structures should be installed to shade pedestrians along Central Avenue
- Tree wells and grating should account for future growth of the tree and be able to be adjusted or the grating should be supplied with breakout panels to account for growth

Wayfinding and Identity:

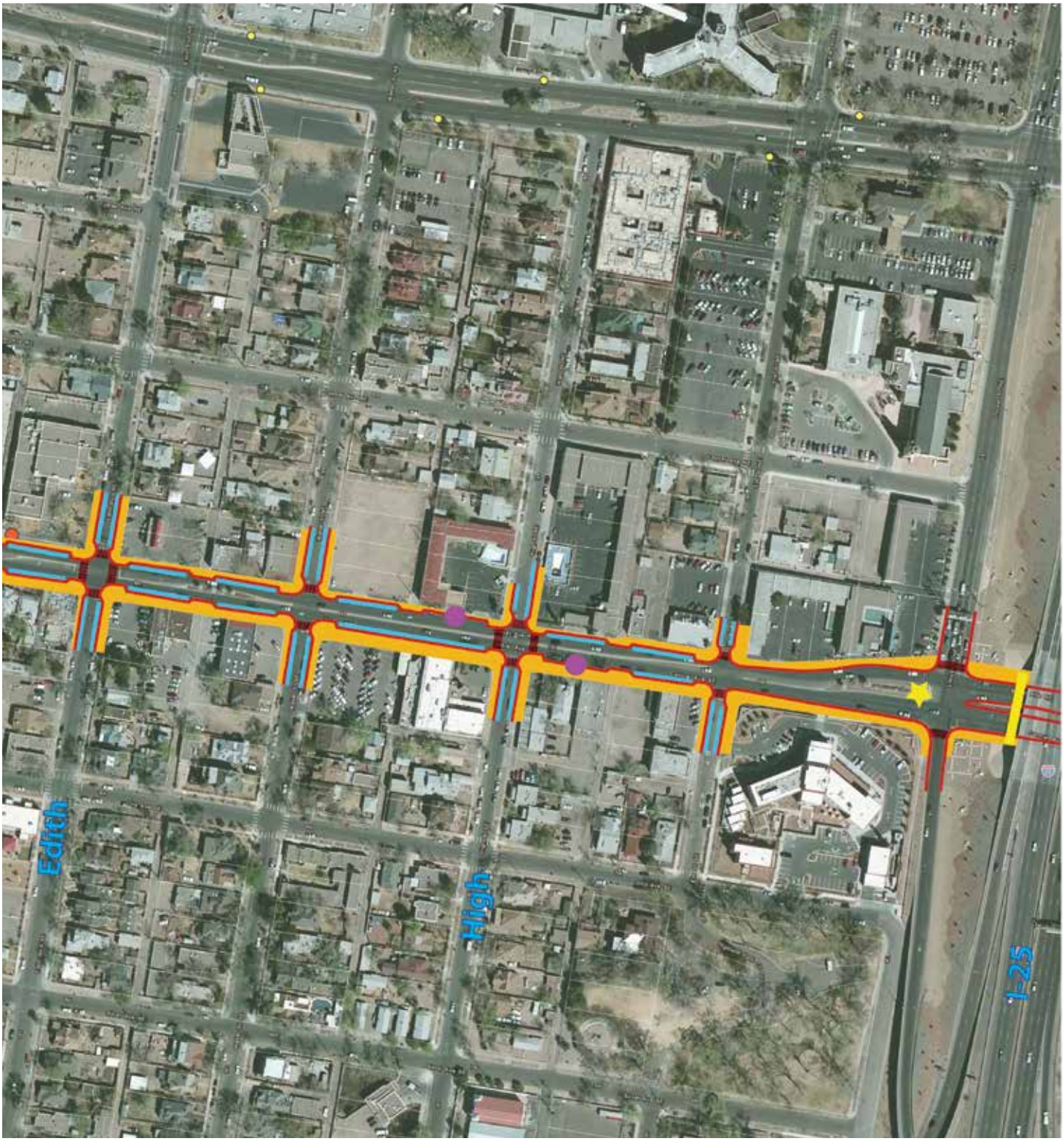
- Wayfinding or district identifiers should be integrated within the right-of-way, especially at key moments, such a bridge underpasses, entry into the sector, and public open space areas

Bridge Underpasses:

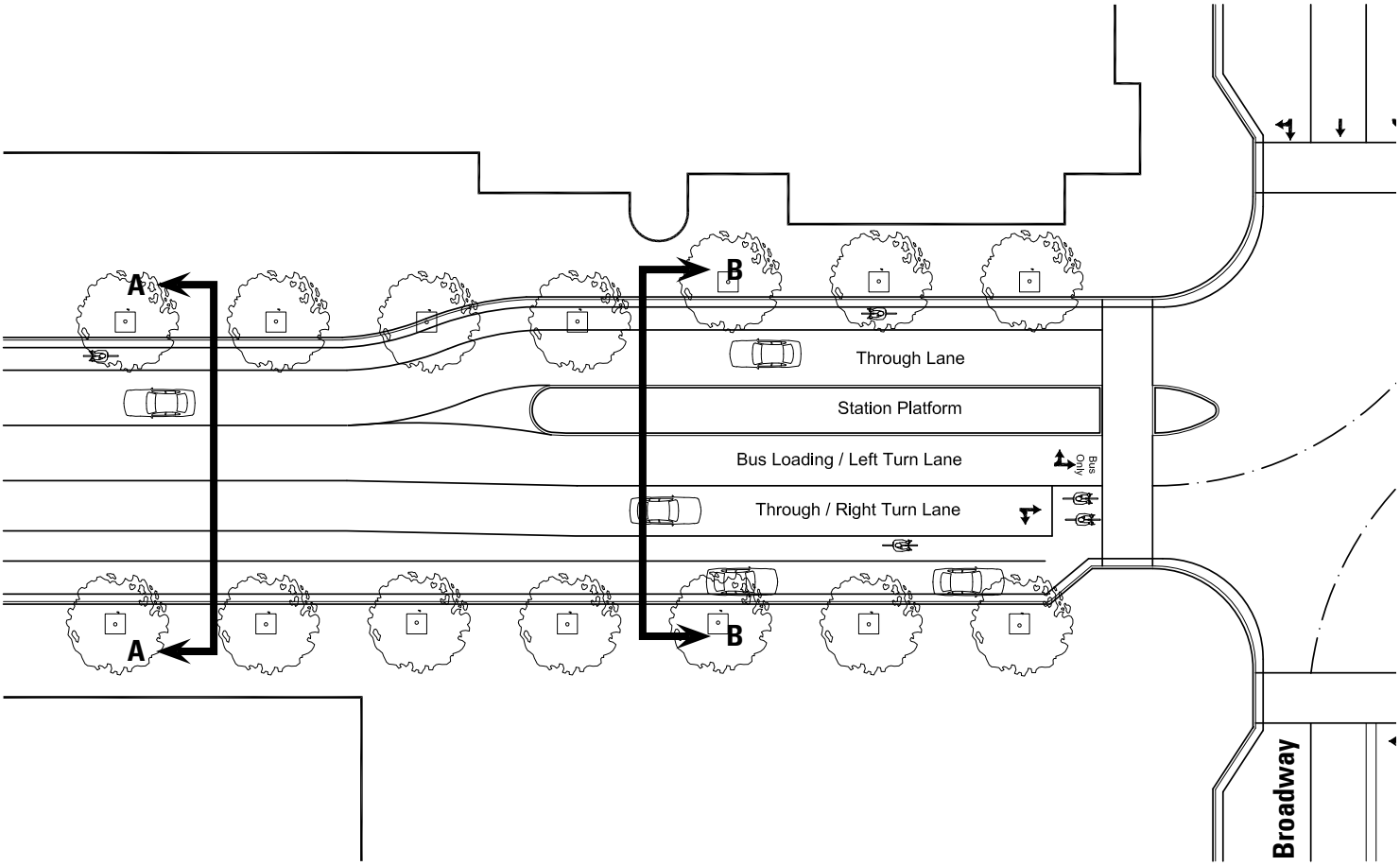
- Lack of lighting and obstructions under the rail and IH-25 bridges must be addressed to encourage crossing from Downtown and the Hospital Area.

EDo Sub Area Proposed Street Improvements

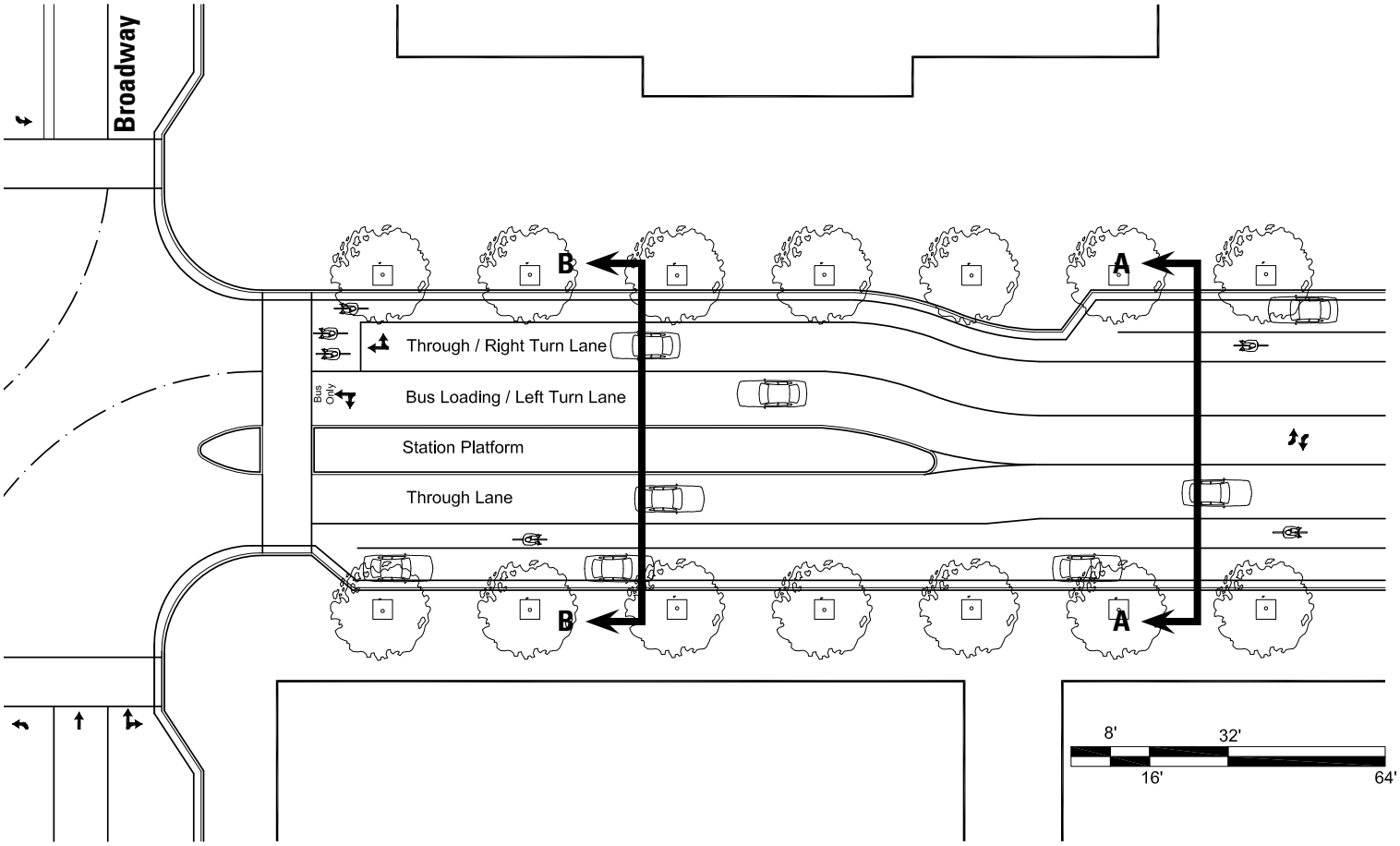
Proposed Sub Area Improvements



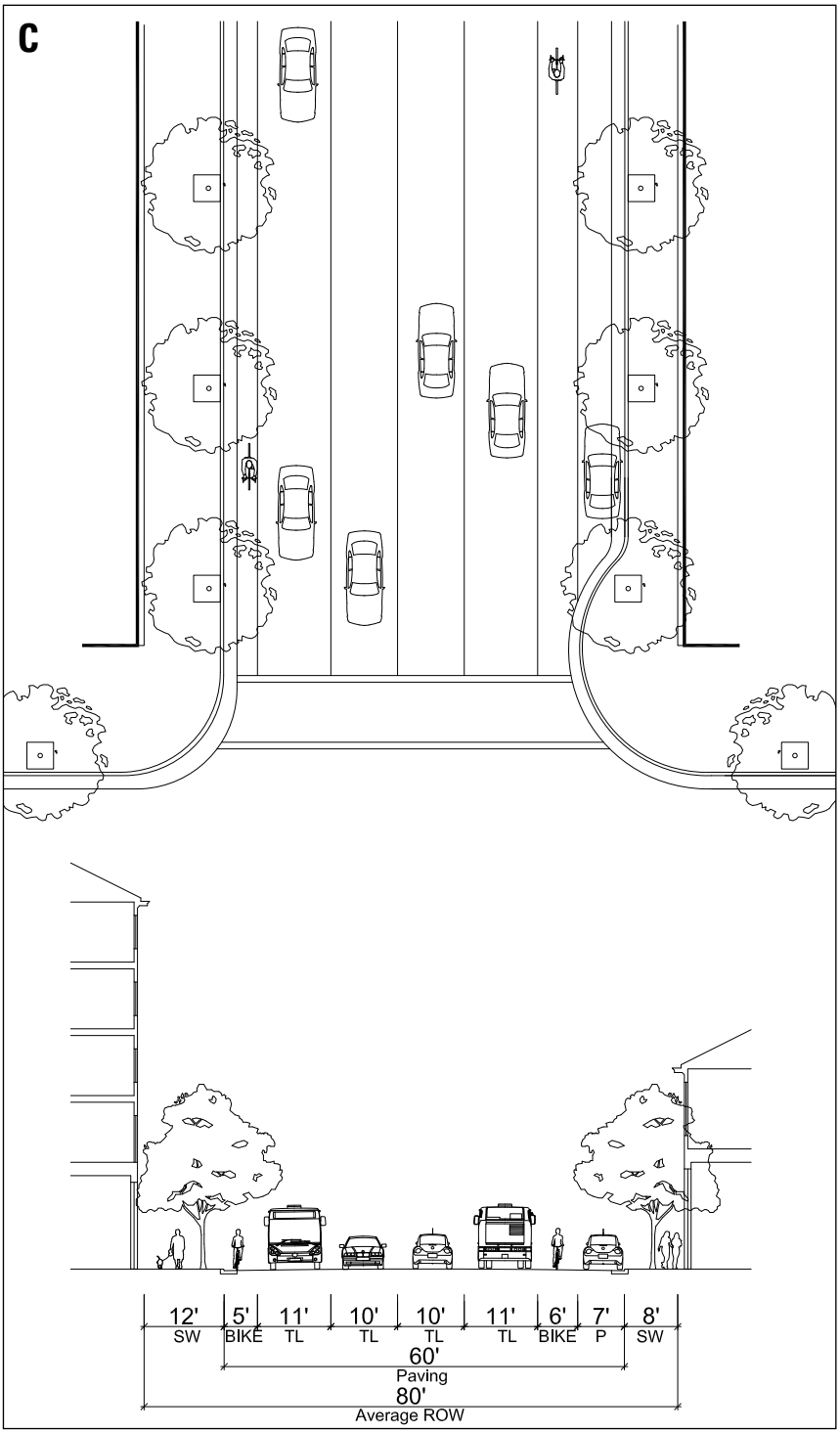
EDo Sub Area – Central Avenue and Broadway Intersection



Proposed Sub Area Improvements



Hospital Sub Area – Proposed Street Section



Hospital Sub Area Proposed

Proposed Sub Area Improvements

Hospital Sub Area – Recommended Typical Section

Improvements to the Hospital Sub Area are constrained by similar conditions to the EDo Sub Area with the existing right-of-way but the development pattern along Central Avenue remains largely undeveloped. A design involving all modes of transportation is possible in this area, but there are still limitations to the right-of-way and its capacity without increasing the current size.

For this section, we have identified one ideal condition for complete streets improvements:

4-Lane Section with Bike Lanes

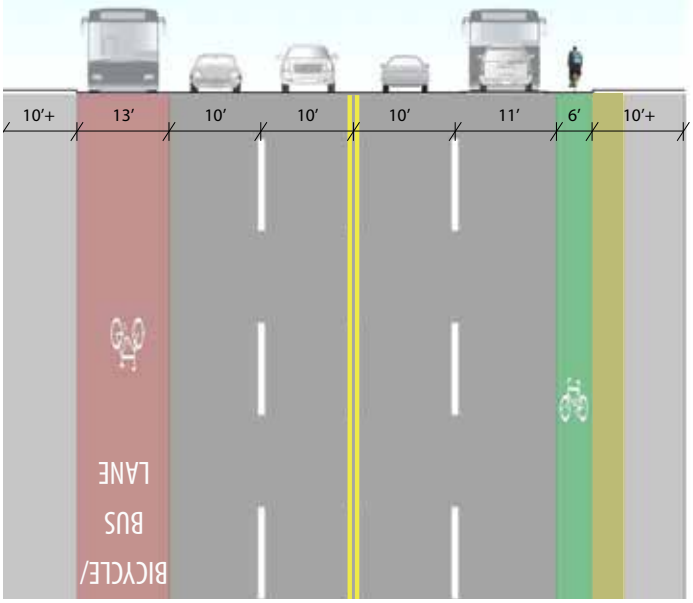
This condition will allow safe travel for bicyclists and allow transit to continue to share space with general traffic in lanes within the outer two provided travel lanes, while the interior lanes would be limited to just passenger. It would include parallel parking on the north side of the street, to assist existing and potential future retail by allowing on-street parking (when across from Presbyterian Hospital) and allow for parking on both sides, where possible otherwise. In addition, travel lanes have reduced widths to provide the necessary space for the additional modal activities.

Improvement samples from other cities

Hospital Sub Area – Key Moment Sections

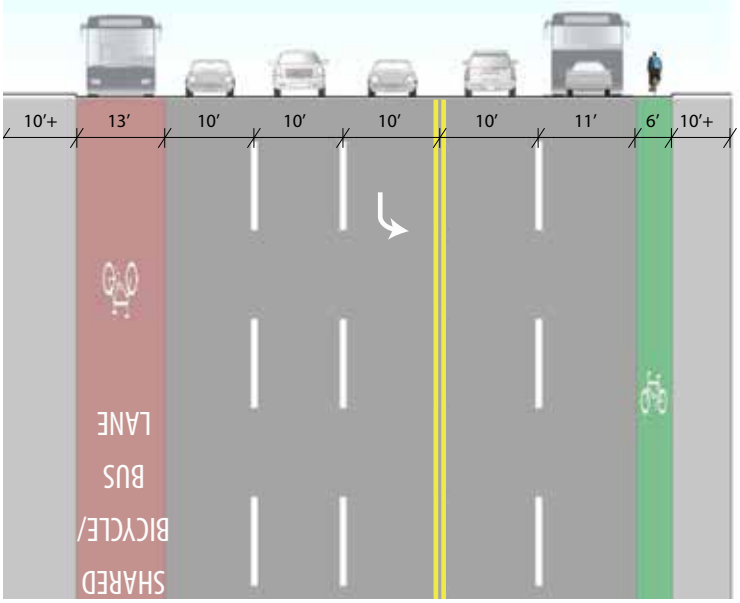
D Hospital District at Pine St.

ROW = 80′
Curb-to-Curb = 60′



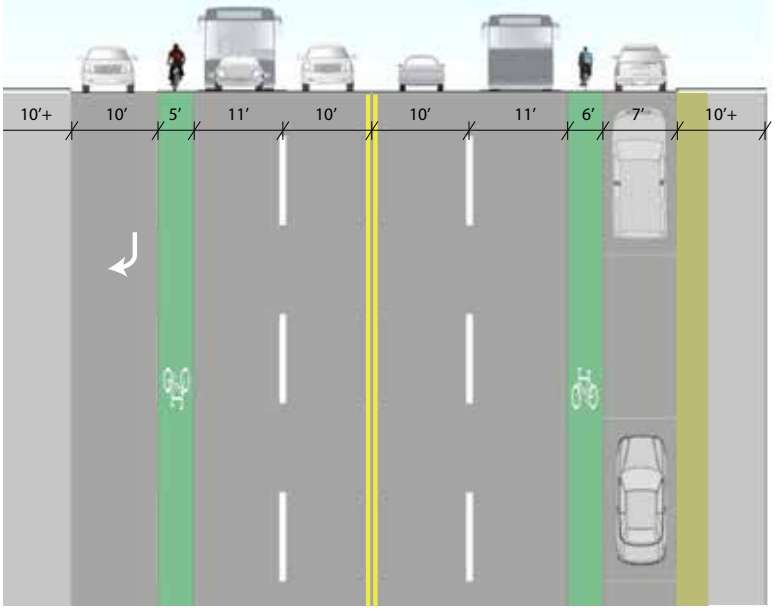
E Hospital District at University Blvd

ROW = 90′
Curb-to-Curb = 70′



F Hospital District at Presbyterian **Hospital**

ROW = 90′
Curb-to-Curb = 70′



VIALTA GROUP
A GATEWAY PLANNING and Balfour Beatty Company
NELSON NYGAARD

Hospital Sub Area – Proposed Improvements

The following recommendations are consistent with any of the key moment sections shown on the previous pages. The map shows these recommendations along the Hospital segment.

Sidewalks:

- Sidewalks must be improved for an easier walk
- Where sidewalks cannot be expanded, they should be repaired and leveled for general ADA compliance and an easier walk for the general public
- Stamped concrete is less expensive than brick pavers and can be stained and textured to resemble pavers. They also require less maintenance and are easier to replace when underground maintenance needs to be performed. As discussed above in the EDo section, existing brick pavers should be maintained wherever it is not cost-prohibitive to do so. However, stamped pavement should be considered if the capital and maintenance cost of brick pavers is ever barrier to replacing failed sidewalk sections and/or maintaining all sidewalks in a state of good repair.
- Bulb-outs at intersecting streets will allow pedestrians to be seen clearer, prior to stepping out into the travel lanes, improving vehicle sight distance
- Crosswalks must be enhanced along this segment of Central Avenue to improve connections across and between neighborhoods, at the locations shown on the improvements graphic on the preceding page

Parking:

- On-Street parking must be expanded along Central Avenue at key points to support retail that faces Central Avenue
- Due to the narrow right-of-way, it is recommended that parallel parking be used and not angled parking, except when the adjacent property is being redeveloped and set back from the parcel line to accommodate the necessary sidewalk clear distance
- Bulb-outs on intersecting streets will help identify parking or bus pull-outs and prevent drivers from turning into that area to make right turns, slowing traffic in the meantime
- Off-street parking should be screened with a low wall or vegetative screen to reduce the impact of unsightly parking fields

Public Transportation:

- Public transportation must share lanes with autos in order to efficiently integrate into the narrow right-of-way
- Stops for Rapid Ride or Local 66 bus service are recommended at Presbyterian Hospital, Sycamore and University, stops should always be placed after the intersection, rather than before and should pull out into protected pull-in areas

Street Trees or Shade Structures:

- Street trees must be replaced with less obstructive species
- Where trees are not available or able to be maintained shade structures should be installed to shade pedestrians along Central Avenue
- Tree wells and grating should account for future growth of the tree and be able to be adjusted or the grating should be supplied with breakout panels to account for growth
- Spacing of trees or shade structures should correspond to entry and display windows of adjacent buildings so they will not block views of shop windows

Wayfinding and Identity:

- Wayfinding or district identifiers should be integrated within the right-of-way, especially at key moments, such a bridge underpasses, entry into the sector, and public open space areas

Bridge Underpasses:

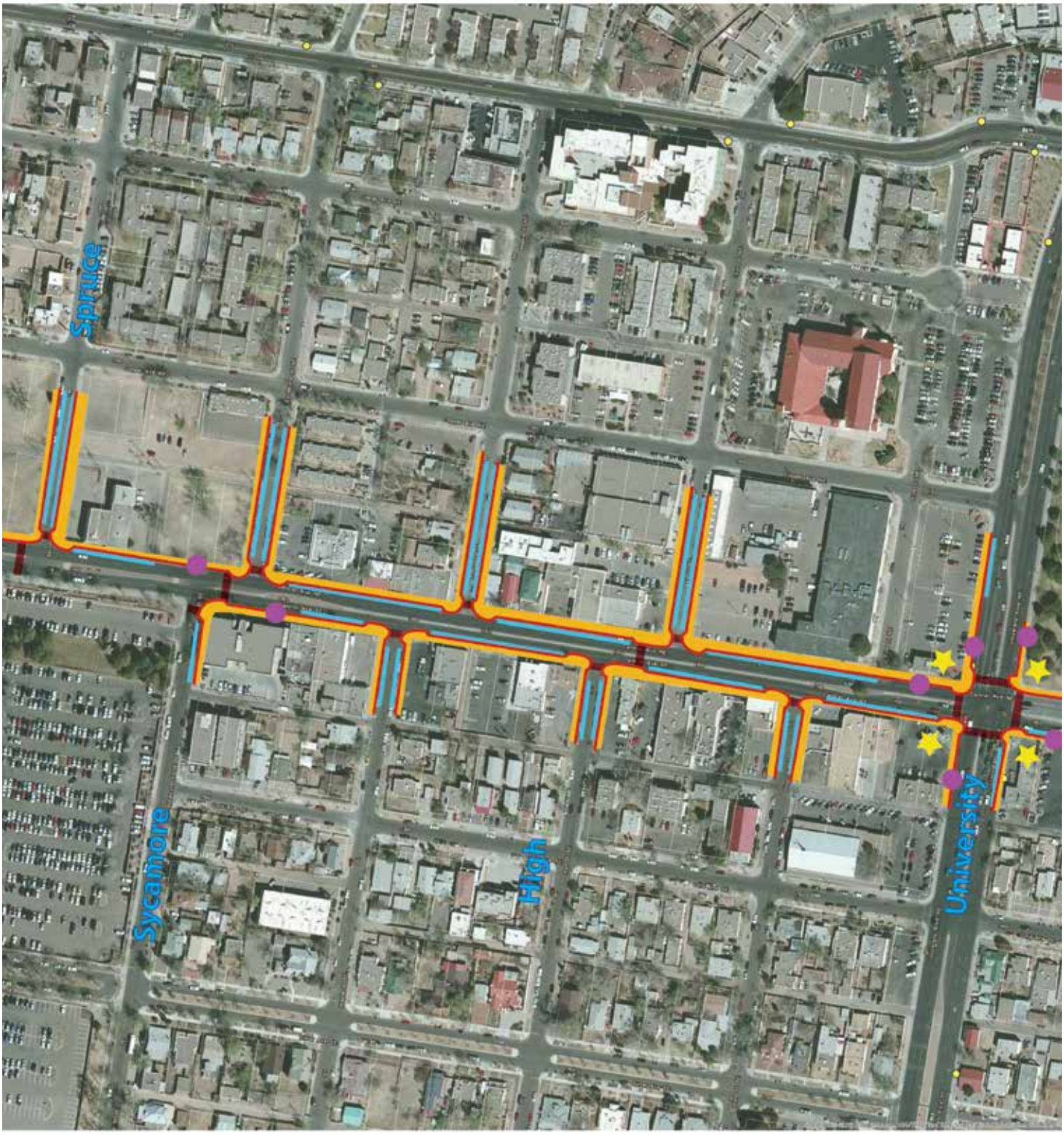
- Lack of lighting and obstructions under IH-25 bridge must be addressed to encourage crossing from East Downtown and the Hospital Area

Utilities:

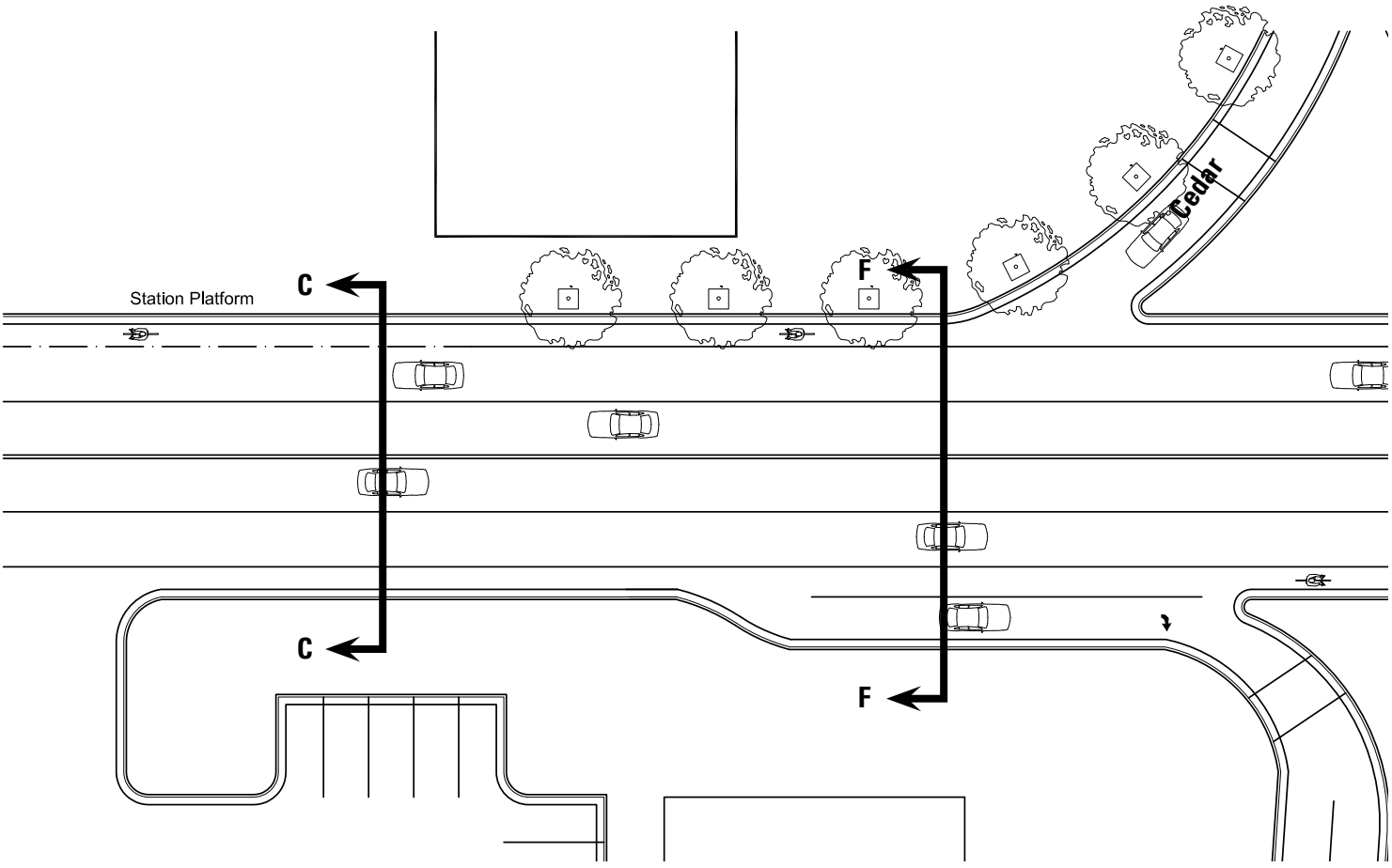
- Any existing utility poles along Central Avenue should be relocated to the rear of lots within alley ROW or through the middle of the block

Hospital Sub Area Proposed Street Improvements

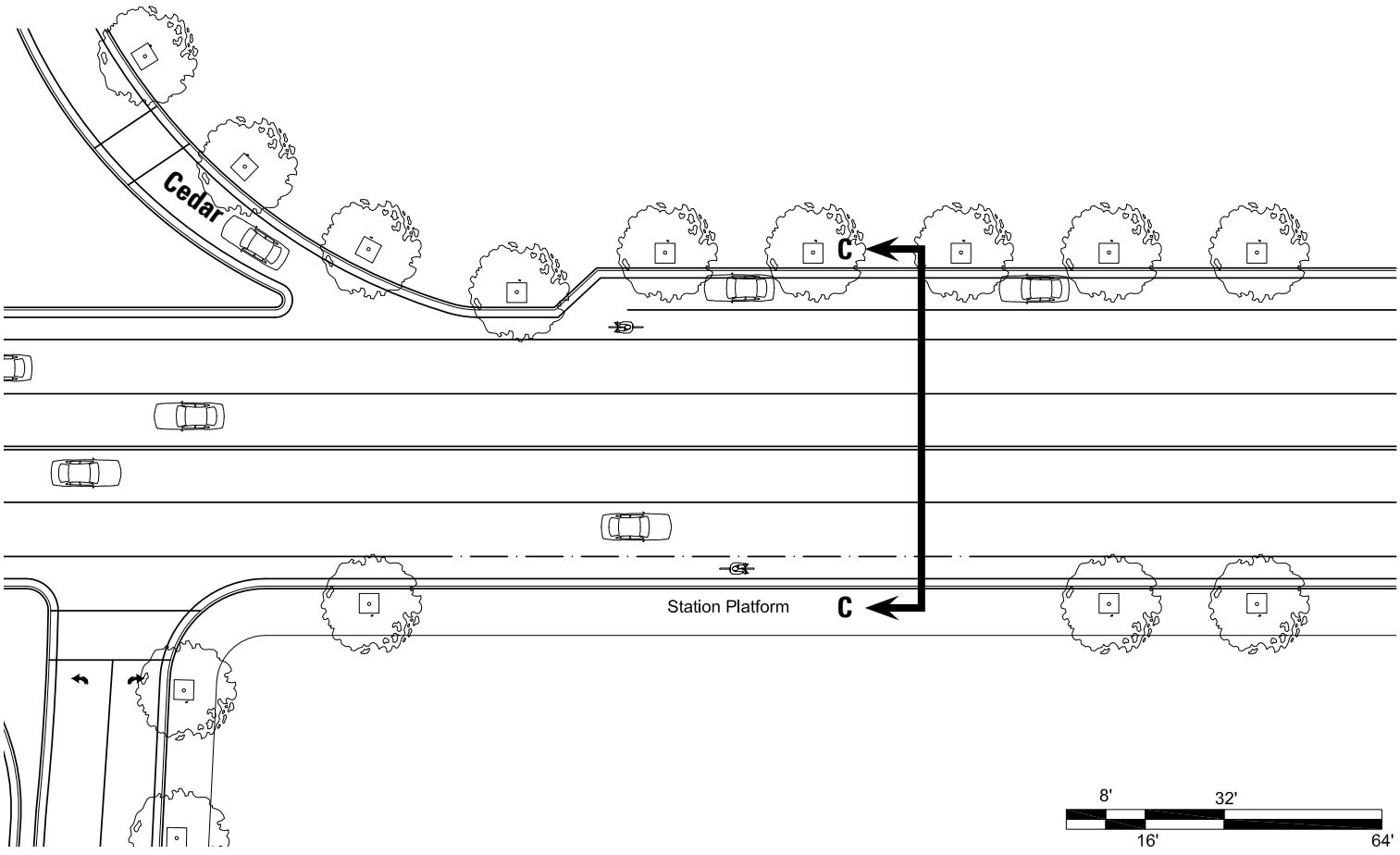
Proposed Sub Area Improvements



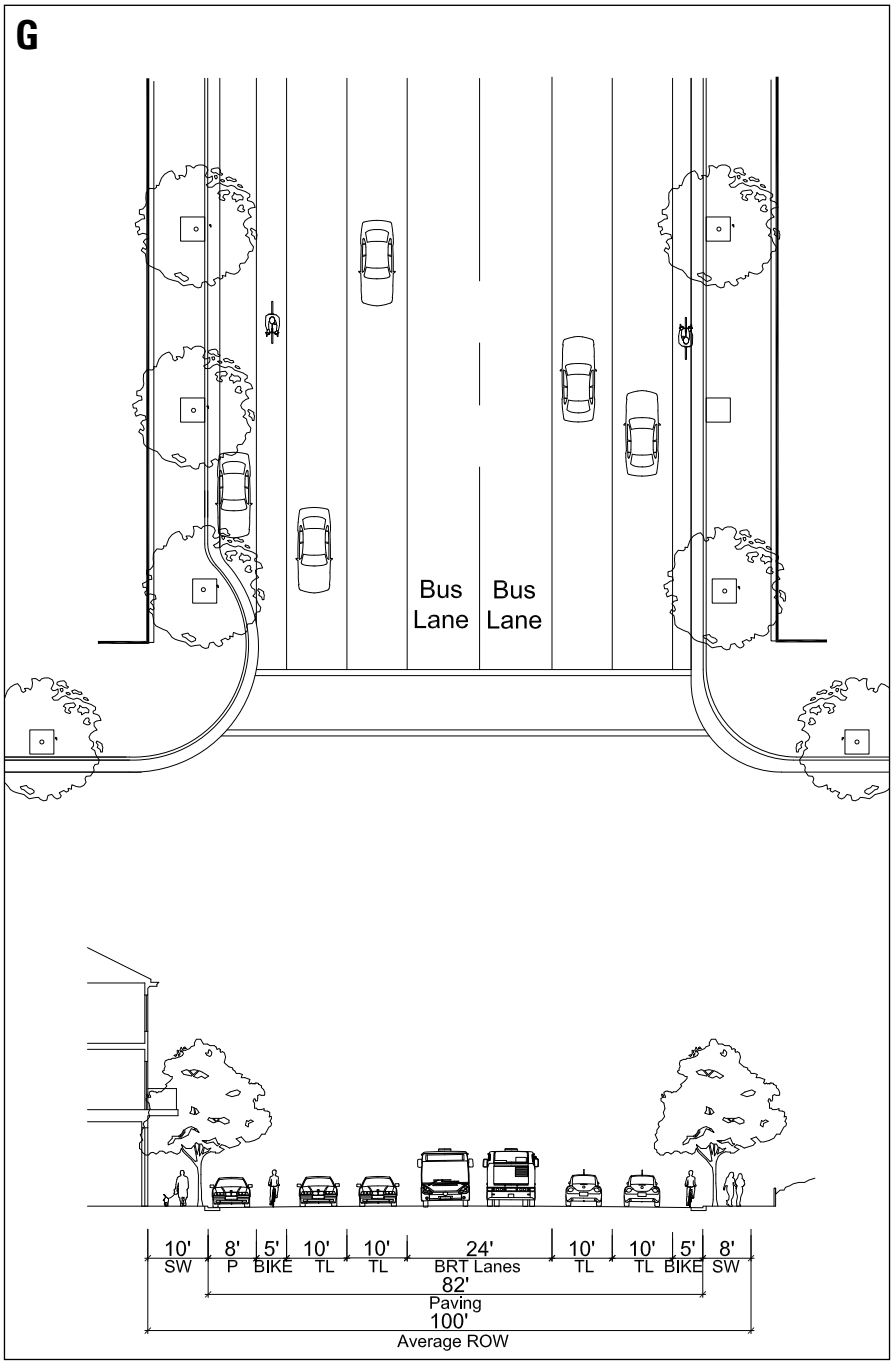
Hospital Sub Area – Central Avenue and Cedar Intersection



Proposed Sub Area Improvements



EDo Sub Area – Proposed Street Section



University Sub Area Proposed

Proposed Sub Area Improvements

University Sub Area – Recommended Typical Section

Improvements to the University Sub Area are less constrained than the other two sub areas, but no less difficult. The current development pattern has a consistent amount of eclecticism but works together to create a common street frontage. Multi-modal accommodations are essential in this section due to the abundance of student and faculty use of bicycles. This area is notorious for vehicular accidents involving pedestrians and bicyclists. Accommodating and highlighting the necessary North-South crossings for pedestrians and bicyclists are a major recommendation for improvements.

For this section, we have identified one ideal condition for complete streets improvements:

4-Lane Section with BRT Lanes and Bike Lanes

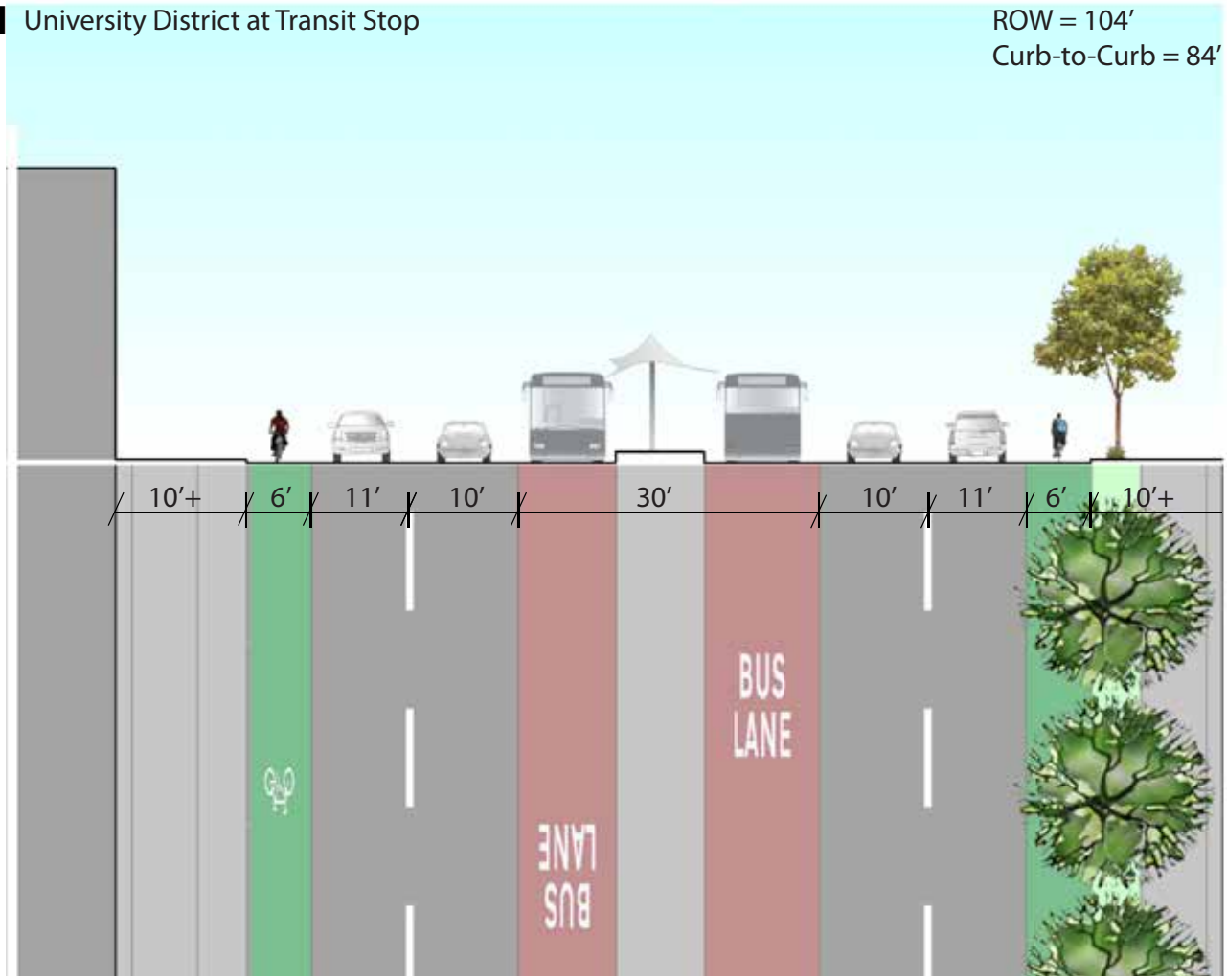
This condition will allow safe travel for bicyclists and allow transit to continue to operate in its own central travel lane. Parallel parking is dedicated to the South side of the street for retail use, as there are no uses requiring on-street parking from the University of New Mexico on the North side of Central Avenue.

Improvement samples from other cities

University Sub Area – Key Moment Sections

H University District at Transit Stop

ROW = 104′
Curb-to-Curb = 84′



University Sub Area – Proposed Improvements

The following recommendations are consistent with either of the typical sections provided on the previous pages. The map shows these recommendations along the Hospital segment.

Sidewalks:

- Sidewalks must be improved for an easier walk
- Where sidewalks cannot be expanded, they should be repaired and leveled for general ADA compliance and an easier walk for the general public
- Stamped concrete is less expensive than brick pavers and are able to be stained and textured to resemble pavers. They also require less maintenance and are easier to replace when underground maintenance needs to be performed. As discussed above in the EDo section, existing brick pavers should be maintained wherever it is not cost-prohibitive to do so. However, stamped pavement should be considered if the capital and maintenance cost of brick pavers is ever barrier to replacing failed sidewalk sections and/or maintaining all sidewalks in a state of good repair
- Bulb-outs at intersecting streets will allow pedestrians to be seen clearer, prior to stepping out into the travel lanes, improving vehicle sight distance
- Crosswalks are currently faded or unnoticeable; they should be stained a bright color and widened to allow appropriate awareness for automobile drivers, at the locations shown on the improvements graphic on the preceding page

Parking:

- On-Street parking must be expanded along the Southern face of Central Avenue to support retail that faces the corridor
- Due to the narrow right-of-way, it is recommended that parallel parking be used and not angled parking, except when the adjacent property is being redeveloped and set back from the parcel line to accommodate the necessary sidewalk clear distance
- Bulb-outs on intersecting streets will help identify parking or bus pull-outs and prevent drivers from turning into that area to make right turns, slowing traffic in the meantime

Public Transportation:

- Public transportation must share lanes with autos in order to efficiently integrate into the narrow right-of-way
- Stops for Rapid Ride or Local 66 bus service are recommended at University, Yale, Cornell, Princeton and Girard, stops should always be placed after the intersection, rather than before and should pull out into protected pull-in areas
- Stops for BRT should be centrally located within the right-of-way, within a median, and the stop should be adequately sized to allow waiting passengers to congregate on the station platform.

Street Trees or Shade Structures:

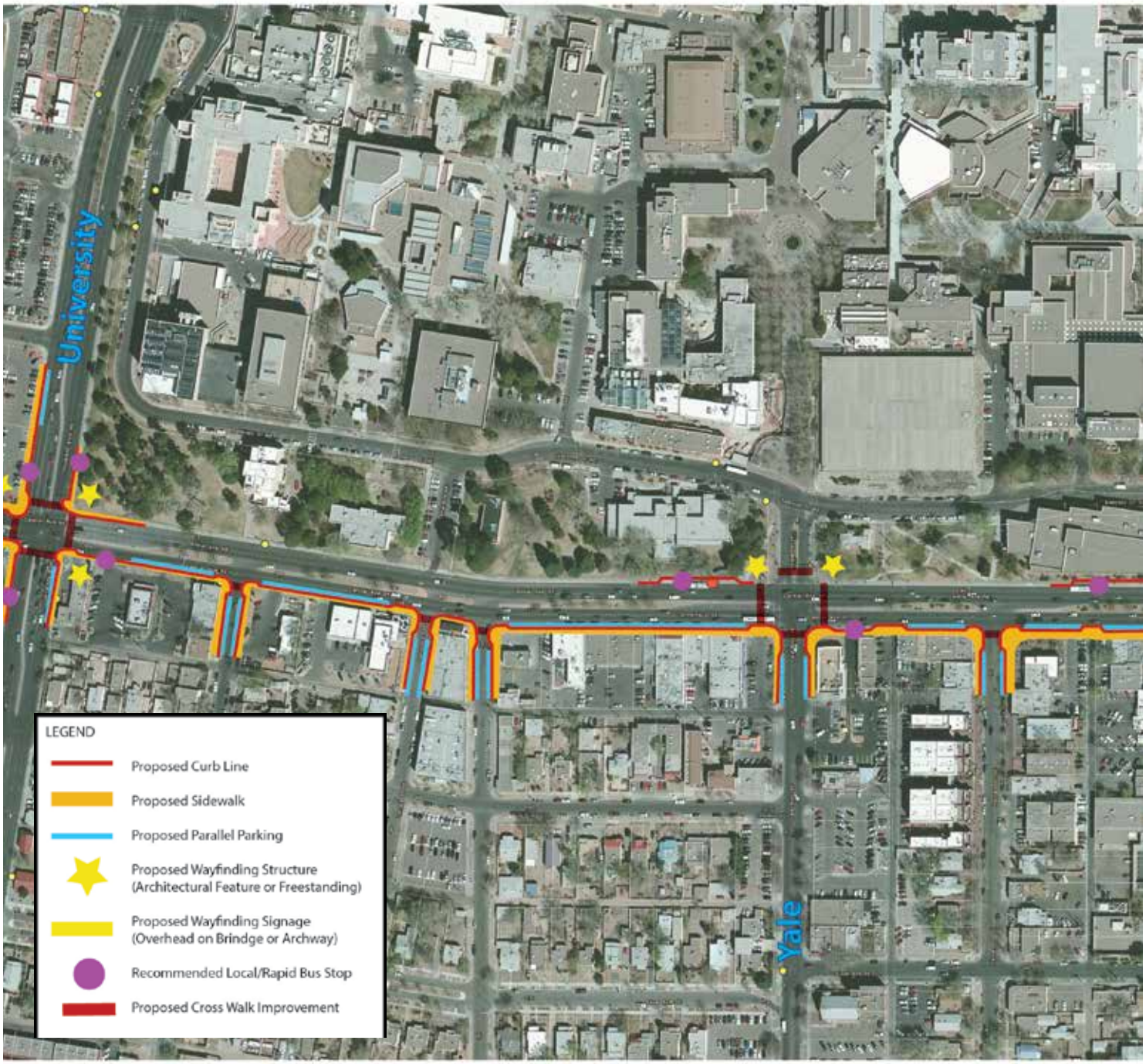
- Street trees must be replaced with less obstructive species
- Where trees are not available or able to be maintained shade structures should be installed to shade pedestrians along Central Avenue
- Tree wells and grating should account for future growth of the tree and be able to be adjusted or the grating should be supplied with breakout panels to account for growth
- Spacing of trees or shade structures should correspond to entry and display windows of adjacent buildings so they will not block views of shop windows

Wayfinding and Identity:

- Wayfinding or district identifiers should be integrated within the right-of-way, especially at key moments, such as entryways to UNM, entry into the sector, and public open space areas

Utilities:

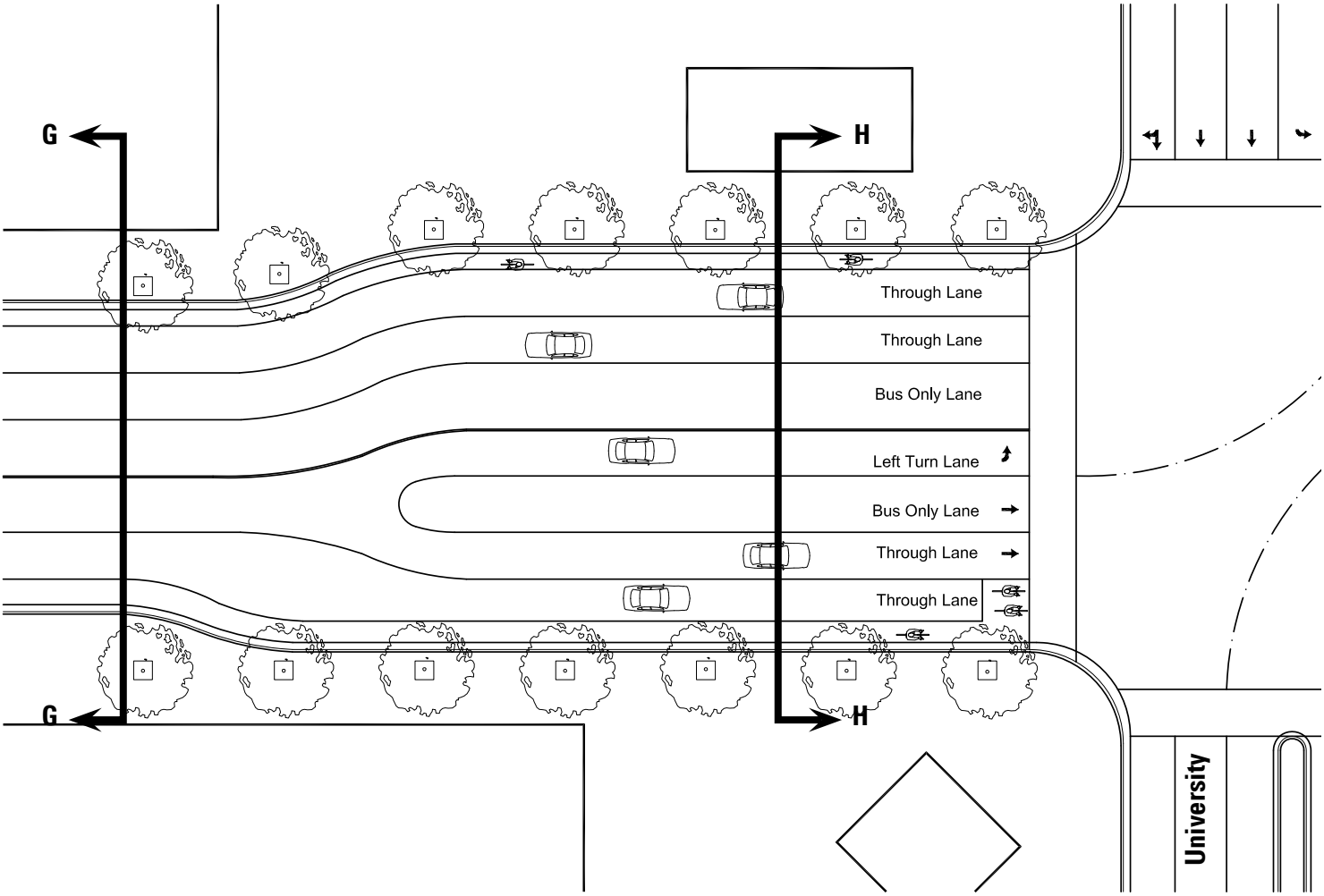
- Any existing utility poles along Central Avenue should be relocated to the rear of lots within alley ROW or through the middle of the block



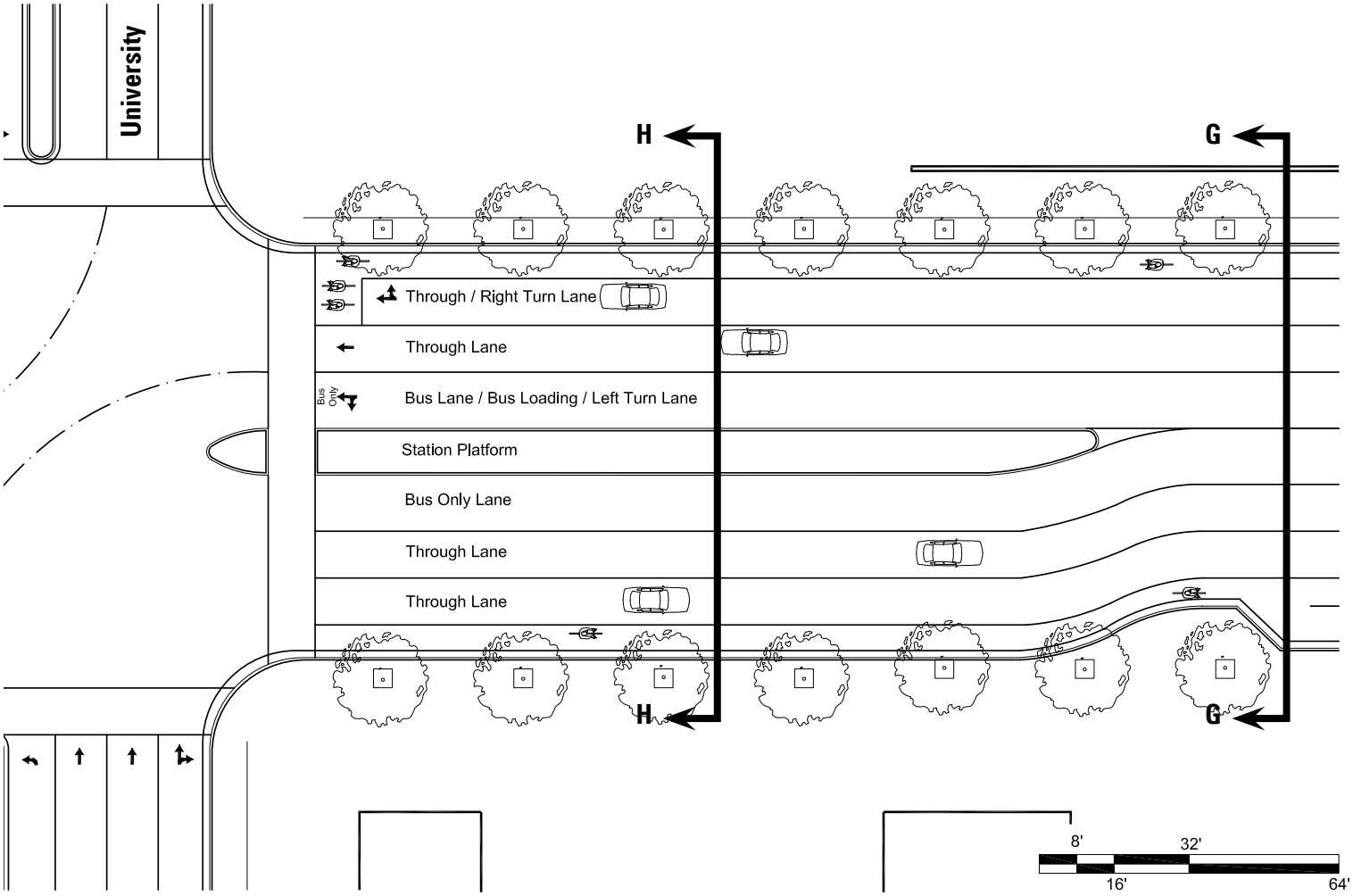
University Sub Area Proposed Street Improvements

Proposed Sub Area Improvements

University Sub Area – Central Avenue and University Intersection



Proposed Sub Area Improvements



Complete Streets Design Toolkit

Purpose of the Toolkit

The elements presented in this Complete Street Design Toolkit reflect the best practices of complete streets for movement and align with the goals and purpose of this study and other past and current studies. They are meant to ensure a high quality to the various urban design dimensions and details of future improvements along Central Avenue in this study area. They are guidelines not standards, and they are flexible rather than authoritative, providing the basic preferences and orientations of the City, its residents and other stakeholders and groups within the study area, left for discretionary design interpretation by the various architects, engineers and urbanists, that will collaborate with them in future processes.

These guidelines are crafted to support the goals by:

1. Establishing a measure of urban harmony along Central Avenue
2. Encouraging a pedestrian-friendly multi-model environment.
3. Supporting the historical culture of the corridor.

With every design format there is always a need for samples to formulate and illustrate the ideas of the concepts that have been presented. This Complete Streets Design Toolkit is just as it seems, the pieces to the larger puzzle that is the Complete Street.

With the main topics of the Pedestrian, Bicycle, Automobile, and Public Transportation, there is a need to understand how these uses of the street can be incorporated harmoniously with each other, and build upon the efforts of economic development for the private landowners adjacent to this street.

Focusing on the Pedestrian speaks to the general requirements of materials, safety, comfortability, and wayfinding. With each of these elements supporting the pedestrian to be a part of the larger system.

Focusing on the Bicyclist tells a story of various opportunities to incorporate the bicycle facilities, travel lanes, buffers, storage, and safety to get the bicyclists to be aware of their surroundings, but also be protected by other users in the street.

Focusing on the Automobile sets a tone for keeping the auto driver at a lower speed, setting expectations for surprises, safety and parking facilities (on-street and off-street)

Focusing on Public Transportation deals with integration of a larger system into an economically sustainable pattern that promotes ridership by providing safe and fun experiences for the rider. It tells how stations, crossings, lanes, modes and shading all help to work with the other focus factors and finalize the complete street.

Image 1 - Multiple materials and scoring techniques to increase design appeal.

Image 2 - Stone mosaic with a permeable fill between the stones.

Image 3 - Bricks with sand support a permeable material system.

Image 4 - Textured Concrete to promote traction.

Image 5 - Decorative tile mosaic

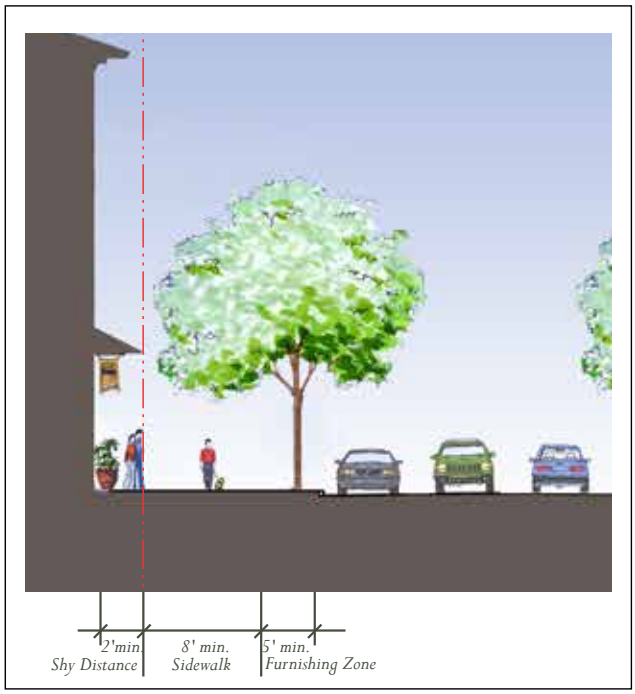


Image 6 - Diagram showing the sections of the sidewalk and their average dimensions

Image 7 - The pedestrian should feel safe while walking on the sidewalk.

Image 8 - Sidewalk has a clear path with no intrusions.

Sidewalks

General

- Sidewalks are an essential component of creating a pedestrian friendly environment. Well-designed sidewalks provide the necessary comfort, safety, and sense of welcome to support walking.
- Sidewalks at a street or alley intersection should meet the level of the street or alley or be equipped with a ramp.
- Sidewalk designs should always conform to the Americans with Disabilities Act, as well as all state and local codes.
- Sidewalks should also comply with any additional design requirements that may be included in neighborhood plans, designated school route plans, other city plans or ordinances, or state and federal requirements.

Size

- Sidewalks in retail areas should provide an average of 10 feet of walking clearance and generally range up to 15 feet in width. Size in part should be determined by location zoning.
- The clearance requirements for sidewalks should also apply to projections of sidewalks across driveways and crosswalks.
- A "Shy distance" is a designated width or buffer area along a path to allow for the pedestrian to instinctively avoid proximity to objects such as buildings, retaining walls, curbs, poles, and fences. A shy distance should be maintained between the required clear path of a sidewalk and obstacles near the clear path to maintain the usable width of the clear path.
  - A shy distance of 2 feet should be maintained adjacent to vertical barriers (including structures, walls, fences, signs, hedges, etc.) that extend to a height greater than 3.5 feet above the sidewalk surface and extend more than 4 feet in length parallel to the sidewalk.
  - A shy distance of 1 foot should be considered for all other fixed obstacles except that soft vegetative landscaping (grasses, annuals, succulents, and woody plants with stems less than one inch in diameter) less than 3.5 feet in height do not require a clear zone.
  - Shy distances do not apply where handrails are required on ramps, slopes, or stairs.
- Landscaping adjacent to sidewalks should be pedestrian friendly, and free from barbed wire, spiky plants, rapidly growing vines, and other landscaping that may cause puncture wounds or tripping hazards.

Location

- Sidewalks are typically required on both sides of the street when such streets are generally fronted by buildings or parking.
- Alleys do not require sidewalks, though sidewalks may cross alleys and should remain at the same elevation when crossing an alley.

Character

- Retail sidewalks should be paved from building face to street curb and punctuated with trees and grates along the curb line.
- On Central Avenue and side streets serving ground floor retail, the buffer between sidewalk and street paving (typically the first 5 feet off of the curb line) is often the "furnishing zone" where utility poles, trees, hydrants, signs, benches, transit shelters, and planters should be placed.
- On side streets serving ground floor residential, a continuous landscape planted strip or parkway is strongly recommended to create a "detached" or "setback" sidewalk.
- Moveable chairs and tables should be utilized in the open spaces and as café seating, where space permits and as long as the clear walking path is not blocked.
- On Central Avenue, special paving (using texture, color or patterned brick, stone, stamped or stained concrete, or similar sturdy ornamental materials) should be used to enhance the architecture and the experience.

Image 1 - Intersection utilizing a granite material for the curbs on the corners.

Image 2 - Landscaping integrated into the bulb-out. Notice that there is still a clearly defined visibility of pedestrians allowed.

Image 3 - Special paving in the intersection.

Image 4 - Bulb-out intersection with a continued paving for the crosswalk that is separate from the asphalt paving of the street.

Image 5 - A bulb-out intersection allowing the pedestrian to be clearly seen by oncoming traffic.

Image 6 - Bulb-out intersection with a clearly defined crosswalk.

Image 7 - Mid block crosswalk with granite used for curb material.

Image 8 - Crosswalk that is paved differently than the street.

Street Intersections

General

- Intersections are the primary location for the pedestrian crossing of streets.
- Curb extensions (bulb-outs) shorten crossing distances and provide sidewalk space for curb ramps and landings.
- Installing curb extensions physically deters parking at intersection corners and improves the visibility of pedestrians.
- Mid-block crossings are pedestrian crossing points not at intersections.
- A curb ramp needs to be installed at both ends of the crossing in a direct line of travel, consistent with the standards of the Americans With Disabilities Act as well as local and state codes.

Size

- The dimension of the curb radius (See Image 9) affects the pedestrian safety of an intersection. The smaller the radius, the less area required to cross and the slower the speed of a vehicle making a turn.
- Depending on traffic, the curb radius at the end of bulbed-out intersections should be 10 to 25 feet.
- Depending on traffic, the curb radius at a non-bulbed out intersection with parallel parking should be limited to 20 feet as the effective turning radius is 28 feet. (See Image 9)
- Where larger radii are required, consideration should be given to alternative paving to "simulate a small turning radii. (See Image 10)

Location

- Bulb-out Intersection corners should be used on all streets that have a parking lane, except when space is limited or where longer turning radii are required for frequent large vehicles. (See Image 9)

Character

- In commercial areas, crosswalks should be marked by a paving design that is clearly different from the street paving through design and texture.
- In residential areas, cross walks should be marked clearly for vehicular and pedestrian traffic.
- Mid-block crossings should be required and consideration should be given to the safety with such things as pedestrian activated blinking lights in the street or, on busier streets, mid-block traffic lights.

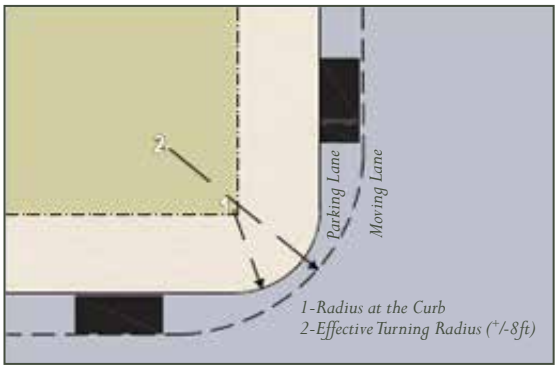


Image 9 - Effective turning radius (from SmartCode v9.0 by Duany Plater-Zyberk and Company)

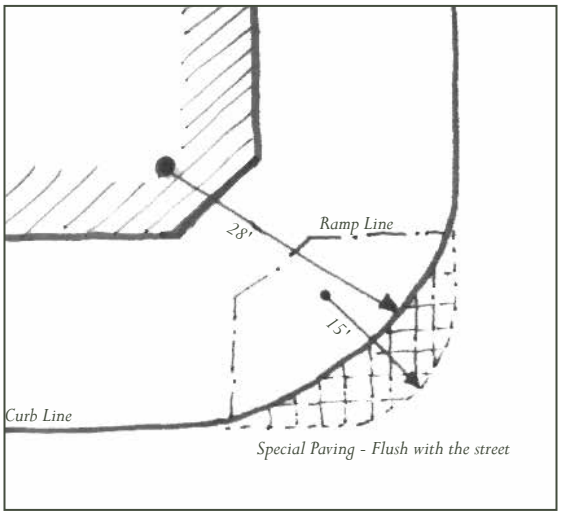


Image 10 - A simulated smaller turning radius.

Image 5 - Painted reminders help pedestrians remember to look both ways before crossing the street.

Image 1 - Rounded corner at intersection allows smooth flow of pedestrian activity.

Image 6 - Reflective Pedestrian Mid-Block Crossing

Image 2 - Pedestrian crosswalk marked with ladder style paving clearly indicates safe crossing spots.

Image 4 - Landscaped median creates shorter walking distance between both sides of the streets.

Image 3 - Medians provide safe havens for pedestrians when around various modes of transit.

Safety Elements and Considerations

General

- Pedestrian-oriented signal improvements prioritize pedestrian convenience and safety.
- Pedestrians should not walk more than 200 feet laterally in order to cross a street. Well-designed mid-block crossings provide better safety for pedestrians by reducing the likelihood of a motor vehicle collision.
- Curb extensions and bus bulbs can improve safety for pedestrians and motorists at intersections and mid-block crossings by increasing pedestrian visibility.
- Medians enable pedestrians to focus on each direction of traffic separately with a safe place to wait in the middle of the street.
- When curbs are not used, bollards should be used to prevent vehicles from entering the pedestrian zone.
- Minimize the number of driveways and curb cuts along a block to reduce conflicts between pedestrians and automobiles.
- Encourage buildings along the sidewalk to provide overhead cover in the form of canopies, awnings, and overhangs, especially where there is an insufficient or immature street tree canopy.

Size

- Buffer zones of grass, trees or other vegetation of 4 to 6 feet can greatly enhance the pedestrian experience and add a sense of safety from moving traffic.
- Mid-block crosswalks should be provided on all blocks 500 feet or longer, or along Central Avenue where signalized crossing are more than 1/4 mile apart.
- Curb extensions should be provided at all corners and mid-block crossings, especially when providing on-street parking.

Location

- Bulb-out Intersection corners should be used on all streets that have a parking lane, except when space is limited or where longer turning radii are required for frequent large vehicles.
- To ensure pedestrian safety and smooth flow of traffic, transitions in the width of the Pedestrian Zone should not be abrupt and should be signaled by some sort of transitional element.
- Bollard placement and design should be coordinated with emergency vehicle access; in certain locations, removable bollards may be appropriate to balance pedestrian protection with emergency access.
- Locate street amenities in a furnishing zone along or near the curb as a barrier to automobile traffic; this is especially applicable to street lights, parking meters, street trees, trash receptacles, news racks, and heavy planters.

Character

- Provide overhead safety lighting on the approach sides of both ends of mid-block crossing treatments.
- Use high-visibility (ladder style) crosswalk markings to increase visibility of crosswalks.

Image 1 - Street clock

Image 2 - Sidewalk and/or plaza seating.

Image 3 - Sidewalk benches and masonry planters.

Image 4 - Sidewalk planters and benches constructed out of metal.

Image 5 - Concrete bollards and planters.

Image 6 - Street bollards, trash receptacles, and lighting.

Image 7 - Sidewalk planters and bollards

Image 8 - Sidewalk seating with a decorative safety wall.

Street Furnishings

General

- The use of permeable or porous pavement and landscape designed to treat and attenuate stormwater flow in the furnishing zone is encouraged whenever feasible as a means of reducing stormwater runoff and volumes.
- Public streetscape furnishings should include a variety of amenities and selection of mateirals that add to the excitement, vitality and historic nature of the corridor.
- Street furnishings should provide a continuity of streetscape features along the length of a street.
- Benches and other forms of seating (e.g., low walls, planter edges, wide steps, etc.) should be provided throughout the corridor, with more seating provided in areas with ground-level retail frontages and entrances to major employers or activity.
- Seating should be provided for a minimum of two people. Single seats may be provided as long as they are in groups of two or more. Seating can be integrated into buildings and street walls, but generally should be located where shade is available.

Size

- Street furnishings need to be designed for universal access and to facilitate use by those of all ages and abilities.
- Sidewalks accommodating street furnishings should be at least 15 feet wide. (Clear path and furnishing zone combined)

Location

- Whereas the function of features such as light standards, street trees, and parking meters requires an even distribution along the length of a street, street furniture should generally be located in high activity areas where people can be expected to congregate.
- Street furnishings should be located in conjunction with active pedestrian areas such as intersections, key building entries, public parks and plazas, bus stops, important intersections, and pedestrian streets.
- Separate trash and recycling receptacles should be located regularly at intersections, near major building entrances, near bus stops and light rail stations, and adjacent to outdoor seating areas.

Character

- Street furniture should strengthen sense of place by utilizing design, materials, and colors that best complement the context of existing buildings and landscape.
- Attractively designed benches should be provided in sidewalks, plazas, parks and other high pedestrian use areas to further promote pedestrian use. These benches should be fixed in place and constructed of durable and low-maintainance materials. Benches at bus stops should be incorporated into the design of the bus shelter.
- The style and color of the trash receptacles should be coordinated with the selected bench design.

Image 1 - Interior storefront facade with decorative paneling and brick paving.

Image 2 - Shaded storefronts with entrances facing the sidewalk.

Image 5 - Storefronts with wide sidewalks and clear signage.

Image 3 - Storefront awning

Image 4 - Storefront with outdoor signage and seating.

Access to Retail Frontages

General

- Private furnishings permitted in front of retail frontages include seating and tables, merchandise displays, planters, art, and portable signage.
- Maintain the alignment of buildings at the sidewalk edge and orient the primary entrance toward the street
- Where outdoor dining will be provided, buildings should set back in order to maintain clear space for walking on the sidewalk.

Size

- Awnings, canopies, and umbrellas should provide adequate vertical clearance (minimum of 8 feet) so they do not infringe upon the pedestrian travel zone.
- Street wall massing, articulation and detail, street level building entrances and storefront windows and doors, as well as the use of quality materials and decorative details, should be used to promote pedestrian-scaled architecture along the street.
- The storefront activity zone should be at least 2 feet wide, to allow doorways and signage to stay out of the pedestrian clear space for walking.

Location

- Coordinate the location of entrances and walkways with bus stops and other transportation facilities as appropriate to encourage bus travel and retail usage.

Character

- On streets with commercial frontages, businesses are encouraged to provide decorative elements (e.g., landscaping, potted plants, etc) that activate the public streetscape, visually enhance the building frontage, identify building entrances, and generally enhance the public realm without constricting the flow of pedestrian traffic.

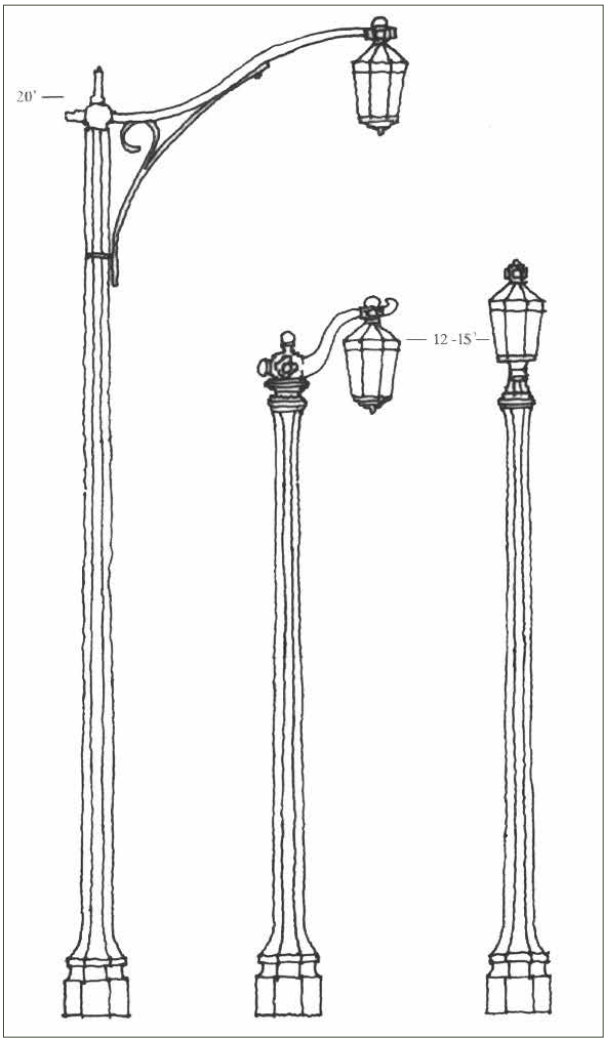


Image 1 - Typical mounting types (Not indicative of any prescribed ornamental style)

Image 2 - Alternative to Cobra head lighting

Image 3 - Top of Lamp post

Image 4 - Residential Street with lamp post in parkway

Image 5 - Residential Street with fully shielded lamp post in parkway utilizing post for signage

Image 6 - Bishop's Crook Lamp is an example of historic specialty lamps that may be appropriate for select areas.

Image 7 - Lamp that uses one fixture for pedestrians at 12 feet tall and another fixture at 20 feet tall for vehicular traffic.

Image 8 - Multi-fixture lamp is appropriate for higher density retail areas (T5 to T6)

Image 9 - Classic Acorn Lamp is appropriate in residential areas T4 and T6 and in small scale neighborhood retail areas.

Image 10 - Contemporary fully shielded light fixture bracket mounted at 14' height on a 20' pole - a good method for integrating pedestrian scale lighting with required roadway lighting.

Image 11 - Post decoration options - banners

Image 12 - Base of Lamp post

Image 13 - Post decoration options - hanging plants

VIALTA GROUP
A GATEWAY PLANNING and Balfour Beatty Company
NELSON NYGAARD

Street Lighting

General

- All new developments should provide pedestrian scaled streetlights where feasible.
- All new alleys should have lights mounted on outbuildings or garages. These lights should be connected to a separate circuit other than the main building.
- Outdoor lighting should create and encourage a pedestrian friendly environment, which is especially beneficial to residential neighborhoods and neighborhood business districts. Pedestrian-scale lights should improve walkway illumination for pedestrian traffic and enhance community safety and business exposure.
- Street lighting should be designed to be appropriate to its neighborhood identity. Such things as height of lamp post, lamp head and lighting source and spacing can all be calibrated accordingly.
- All street lighting should be "full-cutoff" or "fully shielded" to minimize light pollution, save energy, and direct stronger light towards the ground surface. (Refer to Images 5 and 10)
- Where existing light poles provide street lighting, new light fixtures may be mounted on existing poles to maximize resources and minimize installation time. A more expensive option is to install the new light fixtures on top of free-standing poles which receive power via underground conduit. (Refer to Images 2 and 10)

Size

- The height of lamp posts should be designed to be proportional to the width of the street. The general regulated height of street lamps should be 12 to 15 feet for pedestrian-oriented neighborhoods. Typically the 12 foot lampposts should be used in residential neighborhoods and the 15 foot lampposts on the retail streets. This is not required for parking areas. (Refer to Image 1)
- For those intersections that require more light, the 20 foot lamppost can be instituted for safety, but should be used only if necessary.

Location

- The minimum clearance from a street light pole to the face of curb should be 2 feet.
- The minimum clearance from a street light pole to the edge of a sidewalk should be 1 foot.
- The minimum clearance from a street light pole to the centerline of a tree should be 20 feet.
- A consistent on-center distance for lampposts should be established appropriate to the location. Typically this dimension is 90 feet on center.
- On residential side streets, light posts should be placed within the parkway (tree planting strip) where one exists or within 2 feet from the curb when such a location does not reduce the sidewalk dimension to less than 5 feet.
- In existing residential neighborhoods, when street lighting will be added and neither of the above conditions can be met, lamp posts should be placed within 1 foot of the sidewalk in the front yard (front setback), provided an utility easement is already in place in that location.
- Lighting poles may be alternating sequence from one side of the street to the other, to ensure continuous light pockets.

Character

- All lamp posts should have a base, a middle and a top.
- Where applicable, the style of the street fixtures should be consistent with the dominant style of the buildings on the street.
- High pressure sodium lights are discouraged since they visually render all colors the same.
- Cobra-heads should not be used in residential streets or pedestrian-oriented commercial streets. Cobra-heads should only be used on high-volume traffic streets and should be decorative and have a supplemental non cobra-head light mounted at 12 to 14 feet to light the sidewalk.
- Shoe box style lighting should not be used, except in large parking areas, in the rear of buildings.
- Where taller lights are required, for example a major thoroughfare, consideration should be given to a design appropriate to the larger scale. Reproductions of historic lamps such as the "bishops crook" poles are a more aesthetic solution than the cobra head. (Refer to Image 6)
- Column streetlights should be used on residential streets. (Refer to Image 9)
- Multi-head column streetlights should be used on retail streets. (Refer to Image 8)

Image 6 - Parking within the alley is away from the vehicular path.

Image 1 - A retail alley made into a pedestrian shopping street.

Image 9 - The backs of housing with continuous garages and balconies facing an alley

Image 2 - Alley in a commercial or retail zone.

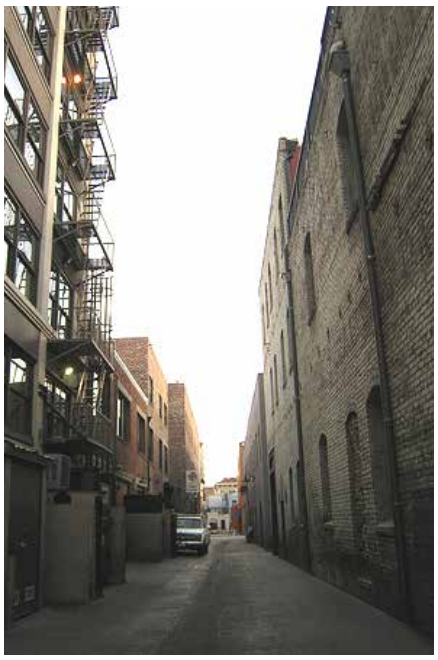


Image 3 - Alley with service entries and mechanical sheds.

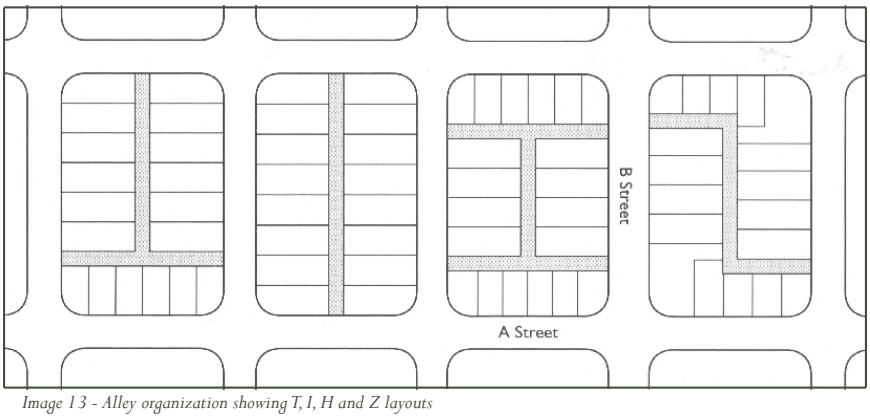


Image 13 - Alley organization showing T, I, H and Z layouts

Utilizing the Alleys

General

- Alleys should provide access to parking, delivery and servicing of businesses.
- Alleys should never be one-way.
- Alley intersections on streets with prime frontages should be avoided, if possible.
- On end lots garages or wing walls should be brought close to the alley to minimize the apparent width of the alley.
- Appropriate space in alleys should be allocated for transformers, trash enclosures (where necessary) and other "dry utilities."
- These dry utilities should be screened or enclosed.

Size

- Alley width from building face to building face should be at least 20 feet at ground level.
- Alley paving should never exceed 20 feet wide.
- Alleys are encouraged to have an alternate 16-foot asphalt pavement within the 20-foot right-of-way.
- The maximum amount of alley parking is gained with "head-in" parking, perpendicular to alley. When parking vehicles, clear of the alley the right-of-way should require a 17- to 20-foot driveway (i.e. distance between edge of alley and garage).
- Parallel parking along the alley requires a driveway width of 7.5 to 10 feet.
- Parking should be adjacent to garages to preserve narrow alley dimensions between the garages.
- At alley intersections, a 15-foot triangle of clear visibility, above vegetation 24 inches in height, over pavement should be maintained. Turning for trucks can be accommodated through unpaved but stabilized surfaces at corners.
- No linear alley should be greater than 300 feet.
- When an alley does extend over 300 feet, it should be curved or jogged to prevent high traffic speeds.

Location

- Alleys should always be located in the middle of blocks. It is desirable that the length of an alley is not visible from the public realm.
- Alley entrances:
  - Are discouraged on streets facing public green spaces.
  - Are encouraged to align with each other when across a street or should be separated by a minimum of 75 feet.
  - Should be a minimum of 75 feet from an intersection measured from the right-of-way.

Character

- Where alleys intersect streets, the continuation of street elements (curb, sidewalk, material, and sidewalk grade) should be maintained. The street curb should be continued, as a flush curb or as a valley gutter, across the alley entry.
- Transition to alley pavement, when different from street pavement, should occur at the sidewalk. The grade and paving material of the sidewalk should carry across the alley entrance.
- Where alleys are not used as fire emergency routes, an emphasis on building over the entrance to the alley should occur.
- Carriage houses are encouraged on alleys to promote a safe environment and bring 'eyes' onto the alley.

Shaded plaza with pedestrian amenities.

Street tree planted in permeable material

Raised tree planter

Tree with elegant grating and seasonal plant

Shading with Trees and Structures

General

- Purpose of street trees or shade structures:
  - Any proposed street tree planting or shade structure installation should first be considered from the standpoint of the people using or passing along the streets. Of secondary consideration is the benefit, embellishment or enhancement of the properties abutting the street.
  - Enclose or frame the space of the street with a canopy.
  - Provide shade
  - Provide a layer between traffic and pedestrian creating the feeling of safety for the pedestrian.
  - Provide an aesthetic accompaniment to the architecture.
  - Reduce the heat island effect created by paved surfaces.
  - Aid in storm water management through transpovaporation.
- Street trees should be appropriate for the region and climate and should not be an invasive species.
- Street trees should be disease resistant and drought tolerant.
- Where trees are not available or desirable, structures should be integrated to add the required shade.

Size

- Street trees or shade structures should be provided the appropriate space for root growth as prescribed for the species or appropriate foundation of the shade structure, while maintaining clear space for pedestrian walkability.
- Minimum height of base of canopy or shade structures should be 8 feet, at time of maturity, for vertical clearance of pedestrians and vehicles.
- On retail streets, the base of the canopy should be a minimum of 10 feet so as to not obscure windows and signage.
- On retail streets, trees should be in a grated or permeable planting square with a minimum 4 foot width.
- Street trees should be a minimum box size of 36".

Location

- Street trees should be planted within the furnishing zone on commercial streets and within the parkway, between the sidewalk and the street curb, on residential streets.
- Tree or shade structure spacing should be a minimum of 30 feet on center and a maximum of 70 feet on center, depending on the species of tree or design of shade structure.
- Street trees or shade structure may be alternating spacing from one side of the street to the other, on narrow streets.

Character

- Retail streets should be lined with a single uniform type of tree or shade structure.
- On residential streets, street tree species should be consistent within a given street but could vary from street to street.
- Deciduous trees should be used as street trees.
- Trees with too large of a canopy such as elms or ficus are not appropriate for retail streets and require a larger parkway.

Image 1 - Street wayfinding signs

Image 2 - Colored wayfinding signs.

Image 3 - Transit wayfinding signage

Image 4 - Pedestrian friendly street maps

Image 5 - Sidewalk street sign

Image 6 - Illuminated parking sign

Image 7 - Decorative wayfinding and public signage examples.

Image 8 - Storefronts with appropriate sized signage.

Wayfinding and Signage

General

- Signage can contribute to creating strong building identity when it is well-integrated with the design of the architecture.
- Wayfinding system should provide directional and information signs that are attractive, clear and consistent in theme, location, and design.
- Signs should identify key historic, cultural, civic, and shopping destinations and facilties, e.g., public parking structures, parks and open space areas, transit routes and stops, etc.
- Signs should be conceived as an integral part of the area, representing the historic culture of the area.
- Signage should respect residential uses within and adjacent to the area. The intent is to promote a more peaceful living environment without undue impacts upon residential uses.
- Remove any obsolete signs.

Size

- Retail signs should be appropriately scaled from the primary viewing audience.
- Signs should be in proportion to the building, such that they do not dominate the appearance.

Location

- Wayfinding items should be co-located within the furnishing zone with other streetscape furniture (e.g., light standards, transit shelters) where possible to reduce visual clutter in the public realm.
- The location, size, and appearance of tenant identification signs should contribute to street activity and enhance the street-level experience that is appropriate for the corridor.
- No sign should be located where street trees are blocking visibility.

Character

- Signs should use appropriate means of illumination.
- Illuminated signs that reflects the individual character of the corridor are encouraged.
- A sign should be subordinate to the overall building composition and should appear to be in scale with the building facade.

Image 1 - Bike lane intersecting arterial road.

Image 2 - Bike lane separated from vehiclular travel lanes.

Image 4 - Colored bike lane

Image 3 - Bike lane and pedestrian lanes separated with landscaping and indicated with brick paving.

Image 5 - Two-way bike lane

Image 6 - Separated bike lane at intersection with individual turning lanes.

Bike Lanes

General

- Bicycle facilities provide safe, comfortable mobility opportunities for a range of users and are considered a fundamental part of a complete street.
- Repair rough or uneven pavement surface.
- Use bicycle compatible drainage grates. Raise or lower existing grates and utility covers so they are flush with the pavement.
- The removal of a single travel lane will generally provide sufficient space for bike lanes on both sides of a street.
- Streets with excess vehicle capacity provide opportunities for bike lane retrofit projects. Depending on a street's existing configuration, traffic operations, user needs and safety concerns, various lane reduction configurations may apply. For instance, a four-lane street (with two travel lanes in each direction) could be modified to provide one travel lane in each direction, a center turn lane, and bike lanes.
- By providing a center turn lane safety benefits can be realized as backups will no longer occur in the inside travel lane caused by left turning vehicles.

Size

- The minimum width of a bike lane should be 5 feet against a curb or adjacent to a parking lane.
- On streets where the bike lane is adjacent to the curb and the curb includes a 1 to 2 foot gutter pan, bike lanes should be a minimum of 4 feet wide.
- Wider bike lanes are recommended on streets with higher motor vehicle speeds and traffic volumes.
- The bicycle lane should be at least 6 feet wide

Location

- Bicycle lanes should be located on both sides of the road on two-way streets.
- On one-way streets, bicycle lanes should be installed on the right-hand side.

Character

- Colored bike lanes are used to guide bicyclists through major vehicle/bicycle conflict points, especially at locations where the volume of conflicting vehicle traffic is high.
- Colored bike lanes typically extend through the entire bicycle/vehicle conflict zone.
- Since bicyclists tend to ride a distance of 2.5 to 3.5 feet from the curb face, it is important that the pavement surface in this zone be smooth and free of structures.

Image 1 - Cycle track separated with conrete and paving.

Image 2 - Cycle track separated from main road with wide sidewalks and tree buffer.

Image 5 - Cycle track separated by raised median with transit uses.

Image 7 - Elevated cycle track.

Image 3 - Brick paved cycle track located behind parked vehicles.

Image 4 - Cycle track intersection crossing

Image 6 - Cycle track located behind parked cars and separated by bullards.

Cycle Tracks

General

- A cycle track is an exclusive bicycle facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane.
- Cycle tracks provide space that is intended to be exclusively or primarily for bicycles, and are separated from vehicle travel lanes, parking lanes and sidewalks.
- Can either be one-way or two-way, on one or both sides of a street, and are separated from vehicles and pedestrians by pavement markings or coloring, bollards, curbs/medians, or a combination of these elements.
- Cycle tracks provide increased comfort for bicyclists and greater clarity about expected behavior on the part of both cyclists and motorists.

Size

- Cycle tracks should have a minimum width of six and a half feet to provide safe passing for bicyclists, eight feet is desirable for new construction.
- A buffer should be required between the cycle track and the vehicle or parking lane when the cycle track is wider than 7 feet, but it is recommended wherever possible.
- For a two-way cycle track, the minimum buffer width is 3 feet and in rural areas, the barrier width should be dependent on the speed of the main road.

Location

- Where on-street parking exists, the cycle track should be placed between the parking and the sidewalk. Drainage inlets should be provided adjacent to the sidewalk curb to facilitate run-off.
- Cycle tracks can be at street-level, provided that there is a physical separation.
- Cycle tracks can also be grade-separated from the roadway and should be two or three inches above street-level. A small ramp should be provided where cyclists may enter or leave the cycle track or where motorists cross the driveway.
- A cycle track retains priority at low-volume intersections and driveways and bicyclists should have the right-of-way over other vehicles at driveway crossings.

Character

- The cycle track should have signage, pavement markings and/or different coloration or texture to indicate that the facility is provided for bicycle use.
- Signage, in addition to bollards, can add to the physical separation of the facility.
- If the speed of the main street is 45 miles per hour or less, the cycle track should turn inwards prior to crossing a side street so as to improve cyclist visibility to motorists.

Image 1 - Bike box located at an intersection.

Image 2 - Colored bike lane to indicate safe left-turning point at intersection.

Image 5 - Bike lane at intersection separated from pedestrians

Image 3 - Bicycle lane indicator

Image 4 - Bike lane signage

Image 6 - Bicyclist signalization

Image 7 - Pedestrian and bicyclist lanes clearly marked

Safety Elements and Considerations

General

- Facilities such as striped bicycle lanes contribute to the buffer between motor vehicle travel lanes and the adjacent sidewalk. Other facilities include sidewalks, side paths, and striped bicycle lanes.
- At signalized intersections along cycle tracks where cyclists are provided a protected phase for the through movement, right-turns on red by vehicles should be prohibited.
- The use of a bicycle signal head is required for separated bicycle phases to ensure all users know which signals to follow. Signals guiding bicycle traffic should be clearly identified to distinguish from those for motorists.

Size

- Bicycle facilities are more appropriate to areas which have longer block lengths and fewer driveways.
- Arrows should be spaced approximately 200' center to center, with the first arrow on each block or roadway segment placed no further than 100' from the nearest intersection.

Location

- To increase drivers' awareness of bicyclists in the cycle track, the stop line at intersections is usually moved back about 16 feet.
- The cycle track can be dropped into a bicycle lane about 16 feet prior to the intersection.

Character

- The bike lane should be colored starting 16 feet prior to the intersection and in certain locations the bike lane markings can be extended through the intersection. .
- Shared lane arrow markings should be installed in conjunction with "share the road" signs.

Image 1 - Arched bicycle racks

Image 3 - Circular bicycle racks.

Image 4 - Improvised bicycle parking

Image 2 - U-shaped bicycle racks.

Bike Storage and Racks

General

- Bicycle parking within the public sidewalk generally should be accommodated with a number of smaller racks distributed along the length of a block, rather than one or two large concentrations of bike racks.
- Curb extensions are good locations to site bicycle racks due to the space required for bicycle parking.
- In-street bicycle parking should be considered where there are space constraints on the sidewalk.
- Covered and convenient bicycle parking areas should be provided for projects that will likely have a demand for them.
- Short-term bicycle parking facilities are best used to accommodate visitors, customers, messengers and others expected to depart within two hours.

Size

- Alley width from building face to building face should be at least 20 feet at ground level.
- A row of inverted "U" racks should be installed with 15 inches minimum between racks.

Location

- Bicycle racks should be located so that parked bicycles do not block the travel path of pedestrians or infringe upon seating areas.
- Racks should be located at least 24' to 30' from the curb to accommodate ingress and egress to parked vehicles.
- Short-term bicycle parking should be located within 50 feet of building entrances. When a building has more than one entrance, the parking must be distributed to serve all buildings or entrances.
- Bicycle racks should be located in prominent locations within the public amenity zone that are clearly visible to cyclists from the street and from adjoining buildings.
- Bicycle racks should be located within proximity to street trees to discourage the use of trees for bicycle parking.
- The rack should be placed so that bicycles park parallel to the curb or street wall, or angled if there is additional space available while still meeting the minimum clearances.
- Empty racks should not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway's clear zone.

Character

- Bike racks should be designed to allow the bicyclist to secure the bicycle frame to the device at two points of contact.
- Appropriate bicycle rack designs include the inverted U, the ribbon type rack, or the corkscrew.
- Bicycle racks should support different bicycle frames and sizes.
- The rack should be simple and easy to use.
- The rack should allow easy locking of the frame at least one and preferably both wheels.

Lane Widths and Road Diets

General

- "Right-sizing" lanes saves costs by reducing the amount of right of way needed in new roads.
- Saves on maintenance expenses by reducing amount of asphalt used.
- Road diets are often conversions of four-lane undivided roads into three lanes (two through lanes and a center turn lane)
- Road diets provide more space for other modes of travel by freeing right of way for sidewalks, turn lanes or medians, landscaped pedestrian buffers, and/or bicycle lanes.
- In general, narrower roads result in lower vehicle speeds.

Size

- Vehicles such as transit buses require wider lanes. Modern buses can be 10.5 feet wide from mirror to mirror and justify a minimum 11 feet wide lane on roadways with 30 to 35 mph target speeds.
- To prevent speeding, reducing lane widths by 1 foot, from 12 feet to 11 feet or 11 feet to 10 feet, can decrease construction costs by 2 percent.
- Reducing the driving lane width has been shown to reduce speeds by as much as 3 mph for every foot of lane narrowing.
- Road Diets provide space for other modes of travel, as lanes are often unnecessarily built to the upper end of a suggested safe range.
- Reduce potential collision points along with the number and severity of crashes; can improve overall safety for all modes by 30 percent.
- Motor vehicle level of service is either unaffected or improved for volumes of 15,000–20,000 ADT, as a left-turn lane in both directions or a median with left-turn pocket lanes improve flow rate.

Location

- The width of a roadway sends an implicit message to drivers about how they should drive
- Wide streets encourage high speeds, while narrower roads force vehicles to move more slowly to stay in their lane
- Road diets reduce crossing distances for pedestrians and allow space for medians or islands for easier and safer crossings.
- Added medians and bicycle lanes provide motorist and emergency responders with necessary space to maneuver.
- Roadway narrowing is a relatively easy design treatment, as it can often be implemented with pavement markings.
- Roadway narrowing can be coordinated with utility work in ROW to save costs.

Character

- Benefits neighborhood context through decreased speeds, making for quieter, more comfortable neighborhoods.
- Re-striping existing right of way during resurfacing to reduce lane width is a low-cost way to incrementally build a network of bicycle facilities.
- Provides additional flexibility in design options, such as including bicycle lanes or on-street parking, increasing the sidewalk width, installing parkways, or adding landscaping.
- On roads with speed limits of 25 mph or less, bicycles and motorized vehicles can share lanes, thus space can be reallocated from lane width to pedestrian use.
- Improves speed-limit compliance during most times of use, as reducing road to one lane in each direction allows prudent drivers to set the speed. This benefit is less effective during off-peak times.
- Narrow streets are easier and safer for pedestrians to cross.


PARKING

On-Street Parking

General

- On-street parking buffers pedestrians from moving cars and calms traffic by forcing drivers to stay alert.
- Zoning regulations should have "build-to" lines rather than mandatory front setbacks which would encourage parking to be on the interior of the block.
- Where appropriate, metered or time-restricted parking should be used to provide reasonable short-term parking for retail customers and visitors while discouraging long-term parking.
- In developing and redeveloping areas, provide the amount of on-street parking for planned, rather than existing, land-use densities.

Size

- Parallel parking is the ideal arrangement, because it requires the least amount of space and allows pedestrians to easily cross through the thin line of cars.
- Diagonal parking is acceptable on low speed collector streets with ground floor retail, as long as the extra curb-to-curb width is not achieved at the expense of sidewalk width.
- On-street parking should conform to accessibility requirements and provide an appropriate number of accessible spaces.
- A minimum 1.5-foot-wide operational offset should be provided between the face of curb and edge of potential obstructions such as trees and poles. This will allow the unobstructed opening of car doors.
- Parking should be prohibited within 10 feet of either side of fire hydrants (or per local code), at least 20 feet from nearside of mid-block crosswalks (those without curb extensions) and at least 20 feet from the curb return of intersections (30 feet from an approach to a signalized intersection) unless curb extensions are provided.
- Reverse (back-in) angled parking requires a wider roadside due to the longer overhang at the rear of most vehicles.

Location

- Parking located in front of a street-front business encourages people to get out of their cars and walk, and is essential to leasing street-oriented retail space.
- The bulk of a building's parking supply should occur behind the building so that the front of the building will be defined by shop fronts and building entrances rather than parking lots.
- On-street parking should generally be prohibited on streets with speeds greater than 35 mph due to potential hazards associated with door openings and maneuvering in and out of spaces.

Character

- The conventional practice of placing surface parking lots in front of buildings results in a disconnected pedestrian environment.
- On-street parking provides convenient access to adjacent uses and provides the best possible option to visitors since it offers the shortest possible time between stopping and shopping.
- On-Street parking can lessen the need for parking lots and structures, which convert a significant amount of acreage to parking.


Park


PUBLIC PARKING

Off-Street and Shared Parking

General

- Shared parking can be defined as parking utilized jointly among different buildings and facilities in an area to take advantage of different peak parking characteristics that vary by time of day, day of week, and/or season of year.
- Allow for off-street parking facilities to be located off-site of the lot on which the structure or use being served is located
- Since most parking spaces are only used part time, allowing for shared parking arrangements significantly reduces the amount of land devoted to parking.
- Shared parking arrangements can be implemented through shared parking agreements between individual developers or the construction of public parking facilities.

Size

- Reduce stall dimensions and allow for compact car spaces.
- The buffer between the parking lot and the street should be no less than 15 feet wide

Location

- Parking facilities can be located in the interior of blocks and concealed by "liner" buildings with retail, offices, and housing.
- Encourage shared parking between uses that experience their peak business during different time periods for example offices with daytime business hours and restaurants and bars with evening hours and weekends.
- Specify a maximum distance from the structure or use within which the off-site parking facility must be located. •These location requirements are typically based on acceptable walking distances.
- Parking behind the building is accessible yet out of view.

Character

- The location of parking facilities behind buildings is vital in creating more welcoming and pedestrian-friendly streetscapes that will attract users.
- Parking facilities in front of buildings create physical and psychological barriers to the building, as opposed to buildings placed close to the street, framing the public space and inviting people in.
- Design sites such that vehicles and parking lots are not the dominant feature
- Signage could be used to direct users to the parking facility and to the get people from the parking area to the entrance, which may be in the front of the building.
- Off street parking can be combined with on-street parking could be provided in the front of the building to provide visible and convenient auto access.
- Screening can be continuous landscaping, attractive fencing or stone walls, among other materials.
- Landscaping on the periphery of a parking facility and within parking areas can be used to soften the appearance of a parking facility from the street.
- Expanses of parking should be broken up with landscaped islands and planted strips.
- Integrate parking structure with the surroundings, particularly through scale, materials, colors and style. Architectural treatments can be used to screen cars and relate to the design of adjacent buildings.
- Building vertically reduces the acreage of land converted to parking, thereby, reducing impervious surfaces.
- In lower density areas incentives may be required to defray the costs of structured parking
- Parking considerations should be secondary to the design and placement of buildings on the site.
- Use site topography to help conceal parking lots


ZONE

Combining Modes of Transit

General

- Safe and easy access transit stations and secure bicycle parking facilities are necessary to encourage commuters to access transit via bicycle.
- Bicycling to transit reduces the need to provide expensive and space consuming car parking spaces.
- Accommodate people who want to bring their bicycle with them on the transit portion of their trip, through bike storage on buses
- Provide maps at major stops and stations showing nearby bicycle routes.
- Provide wayfinding signage and pavement markings from the bicycle network to transit stations.
- Provide well lit and visible routes from bicycle parking locations to station/stop platforms.
- Provide safe and secure long term parking such as bicycle lockers at transit hubs.

Size

- Shared bike/ bus lanes can be attractive to cyclists who sometimes prefer to ride in bus lanes as transit vehicles may be more predictable and more responsive to cyclists in the road. These lanes work best when the lane width are around 16-feet to allow a clear 3 feet of separation between the bicyclist and a passing bus. In constrained areas or where traffic is lighters a shared lane might be 14 feet.

Location

- Provide direct and convenient access to transit stations and stops from the bicycle and pedestrian networks.
- Provide High-visibility crosswalks and mid-block crossings to provide safer bicycle and pedestrian access to bus stops

Character

- Transit use can overcome large obstacles to bicycling, including distance, hills, riding on busy streets, night riding, inclement weather, and breakdowns.
- Providing bicycle routes to transit helps combine the long-distance coverage of bus travel with the door-to-door service of bicycle riding.


to SALT LAKE CENTRAL
to SALT LAKE AIRPORT
to UNIVERSITY MEDICAL


PIER 39

Accommodating Loading and Unloading of Passengers

General

- Types of Bus Stops:
  - Curbside Stop (near-side, far-side, or mid-block) - Provides easy access for bus drivers, and minimal delay. Can cause traffic backup behind the bus, and may encourage unsafe passing by motorists. Easy to install and relocate. Requires a 'no parking zone.'
  - Nub, or 'Bus Bulb'- Provides easy access for bus drivers, and minimal delay. Can cause traffic backup behind the bus, and may encourage unsafe passing by motorists. Reduces pedestrian crossing distance and provides additional sidewalk area at the stop. Requires adequate road space to install.
  - Bus Bay (with acceleration and/or deceleration lane) - Minimizes delay to passing traffic. Bus drivers may have difficulty reentering the traffic stream when heavy. Often used on higher speed streets. Requires adequate right of way so that pedestrian area is not sub standard.
  - Open Bus Bay - Similar to bus bay, but allows bus to decelerate as it moves through the intersection. Requires adequate right of way so that pedestrian area is not sub standard.
  - Queue Jumper Bus Bay - Similar advantages to bus bay and open bus bay, but allows bus to bypass traffic queues at a signalized intersection. May cause delays to right-turning vehicles. Requires adequate right of way so that pedestrian area is not sub standard.

Size

- Maintain pedestrian circulation and coordinate with existing landscaping.
- Americans with Disabilities Act (ADA) requirements must be followed around the shelter and between the shelter and other street furniture.
- Bus stops should be designed such that pedestrians in wheelchairs can access the bus shelter and board the bus.
- Transit stops where neither a bus turnout nor bus bulb-out can be accommodated, buses may sometimes be unable to pull directly adjacent to the curb to deploy a lift.
- A paved landing pad is an important feature, especially for disabled and elderly riders. Typical dimensions are 5-feet by 8-feet.

Location

- Choose type of bus loading based on: traffic volume, traffic speed, bus frequency, bus passenger volumes, traffic signals or stop signs. Additionally, geometric considerations such as turn lanes, street right-of-way and sidewalk width, space for installing a bench or shelter, lighting, affect on adjacent businesses or land owners, and the presence of on-street vehicle parking. Other factors to include are how a stopped bus will affect the sight distance for pedestrians using crosswalks and the sight distance for parallel traffic and cross traffic, and how the bus will affect the traffic stream as it enters or leaves a stop.

Character

- A Dedicated Transit Lane can provide transit service reliability in areas with traffic bottlenecks or high peak-period congestion.
- Dedicated Transit Lanes Can reduce transit travel times by 5–25 percent.


PIER 39


ZONE


39 S CARROLLTON
237


JEWELRY
Metro
2
4
10
48
81
90
50
GW

Transit Stops and Design

General

- Dignified transit stops convey the message that transit is a viable alternative form of transportation.
- Improve the visibility of the transit service and to provide maps and other informational signage to help people use the service.
- Lighting is important for safety and security of transit patrons. A brightly lit bus stop makes it easier for the bus driver to observe waiting passengers and allows motorists to see pedestrians moving to and from the bus stop.
- Waste receptacles can be provided at higher use transit stops to reduce unwanted items being brought on the transit vehicle
- Signs serve as a source of information to patrons and operators regarding the location of the bus stop
- Benches provide comfort and convenience at bus stops and are usually installed on the basis of existing or projected ridership figures. A bench may be installed by itself or as part of a shelter.
- Shelters provide protection from the elements and seating for patrons waiting for rides.

Location

- Standardized Shelters can help minimize maintenance costs and provide consistent branding for a transit service. If paired with advertising, some vendors will supply the shelters free of charge to the city.
- Custom Shelters – convey a sense of place and are more in keeping with the architectural character of an area.
- Well-planned and designed transit facilities provide safe, comfortable and intentional locations for riders to access transit.

Character

- An attractive, well designed shelter can also be a positive addition to a streetscape that contributes to a sense of place.


marta


marta

Shade for Waiting Passengers

General

- Motorists, pedestrians, and cyclists typically prefer shady streets. Shade provides protection from heat and sun and contributes to the spatial definition of a street.
- In hot and arid climates providing shade for pedestrians is necessary to encouraging sidewalk level activity for the whole year.

Location

- Architectural encroachments over the sidewalk such as awnings, arcades, and cantilevered balconies are another way to protect pedestrians from the elements and meanwhile shield storefronts from glare.
- Allow for construction of engineered shade over city right-of-way.

Character

- Engineered shade standards should be incorporated in the current zoning ordinance to require structures to be designed with non-heat loading construction materials,
- If lights are used consider solar powered LED's to eliminate the need for electrical service to the structure.
- Shade can be provided with canopy trees or architectural encroachments over the sidewalk.
- Canopy trees should be planted in a planting strip between the sidewalk and the street in order to provide continuous definition and shade for both the street and the sidewalk.

Complete Streets Case Studies


Cute as a Button
Baby's


Baby's

Oak Street - Roanoke, Texas

Year of Design Completion: 2005

Year of Construction Completion: 2006

Complete Streets Elements:

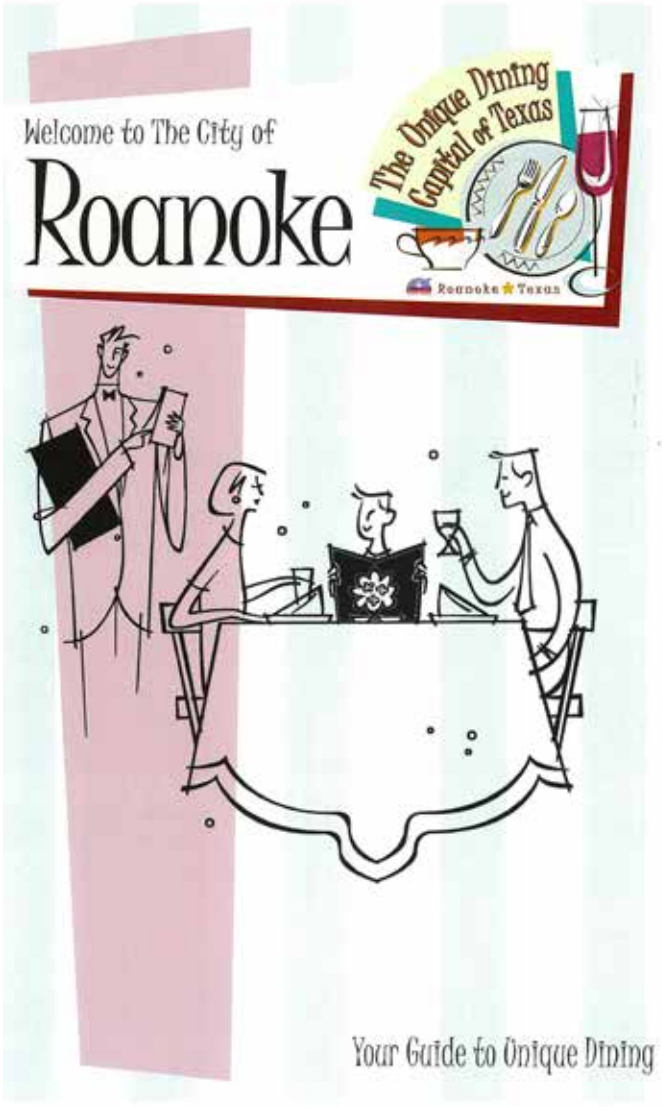
- Pedestrian Improvements
  - Sidewalk Widening
  - Street Intersection Improvements
  - Safety Element Installation
  - Street Furnishing Installation
  - Street Lighting Installation
  - Utility Pole Relocation to Alleys
  - Street Tree Installation
  - Wayfinding Design and Installation
- Bicycle Improvements
  - Bicycle Racks and Storage
- Automobile Improvements
  - Lane Width Reductions
  - On-Street Parking Improvements
  - Off-Street and Shared Parking Installation

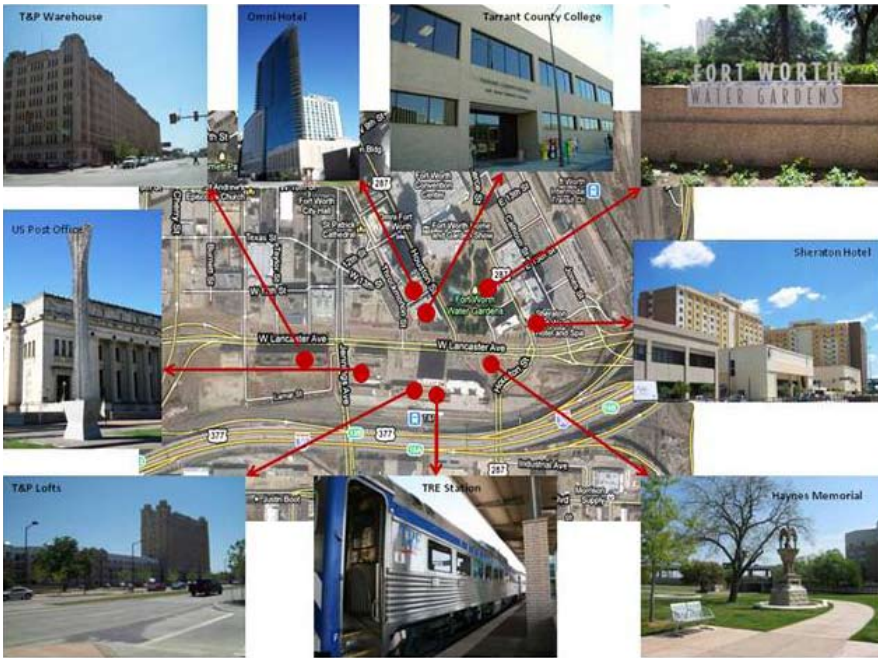
Economic Development Results:

- 12 new buildings
- 6 new restaurants
- Restaurant: $600 / foot of gross dining space
- Growing office and multi-family demand

Ad Valorem Taxable Value of Land:

- 2006: $4.06 per square foot
- 2011: $12.25 per square foot




T&P Warehouse
Omni Hotel
Tarrant County College
FORT WORTH
WATER GARDENS
US Post Office
Sheraton Hotel
W Lancaster Ave
T&P Lofts
TRE Station
Haynes Memorial

Lancaster Avenue - Fort Worth, Texas

Year of Design Completion: 2004

Year of Construction Completion: 2009

Complete Streets Elements:

- Pedestrian Improvements
  - Sidewalk Widening
  - Street Intersection Improvements
  - Safety Element Installation
  - Street Furnishing Installation
  - Street Lighting Installation
  - Street Tree Installation
  - Wayfinding Design and Installation
- Automobile Improvements
  - Lane Width Reductions
  - On-Street Parking Improvements

Economic Development Results:

- Freeway realignment;
- Lancaster Avenue reconstruction;
- Convention center expansion;
- Water Gardens improvements;
- Houston/Commerce two-way conversion;
- Sheraton Grand Hotel and Spa renovations;
- Omni Hotel and Condominiums;
- Municipal parking garage construction;
- Texas & Pacific Lofts (two buildings);
- Commuter rail extension and station at T&P Terminal Building/Lofts;
- Intermodal transportation center;
- Santa Fe Warehouse;
- Hyde Park Transit Plaza;
- Ninth Street;
- Tax Increment Financing district;
- Zoning changes; and
- Zipper Building.

Ad Valorem Taxable Value:

- 2003: $184,102,181
- 2012: $500,682,004

Implementation Strategies

What are Complete Streets?

Complete Streets are streets everyone can use! They are designed and operated to enable safe access. People of all ages and abilities are able to safely move along and across streets, regardless of how they are traveling. They allow buses to run on time and make it safe for people to walk to and from train stations. They also contextually respect the adjacent neighborhood form and function in terms of design.

What is Context Sensitive Solutions (CSS)?

"Context sensitive solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist."

-- Federal Highway Administration (FHWA)

CSS takes the Complete Street and addresses the context of the buildings and adjacent development opportunities in order to enhance the ability to maintain the lifecycle costs with increased taxable value along the street; utilizing the future taxes to repay improvements and maintain the roadway in perpetuity.

Ownership versus required maintenance

Today, many cities are struggling with the high cost of maintaining roadways built to reach the extents of city limits. Without the necessary tax base, these costs, combined with other city services and public safety requirements, add to the burden of the strained resources that we are experiencing. Quality, compact development with less parking, more public space and, in some locations, more density, can provide higher tax revenues for the City to use toward the required services and maintenance.

Through the two case studies in the previous section, the return on the investment has been realized by the adjacent development they have addressed. There are many more cases where integrating Complete Streets appropriate to area contexts has resulted in quality new development and higher land values.

Attracting Regional and Federal Support

In addition to a renewed identity for the community, the projects have attracted federal, state and regional funding to help support additional improvements or begin implementation of the projects.

In Duncanville, city officials and a local developer cited the Main Street Plan and new zoning for the area in a successful bid for a Housing and Urban Development Grant for Sustainable Communities through the regional North Central Texas Council of Governments (NCTCOG) to implement the first phase of the roadway construction. The results of the redesign complemented by a form-based code have been almost 100% occupancy for commercial along the street and into the side streets, and residential homes in adjacent neighborhoods selling on an average of five days. Redevelopment has not been fully activated, but instead a series of rehabilitation along the roadway with existing buildings have revitalized the Main Street area and created a need for additional low-density urban residential in the form of three-story mixed use apartments and two-story townhomes.

Steps to Success on Central Avenue

1. **City adoption of a Complete Streets and Context Sensitive Solutions (CSS) Program**

   By adopting a Complete Streets and CSS Program, the City could set a tone for developers and City departments that streets need to be improved for the benefit of all modes of transportation and funding for street improvements will take economic development into consideration when planning these improvements. With the cost of construction rising at exponential rates, adopting policies to build and maintain quality streetscapes can help promote the quality private development and services that residents and visitors desire.

   Also, adopt the ITE Manual for Walkable Urban Thoroughfares to better align complete street and context design. Adopted as a recommended practice by the Institute of Transportation Engineers, the manual provides guidance to support the design recommendations in this report.

2. **Collaborate BRT integration using Context Sensitive Solutions**

   Utilizing the guidelines and toolkit, address the integration of BRT into Central Avenue so that the stations and crossings are working with development in the area to create a great context. Use the street network and design tools to promote multi-modal transportation and solve critical issues in the area.

   a. Station locations should address resident concerns about location, but also use the location to realize its potential to catalyze development and property values. For instance, rather than relocating a station due to loitering concerns, redesign the station to be a center alignment, instead of a curb alignment.

   b. Street furniture and station structures need to accommodate safety and comfortability for passengers. In addition, the design of the station must be in coordination with the character of the adjacent development or neighborhood plan.

   c. Flexibility in the station design and location must be accommodated. Any uniformity in stations will artificially create limits on each neighborhood and will effect the true economic development potential of the adjacent context. Each station must be designed for its place and context in order for it to be an asset to the community it serves.

3. **Work with neighborhoods and commercial owners to update policies per neighborhood plans and subdivision ordinance**

   a. Height allowances and transition towards adjacent residential

   The commercial properties along Central Avenue generally occupy the full block they sit on, but on occasion transition to single family residential. The urban context of Central Avenue from 1st Street to Girard Boulevard has proven, through recent developments, that urban residential options and mixed-use development are in high demand, but existing sector plans and zoning within the Hospital and University sub areas restrict taller buildings. By providing more square footage for commercial or residential activity, taller structures along Central Avenue could help encourage redevelopment by allowing developers to recoup more of their development costs. Wholesale changes to height regulations in zoning would likely be controversial, so this Plan recommends a measured approach that helps increase development value while meeting neighborhood goals.

   One option for getting neighborhood support for taller structures along the corridor is to allow height bonuses in exchange for public amenities within a development. In the case of the Volcano Heights Sector Development Plan, recently adopted unanimously by the Environmental Planning Commission and City Council, height bonuses are awarded up to a prescribed height for providing amenities such as plazas, trails and sustainable development. A point system has been established to gauge the level of importance for the various treatments in this Major Activity Center. If various elements for the communities are desired, such as ground floor retail, outdoor dining areas, wider sidewalks, development of parts of Central Avenue, those can be written into the point scale and applied towards the requirements for buildings to go from 2 stories to 3 or 4 stories.

   b. Temporary use permits for surface parking to permit evolutionary shared parking system

   In order to improve parking for public use now, the city should consider issuing developers temporary use permits for surface parking as a first phase for a planned development on the site. The temporary use permit can have a time limit, typically two to five years, and should stipulate that the public is allowed to use the lot. By charging for parking, it may be possible to hasten redevelopment of sites by

creating an early revenue stream.

c. *Assist neighborhoods to identify and structure shared parking agreements*

Along with the policy of permitting temporary use permits for surface parking, the City should work with developers, landowners and neighborhoods to create shared parking agreements and potentially a series of parking structures as market demands require. It is not recommended that the City pay for these improvements, but instead assist in setting up a parking management system and utilize various taxing systems and innovative finance tools to support the development of these surface or structure lots.

This parking management system should also take into account a need for additional on-street parking along Central Avenue and time limits for those spaces. Typically urban areas with ground floor retail require revolving parking spaces on the street to give opportunity for new shoppers to park freely. By setting some spaces to be 30 minute parking and others to be 2 or 3 hours limit on parking, it gives the appearance of additional parking and will improve retail opportunities.

d. *Assist neighborhoods in identifying support for improving alleys aesthetically and through use activation, as well as encouraging maintenance from the neighborhoods and landowners*

A series of alleys exist within the Central Avenue corridor, but they do alternate between commercial and residential uses. It is recommended that the City support neighborhoods in identifying programs or developing programs to reclaim the alleys for use and safety within the neighborhood. By mowing unpaved alleys, cleaning any trash, and providing lighting, the alleys can be activated and these introductions can improve crime prevention. For paved alleys, allowing garage access for homes or mixed-use development, will put activity on the alley and allow consistent "eyes on the street," which can help prevent crime.

In addition, allowing small studio units to be constructed on top of the garage on the alley is a good means to provide more eyes on the street, but also to allow density to increase, without the need for building heights to be raised. This also provides rental opportunity for homeowners to help cover the cost of maintaining older, historic homes in this area.

4. Identify and implement an improvement funding source that is most acceptable to the context and area

There are a variety of innovative funding options that can work with the existing and future development to implement these recommendations for Central Avenue. The following are recommendations that integrate reinvestment, reimbursement and general adherence to the need for public places to be maintained to keep the quality of a place to stay clean, safe and special for the neighborhoods it serves. Many of these mechanisms were written for the Volcano Heights Sector Development Plan, but have been adapted for this study.

City Ordinances allow for a variety of financial tools that enable rising property values from development to pay for infrastructure. Desired outcomes at Volcano Heights will likely require the use of one or more of the following methods:

- *Tax Increment Development District*

  Described in the City of Albuquerque Code of Ordinances, Section 4-10, Tax Increment Development Districts (TIDDs) capture a portion of the increase in property and gross receipts taxes resulting from the area's development. Funds can be used to pay back debt on a range of projects similar to PIDs, including elaborate streetscapes like the urban boulevard, parks and trails, civic spaces, and other amenities. TIDDs are typically used for a large, master-planned development, rather than a single subdivision. Unlike other funding mechanisms, they do not impose new costs or taxes on property owners (except those incurred by rising property values caused by development). TIDD proceeds can also be used for ongoing maintenance and improvement of facilities. TIDDs require major coordination among property owners to apply for and maintain districts, issue bonds, and manage revenues and bond payment.

A TIDD funding source is the best source of funding for a community because it does not increase tax base, but instead redirects existing tax revenue and redirects it from the General Fund to the TIDD fund. The incentive for this type of funding is that reimbursements are tied to private development and, legally ties a developer to perform successfully in order to be reimbursed for public infrastructure. This is ideal for the Hospital District due to its large amount of vacant property along Central Avenue. It would provide an incentive to developers by assisting in showing public support for development in the area and assist in securing financing for a project.

- *Special Assessment Districts*

  Described in the Albuquerque Code of Ordinances, Section 6-8, Special Assessment Districts (SADs) involve an additional charge added to property taxes to fund necessary improvements in new subdivisions, such as drinking water and sewer lines, paving and other government services. SADs can typically take on a purpose for funding, such as transportation, utilities or a parking management district. SADs can be requested by a percentage of landowners in an area or imposed by a local government, and SAD revenues are used to pay back city general funds or service debts, such as bonds, incurred for infrastructure construction.

- *Public Improvement District or Business Improvement District*

  Described in the Albuquerque Code of Ordinances, Section 6-9 and enabled by New Mexico Statute Section 5-11-1 to 5-11-27 NMSA 1978 (2001), Public Improvement Districts involve an additional charge added to property taxes to fund a broad array of improvements in a subdivision, ranging from roads and drainage to recreational facilities, trails, parks, public buildings, libraries and other amenities. Like SADs, PID revenues are used to pay back general funds or debts incurred for the construction of infrastructure. The City of Albuquerque currently requires unanimous vote of property owners to establish a PID, though state statutes allow PIDs to be created with ¾ of property owners in agreement.

  The Business Improvement District is similar to the Public Improvement Districts except that this mechanism is an additional charge to businesses and multi-family, and is not directly taxed to single-family residential. There is a district boundary created that identifies the included taxable entities and the improvements are directly applied to maintenance and life cycle costs for the infrastructure and district identity only.

These types of funding sources are ideal for the Edo and University areas along Central Avenue. The most ideal would be a Business Improvement District that utilizes an additional charge on the property tax to dedicate funds for improvements in the area. Given the current level of existing businesses and their direct economic benefit for the improvements of the corridor, allows this group to align the context to the vision for their respective segment. The BID also does not include neighboring residential property owners so it does not increase their tax level, which is a growing concern of the neighboring community.

- Public/Private Tax Rebate Agreement:

  Similar to a TIDD, this type of agreement allows for cities, counties and other taxing entities to enter into agreements with developers that let developers obtain rebates for infrastructure in return for development that meets standards set by the affected governments for density, walkability, sustainability, etc. Under this type of public/private partnership, the rebates can only be requested after the development has been completed as agreed upon and new property or sales tax revenues have been generated there for a set time period.

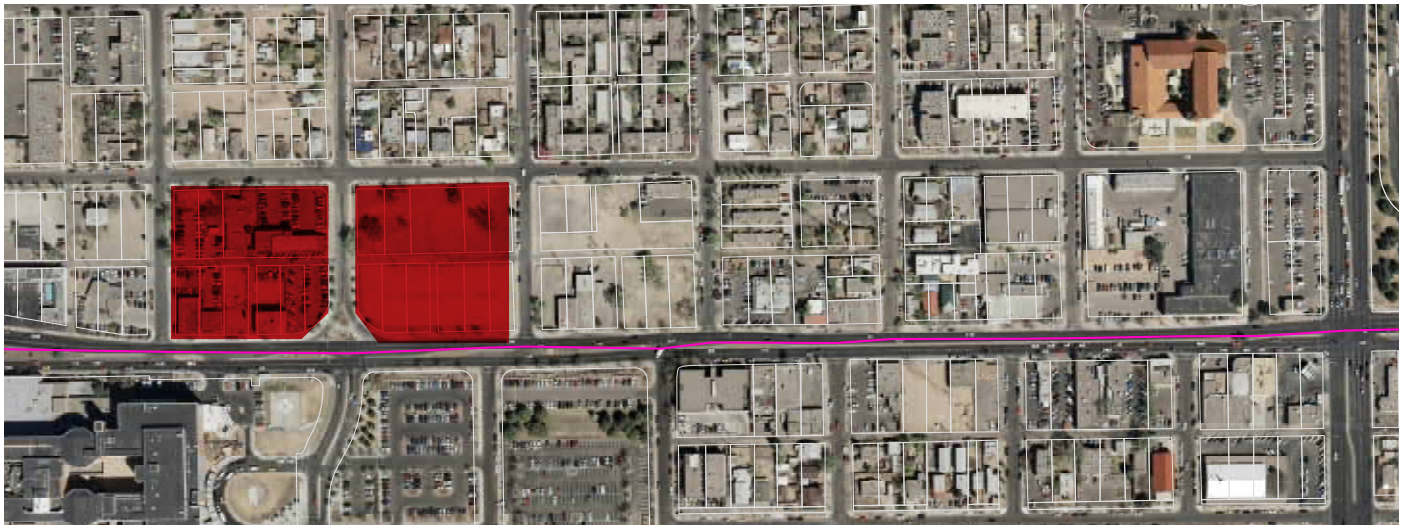
  Such an arrangement can allow rebates of tax revenues for a flexible range of infrastructure improvements, such as streets and utilities, but unlike TIDDs, developers must pay those costs upfront themselves – the agreement cannot be collateralized to allow bonding or other debt acquisition based on expected rebates. At least one such agreement has been made in New Mexico – a project in Rio Rancho whose developer may request up to $2.8 million in rebates for infrastructure costs from gross receipts (sales) taxes generated on site, after the development is complete and has been in use long enough that those revenues have been collected by the New Mexico Taxation and Revenue Department.

5. **Set vision and design for improvements for Central Avenue in each sub area that will promote Context Sensitive Solutions and allow for multi-modal operations aligning with the goals and recommendations of this plan.**
6. **Engage neighborhoods and landowners to begin process of aligning Central Avenue plan with appropriate catalytic redevelopment.**

   The following maps identify locations that offer those opportunities for continued dialogue.

EDo Catalytic Area of Focus

Hospital Catalytic Area of Focus



University Catalytic Areas of Focus

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