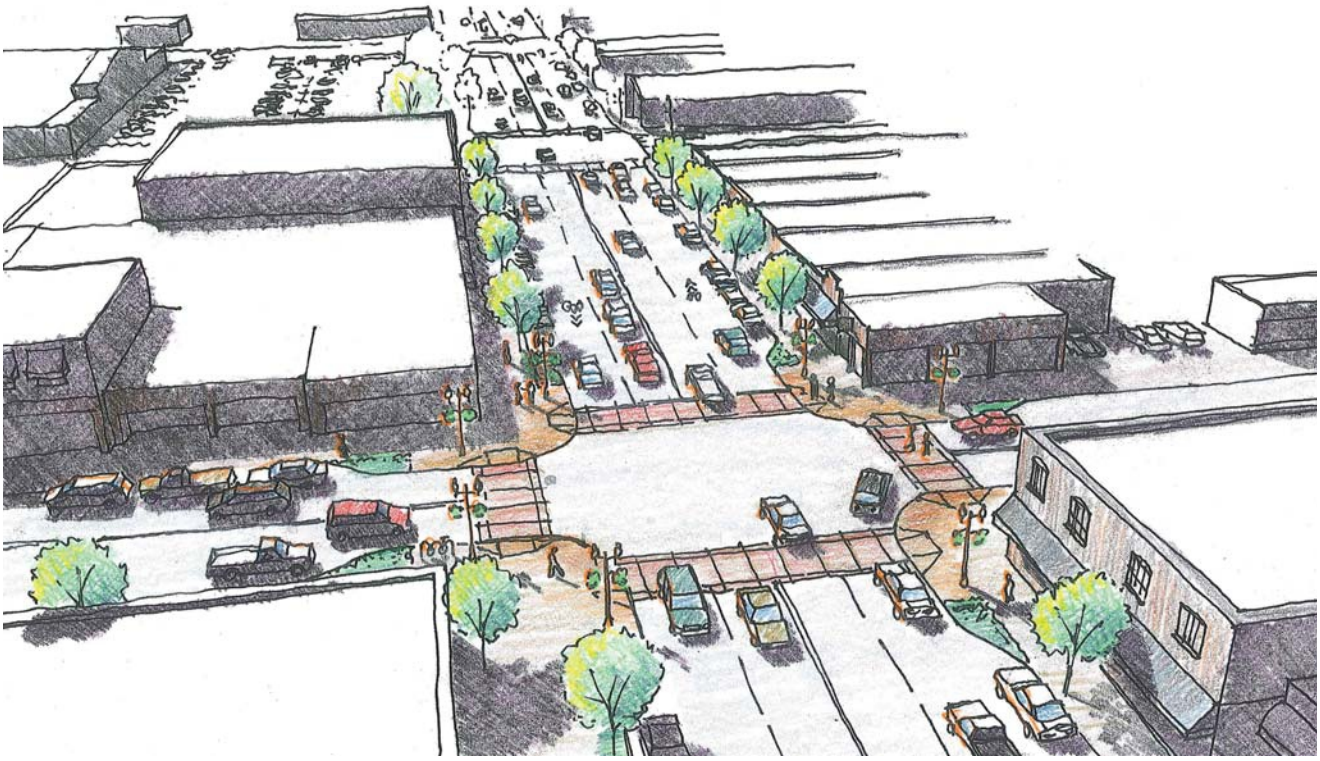

East Pine Street

Corridor Refinement Plan

City of Central Point

January 2013

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Acknowledgements

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Executive Summary

The City of Central Point embarked on this corridor refinement plan to objectively evaluate multimodal performance of alternative design options and to develop consensus on a preferred plan for East Pine Street that is consistent with the community's vision and policies. The East Pine Street Corridor Refinement Plan documents the project background, public involvement, technical analysis of alternative designs, and the final, preferred concept for East Pine Street.

Preferred Alternative: Enhanced Four-Lane East Pine Street (1st Street to 6th Street)

This street design alternative was widely supported by the public, local stakeholders, and decision makers. The design maintains four travel lanes but reduces their widths from 12 feet to 11 feet. The four feet gained from the travel lane reductions are used to widen the sidewalks by two feet each. Several improvements are recommended along with the widened sidewalks:

- Intersection bulb-outs at 3rd Street, 5th Street, and 6th Street to improve pedestrian visibility and crossing
- Specially paved crosswalks at each intersection, using durable concrete materials rather than stamped concrete or thermoplastic treatments
- Sidewalks reconstructed to a consistent finish and pavement detail throughout, with a four-foot amenity zone for street trees and furniture
- Ornamental street lights from 1st Street to 6th Street, matching those already in place between Front Street and 1st Street
- Painted sharrow markings in the outside travel lanes and bike racks located within intersection bulb-outs or the widened amenity zone

The proposed cross section is illustrated below.

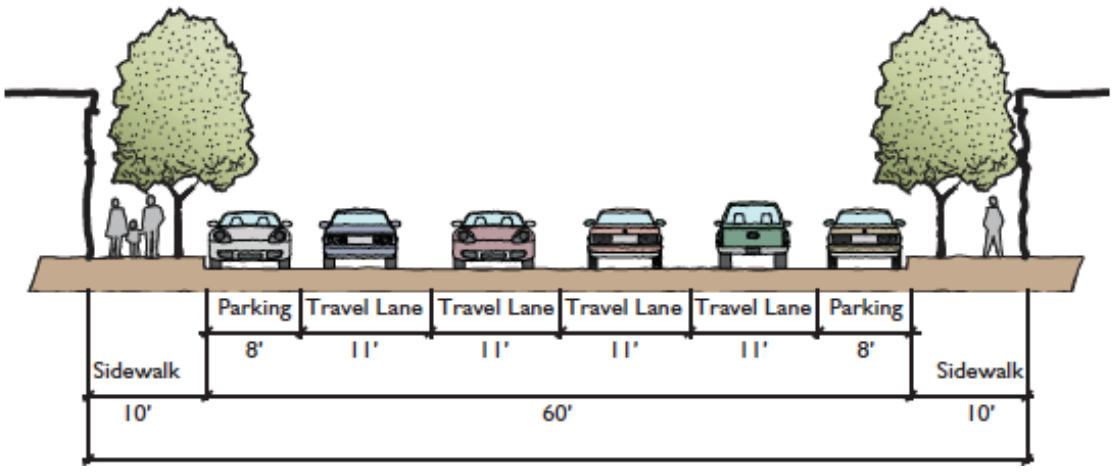

Figure 1: Cross Section for Preferred Streetscape Alternative (1st Street to 6th Street)

Other Recommended Improvements

In addition to the streetscape improvements between 1st Street and 6th Street, the following improvements are also recommended as part of this plan.

- **6th Street – 10th Street Sidewalk Improvements.** For this segment, no reduction in the width of roadway lanes, or in the number of lanes, is assumed. Existing sidewalks could be widened to 10 feet or 12 feet in width by acquiring additional right-of-way or easements from property owners with front yard setbacks between buildings and the current sidewalks. With wider sidewalks, street trees could be introduced into the streetscape.
- **Enhanced Bus Bulb-Out on 6th and East Pine Street.** The existing bus stop at 6th and Pine Streets should be improved by adding a street corner extended bulb-out approximately 30-feet in length, a small shelter, and an ADA-compliant landing with the bulb-out and at the front door loading area. Smaller bulb-outs should be constructed at the other three corners of the intersection with specially paved crosswalks.
- **Second Street Plaza.** There was a strong consensus that a small plaza along Pine Street, adjacent to Ray's Food Place, would be a very desirable amenity. The Plaza was designed into the public right-of-way to minimize the loss of on-street parking, and to retain all of the grocery store's parking. Landscaping, street furniture, art, and shade structures were all envisioned for the site.

Figure 2: Rendering of Recommended Second Street Plaza

Introduction and Background

Developing a plan for the Pine Street corridor with wide support depended on a strong interagency and public involvement process, as well as a close review of existing plans, policies, and best practices. This chapter summarizes the planning process and key background information.

Process

The involvement of local stakeholders and technical staff was key in the development of this plan. Two committees, the Technical Advisory Committee and the Public Oversight Committee, were formed to help provide technical and policy direction and oversight, and to provide guidance on the trade-offs involved in different future configurations of East Pine Street.

Technical Advisory Committee (TAC)

The purpose of this committee was to provide procedural and technical input to the project team. The TAC included representatives from:

- ODOT
- Rogue Valley Transportation District
- Jackson County
- Rogue Valley Council of Governments
- Oregon Department of Land Conservation and Development
- City of Central Point Planning
- City of Central Point Public Works

Public Oversight Committee (POC)

The purpose of this committee was to provide feedback on policy issues and input on design options. The POC included representatives from:

- Downtown merchants
- Chamber of Commerce
- Central Point Planning Commission
- Central Point City Council
- Central Point Citizen Advisory Committee
- Freight trucking industry

Public Involvement

Involving community members and other stakeholders was key in helping to determine existing issues on East Pine Street, and understanding what kind of information and analysis people would want to consider in discussing future alternatives.

Stakeholder Interviews

At the outset of the project, a roster of stakeholders and a set of interview questions were developed in order to gain a variety of perspectives on the current and future function of East Pine Street. Stakeholders included representatives from businesses on or near East Pine Street and Central Point City Council members.

Recurring themes from the stakeholder interviews include the following:

- The most often cited problems with East Pine Street were pedestrian crossing safety and a perceived poor business environment
- Potential street improvements most often mentioned were pedestrian crossing enhancements, sidewalk improvements, and a signal at 2nd Street
- Perceptions of whether or not a three-lane East Pine Street would work better than the existing four lanes were mixed

More detail on the stakeholder interviews is available in the appendix to this report.

Public Walking Tour

Early in the project, a walking tour was held in order to help identify issues and brainstorm ideas for improving East Pine Street. A group of about 20 people gathered at City Hall, and the consultant team provided a short overview of the project and the purpose of the tour, providing comment cards for tour participants to use as they saw fit. The group followed the route shown in Figure 3.

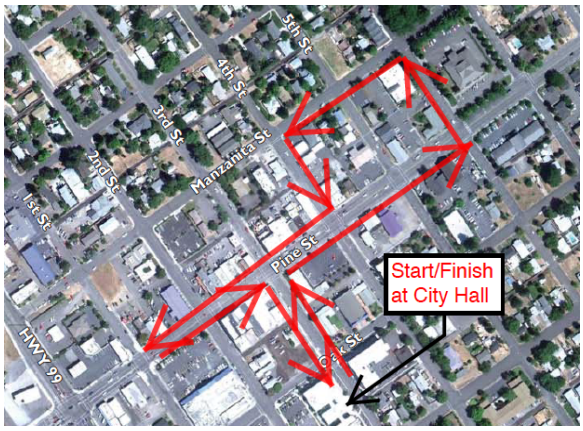

Figure 3: Route for Public Walking Tour

Key observations from the walking tour include:

- Many obstructions in the sidewalk, including an excessive number of parking restriction signs that may no longer be needed
- Visibility of pedestrians at corners can be poor
- 2nd Street pedestrian crossing safety is a concern
- General support for decorative street lighting
- Some interest in creating a plaza in front of Ray's Food Place

More detail on the walking tour can be found in the appendix to this report.

Additional Public Involvement

Public outreach occurred throughout the process, with the following events (Table 1) being key in development and selection of the preferred alternative.

Table 1: Key Public Involvement Events

Event	Action	Date
Public Workshop	Brainstorm streetscape concepts	January 2012
	Review Streetscape Alternatives	July 2012
Planning Commission	Recommend streetscape alternative	September 2012
Citizen Advisory Committee	Review Background and Existing Conditions	August 2011
	Recommend streetscape alternative	October 2012
Public Oversight Committee	Project Overview Review Comparison of Future	May 2011
	Review Background and Existing Conditions	August 2011
	Review Comparison of Future Street Configurations	January 2012
	Review Streetscape Alternatives	July 2012
	Recommend streetscape alternative	October 2012

Policy Background

This corridor refinement plan included a review of local and regional planning documents. These documents contain existing goals, policies, and strategies, as well as additional background information relevant to evaluating, comparing, and discussing alternative configurations for East Pine Street.

The following documents were reviewed:

- Regional Freight Study (2006)
- 2009-2034 Rogue Valley Regional Transportation Plan (RTP) (2009)
- Jackson County Transportation System Plan (2005)
- Jackson County Bicycle Master Plan (2005)
- Rogue Valley Transit District Plan (2007)
- Highway 99 Corridor Plan (2005)
- East Pine Street Transportation Plan (2004)
- Central Point Transportation System Plan (TSP) (2008)
- Central Point Downtown Revitalization Plan, Public Hearing Draft (1999)
- Central Point Forward – Fair City Vision 2020 (2007)
- Access Management Plan for Front Street / Pine Street (2003)

Detailed summaries are included in the appendix to this report, and key policies considered as part of the corridor plan are shown in Table 2.

Table 2: Policies Considered for Alternatives Evaluation

Policy	Source
1-2 Landscaping and other amenities to encourage people to walk	RTP
6-2 Facilitate alternative parking strategies to encourage walking, bicycling, carpooling, and transit	RTP
6-3 Enhance bicycle and pedestrian systems	RTP
9-1 Accommodate travel demand to support the local economy	RTP
2.5.4. Regional Freight Study, 2006: The Regional Freight Study identified the section of Pine Street through the downtown as a freight route. As stated in the City's 2000 TSP and its Vision 2020, the preference is that freight be diverted from that section of Pine Street within the Central Business District.	TSP
5.1.1 Maintain mobility standard at LOS D	TSP
5.1.2 Facilitate implementation of bus bays	TSP
7.1.8 Incorporate safely designed, aesthetic features into streetscape of public rights-of-way	TSP
7.1.9 Reconstructed streets should be designed to the adopted street standards	TSP
7.1.13 Design street improvements to accommodate anticipated travel demand for next 20 years	TSP
8.1.3 Develop linked bicycle network focusing on, but not inclusive to, the arterial and collector system	TSP
8.1.4 Use all opportunities to add bike lanes in conjunction with road reconstruction and re-striping	TSP
11.2.2 Design and improvement of streets designated on Freight System shall accommodate large vehicles	TSP

Policy	Source
Prioritized Bicycle Facility Projects – Short Term (5-10 years): East Pine Street is the primary east-west route through Central Point. The designation of bicycle lanes on Pine Street would negatively impact parking and access to local businesses. To preserve the character of the downtown it is suggested that E. Pine Street be designated a bicycle route through the downtown area. Traffic speeds through the downtown should be reduced through traffic calming, on-street parking, and other site design strategies that make this section of Pine Street compatible with bicycle users. Under no circumstance should on-street parking on Pine Street, within the downtown, be removed to accommodate bicycle lanes.	TSP
DRB-3a Implement recommended and locally acceptable street improvements and traffic controls in Central Business District to reduce driving speeds and make walking safer and more desirable	Central Point Forward
DRB-3c Emphasize both form and function when selecting traffic control devices (signals, crosswalks, bulb-outs, etc.)	Central Point Forward
MGI-3a Include pedestrian and bicycle friendly options in every plan, and retrofit existing streets and neighborhoods whenever possible	Central Point Forward
T-1i Implement recommended and locally acceptable street improvements and traffic controls in the Central Business District (includes Highway 99) to reduce driving speeds and make walking safer and more desirable.	Central Point Forward
T-1c Re-examine one-way streets on Manzanita and Oak	Central Point Forward
T-2a Develop codes and enforcement to prohibit semi trucks on Pine Street.	Central Point Forward
T-2a Create alternate truck route through downtown.	Central Point Forward
T-3b Create safe pedestrian passage across Highway 99 and East Pine Street	Central Point Forward

Complete Streets

In recent years, many communities across the U.S. have taken a Complete Streets approach when constructing new streets or reconstructing existing streets. While this approach recognizes the need or safe and efficient operation of vehicles, it strives to balance all the transportation choices and improve mobility for people of all ages and abilities. On a Complete Street, children can safely travel to school, those who choose to walk or bike will have convenient routes to their destinations, and public transportation will be easily accessible to everyone.

Potential Benefits for Central Point

A Complete Streets approach to East Pine Street could help address a number of issues and concerns already identified by the community at-large through past planning and by key stakeholders in this planning process. Designing and substantially rebuilding East Pine Street, or the parallel streets of Manzanita and Oak, could improve mobility for all users, improve safety for pedestrians and cyclists, and help revitalize and diversify the business community.

All communities will increasingly need to address the issues of climate change, sustainability, and public health. Implementing Complete Streets will have a significant role in reducing greenhouse gas emissions and air pollutants, improving water quality through better stormwater management practices, and promoting more active lifestyles for better health.

Design Objectives and Guidelines

Design objectives for Complete Streets generally apply to new and substantially rebuilt streets. Figure 4, below, illustrates the zones that typically make up a Complete Street. If East Pine Street remains a four-lane facility, then the application of these guidelines is necessarily limited. For a four-lane to three-lane conversion, this zone system could help guide the reallocation of street right-of-way in meeting the needs of all users.

Sidewalk Zone. Sidewalks serve multiple functions. They should be designed to support the activities expected of a thriving downtown and business district. At a minimum, the sidewalk must provide a continuous, unobstructed path that is 5 feet wide in order to meet contemporary ADA requirements. Within a downtown or a mixed-use area, a width of 7 to 10 feet is preferred.

Amenity Zone. The amenity zone complements the sidewalk and provides pedestrians with a buffer from the moving traffic. It includes many of the features that contribute to an attractive streetscape and image for downtown and the neighborhoods. The amenity zone also provides space to exit from a parked car and board a bus without conflicting with other sidewalk activities. Widths of 4 to 6 feet are the minimum. In some locations even wider widths can be achieved by using curb extensions.

Zone	Sidewalk	Amenity	Parking	Bicycle	Travel/Transit	Center Lane / Median
Function	Pedestrian movement Business interface Cafe seating Signage Planters	Street furnishings Street trees Utilities Stormwater features Clear zone for parked cars Bicycle parking Bus stop Traffic Signage	On-street parking Bulb-outs Bus stops On-street bicycle parking	Safe bicycle travel	Movement of vehicles including buses and delivery trucks	Direct turn movements Provide a refuge for pedestrians crossing the street (particularly at identified mid-block crossings)
Character	Unobstructed path for 2-3 abreast walkers, distinctive paving	Hard surface except stormwater planters, pervious pavers or tree grates	Extension of the travel/transit zone	Visible markings indicating separate or shared lane	Minimize width while accommodating larger vehicles such as emergency, freight and transit	Minimize turning conflicts accommodating larger vehicles such as emergency, freight and transit

Figure 4: Complete Streets Zones

Parking Zone. On-street parking adds to the activity of the street. It provides motorists access to businesses and creates an additional buffer for pedestrians. This zone can also provide space for freight loading zones, bus stops, bicycle parking, and curb extensions. Parking zones should be 7 to 8 feet wide.

Bicycle Zone. The bicycle zone makes cyclists visible to vehicles and indicates how cyclists should use the roadway. Facilities for exclusive bike travel are usually striped lanes that are 5 to 6 feet wide. Buffered or raised bike lanes could be considered if the right-of-way is available. In some cases, bikes share the travel zone with cars as a shared lane or sharrow.

Bicycle Parking. The availability of bicycle parking or end-of-trip facilities can be a determining factor in the decision to pedal rather than drive. Providing "place to park", both long-term and short-term, is fundamental to a good bicycle system. It creates a more attractive and organized streetscape, preserves pedestrian space and helps equalize the transportation modes and choices. There are numerous bike parking solutions that can be tailored to the specific needs of the businesses and the community at-large.

Travel Zone. The efficient movement of vehicles will always be a priority in a Complete Streets policy. This zone should emphasize safe travel and turning for vehicles, including delivery trucks, buses, and emergency vehicles. But it is also a crossing area for pedestrians, and the shorter distances from curb to curb create more favorable crossing conditions. It must balance the needs of cyclists and pedestrians with street function and capacity. Typical lanes widths for downtown and surrounding neighborhoods are 11 to 12 feet.

Medians. Medians can be striped or raised with curbs. Striped medians provide continuous opportunities to make left turns without being in the travel lane. Raised medians can provide the same opportunity at more limited locations. Raised medians also accommodate attractive landscaping and provide temporary refuge for pedestrians trying to cross the street at mid-block. Typical median widths are 10 to 14 feet. Widths less than 6 feet do not provide adequate waiting space for pedestrian crossings.

Intersections. Intersection design is often influenced by unique conditions or contexts, including the need to accommodate delivery trucks within a business district However, intersection design should always consider the tradeoffs between vehicular capacity and pedestrian and bike mobility. How intersections accommodate pedestrians is as important as the sidewalk system. Guidelines for pedestrian-friendly intersection design include:

- Shorten the crossing distance from curb to curb.
- Enhance the pavement or crosswalk markings.
- Provide a separate walk phase for traffic signals in high pedestrian volume areas.
- Calibrate the walk phase to meet ADA standards for slower moving pedestrians.
- Provide good illumination at all four corners.

Stormwater Management. Communities are rethinking street drainage systems engineered to collect run-off in underground pipes and carry it away as untreated wastewater. The Green Street approach is more sustainable by achieving natural hydrological functions for stormwater falling within the right-of-way, achieving multiple goals of being cost-effective, improving water quality, and creating new streetscape amenities. Many of these facilities emphasize bio-retention and can be attractively integrated into the amenity zone.

Additional information on Complete Streets best practices can be found in the appendix to this report.

Existing Conditions

This section summarizes the existing transportation conditions for the study area. It includes an inventory of the existing transportation network, a safety evaluation, and an analysis of how the transportation system is currently operating.

Study Area

The primary study area includes East Pine Street between Front Street (Highway 99) and 10th Street/Freeman Road. However, the corridor solution could include use of the parallel routes on Manzanita and Oak Streets, and changes made to East Pine Street could have impacts on the surrounding street network. Therefore, the study area was extended west to Haskell Street and east to Hamrick Road. Figure 5 illustrates this study area, including key places of interest.

Existing Facilities

The following sections will provide an inventory and analysis of the conditions for parking, pedestrian facilities, bicycle facilities, and public transit throughout the study area.

Parking

On-street parking is generally available throughout the study area. Parking is permitted within about 15 feet of crosswalks in many locations along East Pine Street, which can create problems with pedestrian visibility. On-street parking between Front Street and 5th Street tends to be well-utilized particularly during the mid-day. Off-street parking is available in several lots along East Pine Street. East of 5th Avenue, on-street parking appears to be often underutilized.[1]

[1] DKS Associates, observation May 17-19, 2011.

CENTRAL POINT, OREGON

DKS Associates
TRANSPORTATION SOLUTIONS

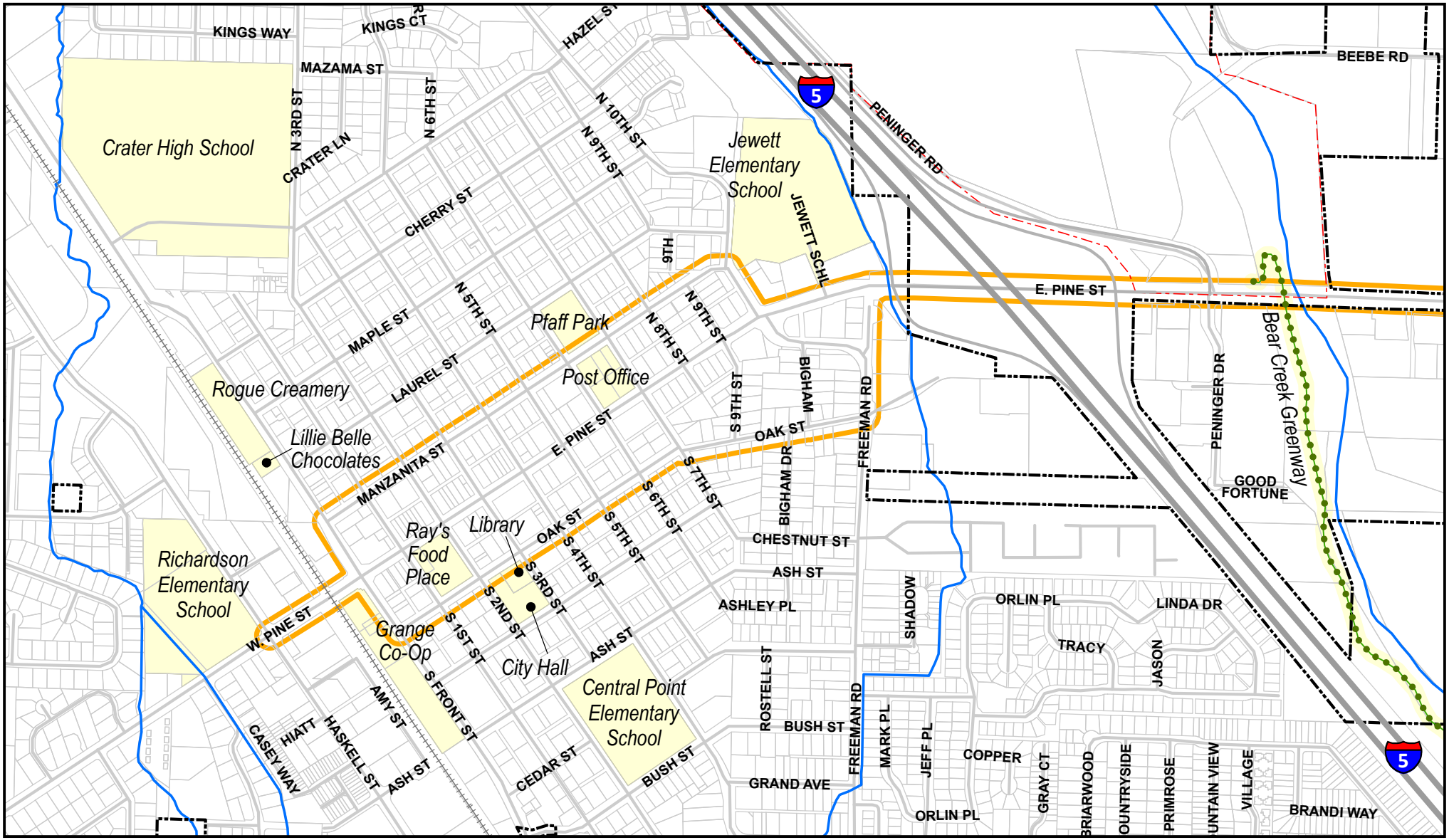

FIGURE 1

NORTH

STUDY AREA

Legend

- Study Area
- Place of Interest
- Urban Growth Boundary
- City Limit
- Bear Creek Greenway Path
- Stream
- Parcel

Feet
0 250 500 1,000

1

Pedestrian Environment

East Pine Street features sidewalks throughout, but widths vary. Much of the western end of East Pine, including the downtown core, features 8-foot sidewalks. However, some sections east of 5th Street have 5 and 6-foot sidewalks. All sidewalks on East Pine Street are "curb-tight," with only parked cars buffering pedestrians from moving vehicles.

The condition of sidewalks varies as well. Recent construction has provided new sidewalks along East Pine Street from Haskell Street to 1st Street. However, east of 1st Street many of the sidewalks are old and in disrepair with large cracks an uneven surfaces. Additionally, travel along the sidewalks can be impeded by light poles, street signs, benches, and trash cans. Together, the poor surfacing and presence of obstructions create trip hazards and can make passage by people with mobility devices (e.g., wheelchairs, walkers, baby carriages) difficult.

Much of the existing sidewalk pre-dates the Americans with Disabilities Act (ADA), which provides a number of design requirements to allow for the accessibility of public places for individuals with disabilities. In addition to the obstructions in the traveled way noted above, in the areas of old construction most curb ramps are too steep. However, where new construction has occurred, such as around the intersection with 1st Street, there are ADA-compliant facilities, including new curb ramp designs and more open space for maneuvering.

All intersections on East Pine Street have at least one striped crosswalk across the corridor, with most intersections having striped crosswalks in all four directions. However, signalized crossings of East Pine Street west of I-5 are only available at the intersections with Haskell, Front, 3rd, 4th, and 10th Streets. This leaves long gaps of approximately 750 feet between Front and 3rd Streets and 1,500 feet between 4th and 10th Streets with no control of traffic to aid pedestrian crossings.

The series of pictures above illustrates current sidewalk conditions on E. Pine Street. [1] sidewalk in disrepair [2] obstructions in the traveled way [3] poor curb ramp design with an obstructed landing

Pedestrian crossing safety was one of the most common concerns regarding East Pine Street that was expressed by community members. In addition to a desire for more signalized crossing

opportunities, other concerns included pedestrian visibility and motorist awareness.

These photos show how pedestrian visibility at street corners can be impacted by the presence of parallel parking. [1] View standing on sidewalk looking back towards oncoming traffic [2] View looking back towards oncoming traffic from where sidewalk would be if a bulb-out were present

Pedestrian visibility is commonly limited on East Pine Street in two ways: 1) at the corner of the street during the beginning of the crossing attempt and 2) within the roadway during the crossing attempt. At the street corners, pedestrians waiting to cross the street can be obstructed from an oncoming driver's view by parked cars along the curb. The most effective ways of addressing this condition include moving parking stalls farther away from crosswalks and/or constructing bulb-outs at corners to bring waiting pedestrians closer to the traveled way and reduce crossing distance. Bulb-outs have already been constructed on East Pine Street at 1st Street, as well as in other areas of the city.

When a vehicle stops to yield to a crossing pedestrian, it can limit the pedestrian's ability to see oncoming traffic. This is illustrated in Figure 6. This is a common problem on multi-lane roadways. Safely stopping a vehicle from 25 mph (the posted speed on East Pine Street) requires about 150 feet, which is nearly 70% of the average block length on the corridor. So even when drivers are vigilant, by the time they see a pedestrian they may not have time to stop unless they have already slowed considerably in preparation.

Pedestrian counts from Fall 2010 showed that walking activity in the East Pine Street corridor is highest between 6th Street and Haskell Street. The three most popular locations for crossing East Pine Street were at 2nd Street, Front Street, and Haskell Street.

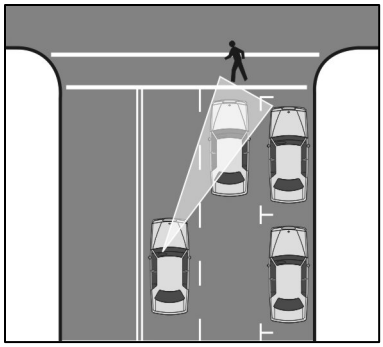

Figure 6: Illustration of pedestrian visibility obstructed by yielding car

The findings were echoed in the project's stakeholder interviews, which highlighted the importance of 2nd Street. This intersection provides access to Ray's Food Place, which is a popular lunchtime destination for Crater High School students. When the weather is clear, it is not uncommon to see dozens of students crossing East Pine Street during the lunch hour traveling to and from Ray's.

The intersection at 6th Street provides access to the post

office and Pfaff Park (north of Manzanita Street). At the time of field assessment, the City had recently implemented a crossing enhancement treatment at this intersection. The treatment included advanced pedestrian crossing warning signs and pavement markings with rumble strips.

Bicycle Environment

East Pine Street is an important travel route through Central Point and across I-5 for bicyclists as well as motor vehicles. In addition to providing access to the downtown, it also connects to destinations east of I-5 such as the Bear Creek Greenway, and to residential lands west of the Central Oregon Pacific Railroad. The City's Transportation System Plan recognizes the importance of East Pine Street for bicycle travel and suggests that it be designated as a bicycle route through the downtown. However, it also recognizes that the installation of bicycle lanes would negatively impact parking and local business access.

A considerable length of East Pine Street (1st Street to 8th Street) does not include bike lanes. Therefore, bicyclists must share a travel lane with motor vehicles. The use of a shared roadway such as this in an urban area is generally considered suitable where speeds are low (25 mph or less) or traffic volumes are low (3,000 vehicles per day). While the posted speed on East Pine Street is 25 mph, many bicyclists may not feel comfortable sharing a lane with the 15,000 vehicles per day that use this corridor. Furthermore, riding next to parallel-parked cars can also be uncomfortable and potentially hazardous for bicyclists due to the danger of being hit by an opening door.

Field visits showed that convenient and secure bicycle parking downtown is infrequent. Most bicycles seen outside of East Pine Street businesses were simply leaned against buildings. Implementing more aggressive bicycle parking requirements in the downtown may result in facilities that make travel by bicycle more appealing to area residents.

Data collection in Fall 2011 showed that bicycle activity was highest between 6th Street and Haskell Street. The highest amount of activity was seen from Front Street to Haskell Street, which is also an area where bike lanes are present.

Public Transit

Rogue Valley Transit District's Route 40 travels westbound on East Pine Street between 1st and 2nd Street every 30 minutes between 6:00 AM and 6:30 PM. A park-and-ride facility is located on the corner of Manzanita Street and 2nd Street. The park-and-ride stop at 2nd Street and Manzanita Street is the most heavily used stop, and is also the closest stop to the core of downtown Central Point. More detailed ridership data can be found in the appendix.

Corridor Safety

Review of recent crash history on the corridor highlighted potential issues at the intersection of 10th Street and Freeman Road, which experiences significantly more crashes, and a higher crash rate, than any other location on the corridor.

East Pine Street at 10th Street/Freeman Road

At this intersection, nearly half of all crashes reported involved rear-end collisions on the south approach of Freeman Road. Two-thirds of those were related to the right turn movement from Freeman Road towards the I-5 interchange. As shown in the pictures at right, vertical and horizontal curves limit sight distance as drivers approach East Pine Street from the south. To compound the problem, if drivers approach stopped vehicles on the other side of the hill too quickly, they may have a difficult time stopping on the downhill grade. A "stop ahead" sign has been installed to help warn drivers approaching this intersection.

The above photos show Freeman Road as it approaches East Pine Street from the south. [1] a stop ahead sign is used to warn drivers where a vertical drop limits visibility [2] once down the hill, a horizontal curve to the right can make visibility difficult as well

Another element that may be a factor is the stop sign control for the right turn movement, rather than signal control. The requirement for every vehicle to stop creates "stop-and-go" movement, which may not be expected by unfamiliar drivers at a signalized intersection.

Motor Vehicle System Performance

This section shows how motor vehicle traffic currently operates on East Pine Street and establishes a baseline from which to develop potential improvement concepts. Intersection operations and corridor travel time are discussed below. For information on other motor vehicle system performance measures, see the appendix.

Intersection Operations

Intersection analysis indicates that nearly all study area intersections operate adequately and meet jurisdictional standards. One minor street movement does not meet the City standard: the southbound left turn at 7th Street and East Pine Street. This movement experiences the most delay of any within the corridor, with vehicles waiting over 35 seconds on average for a gap in traffic.

Signal Operations

Traffic signals within the study area vary in terms of timing, phasing, and coordination. Signals on East Pine Street near I-5 (at 10th Street, the two-off ramps, and Peninger) are coordinated and offset to allow vehicles to flow smoothly in the peak direction at peak hour. The signals at 3rd and 4th Streets, however, have old controllers that limit the ability to implement appropriate offsets, resulting in interrupted flow through this section of the corridor.

Corridor Travel Time

Travel time is a performance measure that can be helpful in determining the impact of congestion, signals, and prevailing speeds on vehicular movement through the corridor. In addition to field measurements, average travel time calculations were performed in SimTraffic, a microscopic traffic simulation model that was calibrated to match existing conditions observed in the field. Field measurements were taken eastbound and westbound during the PM peak hour between the center point of the intersection of Haskell Street and West Pine Street and the intersection of the I-5 southbound ramps and East Pine Street. The field-measured results, as well as simulation results for the same segment, are shown in Table 3.

Table 3: Existing (2011) Weekday PM Peak Hour Segment Travel Time Performance, Pine Street Between Haskell Street and I-5

Intersection	Shortest Travel Time	Longest Travel Time	Average Travel Time
Pine Street Westbound (field)	2:04	3:05	2:35
Pine Street Westbound (simulation)	2:53	3:24	3:06
Pine Street Eastbound (field)	2:48	2:48	2:48
Pine Street Eastbound (simulation)	3:10	3:28	3:22

Source: DKS Associates field observation (May 18, 2011), SimTraffic microscopic simulation model (DKS Associates)

On average, simulated travel times were slightly higher than observed travel times. However, the majority of delay in the simulated travel time occurred at the same points as in the observed travel time. The signals at 10th Street and Front Street have the most impact on corridor travel time, contributing between 60 and 90 seconds of delay to the trip.

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Future Conditions and Transportation Alternatives

A key step in this corridor refinement plan was to assess and compare future transportation conditions on East Pine Street under No-Build conditions and future Four-Lane and Three-Lane alternatives. The future analysis presented below includes analysis of motor vehicle, bicycle, pedestrian, and transit performance under the No-Build alternative and the Four-Lane and Three-Lane build alternatives.

Transportation Alternatives

Three alternatives representing possible traffic configurations of East Pine Street, described below, are evaluated in this chapter. These alternatives are different from the streetscape alternatives, which focus on elements of the built environment rather than traffic characteristics, and are discussed in the next chapter. Illustrations of the Improved Four-Lane and the Three-Lane alternatives are shown in Figure 7 and Figure 8.

No-Build

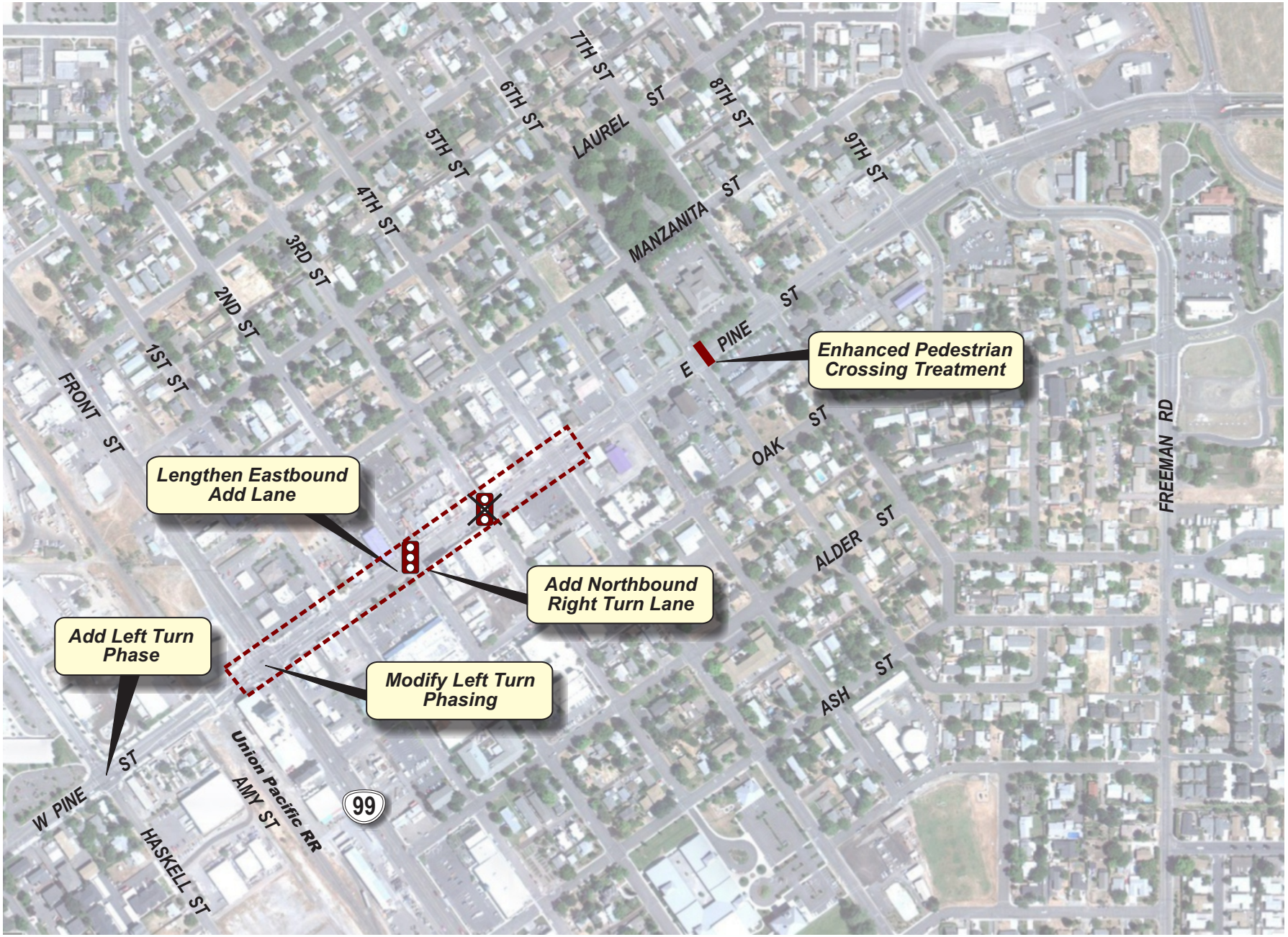
This alternative assumes that no improvements are made in the East Pine Street corridor through the year 2034. This is essentially the existing condition with future (year 2034) traffic volumes applied to it.

Improved Four-Lane

This alternative maintains the existing East Pine Street four-lane cross section, but includes improvements to mitigate poor operating conditions found under the No-Build alternative. These improvements include:

- Remove the existing traffic signal from the intersection on East Pine Street at 3rd Street and install a new coordinated/actuated traffic signal at 2nd Street
- Coordinate the traffic signals along East Pine Street at Front Street, 2nd Street, and 4th Street (assumes a common cycle length of 90 seconds)
- Change protected left turn phasing on Front Street approaches with Pine Street to protected-permissive phasing
- Add protected-permissive southbound left turn phasing at the East Pine Street/Haskell Street intersection
- Lengthen the eastbound left/through add-lane at the East Pine Street/2nd Street intersection to 100 feet (only requires restriping)
- Add a northbound right turn lane (75 feet) at the new East Pine Street/2nd Street signalized intersection by removing approximately three on-street parking spaces
- Enhanced pedestrian crossing treatment on East Pine Street at 6th Street (see Pedestrian section)

This alternative also includes options for other pedestrian movements, such as curb extensions at key locations and slightly wider sidewalks (if existing travel lanes are narrowed). Discussion of the purpose of each of the above improvements is included in the appendix.



LEGEND

- New Signal
- Removed Signal
- New Coordinated Signal Area

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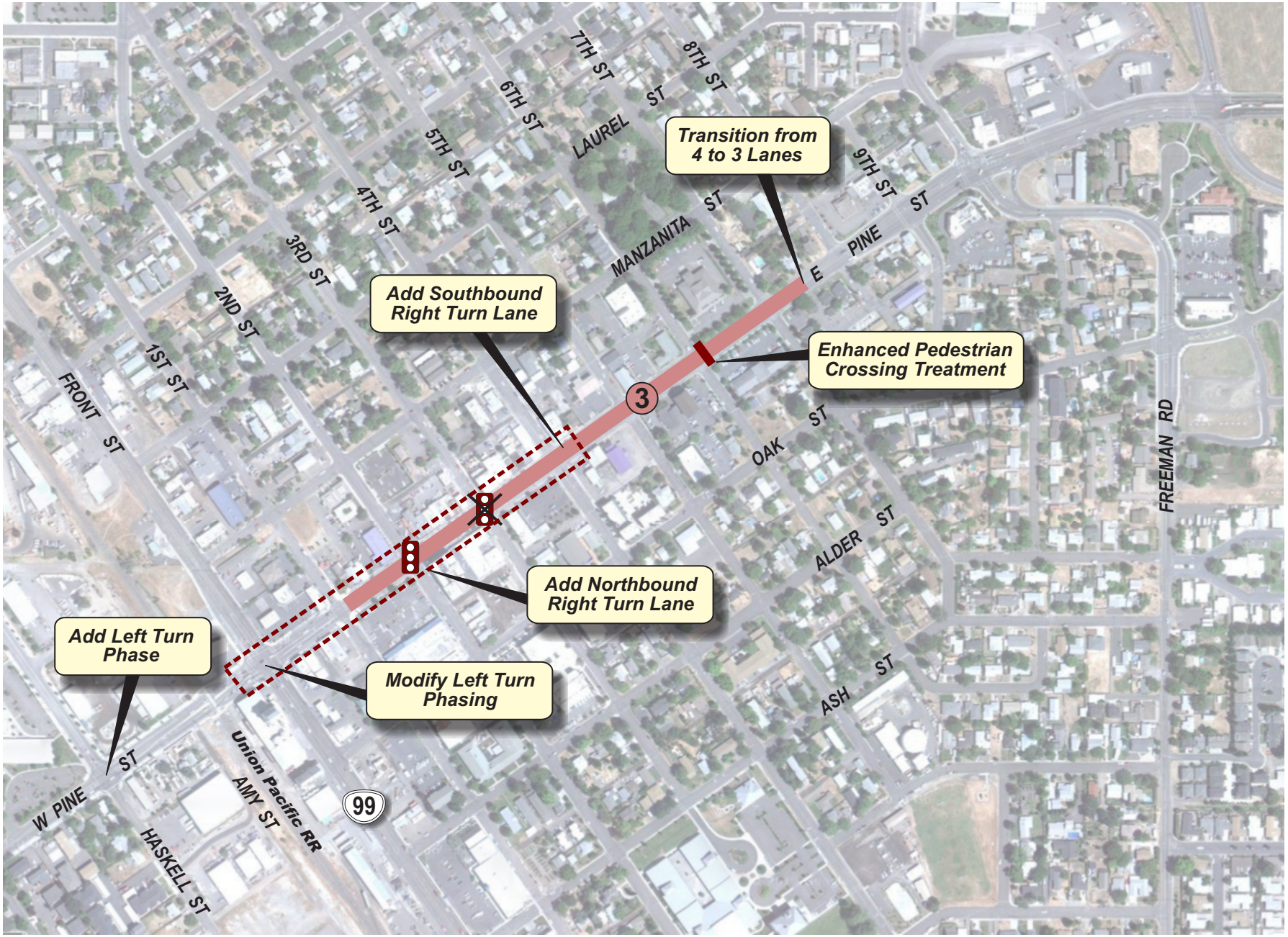
NO SCALE

Figure 7

IMPROVED FOUR-LANE ALTERNATIVE



LEGEND

- New Signal
- Removed Signal
- New Coordinated Signal Area
- Three Lane Section

DKS Associates
TRANSPORTATION SOLUTIONS

NO SCALE

Figure 8

THREE-LANE ALTERNATIVE

Three-Lane

The key feature of this alternative is the conversion of East Pine Street to a three-lane roadway (one travel lane in each direction and a center turn lane) through the study corridor. The narrower street provides the opportunity to reallocate as much as 10 feet of right-of-way width between 1st Street and 7th Street. One of the following two options for allocating this space may be used:

1. Wider sidewalks: reallocates width to sidewalks, providing addition space for pedestrians, street furnishing, landscaping, and outdoor seating. Existing sidewalks, ranging from five to eight feet in width, would be increased to approximately 10 to 13 feet in width.
2. Bicycle lanes: reallocates width to provide bicycle lanes on East Pine Street, as there are currently no bicycle lanes on East Pine Street. This option would provide five-foot wide bicycle lanes between parallel parked cars and the travel lanes. Additionally, there is the opportunity to narrow travel lanes slightly and either widen bike lanes or sidewalks by an additional one to two feet.

The same improvements described above for the Improved Four-Lane alternative were still needed, in addition to the following:

- Add a southbound right turn lane (75 feet) at the East Pine Street/4th Street intersection by removing approximately two on-street parking spaces

Transportation Alternatives Comparison

Motor Vehicles

Motor vehicle performance under each alternative was evaluated in terms of intersection operations, travel time and travel speed, and vehicle queuing. An overview of each alternative's performance is included below. For more detail, see the appendix.

Forecasting and Future Volumes

In order to forecast vehicular traffic and intersection turning movements for the year 2034, the future model for the Rogue Valley Metropolitan Planning Organization (RVMPO) was used as a starting point[2]. The model was modified to increase sensitivity to small-scale improvements such as new signal locations, added turn lanes, and modified cross sections. Traffic forecasts were performed for a four-lane (No-Build) cross section and a three-lane section of East Pine Street.

A key finding from the forecasting was that comparison of four-lane and three-lane forecast volumes on East Pine Street showed only minor differences, suggesting that:

- The change in road capacity does not generate congestion to the point that travelers divert to different routes through downtown Central Point

[2] For more information on the traffic forecasting methodology, see *Transportation Forecasts Report*.

- Alternative routes through downtown are constrained by the single I-5 crossing to the east and limited railroad crossings to the west

Figures showing the future movement volumes for the three alternatives are available in the appendix.

No-Build Alternative

The No-Build alternative assumes no improvements are made in the East Pine Street corridor through the year 2034. The results of this analysis show significant deficiencies and help guide where improvements will be needed under improved alternatives to maintain acceptable operations for motor vehicles.

Intersection Operations

Under the No-Build Alternative, most study intersections will continue to meet mobility standards in 2034. The exceptions are unsignalized intersections along East Pine Street from 5th Street to 8th Street. At all four of these intersections, the movements experiencing high delays are the southbound left and southbound through movements from the minor streets. Each of these streets is classified as a local street and the volume of traffic attempting to turn out of them is forecast to be relatively low—too low in fact to meet signalization warrants from the Manual on Uniform Traffic Control Devices.

Corridor Travel Time and Average Speed

Average travel time calculations for East Pine Street between the I-5 southbound ramps and Haskell Street were estimated for the 2034 PM peak period. The average travel times and travel speeds experienced under future No-Build conditions are shown in Table 4 along with the values calculated for existing conditions for comparison.

Table 4: Future (2034) No-Build Weekday PM Peak Hour Corridor Travel Times and Average Travel Speeds - East Pine Street Between I-5 Southbound and Haskell Street

	Corridor Travel Time		Average Travel Speed	
Direction	Existing Conditions	Future No-Build	Existing Conditions	Future No-Build
Pine Street Westbound	3:06	9:36	15 mph	5 mph
Pine Street Eastbound	3:22	12:56	14 mph	4 mph

Source: SimTraffic microscopic simulation model (DKS Associates)

As shown above, corridor travel times and speeds will be significantly worse by 2034 if no improvements are made along East Pine Street. This level of congestion was not identified in the intersection operations analysis above. More detailed assessment of simulations run for this alternative showed that substandard signals and lack of synchronization contribute significantly to this poor performance.

Improved Four-Lane and Three-Lane Alternatives

The comparative analysis of the Improved Four-Lane and Three-Lane alternatives demonstrates that East Pine Street can function well for through travel whether it is reduced to three lanes through downtown or maintained as a four-lane street.

Intersection Operations

The **Improved Four-Lane** alternative performs similarly to the No-Build, with one more intersection (3rd Street, unsignalized under this alternative) failing to meet the mobility standard. Also, the side-street delays for unsignalized intersections (3rd, 5th, and 7th Streets) increase significantly. The cause of this is actually the improved progression of through traffic along East Pine Street. The coordination efficiently moves traffic along East Pine Street in long platoons of vehicles, which is good for through movements. However, it makes finding gaps in traffic difficult for drivers leaving the side-streets. The benefits of the Improved Four-Lane alternative become clear in the queuing and travel time analysis, discussed below and in the appendix.

The **Three-Lane** alternative generally out-performs the Improved Four-Lane alternative, with reduced delay at intersections and only two intersections failing to meet mobility standards. The center lane provided in this alternative allows the problematic side-street turning movements to complete maneuvers in two stages rather than one. The Three-Lane alternative, however, increases average delay at signalized intersections at 2nd and 4th Streets due to the reduction in through lanes and longer queues.

Corridor Travel Time and Average Speed

Average travel time calculations for East Pine Street under future conditions were performed for each alternative in the same manner described in the No-Build condition. The results for each alternative are shown in Table 5, along with the results from the No-Build analysis.

Table 5: Future (2034) Weekday PM Peak Hour Corridor Travel Times - East Pine Street between I-5 Southbound and Haskell Street

Direction	No-Build	Improved Four-Lane	Three-Lane
Pine Street Westbound	9:36	4:00	3:54
Pine Street Eastbound	12:56	4:08	4:04

Source: SimTraffic microscopic simulation model (DKS Associates)

As shown, corridor travel times along East Pine Street are nearly identical between the Improved Four-Lane and Three-Lane alternatives and both provide significant improvements over No-Build conditions.

Summary of Motor Vehicle Conditions

Table 6 compares the benefits for motor vehicle travel in the East Pine Street corridor associated with the recommended treatments and compares the advantages provided by the Improved Four-Lane and Three-Lane alternatives. In summary, motor vehicle conditions can be significantly improved under either alternative. The Improved Four-Lane alternative operates somewhat better in terms of queuing due to the increased storage provided by the

additional travel lane. More detail on the operations of the Three-Lane alternative compared to the Improved Four-Lane, including function of the center turn lane and the impact of parallel parking maneuvers, can be found in the appendix.

Table 6: Summary of Motor Vehicle Benefits

	Improved Four-Lane Alternative	Three-Lane Alternative
Intersection Performance	**Good.** Slightly better performance at signals, but worse for side street traffic	**Good.** Better for side street traffic, but slightly worse at signals
Travel Times/Speeds	**Good.** It will only take one minute longer to traverse the corridor than it does today while serving over 20 years of growth	**Good.** It will only take one minute longer to traverse the corridor than it does today while serving over 20 years of growth
Vehicle Queuing	**Very Good.** Provides the shortest queues along East Pine Street	**Good.** Longer queues than the Four-Lane alternative, but still within acceptable ranges
Safety	**Fair.** Improvements made may not significantly change the rate of crashes	**Good.** As much as a 29% reduction in crashes could occur based on national trends

Pedestrian Improvements

While sidewalk improvements may be a significant element of a future East Pine Street, safety for pedestrians crossing East Pine Street was the most commonly requested improvement for stakeholders. A number of enhancements for pedestrian crossings on East Pine Street have been included in the Improved Four-Lane and Three-Lane alternatives and are described below.

Enhanced crossing at 6th Street

A pedestrian crossing enhancement has already been implemented on East Pine Street at the intersection with 6th Street to improve access to the Post Office and Pfaff Park. The existing enhancement consists of advanced warning signs, pavement markings, rumble strips, and a high-visibility crosswalk. Light poles are also present in the vicinity, but are more than 50 feet from the crossing.

As part of this corridor plan, upgrades to the 6th Street pedestrian crossing are proposed to enhance motorist awareness and overall pedestrian safety. The proposed improvements include:

- Retaining the high-visibility continental style crosswalk.
- Removal of the rumble strips.
- Retaining the advanced warning signs.
- Installing push-button activated Rectangular Rapid Flashing Beacons underneath the warning sign at the crossing location on both sides of the roadway.
- Installing illumination at the crossing location.
- Install Advance Stop Lines (see Figure 9).
- Installing curb extensions at both ends of the crossing.

The proposed improvements to the 6th Street pedestrian crossing are essentially the same whether applied to the Improved Four-Lane or Three-Lane alternatives. Additional discussion of potential enhanced 6th street crossing elements is included in the appendix.

The pictures above illustrate recommended applications for an enhanced 6th Street pedestrian crossing. [1] continental style crosswalk [2] RRFB mounted under a warning sign

Better Access to Enhanced Crossings

Another strategy for improving pedestrian crossing safety is to increase access to controlled (i.e., signalized) or enhanced crossing locations. By adding the 6th Street crossing improvements as described above and relocating the existing 3rd Street signal to 2nd Street, significantly more blocks on East Pine Street between I-5 and Haskell Street will have direct access to a controlled or enhanced crossing (see Figure 10).

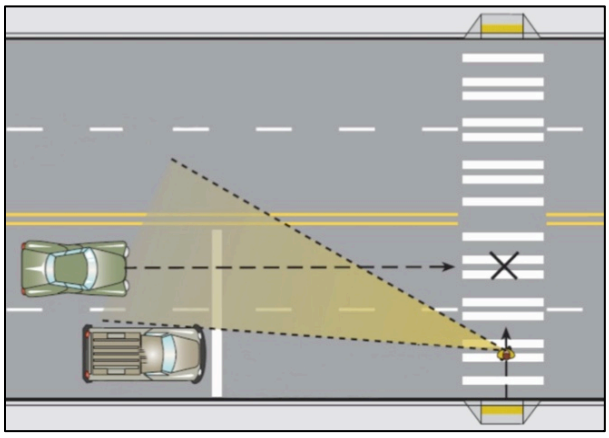


Figure 9: Advance stop lines improve visibility on multi-lane roadways (Source: Oregon Bicycle and Pedestrian Plan, ODOT)

The 6th Street crossing improvements and relocation of the 3rd Street signal to 2nd Street are included as part of both the Improved Four-Lane and Three-Lane alternatives.

Improved Pedestrian Visibility

Perhaps the greatest problem in the East Pine Street corridor related to pedestrian safety is lack of adequate visibility. Visibility was found to be limited in two ways: 1) at the corner of the street during the beginning of the crossing attempt and 2) within the crosswalk during the crossing attempt. Potential remedies for both of these problems are discussed below.

Visibility at Street Corners

At the street corners, pedestrians waiting to cross East Pine Street can be obstructed from an oncoming driver's view by parked cars along the curb. The two most effective ways of mitigating this problem would be to move parking stalls farther away from crosswalks or to construct curb extensions at corners to bring pedestrians closer to the traveled way.

The primary factors considered when choosing one of these treatments include:

- The ability to retain valued parallel parking spaces
- The ability to provide sufficient sight distance between the curb and oncoming cars to allow drivers to stop for pedestrians

Providing a full 150 feet[3] of sight distance (measured from the crosswalk to the oncoming car) is ideal, but not essential. Given that improvements in visibility may

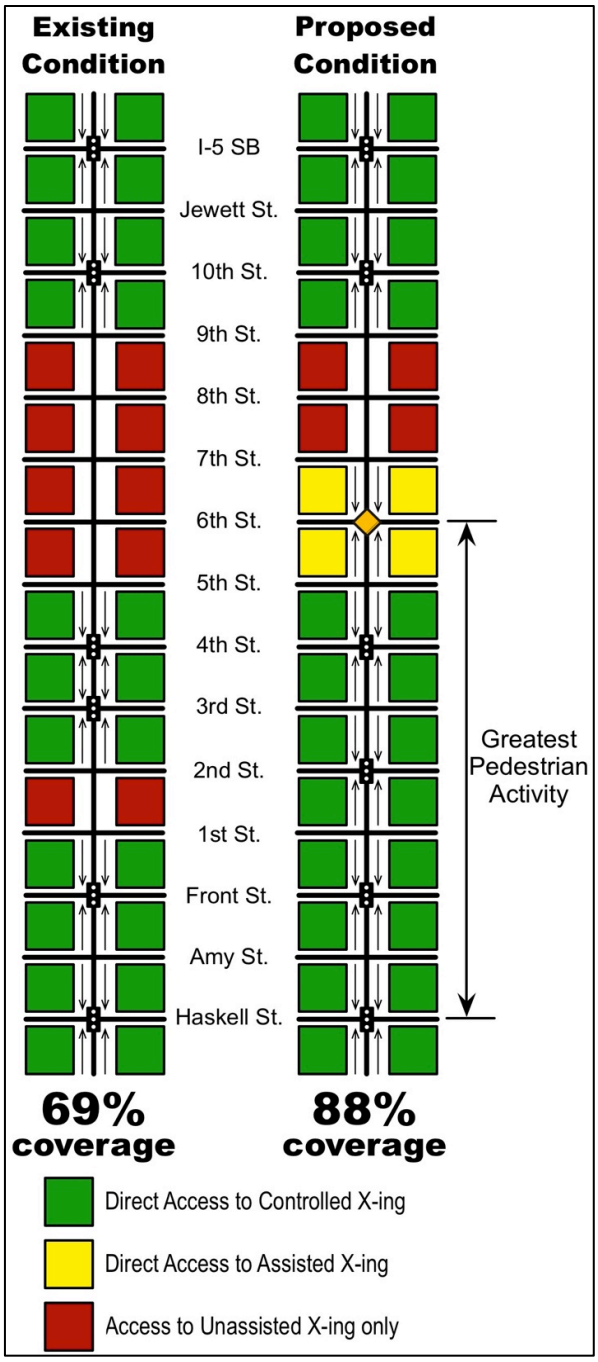


Figure 10: Comparison of accessibility to controlled and assisted pedestrian crossings on East Pine Street

[3] A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, Washington, DC, 2004, p. 112.

come at the cost of other important elements of the corridor, the overall benefits gained should be balanced.

Figure 11 compares the effect of parking removal and curb extensions related to improved corner visibility. Example 1 (on the left) shows the existing East Pine Street corridor traveling westbound toward the unsignalized intersection at 2nd Street where no curb extensions are present. As shown, to provide the full 150 feet of stopping sight distance there would need to be 85 feet of parking prohibition from the crosswalk.

Example 2 (on the right) shows the existing East Pine Street corridor traveling westbound toward the unsignalized intersection at 1st Street, where 8-foot curb extensions have been constructed. In this case, to provide the full 150 feet of stopping sight distance there would need to be just 35 feet of parking prohibition from the crosswalk.

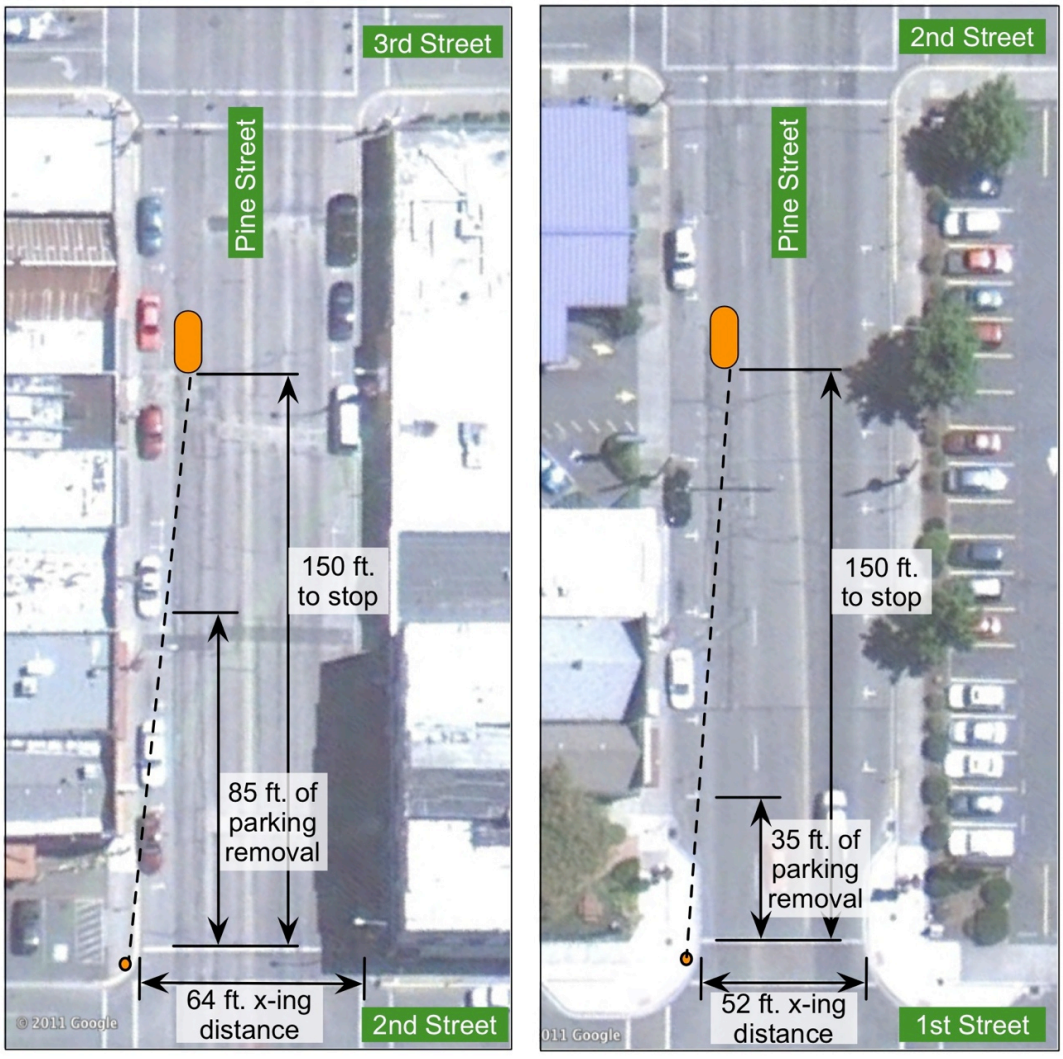


Figure 11: The effect of curb extensions and parking removal on pedestrian visibility

Additional information on the trade-offs involving curb extensions can be found in the appendix.

Summary of Pedestrian Conditions

Table 7 lists the benefits for pedestrian travel in the East Pine Street corridor associated with the recommended treatments and compares the Improved Four-Lane and Three-Lane alternatives. In summary, pedestrian conditions can be significantly improved under either alternative. Whether applied to the Improved Four-Lane or Three-Lane alternative, curb extensions provide a number of benefits for pedestrian safety and accessibility without need for lost parking. However, consideration should be given to the appropriate design for balancing pedestrian needs with motor vehicle needs.

Table 7: Summary of Pedestrian Benefits

	Improved Four-Lane Alternative	Three-Lane Alternative
Enhanced Crossing at 6th Street	**Good.** Improves pedestrian safety and visibility	**Good.** Improves pedestrian safety and visibility
Better Access to Enhanced Crossings	**Good.** Almost 20% improvement in accessibility of controlled/assisted crossings	**Good.** Almost 20% improvement in accessibility of controlled/assisted crossings
Visibility in Crosswalks	**Poor.** The multiple-threat crash risk will continue to exist	**Good.** The multiple-threat crash risk is significantly reduced
Benefits of Curb Extensions *(2nd Street through 5th Street)*		
- Visibility at Corners	**Good.** 45% improvement with no loss of parking	**Good.** 45% improvement with no loss of parking
- Reduced Crossing Distances	**Good.** 25% reduction	**Very Good.** 40% reduction
- Accommodating ADA ramps	**Good.** Ability to construct fully-compliant ramps	**Good.** Ability to construct fully-compliant ramps
- Reducing Right Turning Conflicts	**Good.** Slows traffic and creates a refuge in the corner	**Good.** Slows traffic and creates a refuge in the corner
- Accommodating Turning Vehicles	**Fair.** Cars can make turns, but trucks turns are very difficult	**Fair.** Cars can make turns, but trucks turns are very difficult
- Enhancing Transit Access	**Good.** Brings the curb out to the travel lane so passengers can pass directly between the sidewalk and bus	**Good.** Brings the curb out to the travel lane so passengers can pass directly between the sidewalk and bus
- Accommodating Street Amenities	**Good.** Creates significant amount of new space	**Good.** Creates significant amount of new space

Bicycle Improvements

The East Pine Street corridor currently has bike lanes west of 1st Street and east of 8th Street, but lacks bike facilities to connect the seven blocks in between. Two options are available for completing the bicycle route through downtown Central Point:

- Option 1: Reallocate width from a vehicular travel lane to provide two 5-foot bike lanes on East Pine Street all the way through the corridor.
- Option 2: Provide "bike boulevard" treatments on Manzanita Street and Oak Street for cyclists traveling east-west through downtown Central Point.

Option 1 is available only under the Three-Lane alternative, since it depends on removing a vehicular travel lane, while Option 2 may be implemented under either build alternative. Because bike lane standards, designs, and treatments are well documented in resources such as the Oregon Bicycle and Pedestrian Plan, the Oregon Bicycle and Pedestrian Design Guide[4], and the Manual on Uniform Traffic Control Devices[5], this section focuses on bike boulevard treatments.

What is a Bike Boulevard?

Bike boulevards, sometimes also referred to as neighborhood greenways, are typically streets with low traffic volume and speed that are optimized for bicycle travel through treatments such as traffic calming, signage, and pavement markings. These treatments create a shared roadway facility that is comfortable, convenient, and attractive to cyclists of a wide range of age and skill.

Bike boulevards provide several advantages over typical bike lanes, such as:

- Less noise and exhaust
- Less conflicting traffic
- Reduced speed differential between motor vehicles and bicycles
- Reduced risk of being "doored," (i.e., when an unaware driver opens the door of their parallel- parked vehicle into the bike lane)

Additional information on bike boulevard considerations for the corridor can be found in the appendix.

A variety of treatments could be used to convert these two streets into comfortable, inviting bike facilities. Suggested routes and major treatments, including wayfinding and new stop sign configurations, are presented in Figure 12.

[4] *Oregon Bicycle and Pedestrian Plan and Design Guide*, Oregon Department of Transportation, available at http://www.oregon.gov/ODOT/HWY/BIKEPED/planproc.shtml

[5] *Manual on Uniform Traffic Control Devices*, Federal Highway Administration, 2009, available at http://mutcd.fhwa.dot.gov/

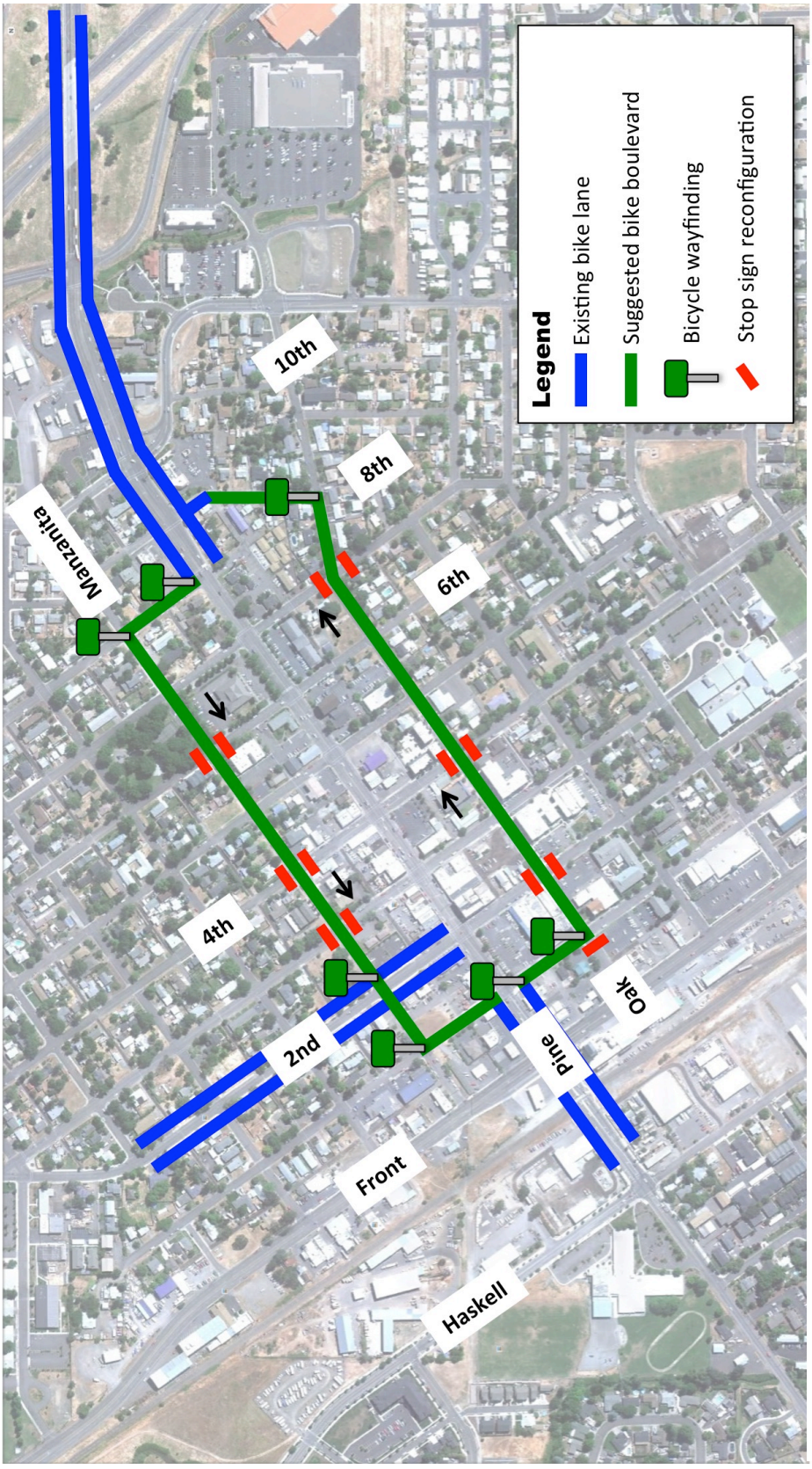
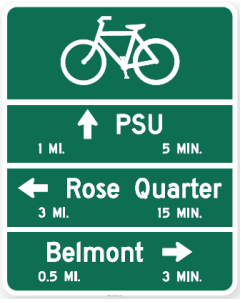
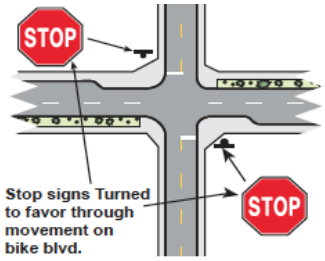


Figure 12: Bicycle Boulevard Treatment through Downtown Central Point

Bike Boulevard Treatments

This section presents some commonly used treatments that are recommended if an Oak/Manzanita bike boulevard is implemented as part of an East Pine Street project.

Sharrows Shared lane markings, or sharrows, are increasingly used on bike boulevards. Sharrows encourage cyclists to ride near the center of the street (away from the "door zone"), and they indicate to drivers where to expect cyclists. A bike boulevard treatment on the route indicated in Figure 15 would benefit from these markings along each block of Manzanita Street and Oak Street, as well as on the connecting streets.	
Wayfinding Signage is important for bike boulevards, because it indicates the preferred route for bicyclists and provides information on destinations and connections. Wayfinding would be particularly important on the suggested bike boulevard to ensure that cyclists are able to follow the connections to and from East Pine Street. This new signage would also provide directions to common destinations, such as the Bear Creek Greenway, Crater High School, and Twin Creeks.	
Stop Sign Reassignment Reassigning stop signs at local street intersections to prioritize movement on the bicycle boulevard reduces delay for cyclists, allowing continuous travel for the length of the route. Figure 15 suggests several locations along Manzanita Street and Oak Street where stop signs could be reassigned to improve the operations of the bike boulevard.	
Partial Non-Motorized Crossings These street treatments, also sometimes referred to as chokers or separators, calm and discourage through motor vehicle traffic on bike boulevards. This is important because reassigning stop signs to promote continuous bicycle travel can also encourage motorists to use the facility as a cut-through route. The traffic calming effects of partial non-motorized crossings make them an attractive treatment near areas that attract high pedestrian activity, and particularly children. This treatment would be suggested at 7th Street/Manzanita Street, near Pfaff Park, and at 2nd Street/Oak Street, near the public library.	

Bike Parking

East Pine Street today provides minimal bike parking, and any potential streetscape improvement should include additional parking facilities. This would be most easily done under the Three-Lane alternative with widened sidewalks, as this would allow for an enhanced "furnishing zone" between the sidewalk and the curb, which is typically where bike racks are located.

Summary of Bicycle Conditions

Table 8 lists the benefits for bicycle travel in the East Pine Street corridor associated with the Improved Four-Lane and Three-Lane alternatives. In summary, bicycle conditions can be significantly improved under either alternative. However, while both build alternatives provide the opportunity to implement bike boulevard treatments on Manzanita Street and Oak Street, only the Three-Lane alternative provides the opportunity to implement complete bike lanes on East Pine Street or provide bicycle parking on wider sidewalks without obstructing the walkway.

Table 8: Summary of Bicycle Benefits

	Improved Four-Lane Alternative	Three-Lane Alternative
Bike Access along East Pine Street	**Poor.** Not feasible to implement bike lanes	**Very Good.** Provides opportunity to implement connected bike route connecting directly to downtown destinations
Travel Time between Front Street and I-5	**Good.** If bike boulevard is implemented, cyclists will experience reasonably short travel times	**Very Good.** If bike lanes are implemented, provides the shortest possible travel time
Cyclist Comfort	**Very Good.** Bike boulevards are generally perceived to be more comfortable and attractive to a wider range of potential cyclists than bike lanes	**Very Good.** Same benefit as Improved Four-Lane if bike boulevard is implemented
Increased Bike Parking	**Good.** New parking may be constructed on curb extensions or other reallocated sidewalk space	**Very Good.** If sidewalks are widened, increased room in the furnishing zone is available for additional bike parking

Transit

Significantly improving transit service on the corridor would likely include providing an eastbound route along East Pine Street and a higher frequency of buses in the corridor. Such improvements are generally driven by demand, which could increase with higher density development in the area and increased activity in the downtown. While these types of service improvements are not within the scope of this study, the safety and efficiency of bus travel through the corridor was assessed for the future alternatives.

Key elements affecting bus operations on East Pine Street include:

- Reliability of corridor travel times to help maintain route schedules
- Accessibility of bus stops along East Pine Street
- Accessibility of the Park and Ride on 2nd Street at Manzanita Street
- Ability to provide amenities at stop locations

Reliability of Corridor Travel Times

Levels of congestion along East Pine Street under the Improved Four-Lane and Three-Lane alternatives were estimated to be very similar and travel times between I-5 and Haskell Street would be nearly identical. Both alternatives provide significant improvement over No-Build conditions, but neither provides an advantage over the other in this regard.

Accessibility of Bus Stops

Bus stop accessibility can be understood both in terms of the accessibility for the bus as well as for the riders.

Under the Improved Four-Lane alternative, buses can continue to serve stops on East Pine Street as they do today. When a travel lane is blocked by stopped buses, cars can still maneuver around them in the adjacent travel lane. Also, when buses stop in a travel lane, there is no need to merge back into traffic as they depart.

Unless parking is prohibited around bus stops during operating hours, buses cannot pick up or drop off riders at the curb, forcing riders to walk between parked cars. This is uncomfortable for most riders and potentially impossible for others with disabilities. Parking around the stop between 5th and 6th Streets is currently unrestricted.

This condition could be mitigated by:

- Creating a bus pullout to allow the bus to reach the curb (eliminates approximately seven parking spaces or nearly an entire block),

Safe and comfortable boarding and alighting occurs directly from the sidewalk

- Constructing a mid-block curb extension to bring the sidewalk to the bus (eliminates up to two parking spaces)[6],
- Moving bus stops to corners and constructing a curb extension to bring the sidewalk to the bus (eliminates up to two parking spaces), or
- Constructing a mid-block wheelchair ramp at the bus stop and eliminating up to two parking spaces to allow pedestrians to pass between the curb and the bus (both front and back doors).

Constructing a bus pullout would eliminate a considerable amount of parking, which would be undesirable. If curb extensions are used, it may be best to relocate bus stops to the corners so they are near crosswalks. Also, if curb extensions at corners are already desired to assist pedestrian crossings, they could also serve bus stops to avoid additional parking removal for mid-block curb extensions. Use of mid-block stops and wheelchair ramps would be less desirable for pedestrians, but may allow the lost parking stalls to be used during evening hours when buses are no longer running.

Under the Three-Lane alternative, buses stopped in travel lanes will also require all following cars to stop. A discussion of possible mitigations is included in the appendix.

Accessibility of the Park and Ride

Providing a traffic signal on East Pine Street at 2nd Street could improve accessibility of the Park and Ride lot, especially if potential future eastbound bus service requires buses to turn left onto East Pine Street from 2nd Street. Having the traffic signal at 2nd Street would also improve accessibility of the Park and Ride lot for pedestrians.

The construction of curb extensions on East Pine Street at the 2nd Street intersection would make bus turns more challenging. Therefore, curb extensions at this location may not be desirable.

Providing Amenities at Stops

The ability to provide amenities at bus stops along East Pine Street, such as shelters and benches, would be improved by any alternative that widens the sidewalks. Sidewalks cannot be significantly widened under the Four-Lane alternative, although sidewalks are already eight feet wide in the downtown and are able to accommodate benches. Under the Three-Lane alternative, sidewalks could be widened by up to five feet each, creating a useful amenity zone with the potential to accommodate a shelter.

Summary of Transit Conditions

Both alternatives can provide reliable travel times along East Pine Street and generally improve the accessibility of the Park and Ride lot on 2nd Street at Manzanita Street. The ability of the Three-Lane alternative to include wider sidewalks could provide more space for larger transit amenities such as covered shelters.

[6] Rogue Valley Transportation District has indicated this would be their preferred option. A mid-block curb extension would need to be between 20 and 25 feet in length to allow use of both front and rear doors.

The greatest difference between the two alternatives is that stopped buses on East Pine Street will only partially block traffic under the Improved Four-Lane alternative, while all traffic would be blocked under the Three-Lane alternative. However, the impact on traffic flow from the temporarily blocked lane would be infrequent.

Both alternatives should include improvements to safely get pedestrians from the sidewalk to the bus. Use of curb extensions may be the most efficient way to accomplish this (in terms of parking preservation) if provided at the corners where they could also enhance pedestrian crossings. Also, considering that many transit riders are also pedestrians before and after the bus ride, the Three-Lane alternative would help make bus stops more accessible by making East Pine Street crossings easier.

Table 9: Summary of Transit Benefits

	Improved Four-Lane Alternative	Three-Lane Alternative
Reliability of Travel Times	**Very Good.** Corridor congestion is low	**Very Good.** Corridor congestion is low
Bus Stop Impact on Motor Vehicle Travel	**Good.** Stopped buses will partially block traffic, but a second lane will remain open	**Fair.** All traffic will be blocked when buses stop, but the occurrence would be infrequent
Bus Stop Accessibility for Pedestrians	**Fair.** Use of curb extensions would help pedestrians access buses	**Good.** Use of curb extensions would help pedestrians access buses and a narrower East Pine Street would make crossing the street to reach stops easier
Accessibility of Park and Ride	**Good.** A signal at 2nd Street will improve access to the Park and Ride for all modes of travel	**Good.** A signal at 2nd Street will improve access to the Park and Ride for all modes of travel
Accommodating Amenities at Bus Stops	**Fair.** Benches can and are provided, but larger amenities such as shelters may not fit within sidewalks	**Good.** If sidewalks are widened, it may be possible to accommodate more amenities such as shelters

Streetscape Design

Developing a new design concept for East Pine Street is an opportunity to identify solutions for recognized problems with the current configuration and conditions, and to address aspirations for revitalization of the downtown area. The following challenges were key to initiating the project, and confirmed by technical analysis and community input.

- **Vehicular Safety.** Traffic often moves at a fast rate and motorists change lanes frequently to avoid vehicles making left-hand turns. Intersections along this corridor have the highest crash rates in the City.
- **Pedestrian Safety.** Pedestrian crossing on Pine Street can be difficult and dependent upon drivers observing pedestrians and stopping to allow them to cross. This is a critical safety issue for Crater High School and Central Point Elementary School students crossing the street.
- **Bicycle Safety.** There are limited bicycle facilities on Pine Street even though it is a designated bicycle route. Cyclists must ride in the flow of automobile traffic resulting in greater risk of bicycle-vehicle collisions.
- **Sidewalks and Storefront Activity.** Existing sidewalks are narrow, which limits the ability to implement a streetscape design that will make the downtown area more attractive.

Design Considerations

In developing designs for streetscape alternatives, a key objective was to create a true Main Street design – one that recognizes the need for safe and efficient operation of vehicles, while striving to balance transportation choices and improve mobility for everyone. See the information on Complete Streets best practices in the Introduction and Background chapter for more information. While the streetscape design alternatives considered for East Pine Street generally incorporated these best practices, bicycle travel was accommodated somewhat differently.

Bicycle Travel

None of the streetscape alternatives include a dedicated bike lane on Pine Street. Instead, each alternative recommends the use of shared lanes (sharrows) with appropriate markings in the outside lane. Pavement markings let motorists know to expect cyclists on the street and remind cyclists not to ride too close to parked cars whose doors may unexpectedly open.

While sharrow pavement markings are a nationally recognized form of traffic control for public streets and are described in the Oregon Driver Manual, their use may be new to Central Point. If early experience suggests motorists and bicyclists are not understanding the message being communicated by these symbols, it is recommended that an education campaign be employed.

In addition to sharrows, bike routes are recommended on Oak and Manzanita Streets for cyclist traveling east-west through downtown. These are low-volume streets and could be

designed for efficient bike travel by reassigning stop signs to the north-south streets. Removal of a travel lane or on-street parking would not be required.

Streetscape Alternatives Considered

The streetscape design alternatives illustrated on the following pages explore options to make Pine Street a street for everyone; balancing the needs of traffic capacity and operations, and the needs of bicyclists and pedestrians. Recommended design elements are also intended to satisfy the stated local aspirations for a more attractive streetscape through incorporation of amenities such as street trees, ornamental lighting, and street furniture. The alternatives also reflect challenges previously noted, and the technical analysis confirms it is operationally feasible to reconfigure a portion of Pine Street from four lanes to three lanes. Careful attention has been given to the need for safe travel for all modes, and to accommodate emergency vehicles and oversized vehicles such as buses and freight. On-street parking is retained in each alternative and several measures are proposed to improve vehicle safety and operations.

Alternative A: 1st Street through 6th Street

Retains the current four-lane configuration and travel lane widths, with sidewalks remaining at current widths.

Alternative B: 1st Street through 6th Street

Retains a four-lane configuration but with a one-foot reduction in lane widths, which allows for the construction of slightly wider sidewalks.

Alternative C: 1st Street through 6th Street

Assumes the reconfiguration of Pine Street as a three-lane roadway in this segment, with one travel lane in each direction and a continuous center turn lane. This would allow for a significant widening of the sidewalks.

7th Street through 10th Street Improvements

For each alternative, sidewalk improvements could occur in this segment by obtaining up to two-feet of additional right-of-way or easements from the front yard setbacks of existing properties. In Alternative C, the 8th Street to 7th Street block would be used as the transition from four to three lanes.

This corridor refinement plan determined that the preferred streetscape alternative for 1st through 6th Street is Alternative B, the four-lane cross section with widened sidewalks. The improvements for 7th Street through 10th Street are included as part of the recommendation.

The Preferred Streetscape Alternative

This section describes the recommended design elements of Alternative B, including improvements through 10th Street.

Cross Section Elements

Roadway and Intersections

Four travel lanes would be maintained but their widths would be reduced to 11 feet by constructing new curbs that are moved 2 feet into the existing roadway on each side. As with Alternative A, intersection bulb-outs are recommended at 3rd Street, 5th Street, and 6th Street to improve pedestrian visibility and crossing. (See Technical Memorandum 4 in the appendix for more information on turning radii and other bulb-out design considerations.) No mid-block bulb-outs are included with this alternative since street trees can be accommodated in the wider sidewalks. Intersection bulb-outs are not recommended at 2nd Street and 4th Street in order to better accommodate truck and bus turning movements. Specially paved crosswalks should be added at each intersection, using durable concrete materials rather than stamped concrete or thermoplastic treatments.

Intersection bulb-out

Sidewalk and Amenity Zones

Sidewalk and amenity zone widths would be increased to ten feet total as a result of reconstructing the curbs. This width provides the minimum conditions for Main Street design. The amenity zone has been increased to four feet, which will support street trees and other street furniture. The six foot sidewalk width is the functional minimum for two people to comfortably walk side-by-side, but is still constrained for outdoor seating and sidewalk business displays. Sidewalks should be reconstructed to a consistent finish and pavement detail throughout.

Street Trees and Furniture

Street trees could be located in small tree wells (approximately four feet by eight feet) that could be planted or finished with pervious concrete pavers set in sand to allow water infiltration to the zone. Root barriers are also recommended for each tree. Other furniture such as bike racks, benches, and vending machines may now be located in the amenity zone.

Trees in pavers

Street Lighting

All existing street lights should be replaced by ornamental street lights to match those already in place between Front Street and 1st Street. Use two poles per corner at each intersection and one pole on each side of the street at mid-block locations. Light pole locations should avoid car doors in relation to parking stalls.

Parking Zone

One space would be lost to the enhanced bus stop at 6th Street. Street corner curb bulb-outs at intersection will not reduce on-street parking.

Bicycle Facilities

Painted sharrow markings on East Pine Street and bike racks located within the intersection bulb-outs or the wider sidewalk amenity zone are recommended enhancements to supplement marked bike routes on Oak and Manzanita Streets. Sharrows should be installed in the outer lanes at spacing of 50 to 100 feet, or about 2-3 per block.

How Do the Elements Fit Together?

While the recommended alternative retains four travel lanes on East Pine Street, the improvements shown above combine to provide significant enhancements to the street's character and livability. Figure 13, below, and Figure 14 on the following page show how the recommended elements fit into the corridor and give a sense of how these improvements promote a Main Street character.

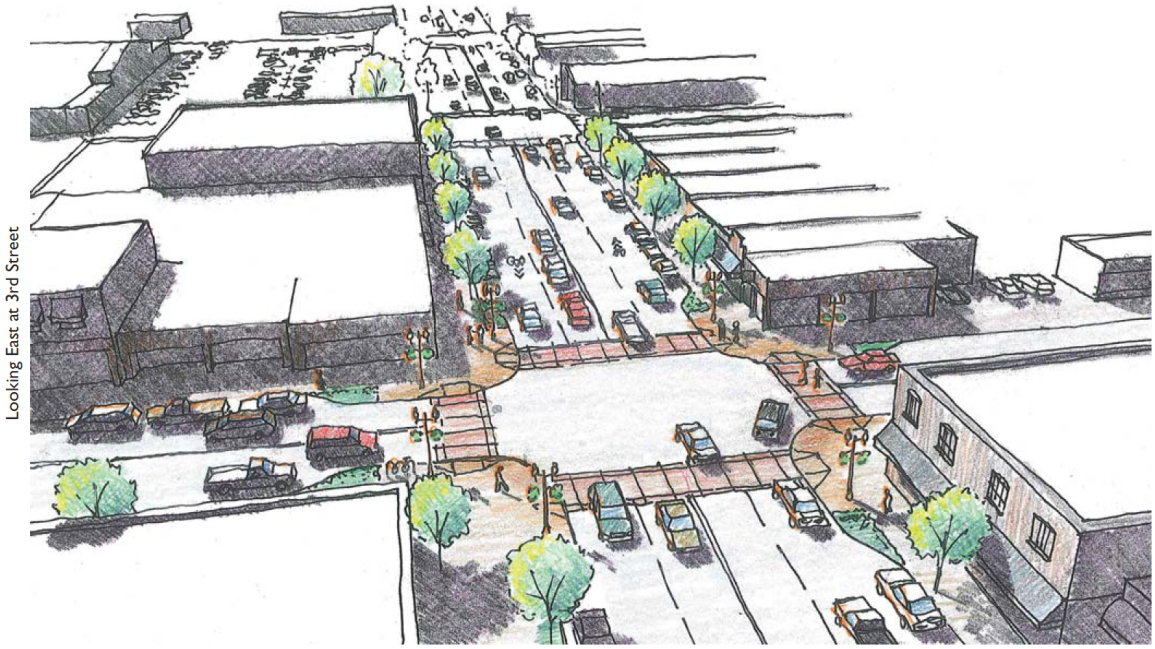


Figure 13: Rendering of Streetscape Alternative B

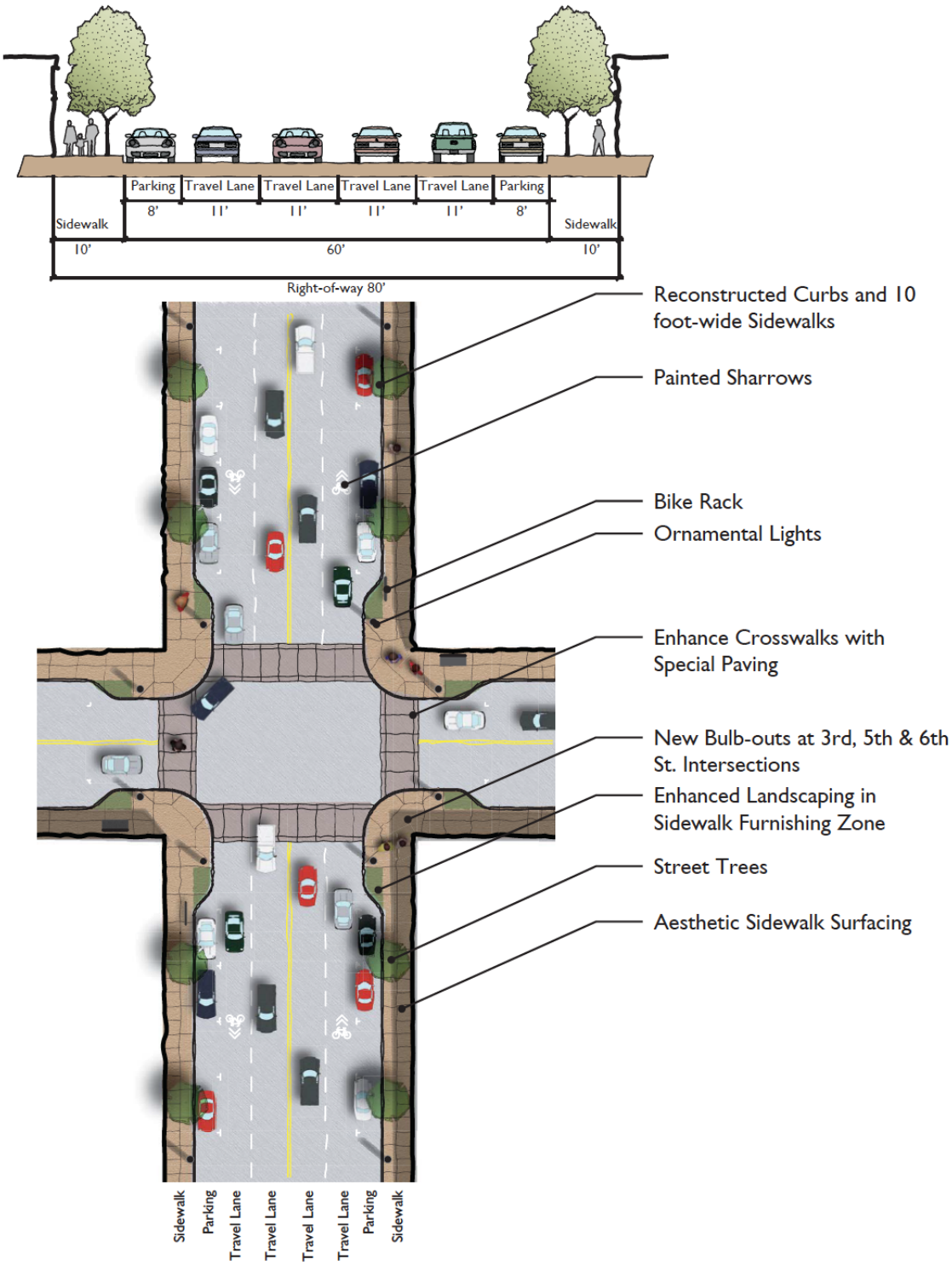


Figure 14: Alternative B cross section and streetscape elements

Enhanced Bus Bulb-Out on 6th and Pine Street

Transit service is likely to play and increasingly important role in Central Point. The existing bus stop at 6th and Pine Streets should be improved by:

- A street corner extended bulb-out of approximately 30-feet in length, sufficient to load front and rear doors of a bus
- A small shelter
- An ADA-compliant landing within the bulb-out and at the front door loading area.

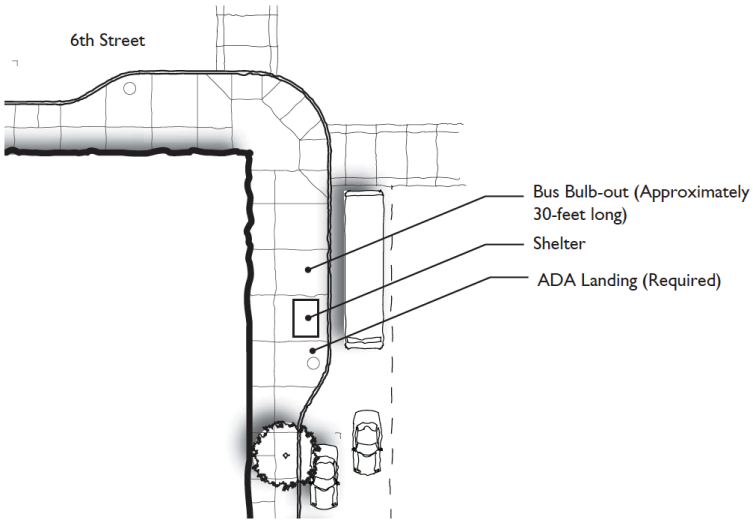


Figure 15: Enhanced bus bulb-out elements

Smaller bulb-outs should be constructed at the other three corners of the intersection with specially paved crosswalks. Improvements are illustrated in Figure 15, above.

2nd Street Roadway and Traffic Improvements

Additional improvements to vehicle operations can be achieved through removal of the existing traffic signal at 3rd Street, installation of a new signal at 2nd Street, and coordination of all signals on Pine Street. Figure 16, below, illustrates proposed changes for 2nd Street south of East Pine Street.

Figure 16: New 2nd Street lane configuration

Improvements on East Pine Street Between 1st and 2nd Street

In order to better facilitate vehicle traffic and to improve the sense of place at this location on East Pine Street, additional traffic operational improvements are proposed as well as a 2nd Street Pedestrian Plaza. These elements are discussed below.

Modified Striping

Installing a new traffic signal at 2nd Street requires some changes to the way eastbound travel lanes are striped on East Pine Street between 1st Street and 2nd Street. This is the location where the street widens from one lane eastbound to two. The additional lane, which currently begins just 25 feet west of 2nd Street, should be extended to 100 feet to improve queuing conditions. Figure 17, right, shows this concept.

Figure 17: Proposed restriping on East Pine Street between 1st and 2nd Street

Plaza

The 2nd Street Plaza was originally conceived while developing the Central Point Downtown Revitalization Plan. At one community workshop there was a strong consensus that a small plaza along Pine Street, adjacent to Ray's Food Place, would be a very desirable amenity. Ray's deli is busy during the lunch hour so a place for outdoor dining and a focal gathering point seemed plausible. The Plaza was designed into the public right-of-way to minimize the loss of on-street parking, and to retain all of the grocery store's parking. Landscaping, street furniture, art, and shade structures were all envisioned for the site.

Conceptual drawings of a potential plaza in front of Ray's are shown in Figure 18, below.

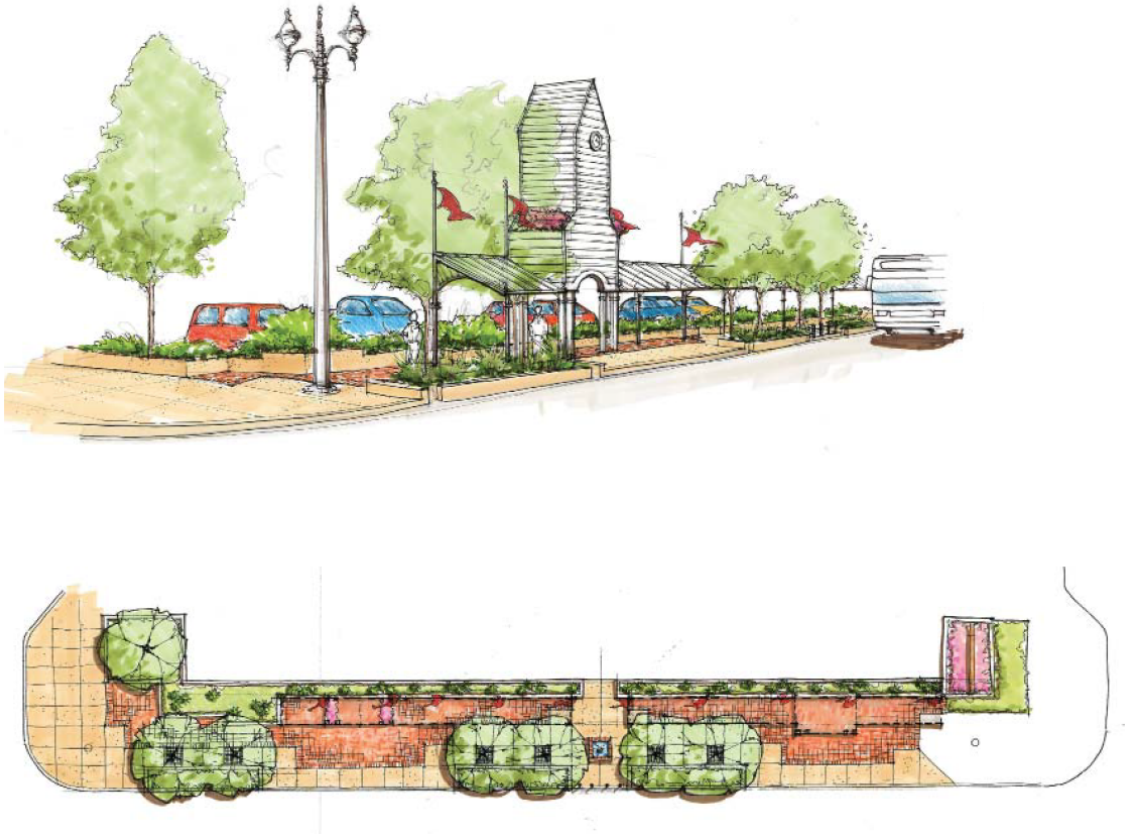
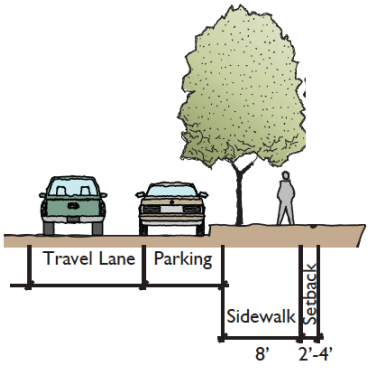


Figure 18: Conceptual drawing of 2nd Street Plaza

Pine Street Blocks 6th-10th Sidewalk Improvements

Beyond 6th Street, basic frontage improvements could be incrementally implemented as opportunities present themselves. Buildings along this section are setback, making it possible to widen sidewalks through additional right-of-way dedication. For these segments, no reduction in the width of roadway lanes, or in the number lanes, will occur. Existing sidewalks could be widened to 10 to 12 feet in width by acquiring additional right-of-way or easements from property owners with front yard setbacks between buildings and the current sidewalks. With wider sidewalks, street trees could be introduced into the streetscape. Improvements could occur with property redevelopment or as a series of smaller capital projects carried out by the City.



Implementation

Development of streetscape designs included planning-level cost estimates and recommendations for phasing of improvements. These are described below.

Planning-Level Costs

Estimates include probable construction costs of the key elements, a construction cost contingency, and estimates of mobilization and erosion control, construction survey, and temporary traffic control based on a typical percentage of construction costs. Also, an allowance for utility adjustments within the right-of-way has been made, as well as for meeting stormwater treatment requirements likely to be triggered by the reconstruction of impervious surfaces (e.g. roadway and sidewalks).

Modified Four-Lane Cross Section, 1st Street to 6th Street

The preferred cross section between 1st Street and 6th Street includes new sidewalks and curbs, along with new bulb-outs at three intersections. The curb line on each side of the street would be moved two-feet into the existing road surface. That would likely require partial to complete roadway reconstruction in the affected blocks, along with adjustments to the existing utilities and meeting stormwater treatment requirements. Allowances for those costs have been made. Ornamental street lighting, crosswalks, and extensive street tree planting have been assumed as well.

7th Street through 10th Street Improvements

Improvements in this segment consist of incrementally widening the existing sidewalk frontage through right-of-way acquisition or easements in the front yard setback of properties. These improvements could be completed on a property-by-property basis if redevelopment or building expansions occur, or as publicly funded capital projects. For informational purposes a probable lineal foot cost for frontage improvements has been included.

Cost estimates are shown in Table 10. More detail on cost elements is available in the appendix.

Table 10: Cost estimates for recommended projects

Improvement	Planning-Level Cost
Modified 4-Lane Cross Section (1st to 6th Street)	$2.1M to $2.2M
7th to 10th Street Improvements	$5,500 to $6,000 per linear foot

Potential Phasing

1st Street to 6th Street

The improvements between 1st Street and 6th Street could be constructed in two separate phases. A Phase I project could be 1st Street through 4th Street, which corresponds to the current downtown core, with the greatest density of business activity and continuous building frontage. Most participants in the walking tour conducted as part of this project said their feeling of being "downtown" was strongest in these blocks. Since corner bulb-outs are not recommended for the intersection of 4th Street, construction could be terminated at either the west or east side of the intersection without creating a dangerous misalignment of curbs.

A Phase II project would complete the improvements from 4th Street through the 6th Street intersection, making sure the curb bulb-outs were constructed on both sides of the intersection in order to facilitate safe vehicle and bike movements through the intersection.

6th Street to 10th Street Sidewalk Improvements

These improvements would likely be constructed as opportunities arise along individual property frontages and parcels are redeveloped.

2nd Street Plaza

Because the preferred alternative requires moving and reconstructing the existing curbs, the plaza project could not be completed prior to completion of the streetscape project. However, once the streetscape project is completed, with the new curbs in place, the plaza can be completed later as a separate project.