BCD | Bend Central District

APPENDIX D

Date: April 13, 2018
Project Name: Bend Central District Initiative
Memo: Recommendations for Residential Compatibility and Safety of Roadways in BCD
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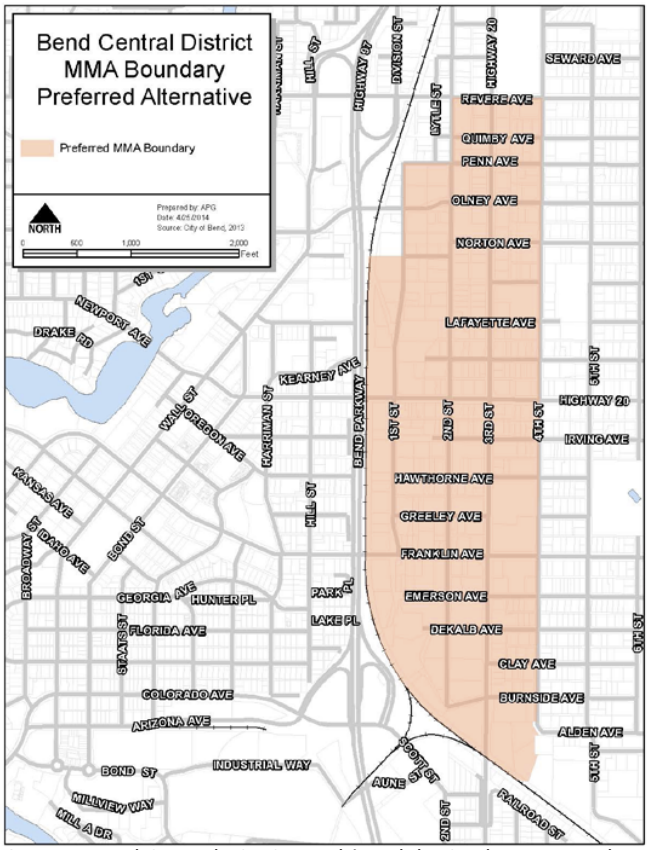
The purpose of this memorandum is to provide guidance related to the design and priority of roadways within the Bend Central District (BCD). This document is based on a review of existing plans, expertise from committee members, and input from the working group under the guidance of Central Oregon Land Watch's BCD Initiative.

REVIEW OF EXISTING PLANS

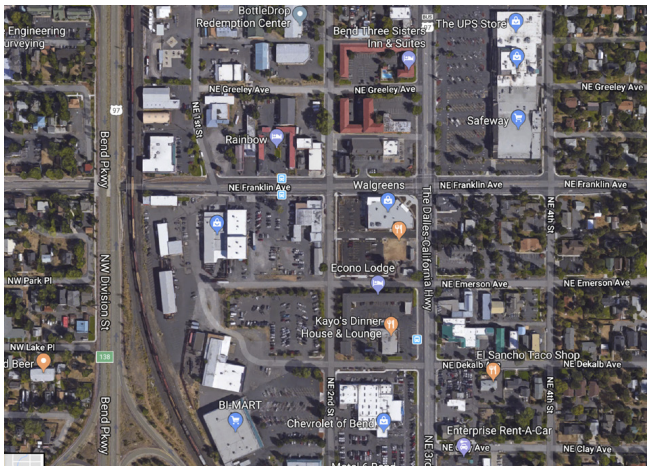
BEND MULTIMODAL MIXED-USE AREA (MMA) PLAN

For context, the Bend Central District planning was initiated through a joint effort between the City of Bend (City) and Oregon Department of Transportation (ODOT), with funding provided through the Transportation Growth Management program. The MMA study dated July 2014 implemented the new Transportation Planning Rule provisions within Section 10 of the Transportation Planning Rule (OAR 660-12-0060(10)) that went into effect on January 1, 2012. The purpose of the MMA designation was to encourage higher density uses in designated areas, and remove the transportation barrier effects by allowing higher levels of auto-congestion for tradeoffs related to multimodal travel and safety.

The Bend MMA reviewed the area from the Bend Parkway east to Fourth Street, and from Revere Avenue south to Burnside Street/BNSF mainline. The area encompasses 206 acres of land east of the downtown core. The plan was adopted as an "internal efficiency" measure as part of the Urban Growth Boundary Amendment process, as it provides increased land efficiency near the City core that limits the need for outward expansion.



Source: Bend Central District Multimodal Mixed Use Area Plan



Source: Google Earth Image - Impermeable Areas at Franklin Ave.

While the focus of the MMA plan was on land use and transportation, there are other inter-related issues within the Bend Central District. One issue is the high amount of impermeable areas and lack of green space within the district which creates high levels of runoff that drain to the low points in the corridor at the Franklin and Greenwood undercrossings. The City and ODOT have invested millions of dollars in addressing the flooding at these undercrossings, but with incorporation of streetscape elements these needs could be significantly reduced.

The lack of adequate infrastructure, lighting, landscaping, and separation as part of existing area streetscape treatments also relate to the desirability of the corridors and the District, which is especially prevalent at the Franklin Avenue undercrossing. Underground infrastructure improvement, repaving and stormwater projects could be linked and timed to share costs in order to achieve more streetscape elements with the BCD. (See attached March 5, 2018 Memorandum, Bend Central District, Streetscapes – Infrastructure Considerations from Jim Lord of Ashley & Vance Engineering, Inc.)

Additional City of Bend reports and studies support the findings and suggestions within this memorandum including the current update of Bend's Transportation System Plan (TSP) and Bend's Metropolitan Planning Organization's (BMPO) Metropolitan Transportation Plan (MTP) and the 2015 - 2025 Strategic Implementation Plan for Walking and Biking Infrastructure. For this memorandum, we reference the current TSP updates and adopted MPO information.

THE METROPOLITAN TRANSPORTATION PLAN

The Metropolitan Transportation Plan (MTP) is a multi-modal transportation plan designed to meet the anticipated 25-year transportation needs within the BMPO planning area boundary. The plan is a guide for the management of existing transportation facilities and for the design and implementation of future transportation facilities through the year 2040. It looks at how all the pieces should fit together and what other opportunities are available for a coordinated and contiguous system. The roadway element of the plan is emphasized in recognition that automobiles and trucks are the predominant mode of transportation today; however, the roadway element also plans for connectivity to other modes of travel. The roadway system provides for bicycle travel through the addition of upgraded urban streets with sidewalks and bike lanes or other provisions for safe bike travel.

Throughout the urban area, bicycle facilities and sidewalks are proposed for accessible and safe pedestrian and bicycle travel. In many cases, there are transit needs within the improvements designated for roadway improvements. All of these factors are critical when describing the transportation system. Other elements of the plan cover important aspects of the overall system including transportation system management (TSM), transportation demand management (TDM), freight, and safety.

TRANSPORTATION SYSTEM PLAN (TSP)

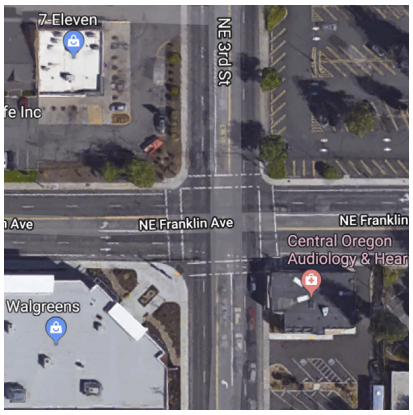
Oregon's Transportation Planning Rule (TPR) requires Oregon's larger communities, including Bend, to plan transportation systems and land use patterns that increase transportation choices and reduce reliance on the automobile. The preliminary findings of the TSP outreach supports upgrade of multimodal solutions and complete streets within the BCD. Primary concern expressed during stakeholder interviews on January 26th of this year are summarized in Bend's Transportation Plan: Stakeholder Interview Summary and '*reflect a desire for a transportation system that is safe, with robust multimodal options including a convenient and robust transit system*.' Stakeholders also cited the potential for '*better land use and transportation integration to create opportunities for more people to access community amenities, services, and meeting places without driving including the need for east-west connectivity generally, and specifically mentioned challenges related to access between downtown and the Central District.*' The benefits are many including improved health, environment, transportation cost savings and smarter growth.

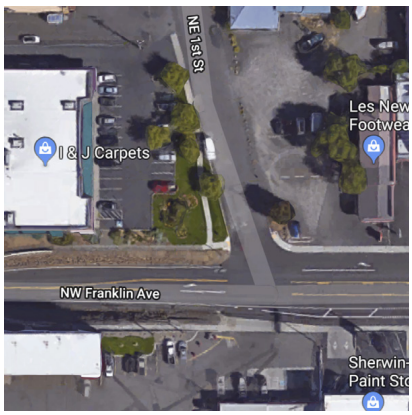
- **HEALTH** - More people having the option of walking and biking can improve individual and community health.
- **COST SAVINGS** - Being able to drive fewer miles because of a more complete street system, improved transit service and safer bike and walking routes can help families and businesses spend less on transportation.
- **ENVIRONMENT** - Increasing the numbers of people who walk, bike and take transit, or are able to drive fewer miles because of increased road connections (connectivity), reduces climate impact and improves air quality and water quality.
- **GROW SMARTER** - Our transportation investments support the areas where we want to grow, so Bend can keep up with the need for new housing (including affordable housing), businesses, parks and schools.

METROPOLITAN TRANSPORTATION PLAN (MTP)

This transportation safety element of the MTP identifies programs and plans directed at improving transportation safety in the MPO region and outline strategies the MPO can undertake. The Multimodal Traffic Safety Program Projects recommended in the MTP for the BCD are:

- Greenwood/1st Road Diet
- 3rd/Franklin Signal Modifications, Bike Crossing Improvements
- 1st/Franklin Road Diet, Bike Crossing Improvements

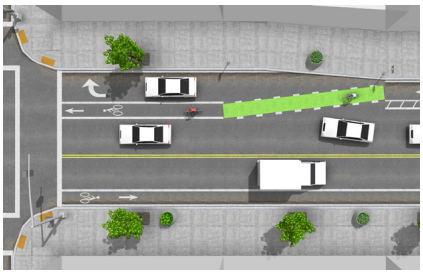




Source: Google Earth Image - Greenwood/1st; 3rd/Franklin; 1st/Franklin

2015 - 2025 STRATEGIC IMPLEMENTATION PLAN FOR WALKING AND BIKING INFRASTRUCTURE

Goals from the 2015 - 2025 Strategic Implementation Plan for Walking and Biking Infrastructure include continuous routes, comfortable and safe pathways and system changes in coverage by enhancing neighborhood 'accessways' to attract additional riders and pedestrians. Neighborhood accessways for the City generally use a geographic spacing for accessways on an interval of approximately every quarter-mile.



Source: NACTO, Urban Bikeway Design Guide,
Image 1 and 2, Cycle Track,
Image 3 Buffered Bike Lane,
Image 4 Bike Box,
Image 5 Intersection Bike and Pedestrian Crossing

Bikeway System

The preferred systems included separated trails; cycle tracks which are street level bike lanes separated from auto traffic by bollards or raised medians and from pedestrians by differing paving or raised walkways; wider and/or buffered bike lanes; lower street volumes and green bike boxes which are an intersection safety design to prevent bicycle/car collisions. It is a painted green space on the road with a white bicycle symbol inside and a green bicycle lane approaching the box placed closest to the signalized intersection, in front of automobile traffic. This allows bicyclist a safe waiting area and a chance to get through the intersection first.

It was recommended that the city incorporate bike system design techniques from the National Association of City Transportation Officials (NACTO) Bikeway Design Guidelines. https://nacto.org/publication/urban-bikeway-design-guide/

The proposed recommended improvements are divided into near-term, mid-term and long-term phases of implementation. The central core of the community including the BCD is recommended to be completed first before the outer portions of the community. Twenty-four separate bikeway corridors on arterial and collector roadways within the central core of the community were identified. Realizing that it would be difficult to deliver that many projects, the current strategy prioritizes just five corridors and identified those as Key Bikeway Corridors. Of those recommended, three were in the BCD including Franklin Avenue, Greenwood Avenue and Third Street.

The undercrossings at Franklin Avenue, Greenwood Avenue and Third Street are identified for improvements due to flooding and safety issues. Additionally, stormwater inlet grate condition on several of the central core corridors has been identified as an issue which is generally understood to be caused by overlays which over time have left the stormwater inlet grate low with an abrupt elevation drop that is hazardous particularly at night.

The issues are that a cyclist might be required to merge into the traffic lane for a short distance multiple times along the corridor as they cannot traverse directly over the sunken stormwater grates and that the elevation change catches riders off-guard and causes unexpected loss of control or ejection off their bike. Storm grate issues have been identified on Franklin Avenue near the Railroad Underpass.

Walking System

The city of Bend has established good mechanisms and policies to allow the creation of a successful walking system as the community grows. The existing as-built system however has significant gaps and safety issues which is a strong disincentive to attracting people to walking as a transportation mode of travel. Some of the system needs are very simple such as sidewalk and ADA ramp infill. Others are more complex such as multi-lane roadway crossings.

The Mid-town zone primarily provides good local street connectivity, however, there are a couple of locations where the gridded street system is not as comprehensive and connectivity parallel to the arterials is not readily available to use for a low stress route. In these cases, the BWIP committee identified the need for sidewalk construction along the arterial roadways including Franklin Avenue, Greenwood Avenue and Third Street. Of particular note was Franklin from Lava to Purcell. And a key roadway crossing was recommended at Greenwood and Third.

Franklin Avenue


Greenwood Avenue at Third Street


Crosswalk, Third Street at Greenwood Avenue

When reviewing the Project Priorities lists for both walking and biking facilities staff has noted that there is overlap between the projects for the two modes of travel. In order to improve the corridor for both modes with an integrated approach, staff has combined the biking and walking projects into a single corridor streetscape project. With a streetscape project, the designer will be able to more fully meet the desire to create an enhanced walking and biking environment through the use of landscaped parkstrips, illumination, enhanced roadway crossings, buffered bike lanes, protected bike lanes, etc. Franklin and Greenwood are both identified as such. Additionally, Franklin and Greenwood are also part of the existing transit system with routes #2, #10 and #11 on Franklin Avenue and #3 on Greenwood Avenue which creates a need for comfortable and safe transit stops, leading to the creation of a 'complete street'.

BEST PRACTICES FOR COMPLETE STREETS

Source: City of Orlando, FL, Rendering via www.ca-city.com

A 'Complete Streets' approach integrates people and place in the planning, design, construction, operation, and maintenance of our transportation networks. This helps to ensure streets are safe for people of all ages and abilities, balance the needs of different modes, and support local land uses, economies, cultures, and natural environments. A complete street may include: sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable and accessible public transportation stops, frequent and safe crossing opportunities, median islands, accessible pedestrian signals, curb extensions, narrower travel lanes, roundabouts, and more.

The idea of 'complete streets', 'shared space' and 'rightsizing' of streets is receiving more and more attention. However, not all rightsizing, and not every traffic calming measure or "road diet" leads to shared space. While important, these efforts generally deal only with traffic—slowing it down or discouraging car use—but they often lack the other key element: place. Shared space is just as much about the people traveling through the area as it is about the people living and working there. Streets are vital public spaces and the "humanization" of the road frees up space for non-traffic functions as well. While the level of sharing of the street can vary depending on the interaction between travel modes and the streets place in the overall transportation network, generally shared space fosters civility and interaction between modes, which enables users to move safely through the space using social cues rather than assigning right-of-way to one mode over another.

Of course, an important function of streets is also to facilitate travel from one place to another. But many of the streets in our communities - especially those in the BCD - can be so much more than just a conduit for traffic. The streets within the BCD don't just function by transporting people and goods, but play the vital role in animating the social and economic life of the community.

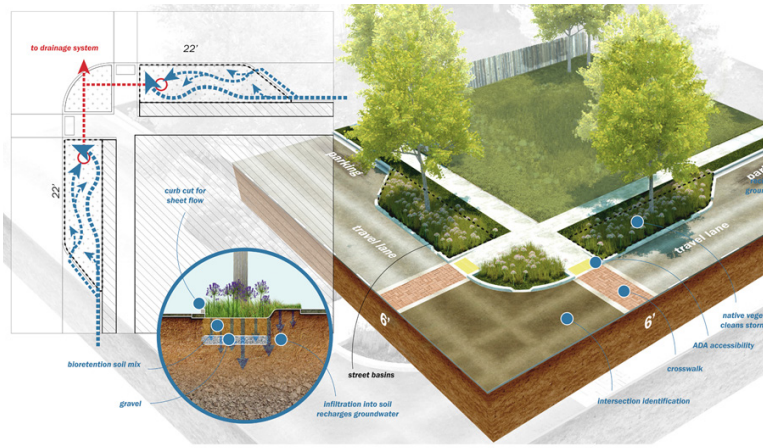
It's about owning and reclaiming the streets, participating in civic life, and having a direct impact on how the public spaces look, function, and feel. And it is about creating a sense of place and means of travel within one of the best areas for more affordable, higher density residential in the City of Bend.

Rightsizing is the process of reallocating a street's space to better serve its full range of users. By improving safety, especially for people walking or biking, and by increasing space devoted to people, rightsizing projects cause vehicles to slow down and people to spend more time outside on the street. This is great for people who live in the street's vicinity, businesses that line it, and those who travel through it. "Complete Streets" may not be complete enough. Great streets build communities as well as provide ways of connecting great places within the community together – BCD to downtown to Old Mill and beyond.

The idea that nature is also infrastructure isn't new. But it's now more widely understood to be true. Nature can be harnessed to provide critical services for communities, protecting them against flooding or excessive heat, or helping to improve air and water quality, which underpin human and environmental health. When nature is harnessed by people and used as an infrastructural system it's called "green infrastructure."

Green infrastructure can be a centerpiece of smart planning, ensuring that Bend has and can retain its livable environment, with clean air and water, for generations to come. Green infrastructure can be incorporated into transportation networks by respecting the existing hydrological and ecological functions of the land. Through the use of permeable pavements, vegetated bioswales, and bioretention devices, green streets reduce flooding and water pollution by absorbing and filtering stormwater.

Green, complete streets create a diversity of transportation options, balancing a history of automobile-centric street design in balance with opportunities for cyclists and pedestrians to safely and healthfully move through communities.



Source: EPA Website - Green Infrastructure

This can be done in many ways. Bicycle lanes could be designed with a vegetated buffer to protect bicyclists from cars. Pedestrian safety is increased by using traffic-calming techniques, such as reducing the width of vehicle lanes and creating green infrastructure bump-outs from the sidewalks. Wider sidewalks are compliant with the Americans with Disabilities Act (ADA) and create opportunities for pedestrian interaction and a more dynamic and robust public street life.

These green streets are also much healthier. According to a study from the Harvard School of Public Health, cyclists on a green bike path separated from vehicular traffic saw the least exposure to pollution from vehicles, an effect increased both by distance from cars and the green buffers. Complete streets enable people to walk more easily, too, improving mood and general health.

Protected Bikeway and Crossing

Street trees should be greened and planted with plenty of room for roots to expand to keep them strong and healthy. Structural additions such as Silva Cells could be used around the roots to displace load impacts from the sidewalk above and provide stormwater retention during heavy rain events. Energy-efficient lighting should be placed below the tree canopy to provide better visibility and safety at night. Interpretive signs at key locations also helps educate passersby about these innovations. Urban greening within our streets has many benefits:

ENVIRONMENTAL BENEFITS
- Reduced air temperatures
- Improved air quality
- Carbon sequestration
- Improved watershed function
- Habitat creation

ECONOMIC BENEFITS
- Increased property values
- Savings to city through watershed management
- Decreased energy costs

SOCIAL BENEFITS
- Increasedrecreational opportunities
- Enhanced sense of community
- Reduced crime, increase safety
- Reduced noise and stress

Source: Vallier Design Associates, Inc. Urban Greening Master Plan

EXISTING CONDITIONS: STREETS IN THE BEND CENTRAL DISTRICT

SYSTEM HIERARCHY

The hierarchy of roads is often described from the vehicular perspective as the balancing of mobility and access. Highways, expressways, and arterial streets are focused on throughput and aim to limit the "turbulence" of access. Local streets are developed for individual property access, with numerous access points. The multimodal dimension of the roadway hierarchy is often the reciprocal of vehicle capacity, where wider and higher-speed facilities are typically less comfortable, provide fewer crossing opportunities, and higher levels of stress. Multimodal travel benefits from limited access, however, as it provides fewer conflict points for cyclists and pedestrians to navigate.

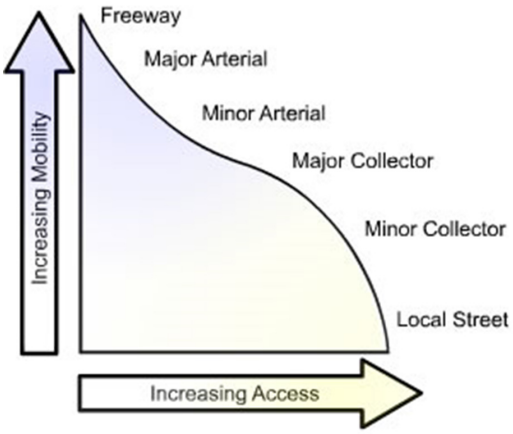


Figure 1. Federal Highway Administration Access Management Concepts

The roadway hierarchy within the Bend Central District Plan identifies a desire to divide and improve on the many roles the Third Street corridor serves within the district today. These roles include serving as the primary US 20 connection, access to multiple commercially-zoned properties, a parallel route to the access-controlled Bend Parkway, and as a scarce north-south primary transportation arterial due to the alignment and location of the Burlington Northern Santa Fe railroad mainline.

The MMA land use plan provides cascading densities of residential and commercial uses that range from 6 to 7-story buildings alongside the parkway to eventually transition into the existing residential scale east of Fourth street. To serve this density with a multimodal system an improved grid system was identified. This system will continue to rely on the limited connections that are available across the railroad and parkway alignments. Key elements of the plan include a desire to integrate the parallel routes of Second and Fourth Streets to help serve as more comfortable and accessible routes through the district that can provide a complete bicycle and pedestrian network through the district. This includes improvements along Third Street as well as development of more comfortable parallel routes outside of the US 20/Business 97 highway corridor.

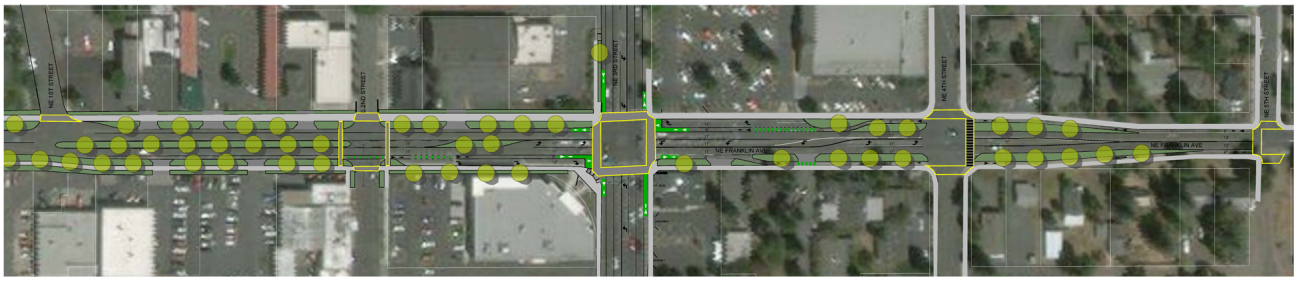
Source: Bend Central District Multi-Modal Mixed Use Area Plan

RECOMMENDATIONS FOR ROADWAY DESIGN IN THE BEND CENTRAL DISTRICT

FRANKLIN AVENUE CORRIDOR

This section describes recommended cross-sections for roadway facilities within the BCD area.

The Franklin Avenue corridor is one of the most critical connections within the district. This corridor is likely to serve as the primary pedestrian and cyclist route between parks, schools, and the downtown core. It is recommended that projects on the Franklin Avenue Corridor be combined and designed together using Complete Streets best practices. The highest near-term priority along the Franklin Avenue corridor is to reduce the two eastbound travel lanes between Third and Fourth Streets to a single eastbound travel lane, which the City of Bend has planned along with a grind & inlay repave on Franklin from Third to Fifth Streets. This change will have limited impact on the system as only a single lane feeds into the corridor in all directions today. Priority elements to add to this design recommended by this working group include the following:



FRANKLIN AVENUE COMPLETE STREETS CONCEPT PLAN Source: Ashley & Vance Engineering, Inc. and Vallier Design Associates, Inc.

- Hardscape bulb-out treatments at Third Street that reduce the pedestrian crossing distance. Striping treatments alone maintain the same conflict area for pedestrians and can encourage higher travel speeds.
- Reallocation of the outside eastbound through lane to either landscape or parklet/hardscape/walkway. Landscape will provide additional stormwater catchment areas, allow parklets, or allow an extension of outdoor patio space from adjacent commercial uses. While on-street parking is a possibility, this is considered less desirable due to conflicts with bicycle lanes, increased hardscape.
- Consistent grade of sidewalks. The current curb-tight sidewalks result in pedestrians provided a lower priority than vehicles, with the inundating sidewalk grade. By providing additional landscape area the driveway slopes can be accommodated within the landscape area rather than within the sidewalks to create an ADA accessible walk with compliant cross slopes.
- If possible, consider the consolidation of business access driveways to reduce conflict points along the corridor. At these consolidated accesses, the additional landscape area allows driveway slopes to the street to be reduced as stated above.
- Modification of catchment basin inlet design to curb inlets to remove obstacles within the high-priority bicycle lane.
- Improve the pedestrian environment with landscaping, public art, wayfinding, and other amenities.

Design concepts prepared as part of the Bend Citywide Safety Project identify interim striping treatments that could help to reduce the cross-section. While this moves in the right direction and may provide a near-term option if additional funding is not available, the lack of hardscape treatments to reduce the crossing distance at key intersections, address area stormwater needs, and improve the streetscape along this critical corridor fall short of the Bend Central District goals.

FRANKLIN AVENUE FROM HILL STREET TO THIRD STREET

Currently there are no plans to improve the section of Franklin Avenue from Hill Street to Third Street, which is a gateway into the Historic Downtown. It has very poor pedestrian and biking facilities complicated by an underpass for the BNSF railroad and ODOT Parkway. This section should be considered for improvement along with the Third – Fifth Street project in order to improve the connection between east and west Bend and to signal the City of Bend's commitment to the MMA plan and the Bend Central District goals. Potential improvements:

- Reduce the two westbound travel lanes to one lane at Third Street. This change will have limited impact as it is already reduced to one lane at the underpass.
- From First Street to Third Street, extend the curb or add street parking (allowing for floating bus stations) and create a separated bike path and planter strips.
- Crosswalk with bulb outs at Second Street
- Prohibit left turn out and left turn into First street from the eastbound travel lane.
- Improve the angle and signage for pedestrians and bicycles at the First Street/Franklin intersection
- Improve the Franklin underpass by updating the approach to improve visibility to and within the historic rail bridge section of the underpass' pedestrian/bike paths with openings within reinforced the side support walls, adding lighting, signage, and safety features. (See Figures 2A and 2B for before and after visualization developed by Vallier Design Associates, Inc.) An option to further improve safety may be to structurally reinforce the bridge supports to preserve historic design elements along the top of the bridge and reconfigure the side supports to create wider, more open pedestrian/bike paths on both sides of the street and restricting bike traffic to the paths. The link from the Bend Parkway should be removed and the connection relocated to a more visible, safer location.
- Remove the merge feature at the Hill Street intersection, which currently requires pedestrians and bikers to go through the travel lane where cars have limited visibility and are not required to stop.
- Add parklets and other stormwater and place-making features, especially in the two paved right of way sections on the east and west sides of the Franklin underpass.

FRANKLIN AVENUE COMPLETE STREETS CONCEPT PLAN - First Steet to Third Street
Source: Ashley & Vance Engineering, Inc. and Vallier Design Associates, Inc.

FRANKLIN AVENUE COMPLETE STREETS CONCEPT PLAN - HILL STREET TO BEND PARKWAY
Source: Ashley & Vance Engineering, Inc. and Vallier Design Associates, Inc.

FRANKLIN AVENUE AT FIRST STREET
Source: Ashley & Vance Engineering, Inc. and Vallier Design Associates, Inc.

FIGURE 2A - FRANKLIN AVENUE LOOKING WEST FROM NE FIRST STREET INTO UNDERPASS – EXISTING CONDITIONS
Source: Vallier Design Associates, Inc.

FIGURE 2B - FRANKLIN AVENUE LOOKING WEST FROM NE FIRST STREET INTO UNDERPASS - EXAMPLE OF POSSIBLE IMPROVEMENTS
Source: Vallier Design Associates, Inc.

NE SECOND STREET AND NE FOURTH STREET SECTIONS

Second and Fourth Streets serve as parallel facilities to the Third Street corridor within the Bend Central District, and with relatively similar operating characteristics. Recently, the City of Bend approved updated cross-sections shown in Figures 3 and 4. These sections recognize that on these lower-volume and lower-speed roads the lack of a centerline stripe and use of shared roadways (as shown with the sharrow treatments) that could provide a desirable shared roadway section with the planned 25 mph design speed. These new cross sections went into effect on March 23rd, 2018

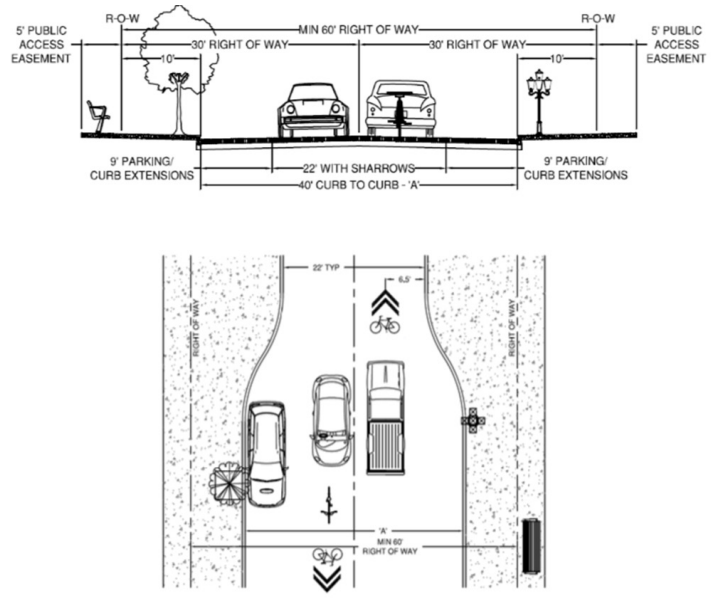


FIGURE 3 APPLIES TO FOURTH STREET NORTH OF GREENWOOD AVENUE
Source: City of Bend, OR

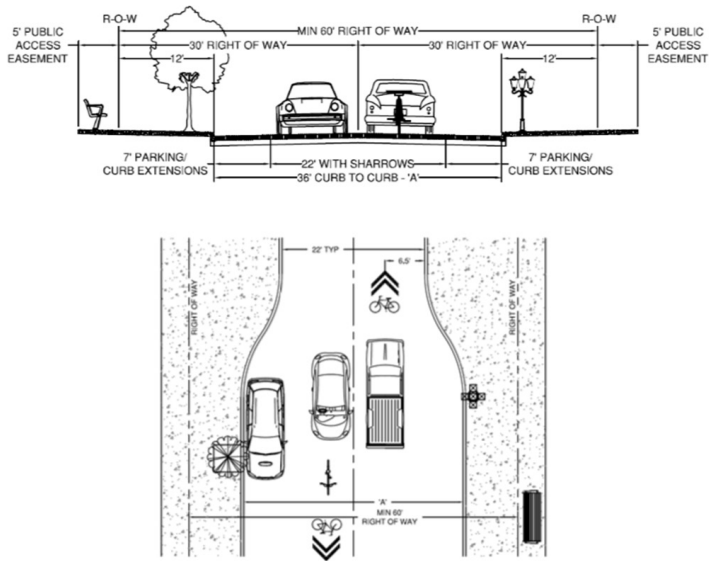


FIGURE 4 APPLIES TO SECOND STREET NORTH AND SOUTH OF GREENWOOD AVENUE,
FOURTH STREET SOUTH OF GREENWOOD AVENUE AND TO ALL LOCAL STREETS WITHIN THE BCD
Source: City of Bend, OR

The City of Bend has plans to repave Fourth Street from Revere to Burnside in 2018 and Second Street from Revere to Burnside in 2019. It is recommended that as part of this streetscape design, the following is considered:

- Centerline stripes are omitted along these local streets.
- Paint in sharrows, paint yellow curbs, painted buffers.
- On-street parking stalls are marked to better delineate the travel way from the parking area.
- Wide sidewalks are balanced with greenscape to address stormwater needs, particularly within the lower-density residential area along the east side of NE Fourth Street.
- Curb bulb-outs are considered at intersections to reduce crossing distances, delineate allowable parking areas, and encourage lower speeds (particularly during off-peak hours).
- When Second Street is repaved in 2019, consider implementing cross sections with sidewalks, landscaping, and bulb outs to catalyze development.
- Enhanced crossing treatments where these streets cross major auto routes.

Additional considerations should be incorporated into the Fourth Street plans, specifically surrounding the Norton Avenue corridor, as illustrated in Figure 5. Within this section the steep surrounding grades and retaining walls could significantly limit the ability to implement these sections. Within this area it is recommended that landscaping and alternative sections be considered to assist with the grade transition, particularly given the plans for multistory buildings on the west side of NE Fourth Street opposite the sunken grade and one-to two-story residential uses to the east.

FIGURE 5 - NE Fourth Street Section Facing South at Norton Avenue. Source: maps.google.com

Within this constrained area, on-street parking on the west side of NE Fourth Street alongside the retaining wall provides the least value to the surrounding area, as no access is available from the street to the adjacent properties. Within these areas, restricting parking to maintain continuous sidewalks would provide a higher benefit. Striped bicycle lanes in the uphill direction could also be beneficial given the more significant speed differential between cyclists and vehicles.

NE FIRST STREET CORRIDOR

The Bend MMA Plan did not identify a specific cross-section design for the NE First Street corridor. This facility is intended to serve the highest density of residential development, with building heights up to 85 feet, and a transition from the current industrial uses that may occur over several years. Given the area densities and uses, on-street parking will be a critical streetscape need to help meet the parking demands. However, with the connections to Franklin Avenue and Greenwood near the undercrossings this facility should allow but discourage auto use, and instead focus on routing these vehicles to the Second or Third Street corridors.

The recommended cross-section characteristics for First Street should prioritize pedestrian travel, accommodate a high capacity of on-street parking (potentially with angled parking) to support planned area densities, and encourage a low design speed of 15 mph. The varied right-of-way along this corridor provides design opportunities for parklets that can help to address area stormwater demands. With the highly variable cross-section width that ranges from approximately 35-feet to 200 feet where the right-of-way combines with BNSF property, identifying a standard cross-section may not be possible, and the facility design may need to take advantage of the adjacent right-of-way opportunities with an understanding of these priorities.

As the focus of NE First Street is to serve shorter-distance pedestrian travel, crossing treatments at higher-order east-west roads should be prioritized at the Second Street corridor as it is intended to serve the longer-range travel demands. Where First Street intersects with major east-west corridors the priority should be connecting to these facilities.

The City of Bend plans to repave First Street in 2020 and should create develop the plan and implement along with the repaving project.

CONCLUSION

One of the major catalysts for redevelopment in the Bend Central District will be improvements to the transportation system. Streets are the City of Bend's greatest public asset, but current conditions in the Bend Central District are not compatible with residential development.

The BCD Streetscapes Committee recommends the City of Bend incorporate streetscape improvements, including reduction of impervious surfaces, into existing plans to repave streets within the district. This has the potential to trigger private investment in housing and jobs in this area and create project efficiencies with planned projects, saving time and money. Implementing a complete streets approach also provides residents the positive benefits of fewer injuries and fatalities, improved public health and air quality, an enhanced a sense of community, and crime reduction.