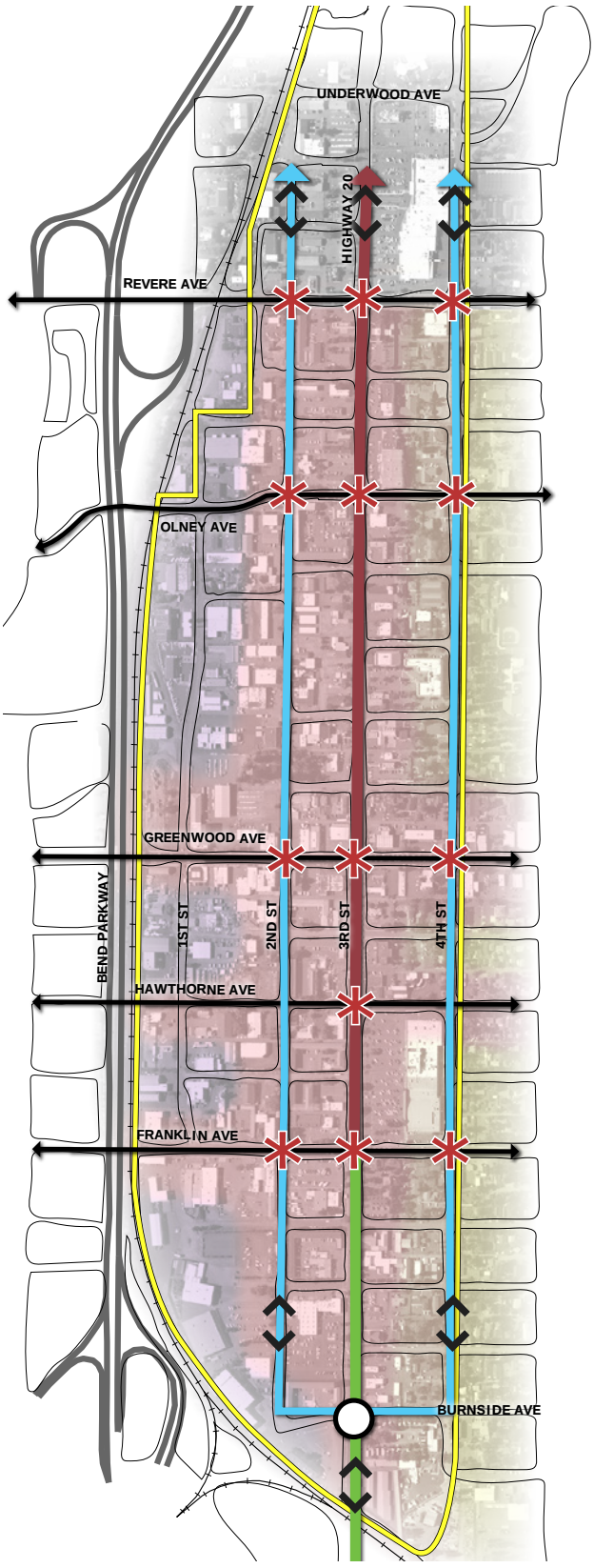
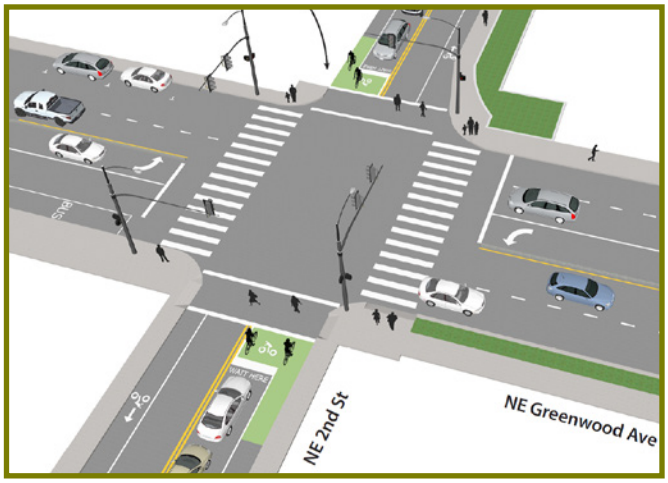
BEND CENTRAL DISTRICT MULTIMODAL MIXED-USE AREA PROJECT





Technical Memorandum 10
Draft MMA Findings

May 2014

TABLE OF CONTENTS

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETY-LU), a local government, and the State of Oregon funds.

PROJECT OVERVIEW

Introduction

THE CITY OF BEND has been awarded a Transportation and Growth Management (TGM) grant in order to develop a plan for the Bend Central District Multi-Modal Mixed Use Area (MMA). An MMA designation may be applied by local governments to downtowns, town centers, main streets, or other areas where the local government determines that there is:

- Potential for high-quality connectivity to and within the area by modes of transportation other than the automobile;
- A denser level of development of a variety of commercial and residential uses than in surrounding areas;
- A desire to encourage these characteristics through development standards; and
- An understanding that increased automobile congestion within and around the MMA is accepted as a potential trade-off.

The intent of an MMA designation is to help revitalize and facilitate future redevelopment in the area to create a vibrant district. An MMA plan also considers ways to improve the transportation system to support growth, with a focus on identifying necessary enhancements for people traveling in the area by bike, bus, car, foot, or freight truck.

This project builds on work previously completed for the Bend Central Area Plan (CAP) and focuses specifically on an area between the Bend Parkway and 4th Street and between approximately Revere and Burnside Streets. The MMA Plan to be prepared as part of this effort will look at ways to improve connections for people traveling in the area by foot, bike, bus, car, or freight truck. It also will look at ways to develop the area in the future to include a combination of housing, businesses, shops and other uses to create a distinct and vibrant district. For example, some community members have suggested that a portion of the area could become a new arts or cultural district for the City in the future. The project will define a potential MMA boundary and will include amendments to the Bend General Plan (comprehensive plan), Transportation System Plan (TSP), and Development Code to allow future land use changes and redevelopment in the MMA. While a primary purpose of this project is to lay the groundwork for establishing an MMA, applying an MMA in this area is not a foregone conclusion.

Project Goals and Objectives

The goals and objectives for the Bend Central District MMA have guided development, design, and evaluation of the MMA transportation and land use concepts and continue to inform recommendations about whether and how to implement future plans for the MMA. Two types of goals and objectives were established for the project. Project goals and objectives focus on establishing the MMA and ensuring a comprehensive and meaningful public involvement process. The study area goals and objectives focus on the design of transportation system that serves all users, creating a mix of land uses and supportive urban design concepts and development of a parking strategy and management plan for the area. A detailed list of all goals and objectives can be found in Technical Memorandum #3.

The goals and objectives also were used to develop a set of criteria for evaluating different transportation network alternatives for the MMA. That process is described in further detail later in this document.

Study area boundary map and description

Figure 1 shows the location of the Bend Central District (BCD). The BCD is adjacent to Bend's existing downtown core. It is roughly 206 acres in size, bounded by the Bend Parkway (OR 97) to the west, NE Revere Avenue to the north, NE 4th Street to the east, and the rail line to the south. This area is similar to the "3rd Street Corridor" described in the Bend Central Area Plan, but it does not include areas to the north of NE Revere Avenue or south across the railroad tracks. While it is centered on the 3rd Street Corridor, it should be considered a larger planning district that encompasses more than just the area along 3rd Street.

The BCD currently is zoned predominantly for commercial and industrial land uses. These zoning designations support 3rd Street's former role as US Highway 97, before the Parkway was built. However, these zoning designations may not allow the development flexibility needed to support the recommendations and vision in the Central Area Plan and the BCD project. This project will consider new zoning designations that will more fully support the goals and objectives identified for the BCD.

More information about existing conditions including comprehensive plan designations, zoning, and land uses can be found in Technical Memorandum #1.

Public outreach and Plan development process

The MMA planning process has been conducted through a collaborative effort among City of Bend and Oregon Department of Transportation (ODOT) staff, a consulting team, Project Team (PT), a Technical Advisory committee (TAC), the City's Planning Commission, City Council and other community members. City and ODOT staff worked with the consulting team to evaluate conditions in the study area and formulate land use and transportation recommendations. Two advisory committees - the PT and TAC - review and advise on key findings and recommendations. Other community members have also provided input on these options and recommendations via the project website, public workshops and other public forums. Staff and the consultant team have taken this feedback into account as they further refined project recommendations. Ultimately, the City's Planning Commission and City Council will review recommendations by staff and decide if and how to implement them.

At the outset of the project, the City of Bend established a public involvement program for the Bend Central District MMA project to ensure that the public, local businesses, residents and other stakeholders are educated about MMAs and have multiple opportunities to participate in the project's decision-making process. Public involvement events to date include the following:

- Project Team and Technical Advisory Committee meetings
- Three community workshops
- Articles in local papers
- Meeting flyers posted in a variety of public gathering places and local businesses in advance of each public workshop
- Meeting announcements via e-mails, select postcard mailings and notice in the Bend Bulletin
- Translation, special accommodations, and graphics were available upon request at all meetings (provided through City or partner agencies).
- Eight stakeholder interviews

Key components of the MMA Plan

This memorandum presents the recommendations for the MMA Plan, including the MMA boundary, land use and transportation elements, and implementation steps. To support and advance the MMA, the Plan proposes enhancements to multimodal conditions in the Bend Central District as follows:

- Near term pedestrian and bicycle projects
- Proposed transportation network, including conceptual street designs, intersection controls, and pedestrian, bicycle and transit strategies that could be implemented in the MMA
- Enhanced east-west bicycle and pedestrian connectivity
- Parking requirements and management
- Transportation demand management strategies
- Policy and code amendments to implement the Plan
- Other implementation strategies, including recommendations for further monitoring of state highway conditions as needed to address potential significant safety or mobility issues.

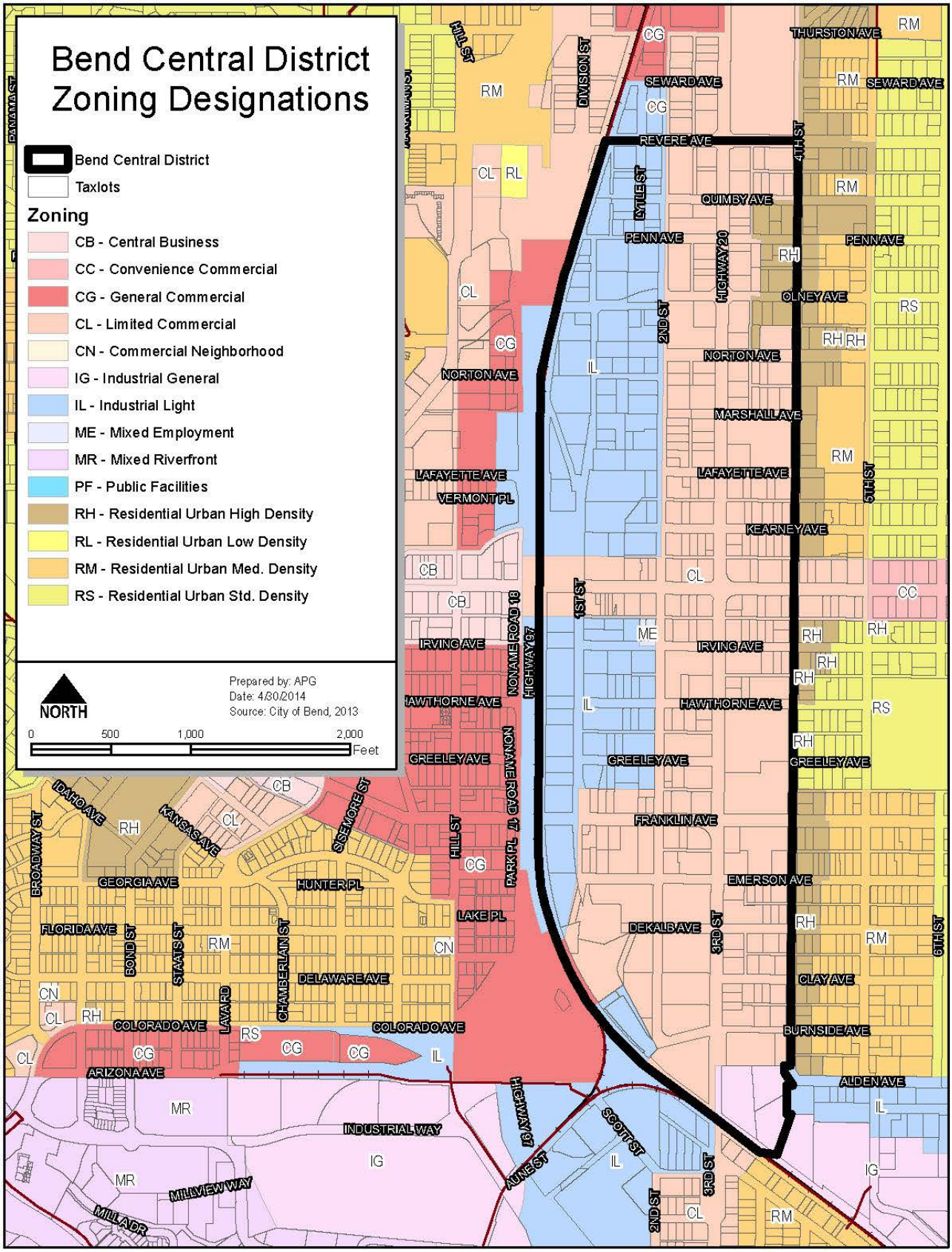


Figure 1 - Bend Central District and Zoning Designations

Table 1 - MMA Land Use and Other Requirements

❗	An MMA must meet each requirement in this column		
☐	MMA Boundary *(10)(b)(A)*		
☐	MMA entirely within a UGB *(10)(b)(B)*		
☐	Adopted plans & regulations that allow specified uses and require certain development standards: *(10)(b)(C)*		
	❗	An MMA must meet each requirement in this column	
	☐	Allow a concentration of a variety of uses, including: *(8)(b)(A)*	
		❗	An MMA must meet each requirement in this column
		☐	Allow medium to high density residential development at 12 units per acre or more *(8)(b)(A)(i)*
		☐	Allow offices or office buildings *(8)(b)(A)(ii)*
		☐	Allow retail stores and services *(8)(b)(A)(iii)*
		☐	Allow restaurants *(8)(b)(A)(iv)*
		☐	Allow public open space or private open space open to the public *(8)(b)(A)(v)*
	☐	Allow civic or cultural uses *(8)(b)(B)*	
	☐	Allow core commercial area with multi-story buildings *(8)(b)(C)*	
	☐	Require buildings and building entrances to be oriented to streets *(8)(b)(D)*	
	☐	Require street connections & crossings to access center *(8)(b)(E)*	
	☐	Require pedestrian-centric network of streets & ways within center *(8)(b)(F)*	
	☐	Require one or more transit stops in areas with transit service *(8)(b)(G)*	
	☐	Limit or prohibit low-intensity uses e.g. drive through services *(8)(b)(H)*	
☐	Do not require off-street parking, or require less parking than other areas *(10)(b)(D)*		
☐	Located at least ¼ mile from an interchange, adopted in an IAMP, or with concurrence *(10)(b)(E)*		
	❗	An MMA must meet at least one requirement in this column	
	☐	Located at least ¼ mile from an ramp terminal intersection *(10)(b)(E)(i)*	
	☐	Located within the area of, and consistent with an adopted IAMP *(10)(b)(E)(ii)*	
	☐	Written concurrence with the MMA provided by the mainline facility provider *(10)(b)(E)(iii)*	

MMA BOUNDARY RECOMMENDATION

MMA Intent and Requirements

The MMA designation was established as a way for Oregon cities to identify areas that are appropriate for compact, walkable, mixed-use development; and where it is possible for some state traffic restrictions to be lifted to help achieve these goals. Designation and application of a MMA requires cities to adopt a number of different design and development standards to attempt to ensure a future pattern of mixed use development within the MMA boundaries, consistent with the intent of a MMA. Table 1 summarizes those requirements.

Given those requirements, application of an MMA would have a number of different implications for existing and future land uses.

- Allow for a wide range of retail, commercial, office and other uses. This is generally consistent with the vision established in the CAP and consistent with the types of uses allowed throughout the existing CL (Limited Commercial) zone. Meeting this requirement would broaden the set of uses currently allowed in areas zoned as Light Industrial but generally would provide enhanced opportunities for existing and future property owners in those areas. For example, industrial users could establish associated retail uses and light industrial uses could continue to be allowed, including uses such as software development, computer sales and repair, bicycle and manufacture sales, beverage and food production and others.
- Provide for medium to high density housing and allow for residential development at a density of 12 housing units per acre or higher. This also is consistent with the CAP recommendations, which assumed housing development at substantially higher densities. Along the eastern edge of the BCD, this would represent a shift in density but would be consistent with the density currently allowed in the area zoned for high density residential between Norton and Quimby Avenues.
- Require less parking than in other areas. This would represent a shift in comparison to current development patterns but likely would be necessary to achieve the development projections assumed in the CAP. Reducing minimum requirements would likely benefit many property owners from a redevelopment cost perspective and would not preclude private property owners from providing more than parking than required. Unless the City establishes relatively aggressive maximum off-street parking requirements or requires construction of parking structures, requiring less parking in the MMA by itself would not be expected to adversely impact existing property owners.
- Assume a balance of land use and mobility goals. The City (and residents, workers and visitors) would accept a higher degree of congestion in this area as a trade-off for the ability to meet the land use goals and vision described here. It should be noted that a certain amount of congestion can be healthy and beneficial for a city or neighborhood. For example, driving more slowly through an area can help drivers see and access local businesses and can increase retail sales and real estate values. Similarly, "pedestrian congestion" improves local business opportunities and sales.
- Limit or prohibit low-intensity or low-density land uses such as drive-throughs. Depending on where the MMA boundary is located, this could make some existing businesses or land uses non-conforming. Depending on how this requirement is implemented, it also would potentially limit the ability of some existing low-intensity uses (light industrial uses) to expand in the future. At the same time, industrial uses are allowed within an MMA as long as they are not the predominant use. In addition, the CAP envisions a shift away from those types of uses to some degree.

In addition to these impacts, provisions associated with the proximity of the MMA boundary to a state highway interchange are important. If an MMA is located within one-quarter mile of an interchange, the Oregon Department of Transportation (ODOT) must concur with the designation. This can represent another layer of complexity for establishing the MMA. At the same time, ODOT staff notes that this may not be a significant issue and they currently do not see any major barriers to establishing an MMA in relatively close proximity to existing interchanges in the area (at Revere and Colorado Avenues). This may be particularly true in the vicinity of the Colorado interchange where development within the MMA may have a minimal influence on operations the interchange. This and other issues are reflected in the discussion of MMA boundary alternatives in the following section of this memo.

Proposed MMA Boundary

Three alternative MMA boundaries were identified and evaluated in order to determine a preliminary preferred

boundary. Ultimately, the preliminary preferred boundary was identified as a combination of the three alternatives, with further refinements based on feedback from the Project Team, Technical Advisory Committee and a public workshop.

The boundary for this Preliminary Preferred Alternative follows the study area boundary on its southern end. On the northern end, the MMA encompasses the bulk of the study area, with the exception of an area in the northwest corner that is currently zoned for light industrial use. See Figure 2 for a boundary map. This alternative is recommended for the following reasons:

- Generally consistent with the goal of establishing 3rd Street as a vibrant mixed-use corridor and creating opportunities for a mix of commercial and residential uses between the Parkway and 4th Street
- Requires ODOT concurrence but reduces the area within one-quarter mile of the northern interchange to some degree. As noted previously in this memo, preliminary feedback from ODOT is that the concurrence issue is not expected to be a significant barrier to establishing an MMA within one-quarter mile of the Bend Parkway interchanges.
- Allows for flexibility in meeting mobility standards for the entire length of 3rd Street between Revere Avenue and the southern end of the study area.
- Maximizes redevelopment potential within the area, particularly along 3rd Street, by encompassing the majority of the Central District study area.
- May result in fewer non-conforming uses and/or impacts to existing low intensity land uses in the northwest corner of the Central District; results in fewer impacts on light industrial users in that area and responsive to concerns from property owners in that area.

More information about the boundary alternatives and the evaluation and refinement process can be found in Technical Memorandum #4 and in the summary of the public workshop conducted on January 9. Those documents are available from the City of Bend.

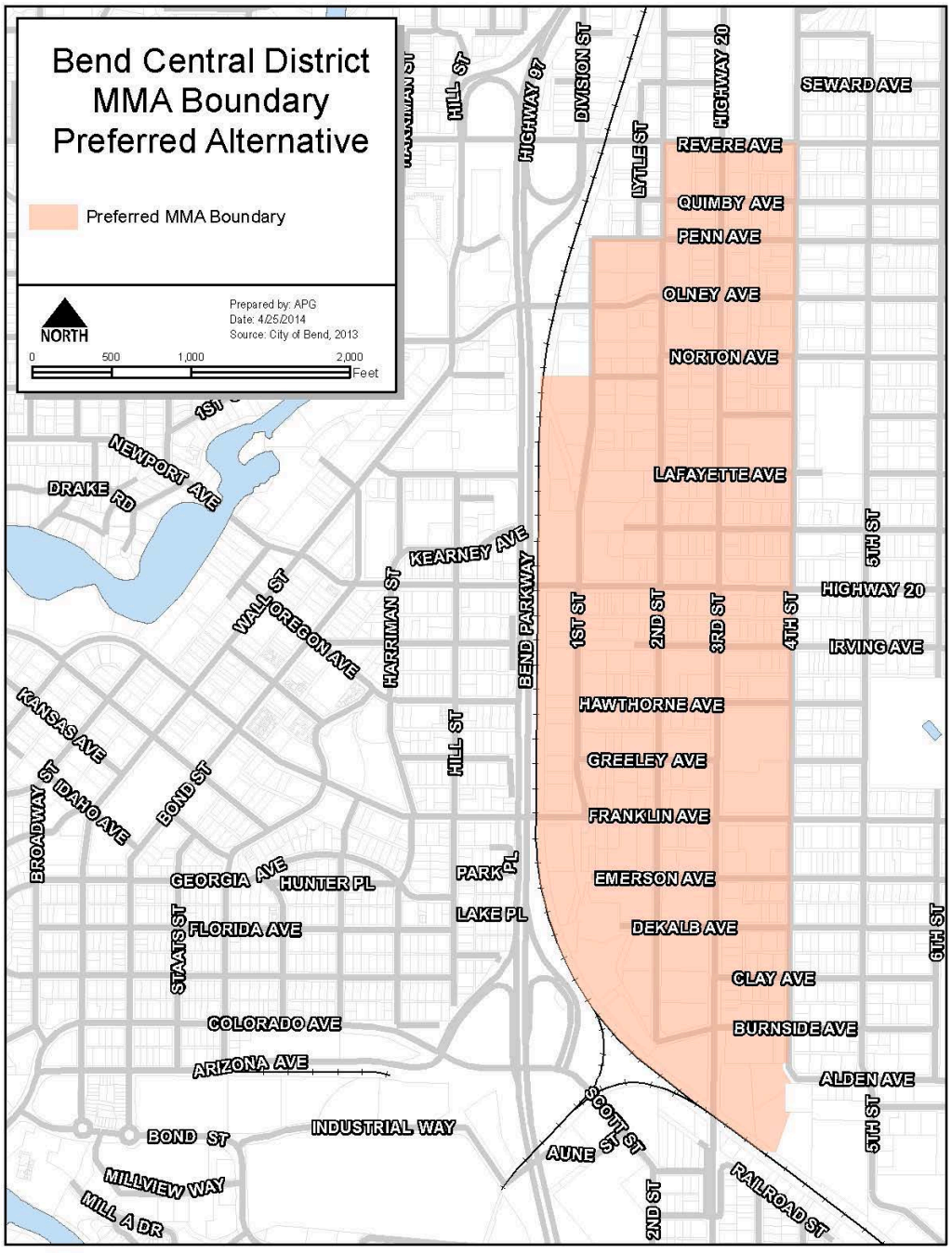


Figure 2 - Preliminary Preferred MMA Boundary

MMA LAND USE RECOMMENDATIONS

Future land use and urban design assumptions

As established in the Study Area goals and objectives in Technical Memorandum #3 and further refined and described in Technical Memorandum #8, future land use in the Bend MMA is expected to include a mix of shopping, dining, employment and living opportunities that will support higher levels of pedestrian activity. The MMA Plan assumes a variety of residential uses (meeting required densities for the MMA designation) and commercial/other development types that are linked by a comprehensive network of bicycle and pedestrian facilities as part of a well-connection transportation network. The Plan also assumes a transition in building heights and densities between the MMA boundary and adjacent residential neighborhood east of 4th Street.

More specifically, the land use vision for the MMA assumes the following:

- **Along 1st Street** a combination of light industrial, infill, and live/work uses will provide employment lands and help buffer areas to the east from noise, sight, and pollution impacts of the Parkway and railroad. The northern portion of 1st Street may remain more heavily industrial, particularly in the area between the MMA boundary and the rail line in that area. Structures here will be predominately one to three stories in height.

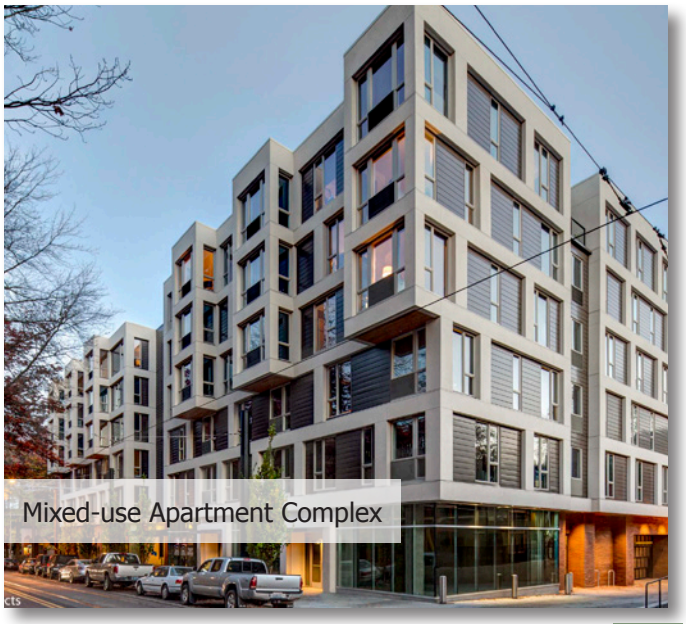
Industrial Use with Restaurant

- **2nd Street** will host a mix of office, residential, and small-scale retail uses. This area could lend itself to a significant amount of redevelopment and is likely to be where the bulk of higher density residential uses are located, with retail uses on the ground floor in some cases. Commercial or office uses may locate here as well if there is enough traffic to support the commercial uses and if the market sees office uses as compatible with the residential. These


Urban Commercial Development

uses could support lodging establishments along 3rd Street. Buildings will range from three to six stories and possibly taller in some locations. Some parking will be underground structured, or tuck-under.

- **3rd Street** will likely continue to include larger-scale commercial uses, particularly in the short to medium-term. In the longer term, uses are expected to transition to a mix of commercial, retail and residential, particularly in the southern portion of the area and in closer proximity to direct connections to Downtown (e.g., from somewhere north of Hawthorne to somewhere south of Franklin). Buildings along 3rd Street are likely to vary from one to four or six stories with taller buildings located in redeveloped areas, primarily in the southern portion of the District.
- **On 4th Street**, land uses will be primarily residential with some office and smaller scale, ground-floor retail


Mixed-use Apartment Complex

uses to serve the neighborhood to the east. Housing will include a mix of multi- and single-family housing. Development here will be limited to three stories to transition between taller 3rd Street development and existing residences east of 4th Street. By emphasizing residential uses, street traffic will be lighter as most commercial movements will stay on 2nd and 3rd Streets.

- **Along east/west streets**, land uses would be primarily commercial or office uses along the busier sections of Greenwood and Franklin, potentially with ground floor retail uses and upper floor housing or office uses in some future developments. On other east/west streets, there would be a mix of residential, small-scale retail and some commercial or possibly office when adjacent to one of the north/south streets.

Mixed-Use Retail Street

Figure 3 on page 9 illustrates these overall land use assumptions, providing general guidance on land uses, transportation networks, key activity nodes, green space, and built character, including the following:

- **Multi-modal Streets.** All major streets in the MMA – 2nd, 3rd, 4th, Olney, Greenwood, and Franklin – will be enhanced with improved pedestrian, bicycle, and transit connections within and throughout the District. Enhanced facilities will include a mix of wider sidewalks, more landscaping, added bicycle lanes, safer bicycle and pedestrian crossings, and use of natural stormwater filtration facilities, where feasible. The MMA designation is intended to improve the ability of people to live, work, and shop in the BCD by foot, bicycle and transit, while still allowing drivers, including freight vehicles to travel to and through the area.
- **District Nodes.** Redevelopment and activity nodes along 2nd and/or 3rd Streets at Olney, Greenwood, and Franklin are expected to host businesses, shops, restaurants, and living quarters. Safer street crossings, public open space, wide sidewalks, outdoor retail and dining, and other amenities will boost the attractiveness of these areas. These nodes will be the heart of 18-hour-a-day activity in the District.
- **District Gateways.** The Bend Parkway and railroad tracks make it particularly difficult to travel between the BCD and downtown, the riverfront, the Old Mill District, and other areas to the south and west. Key streets will continue to pass underneath the Parkway and tracks, but welcoming gateway features at these locations can improve wayfinding and announce to people their arrival in the Bend Central District. Gateways can take the form of well-designed streetscapes, artwork, vibrant businesses fronting the street, open space, or any other amenity that defines the unique character of the district. In addition, improvements to bicycle and pedestrian facilities associated with these under-crossings are recommended

Future projects in the MMA should be vetted against the vision outlined in the framework, which reflects many of the aspirations of the public and stakeholders for the District. It will likely require decades of public and private investment to realize this vision.

Figure 4 on page 10 depicts an overall vision for building massing and open spaces in the BCD. It provides a sense of scale envisioned for the area. The drawing is conceptual in nature and building locations and sizes are expected to vary on individual properties.

Figure 5 on page 10 illustrates potential changes to the character of 3rd Street where it has transitioned from five to three lanes somewhere south of Greenwood Street. By reducing 3rd Street from five to three lanes, it is possible to add on-street parking, bicycle lanes, and wider sidewalks with plantings, lighting, and stormwater facilities. This will help create a more inviting and vibrant commercial corridor with opportunities for shops and restaurants and a variety of housing options for people of all ages and income levels. Buildings would be located at or close to the property line, with entrances oriented to the street. Parking is relocated behind or beside active building spaces. High levels of window coverage would provide views into and out of businesses and awnings and benches create welcoming informal gathering and resting spots.

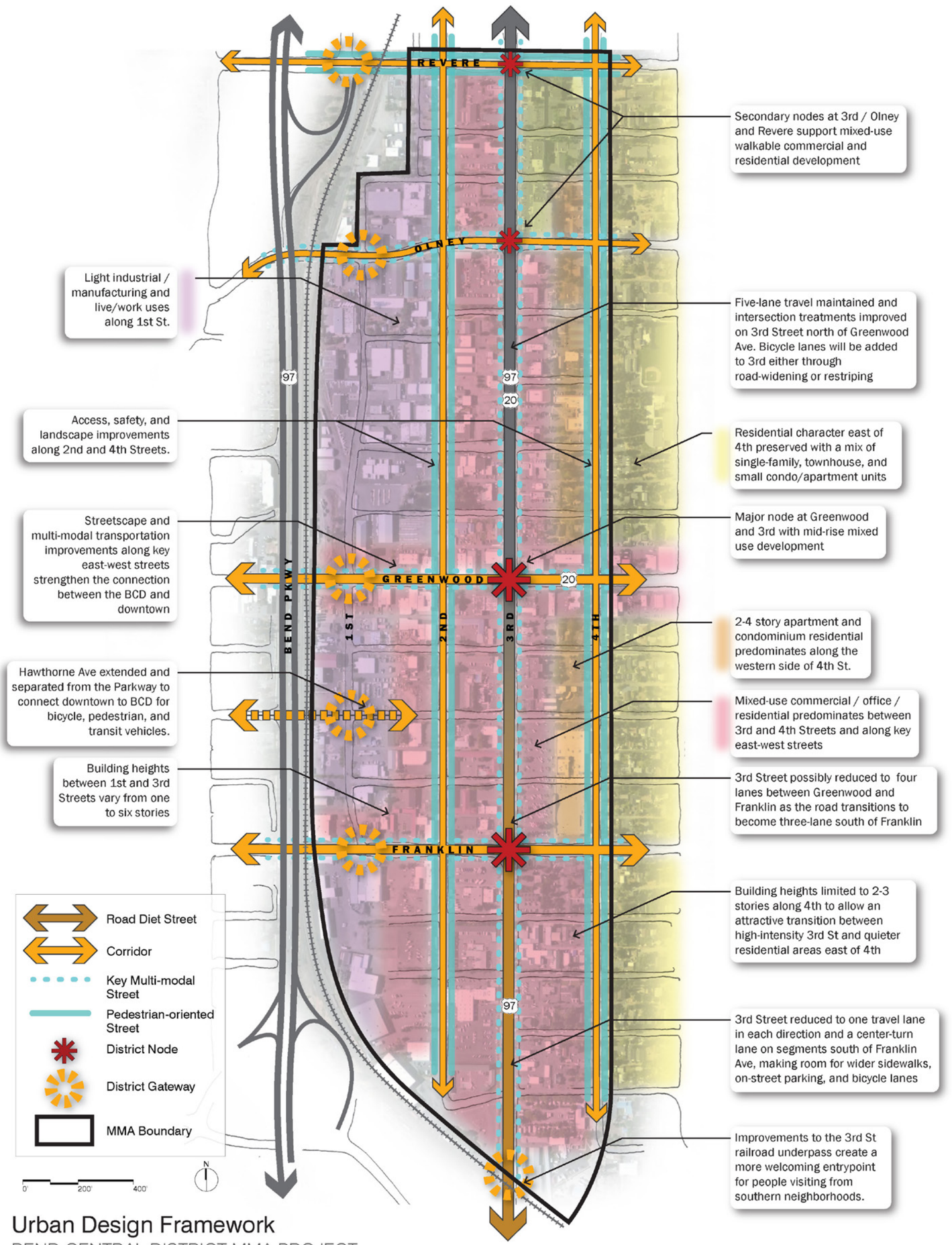


Figure 3 - Urban Design Framework Map

Figure 4 - Bend Cental District Massing and Open Space Visualization

Figure 5 - Bend Cental District Street-Level Visualization

Figure 6 - Development Character at 2nd and Greenwood Visualization

Figure 6 on page 10 depicts the proposed character of development in the area around the intersection of 2nd and Greenwood Streets, as well as a conceptual design for those roadways and their intersection. The character of development is consistent with the land use and urban design vision described in this Plan. The roadway and intersection design reflect elements described in further detail in subsequent sections of the Plan.

Zoning & development code recommendations

In order to implement the land use vision for the MMA as described in the sections above, new and/or amended zoning regulations will need to be applied within the MMA boundary. The Bend Central Area Plan recommended application of a new "Special Plan District" within Central Bend that allows for a broader mix of uses and more intensive development. The Special Plan District would be implemented through the application of a new mixed-use zone, the Mixed Use Bend Central District (MCEN)[1]. Proposed MCEN zone language was drafted as part of the CAP project, but never adopted by the city. Previous tasks in this project (including Tech Memos #4 and #6) have explored the option of applying the MCEN zone to the proposed MMA boundary area in order to implement the Plan and satisfy MMA obligations. Tech Memo #6 compared the draft MCEN zone to the specific MMA requirements and determined that the zone, with some revisions, is generally suitable for implementing the types of land uses and development intended for an MMA. Tech Memo #6 is available from the City of Bend.

This memo builds on the work in Tech Memo #6 by providing more detail about potential revisions to the draft MCEN zone along with additional standards and requirements that may be needed to sufficiently implement the MMA Plan. Table 2 below contains the MCEN language that was drafted as part of the CAP project; the inserted text boxes indicate where and how draft language could be revised in order to ensure compliance with MMA requirements. Note that the draft MCEN zone was included with the existing mixed-use zones in Chapter 2.3 of the Bend Development Code. Generally, only language pertaining to the MCEN zone is included in the table below.

1 Central Area Plan Land Use Regulatory Recommendations Appendix B, General Recommendations for New Zone Language.

Table 2 - Recommended Revisions to the Draft MCEN Zone

Chapter 2.3 Mixed - Use Districts (ME, MR, MCEN, MINEX, and PO)

Sections:

2.3.100 Purpose

2.3.200 Permitted Land Uses

2.3.300 Development Standards

2.3.400 Building Orientation

2.3.500 Architectural Standards

2.3.600 Special Development Standards for the MR, MCEN and MINEX zones

2.3.100 Purpose

The Mixed Use Districts are intended to provide a balanced mix of residential and employment opportunities. These mixed-use areas provide a transition between existing urban environments and both existing and future residential developments. The mixed-use districts support service commercial, employment, and housing needs of a growing community. The Mixed-Use district standards are based on the following principles:

- Ensure efficient use of land and public services
- Create a mix of housing and employment opportunities
- Provide transportation options for employees and customers
- Provide business services close to major employment centers
- Ensure compatibility of mixed-use developments with the surrounding area and minimize off-site impacts associated with development.

Continued on page 12

- Provide maximum development flexibility to respond to market demands while ensuring quality, integrated development.

The Mixed-use Districts ME, MR, MCEN, MINEX, and PO are identified on the City's official zoning map. The districts serve distinctly different purposes as described below.

MCEN

The Mixed Use Bend Central District is intended to implement Bend Area General Plan policies for the creative redevelopment of the Central Third Street Corridor and surrounding areas west to the Parkway and east to and including 4th Street. It is intended to:

- Provide for a wide range of mixed residential, commercial and office uses, throughout the area and, depending on the parcel and its surroundings, vertical mixed use (i.e., a mix of uses within the same structure) and with an emphasis on pedestrian access wherever possible.
- Provide for greater density development with a mix of housing and office with retail and entertainment at street level.
- Provide for development that is complementary to a future transit center by encouraging a pedestrian friendly environment.

Recommended Changes: The purpose statement for the MCEN zone should be revised to emphasize implementation of the MMA and should reference the MMA Plan specifically. This includes supporting the character of mixed uses described in this Plan and allowing for continuation of existing industrial uses and future small-scale manufacturing or light industrial uses that are compatible with other development in the area.

The sub-districts in the MCEN zone should also be introduced and briefly described here.

Question for staff: Will the MCEN zone potentially be applied to areas outside the MMA at some point? If so, that should be clarified here and the language should remain general enough to be applied more broadly.

2.3.200 Permitted Land Uses

A. Permitted Uses. The land uses listed in Table 2.3.200 are allowed in the Mixed Use Districts, subject to the provisions of this Chapter. Only land uses that are specifically listed in Table 2.3.200 and land uses that are approved as similar to those in Table 2.3.200 may be permitted or conditionally allowed. The land uses identified with a "C" in Table 2.3.200 require Conditional Use Permit approval prior to development, in accordance with Chapter 4.4.

B. Determination of Similar Land Use. Similar use determinations shall be made in conformance with the procedures in Chapter 4.1.1400, Declaratory Ruling.

C. Exceptions. Existing uses and buildings lawfully established prior to the adoption of this ordinance shall be permitted. Expansion or enlargement of existing uses and buildings not identified as permitted or conditional uses below shall be subject to the Conditional Use criteria, standards and conditions within Chapter 4.4.

[The following has been extracted from the permitted use table (Table 2.3.200) for the mixed-use zones and applies only to the MCEN zone]

Uses permitted outright:

- Multifamily residential, primary and secondary, subject to special standards
- Retail sales and service, not to exceed 20,000 sq ft ground floor per lease space
- Restaurant, without drive-through
- Offices and clinics
- Conference center/meeting facility
- Hotel/motel
- Commercial storage, enclosed on upper story
- Entertainment and recreation, enclosed in building
- Broadcasting/production studios and facilities

Continued on page 13

- Government, point of service
- Parks and open space
- Schools
- Clubs and religious institutions
- Manufacturing and production, less than 5,000 sq ft with retail outlet
- Production business

Uses permitted subject to conditional use approval

- Temporary housing as a secondary use, subject to special standards
- Retail sales and service, auto dependent
- Lodging (B&B, vacation rentals, boarding houses, timeshares)
- Commercial and public parking as a primary use (no new surface parking permitted)
- Wholesale sales
- Hospital
- Manufacturing and production, greater than 5,000 sq ft
- Warehouse
- Transportation, freight and distribution

Uses not permitted

- Single family residential, primary or secondary
- Reta`il sales and service, auto oriented
- Restaurant with drive-through
- Commercial storage, not enclosed or on ground floor
- Entertainment and recreation, not enclosed in building
- Government, limited point of service
- Industrial service

Recommended Changes:

Permitted uses in the MMA (MCEN zone) will vary depending on the sub-district in which they are located; sub-districts are generally defined by street frontage. In order to clarify the types of uses that can be developed in each sub-district, a secondary table is recommended that identifies the sub-districts and lists the uses permitted (outright or conditionally) and prohibited within each. The secondary table could be added below the existing use table (Table 2.3.200) and be titled “Permitted Land Uses in the MCEN Zone” or “Permitted Land Uses in the MMA” - depending on whether or not the MCEN zone will be applied anywhere else outside the MMA.

The MCEN permitted use table could include the following sub-districts:

A. 1st Street Sub-district. Would apply to properties fronting on 1st Street within the MMA boundary. Focus would be on light industrial/manufacturing and live/work uses, as well as accessory retail or commercial uses. Office/institutional and stand-alone residential uses would be conditional or prohibited.

B. 2nd Street Sub-district. Would apply to properties fronting on 2nd Street between Revere and Franklin. Emphasis on office, higher density residential and small-scale retail. Low intensity uses such as warehousing would not be allowed. Hotel and entertainment uses would be conditional.

C. 3rd Street Sub-district. Would apply to properties fronting on 3rd Street within the MMA boundary. Uses would be flexible to allow larger scale commercial uses to transition to mixed use (commercial, retail and residential) over time. High density multifamily and office space above ground floor retail/service would be permitted outright. The city could also consider requiring upper floor residential as part of new mixed-use developments. Lodging and entertainment uses would also be permitted. Low-intensity uses would be prohibited.

Continued on page 14

D. 4th Street Sub-district. Would apply along 4th Street within the MMA boundary. Emphasis would be on providing a transition and serving the existing residential neighborhoods to the east (outside the MMA). Uses would include residential (single and multi-family), small scale retail and office, and small scale institutional uses (permitted conditionally). Lower intensity uses would be allowed.

E. Gateways Sub-District. Would apply along the south side of Revere, as well as Olney, Hawthorne, Greenwood and Franklin Streets within the MMA boundary. Focus would be on commercial and office uses with some upper floor residential. Institutional uses and smaller scale ground floor retail would also be appropriate. Lower intensity uses would be limited or prohibited.

F. Other. An additional sub-district may be needed to cover the other east/west streets that aren't included in the Gateways sub-district. Allowed uses would be those allowed on adjacent north/south streets/sub-districts.

If this secondary table approach is used, existing Table 2.3.200 will need to be revised to reference the secondary table for any use that will vary between sub-districts. For those uses, Table 2.3.200 could indicate that they are limited ("L") in the MCEN zone, meaning they are allowed in some parts of the zone but not others, depending on the sub-district. Alternatively, Table 2.3.200 could simply reference the secondary table and not list any permitted uses for the MCEN zone. [Note: This only works if the sub-districts cover the entire MMA area. If not, still need the general use list.]

To support the MMA Plan, "transit facilities" should be added as a permitted use in the MCEN zone. Transit facilities are currently defined in the code Chapter 1.2.

2.3.300 Development Standards

The following table provides the numerical development standards within the Mixed Use Districts.
Additional standards specific to each district follow within a separate sub-section of this Chapter.
Building setback standards provide building separation for fire protection/security, building maintenance, sunlight and air circulation, noise buffering, and visual separation. Building setbacks are measured from the building foundation to the respective property line.
No new building or modification of an existing building shall exceed the development standards provided herein without receiving approval of a Variance application in accordance with the criteria listed in Chapter 5.1

[The following has been extracted from the development standards table (Table 2.3.3.00) for the mixed-use zones and applies only to the MCEN zone]

- Minimum front yard setback: 0 feet, subject to special standards
- Maximum front yard setback: 10 feet, subject to special standards
- Rear and side yard setbacks: 0 feet, subject to special standards
- Maximum lot coverage: none, except at Intersections of Character for which the maximum coverage must allow for outdoor public space
- Maximum building height: varies according to Central Area Height Map

Recommended Changes:

Building height maximums will vary depending on sub-district and can be listed in a table or shown on a map as indicated above. A table may be simpler. Building heights in the sub-districts could be as follows:

A. 1st Street Sub-district: maximum 3 stories

B. 2nd Street Sub-district: maximum 6 stories

Continued on page 15

C. 3rd Street Sub-district: maximum 6 stories, with possible 8 stories in certain areas or under certain conditions (use of a height bonus, for example)

D. 4th Street Sub-district: maximum 4 stories along western side, 2 stories on eastern side

E. Gateways Sub-District: maximum 2 or 3 stories at street level with potential for taller buildings with stepbacks or setbacks.

F. Other.

The language referring to "Intersections of Character" will likely need to be deleted. See discussion under 2.3.600.

A. Applicability. The setback standards outlined in Table 2.3.300 above shall apply to all new and expanded buildings. The setback standards apply to both primary structures and accessory structures. The standards may be modified only by approval of a variance, in accordance with Chapter 5.1; Variances.

B. Front Yard Setbacks.

1. General Standards. See Table 2.3.300; Mixed Use District Development Standards.

2. Double Frontage Lots. For buildings on lots with double frontage, the minimum front yard setback standards in Table 2.3.300 shall be applied to both frontages. In the ME and PO zoning districts, the maximum setback standard of 10 feet shall be applied to only one of the frontages, provided that where the abutting streets are of different street classification, the maximum setback standard shall be applied to the street with the higher classification.

3. Exceptions. The following exceptions apply to ME and PO zoned properties.

a. For buildings on corner lots at the intersection of two arterial streets, the maximum front yard setback standard specified in Table 2.3.300 shall be met for one frontage and for the other frontage, a maximum setback of 160 feet shall be allowed. Off-street parking, driveways and other vehicular use and circulation areas may be placed between a building and the 10 foot wide required landscape setback adjacent to the street when the 160 foot maximum setback option is applied.

b. When the street fronting the development does not allow on-street parking, the maximum front yard setback of 80 feet shall apply.

c. Other special setbacks in conformance with Chapter 3.5.300; Special Setbacks.

C. Side and Rear Yard Setbacks.

1. ME, MCEN, and MINEX Zones. There is no rear yard setback required (i.e. 0 feet), except when abutting a lot in a residential zone, the rear yard setback shall be 15 feet for all portions of the structure less than 35 feet in height. For portions of the building 35 feet in height or greater, the setback shall set back an additional 1 foot for each foot the building exceeds 35 feet, however, developments within the MCEN and MINEX Zones, may demonstrate alternative means of buffering through design elements.

Recommended Changes:

The above standard is somewhat unclear regarding building heights above 35 feet. The language should probably read "For portions of the building 35 feet in height or greater, the setback shall be 15 feet plus an additional 1 foot for each foot the building exceeds 35 feet…"

The last sentence "may demonstrate alternative means of buffering through design elements" is vague and discretionary and may not be appropriate here. The language should either be deleted or "buffering through design elements" should be clarified somehow.

2. PO Zone. There is no rear yard setback required (i.e. 0 feet), except when abutting a residential zone, the rear year setback distance shall be a minimum of 10 feet and the rear yard setback shall be increased by 1 foot for each 1 foot by which the building height exceeds 25 feet.

Continued on page 16

3. When a public alley abuts a side or rear yard of property within the PO or ME zones, the width of the alley can be included in the additional setback calculation as described above in subsections (1) and (2) above for the purpose of offsetting the impacts of the building height over 35 feet. The alley does not eliminate the required 10 foot building setback.

D. Other Requirements.

1. Buffering. A 10-foot minimum landscape buffer shall be required along the side and rear property lines between industrial use development listed in Table 2.3.200 and any adjacent Residential District. The buffer zone is in addition to the required side and rear setbacks required in section 2.3.300(C) above. The buffer shall provide landscaping to screen parking, service and delivery areas; and walls without windows or entries, as applicable. The buffer may contain pedestrian seating but shall not contain any trash receptacles or storage of equipment, materials, vehicles, etc. The landscaping standards in Chapter 3.2, Landscaping, Streets Trees, Fences and Walls, provide other buffering requirements where applicable. Developments within the MCEN and MINEX Zones, may demonstrate alternative means of buffering through design elements.

2 Building and Fire Codes. All developments shall meet applicable fire and building code standards. Larger setbacks than those listed above may be required due to the proposed use and/or storage of combustible materials.

Recommended Changes:

Again, the language "may demonstrate alternative means of buffering through design elements" is vague and discretionary and may not be appropriate here. The language should either be deleted or "buffering through design elements" should be clarified somehow.

2.3.400 Building Orientation

All of the following standards shall apply to new and expanded development within the Mixed Use Districts, unless otherwise specified in this code, in order to reinforce streets as public spaces and encourage alternative modes of transportation, such as walking, bicycling and future transit.

A. Building Entrances. All buildings shall have an entrance(s) visible or oriented to a street. Oriented to a street means that the building entrance faces the street, or is visible to the street and connected by a direct and convenient walkway. Building entrances may include entrances to individual units, lobby entrances, entrances oriented to pedestrian plazas, or breezeway/courtyards. Streets used to comply with this standard may be public streets or private streets and shall contain sidewalks and street trees, in accordance with the standards in Chapter 3.0; Development Standards. The building entrance orientation standard is met when the following criteria are met:

1. When on-street parking is permitted on the street fronting the development, the front yard maximum setback shall be 10 feet.

2. When the street fronting the development does not allow on-street parking, the maximum front yard setback shall be 80 feet, except in the MR Zone.

3. Corner Lot Standard. Buildings on corner lots are encouraged to have an entrance oriented to the street corner. The minimum front yard setback specified in 2.3.400 A(1) above shall be met for both street frontages.

Recommended Changes:

Consider adding the MCEN zone as an exception to subsection 2 above. An 80 foot setback within the MMA boundary may not be appropriate. Will there be streets in the MMA that do not allow on-street parking?

Consider whether or not the corner lot standard should be required instead of encouraged for certain intersections in the MMA. More discussion is below.

Continued on page 17

B. Walkway Connections. Walkways shall be placed through yard setbacks as necessary to provide direct and convenient pedestrian circulation between developments and neighborhoods. Walkways shall conform to the standards in Chapter 3.1; Access, Circulation and Lot Design.

C. Parking. Parking and maneuvering areas shall be prohibited between the street and the building when on-street parking is allowed on the street fronting the development property. Parking shall be provided in conformance with Chapter 3.3; Vehicle Parking, Loading and Bicycle Parking. Developments within the MCEN and the MINEX Zones are required to site off-street parking behind, below grade, or beside the development. Shared parking arrangements may be approved upon provision of legal agreements with abutting properties with which the parking will be shared. Developments within the MCEN Zone may pay an in-lieu of fee to be applied to city provided structured parking.

Recommended Changes:

As written above, the basic parking standards in Chapter 3.3 would apply in the MCEN zone. However, areas with an MMA designation must have a lower parking requirement than other areas (or no required parking). The City may want to consider ways to reduce the parking requirement for the MCEN zone, either as a whole or by sub-district. This could be done in several ways:

- Augment the existing reductions allowed for on-street parking, off-site parking and shared parking
- Establish a building height bonus for provision of below or above grade parking
- Waive the parking requirements for certain small uses (restaurant under 750 square feet, for example)
- Establish one parking standard for a commercial use category, rather than individual uses
- Establish a "mixed use" parking standard that provides a reduction over the total required parking for uses added together

Question: Per the last sentence above, does the City have a fee-in-lieu program for public parking currently in place?

May want to clarify that parking in the MCEN zone can only be located behind, below, above or beside a building regardless of whether or not on-street parking is allowed on the fronting street.

2.3.500 Architectural Standards

All developments in the Mixed Use Districts shall be subject to Commercial Design Review, Chapter 2.2.600 and be reviewed for conformance with the criteria in A and B below unless otherwise specified in this code. Note: Developments within the MCEN and the MINEX Zones are required to demonstrate compliance with the alternative Bend Central Area Development Performance Guidelines instead of the architectural standards shown in 2.3.500.

A. Building Mass. Where building elevations are oriented to the street in conformance with Chapter 2.2.600; Block Layout and Building Orientation, architectural features such as windows, pedestrian entrances, building off-sets, projections, detailing, a change in materials or similar features, shall be used to break up and articulate large building surfaces and volumes greater than 50 linear feet in length. A minimum of 15% of the horizontal building façade shall contain a variety of architectural features

B. Pedestrian-Scale Building Entrances. Recessed entries, canopies, and/or similar features shall be used at the entries to buildings in order to create a pedestrian-scale.

Recommended Changes:

The intro language above should be revised to add a specific reference to the Chapter/Section where the Bend Central Area Development Performance Guidelines are located (Chapter 2.2.800, Section I).

The intro language above could be revised to clarify that development in the MCEN zone is subject to performance guidelines in 2.2.800.I and not the commercial design standards in 2.2.600 or the building mass and entrances standards in A and B above. The language is somewhat unclear as written.

Continued on page 18

2.3.600 Special Development Standards for the MCEN and MINEX Zones.

Chapter 2.3 City of Bend Development Code The Mixed Use Bend Central District is divided into several corridor areas or sub-districts which are suited for different types of development. Great Streets which act as Gateways to adjoining central areas, are designated as:

3rd Street from NE Revere Avenue to NE Burnside Avenue;

Olney Avenue from NW Wall Street to NE 4th Street;

Greenwood Avenue from NW Wall Street to NE 4th Street; and,

Franklin Avenue. from NW Wall Street to NE 4th Street.

Recommended Changes:

The areas referenced above are the same as the 3rd Street Sub-district and the Gateways Sub-district defined earlier. This language is probably not necessary here since the different uses and building height standards by sub-district have already been established.

Design characteristics are intended to maintain view corridors along Great Streets within the Bend Central Area by allowing only low to mid -rise building heights along these streets. In addition to Great Streets, the Mixed Use Bend Central District contains special Intersections of Character which are reserved for future redevelopment that includes outside public spaces and rooms that shall serve as landmarks and facilitate better way finding. Buildings surrounding the intersection shall be low rise, but complimentary to each other. Lighting shall emphasize activity and pedestrian and vehicular zones should be delineated to ensure safe and secure passage for all. The following Intersections of Character are identified in the Bend Central area:

- NE Revere Avenue and NE 3rd Street
- NE Olney Avenue and NE 3rd Street
- NW Olney Avenue and NW Wall Street
- NE Greenwood Avenue and NE 3rd Street
- NE Greenwood Avenue and NE First Street
- NW Greenwood Avenue and NW Hill Street
- NW Greenwood Avenue and NW Wall Street
- NE Franklin Avenue and NE 3rd Street
- NE Franklin Avenue and NE 1st Street
- NW Franklin Avenue and NW Hill Street

Recommended Changes:

The language regarding Intersections of Character can be removed because the standards (building height, design, pedestrian facilities, etc) are generally covered elsewhere and do not need to be called out specifically here. The exception may be public open space at corners. If more public open space and prominent corner entrances are the goal, some language could be added to the code that requires those elements at certain intersections.

Preservation of view corridors along east west streets could be accomplished to some degree through a combination of required setbacks and/or stepbacks from the property line.

This section also may be an appropriate location for some code incentives if the City decides to implement them. Possible code incentives may include:

- Parking reductions beyond those already allowed
- Building height bonus in certain sub-districts (with a limit on ultimate height)
- Stormwater SDC credits

Incentives could be offered in exchange for additional open space (beyond what is already required), additional right-of-way dedication for pedestrian facilities, or provision of other public amenities.

City staff should consider whether or not incentives could be a useful tool, and if so, what types of amenities should be encouraged through the use of incentives.

A. Development Plans Required. The Mixed-use Bend Central and Industrial and Employment zones shall only be applied to the area designated on the Bend Area General Plan Map. Before development of properties can occur in the MCEN and MINEX zones, a Facilities Plan shall be reviewed and approved.

Continued on page 19

The Facility Plan shall be processed as a Type II Activity. The Bend Planning Commission shall review and approve the Master Development Plan.

Question:

Does the City want to require a Facilities Plan and Master Development Plan for development in the MCEN zone, similar to the approach used in the MR district? Language above is unclear, but appears to only require a Type II Facilities Plan. The language in (B) below also references a Master Development Plan. Some elements of the Facilities Plan related to the transportation system could be considered as completed through the results of the MMA effort (i.e., item 1b).

B. Facilities Plan. Prior to or concurrent with submitting a Master Development Plan the owners shall submit for review and approval a Facilities Plan that shows how the area will be served by roads and utilities.

1. The Facilities Plan shall, at a minimum, include:

    a. A map of existing and planned water and sewer facilities to serve the sub-area including line sizes, general location or routes, and how the lines will tie in with areas adjacent to the MCEN or the MINEX zone.

    b. A map of existing and planned collector and arterial streets adjacent to the sub-area and of the general route of planned collector, arterial, and major local streets through the sub-area and where the streets will connect with the existing collector or arterial street system.

    c. Such other utility or transportation information as the City may determine.

    d. A written narrative that explains or describes:

        i. How the proposed water, sewer, and street system will be adequate to serve the type and size of development planned for the area;

        ii. How the location and sizing of facilities on-site will be consistent with the existing and planned utilities;

        iii. How adequate water flow volumes will be provided to meet fire flow and domestic demands; and

        iv. The function and location of any private utility systems.

2. The Facilities Plan shall be approved if it is determined to be consistent with the Utilities Master Plan and the Transportation Element of the Bend Area General Plan and other information required by the City.

TRANSPORTATION RECOMMENDATIONS

A variety of improvements to the transportation system within the MMA are recommended to help support and achieve the land use and urban design vision for the MMA, to create a transportation system that effectively serves all modes of transport and to meet state requirements for an MMA. The proposed transportation network was developed through the evaluation of several alternative transportation network options that were previously identified and studied during the CAP process, as well as a new "Hybrid" option evaluated during the MMA planning process.

Summary of Recommendations

The recommended transportation network for the MMA includes the features described below and illustrated in Figure 7 on page 21.

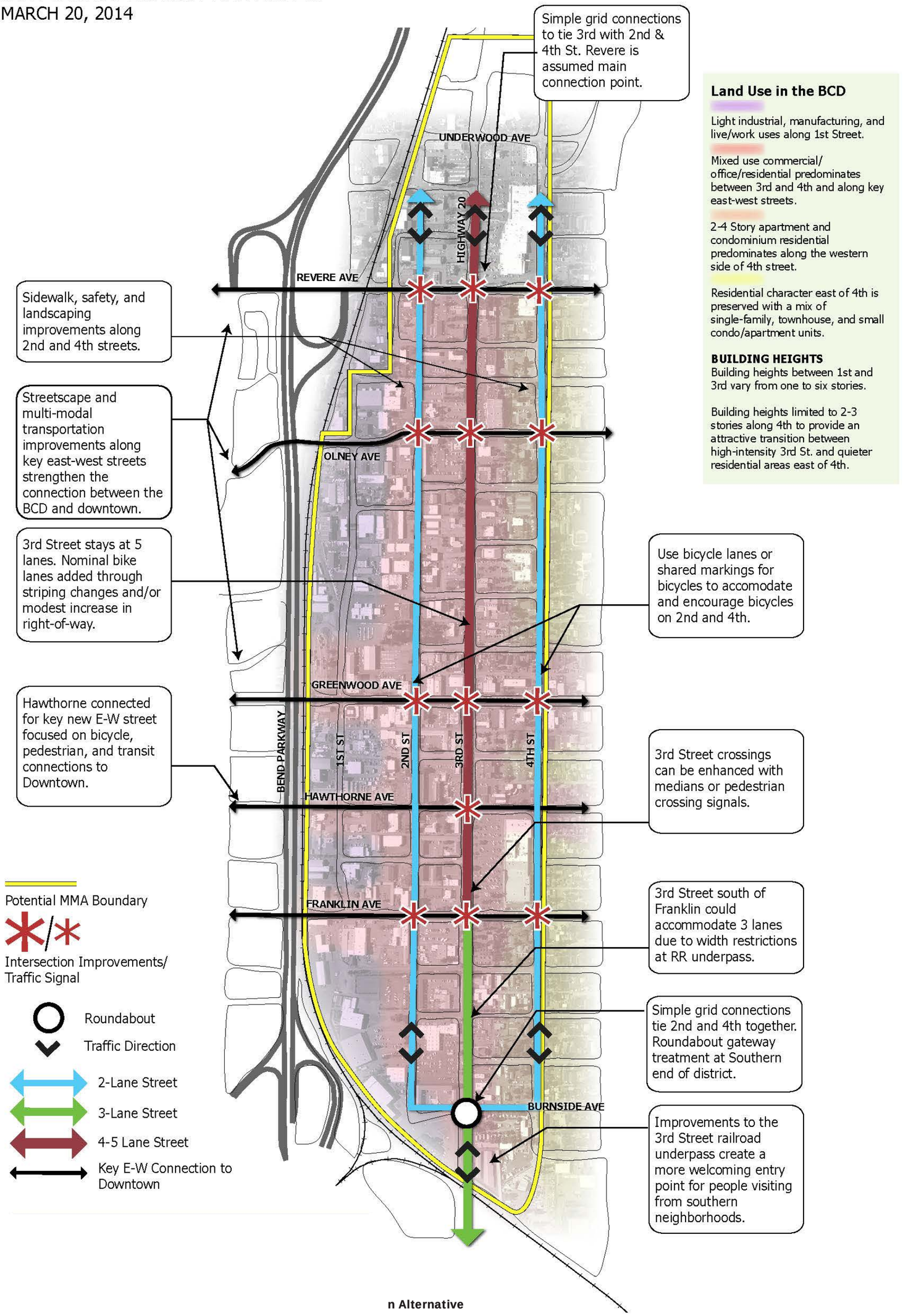
- North of Greenwood Avenue, 3rd Street will continue to include five lanes (two travel lanes in each direction and a center turn lane, possibly with a median in some locations). It also will include bicycle lanes which will require restriping and/or possible modest right-of-way acquisition.
- South of Franklin Avenue, 3rd Street will continue to include three lanes (one travel lane in each direction and a center turn lane, possibly with a median in some locations). It also will include bicycle lanes, improved pedestrian facilities and possibly on-street parking in some locations.
- 3rd Street will likely transition from five lanes to three lanes somewhere between Greenwood and Franklin.
- Long-term improvements to 2nd and 4th Streets will include bike lanes and on-street parking, plus a seven-foot sidewalk. In the shorter term, interim improvements that can be accommodated within the roadway may be phased in and may not include all of these elements.
- On-street parking would not have to be contiguous on both sides of the street on 2nd and 4th Streets but could be interrupted by planting areas or other features in some locations where wider sidewalks or planting areas are desirable and appropriate and/or where less right-of-way is available.
- Intersections throughout the study area and particularly at crossings of major north/south and east/west streets will be improved to better facilitate bicycle and pedestrian movements and crossings. Intersection configurations will be based in part on the results of traffic analysis to be conducted during the next step of the project.
- 2nd Street will continue directly north to Revere in the existing right-of-way but likely won't continue north from there.
- Traffic movement between 3rd Street and 2nd and 4th Streets will be via basic street grid connections throughout the study area.
- There will be opportunities to travel between 3rd and 4th Streets north of Revere (e.g., at Underwood) but large connections similar to those envisioned in the Expanded Grid network alternative, are not assumed.
- Assumed travel speeds on 2nd and 4th will be 25 mph; travel speeds on 3rd will be 35 mph.
- The Hawthorne connection to Downtown will accommodate bikes, pedestrians and transit. Cars also likely will be accommodated but will be discouraged to some degree via roadway design and lower travel speeds. This likely would result in removal of the existing connection to the Bend Parkway in this location.
- For modeling purposes, traffic controls at intersections with assumed improvements will generally be signals but would not preclude use of roundabouts at selected locations in the future if the City were to determine that is appropriate.
- A roundabout on 3rd Street at the southern end of the study area is assumed.

This proposed system is recommended over other options studied in the MMA process based on an evaluation using criteria derived from the project goals and objectives developed at the outset of this process. The evaluation process included review and recommendation by City staff, the consulting team, the PT and TAC and other members of the public, including a public workshop. Results of the evaluation are summarized in the table below. Descriptions of the other transportation network options and more detailed information about the evaluation process are described in Technical Memorandum #8.

Transportation Option 5: Hybrid

BEND CENTRAL DISTRICT MMA PROJECT

MARCH 20, 2014



Land Use in the BCD

Light industrial, manufacturing, and live/work uses along 1st Street.

Mixed use commercial/ office/residential predominates between 3rd and 4th and along key east-west streets.

2-4 Story apartment and condominium residential predominates along the western side of 4th street.

Residential character east of 4th is preserved with a mix of single-family, townhouse, and small condo/apartment units.

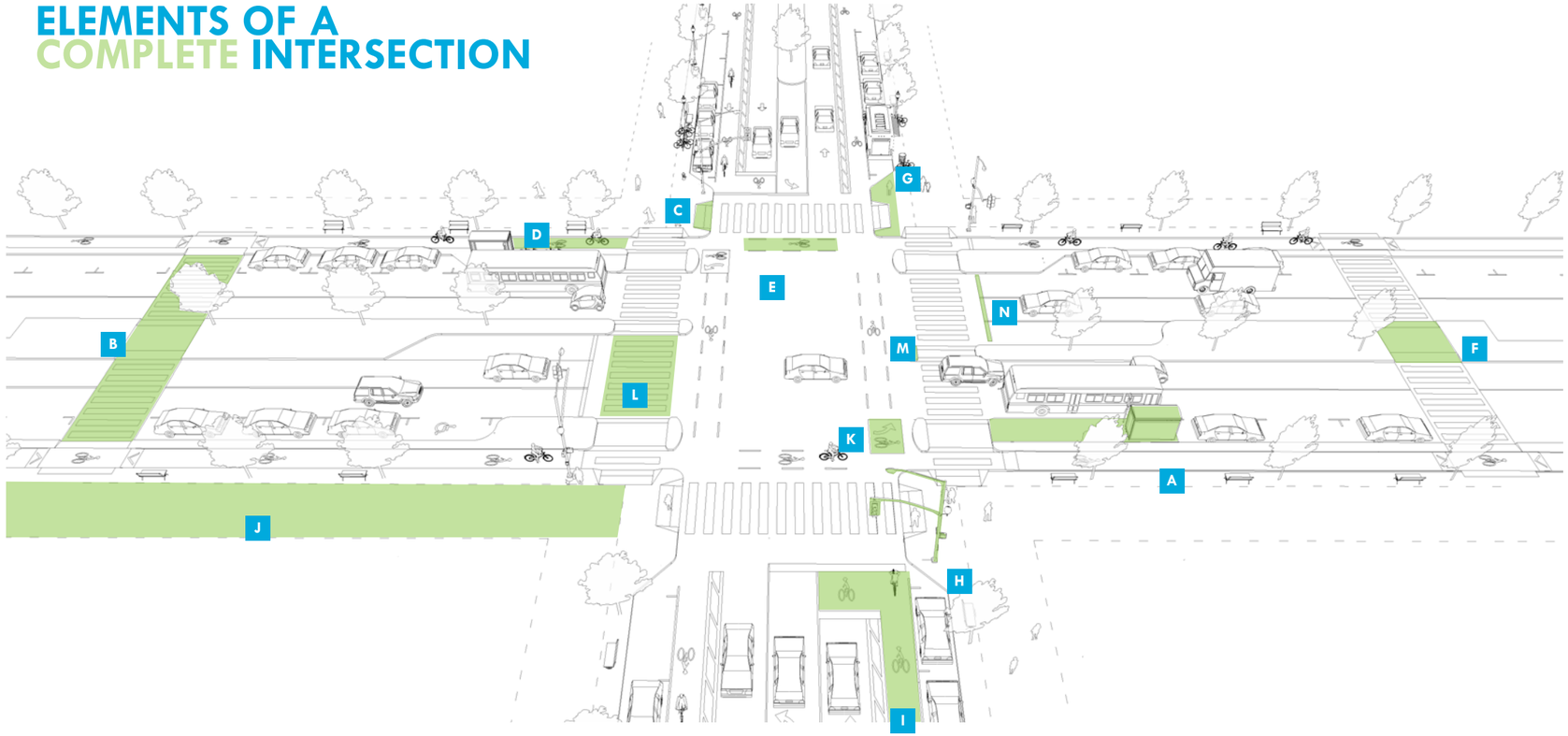
BUILDING HEIGHTS

Building heights between 1st and 3rd vary from one to six stories.

Building heights limited to 2-3 stories along 4th to provide an attractive transition between high-intensity 3rd St. and quieter residential areas east of 4th.

n Alternative

ELEMENTS OF A COMPLETE INTERSECTION



A Far-side stops/Bus bulbouts
Far-side stops minimize operational delay and allow buses to move out of the intersection, so that turn movements behind them can continue to occur. Bus bulbouts move passenger shelters or queuing areas away from the pedestrian zone and reduce pedestrian crossing distances.

B Mid-block crossing
Mid-block crossings provide direct walking routes and reduce the effective length of the block.

C Accessible curb ramps
Curb ramps safely and seamlessly connect mobility impaired individuals between the sidewalk and street. Curb ramps are tactile to ensure legibility for site-impaired users.

D Bike-transit integration
Bicycle and transit facilities are designed to reduce conflicts between bikes, transit vehicles, and pedestrians.

E Intersection bicycle crossing
Intersection markings indicate the safe, direct, and visible path of bicyclists traveling through an intersection or driveway conflict zone.

F Pedestrian refuge islands
Refuge islands reduce crossing distances, improve pedestrian visibility, and facilitate crossings across longer crosswalks.

G Curb extensions
Curb extensions continue the sidewalk into the parking lane at intersections or mid-block locations to improve visibility of pedestrians waiting to cross, reduce crossing distances, and provide additional space for placemaking features.

H Signalization
Traffic signals control vehicle and pedestrian movement at intersections or mid-block crossings.

I Colored bike boxes
Designated priority queuing areas for bicycles that help clear an intersection quickly and help reduce right-hook collisions.

J Sidewalks
Spacious, clearly defined, and continuous sidewalks are requisites for Complete Streets and transit-oriented neighborhoods.

K Two-stage turn queue boxes
Turn facility allowing cyclists to safely and comfortably exit cycle tracks or bike lanes that require bicyclists to negotiate difficult lane merges.

L Crosswalks
Highly visible and defined crosswalk facilities ensure safe and comfortable crossings.

M Median nose
Median noses provide additional protection for crossing pedestrians and slow left turn movements.

N Advanced stop bars
Stop bars increase automobile stopping distances from crosswalks, thereby improving crossing comfort.

Figure 8 - Complete Street Illustration

Source: Nelson\Nygaard

Table 3 - Evaluation Criteria Matrix for Transportation Network Options

Objective/Criteria	Alt 1: 2nd/3rd St. Couplet		Alt 2: Expanded Grid		Alt 3: 2nd/4th St. Couplet		Alt 4: 3rd St. Streetscape Improvement		Alt 5: Hybrid	
Overall performance (*overall MMLOS*)	**N/S**	**E/W**	**N/S**	**E/W**	**N/S**	**E/W**	**N/S**	**E/W**	**N/S**	**E/W**
• Vehicle	H	H	H	H	M	M	H	M+	H	H-
• Pedestrian	L	M	M	M	L	M	M	L+	M	M+
• Bicycle	M	M	M+	M+	M	M	M	L	M	M
Additional Criteria	**Alt 1**		**Alt 2**		**Alt 3**		**Alt 4**		**Alt 5**	
Mobility/congestion balance (*intersection LOS*)	H		H		H		H		H	
High quality connectivity – all modes (*number of new or enhanced internal connections*)	M+		H		M+		M		M+	
Safe, comfortable pedestrian crossings of 3rd St. (*number of proposed crossings, expected intersection vehicle LOS*)	M		H		M		M-		M-	
Safe, comfortable pedestrian crossings of other streets (*number of proposed crossings, expected intersection vehicle LOS*)	M		H		M		H		H	
Pedestrian-supportive land uses (*relationship between pedestrian improvements, land use*)	L		H		L		M		M+	
Supportive of land use mix										
Cost effective, financially feasible (*rough comparison of relative costs to implement*)	L		M		L		L		M+	
Use of existing right-of-way (*relative need for new ROW acquisition*)	L		H		L		L		H	
Enhance east/west travel (*MMLOS comparison for east/west streets*)	M-		H-		M-		L		M-	

Transportation Analysis

The consultant team worked with City and ODOT staff to conduct a multi-step analysis of the proposed preferred transportation network, including the following:

- Forecasted 2030 traffic volumes based on the project's land use assumptions and basic transportation network conditions using the regional traffic model, in coordination with ODOT staff.
- Performed a Multimodal Level of Service (MMLOS) analysis to assess conditions and performance for bicyclists, pedestrians and vehicle drivers, using a more detailed sub-area model for the MMA and surrounding area.
- Evaluated intersection operations and conducted a "queuing analysis" using additional traffic analysis tools (Synchro).
- Conducted sensitivity analyses to study the impact of minor modifications to the preferred network.

More detailed information about the methodology for this analysis is found in a separate memorandum available from the City of Bend (Technical Memorandum #9). Following is a summary of the results of the analysis.

Multimodal Level of Service (MMLOS) Analysis Results for Pedestrians and Bicycles

Results of the pedestrian MMLOS analysis are shown in Figure 9. 2nd and 4th Streets perform well for pedestrians, providing LOS A on nearly all streets between Revere Avenue and Burnside Avenue. This is generally due to the wide pedestrian zone in the assumed cross-section and relatively low motor vehicle volumes. 3rd Street performs at LOS C for the five-lane section north of Greenwood Avenue, where traffic volumes and right-of-way demands are the highest. Pedestrian LOS is better south of Greenwood Avenue.

Bicycle performance, shown in Figure 10, varies along 2nd and 4th Street, but is mostly LOS C. Traffic volumes and speeds adjacent to the bike lane, as well as the proximity of on-street parking (creating risk of "dooring"), contribute to a bicycling environment with moderate stress levels. 3rd Street, with its narrow bike lanes and higher traffic volumes and speeds, performs poorly, generally between D and F.

West of the MMA area, the new Hawthorne Avenue undercrossing provides a low-stress connection for people riding bikes between Downtown Bend and the Central District.

The Hawthorne connection operates at LOS A for pedestrians and cyclists, while other connections range from LOS B to E for cyclists.

Intersection Operations and Queuing Analyses

Impacts on vehicle traffic were evaluated both using the MMLOS analysis, as well as separate intersection operations and queuing analyses. Table 4 on page 25 shows the results of the analysis for key intersections in comparison to baseline analysis from the city's Metropolitan Transportation Plan (MTP). The MTP results assume the currently adopted future land use with no network improvements in the Central District. In general, intersections perform better under the preferred network than under baseline conditions, which assume slightly less intense land use in the Central District, but do not have the enhancements of this project's preferred network. The difference is particularly significant along 3rd Street, where all study intersections failed to meet targets under the baseline, but only one (3rd Street/Greenwood Avenue) fails to meet targets under the preferred network and land use. This improvement in operations demonstrates the traffic benefits of the network enhancements, particularly on the parallel streets of 2nd and 4th Streets.

The analysis indicates that three of the nine study intersections analyzed in Synchro are expected to operate worse than mobility targets in the p.m. peak hour in 2030. The US 97 Northbound/Colorado Avenue Intersection is an unsignalized intersection that is expected to experience high levels of delay for the stop-controlled left-turn movement. The 3rd Street and 8th Street signalized intersections along Greenwood currently do not meet mobility targets, and will continue to not meet mobility targets with growing demand through 2030 if no other changes are made to the transportation network. Figure 11 illustrates intersection performance and relative traffic volumes within the MMA.

A queuing analysis also was conducted for the Bend Parkway ramps in the vicinity of the MMA (at Revere and Colorado Avenues). A comparison of regional model runs with and without the modified Central District land use shows that the new land use results in slightly less volume at the ramp terminal intersections. Therefore, it is expected the conditions associated with the MMA Plan are slightly better than what would be expected under an analysis using baseline (adopted Metropolitan Transportation Plan) forecasts. In other words, queuing issues identified in this analysis are primarily the result of overall regional

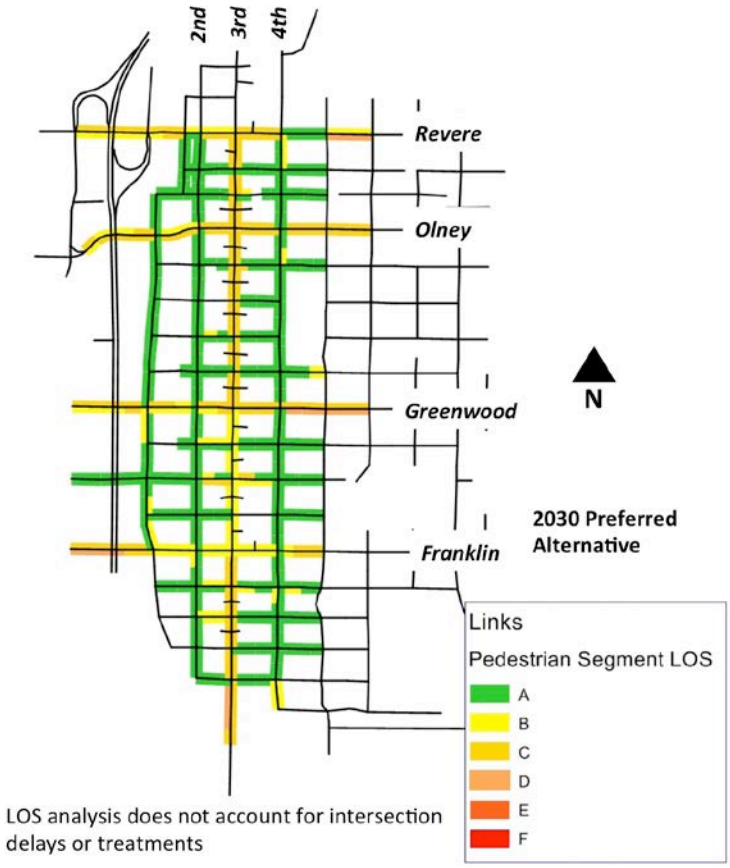


Figure 9 - Pedestrian MMLOS Results, Preferred Network (2030 PM)

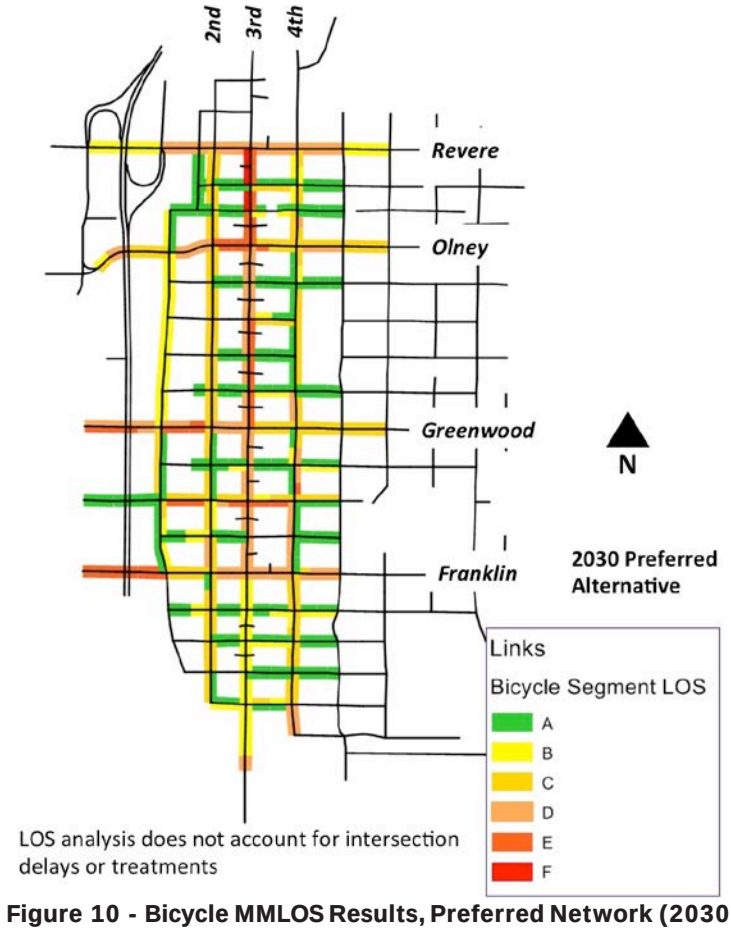


Figure 10 - Bicycle MMLOS Results, Preferred Network (2030 PM)

Table 4 - 2030 PM Peak Hour Intersection Operations

Intersection	*Mobility Target*	*V/C Ratio*	*Delay*	*LOS*	*V/C Ratio*	*Delay*
		Preferred MMA Network			**Baseline**	
US 97 Southbound/Revere Avenue	0.85*	0.74	13.4	B	0.83	20.6
US 97 Northbound/Revere Avenue	0.85*	0.74	20.7	C	0.92	27.8
US 97 Southbound/Colorado Avenue	0.85*	0.64	9.0	A	0.74	26.0
US 97 Northbound/Colorado Avenue	0.85*	**1.13**	58.6	F	> 1.0	> 80.0
3rd Street/Revere Avenue	0.90	0.85	42.2	D	1.22	> 80.0
3rd Street/Olney Avenue	0.90	0.80	39.5	D	1.15	> 80.0
3rd Street/Greenwood Avenue	0.90	**1.05**	108.0	F	1.42	> 80.0
3rd Street/Franklin Avenue	1.00	0.92	52.9	D	1.11	81.1
8th Street/Greenwood Avenue	0.85	**1.05**	87.5	F	-	-

Bold and Red indicates intersection does not meet its mobility target
V/C ratio: volume-to-capacity ratio; LOS = level of service; delay measured in seconds per vehicle
*Mobility target may be increased to 0.90 if it is determined that ramp queuing will not extend into the deceleration area

traffic growth, rather than impacts from future land use within the MMA study area or implementation of related transportation improvement there. The analysis shows that queues for three of the four ramps are expected to exceed available storage on the ramps in the p.m. peak hour by 2030, resulting in queue spillback onto the highway. While the US 97 southbound ramp queuing at Revere Avenue exceeds the ramp storage by a slight margin, major queuing issues exist for the US 97 northbound ramps at Revere Avenue and Colorado Avenue. More information about the details of this analysis and potential measures to address these impacts are found in Tech Memo 9. Approaches for monitoring impacts to these facilities also are described in a subsequent section of this document.

Sensitivity Analyses

Analysis of the preferred network relied on specific assumptions about elements such as street cross-sections, intersection configurations, and signed speed limits. City staff also expressed interest in an assessment of how certain changes to these assumptions might affect MMLOS, traffic operations, and/or traffic patterns. This section presents analysis for two scenarios:

- **Reduced speeds on 2nd and 4th Streets.** Understanding that reduced motor vehicle speeds could improve bicycle LOS on these two streets, the network was analyzed with speed on these streets reduced from 25 mph to 20 mph.
- **Franklin Avenue Road Diet.** Franklin Avenue currently features a five-lane cross-section that starts at 1st Street

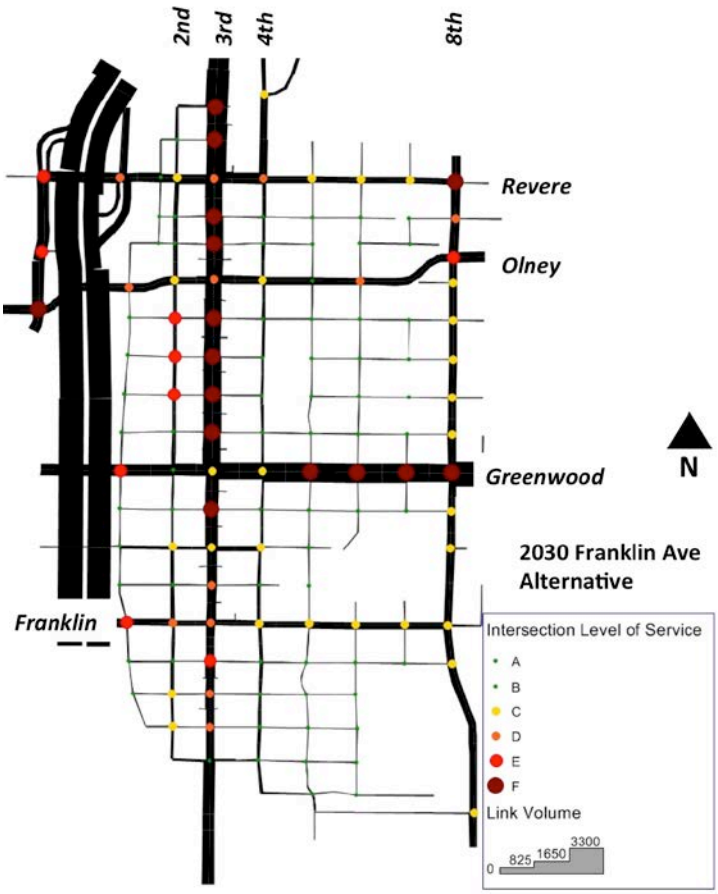


Figure 11 - Motor Vehicle LOS Results, Franklin Avenue Road Diet (2030 PM Model Volumes)

and ends between 4th and 5th Streets, narrowing to a two-lane cross-section on either end. The City requested an assessment of the impact of reducing Franklin to a three-lane cross-section through this area.

The sensitivity analysis shows that reducing speeds on 2nd and 4th Streets would have the following impacts:

- Bicyclists would see a significant improvement in level of service due to both slower speeds and less traffic, particularly on 2nd Street.
- Pedestrians would see no measurable difference in level of service.
- Traffic patterns for vehicles would change, with a significant amount of traffic shifting over to 3rd Street. These traffic volume shifts would likely have an impact on intersection operations, particularly at 3rd Street/ Greenwood Avenue.

The sensitivity analysis associated with the Franklin Avenue road diet shows the following potential impacts:

- Among the intersections assumed to be signalized, only 2nd Street/Franklin Avenue and 3rd Street Franklin Avenue appear to perform significantly worse under the road diet option, operating at LOS D rather than LOS C. Signalized intersections on Greenwood Avenue and other larger facilities are not significantly affected.
- Minimal traffic diversion would be expected with most traffic changes localized on Franklin and nearby parallel streets. Impacts to other arterial corridors, such as Greenwood Avenue, are limited to around 20-30 vehicles in each direction in the PM peak hour, and do not appear to significantly affect intersection operations

More complete analysis would be needed to confirm these results which are described in more detail in Tech Memo 9.

Complete Streets and Conceptual Street Designs

Complete streets are composed of many elements that enable safe travel for all roadway users, including transit riders, motorists, pedestrians, people on bicycles and freight users. Figure 8 on page 22 highlights many of the typical elements that "complete" a street. Some of the elements serve multiple categories of users. On-street parking, for instance, helps motorists access businesses in the District. Street parking also serves as a buffer for pedestrians and people on bicycles. The presence of parked vehicles narrows the visual field of motorists in the travel lanes, encouraging them to maintain a slow speed. Street parking stalls can also be repurposed to create "parklets" or bicycle parking corrals.

On-street parking also enables several complementary complete street elements. Curb extensions narrow the street crossing distance and help calm traffic. They can also be used for stormwater management. Bus bulb-outs are a form of curb extension that enables buses to load passengers without incurring a delay to merge back into traffic, provides additional space for stop amenities and passenger waiting, and promotes the visibility of people waiting for the bus. Bus shelters and amenities help create a more pleasant waiting environment, shielding transit patrons from heat and precipitation.

Crosswalks, accessible curb ramps, widened ADA-accessible sidewalks, and advanced motor vehicle stop bars all help create a safer and more pleasant walking environment. Buffered bike lanes and intersection treatments provide bicyclists with additional protection from adjacent vehicle travel lanes and safety from vehicles turning across a bicycle lane or route.

This photo of 3rd Street at Franklin (looking north) illustrates the need for streetscape improvements, access management (fewer driveways), wider sidewalks, and more frequent designated pedestrian crossings.

Source: SERA

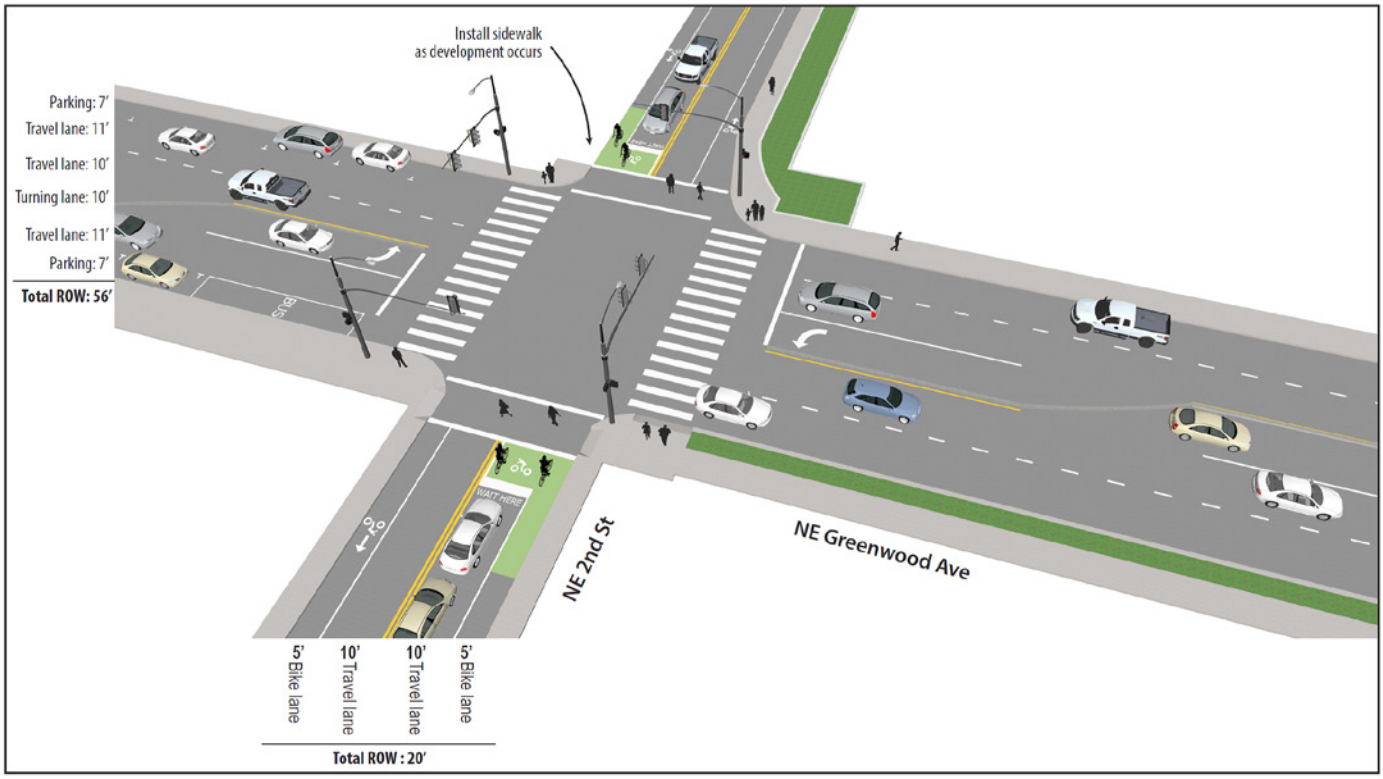


Figure 12 - Greenwood at 2nd Crossing Treatment with Existing Cross-Section

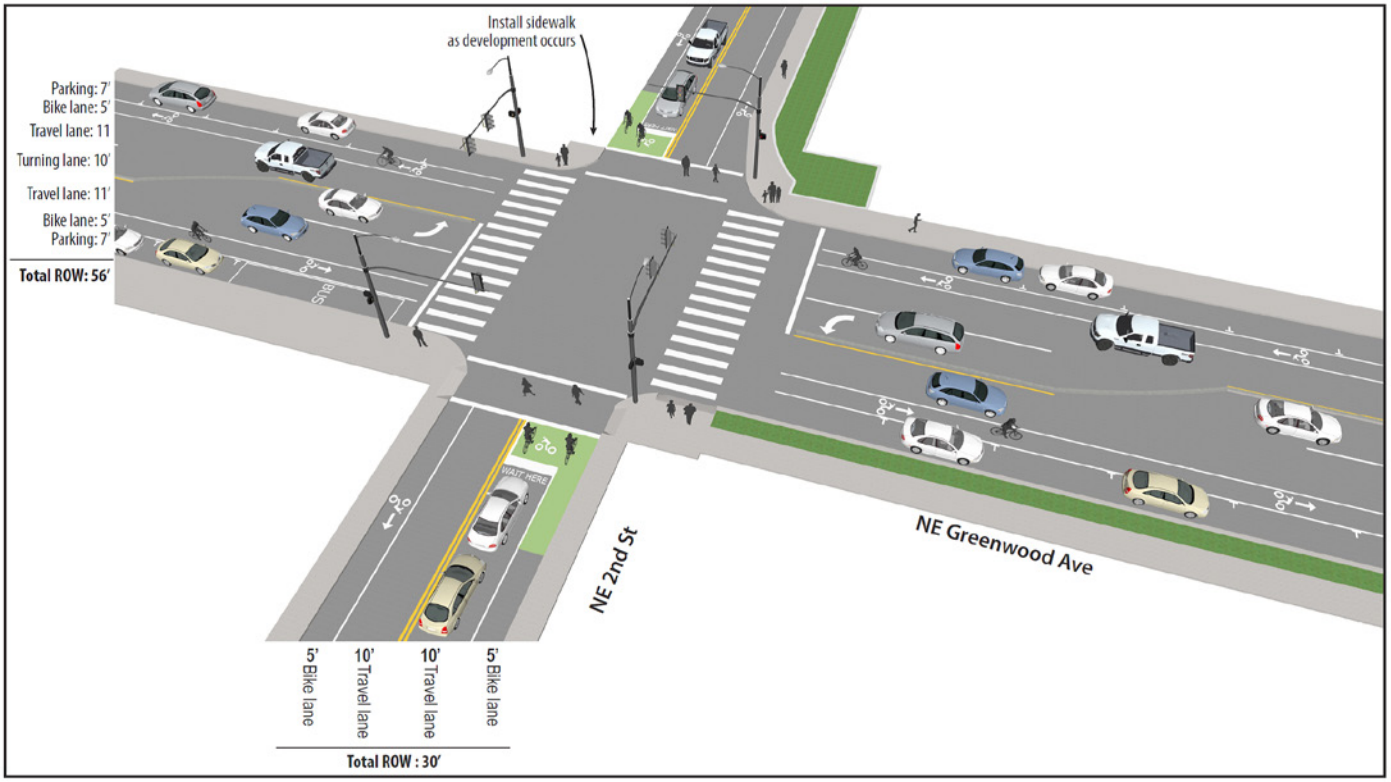


Figure 13 - Greenwood at 2nd Crossing Treatment with 3-Lane Cross-Section

Table 5 - Recommended MMA Cross-Section Features

Location	No-Build	Recommended Alternative	
3rd Street approximately south of Greenwood	• 4 motor vehicle lanes with center-turn lane • Signed for 35 mph • No bike facilities • Narrow sidewalks with no buffer • No on-street parking	• 2 motor vehicle lanes with center turn lane (11-foot travel, 12-foot turn lane) • Signed for 25 mph • 5 foot bike lanes with 2-foot buffer • Expanded sidewalks, enhanced streetscape • No on-street parking	
3rd Street north of Greenwood		• 4 motor vehicle lanes with center-turn lane (11-foot travel, 12-foot turn lanes) • Signed for 35 mph • 4-foot bicycle lanes • No on-street parking	
2nd Street	• 2 motor vehicle lanes • No bike facilities • Partial sidewalks	• 2 motor vehicle lanes (10-foot) • 6 foot bike lanes • On-street parking • Sidewalk infill	
4th Street	• 2 motor vehicle lanes • No bike facilities • Partial sidewalks • On-street parking	• 2 motor vehicle lanes (11-foot assumed) • 6 foot bike lanes • Sidewalk infill • On-street parking	
Greenwood Avenue west of 3rd	• 4 motor vehicle lanes • No bike facilities • Partial on-street parking	OPTION 1 (see Figure 12 on page 27): • 4 motor vehicle lanes (10-foot inside, 11-foot outside) • No bike facilities • On-street parking	OPTION 2 (see Figure 13 on page 27); consider west of 3rd: • 2 motor vehicle lanes with center turn lane • 5 foot bike lanes • On-street parking

As described in Figure 15 on page 31, 2nd, 3rd and 4th Streets, as well as major east/west streets would incorporate a variety of enhancements to enhance pedestrian and bicycle mobility and safety while maintaining mobility for cars and freight vehicles. Table 5 summarizes typical cross-section features recommended for these streets.

The intersection of NE 2nd Street and NE Greenwood Avenue is a critical opportunity to promote bicycle and pedestrian connectivity in the District. 2nd Street has been identified as a primary bike route through the District. However, currently the intersection has a concrete median barrier that prevents all crossings of Greenwood.

A full intersection with a traffic signal is planned to integrate 2nd Street into the District's street grid and increase overall network capacity. The basic intersection design illustrated in Figure 12 and Figure 13 will enable pedestrians, people on bicycles, and motorists to cross the intersection safely. It includes removal of the median barrier but maintains the cross-section of Greenwood Avenue. Relatively narrow 10-foot travel lanes are specified on 2nd Street to help calm traffic. Crosswalks and curb ramps are provided across each part of the intersection; sidewalks may need to be built out along 2nd Street as development occurs. Bike lanes are recommended for 2nd Street with green bike boxes to promote the visibility of people on bicycles and prevent right-hook collisions at signalized intersections. Advanced vehicle stop lines will promote the visibility of pedestrians crossing Greenwood.

Figure 13 on page 27 builds upon the basic design but also illustrates a possible redesign of Greenwood Avenue (west of 3rd Street only) with a three-lane cross-section with bike lanes to provide a critical link to downtown and on-street parking on both sides of Greenwood to support neighborhood businesses along the corridor. It should be noted that the impacts of this potential reconfiguration have not yet been evaluated and will need to be analyzed in more detail prior to further consideration, particularly as they relate to impacts on the state highway portion of Greenwood.

Figure 14 illustrates conceptual designs for 2nd Street. They depict how key elements of the recommended transportation network could be applied to a redesign of this street. The conceptual design of 4th Street would be similar to that shown for 2nd Street, although the character of land use east of 4th Street likely would differ.

Bicycle, Pedestrian and Transit Strategies

A variety of street and intersection design treatments needed to improve safety and comfort for all travel modes in the MMA. Table 6 describes a multimodal design toolbox of treatments that could be applied on 2nd, 3rd, and 4th Streets as well as east-west streets within the District to enhance conditions for pedestrians, cyclists, transit users and others. Certain elements could be implemented throughout the district, whereas others will only occur at key points or along specific corridors. The table includes a map identifier (ID) to clarify the corridors and intersections

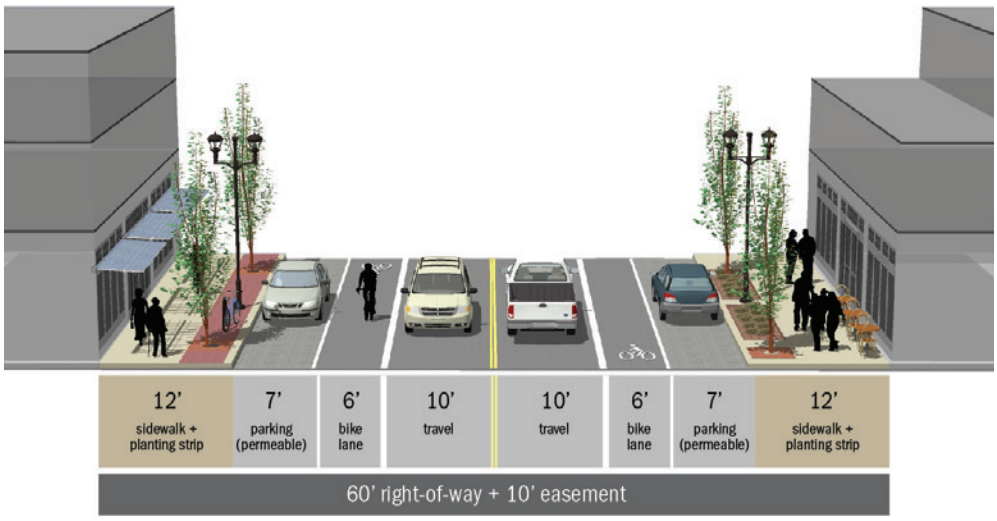


Figure 14 - 2nd Street Cross Section

Table 6 - Alternative Multi-Modal Transportation Improvements

Type	Map ID	Design Treatment and Brief Description	Application / Notes
	1	Pedestrian safety islands. Recommended to limit pedestrian exposure in intersections or crossings with 3+ traffic lanes.	(On streets with planted medians and/or 3+ travel lanes)
	2	Sidewalk expansion. Provide sidewalk capacity to comfortably meet pedestrian demand.	(Throughout District)
	3	Planted buffer. Provide separation from motor vehicle traffic.	(Throughout District)
	4	Bulbouts/curb extensions. Visually and physically narrow roadway. Often used in conjunction with on-street parking.	(Streets with on-street parking)
	5	Highly visible, mid-block crosswalk. Meet high demand for pedestrian crossings between intersections.	(3rd)
	6	Raised crosswalks. Visually and/or physically emphasize crossing locations. (Note: Not allowed on state highways.)	(at Hawthorne Station)
	7	Accessibility ramps. Required at all intersections & mid-block crossings.	(Throughout District)
	8	Rectangular Rapid Flash Beacon (RRFB). Increase visibility of high-demand unsignalized ped. crossings of higher-speed, multi-lane roadways, e.g., 3rd, Greenwood, etc.	(3rd)
	9	Bike lane (no buffer). Standard bike lane with no additional separation from vehicle travel lanes (appropriate for moderate-volume roadways and vehicle speeds of approx. 25-30 mph).	(2nd, Greenwood)
	10	Buffered bike lane (e.g., Thermoplastic, Planters, Striping). Provide additional separation/ protection for cyclists on higher-volume and/or speed roadways, e.g., ≥ 30 mph.	(3rd south of Greenwood)
	11	Bike corrals. Serve bike parking demand; often converted from on-street parking and/or implemented in conjunction with curb extensions.	(Streets with on-street parking)

Type	Map ID	Design Treatment and Brief Description	Application / Notes
	12	Bike boxes. Increase visibility of bicyclists at major intersections and/or with high turning movements. (Note: Requires FHWA approval as an experimental treatment.)	(2nd, 3rd, 4th)
	13	Left turn bike boxes. Facilitate bicycle left-turns without crossing motor vehicle lanes.	(Could be considered on 3rd or Greenwood)
	14	Bus bulbouts. Increase transit stop visibility/comfort/capacity and minimize bus delay.	(Transit streets with on-street parking)
	15	"Share the road signs" and other bike and pedestrian signage including bicycle wayfinding	(Throughout District; wayfinding particularly at facility transition points, e.g., bike lanes on 3rd terminate south of Greenwood)
	16	Narrow travel lanes. Reduce motor vehicle speeds. (Note: Need to balance with impacts on freight mobility.)	(E.g., Greenwood and Olney)
	17	Street narrowing. Narrow curb-to-curb distance, e.g., to increase right-of-way for sidewalks.	
	18	New signalized intersections and/or additional signalized control or upgrades at key intersections.	(2nd and 4th)
	19	Advanced vehicle stop lines. Increase separation from pedestrian crossings. (Could be coordinated with bike boxes).	(Franklin, Olney, 3rd, Greenwood)
	20	On-street parking. Support local businesses, calm traffics, and separate pedestrians from vehicle lanes.	(Greenwood)
	21	Managed access. Consolidate driveways to reduce turning movement locations (increases bicycle and pedestrian safety).	(3rd, Greenwood, Hawthorne Station; Throughout District)
	22	Stormwater management features. Filters runoff, calms traffic, beautifies streetscape.	(Throughout District)
	23	General Streetscaping. Calms traffic and increases pedestrian comfort.	(3rd, Greenwoood; Throughout District)
	24	Speed humps. Reduce vehicles speeds, increases driver awareness. Can be applied 4th Ave in some alternatives and to east-west residential streets.	
	25	Parklets. Expand restaurant/café seating, create public spaces, add buffer between sidewalk and vehicle lanes.	(Throughout District)
	26	Mini roundabout. Calm/ manage traffic at neighborhood street intersections where volumes do not warrant a stop sign.	
	27	Large roundabouts. Slow turning vehicle speeds, forcing greater awareness of pedestrians.	(3rd)
	28	Reduce curb radii at intersections. Reduce turning speeds and shorten pedestrian crossing distances.	(Throughout district; e.g, 3rd & Franklin, Greenwood, Olney; 4th & Olney, Franklin; 2nd & Greenwood, Olney)
	29	Overpass or underpass. Provide low-traffic volume over- or under-crossing on Hawthorne of BNSF railroad tracks and Bend Parkway, as an alternative to improvement of Franklin and Greenwood underpasses.	(Hawthorne and Highway 97)

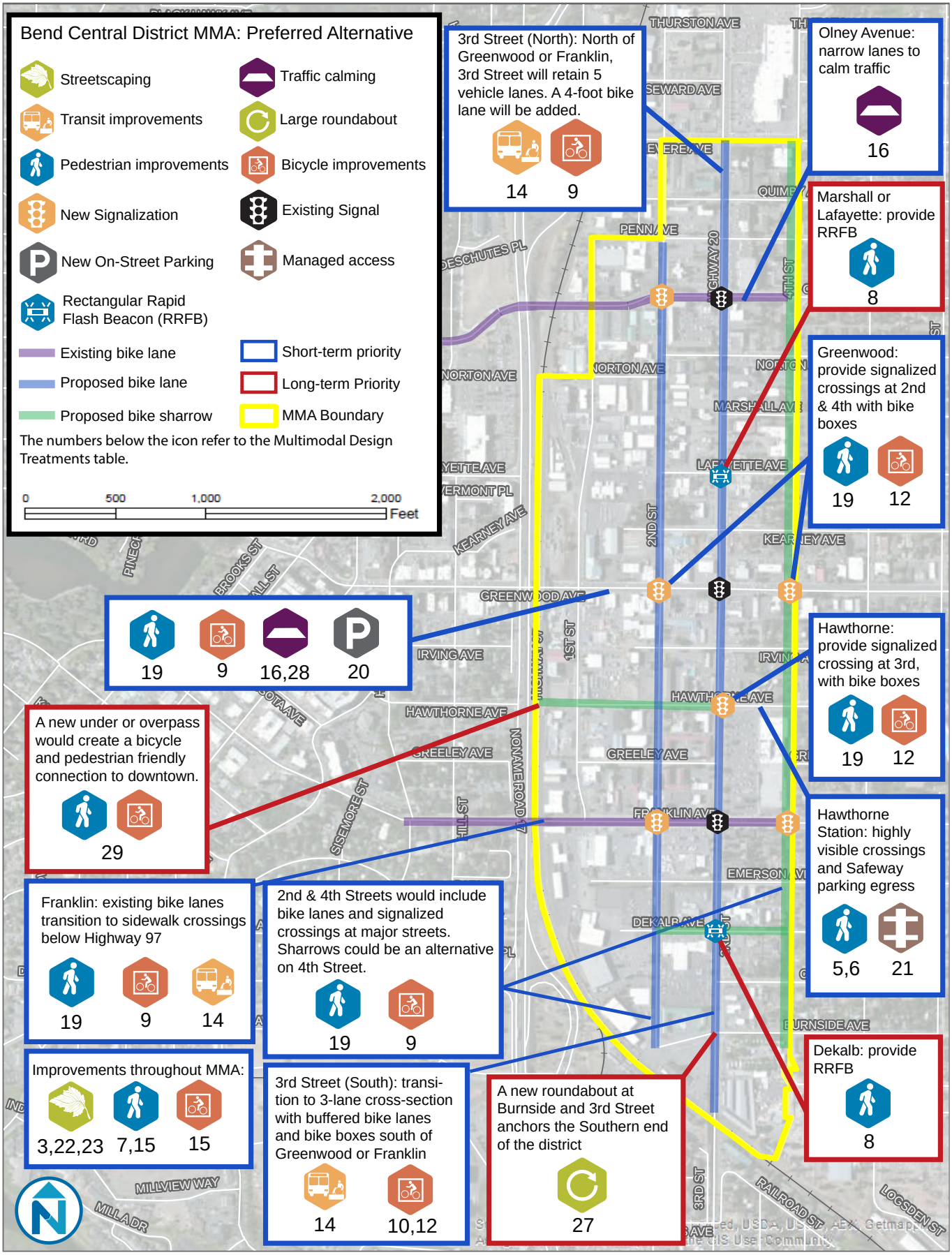


Figure 15 - Recommended Design Treatments Map

Prepared by APG and Nelson\Nygaard

where specific treatments are recommended, as illustrated in Figure 15 on page 31. The appendix to Technical Memorandum #5 contains an expanded matrix with photos to illustrate each treatment.

Pedestrian

Recommended improvements to improve pedestrian conditions and safety along major streets throughout the district include widening sidewalks, which in many cases lack sufficient clearance for wheelchairs and other mobility devices, and providing accessibility (curb) ramps at all intersections and driveways. Corner curb radii can be tightened at many intersections to prevent excessive turning speeds, expand the pedestrian area, and reduce pedestrian crossing distances (see #28 in the design toolbox – Table 6). Curb bulb-outs and pedestrian-scale wayfinding signage are other elements that will help make pedestrians more visible to other road users and ensure a safer and at times faster walking trip.

Improved pedestrian crossings to reduce out-of-direction travel and improve access to local businesses and transit facilities are recommended, particularly on 3rd Street, as well as other major streets in the area. Notwithstanding additional signalization that is included in various alternatives, placing high-visibility pedestrian crossings at intermediate intersections or high-demand mid-block locations between signals would provide safe and convenient crossing locations for pedestrians, bicyclists, and transit riders. Raised crosswalks, Rectangular Rapid Flash Beacons (RRFB), and overhead or in-pavement indicators are examples of treatments that should be used to maximize visibility of these crossings, particularly on wide, higher-speed streets such as 3rd Street and Greenwood Avenue. On wider, multi-lane streets such as 3rd Street and Greenwood Avenue, a pedestrian refuge island can be provided in conjunction with a street median or turn lanes, reducing the pedestrian crossing distance.

Bicycle

Some type of bicycle facility improvement is recommended on all north/south and all major east/west streets in the area. Basic striped bike lanes provide cyclists with dedicated right-of-way but a minimal degree of separation from other traffic. Depending on adjacent traffic speeds, higher degrees of separation are desirable where traffic volumes or speed are higher, such as a buffer between the bike and travel lanes. Such separation is desirable in other alternatives as well, particularly those that assume a speed limit of 35 mph. Other infrastructure elements, such as bike boxes and left-turn bike boxes at intersections, improve visibility and alert drivers to the presence of cyclists. This is particularly critical at intersections with high turn movements. Wayfinding and "Share the Road" signage may also help develop a sense of caution among all road users.

Transit

Improvements to transit operations, connections and comfort are recommended. Bus bulb-outs located at bus stops will help improve visibility for both bus drivers and passengers waiting to board and also enhance the attractiveness/comfort of transit use. Pedestrians and other road users will see a clear indication that riding transit is easy, pleasant, and accessible. Shelters should also be provided at moderate-to-high volume stops, including transit and walking information; shelter capacity should be increased at projected high-demand stops.

As described above, pedestrian crossings are needed to provide access between transit stops in either direction, which on 3rd Street are frequently located between signalized intersections; locating stops either at the near or far side of intersections is typically preferred, except where high-demand activity centers are served. Crossings are also needed on Franklin and Greenwood, and along 2nd Street.

A particular conflict point for transit passengers exists on the eastern half of Hawthorne Avenue (between 3rd and 4th Streets), which serves as an on-street transit center. Passengers cross Hawthorne mid-block to transfer between bus routes, while vehicles may egress the Safeway parking lot eastbound onto Hawthorne and have limited visibility of pedestrians crossing the street between buses. Right-turns onto eastbound Hawthorne could be prohibited at this parking lot egress and one or more raised, high-visibility crossings could be installed across the eastern portion of this block to provide designated crossing locations.

Potential locations of the improvements described in Table 6 are illustrated in Figure 15 on page 31. These recommendations aim to maximize bicycle and pedestrian connectivity within the District and provide better access to downtown and other neighborhoods

Transportation Improvement Phasing and Near-Term Improvements

The transportation improvements described in the Plan will need to be phased in over a long period of time as redevelopment occurs in the MMA, as funding becomes available, and as regional traffic continues to evolve. Following is a list of recommended near-term improvements.

Streetscaping

Streetscaping improvements will make the District a more attractive place to walk, bike, and linger. Streetscaping brings the added benefit of slowing traffic speeds. Motorists will have a narrower field of vision with added streetscape features, encouraging them to drive more slowly along the pedestrian friendly streets. Streetscaping will occur throughout the District and can include planter strips on sidewalks, new street trees, and stormwater management features such as rain gardens and bioswales. Parklets can be constructed in front of businesses that would welcome the exchange of a parking space for added seating.

Traffic Calming

In addition to streetscaping, traffic calming elements will be added throughout the District in the short term to slow vehicle speeds. Narrower traffic lanes and reduced curb radii at intersections will encourage slower speeds among motor vehicle users. Beyond recommendations for 2nd, 3rd, and 4th Streets, narrowing lanes is recommended for Greenwood and Olney Avenues because they are important east-west bicycle and pedestrian links to downtown and other neighborhoods. Any strategies affecting intersection geometry or roadway cross-section on state facilities will require coordination with ODOT and will need to be balanced with freight mobility and operations needs.

Transit Improvements

3rd Street and Franklin and Greenwood Avenues are the primary transit streets within the District, as well as portions of 4th and 5th Streets. Bus shelters and other amenities placed at the highest-volume stops within the District will improve the comfort of transit users and make transit more visible and attractive to new riders. Bus bulbouts are not specifically called out in the recommendations but can be considered on transit streets where there is on-street parking. At Hawthorne Station, restricting right-turns at the Safeway parking lot egress onto eastbound Hawthorne and providing a raised mid-block crosswalk for transferring bus riders will improve safety.

Pedestrian Improvements

Short-term pedestrian improvements include sidewalk infill on 2nd and 4th Streets. Sidewalks can also be widened as new development occurs through implementation of an additional five-foot pedestrian easement. New signals and crosswalks at critical intersections along 2nd, 3rd, and 4th Streets will promote connectivity within the district. At intersections on higher-volume streets (Greenwood Avenue or 3rd Street), advanced vehicle stop lines will increase pedestrian visibility. Rectangular rapid flash beacons (RRFBs) are recommended at key intersections along 3rd street to promote safe street crossings; the highest-priority short-term RRFB improvement is recommended at Hawthorne Avenue. Two additional RRFBs are recommended as long-term improvements.

Bicycle Improvements

Bicycle improvements throughout the district will ensure safe, convenient, and comfortable access to businesses and residences. Wayfinding and other signage on all streets within the district will help users navigate the bicycle and/or pedestrian network.

North-South Connections

Short-term bike infrastructure priorities include a bike lane stretching the full length of 2nd and 4th Streets within the District. Bicycle sharrows could be used on 4th Street as an alternative in place of bike lanes, particularly where the existing pavement width is narrower, although they were not assumed in the traffic analysis conducted for this study. A buffered bike lane on 3rd Street will stretch from approximately Franklin Avenue south; this is important due to higher traffic volumes and speeds on 3rd Street. Use of a buffered bike lane north of Franklin is recommended and would complement the surrounding pedestrian environment by promoting slower traffic speeds and providing pedestrians an added buffer from the travel lanes. However, these goals would need to be balanced with impacts on lane widths and freight mobility needs and would require further analysis by the City and ODOT, including further traffic study to analyze the impacts of removing or narrowing lanes on this segment of 3rd Street. At the point where the buffered bike lane terminates, clear bicycle wayfinding

will need to guide bicyclists to one of the other north-south streets.

Finally, advanced stop lines and green bike boxes placed at major intersections on 2nd, 3rd, and 4th Streets will improve the visibility of people on bicycles, help cyclists make left-turns from 3rd Street, and protect cyclists from left-hook collisions. Left-turn boxes are not specifically recommended but could be considered on 3rd Street, particularly where there is expected to be high demand for bicycle left-turns (such as when the northbound bicycle lanes on 3rd terminate) and the east-west street has on-street parking.

East-West Connections

The addition of new bike lanes on Greenwood Avenue would significantly improve bicycle access to north and south downtown. As noted previously, this would require further analysis and discussion by the City and ODOT. This bike lane will be paired with traffic calming measures and also provide an important link between the north-south streets within the District. Existing bike lanes on Franklin Avenue transition to sidewalk crossings under Highway 97 and continue west of the Parkway. Existing low-volume designated east-west bike routes should be extended through the District to make connections with new bike facilities on 2nd, 3rd, and 4th. Sharrows are recommended on Hawthorne and Dekalb Avenues (where RFFBs are recommended to facilitate bicycle and pedestrian crossings) in the southern portion of the District.

Olney Avenue currently features a continuous bike lane across 3rd Street and under Bend Parkway, but high traffic speeds and volume reduce the safety of this east-west connection to downtown. Narrowing the relatively wide travel lanes on Olney is recommended.

Signals

Seven new signals will be placed throughout the district, at the intersections of 2nd and 4th Streets with Franklin, Greenwood, and Olney Avenues. These signals will provide bicycle and pedestrian crossings as well as traffic-calmed vehicle connections on these streets. Figure 12 and Figure 13 illustrate a design example for the 2nd and Greenwood crossing.

New On-Street Parking

In addition to helping motorists access businesses in the District, new on-street parking such as is recommended on Greenwood Avenue will buffer the pedestrian environment from moving motor vehicles and calm traffic. Additional opportunities for on-street parking can be identified on other streets in the District.

Managed Access

Managing access to businesses by consolidating multiple can reduce conflict points and promote visibility of moving motor vehicles, pedestrians, and bicycles. It also improves access for mobility devices along sidewalks.

Parking Supply and Management

As previously noted, implementation of an MMA requires reducing off-street parking requirements and developing an overall parking management strategy. The land use and urban design section of this Plan briefly describes several general recommendations for reducing parking minimums or off-street parking requirements, consistent with previous recommendations from the CAP process.[1] Additional strategies related to parking supply and management include the following:

- Consider new off-street parking standards within the context of availability of on-street parking and existing surface lots.
- Further analyze actual parking demand in the MMA as a means to recalibrate parking standards.
- Examine the potential adverse impacts to density that currently allow unlimited surface parking to meet code requirements for off-street parking.
- Consider a floor area bonus for below grade parking.
- Relax parking requirements within the proposed CAP-MCEN zone (or specific areas within the MMA) for the on-street parking credit[2], off-site parking and/or shared parking.

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1 Note that reduced minimum parking requirements may apply to any development that has more than one business through a shared parking agreement. A fee in lieu option for providing required off-street parking is also available to development in the CAP-MCEN zone, as currently drafted.

2 Under existing code, off-street required spaces may be met through on-street parking spaces at a 1 for 1 exchange, up to 50 percent of the requirement (3.3.300.B).

- Consider the following specific approaches to modifying off-street parking requirements.
  - Waive parking requirement for small restaurant/café/deli uses.
  - Eliminate parking requirements for uses that are (a) 750 square feet or less and (b) fronted by curb space that provides on-street parking.
  - Streamline definition of "commercial uses" to parallel the CBD and establish one parking requirement for all commercial uses (nine standards currently apply to non-CBD areas, pursuant to Table Table 3.3.300).
  - Reduce minimum parking requirements that apply to any development that has more than one use. Current code requires parking for each individual use, as opposed to a "mixed use" parking standard.

Other Transportation Demand Management Strategies

In addition to managing the supply of parking and creating an integrated land use and transportation plan, a variety of other strategies can be used to help manage the demand for travel within, to and from the MMA. These "transportation demand management" (TDM) strategies and policies are designed to reduce overall travel demand (specifically that of single-occupancy private vehicles or SOV) by redistributing it in space or time and providing additional transportation options. Strategies and programs are targeted at shifting the times of travel, varying the modes of travel, and diversifying the routes traveled. These efforts save employees and employers money. They can include physical access improvements, unbundled parking costs or parking cash-out for employees, and a variety of ride matching, carpooling, and transit programs.

The purpose of the Bend Central District MMA Project is to recommend ways to revitalize and facilitate future redevelopment in the area to include a combination of housing, businesses, and other uses to create a vibrant district. An important component of accommodating this growth and adding to this vibrancy will be TDM strategies and programs that allow more people to arrive to work and travel to and through the district by modes other than driving alone. TDM programs will work to improve the accessibility, mobility and vitality of the Central District business and light industrial area by reducing congestion, minimizing the amount of valuable land needed for auto parking, and making healthier, more vibrant environments.

Existing Options to Leverage

Opportunities for Commute Options Program

Commute Options operates the TO programs for Region 4.
Source: Commute Options

Since 1990, Commute Options has promoted transportation demand management solutions within Central Oregon with the mission to reduce drive alone trips. With funding support from ODOT, Commute Options continues to provide a wide variety of programs and services to achieve this mission. These programs include rideshare, Safe Routes to School, and events like Commute Options Week. Commute Options also leads outreach to schools and community groups.

Expand Commute Options "Drive Less. Connect." Program

Commute Options partners with Oregon's statewide ride-matching tool, "Drive Less. Connect" that matches people traveling to nearby destinations. In ODOT Region 4, there were 1,927 total participants in 2013. In 2013, those users logged almost 2 million non-SOV miles.[3] This is an ideal tool for employees of the same company or for those working in close proximity. Through the Commute Options incentive program, users are able to earn gift cards by tracking and logging their trips on the program's website.

Expanding the program to better target the unique needs of Central Business District employees that may not have access to safe and comfortable walking and biking routes will allow a more tailored fit effort to educate and encourage non-SOV trips in the district.

Waive Business Registration Fees and use other funds for rewards

Currently, businesses pay between $50 to $500 per year in membership fees (depending on the number of employees) to participate in the program. This member fee is used to fund the Commute Options Reward program since ODOT funds cannot be used to purchase rewards. If an alternative funding avenue was present, either through private

3 Source: Drive less. Connect.; data as of 12/31/13

sponsorship or through amending State policy, it may be possible to encourage more business to participate.

Develop a Guaranteed Ride Home Service

Adding a guaranteed ride home voucher system allows people to use a cab in the event they need to leave work earlier or later than their ride or travel somewhere not accessible by transit. These vouchers may be provided as a reimbursement or as a physical voucher given to the cab driver. They remove some of the hesitations that people have about losing travel flexibility when choosing transit, carpooling, or biking.

Encourage participation in commuter benefits

Commuter benefits programs like Commuter Benefit Solutions leverage the federal subsidy for bicycle commuting, transit, and parking. Employees receive tax-free benefits for commuting to work via public transportation, bicycle, or ridesharing. As a benefit to employers, enrollment in the program often reduces their payroll taxes, on average by about 7.5%. These benefits may be used to pay for transit service and or received as a check to be used at local bicycle shops.

There are no minimums for the number of employees participating and no time limit. For employers and employees, no complex record keeping is required. Copies of order forms need to be retained, but no special IRS reporting is needed.

Improve Transit Accessibility

The regional transit provider, Cascades East Transit (CET), provides transit service throughout central Oregon. In the study area, CET runs a number of routes, many converging at the Hawthorne Station Intermodal Center located at the eastern edge of the District.

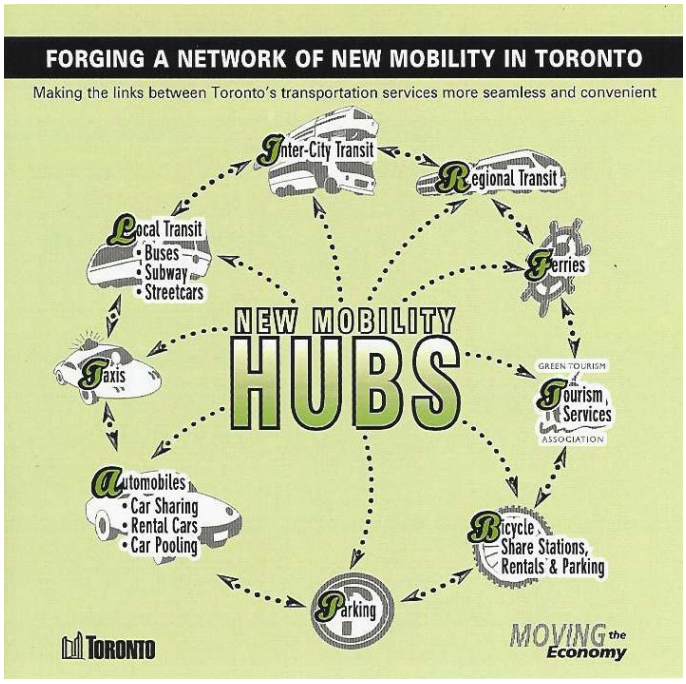
While bus service is generally infrequent on many of the routes, the lack of high-quality pedestrian environment also presents a significant challenge to transit ridership. With improved pedestrian access throughout the study area, it is possible to encourage more employees, customers, and residents to use transit.

Develop Hawthorne Station Intermodal Center into a Mobility Hub

Mobility hubs are a place where transportation modes seamlessly connect. They usually involve transit, bicycle facilities, vehicle sharing such as car and vanpooling, concentrations of land uses, and an information component. They often serve as the origin, destination or transfer point for a significant number of trips.

Hubs might link or support:

- Multiple transportation operators, modes, and services
- Taxis or car-sharing vehicles (e.g. Car2Go)
- Carpool or vanpool meeting points
- Long-term and short-term secure bike parking and bikeshare if available
- Inter-city buses and transit (e.g. Central Oregon Breeze)
- Ridesharing opportunities for drivers and passengers traveling to rural locations
- Cafes and public plazas
- Telecommuting services including Wi-Fi access
- Electronic fare-payment options and pricing mechanisms
- Real-time travel information for all modes
- Electric vehicle charging stations.

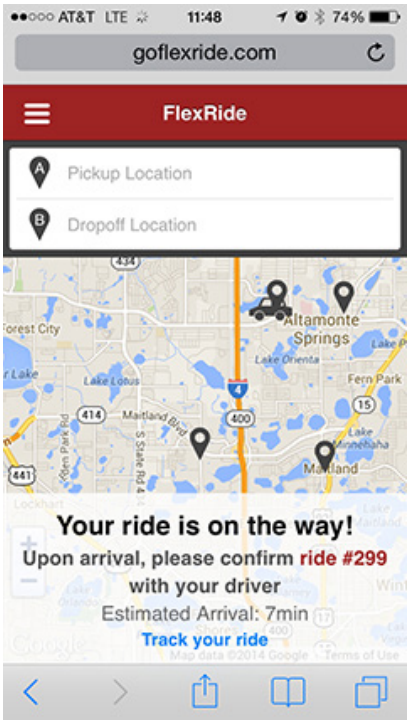


Source: The New Mobility HUB Concept (Moving the Economy, 2006)

A key to the Mobility Hub concept is providing excellent connections to the bicycle and pedestrian transportation networks. Ensuring that safe and comfortable routes

connect the study area to a location like the Hawthorne Station Intermodal Center will make it easier and more likely for people to travel to work by transit or a combination of alternative modes.

FlexBus, Station-to-Door service, or Jitney Service



FlexRide mobile phone app makes it easy to book a near door-to-door transit experience.

A FlexBus system offers many of the conveniences of using a taxi, at a much lower cost. The user requests a ride from their computer, tablet, or smartphone, and meets the vehicle at either an existing spot nearby or at an arranged location. The vehicle drops off the passenger at or near their final destination. Costs are more than fixed-route bus lines, but significantly less than using a cab (since there can be multiple riders) or owning and maintaining a private vehicle for the user and much less expensive than dial-a-ride system for transit operators.

Create a Fareless Transit Zone

Currently, transit service on CET is a nominal cost. Fares in and around Bend cost riders $1.50 for a full fare. Because of infrequent service and the perceived low-cost of driving, this may not attract users other than the transit dependent. Because of limited cost recovery, it may help ridership (and congestion, air pollution, and safety for all people) to drop the fare entirely.

By offering a fareless transit zone in and around Bend, more people may choose to use transit. Fareless zones have been used with success in Portland, Salt Lake City, and Pittsburgh among many internal examples. Currently, only a small portion of CET operations are covered by collected fares. As Bend provides CET separate funds for the fixed-route bus system, there is an opportunity to explore increasing that contribution or to leverage contributions from local institutions (e.g., health care, colleges) and businesses to subsidize a fareless transit service.

Future Opportunities

Improved Bicycle and Pedestrian Transportation Networks

Getting people to walk and bike to work requires safe walking and biking environments. Currently, the walking and biking networks along and through the study area are not fully developed and do not make important connections to area businesses.

Following the direction of Section 6.9.4, Pedestrian and Bicycle Systems in the Bend Area General Plan and Chapter 7: Pedestrian and Bicycle System of the Bend Metropolitan Transportation Plan (MTP) provides opportunity to develop a cohesive continuous network for walking and biking in Bend.

Most applicable to the Central District, the MTP directs the development of walking and biking infrastructure and specific inclusion of bikeways and pedestrian ways during redevelopment. Additionally, the MTP includes guidance to provide secure bicycle parking at likely destinations. The MTP notes that bicycle parking should be, “convenient, easy to access and provide suitable protection from the weather.”[4] Key Bicycle and Pedestrian Policies include:

Policy 3, which directs the development of safe, and convenient bicycle and pedestrian circulation to major activity centers such as shopping areas with particular attention given to east-west access barriers such as Bend Parkway and the railroad tracks

Policy 4, which directs the facilitation of easy and safe bicycle and pedestrian crossings of major collector and arterial streets

4 http://www.bend.or.us/modules/showdocument.aspx?documentid=5497

Policy 11, support bicycle and pedestrian education and safety programs

Additionally, the MTP policies include various policies to ensure the installation, maintenance, and in-fill of sidewalks and bikeways during redevelopment and new construction.

Improved bicycle parking at businesses

A secure and convenient place to park a bicycle is necessary if a shift to bicycling in the study area is desired. The installation of basic staple racks near the main entrances of all local businesses provides easy access without the challenge or fear of finding secure parking.

Access-controlled bike parking provides both security and certainty for bicycle commuters. (Source: pdx.edu)

Staple racks near the front of establishments should be thought of like parking spots near stores' front doors: they should be reserved for the convenient use of customers, not employees. Additionally, basic staple racks may not provide the security and protection needed for extended parking.

Ideally, employers will provide covered, weather protected, secured parking for employees bikes. This may be indoors or in a covered facility adjacent to the business. These accommodations may be shared between a few employers in the case of shopping plazas.

An example of an industrial user that has seen the benefit of supporting multimodal commuting, Daimler Trucks North America opened a bicycle parking facility at their North American headquarters in Portland to accommodate 53 bikes and encourage more employees to ride bicycles to their Swan Island location. The new shelter has interior LED lighting, security camera, 24/7 key-card access, a bike repair stand, and includes roll-in and hanging racks.

Develop a Central District Business Alliance

Bringing together the voice and interests of employers and employees in the Central District in a unified organization will facilitate the implementation of TDM measures. Creating a business alliance may allow for better-coordinated business development as well as provide support for TDM strategies and programs in the study area.

In Portland, the Swan Island Business Association, a group of light and heavy manufacturing and a variety of retail businesses, leveraged their collaborative working relationship to form the Swan Island Transportation Management Association (TMA). The TMA facilitates and implements appropriate and focused solutions that help business, productivity, freight circulation, and multimodal transportation options.

Make the Business Case for TDM

There is a strong business case for developing a transportation demand management program. Such a program can help employers and employees:

- Maintain or Reduce Commute Times
  - Travel options will help maintain drive time
  - Reduced traffic means faster drive times
- Support a Healthy Economy
  - Travel options pay a "green dividend" in terms of reduced household transportation costs. These savings are often re-circulated in the local economy rather than being exported to oil and auto producing states and countries.
- Maintain Good Air Quality
  - Reduced vehicle miles traveled mean lower mobile source emissions and less greenhouse gases
  - Reduced emissions improve public health
- Manage Parking & Access
  - Public and private cost savings from building parking
  - Increased development potential
  - Enhanced land values
- Support Community Health
  - Increased exercise
  - Improved employee productivity
  - Reduced health care costs
- Enhance Value of Transit
  - Increased ridership yields greater public return on investment
  - Resident and household cost savings
- Long Term Roadway Operations & Maintenance Costs
  - Extend the life of roads

› Public cost savings from avoided road maintenance and expansion

Rebrand the Central District

As the Downtown Bend Business Alliance is able to collect funds for events, reward programs, and beautification programs, so too can the Central District. Redevelopment strategies and transportation system changes may be the ideal opportunity to establish a business alliance. Through the collection of nominal membership fees, businesses can have more specialized incentive and education programs, support each other in developing shared auto and bicycle parking facilities for visitors and employees, and to work collaboratively toward improved walking and biking connections.

IMPLEMENTATION

A variety of activities will be needed to refine and implement the MMA Plan, including the following:

- Next steps in planning process
- Future cost estimating and funding strategy
- Redevelopment process
- Design and construction of specific improvement projects
- Future monitoring of highway conditions

Further MMA Planning

Several steps remain in the current phase of the MMA Planning process, including the following:

- Review of this document by the project advisory groups – Project Team (PT) and Technical Advisory Committee (TAC)
- Refinement of this Draft MMA Plan and preparation of draft implementing amendments to the City's General Plan, Transportation System Plan and development code
- Review of the revised MMA Plan and potential plan and code amendments with the PT and TAC
- Further refinements of the MMA Plan and potential plan and code amendments
- Joint meeting of the Bend Planning Commission, City Council and other community members to review the revised MMA Plan and potential plan and code amendments
- Preparation of final documents based on the review

Those activities are expected to be completed by September, 2014. Assuming it is recommended as an outcome of the project, adoption of the MMA Plan and implementing plan and code amendments will be part of a future planning phase.

Cost Estimates and Financing Strategy

The planning team considered the relative costs of different transportation options in evaluating alternatives and also is working with City staff to identify a set of planning level cost estimates for different types of improvements that can be used to help estimate improvement costs in the future. Preparing cost estimates will be an essential component of any future design and planning for specific improvement projects.

A variety of funding sources could be used to help finance improvements within the MMA area identified in this draft Plan. They include the following:

- **Transportation System Development Charges (TSDCs).** This mechanism can be used to pay for projects necessitated by new growth or development, particularly for increases in road capacity or improvements to sidewalks or other facilities. TSDCs may be an option for selected projects identified in the MMA Plan, especially if they increase capacity. In addition to the current TSDC, the City could contemplate adoption of area specific or "supplemental" SDCs to pay for improvements needed in specific locations (like the MMA) in the future.
- **State Highway Trust Fund.** A primary source of City street maintenance funds comes from the State Highway Trust Fund (SHTF). The SHTF is made up of a combination of statewide collected gas taxes, vehicle registration fees, fines and weight-mile taxes. The revenues are paid to cities and counties on a monthly basis from net receipts collected by the Motor Vehicles Division, Highway Division and the Motor Carrier transportation Branch. State law stipulates that these funds are limited to road related purposes on public right-of-way only. Some projects

identified in the MMA Plan may be eligible for these funds, particularly improvements on portions of 3rd Street and Greenwood Avenue, which serve as state highways (US 20/97).

- **State Liquor and Cigarette Taxes and State Shared Revenues.** The City also receives state revenue sharing - Liquor and Cigarette Taxes and State Shared Revenues on a formula basis. These taxes may be used for general government services, without program restrictions on their use. The cigarette taxes have also been used by the ODOT - Public Transit Division for the benefit of transportation services for the elderly and handicapped. The City has used grants from state Special Transportation Funding (STF) to purchase new and replacement Dial-A-Ride (DAR) vehicles. Similarly, these funds may be a potential source for future transit improvements in the study area.
- **Federal Funding.** Two back-to-back, six-year funding bills, authorized by Congress, have been a source of federal transportation funding to the City through the 1990s. These federal funding acts include the Intermodal Surface Transportation Enhancement Act (ISTEA) and the Transportation Enhancement Act for the 21st Century (TEA-21) and Moving Ahead for Progress in the 21st Century Act (MAP-21). These acts have been and may continue to be a source of revenue for the City of Bend through both grant and revenue sharing programs and may continue to be a source of funding for selected projects in the area, particularly pedestrian and bicycle facility enhancements.
- **Franchise Fees.** The City collects franchise fees from local utility companies that utilize public right-of-ways for the conveyance of their services. Franchise fees are currently collected from a variety of utility and communications companies. A portion of the funds derived from the franchise fees are expended for maintenance and street improvement needs based on the priorities set by City Council.
- **Developer Exactions.** Developers are required, without reimbursement, to build the local streets serving their developments. As redevelopment occurs in the MMA area, developers will be required to pay for their proportionate share of improvements to local streets and other facilities that serve their developments.
- **Urban Renewal Funding.** Urban renewal, or tax increment financing, is a financing tool that has been used by the City to improve certain "blighted" areas of the community. This method of funding has been used to fund a variety of projects in the downtown and other areas including a number of transportation related improvements. Similarly, the City could consider use of urban renewal as a funding strategy in the future MMA.
- **Other Possible Funding Sources.** The City's Transportation System Plan identifies a variety of other possible funding sources that could be used to pay for future transportation improvements. They include the following:
  - Local gas tax
  - Local vehicle registration fee
  - Transient room tax
  - Local Improvement Districts
  - Bond Measures

Further consideration of these sources would require extensive discussion by the community.

Redevelopment Process

The MMA Plan assumes a significant amount of future development and redevelopment in the Central District resulting in a large number of new housing units and businesses and transformation into a more vibrant, mixed use area. By necessity, private property owners and developers will be key community partners in design, construction and funding of both private and public improvements. The previous section identifies developer exactions or contributions as one source of funding for public improvements. Other related funding strategies may include:

- **Fee In Lieu of Construction.** This fee is collected when required street frontage improvements, typically associated with residential construction, are impractical to build at the time of development. These funds are limited in both how and where they can be spent.
- **Development agreements.** These agreements are typically used to help pay for improvements that are not funded through the other sources identified here.

In working with property owners and developers, the City may also want to consider use of the following tools:

- **Proactive communication.** Private market developers appreciate clarity and certainty in the design and permitting process. Certainty helps the developer save time, make decisions to proceed, and avoid costly surprises further along in the process. In some cases, a developer will even prefer the certainty of a clear process even if it has greater requirements and fees, over a complex and unclear process with nominally lower requirements and fees. This means that City development code, design review process, permitting process, fees etc. should be as easy as possible for the developer to understand and navigate.
- **Development incentives.** These may include height or density bonuses, parking requirement reductions,

streamlined permitting processes, reduced application or development fees, assistance with land assembly efforts and/or joint marketing of catalytic development sites. Some of these strategies are described in more detail in previous sections of this Plan.

Design and Construction of Infrastructure Projects

This plan describes a proposed, conceptual transportation network for the MMA area and identifies a variety of potential strategies to improve transportation facilities for drivers, freight vehicles, pedestrians, bicyclists and transit users. It identifies key elements of major streets and conceptual designs for selected intersection improvements. However, more work will be needed to further design and implement specific transportation improvements. Any of the improvements identified in this Plan would need to go through a more detailed design and planning process and would involve further coordination with local property owners, the Oregon Department of Transportation and other public and private stakeholders and community members. Those processes would consider a variety of factors, including but not limited to the following:

- Alternative designs and their impacts on access, safety and mobility
- Integration with existing and planned future land uses
- Economic impacts and benefits for the city, as well as developers and property owners
- Timing and phasing of construction
- Notification and mitigation of impacts of construction and future maintenance

Future Monitoring of Highway Conditions

To the extent that implementation of the land use and transportation assumptions and improvements incorporated in the MMA Plan are projected to have any future significant safety or mobility impacts on the state highway system, the City and ODOT will monitor those potential impacts and agree on strategies to address them. In general, such impacts would be identified through this MMA planning process or subsequent related analysis or design of improvements identified in the Plan. Strategies for monitoring and addressing impacts could include the following, among others:

- Establish and implement a schedule for conducting traffic counts on facilities that are projected to exceed capacity during the planning horizon; if counts exceed a certain threshold, identify a process for mitigating impacts on mobility or safety.
- Identify a process for addressing safety issues as evidenced by accident rates that exceed local or state thresholds.
- Address any needed facility mitigation or improvement solutions in the next update of the City of Bend's Transportation System Plan (TSP).

NEXT STEPS

City and ODOT staff and the consulting team will review this draft Report with the Project Team (PT) and Technical Advisory Committee (TAC). Feedback will be incorporated into a Preferred MMA Boundary Map, MMA Plan and draft and final draft amendments to the City's General Plan, Transportation System Plan and Development Code. These materials will be further reviewed and refined through meetings with the PT, TAC, the Bend Planning Commission, the Bend City Council and other community members. This work is expected to be completed by September, 2014.