



Bend Metropolitan Planning Organization

# **PUBLIC TRANSIT PLAN AND TRANSIT CORRIDOR LAND USE ASSESSMENT**

## **Future Opportunities**

**July 2012 - DRAFT**

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 (SAFETEA-LU), local government, and State of Oregon funds.

The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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## FUTURE OPPORTUNITIES

This memo provides an assessment of land use and public facilities opportunities and constraints along potential transit corridors in Bend. The goal of this memo is to identify opportunities to coordinate transit and land use investments and ultimately enhance future transit demand. An initial screening evaluation was conducted for potential transit corridor segments that were identified based on data, analysis, and public input from the Public Transit Plan (PTP) Existing Conditions memo and PTP goals. The corridor segments were evaluated using qualitative and quantitative criteria. The evaluation results were used to identify several corridors for a more focused, primarily qualitative, assessment of land use opportunities and public facility constraints, as well as a set of recommended primary transit corridors. The primary transit corridors will be the focus of Bend Metropolitan Planning Organization (BMPO), the City of Bend (City), and/or Cascades East Transit (CET) efforts to coordinate transit and land use policies. The analysis and the recommended primary transit corridors will inform the Transit Service Concepts memorandum that is also being developed as part of this task. The Service Concepts memo will address how transit can serve the underlying corridors and meet current and future transportation needs in Bend.

## TRANSIT CORRIDOR INITIAL SCREENING

### Evaluation Methodology

This section describes the framework that was used to evaluate existing and potential transit corridors for further study. The corridors do not represent a network of transit routes, but different roadway segments that could be served by one or more transit routes. The screening process is designed to provide a high-level assessment of these corridors, considered as individual segments.

The results are useful in identifying corridors where characteristics of current and future land use are most conducive to transit service, as well as corridors where land use is not likely to support transit now or within the 20-year planning horizon of this study. It should be noted that the screening analysis is considered as only one of the inputs in planning for both transit service and land use. Some low-scoring segments may still warrant service or may be the best available means of serving a particular area or a key destination. Conversely, some segments may score highly, but be impractical to serve (e.g., an isolated segment). The screening evaluation was used to identify several corridors for more in-depth, qualitative evaluation of land use opportunities (provided in this memorandum) and in developing the Service Concepts memorandum.

The corridor evaluation and/or the network of primary transit corridors can be updated in the future as new information becomes available, such as through the Bend Urban Growth Boundary (UGB) expansion process or as public facilities plans are updated, including the update to the City’s Sewer Master Plan (currently underway).

## **Corridor Identification**

Figure 1 illustrates the current and future roadway segments analyzed in the initial screening analysis. These segments include roadways utilized by existing transit routes as well as additional roadway segments identified from sources such as:

- Input from the project TAC (including City, BMPO, and CET staff) and public surveys
- Existing plans, e.g., City of Bend System Development Charge (SDC) Transportation Project list and maps
- Analysis and information from the Existing Conditions memo developed for this study

Corridors were divided into segments at logical breakpoints (e.g., key intersections) to provide more granular representation of the results and to allow segments from different roadways to be combined into a single transit corridor if desired. Additional corridor segments were added to connect other corridors or corridor segments.

The analysis process was iterative and several segments that do not appear in Figure 1 were added to the screening analysis following review of the initial results, such as a connection from Cascade Village to Cooley Road.



## Screening Criteria and Analysis Methodology

Metrics that describe both current and future transit demand, land use potential, and public facility capacity were included in the initial screening analysis. Figure 2 provides an explanation of each metric and data source. For both qualitative and quantitative measures, a quarter-mile walking (network) distance was considered along each corridor. Quantitative metrics were normalized for corridor length, such as by calculating a density within the quarter-mile walking (network) buffer around each corridor segment.

Each corridor segment was scored from 0 (neutral) to 3 (highly beneficial) for each criterion. For quantitative data (e.g., population density), the score was assigned by dividing data values into quartiles. An overall score was calculated for each segment based on the sum total of the individual criteria scores. A maximum of 27 points were possible. Maps illustrating the overall scores and selected individual criteria are provided in the next section. Maps of individual criteria are provided for selected metrics, where maps of the underlying data were not presented in the Existing Conditions memo.

**Figure 2 Corridor Segment Screening Criteria**

ID	Criteria	Metric
A	Population Density	Current (2010) number of residents per acre within ¼ mile network distance of corridor. Population data is from the 2010 U.S. Census at the block level. A map of this data is included in the Existing Conditions memorandum.
B		Future (2030) number of residents per acre within ¼ mile network distance of corridor. Future population data is from BMPO at the Transportation Analysis Zone (TAZ) level. A map of this data is included in the Existing Conditions memorandum.
C	Employment Density	Current (2010) number of employees per acre within ¼ mile network distance of corridor. Employment data is from the Oregon Employment Department and was aggregated at the TAZ level. A map of this data is included in the Existing Conditions memorandum.
D		Future (2030) number of employees per acre within ¼ mile network distance of corridor. Future employment is from BMPO, based on forecasts conducted in 2006. A map of this data is included in the Existing Conditions memorandum.
E	Development Potential	Percent of vacant or redevelopable non-residential land with a ratio of land improvements to land value of 0.5 or less, as identified in the City of Bend Buildable Land Inventory (BLI), within ¼ mile network distance of corridor. A map of this data is provided below.
		Number of new potential residential units identified on vacant land (mean number) or redevelopable (minimum number) land in the City of Bend Buildable Land Inventory (BLI), within ¼ mile network distance of corridor. A map of this data is provided below.
F	Public Facility Constraints	Qualitative assessment of overall public facility deficiencies (water, sewer, and/or stormwater) within an approximately ¼ mile network distance of corridor, based on analysis of City facility master plans. A map illustrating this assessment is provided below.
G	Congestion - Future ADT	Maximum 2030 PM Peak Direction Volume/Capacity (V/C). A map of this data is provided below.
H*	Potential Roadway/Multimodal Improvements*	Qualitative assessment of transportation improvements (Transportation System Development Charge or SDC Projects) that may create opportunities for new transit connections. A map is provided below. This metric (and the underlying improvement projects) will be considered as an additional criterion in assessing land use potential and defining service concepts, but it was excluded from the scoring.
I	Existing Transit Ridership	Density of weekly weekday and Saturday boardings by stop (2012) within ¼ mile network distance of corridor. This data is represented on maps included in the Existing Conditions memorandum, as well as on maps of the detailed study corridors provided below.
J	Concentrations of Transit-reliant Demographic Groups	Transit-reliance index, based on density of low income households and households without access to a vehicle, by Census block group, and density of seniors and youth, by Census block. [Note: Updated disability data is not available at the Census block group level]. The index was based on the total number of persons per acre within ¼ mile network distance of corridor. Maps of this data are included in the existing conditions memorandum.

Note: \* Not included in calculation of screening scores

## Evaluation Results

This section provides the results of the initial screening evaluation. Although the criteria were not weighted, the metrics are grouped into two categories to assist with visualization of the results. One set of metrics describes current conditions; a second describes future potential. The discussion of future potential provides particular detail on the criteria for development potential and public facilities constraints. Lastly, a map of overall scores is presented, highlighting corridors that were identified through this process for more detailed evaluation.

### Current Conditions

Figure 3 illustrates segment-level scores for the following criteria that describe current conditions for transit and land use integration:

- 2010 population and employment density (A and C).
- Existing (2012) transit ridership (I). This includes any existing transit boardings within the quarter-mile network buffer around each segment.
- An index of transit-reliant population or household density (seniors, youth, low-income households, and households without access to a vehicle) (J).

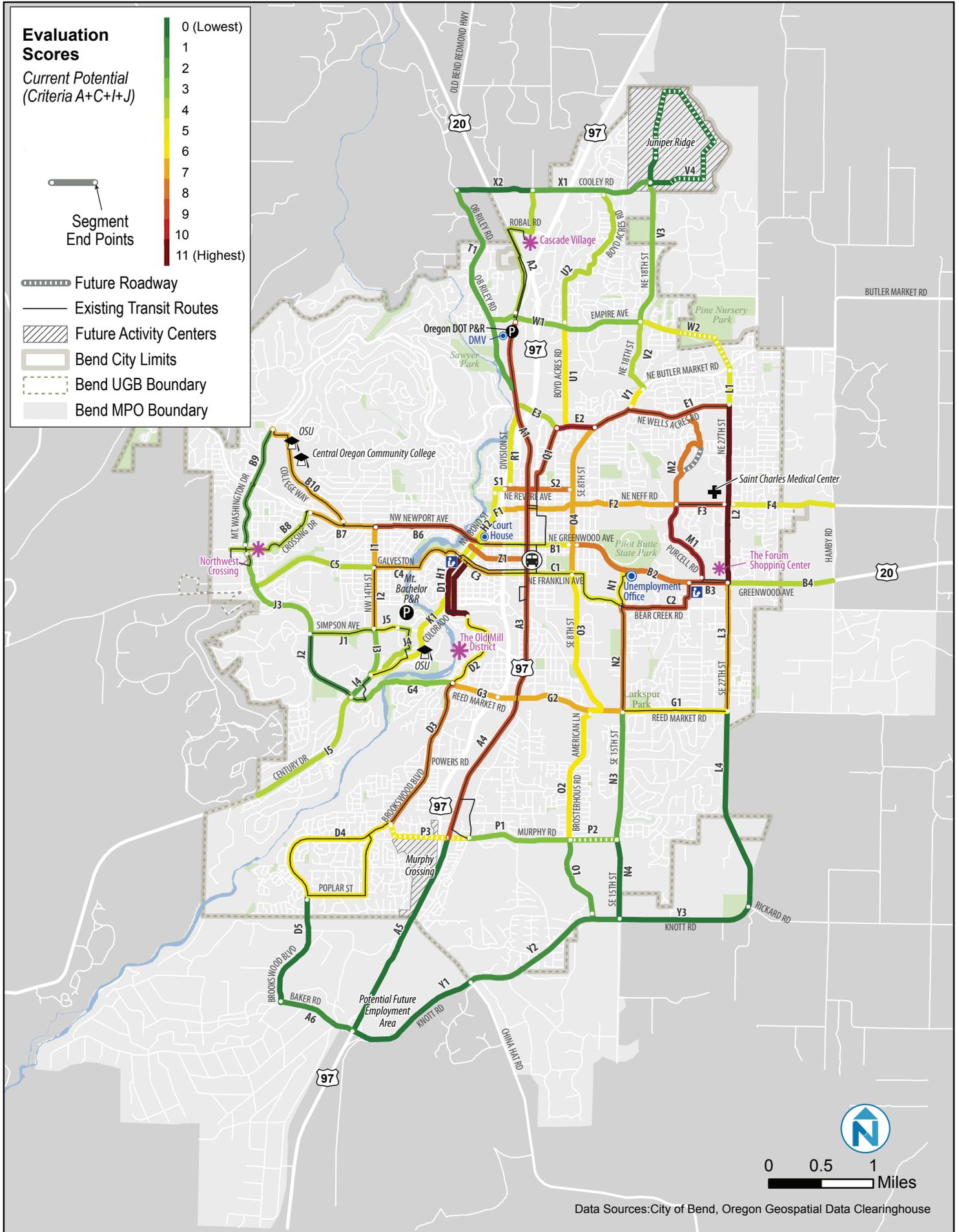
The color-coded map scale illustrates the ranking of corridor segments for these criteria. Green represents the lowest scoring corridors, while red represents corridors with the highest scores. The highest-scoring segment attained 11 out of 12 possible points. The three highest scoring corridors are:

- Wall/Bond from Franklin to Industrial (tie for top ranking): segments D1 and H1 (considered as part of the Brookwood corridor currently served by Route 2 and as part of the Wall/Bond corridor)
- 27<sup>th</sup> Street from Wells Acres to Greenwood (tie for top ranking): segment L2
- Purcell Boulevard from Neff to Greenwood (tie): segment M1
- Butler Market Road from Wells Acres to Studio (tie): segment E2

Appendix A provides a listing of all corridor scores.

Figure 3 shows that the highest scoring corridors (e.g., Third Street, 27<sup>th</sup> Street, and several corridors serving downtown Bend) are all served by existing transit service. There are several exceptions for corridors scoring moderately well, such as Greenwood Avenue, Neff Road, and 8<sup>th</sup> Avenue. Portions of some existing routes score only in the low-moderate range, such as portions of Route 2, 3, 6, and 11, although these include long terminal loops designed to provide additional transit service coverage.

Figure 3 Segment-Level Evaluation Scores: Current Conditions



## Future Potential

Figure 4 illustrates segment-level scores for the following criteria that describe future potential for transit and land use integration:

- 2030 population and employment density (B and D)
- Development potential (redevelopable land) (E)
- Public facility capacity (F)
- Projected roadway congestion (H)

Green represents the lowest scoring corridors, while red represents corridors with the highest scores. The highest-scoring segment (27<sup>th</sup> Street from Wells Acres to Greenwood) attained 13 out of 15 possible points. The three highest-scoring corridors are:

- 27<sup>th</sup> Street from Wells Acres to Greenwood: segment L2
- Boyd Acres Road from Butler Market to Empire (tie for 2nd-highest ranking): segment U1
- 3<sup>rd</sup> Street / Hwy 97 (south) from Reed Market to Murphy (tie for 2nd-highest ranking): segment A4
- 3<sup>rd</sup> Street / Hwy 97 (north) from Hawthorne to Empire (tie): segment A1
- SW Reed Market Road from 3<sup>rd</sup> Street / Hwy 97 to 15<sup>th</sup> Street (tie): segment G2
- SE 8<sup>th</sup>/9<sup>th</sup> from Franklin to Butler Market (tie): segment O4

Appendix A provides a listing of all corridor scores.

Figure 4 shows that high-scoring corridors with existing service continue to score well among all potential corridors, with increased potential beyond the current-year extent (e.g., Third Street). Additional corridors/areas currently lacking service also show increased potential (e.g., 8<sup>th</sup>/Boyd Acres/Empire in central and NE Bend; the Old Mill District; Colorado in the vicinity of the proposed new OSU campus; and the planned western extension of Murphy Road between Brookwood and Third Street).



## Analysis of Development Potential

The City of Bend’s Buildable Lands Inventory (BLI) data, initially developed in 2005 and updated in 2008, was used to assess redevelopment potential along potential corridor segments. This analysis considered parcels identified in the BLI as redevelopable or vacant. Non-residential and residential parcels were analyzed separately using the following approach:<sup>1</sup>

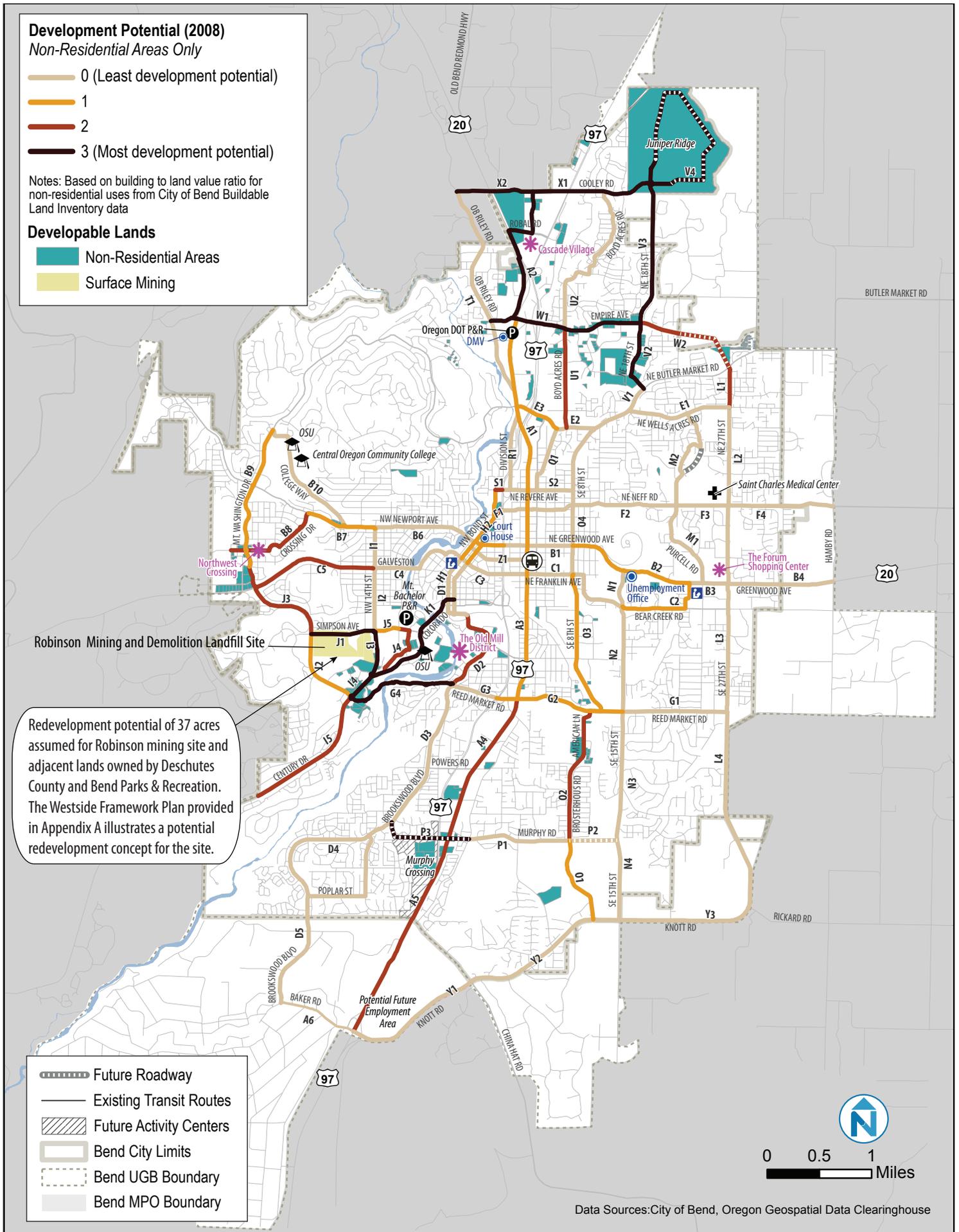
- **Non-Residential:** A ratio of improvements to land value was calculated for parcels in commercial, industrial, mixed-use, agricultural, and public facilities zones. The percentage of land area within a quarter-mile network distance of the corridor segments was then calculated where the ratio of improvements to land value is less than 50%. Figure 5 illustrates segment scores and parcels/areas with identified non-residential redevelopment potential, including Juniper Ridge, northwest of Cascade Village, 18<sup>th</sup> and Empire Avenues, Colorado Avenue near the proposed OSU campus, and Murphy Crossing.
- **Residential:** The BLI contains estimates of potential housing units for individual parcels. For redevelopable parcels, this analysis used the “*minimum*” estimate of potential housing units, recognizing that a lower land use intensity is likely to be realized with infill development. For vacant parcels, it was assumed that higher-intensity development would be possible and therefore the “*median*” estimate of potential housing units was used, corresponding to the following averages of the minimum and maximum estimates for each residential zone: low-density (RL) = 1.65, standard density (RS) = 4.8, medium density (RM) = 14.55, and high-density (RH) = 32.4 units per acre. Figure 6 illustrates segment scores and parcels with identified residential development potential, including along SE 15<sup>th</sup> Avenue and an unimproved portion of Purcell Boulevard near St. Charles Medical Center.

The screening analysis used an average of the non-residential and residential scores to calculate the overall development potential score for each corridor segment. The parcels identified through this analysis were considered in the focused corridor assessment (discussed below).

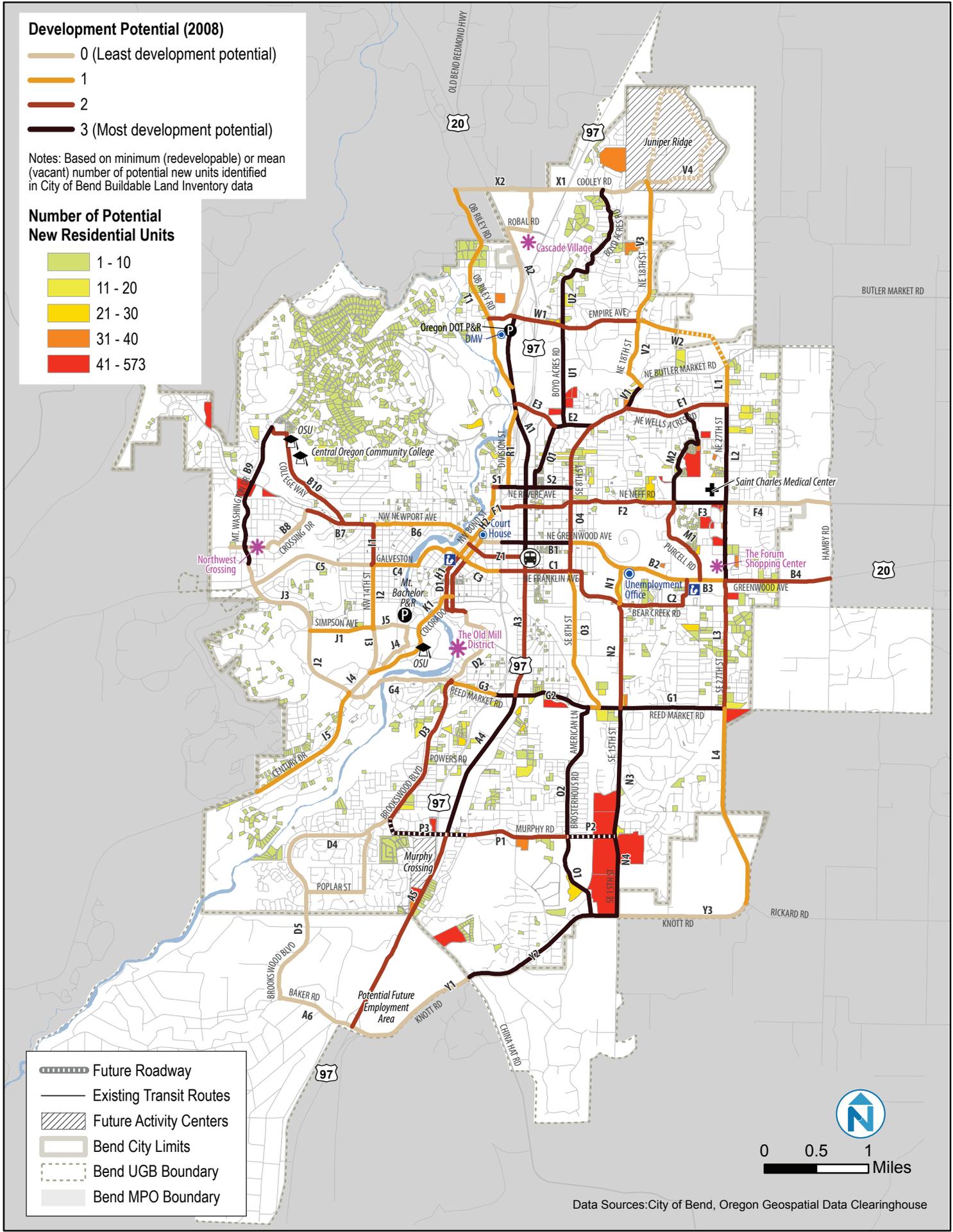
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<sup>1</sup> Appendix A provides a more detailed description of the methodology.

**Figure 5 Segment-Level Evaluation Scores: Non-Residential Development Potential**



**Figure 6 Segment-Level Evaluation Scores: Residential Development Potential**



## Public Facility Constraints and Opportunities

This section provides a qualitative assessment of public facility constraints affecting the transit corridor segments included in the initial corridor screening evaluation. Sanitary sewer capacity is likely to be the primary public facility constraint on future population growth and development,<sup>2</sup> therefore the discussion in this section focuses on sanitary sewer capacity in different parts of Bend, based on discussions with City staff and the current Collection Sewer Master Plan (CSMP). It also addresses domestic water, stormwater, and constraints and opportunities related to roadway public facilities.

### Sanitary Sewer

Existing sanitary sewer conditions are adequate to support the City of Bend's current population, however growth potential is limited in certain areas of the City. The City has developed plans for sewer interceptor facilities to provide additional capacity as well as relieve demand on other parts of the sanitary sewer system, as described in the Existing Conditions memorandum. The City's current priority is to upgrade the Water Reclamation Facility (WRF) in Northeast Bend to handle additional flows that would come into the plant with implementation of the interceptor projects, including the Southeast Interceptor (SEI), North Interceptor (NI), and West Interceptor (WI). A large-diameter Plant Interceptor (PI) conveys flows from the other interceptors, but will need to be upgraded to accommodate future demand. Figure 8 identifies the interceptor projects as currently conceived.

Currently, a detailed design has been completed only for the SEI, which is partially constructed. The North and West Interceptors have only been designed at a conceptual level. Alternative Plant Interceptor designs have been analyzed (upsizing the existing pipe and/or running a parallel pipe), but a final design has not been selected or completed.

A new Sewer Master Plan and sewer model are being developed that will aid in determining (1) the areas with highest need for improvements and (2) the most cost effective solution for addressing existing deficiencies and planning for future capacity needs. Specific phasing of improvements beyond the five-year time frame covered in the City's current improvement and funding plan depends on completion of the new Master Plan and sewer model.

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<sup>2</sup> Public facility capacity is one potential constraint on development, but does not preclude consideration of a corridor or part of the city for development for the purposes of this analysis.

Assessment of Sewer Constraints/Capacity

Figure 8 illustrates the results of a high-level qualitative assessment of sewer constraints, and thereby capacity to accommodate growth, for each corridor segment included in the initial screening evaluation. The assessment is based on a scale from 0 (least existing capacity) to 3 (most existing capacity and thus most conducive to growth). Figure 7 provides an explanation of the rating scale and identifies the general geographic area associated with each rating. Generally, north Bend has the highest level of constraint and need for additional infrastructure to increase capacity. West and south Bend, respectively, have capacity available, although some upgrades may be required. East Bend has the most existing capacity and potential to accommodate growth using existing infrastructure.

**Figure 7 Explanation of Sewer Constraint Assessment Scale**

Score	Description	General Geographic Area
0	Sewer service is not impossible to obtain but capacity is limited. Growth may require substantial infrastructure upgrades to increase sewer capacity. This score is also assigned in an area where properties currently have no means to obtain conventional sanitary sewer service and would require the installation/approval of a pump station or wait for construction of one of the Interceptor projects to provide gravity service.	North Bend
1	Sewer service is not impossible to obtain but capacity is limited. There is existing capacity in the system but too much growth may exceed system limitations.	West Bend
2	Sewer service is available but may require some upgrades to the existing infrastructure.	South Bend
3	Sewer service is available for hookup. Minor upgrades to the existing infrastructure may be required but capacity is believed to be present for further growth.	East Bend

Source: OTAK assessment based on existing CSMP and sewer model and discussions with City of Bend staff. This assessment may need to be revisited upon completion of the new sewer model. Some areas outside city limits are not ranked since City services are not available; growth in these areas is generally dependent on the ability to have a functioning septic or sand filter system installed until such areas are absorbed into the city limits and a connection to the City’s sewer system is possible.

The following sections discuss sanitary sewer capacity issues for different parts of Bend, in order of highest priority for capacity improvements. They identify the potential improvements (as currently planned) that would address those issues and dependencies on other Interceptor projects. As indicated above, specific timing will be determined through development of the City’s new Sewer Master Plan, which is currently underway.



### North Bend

North Bend has the greatest sewer deficiencies. The existing sanitary sewer pump station serving this part of the city is at or near capacity, limiting growth potential. Limited growth has been accommodated in north Bend by changing pump times to handle increased flows, however this is a temporary fix pending a more permanent solution.

The current CSMP indicates that the North Interceptor would resolve capacity issues in this part of the city; the Plant Interceptor would also need to be constructed to ensure adequate capacity to convey NI flows to the WRF.

### West Bend

West Bend, which includes areas west of the Deschutes River, has the next most significant sewer deficiencies. The majority of sewer flows from this part of the city discharge to the Westside pump station in order to cross the Deschutes River. Sewer flows from the Westside pump station then enter the core system, which is nearing capacity, and are conveyed by gravity to the WRF. The City anticipates that the Westside pump station has enough capacity for the full build out of the Northwest Crossing neighborhood, but that additional future development would eventually exceed pump station capacity.

The current CSMP indicates that the West Interceptor would resolve the issues in this part of the city by conveying current flows by gravity to the North Interceptor, allowing the Westside and other regional pump stations in this area to be decommissioned and relieving demand on the core system. The NI and the Plant Interceptor would need to be constructed before the WI is constructed.

### South Bend

The sewer system in southwest and southeast Bend consists of collector sewer lines<sup>3</sup> and regional pump stations that convey flows to a gravity sewer main along 3<sup>rd</sup> Street. The 3<sup>rd</sup> Street main then flows to the City's core system and to the WRF. The collector sewer lines in this part of the city are generally at or near capacity. In addition, parts of south Bend are currently not serviced by gravity sewer and rely on old septic systems, including the Pinebrook subdivision and most of the residential development south of Reed Market Road.

The Southeast Interceptor will help to alleviate the sewer capacity deficiencies in southwest and southeast Bend by redirecting flows away from the core system, which will provide additional capacity for development in other areas serviced by

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<sup>3</sup> These include the Mahogany sewer line (servicing the southwest region, flowing east in Mahogany Street to 3<sup>rd</sup> Street), the pressure system running along Murphy Road to 3<sup>rd</sup> Street, and the Silverlake sewer line (the main trunk line flowing north, collecting flows from the Mahogany line and other sewer lines in south Bend).

the core system (such as along the Brookwood corridor). It will also allow regional pump stations to be decommissioned and provide an opportunity for new areas to be connected to the sanitary sewer system. It will need to be determined, in conjunction with design and construction of the Southeast Interceptor project, whether the Plant Interceptor upgrade would need to be completed to support full implementation of the SEI.

### East Bend

East Bend currently has the most existing sewer capacity in comparison to the other regions of Bend. The SEI, running north along 27<sup>th</sup> Street, would provide additional capacity in this part of Bend and also allow existing regional pump stations to be taken offline.

### **Domestic Water**

The City's current domestic water sources and infrastructure, including surface water supplies and ground water pumping, are considered to be sufficient to accommodate future growth. General maintenance is required to replace aging infrastructure and additional pumps are needed to address areas of low water pressure in the system. The Surface Water Improvement project currently underway will not add capacity, but will improve the intake from the Tumalo watershed and ensure the availability of current water sources.

### **Stormwater**

The City's current stormwater infrastructure is not considered to be a limiting factor for growth. As described in the Existing Conditions memo, current projects include the 3<sup>rd</sup> Street underpass of the BNSF railroad. Additional improvements are planned as funds are available, e.g., the Greenwood and Franklin underpasses are on hold and are no longer in the City's 5-year capital improvement projects budget.

### **Transportation**

#### **Congested Roadways (2030)**

This section presents 2030 traffic congestion forecasts for each corridor segment included in the screening evaluation. Traffic congestion creates both opportunities and challenges for transit. It indicates presence of destinations that attract travel, and may be desirable to serve by transit. Congested roadways may also make transit more attractive to riders, particularly if transit can be given priority over general vehicle traffic. Transit also provides an alternative means of travel that can reduce the number of vehicle trips. The 2030 Volume-to-Capacity

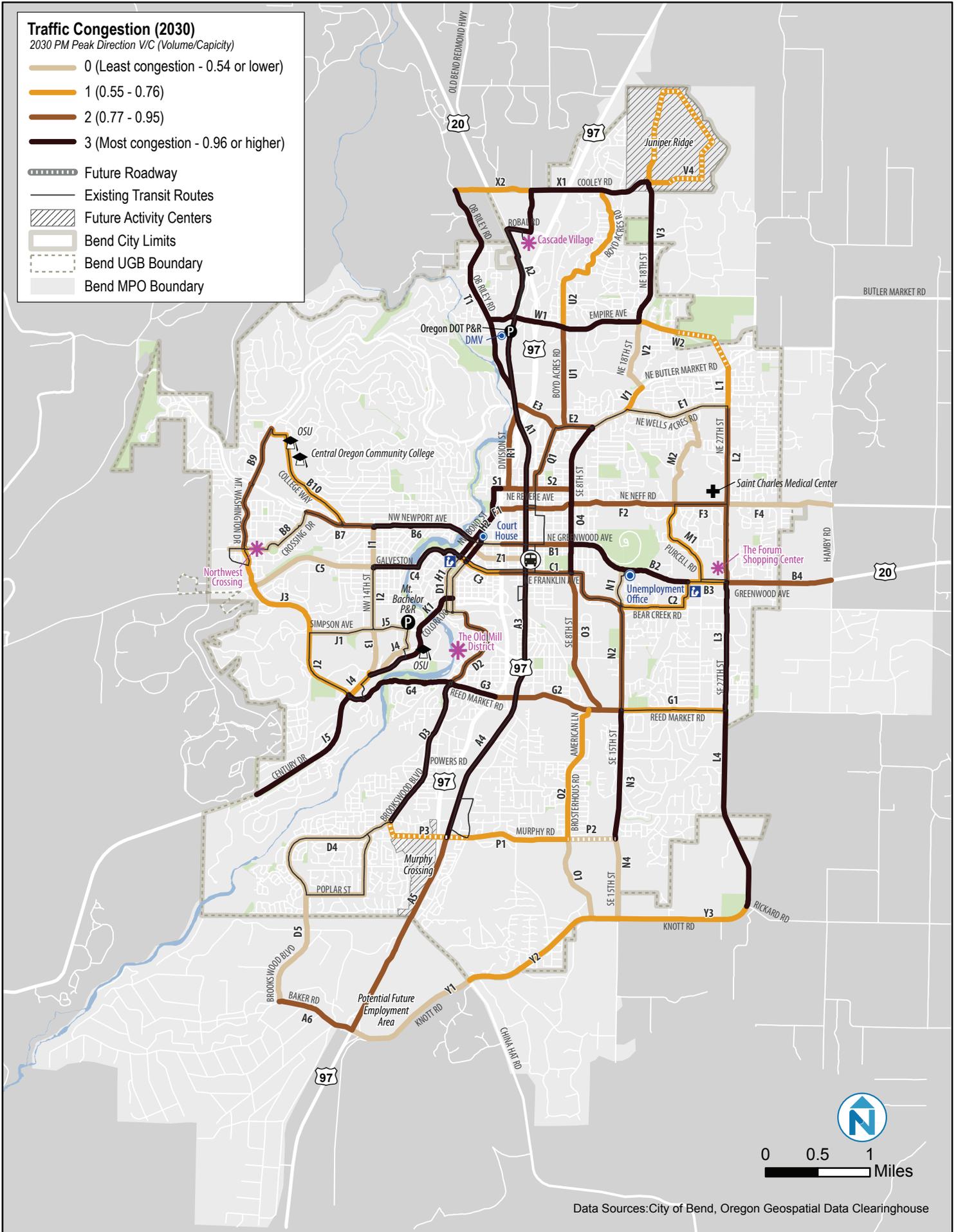
(V/C) ratio<sup>4</sup> metric included in the analysis, based on the City’s travel demand model, is illustrated in Figure 9 and is included in the screening score to account for this dimension of traffic congestion. (Detailed traffic data for each segment is included in Appendix A.)

Conversely, congestion on transit corridors impacts buses’ ability to run on time and creates operational challenges and inefficiency. This can be addressed through traffic signal timing and roadway design, which will be discussed in the Service Concepts memorandum. The following section highlights planned improvements to the transportation system, including those to meet increased travel demand from future growth.

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<sup>4</sup> The V/C ratio is the ratio of forecast travel demand (vehicles per hour in the PM peak period and peak direction) on a given roadway segment to the capacity of the roadway segment. The analysis was based on the Bend Travel Demand model, 2030 MTP scenario, as developed by TPAU (ODOT Transportation Planning and Analysis Unit). The MTP is considered financially constrained, i.e., assumes roadway improvements anticipated to be funded within the planning period (2030). The MTP is scheduled to be updated in 2012-13 and is likely to include fewer funded projects, thus future forecasts will show higher levels of congestion.

**Figure 9 Segment-Level Evaluation Scores: 2030 Traffic Congestion (Volume to Capacity Ratio)**



### Planned Transportation Improvements

A qualitative, high-level evaluation of planned transportation improvements was conducted for each corridor segment to supplement the screening analysis and inform development of the Service Concepts memorandum, although it is not included in the scoring of corridor segments. Figure 10 provides an explanation of the rating scale, which considered the types, number, and extent of improvements within each corridor segment and the importance of each type of improvement for transit demand and multimodal accessibility. For example, new roadway connections are likely to enable new travel patterns, whether by car or transit; major roadway or signal improvement projects are likely to relieve traffic congestion for both cars and transit.

**Figure 10 Explanation of Transportation Improvements Assessment Scale**

Score	Roadway and Signal Improvements	Number and Extent of Pedestrian and Bicycle Improvements	Example
0	No or minimal improvements	No or minimal improvements	
1	<i>Minor</i> roadway capacity, signal, and/or intersection improvements	Curb and sidewalk infill HAWK signal / pedestrian crossings Bike lanes or multi-use trails	C4: Galveston curb/sidewalk infill and bike lanes/trail
2	<i>Major</i> roadway capacity, signal, and/or intersection improvements		L2: 27 <sup>th</sup> signal improvements and sidewalk infill
3	New roadway connections		W2: Empire-27 <sup>th</sup> connection

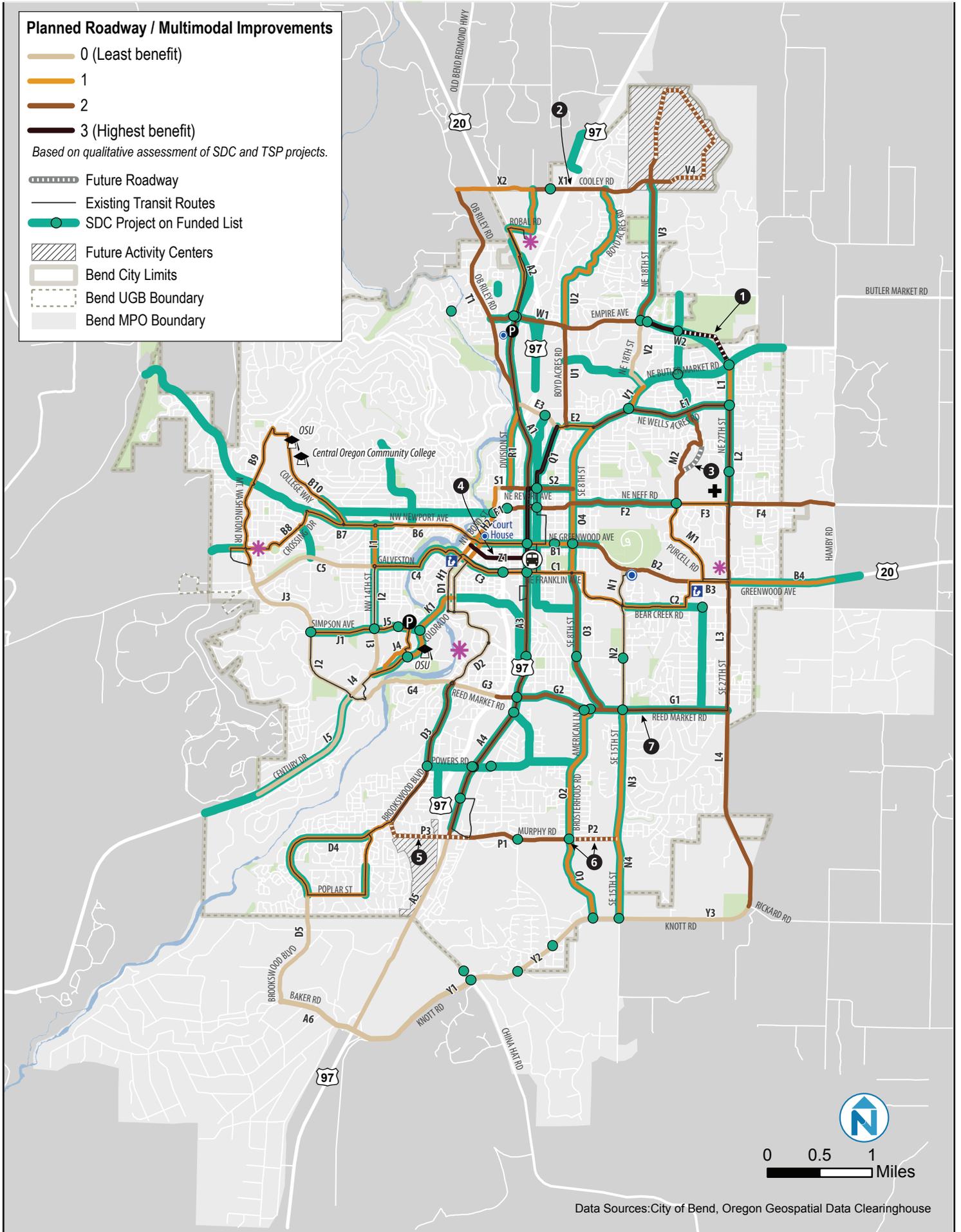
Figure 12 illustrates the scoring along with System Development Charge (SDC)-funded projects. The table below describes several key projects identified in Figure 12.

**Figure 11 Selected Transportation Improvement Projects**

ID	Project Name	Description
1	Empire Road extension to 27 <sup>th</sup> Street	The road extension would provide a more direct route from the Bend Parkway (Hwy 97) to Hwy 20. Current vehicle traffic utilizes 3 <sup>rd</sup> Street to get from Hwy 97 to Hwy 20. These improvements are not in the 5-year budget.
2	Bend Parkway improvements	Juniper Ridge cannot be fully built out until the interchange at Cooley Road and the Bend Parkway has been upgraded. Limited development is allowed per an agreement with the Oregon Department of Transportation (ODOT). The City of Bend and ODOT have been working on the Bend Parkway's realignment; however it is still in the planning phase. Date of improvements is unknown.
3	Purcell Boulevard connection	Connect Purcell Boulevard from Neff Road to Wells Acres. This project is not in the 5-year CIP program.
4	Hawthorne Avenue Undercrossing	This project is not funded, but would create an undercrossing of Bend Parkway at Hawthorne Avenue.
5	Murphy Crossing and Road Extension (West)	Extends from intersection of Murphy Road and Parrell Road to Brookwood Boulevard, with a grade-separated crossing over the Bend Parkway. This project includes construction of three roundabouts. Construction is expected to start during the summer of 2013 and extend through 2014.
6	Murphy Road Extension (East)	The extension of Murphy Road to 15 <sup>th</sup> Street is not in the 5-year CIP program and therefore construction completion is unknown. This project would include a roundabout at Brosterhous that could be used as a potential bus turnaround.
7	Reed Market Road Improvements (part of GO Bond corridor improvements <sup>1</sup> )	Reed Market improvements from 3 <sup>rd</sup> to 27 <sup>th</sup> Streets are included in the voter-approved GO bond package, which is also funding a Mt. Washington / Simpson roundabout, Powers / Brookwood roundabout, 14 <sup>th</sup> Street improvements (Galveston to Simpson), and American Lane Bridge relocation. Construction of improvements funded through this measure is slated for 2012-2014.

Notes: (1) <http://www.ci.bend.or.us/index.aspx?page=814>

Figure 12 Segment-Level Evaluation Scores: Key Transportation Improvement Projects



Data Sources: City of Bend, Oregon Geospatial Data Clearinghouse

## Overall Results and Corridors for Further Evaluation

Figure 13 illustrates the overall scoring results, based on a ranking of the total, unweighted scores for corridor segments. Dark green represents the lowest scoring corridors, while dark red represents corridors with the highest scores. The highest score was 24 out of a maximum possible 27 points. The three highest scoring corridors are:

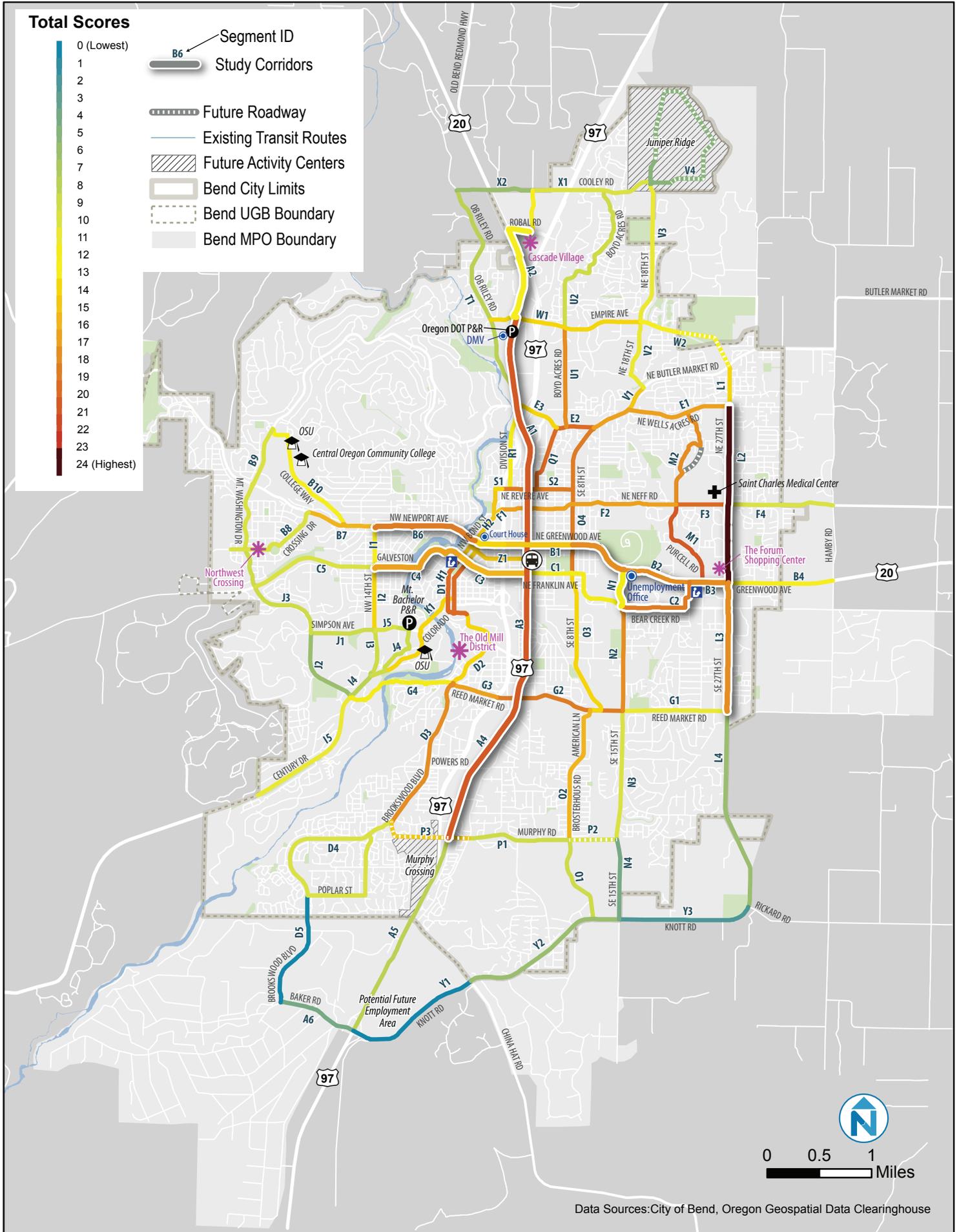
- 27<sup>th</sup> Street from Wells Acres to Greenwood: segment L2
- 3<sup>rd</sup> Street (South) from Reed Market to Murphy: segment A4
- Purcell Boulevard from Neff to Greenwood (tie): segment M1
- 3<sup>rd</sup> Street (North) from Hawthorne to Empire (tie): segment A1

Appendix A provides a listing of all corridor scores.

Informed by this initial analysis, the following corridors were identified for a focused assessment of corridor land use opportunities and constraints:

- **3<sup>rd</sup> Street / Hwy 97** from Murphy to Hawthorne (South) and from Hawthorne to Cascade Village (North)
- **27<sup>th</sup> Street** from Greenwood to Wells Acres, including all or a portion of the segment south of Greenwood (Reed Market to Greenwood) and considering the future connection of 27<sup>th</sup> to Empire
- **Greenwood Avenue**, including 15<sup>th</sup> Street and Bear Creek Road as a routing option
- **Newport Avenue and Galveston Avenue** (from 3<sup>rd</sup> Street to approximately NW 14<sup>th</sup> Street)

Figure 13 Segment-Level Evaluation: Overall Scores



## CORRIDOR OPPORTUNITIES AND CONSTRAINTS

A focused assessment of land use and public facility opportunities and constraints was conducted for the corridors identified through the initial screening evaluation. This analysis builds upon the assessment of existing transit corridors conducted in the Existing Conditions memorandum.

### Corridor Assessment

Corridors throughout the city were evaluated for a number of elements that would create future opportunities for transit service expansion or upgrades, including residential and non-residential development potential, existing and planned public facilities, existing and future roadway and multimodal improvements, and projected future traffic congestion. Four corridors identified as having significant future transit potential were selected for additional evaluation, and consideration as “primary transit corridors.” Several additional areas with existing development momentum (i.e., occurring with current levels of transit service and existing land use policies) are also discussed briefly.

Figure 14 summarizes current and projected population and employment characteristics within a quarter-mile walking distance of each corridor.

**Public Transit Plan and Transit Corridor Land Use Assessment | Future Opportunities – DRAFT**  
Bend MPO

**Figure 14 Summary Statistics for Land Use Analysis Corridors**

Corridor	Area <sup>1</sup> (Acres)	2010 Populaton	2030 Population	% Pop. Growth	2010 Pop. per Acre	2030 Pop. per Acre	2010 Employment	2030 Employment	% Empl. Growth	2010 Empl. per Acre	2030 Empl. per Acre
27th Street (Wells Acres to Reed Market)	827	3,991	5,917	48%	4.8	7.2	3,997	4,495	12%	4.8	5.4
3rd Street (South) (Hawthorne to Murphy)	640	2,184	3,128	43%	3.4	4.9	3,504	5,191	48%	5.5	8.1
3rd Street (North) (Hawthorne to Cascade Village)	773	1,155	2,498	116%	1.5	3.2	5,323	7,842	47%	6.9	10.1
Greenwood (3 <sup>rd</sup> to 27 <sup>th</sup> )	711	2,804	4,166	49%	3.9	5.9	2,782	3,285	18%	3.9	4.6
Galveston (3 <sup>rd</sup> to NW 14 <sup>th</sup> )	481	2,312	2,796	21%	4.8	5.8	3,984	4,369	10%	8.3	9.1
Newport (3 <sup>rd</sup> to NW 14 <sup>th</sup> )	475	2,227	2,779	25%	4.7	5.9	4,588	4,739	3%	9.7	10.0

Notes: (1) Area of 1/4 mile walking (network) buffer around the corridor.

Source: 2010 Population from U.S. Census Bureau. 2010 Employment from Oregon Employment Department and Bend MPO. 2030 Population and Employment Projections from Bend MPO.

## **27<sup>th</sup> Street**

27<sup>th</sup> Street is the only arterial street providing direct and full north-south access east of 3<sup>rd</sup> Street (Highway 97 Business). Figure 15 illustrates existing transit service and boardings, key activity centers, and land use along the corridor (3.3 miles between Reed Market Road and Wells Acres Road). At present it is served on the north by Route 5 between Wells Acres and Greenwood Avenue (operating only in the northbound direction between Greenwood and Neff Road), and on the south by Route 6 between Greenwood and Reed Market Road (operating southbound only). The two routes overlap at Greenwood, offering the potential for transfers.

The Medical District Overlay Zone area at Neff Road and 27<sup>th</sup> Street contains a number of vacant parcels that are available for development, particularly abutting 27<sup>th</sup> Street and at the north end of the District. These parcels offer potential for medical-related development and supporting commercial uses, as well as medium- and high-density residential development allowed outright in the base zone. Development in this area would intensify an employment center that is already one of the largest in the city.

Commercially-zoned land at the intersection of Greenwood Avenue, including the Forum Shopping Center, is largely developed at this time. Future potential for commercial growth lies in redevelopment of low-density uses such as motor vehicle sales located along Greenwood west of the Forum Shopping Center.

South of Greenwood, a recent plan amendment and zone change from low-density residential (RL) to commercial convenience (CC) was granted on the southwest corner of Reed Market Road and 27<sup>th</sup> Street; development has not yet occurred. This site is the only commercial area south of Greenwood Avenue and east of 15<sup>th</sup> Street, and thus offers the potential for development and expansion to serve the surrounding neighborhoods.

Significant vacant residential land lies along the corridor, offering major future growth potential. A number of subdivisions, particularly on the east side of 27<sup>th</sup> between Neff and Butler Market Roads, have been platted and services provided, but lie partially or fully vacant. These parcels offer short-term growth potential as the recession eases and housing demand increases; some vacant parcels are zoned for medium-density but most are zoned for lower-density housing (RS zone). Large vacant tracts, particularly south of Greenwood Avenue on the west side of 27<sup>th</sup> Street, offer longer-term residential growth potential at low and medium densities.

South of Reed Market Road, beyond the range of existing bus service on Route 6, there is significant vacant land that offers major growth potential in the long-

term, but is presently constrained by lack of sewer service or capacity. With a few exceptions, existing residential parcels south of Reed Market Road are serviced by septic systems because of rolling terrain. Construction of a deeper sewer, i.e., the Southeast Interceptor, would be required to provide sewer service.<sup>5</sup>

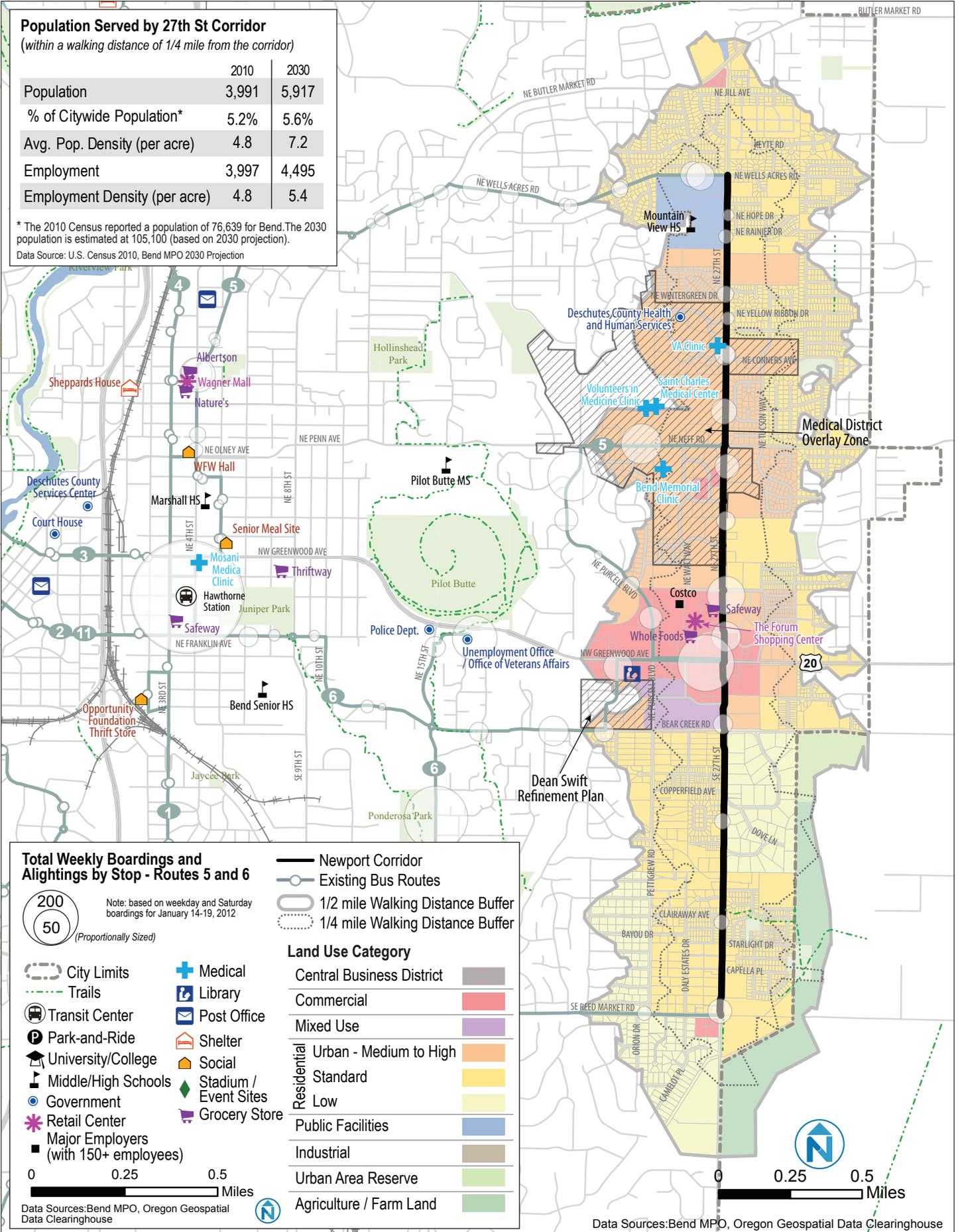
North of existing bus service (Route 5), between Wells Acres and Butler Market Roads, there is future development potential for a variety of land uses. As the Juniper Ridge district develops, 27<sup>th</sup> Street will be extended to the north and west to provide a more direct connection to Empire Avenue, and will open vacant land north of Butler Market Road for development. The small commercial node at the intersection of Butler Market Road and 27<sup>th</sup> Street offers potential for expansion to serve surrounding development as 27<sup>th</sup> is extended and vacant residential land is developed.

In summary, the 27<sup>th</sup> Street corridor offers significant short and long term future potential for both residential and commercial development. Existing commercial nodes and the Medical District can provide major employment opportunities that are accessible from 27<sup>th</sup> Street. The corridor currently has a near balance of population and employment density within a quarter-mile walking distance of the corridor, as shown in the summary statistics table on the corridor map. Population growth of 48% is projected for 2030, along with employment growth of 12%. The key challenge in parts of this corridor is pedestrian access across 27<sup>th</sup> Street to and from current and future land uses. On the other hand, 27<sup>th</sup> Street between Neff Road and Bear Creek Road has good signal spacing, which would allow for safe and convenient pedestrian crossings.

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<sup>5</sup> Local Improvement Districts (LIDs) will need to be formed to provide connections from the SEI to existing parcels.

**Figure 15 Corridor Assessment: 27th Street**



Data Sources: Bend MPO, Oregon Geospatial Data Clearinghouse

## **Greenwood (including segments of 15<sup>th</sup> and Bear Creek)**

The Greenwood Avenue corridor provides a direct east-west connection between the major commercial/employment areas of the Forum Shopping Center area and 3<sup>rd</sup> Street. Figure 16 illustrates existing transit service and boardings, key activity centers, and land use along the over two-mile length of the corridor (depending on routing options) between 3<sup>rd</sup> and 27<sup>th</sup> Streets. It runs approximately a quarter to a third of a mile north of the existing east-west corridor served by Route 6 along Franklin Avenue and Bear Creek Road (operating in one direction only). Only a small portion of Greenwood Avenue has existing transit service (Route 6 east of Dean Swift Road and both Routes 5 and 6 between Purcell Boulevard and NE 27<sup>th</sup> Street).

Although there are sidewalks along most of the corridor, it is predominantly auto-oriented, and functions as a limited access road in the vicinity of Pilot Butte State Park. Crossing opportunities are somewhat limited between signalized intersections and the corridor generally lacks streetscape features to buffer pedestrians from motor vehicle traffic.

Between Hawthorne Station and NE 10<sup>th</sup> Street, Greenwood Avenue is a mostly commercial street (CC zone) and fully developed. Lot sizes are small and, with the exception of a neighborhood shopping center on the southwest corner of Greenwood and 8<sup>th</sup> Street, commercial zoning extends more typically extends only one-half block deep. The commercial uses are bordered by single-family residential neighborhoods on both sides. Because of small lot sizes and the surrounding residential development, there are no clear opportunities for significant redevelopment involving lot consolidation and expansion.

As illustrated in the map, Greenwood Avenue provides transit access to key activity centers such as Marshall High School and the Bend Community Center (senior meal site) within a quarter-mile walk (approximately three blocks to the north). To the south, a quarter-mile walking buffer around the corridor extends nearly to Franklin Avenue. It provides access to some of the key destinations that are also served by existing service on Route 6, including Juniper Park and the Juniper Swim and Fitness Center. Bend High School is at the edge of a half-mile walking buffer.

Between 10<sup>th</sup> and 12<sup>th</sup> Streets, properties along Greenwood are zoned for standard-density residential uses (RS). Although future redevelopment to commercial uses may appear to be appropriate, it appears unlikely or limited because of existing development (two church buildings on the north side of Greenwood) and small lots that require consolidation.

Between 12<sup>th</sup> and 15<sup>th</sup> Streets, Greenwood is bounded by Pilot Butte State Park on the north and is slightly elevated from vacant land and Pilot Butte Cemetery on

the south. At SE 15<sup>th</sup> Street, the Bend Police Department and Public Works, Oregon Unemployment and Department of Veterans Affairs offices, and Lava Lanes bowling center are located on the south side of Greenwood; there appears to be adequate right-of-way to provide bidirectional bus stops. A traffic signal and pedestrian crossing exist at 15<sup>th</sup> Street; in addition, a tunnel provides an undercrossing of Greenwood just east of 15<sup>th</sup>. Existing Route 6 service on Bear Creek Road deviates on 15<sup>th</sup> to serve the Unemployment Office and other adjacent destinations before returning to Bear Creek Road, which it serves between 15<sup>th</sup> and Dean Swift Road (in one direction only) before returning to Greenwood.

East of 15<sup>th</sup> Avenue, Greenwood is dominated by the State Park on the north side and auto-oriented uses such as car dealerships on both sides of the street as far east as Dean Swift Road. By comparison, Bear Creek Road offers better access to existing residential development as well as opportunities for new development than this segment of Greenwood. In particular, the Dean Swift Refinement Area, a 29-acre Special Planned District west of Purcell Boulevard and north of Bear Creek Road, is approximately half developed, and, offers potential for medium-density residential, commercial, and mixed-use development. Therefore, it is recommended that the Greenwood corridor follow the 15<sup>th</sup>-Bear Creek-Dean Swift routing currently served by Route 6 instead of Greenwood between 15<sup>th</sup> and Dean Swift. Allowing a future Greenwood route to serve uses located near the Greenwood/15<sup>th</sup> intersection could have the added benefit of eliminating the Route 6 deviation on 15<sup>th</sup>, freeing running time on this route to provide additional service elsewhere in SE Bend.

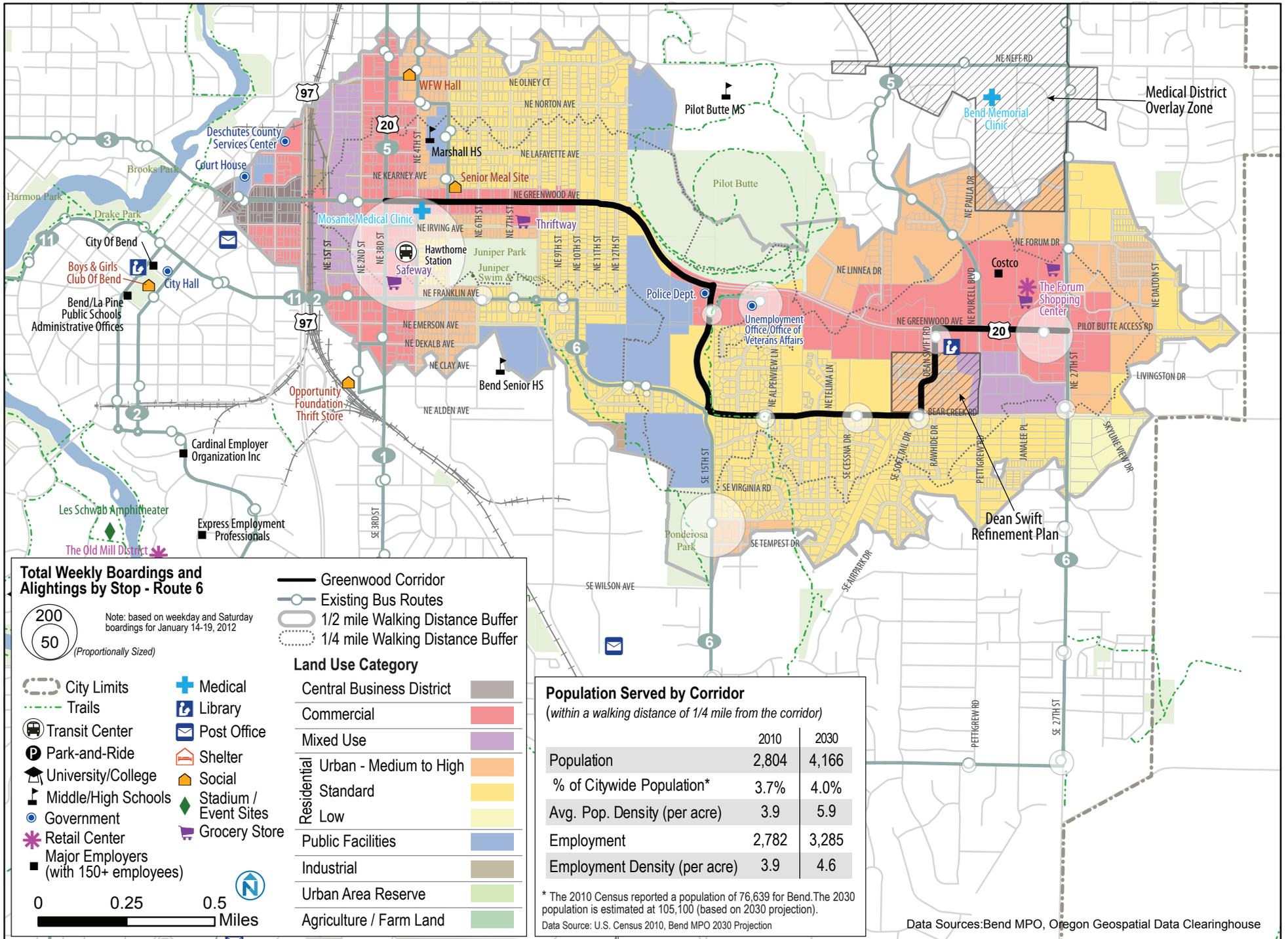
Car dealerships interspersed with small-scale convenience commercial centers are located on both sides of Greenwood Avenue west of Purcell Boulevard. The auto dealerships consume a substantial amount of land and could offer longer-term redevelopment potential. Greenwood is developed with general commercial uses from Purcell Boulevard to the east side of 27<sup>th</sup> Street. Vacant lands surrounding these commercial areas are zoned for medium-density residential development. East of 27<sup>th</sup> to the city limits residential land is zoned and partially developed at high, medium, and standard densities.

In summary, the Greenwood Avenue corridor offers some potential for a new transit connection. Because of the lack of development and relatively fast travel speeds between 12<sup>th</sup> Street and Dean Swift Road, such a transit connection could provide a fast trip between Hawthorne Station and the 27<sup>th</sup> Street corridor / Forum Shopping Center / St. Charles Medical Center area. Utilizing 15<sup>th</sup> and Bear Creek Road (west of Dean Swift) instead of Greenwood provides better access to existing residential uses and the Dean Swift Refinement Area. Land use opportunities include redevelopment of higher-density neighborhood commercial and mixed uses serving surrounding residential areas. Some

surrounding areas are zoned for medium-density residential uses, particularly at the east end of the corridor. In addition to higher density commercial and mixed-use zoning along the corridor, the City could investigate opportunities for upzoning adjacent residential uses to allow medium-density development in the western portion of the corridor and higher-density development in the eastern portion. Finally, the City should pursue opportunities to create better pedestrian connections across portions of Greenwood, particularly between 3<sup>rd</sup> and 12<sup>th</sup> Streets.

The corridor currently has a near balance of population and employment density within a quarter-mile walking distance, as shown in the summary statistics table on the corridor map. Population growth of 49% is projected by 2030, along with employment growth of 18%.

Figure 16 Corridor Assessment: Greenwood Avenue



## Third Street

Third Street is the business route for Highway 97 and major historic north-south commercial corridor through Bend. Figure 18 and Figure 19 illustrate existing transit service and boardings, key activity centers, and land use along the approximately 6.5 mile length of the corridor from Cascade Village to Murphy Road. The corridor is largely developed with commercial, employment, and industrial uses. Existing transit routes 4 (north) and 1 (south) cover almost the entire length of the corridor, providing transit access to important, but dispersed, employment and shopping areas.

Although there are sidewalks along most of the corridor, it is predominantly auto-oriented, with limited crossing opportunities between signalized intersections and without streetscape features to buffer pedestrians from motor vehicle traffic. In addition, the Highway 97 bypass and railroad tracks to the west present barriers to convenient access to the corridor. These conditions create a significant challenge to foster a pedestrian and/or transit-oriented land use environment along 3<sup>rd</sup> Street.

In the southern two-thirds of the corridor, established residential neighborhoods are located one or two blocks east of 3<sup>rd</sup> Street, while a mixture of commercial and industrial land lies to the west, between 3<sup>rd</sup> Street and the Highway 97 bypass. The residential areas bordering the commercial uses are zoned for medium or high-density development slightly further south of Division Street, where zoning transitions to lower-density residential. Further south, between Murphy Road and the intersection of 3<sup>rd</sup> Street with the Highway 97 Bypass there are also major tracts of vacant land suitable for commercial development. Planned improvements to Murphy Road will connect residential areas along Brookwood Boulevard to 3<sup>rd</sup> Street via an overpass crossing the Highway 97 Bypass. This significant improvement in access to the southern portion of 3<sup>rd</sup> Street presents a potential development opportunity.

North of central Bend, the corridor runs through primarily commercial and light industrial land uses. Generally, the most significant vacant land parcels are located at the northern and southern ends of the corridor. As such, future development potential between Empire Avenue and Murphy Road is largely limited to redevelopment of existing uses or infill. Strong future development potential exists north of Empire Avenue on vacant land surrounding the Cascade Village Shopping Center, a major commercial development at the northern city limits.

The central part of the corridor is of particular importance due to its proximity to downtown as well as Hawthorne Station (transit center). This portion of the corridor is largely developed, with limited vacant land available. However, much

of the existing development is old or underutilized, particularly in portions of the industrial area west of 3rd Street. The City should explore the possibility of allowing increased commercial or mixed commercial/industrial land uses in this area, providing the opportunity for flexible redevelopment that could take advantage of its proximity to the downtown core and convenient multimodal transportation access. The Bend Central Area Plan<sup>6</sup> prepared in 2007 proposed a similar land use approach for this area that could serve as a framework for ongoing regulatory review and future public works projects. This plan, presented to the City Council and Planning Commission in 2007, is an ambitious and comprehensive recommendation for updating the existing land use and zoning patterns in and around the historic city center and connecting the major commercial areas so that they would function in a unified manner. Two major plan elements were proposed that, if implemented, could enhance and support a multimodal transportation system:

- Redefining the 3rd Street corridor as a mixed-use area that would allow a variety of commercial and industrial uses, in close proximity to downtown as well as multimodal transportation options.
- Reinforcing and enhancing transportation connections between the 3rd Street corridor and downtown to the west. These two districts are currently separated and isolated from each other by the railroad and Highway 97 bypass. Increasing connectivity between the districts, including transit service (see Newport and Galveston corridors below), would allow their activities to complement rather than compete with each other.

The plan included an urban design framework and identified a number of large-scale development opportunities. A portion of a map of these opportunities is shown in Figure 17.

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<sup>6</sup> <http://www.ci.bend.or.us/index.aspx?page=783>

Figure 17 Central Area Plan, Large Scale Development Opportunities Map



Source: Central Area Plan, Large Scale Opportunities Map, 2007

A proposed undercrossing of the Bend Parkway at Hawthorne Avenue would provide an important multimodal link between 3<sup>rd</sup> Street (and Hawthorne Station) and the downtown core. This project appears in the Bend Urban Area Transportation System Plan (TSP), where it is suggested as an alternative to widening the Franklin undercrossing. It is also included in the Central Area Plan, which recommends further study to determine its viability.

Infrastructure constraints along the 3<sup>rd</sup> Street corridor include traffic congestion at the north end, and remediation measures for Highway 97 have not been finalized. Sewer capacity is most constrained in the northern portion of the corridor and somewhat constrained in the southern portion of the corridor.

In summary, 3<sup>rd</sup> Street is an essential transit corridor and will remain so in the future. Improving the streetscape along 3<sup>rd</sup> Street (with pedestrian-oriented and boulevard-type improvements) is a priority for supporting higher-density residential and/or mixed-use development along the corridor. Along the developed portion of the corridor, planned multimodal access improvements such as the Murphy-Brookwood connection provide key opportunities. Various infrastructure constraints may limit short-term development potential, particularly in the northern portion of the corridor. On the other hand, given land availability at the north and south ends of the corridor, development potential is likely to be realized in response to future infrastructure improvements.

**Figure 18 Corridor Assessment: 3rd Street (North)**

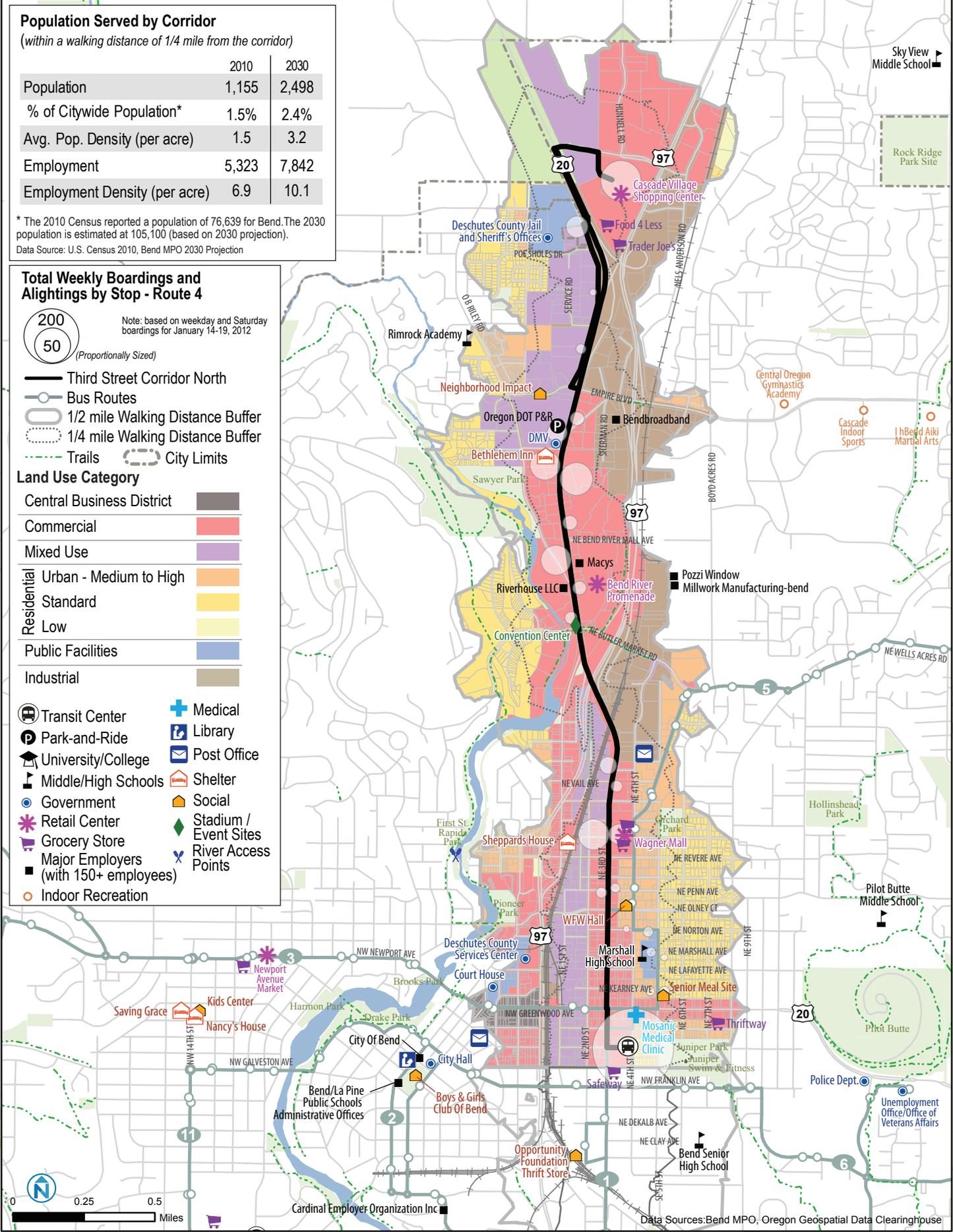
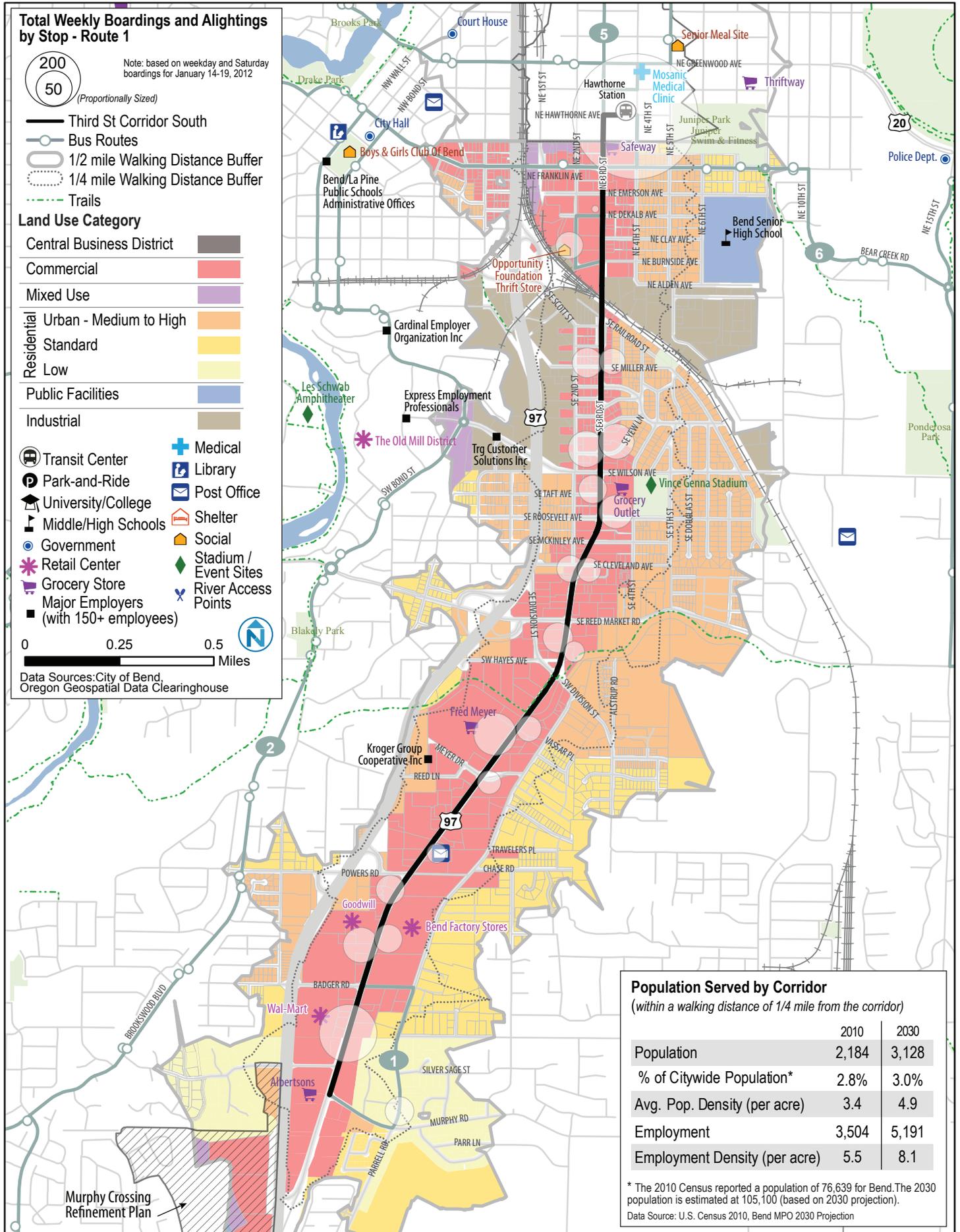


Figure 19 Corridor Assessment: 3rd Street (South)



## Galveston/Newport

Galveston (including Franklin Avenue through downtown) and Newport Avenues are the primary east-west corridors connecting 3<sup>rd</sup> Street to the downtown core and to the west side of Bend. They provide access to key destinations including the Central Oregon Community College (COCC) and Oregon State University (OSU) campuses and Northwest Crossing, as well as the Simpson/Columbia area. Figure 21 illustrates both corridors, which extend approximately 1.5 miles from 3<sup>rd</sup> Street to NW 14<sup>th</sup> Street. Routes 3 and 11 provide transit service in these two corridors, both of which also provide important connections between Hawthorne Station and downtown (along with Route 2). In downtown Bend, the corridors are less than a quarter-mile apart, increasing to over a third of a mile west of the Deschutes River.

East of the Deschutes River, commercial land uses are well-established, so future development potential is likely to be limited to redevelopment and longer-term opportunities. Mixed commercial/residential use has occurred in some recent developments along Bond and Wall Streets and elsewhere downtown, and is likely to continue as the housing market recovers. However, downtown housing has been met with mixed results.

West of the river, the corridors pass through established residential areas and neighborhood commercial areas. The residential neighborhood north of Newport Avenue has a number of vacant lots, but they are mostly separated from each other and likely may only be developed as single-family dwellings or small multiplexes in spite of medium-density or higher zoning. There may be opportunities to promote moderate-density infill along Newport Avenue or to strengthen existing commercial nodes. West of the intersection of College Way and Newport Avenue/Shevlin Park Road there are some small and medium-size vacant parcels where medium-density development is allowed. Further west, on the northeast corner of the intersection of Shevlin Park Road and Mt. Washington Drive, the COCC Special Plan District/Overlay Zone allows intensive development including residences, commercial uses, and additional school expansion opportunities.

West of the primary corridor extent, Northwest Crossing has significant residential land available for future development at medium density, and residential development is occurring east of Mt. Washington Drive. A future phase, west of Mt. Washington Drive and south of Shevlin Park Road, is approved for mixed residential and industrial use that would increase employment opportunities west of these corridors. However, the mixed-use portion of the Northwest Crossing neighborhood west of Mt. Washington Drive may be constrained in the short- and mid-term due to limited sewer capacity for the west side of Bend.

The Galveston corridor between downtown and the Deschutes River passes Drake Park on the north and mostly single-family residential areas on the south. West of the river, the corridor is bordered by small-scale neighborhood commercial uses that have developed in recent years. There is little vacant land along this part of the corridor, and existing zoning around the commercial corridor is standard-density residential (RS). A recent vision plan<sup>7</sup> for creating a new Galveston streetscape has been presented to the City, and work is underway to develop and implement a street improvement plan that would provide a safe and efficient multimodal transportation connection between downtown and west Bend neighborhoods. Completion of the proposed improvements (Figure 20) would greatly enhance the corridor, which in turn could promote more intense development. In addition, a project contingent on available GO Bond funding would bring 14th Street between Galveston and Simpson to urban standards with bike lanes and sidewalks.

**Figure 20 Preferred Galveston Corridor Vision**



Source: Galveston Corridor Project

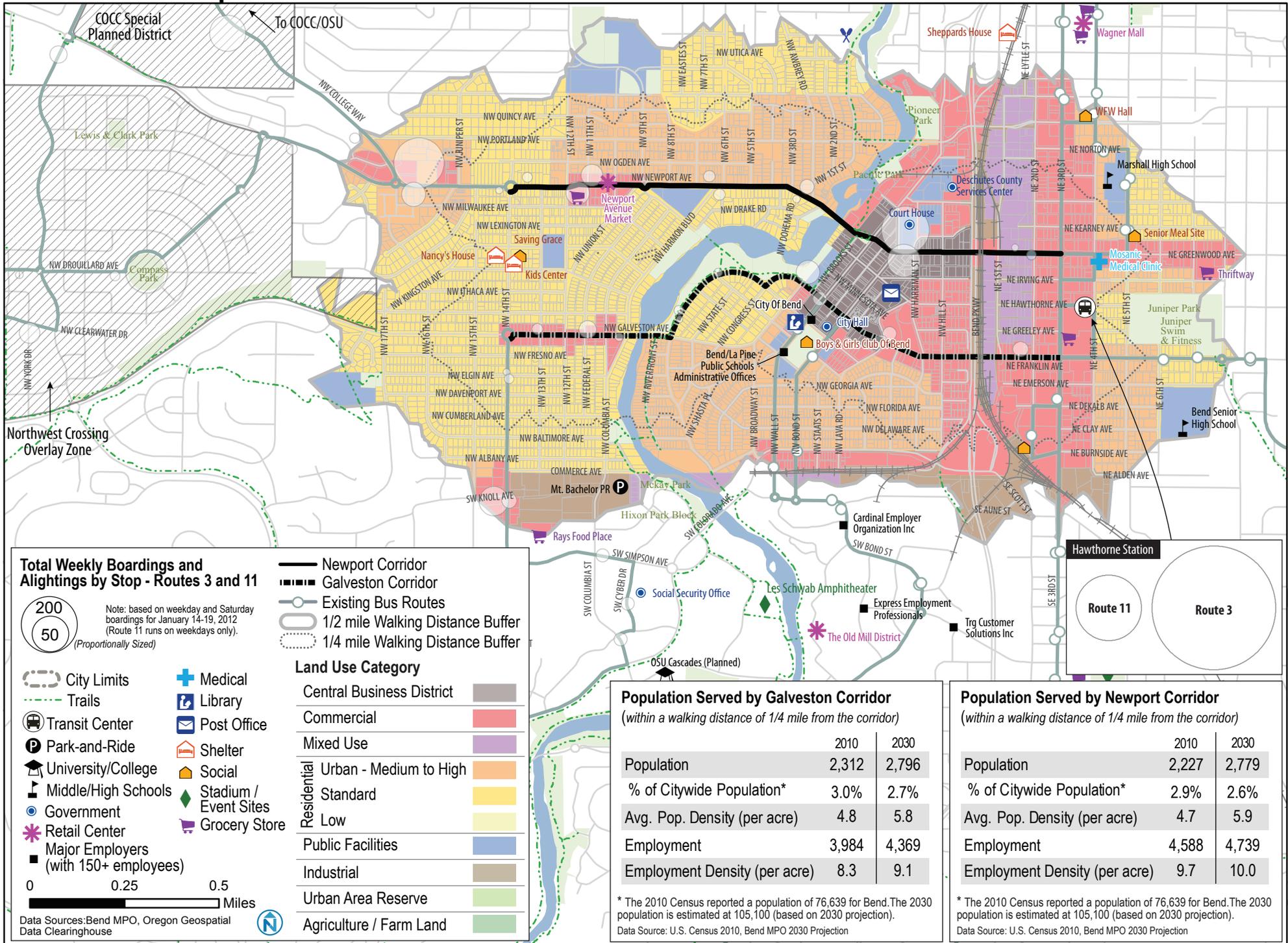
In summary, future development potential along these corridors is generally limited to small-scale redevelopment, although there appear to be opportunities to promote moderate-density infill and to strengthen existing commercial nodes or allow mixed-use development. It should be noted that infill development and redevelopment in these corridors has already been occurring due to the proximity to downtown and strong residential neighborhoods. The City should investigate the potential for moderate increases in allowed zoning intensity for land adjacent

<sup>7</sup> <http://www.ci.bend.or.us/index.aspx?page=696>

to commercial zones and opportunities for mixed-use zoning. The planned OSU campus south of Galveston in the Simpson/Columbia area (discussed in more detail below) presents a major development opportunity. If this campus is completed as planned, it would strengthen the connection between these corridors, and could help support market demand for mixed-use development/redevelopment. Beyond the western extent of the corridors, there is significant residential development potential, particularly in Northwest Crossing and on parcels owned by COCC. Future transit service to better serve this area will be addressed in the Service Concepts memorandum.

As shown in the data tables included on the corridor map, both corridors have stronger employment than population density, since they run through downtown Bend. The corridors have roughly equivalent population density for both 2010 and 2030. The Newport corridor has stronger employment density for both 2010 and 2030, but a higher increase is projected for the Galveston corridor.

Figure 21 Corridor Assessment: Newport/Galveston Avenues



## **Additional Areas of Potential**

Two additional areas that present current and future potential are discussed briefly in this section. Although they were not assessed in detail, they have strong existing momentum or planned development activity that is worthy of consideration.

### **Downtown and Old Mill Area**

Functionally, downtown Bend is viewed as consisting of the central downtown core (generally between Franklin and Newport Avenues) and the Old Mill District, divided by the Bend Historic District. The downtown core is fully developed, but there is still opportunity for occasional redevelopment and intensification of individual buildings. There are no plans that would drive a major change in this pattern of development.

Although numerous lots are identified as undeveloped or underdeveloped in the Historic District, they are primarily older homes on small lots and individual ownership in the residential zone. Because of lot size and ownership patterns, future development is likely to remain similar in size and density to what exists now.

There are a number of undeveloped parcels in or adjacent to the Old Mill District, ranging in size from several thousand square feet to several acres, that have the potential for a wide range of higher density residential, commercial, or mixed-use development. There are vacant parcels between Arizona and Colorado Avenues west of the Highway 97 Bypass that are also available, although traffic concerns must be resolved. The industrial area between the Old Mill District and Highway 97 Bypass, and Colorado and Wilson Avenues, is becoming increasingly isolated from other industrial areas as the Old Mill and the surrounding area develops. It is largely underdeveloped and underutilized. This land holds significant potential for more intensive mixed-use development in the medium-to-long term, but would require amendments (from industrial to commercial or mixed-use) to both the Bend General Plan and Zoning Map.

In summary, significant future development is likely to occur in the Old Mill District and adjacent area. Existing parcels in the Old Mill District are available and will allow short-term development, while larger parcels on adjacent land have short and medium-term development potential for a wide variety of mixed uses.

## **Simpson/Columbia Area (Planned OSU Campus)**

The Simpson/Columbia area currently has significant employment uses, but transit service that operates fewer daily trips and shorter service hours than the rest of the fixed-route system.

The OSU Cascades campus located north of Newport Avenue currently has about 1,200 students and is co-located with COCC. OSU recently purchased a building on Colorado Avenue and plans to seek funding this calendar year (and subsequent Legislative approval) to acquire additional buildings and build-out a campus in this area. OSU completed conceptual campus designs approximately one year ago, with projections for 5,000 students by 2050 and 3,000 to 4,000 students by 2030; OSU has recently accelerated these time frames and plans to reach enrollment of 5,000 students by 2015. Its conceptual design calls for University buildings intermixed with existing commercial buildings and tenants in the area and envisions strong transit-, bicycle-, and pedestrian-oriented transportation connections and access.

An OSU campus would create additional demand on Route 11 (Galveston), which currently does not operate continuously throughout the day and generate demand for a direct connection between the Simpson/Columbia campus and the COCC campus. (The Service Concepts memorandum will address potential options for meeting this demand.) The on-campus residential population, which OSU estimates may be about 8% based on peer studies, would also generate demand for local services. As discussed above, there is considerable existing development momentum along the Galveston corridor and in the Old Mill Area. If the OSU campus is realized as planned, it will further increase momentum in the areas around the campus.

## **Other Considerations: Dynamics of Future Growth**

This section highlights trends that will affect future population growth and land use development in Bend.

### **Aging Population**

#### **Importance of Transportation**

Seniors are at risk for declining health and social isolation once they lose the ability to travel on their own. In the U.S., about 20% of seniors today do not drive. Half of all non-drivers age 65 or older—four million Americans—stay at home on any given day because they do not have access to convenient

transportation options.<sup>8</sup> Low-income Bend seniors (age 60 or older) have access to Dial-A-Ride service, although it requires advance reservation and thus does not lend itself to spontaneous use. It is also several times more expensive to serve a trip on Dial-A-Ride than on fixed-route service. Most, though not all, of the Census blocks with high concentrations of seniors in Bend are located in close proximity to fixed-route transit, as shown in Figure 24.

**State, and County-Level Aging Trends**

In Oregon, residents age 65 and older are projected to account for 19% of the population by 2030. This represents an increase of 89% between 2010 and 2030, greatly outpacing the 27% rate of increase for the general population. Deschutes County is projected to experience an even faster growth rate in the 65+ population. This group will expand by 145% (32,629 additional 65+ residents) by 2030, to account for 24% of the county’s population.<sup>9</sup>

Applying the county-level growth rate to Bend, residents age 65 or older would increase from about 10% of the population to nearly 23% of the population by 2030.

**Figure 22 Estimated Share of Senior Population in Bend, 2030**

	2010 Share of Population	2030 Share of Population	% Change 2010-2030
Oregon	13.1%	19.4%	89.4%
Deschutes County	14.2%	24.0%	144.8%
Bend	10.1%	22.5%	144.8%

Sources: Oregon Office of Economic Analysis (2011), Forecasts of Oregon’s County Populations by Age and Sex, 2000 – 2040; 2010 U.S. Census

**Residential Preferences and Proximity to Transit**

Senior housing and neighborhood preferences vary in communities across the U.S., however recent studies have shown that the social and economic needs of “boomer seniors” will likely differ greatly from past generations. A 2010 AARP survey found that nearly 90% of seniors want to “age in place”—seniors want to live in their homes and stay in their community as long as possible.<sup>10</sup> As Figure 23 demonstrates, residents who will turn 65 over the next 20 years live throughout the Bend community. Compared to the current senior population (Figure 24), higher concentrations of the age 45-64 population live in locations

<sup>8</sup> AARP and the Walkable and Livable Communities Initiative. (2011) From Inspiration to Action: Implementing Projects to Support Active Living.

<sup>9</sup> Oregon Office of Economic Analysis (2011) Forecasts of Oregon’s County Populations by Age and Sex, 2000 - 2040

<sup>10</sup> AARP. (2011). “Aging in Place: A State Survey of Livability Policies and Practices.”

not currently served by transit, including NE and SE Bend, or areas beyond a quarter-mile walk from transit, such as north of Penn Avenue/Neff Road, between approximately NE 8<sup>th</sup> Street and Purcell Blvd.

Based on the trend of increased aging in place, many residents in the age 45-65 demographic group will likely choose to stay in their current homes if possible. The degree to which this can happen relies in large part on community design and access to travel options that place services within a convenient and safe walking and/or transit trip.

Figure 23 Persons Age 45 to 64, 2010

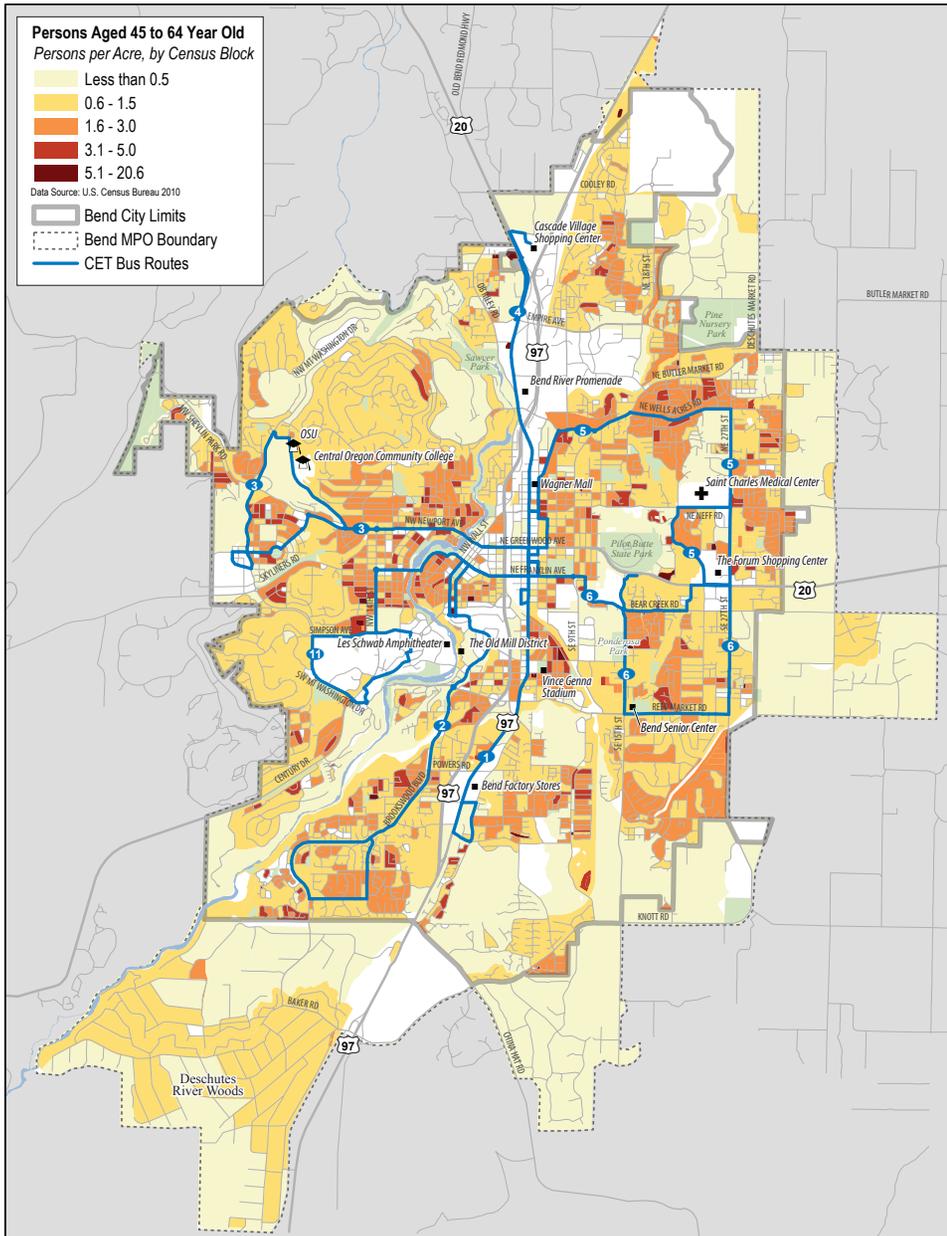
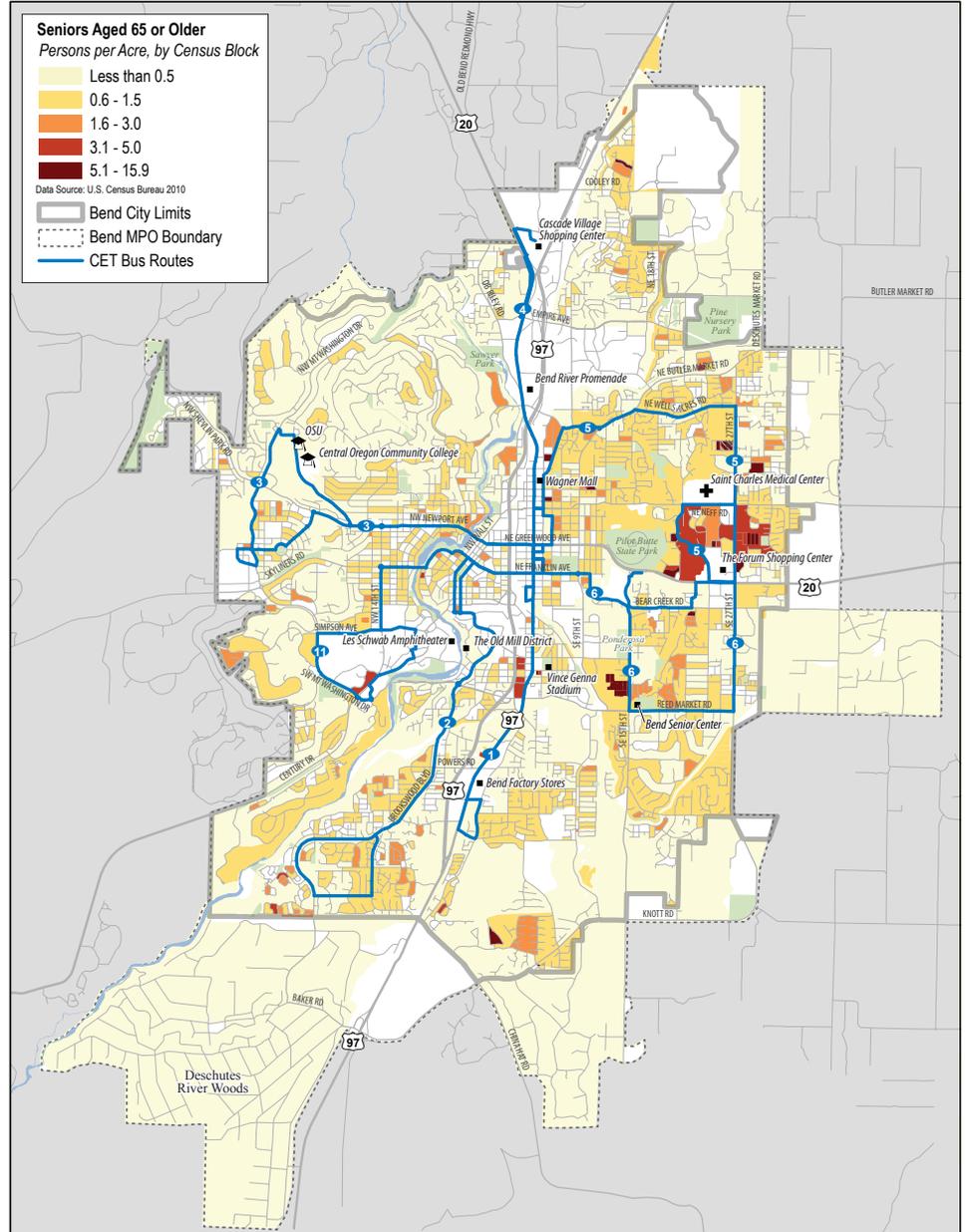


Figure 24 Persons Age 65 or Older, 2010



## Migration Trends

Between 2010 and 2030, it is estimated that over 65,000 net new residents will migrate into Deschutes County from elsewhere, although these projections are from 2004 and pre-date the economic downturn. Assuming these new residents move to Bend in the same proportion as its 2010 share of the County population (49%), Bend could see over 31,000 net new residents over this 20-year time period.

This will continue the past and current trend of population growth through migration.<sup>11</sup> The bar chart shown in both Figure 25 and Figure 26 illustrates migration trends for Deschutes County for 2005 to 2010 based on Federal tax return data. The maps show “blue” counties that send more people to Deschutes County than they take in (net inbound migration), and “red” counties that take in more people from Deschutes County than they send (net outbound migration). From 2005 to 2008, the County gained more residents than migrated out of the county, as illustrated in Figure 25. However, with the economic downturn starting in 2007 the level of outbound migration increased slightly and the level of inbound migration decreased. Inbound migration decreased further in 2009 and 2010, bringing migration in Deschutes County into near balance, with both blue and red counties shown in Figure 26.

Many new residents are from nearby counties in Oregon and the Portland metro area, the Puget Sound, and California. Counties in other western states including Salt Lake County in Utah, Denver and Boulder Counties in Colorado, Coconino and Maricopa Counties in Arizona, and Clark County in Nevada have also seen residents relocate to Deschutes County.<sup>12</sup> New residents bring different attitudes to and expectations of transit service. Former urban residents may be accustomed to using transit, and have different expectations for the level of service that it should provide than former suburban or exurban residents, who may have little experience with transit.

The data also show that in both 2005 and 2010, new residents have higher per-capita income than residents who migrated out of the County. New residents also have higher per-capita income than residents who remained in the county, although the gap narrowed in 2010 compared to 2005. In general, residents with higher-incomes may be less likely to use transit, or expect a higher level of convenience. On the other hand, higher-income residents that migrate from

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<sup>11</sup> Oregon Office of Economic Analysis (2004) Forecasts of Oregon's County Populations and Components of Change, 2000 - 2040

<sup>12</sup> U.S. Internal Revenue Service Tax Stats, County-to-County Migration Data Files (2011).

urban areas with existing transit service may be more likely to support transit financially (even if they did/do not use it).

In the future, more in-migration to Deschutes County is likely to occur as the impacts of climate change<sup>13</sup> around the nation become more acute and costly. If recent trends continue, constraints on water resources in western states will continue to put a strain on growth potential in those areas and could make Bend more attractive. In addition, many western states have experienced devastating wildfires due to dry conditions in recent years, a trend that some experts have predicted will continue in the future.<sup>14</sup>

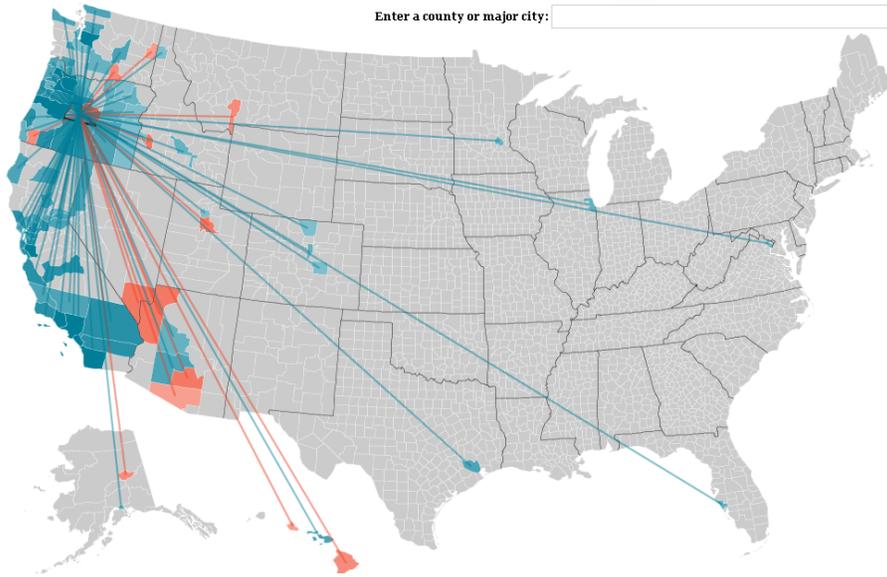
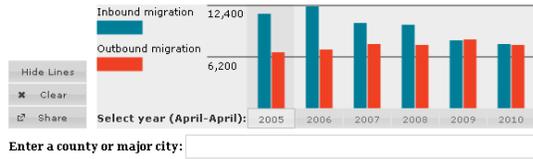
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<sup>13</sup> IPCC, 2007: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

<sup>14</sup> Published Online July 6 2006. *Science* 18 August 2006: Vol. 313 no. 5789 pp. 940-943 DOI: 10.1126/science.1128834

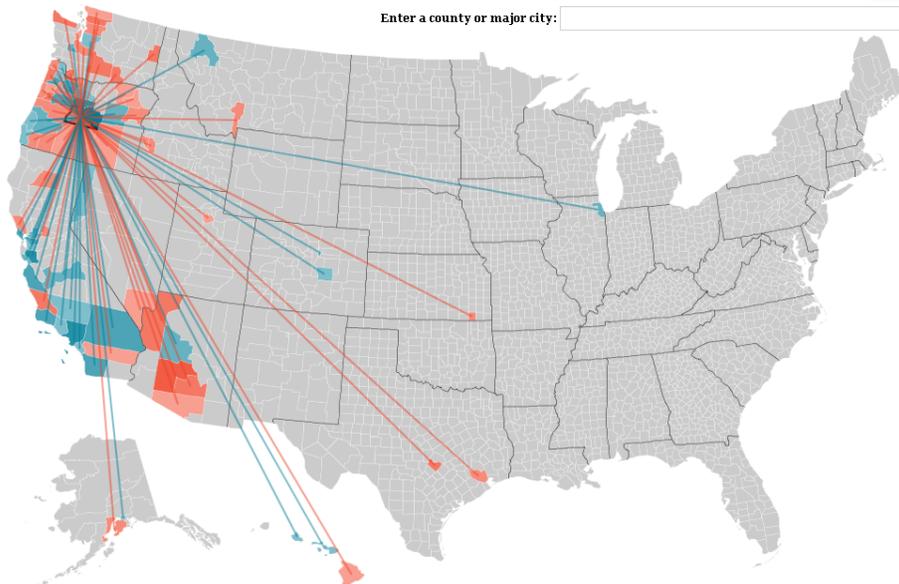
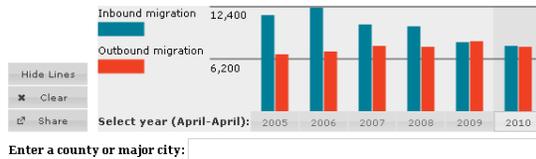
**Figure 25 Migration to Deschutes County, 2005**

Deschutes County (Bend), Ore.  
 Population (2010): 157,733  
 Population (2005): 140,567  
 Inbound income per cap. (2005): \$28,100  
 Outbound income per cap. (2005): \$20,200  
 Non-migrant income per cap. (2005): \$24,000



**Figure 26 Migration to Deschutes County, 2010**

Deschutes County (Bend), Ore.  
 Population (2010): 157,733  
 Population (2005): 140,567  
 Inbound income per cap. (2010): \$24,100  
 Outbound income per cap. (2010): \$17,500  
 Non-migrant income per cap. (2010): \$23,000



Source: Forbes, <http://www.forbes.com/special-report/2011/migration.html>. Based on U.S. population migration data from the IRS, <http://www.irs.gov/taxstats/article/0,,id=212683.00.html>. A known limitation is that the data, based on federal tax returns, underrepresents the poor and the elderly.

## Preferences for More Active, Urban Living

Changing demographic trends and the high cost of car ownership have both influenced the decline of auto-oriented communities and the resurgence of urban lifestyles.

### Millennials

In Deschutes County, the “Millennial” population (persons born between 1979 and 1996) is projected to grow by 64% by 2030, to account for one out of every five residents.<sup>15</sup> In 2010, nearly 7,800 Millennials resided in Bend.<sup>16</sup> After being raised in suburban, auto-oriented communities, Millennials prefer to live in close-in neighborhoods with urban amenities. Studies have found that two-thirds of Millennials value living in a walkable neighborhood and one-third are willing to pay more for this lifestyle.<sup>17</sup> Additionally, the share of miles driven by people age 21-30 decreased from 20.8% in 1995 to just 13.7% in 2009,<sup>18</sup> while 20-somethings grew from 13.3% of the population to 13.9% during this time.<sup>19</sup> According to the Federal Highway Administration, 25% of Millennials did not have a driver’s license in 2010, compared to 20% in 2000.<sup>20</sup>

This group also highly values the environment and would rather save money than own a car. A recent study found that Millennials purposefully reduce the amount they drive and opt for public transit, bicycling and walking instead. Furthermore, 70% of Millennials state that they would drive less than they currently do if there were more transportation options available, including public transportation, car sharing, and convenient carpooling.<sup>21</sup>

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<sup>15</sup> Oregon Office of Economic Analysis (2011) Forecasts of Oregon’s County Populations by Age and Sex, 2000 - 2040

<sup>16</sup> 2010 U.S. Census

<sup>17</sup> “Generation Y in the Marketplace.” RCLCO. [www.rclco.com/generalpdf/general\\_Sep2320101200\\_PCBC-Gen-Y\\_in\\_the\\_marketplace\\_-\\_Underwood-6-17-09\\_%5BCompatibility\\_Mode%5D.pdf](http://www.rclco.com/generalpdf/general_Sep2320101200_PCBC-Gen-Y_in_the_marketplace_-_Underwood-6-17-09_%5BCompatibility_Mode%5D.pdf) (accessed July 3, 2012).

<sup>18</sup> Department of Transportation Federal Highway Administration’s National Household Travel Survey

<sup>19</sup> U.S. Census

<sup>20</sup> America’s Generation Y not driven to drive. Reuter’s 7/1/2012. Retrieved from: <http://news.yahoo.com/americas-generation-y-not-driven-drive-145632280--sector.html>

<sup>21</sup> “Millennials & Driving: A Survey Commissioned by Zipcar.” Zipcar. [http://www.slideshare.net/mobile/Zipcar\\_Inc/millennial-slide-share-final](http://www.slideshare.net/mobile/Zipcar_Inc/millennial-slide-share-final) (accessed July 3, 2012).

## High Cost of Car Ownership

The cost of owning a car impacts drivers of all ages and generations. In 2010, the average household spent 15% of total expenditures on personal vehicle expenses, including vehicle purchases, gas, maintenance, insurance, and other expenses.<sup>22</sup> These costs reduce the amount of household income put toward retirement, college savings, and home mortgages and could instead be spent to support the local economy. A 2011 survey found that a large majority agree that owning a car is difficult due to these costs; 70 to 78% of all age categories 18 and over agree. Furthermore, 50% or more of those age 18-54 would drive less if other options, like public transportation, were available.<sup>23</sup>

## School-Age Population

Decisions on where to site new schools to accommodate growth in school-age children will impact available transportation options, including access to transit and the feasibility and safety of active transportation like walking and bicycling.

By the 2030-31 school year, an additional 7,100 children are projected to enroll in the Bend-La Pine School District compared to 2010.<sup>24</sup> Over the next 20 years, it is projected that a total of five elementary schools, two 800-student middle schools, and one 1500-student high school will be needed to serve the growth in school-age children. The Bend-La Pine School District's 2010 School Facility Plan<sup>25</sup> contains the following information related to middle and high school needs, which are the most relevant for transit:

- The primary need for new middle schools to accommodate growth is expected to be in southeast Bend. Although the northeast will also experience new growth it has the most existing capacity.
- The fringe of the southeast quadrant of the city is served by High Desert Middle School, therefore the next middle school should be located centrally in the quadrant.
- A second middle school is not expected to be needed until the end of the 20-year planning horizon, therefore a specific location recommendation was not included in the plan.

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<sup>22</sup> Consumer Expenditure Survey, U.S. Bureau of Labor Statistics, September, 2011

<sup>23</sup> "Millennials & Driving: A Survey Commissioned by Zipcar." Zipcar.  
[http://www.slideshare.net/mobile/Zipcar\\_Inc/millennial-slide-share-final](http://www.slideshare.net/mobile/Zipcar_Inc/millennial-slide-share-final) (accessed July 3, 2012).

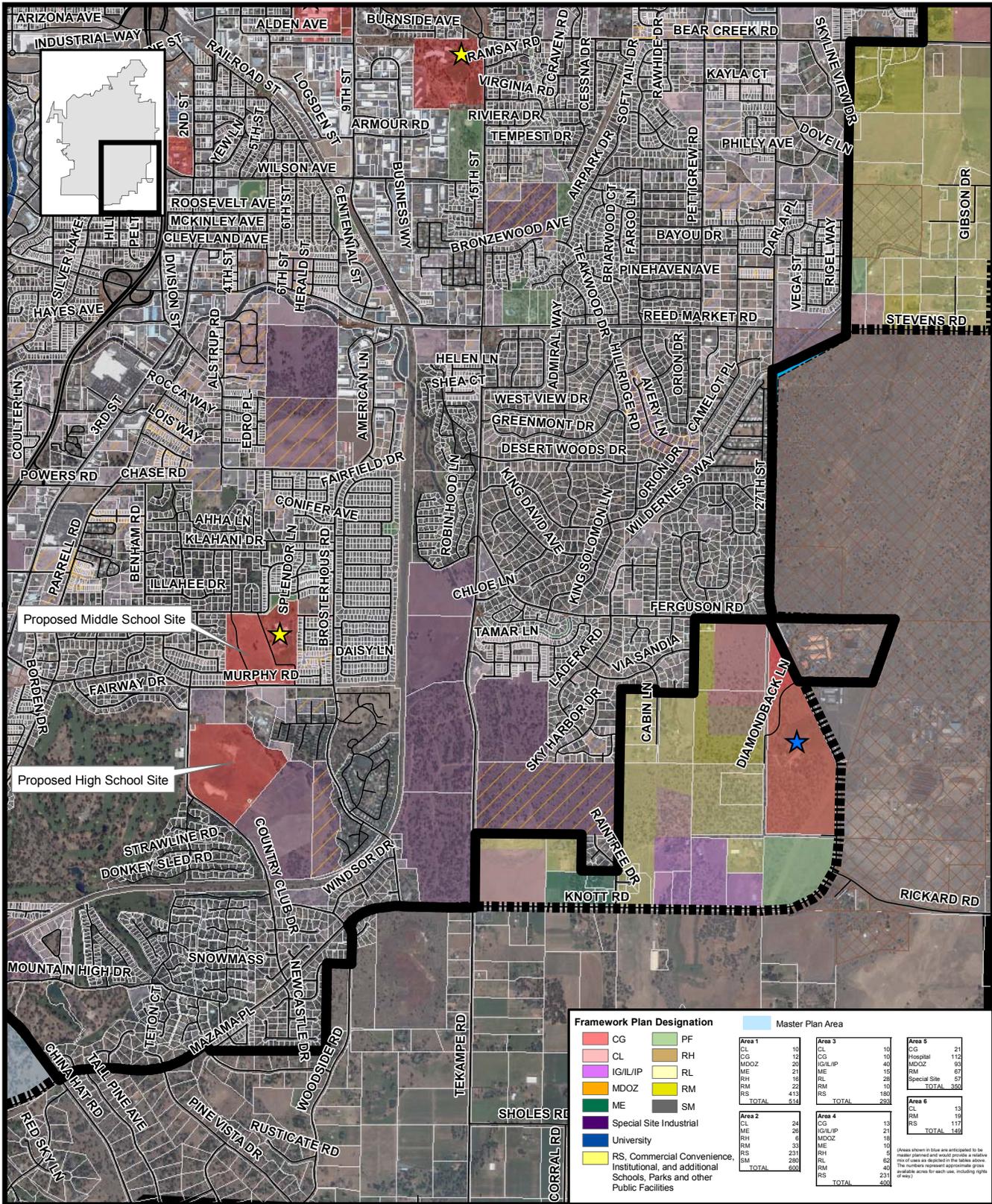
<sup>24</sup> Portland State University Population Research Center. "Bend-La Pine School District Population and Enrollment Forecasts 2010-11 to 2030-31." March 2010.

<sup>25</sup> Bend-La Pine Schools 2010 School Facility Plan. April 2010

- A new high school is expected to be needed after 2026 and is recommended to be sited in the southeast due to a projected capacity shortfall.

Figure 27 illustrates the proposed middle and high school locations, which are District-owned sites. The plan identifies lack of sewer capacity in the southeast as a potential concern, but indicates that the City’s Capital Improvements Plan (CIP) suggests sewer service will be in place prior to the identified need for these schools. However, this assumption may need to be revisited following completion of the City’s new Sewer Master Plan.

Figure 27 Bend Urban Area Proposed Middle and High School Site Locations, 2010



Framework Plan Designation		Master Plan Area	
CG	PF	Area 1	Area 3
CL	RH	Area 2	Area 4
IG/IL/IP	RL	Area 5	Area 6
MDOZ	RM		
ME	SM		
Special Site Industrial			
University			
RS, Commercial Convenience, Institutional, and additional Schools, Parks and other Public Facilities			

Area	CG	CL	IG/IL/IP	ME	RM	RS	TOTAL
Area 1	10	12	20	21	16	22	413
Area 2	24	28	6	33	231	280	600
Area 3	10	10	40	15	28	10	180
Area 4	13	21	18	10	5	62	129
Area 5	21	112	93	87	57		350
Area 6	13	19	117	18			148

**Bend LaPine School District - 2010 Sites & Facilities Study  
Vacant & Redevelopable Lands**

**Existing Schools**

- ★ Elementary School
- ★ Middle School
- ★ High School

**Buildable Lands Inventory (Feb 2008)  
Vacant & Redevelopable Lands  
Inside Existing UGB by Size**

0 - 5 acres	20.01 - 30 acres
5.01 - 10 acres	30.01 - 89 acres
10.01 - 20 acres	

- Bend-La Pine School District Properties
- Parks
- Public Lands (City, County, State, Federal, COID)
- Existing Urban Growth Boundary
- Proposed Urban Growth Boundary (Dec 2008)
- Bend City Limit
- Vacant or Redevelopable Properties w/ Pending Land Use

Map prepared by City of Bend (INSCMI), April 14, 2010. Buildable Lands Inventory data updated February, 2008. Aerial acquired July 2008. Vacant/redevelopable lands shown on this map are those that do NOT have a Comprehensive Plan designation of IG, IL, IP, or SM. Redevelopable lands are residentially designated that meet the following criteria: 0.5 acres or greater, land value greater than improvement value, and can accommodate twice the number of dwelling units that currently exist on the lot.



## PRIMARY TRANSIT CORRIDORS

This section describes a recommended set of “Primary Transit Corridors” and their role and importance in coordinating transit and land use. As discussed above, these corridors identify roadway segments that are significant for transit, but do not necessarily correspond to individual transit routes. They include both corridors currently served by transit and those without existing service. Some primary transit corridor segments may warrant service by multiple routes, potentially providing increased frequency or connections on important segments (such as serving downtown Bend). In addition, identifying primary transit corridors is not intended to preclude transit routes that provide transit coverage in other areas. These other areas may be served by a supporting network of transit services.

The recommended corridors are categorized into two tiers—definite and candidate corridors—based on their potential for future transit demand and likely phasing:

- **Definite corridors.** These are the most densely developed corridors and/or have the greatest development potential and connect key destinations that generate transit demand. They have the highest potential to warrant investments in higher levels of transit service (e.g., more frequent or more direct service).
- **Candidate corridors.** These may be less densely developed corridors, but that have longer-term development potential. They could be elevated to a primary transit corridor if land uses become more transit-supportive<sup>26</sup> and destinations that generate transit demand develop along the corridors.

Although public facility deficiencies were a consideration in the corridor analysis described in this memorandum, based on direction from City and MPO staff, the presence of public facility deficiencies was not used to preclude an otherwise suitable corridor from being recommended as a primary or candidate corridor.

### Role of Primary Transit Corridors

Primary transit corridors are not bus routes or a service plan, but a policy tool to help the Bend MPO, the City of Bend, and Cascades East Transit manage land use, public infrastructure, and transit service provision. Few areas and no complete corridors in Bend have the land use characteristics that would support the service levels that provide the convenient service to which the City aspires. Primary transit corridors work at a policy-level to help make this level of service feasible by:

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<sup>26</sup> To be defined more explicitly in the Service Concepts memo.

- Securing a commitment from the transit provider (CET) to maintain the highest level of transit service, and focus future investments in service capacity, frequency, and amenities along identified, mutually agreed-upon corridors where the City will focus land use planning.
- Influencing the City’s zoning and development policies to encourage intensification of land use around primary transit corridors. Adopting primary corridors provides a statement to the community that the City will seek to update land use plans along arterial transit corridors where land uses are currently not built or zoned for the necessary densities, but might be. This is a key element of providing the necessary level of ridership and accessibility to support improved transit service.
- Allowing the City to plan utility infrastructure (sewer, water, etc.) to support higher-intensity development along arterial primary transit corridors.
- Providing direction to City engineers and planners about where street rights-of-way should be designed and managed to help maintain transit operating speed and reliability. This enables transit to provide the best possible user experience, prevents timed-transfer connections from breaking down, and allows transit operating resources to be spent on improving service, rather than simply maintaining headways as traffic congestion increases.
- Encouraging dense and/or transit-intensive land uses to locate on primary corridors, or at a minimum, along the supporting network. Primary transit corridors communicate preferred locations for uses that generate high transit demand and/or that desire to have transit service. For example, if a planned land use that is known to require transit, such as a social office, senior facility, or school, chooses not to locate on a primary corridor, they do so with the knowledge that they may not get the best transit service, or any at all. When such uses locate away from transit, they inevitably create pressure for the transit agency to provide service where it cannot be done efficiently.

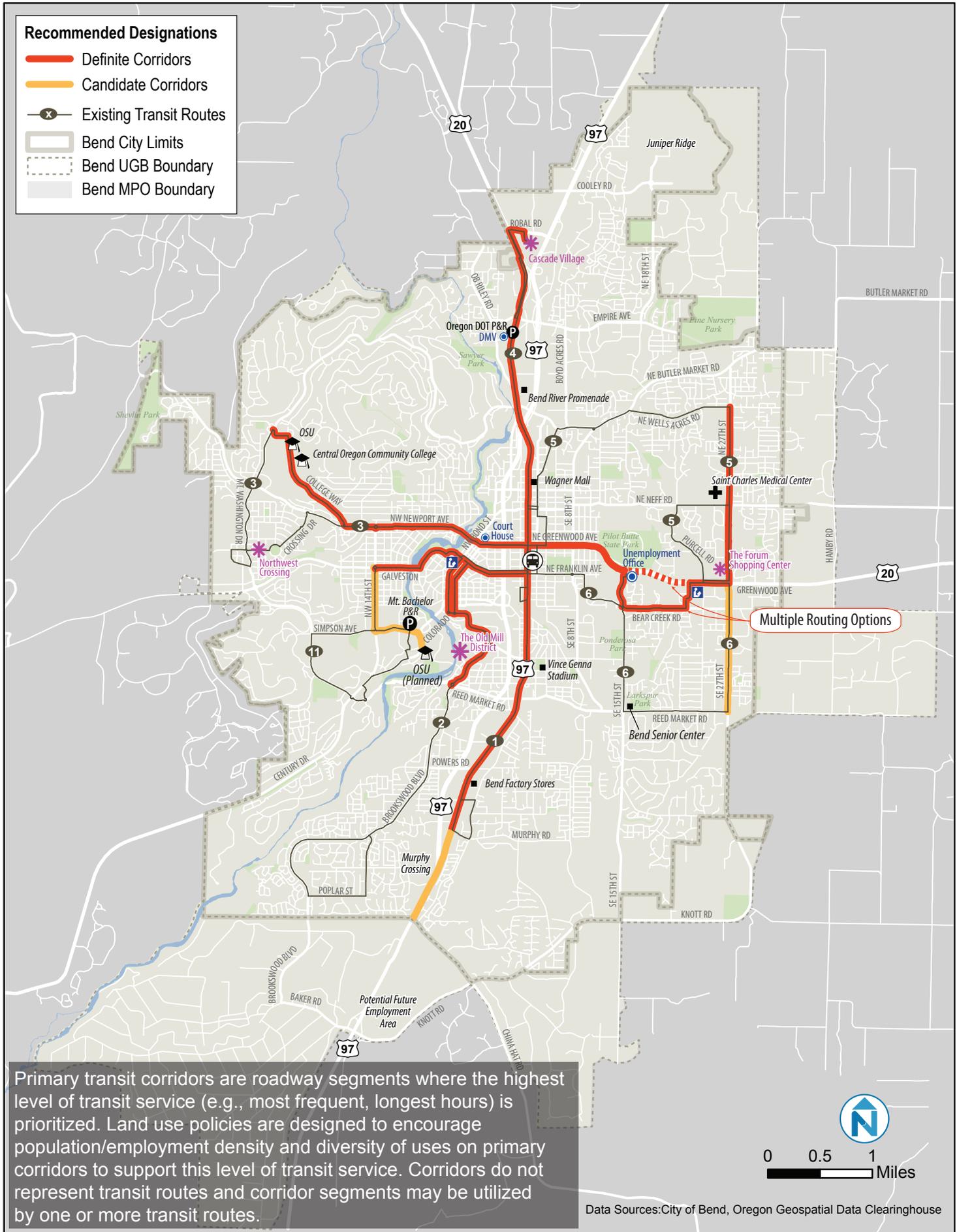
## Recommended Primary Transit Corridors

Based in part on the analysis described in this memo, Figure 28 presents a map of the recommended primary transit corridors. These corridors include:

- **3<sup>rd</sup> Street / Hwy 97** (South and North)
  - 3<sup>rd</sup> Street between Murphy Road and the city limits is shown as a candidate corridor
- **27<sup>th</sup> Street** (Greenwood to Wells Acres)
  - 27<sup>th</sup> between Greenwood and Reed Market is shown as a candidate corridor
- **Greenwood Avenue** , with 15<sup>th</sup> Street and Bear Creek Road as the recommended routing
- **Newport Avenue**
- **Galveston Avenue**
  - Segments of NW 14<sup>th</sup> Street, Simpson Avenue, and Columbia Avenue are shown as candidate corridors

The Service Concepts memo will describe service recommendations that utilize these corridors in more detail.

Figure 28 Recommended Primary Transit Corridors



## SUMMARY AND KEY FINDINGS

- Most corridors that rank highly in the initial screening evaluation for current conditions criteria are those already served by transit. The key exceptions are corridors in east Bend that are surrounded by the existing system: Neff Road, Purcell Boulevard (between Neff and Wells Acres), and Greenwood Avenue. However, geographic constraints and undevelopable land (Pilot Butte State Park) and/or existing roadway connectivity (Purcell) limit the actual current and/or future potential of these corridors.
- Land use along with existing roadway connectivity and geographic and other barriers (e.g., Bend Parkway, railroads) make it challenging to provide service in some areas of Bend, particularly NE and SE Bend. There is no single corridor that is a clear, logical choice for transit in either NE or SE Bend. This is one reason that 27<sup>th</sup> Street was identified as a corridor for more focused analysis and is recommended as a primary transit corridor, particularly given its planned extension to connect to Empire Avenue.
- Considering future growth and roadway improvements, some potential corridors could support transit service, including in NE and SE Bend. In particular, Boyd Acres Road (Wells Acres to Empire) and Empire Avenue score highly; NE 18<sup>th</sup> Street scores moderately well. In SE Bend, Reed Market Road (Bend Parkway to SE 15<sup>th</sup>) scores highly. In some of these corridors, significant roadway improvements are planned or funded. Analysis of the City’s Buildable Land Inventory (BLI) data illustrates specific development opportunity areas along these corridor segments, which would help support future transit in these currently underserved areas of Bend. Of particular note is residential development potential along SE 15<sup>th</sup> Street in the vicinity of Murphy Road, as well as redevelopable and/or vacant residential and/or commercial sites along Boyd Acres Road and Empire Avenue.
- Capacity of the existing sanitary sewer system is the primary public facility constraint affecting development. Existing capacity is most limited in north and west Bend. South and east Bend have more existing capacity to handle future growth. Completion of identified sewer interceptor projects, pending a new sewer model and analysis as part of the City’s new Sewer Master Plan (now underway) may be necessary to fully realize potential for development in certain areas of the city and/or individual parcels.
- The Bend Travel Demand Model forecasts increasing congestion by 2030 on a number of roadways, which presents both opportunities and challenges for transit. Congestion indicates that there is travel demand on a corridor, and can make non-driving travel options more attractive. On the other hand, maintaining schedules, and in particular connections

- between routes, is a key challenge for transit with increasing traffic congestion. This is particularly important as the “pulse” system in Bend relies on timed transfers.
- Several key corridors were identified for a focused assessment of land use opportunities, based in part on the initial screening evaluation. These corridors are:
    - 27<sup>th</sup> Street (Reed Market to Wells Acres).
    - Greenwood Avenue (3<sup>rd</sup> to 27<sup>th</sup>).
    - 3<sup>rd</sup> Street (Murphy to Cascade Village)
    - Newport and Galveston Avenues (3<sup>rd</sup> to NW 14<sup>th</sup>).
  - In addition, downtown Bend, the Old Mill Area, and the Simpson/Columbia area (where a new OSU campus is planned) all have strong development momentum under existing land use policies.
  - 27<sup>th</sup> Street, Greenwood Avenue, and 3<sup>rd</sup> Street are major arterial commercial corridors that currently have an auto-oriented character. Enhancing the streetscape and pedestrian connectivity are high priorities for supporting higher-density residential and/or mixed-use development along these corridors.
  - In contrast, Newport and Galveston Avenues are characterized by smaller-scale neighborhood commercial and residential development. Promoting moderate-density infill development and strengthening existing commercial nodes (including ensuring that mixed-use development is allowed) are the key opportunities on these corridors. The planned OSU Campus in the Simpson/Columbia area is a significant opportunity.
  - Key considerations for future transit demand include:
    - Based on projections for Deschutes County, the share of the senior population in Bend is expected to account for 22.5% of the population by 2030, an increase from about 10% in 2010. Greater concentrations of future seniors (baby boomers) live in locations not currently served by transit, including NE and SE Bend, compared to current seniors. National trends point to a tendency to want to “age in place.”
    - Although migration to Bend has slowed following the economic downturn, migration has continued at a slower rate and about 31,000 net new residents could be expected to migrate to Bend by 2030 based on County-level trends (assuming Bend’s share of the County population remains constant). The impact of climate change on water resources and fire risk elsewhere in the country could have a significant impact on the desirability of living in a place like Bend.

- Factors including preferences for urban lifestyles and the cost of gas and car ownership have key implications for housing preferences, land use, and demand for transit service. Studies have shown that this is particularly true for the “Millennial” generation born between 1979 and 1996. In Deschutes County, this population is projected to grow by 64% by 2030, accounting for one out of every five residents.
- The Bend-La Pine School District’s 2010 School Facility Plan projects that two new middle schools and one new high school will be required to accommodate growth in the school-age population by 2030. Two planned locations are in southeast Bend, on District-owned properties north and south of Murphy Road. Given the stated desire (TAC and public survey input) to serve middle and high schools with transit, it is important to coordinate school-siting decisions with land use and transit planning. The primary transit corridors concept (see next bullet) is a key policy mechanism to encourage this coordination.
- A set of “primary transit corridors” were developed. Primary transit corridors are not actual transit route segments, but rather roadway segments that may be served by one or more transit routes, particularly on high-demand segments (such as through downtown). Primary Transit Corridors, which are illustrated in Figure 28, are categorized into two tiers (Definite and Candidate) based on their potential for future transit demand and likely phasing. Primary Transit Corridors are a policy tool to help the Bend MPO, the City of Bend, and Cascades East Transit coordinate land use, public infrastructure, and transit service provision. The transit provider (CET) commits to maintaining the highest level of transit service, and focus future investments in service capacity, frequency, and amenities along primary corridors, while the City focuses land use planning to encourage intensification and diversity of land use around primary transit corridors, thereby providing the activity levels and ridership needed to support increased frequency and hours of service.

## NEXT STEPS

The initial screening analysis has also been used to inform development of transit service concepts for Bend, in parallel with the focused corridor assessments provided in this memo. Transit service concepts will be presented to the project TAC at its meeting on July 18, 2012. Based on feedback and input from the TAC, the Transit Concepts memorandum alluded to in this memo will be developed and sent to the TAC for comments in the mid-August time frame. The focused corridor assessments will also be refined and included in a final version of this memo.

# **APPENDICES**

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