

# ISSUES AND KEY CONSIDERATIONS



In addition to soliciting feedback from the public, the project team reviewed the key destinations in the area, safety conditions, and existing walking and biking facilities to identify potential needs. The team also collected parking utilization data and traffic operations data to understand tradeoffs for each decision.

## BIKING AND WALKING CRASHES

The team analyzed data for reported crashes involving people walking or biking in the last five years (2016 to 2020) in the study area to understand safety needs. In addition to reviewing crash data, the team looked at the walking and biking crash risk factors present along the corridor.

Between January 2016 and December 2020, there were 14 reported crashes on U.S. 20 and two reported crashes on OR 34 involving people walking and biking. Table 2 presents the number of reported crashes by severity, and Figure 4 presents the crashes by mode and severity.

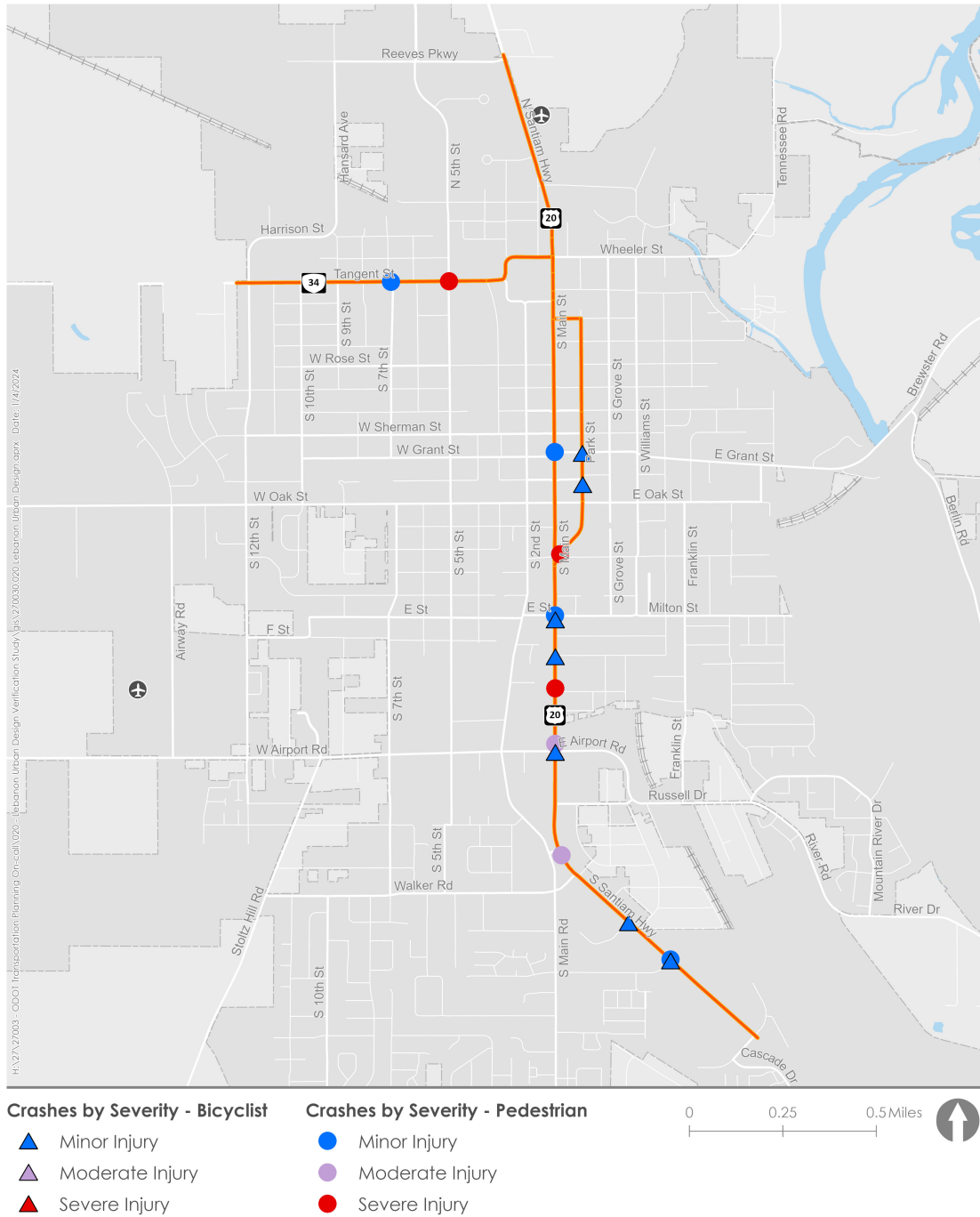
*“There aren’t any signals to aid crossing nearby, so what is a pedestrian supposed to do?”*

*- Community Member*

**Table 2: Number of Walking and Biking Crashes By Severity (2016 to 2020)**

<b>Crash Severity</b>	<b>U.S. 20</b>	<b>OR 34</b>
<b>Fatal</b>	0	0
<b>Severe Injury</b>	2	1
<b>Moderate Injury</b>	2	0
<b>Minor Injury</b>	10	1
<b>Property Damage Only (PDO)</b>	0	0
<b>Total</b>	<b>14</b>	<b>2</b>

Note: Crash data for 2021 and 2022 were not available during the safety analysis but have since been made available. Final 2021 data and preliminary 2022 data show two crashes involving people walking and two crashes involving people biking between January 1, 2021 – December 31, 2022 on U.S. 20 or OR 34 in Lebanon. A minor injury pedestrian crash occurred at the intersection of Wheeler Street and U.S. 20, and a fatal pedestrian crash occurred at the intersection of Russell Drive and U.S. 20. A moderate injury bike crash occurred near the intersection of Airport Road and U.S. 20, and a minor injury bike crash occurred near the intersection of 5<sup>th</sup> Street and OR 34.



**Reported Crashes by Mode and Severity  
 Lebanon, Oregon**

**Figure 4: Reported Crashes by Mode and Severity**

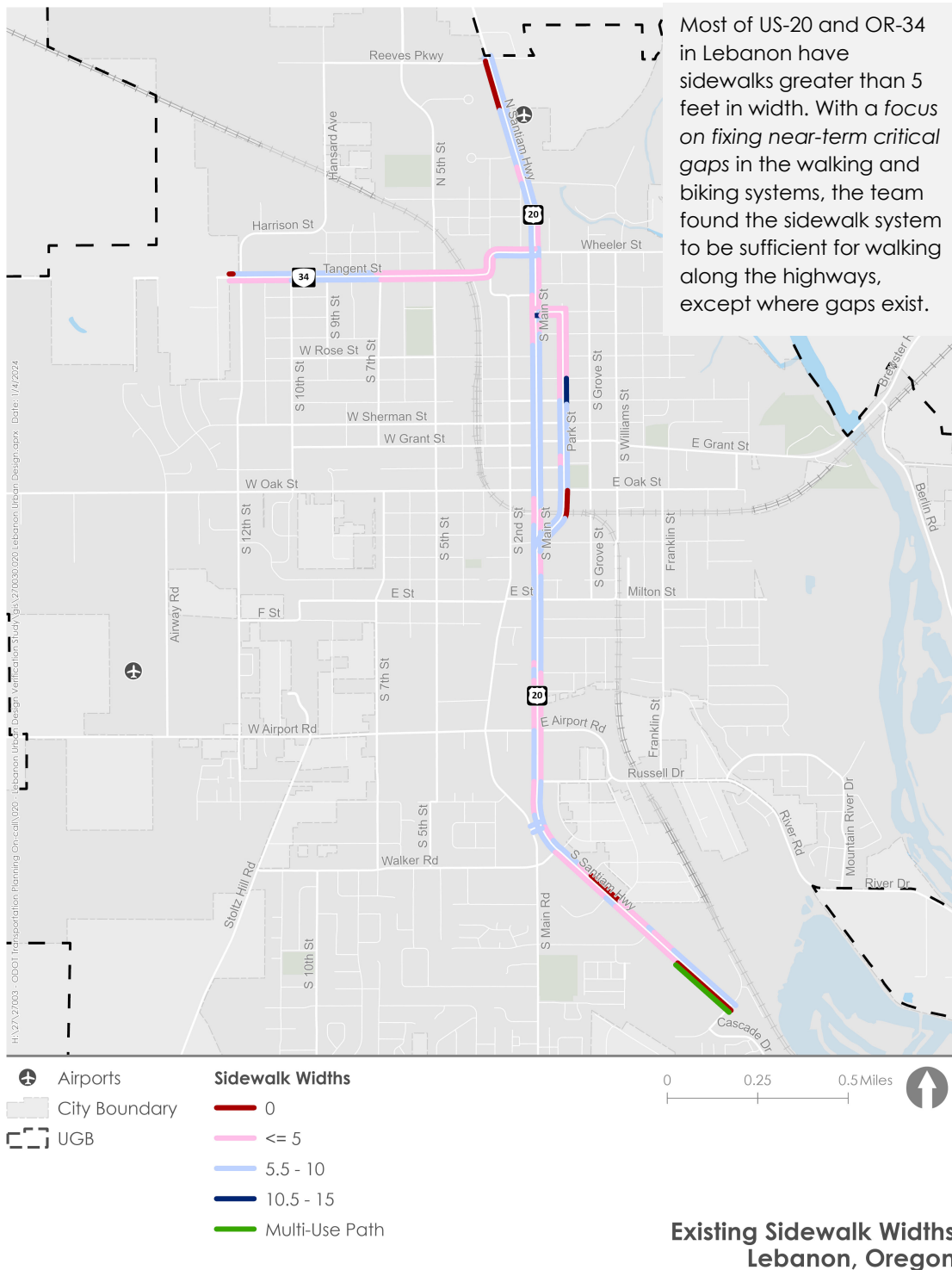


Figure 5: Existing Sidewalk Widths

## WALKING IN LEBANON: CROSSINGS



Photo: Kittelson and Associates, Inc.

Providing enhanced crossings like signals, flashing beacons, lighting, signs, and striping advises drivers that someone may be crossing. In areas with closely spaced land uses, there is usually a more frequent desire to cross the road and therefore enhanced crossings should be provided more regularly than in areas with fewer destinations. Table 3 provides the recommended target spacing ranges for each land use in our study area. Note that per the Highway Design Manual, these targets are a starting point. The density of land uses and pedestrian generators and their locations should be analyzed to determine if a lesser or greater spacing is needed. Figure 6 presents enhanced or marked crossing locations in Lebanon along U.S. 20 and OR 34.

The team found that **there is a lack of comfortable, enhanced crossings in the study area, especially on the southern portion of U.S. 20 and on Park Street.** Distances between crossings exceed ODOT recommendations, and past crashes and public input confirms that people need to cross in locations where enhanced crossings are not currently provided. Some existing marked crossings are still uncomfortable and could be improved with additional enhancements. For instance, there is an existing marked crossing at 2<sup>nd</sup> Street and OR 34 where additional enhancements may further improve the crossing due to factors such as road curves; higher traffic speeds and volumes; and a higher percentage of older adults and children crossing due to surrounding land uses.

**Table 3. Target Crossing Spacing Based on Urban Context**

Urban Context	Target Spacing Range (feet)
Traditional Downtown/CBD	250 - 550
Urban Mix	250 - 550
Commercial Corridor	500 - 1,000
Residential Corridor	500 - 1,000

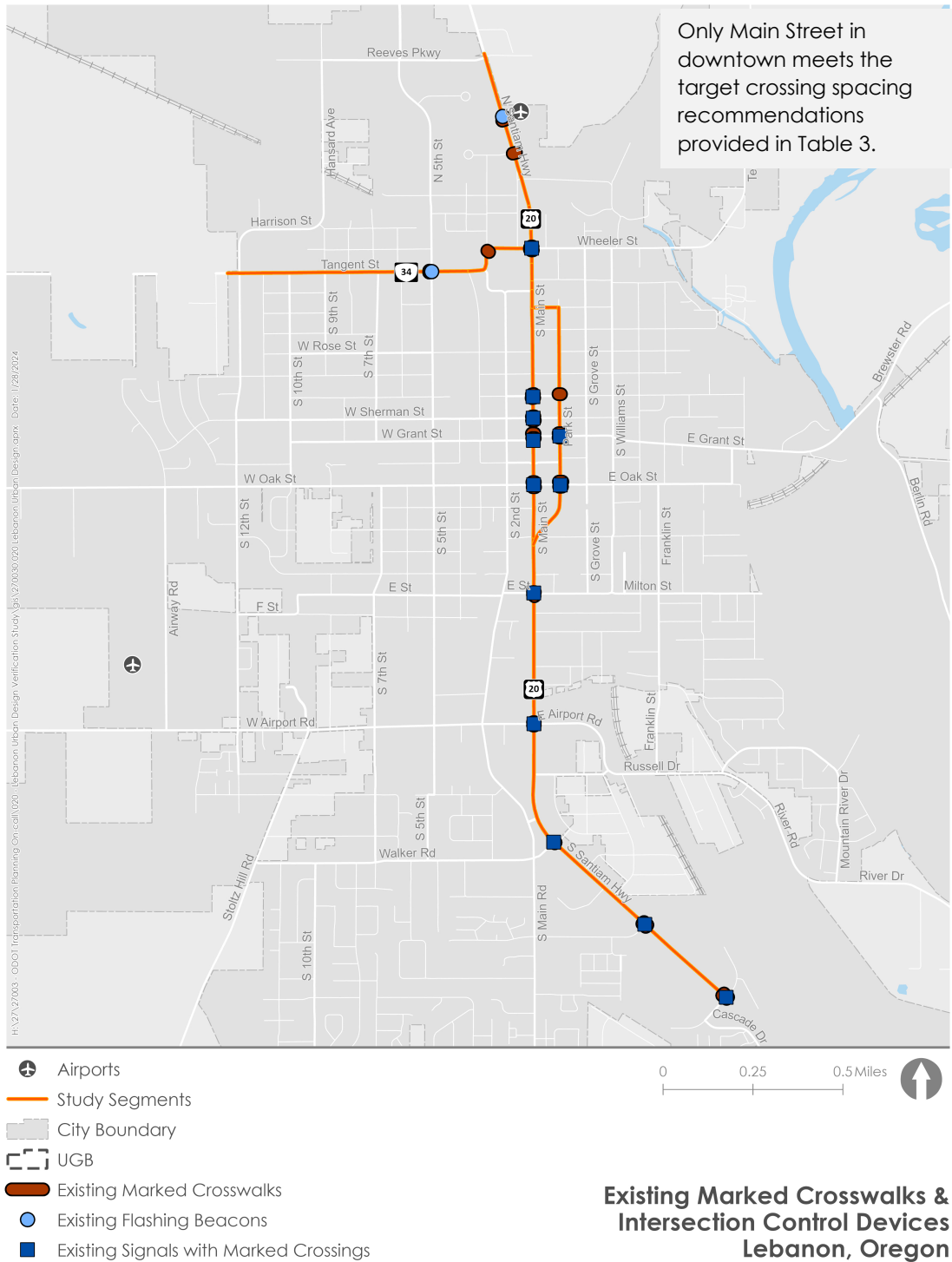


Figure 6: Existing Marked Crosswalks and Intersection Control Devices

# BIKING IN LEBANON



U.S. 20 does not currently have bike lanes for the majority of the study area. OR 34 has standard bike lanes through the study area. According to the ODOT Highway Design Manual, at these speeds and volumes all sections of U.S. 20 and OR 34 in Lebanon should provide a *Separated Bikeway*, which can include a shared use path or bicycle lane with physical separation from traffic.

Alternatively, providing bike routes parallel to and connecting to the highway can allow people to get to the destinations they need to go while biking on a lower stress facility than the highway.

	Airports	<b>Bicycle Widths</b>	0	0.25	0.5 Miles	
	City Boundary		0			
	UGB		< 4.5			
			5 - 6			
			6.5 - 8			

**Existing Bicycle Lane Widths  
 Lebanon, Oregon**

**Figure 7: Existing Bicycle Lane Widths**

## WHAT ABOUT PARKING?



Photo: Kittelson and Associates, Inc.

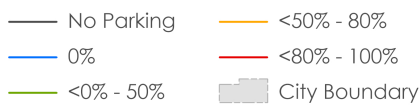
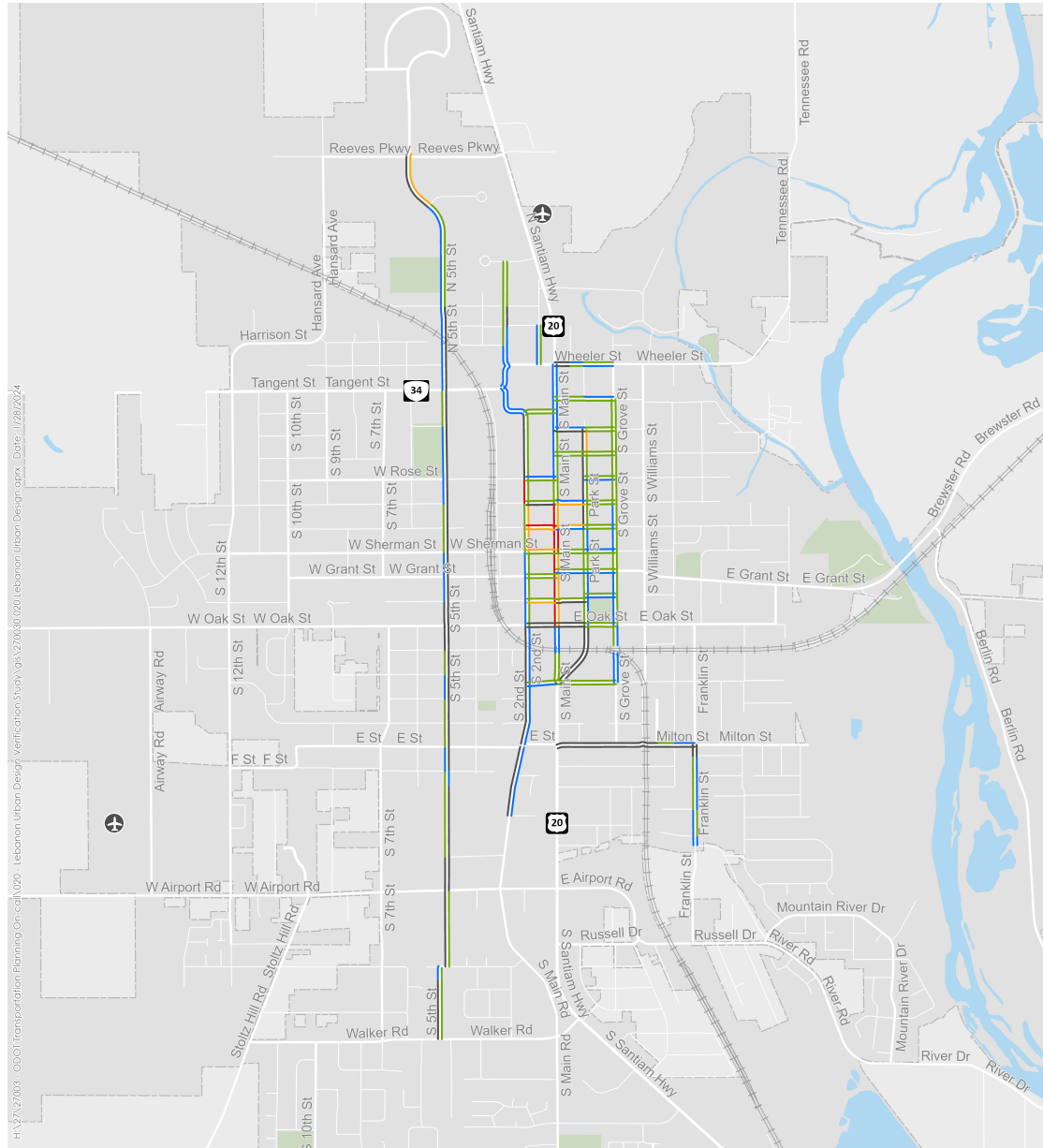
Removing parking can free up space for other street uses, including new bike lanes. The team conducted a parking assessment during the mid-day and evening to understand the opportunities and tradeoffs around parking removal.

### Key findings included:

- Parking utilization on **Main Street is greater than 80%** on some blocks during the midday.
- **Parking utilization is between 0 – 50%** on Park Street on all blocks except one. The low parking utilization leaves a wide roadway that encourages speeding and makes crossing difficult for people walking and biking. Consolidating parking to one side of Park Street would allow space for a northbound bicycle facility and encourage more appropriate vehicle speeds.
- **Parking utilization is consistently higher on 2<sup>nd</sup> Street than 5<sup>th</sup> Street.**

In cases where parking is removed, the strong grid network in Lebanon creates connectivity and street parking options- so that most people will not need to park more than one block away from their destination.

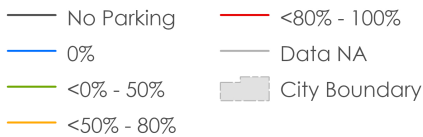
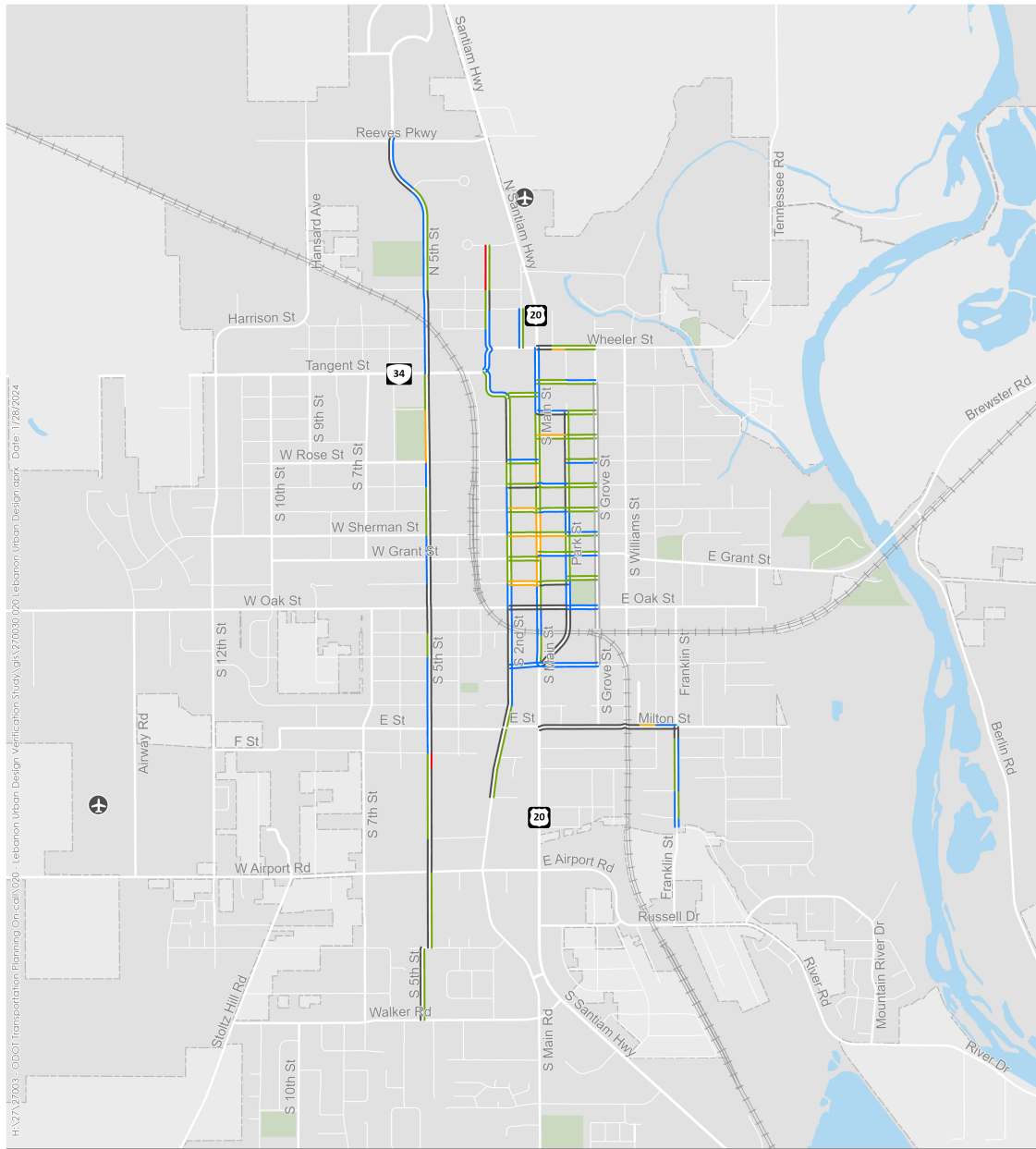




**Parking Utilization - Midday  
 Lebanon, Oregon**



**Figure 8: Parking Utilization in the Mid-Day**



**Parking Utilization - Evening  
 Lebanon, Oregon**



**Figure 9: Parking Utilization in the Evening**

# TRAFFIC OPERATIONS AND FREIGHT



## TRAFFIC OPERATIONS

A transportation operations analysis was conducted to inform how key intersections along U.S. 20 and OR 34 operate today, as well as provide insight on daily speeds and volumes on the highways and parallel streets. The analysis results identify potential opportunities and impacts for walking and biking facilities, and further inform the design concept presented in later sections of this Study. A summary of the findings is provided below, and additional details are documented in Appendix II.

All-day tube counts were collected for 2<sup>nd</sup> Street, 5<sup>th</sup> Street, Franklin Street, and Carolina Street to determine the appropriate bicycle facilities for those roadways. The analysis showed that:

- For 2<sup>nd</sup> Street, the preferred facility is a buffered bike lane north of Oak Street and a protected facility south of Airport Road.
- For 5<sup>th</sup> Street, the preferred facility is a buffered bike lane north of Oak Street and a shared lane or marked bicycle south of Airport Road.
- For Franklin Street, the preferred facility is a shared lane, consistent with the preferred facility on Grove Street.

In addition, all-day tube counts showed that there was a low left turn volume from Carolina Street onto Main Street, and hence a low need for a separated left turn lane.

An intersection operations analysis was conducted for existing and proposed changes to four key intersections:

- **U.S. 20 and OR 34-Wheeler Street:** Currently operates at a level-of-service (LOS) B; however, it has an intersection V/C ratio that exceeds the ODOT mobility target of a v/c of 0.70.

- Proposed changes to remove the southbound and northbound left turn lanes were evaluated, but both turn lanes were ultimately retained to provide phase separation between the left turns and crossing pedestrians.
- **Park Street and Grant Street:** Currently operates at a LOS B and meets ODOT mobility targets.
  - A proposed change to remove the dedicated northbound right turn lane was evaluated and the intersection was found to still meet ODOT mobility targets. This change was recommended in order to provide a buffered bike facility along Park Street and encourage design that matches the downtown, urban nature of the corridor.
- **Main Street-Park Street and Emore Street:** Currently operates at a LOS B and meets ODOT mobility targets.
  - Proposed intersection control types (signal and roundabout) were evaluated, but the existing configuration was ultimately retained, with the addition of RRFBs due to the near-term implementation focus for this Urban Design Verification.
- **U.S. 20 and Market Street:** Currently operates at a LOS A and meets ODOT mobility targets.
  - A proposal to remove the eastbound left turn was evaluated to create room for a bicycle facility. In both the AM and the PM peak hours, the intersection v/c ratio increases with this change (AM Peak: 0.59 to 0.80; PM Peak: 0.69 to 0.70). The alternative is to widen the intersection to add bicycle facilities. The project team recommends left turn lane removal to minimize impacts to neighboring properties, but if removal of the left turn lane is not allowed, widening will need to occur to support this key biking connection. This connection was identified by the project team and supported by public comment.

## FREIGHT

Reduction Review Routes are identified freight routes that may not permanently have their vehicle-carrying capacity reduced unless safety or access considerations require the reduction, or a local government requests an exemption, and the Commission determines it is in the best interest of the state and freight movement is not unreasonably impeded. Examples of reductions in horizontal carrying capacity include curb extensions, medians, and protected bike lanes. Examples of reductions in vertical carrying capacity include overhead masts. Both OR 34 and U.S. 20, including the couplet, are Reduction Review Routes.

The pinch points, or narrowest existing sections, along U.S. 20 in Lebanon are:

- Southbound: **26 feet** curb to curb (MP 13.27); while it is not a pinch point, in the southern section of the study area the southbound direction is **36 – 37 feet** tubular marker to curb (MP 14.05 – 14.11)
- Northbound: **25-26 feet** tubular marker to curb (MP 14.05 – 14.11); while it is not a pinch point, in the northern section of the study area the northbound direction is **32 ft** wide (MP 12.93 - 13.21)

The pinch points along OR 34 are:

- Westbound: **20 feet** curb to edge of pavement (MP 15.64 – MP 15.70); while it is not a pinch point, in the eastern part of the corridor, the narrowest section is **30 feet** curb to curb (MP 17.80)
- Eastbound: **30 feet** bridge rail to bridge rail (MP 0.00 – MP 0.20) considering the future Van Buren Bridge widths and **30 feet** curb to curb (MP 17.80)

The project team considered these pinch points when developing solutions to avoid creating narrower segments than these existing pinch points. However, while not creating new pinch points, the use of curb extensions, medians, protected bike lanes, and overhead RRFBs can reduce the horizontal or vertical vehicle carrying capacity of the highway.