APPENDIX F: TRANSPORTATION

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LIST OF EXHIBITS

This appendix includes supporting documentation for the Transportation Element, including the methodology for measuring and evaluating multimodal level of service, and analysis of current conditions.

F.1 ROAD CLASSIFICATION

Leavenworth's current transportation element defines four classes of roadways, which are described in Exhibit 1. These definitions are based on the traffic volume that utilizes the roadway and the destinations to which the roadway connects (i.e. Major Arterials connect major facilities and destinations, while local streets are intended to provide access to residential areas). These functional classes are used to define who a roadway is designed to accommodate, how it should be designed, and the role it plays in the City's transportation system.

The 2026 transportation element adds a fifth classification, Pedestrian, for streets that have been designated as pedestrian only.

A map of the City's road classifications is in Exhibit 2.

Exhibit 1. Road classification descriptions

Classification	Future Average Daily Traffic Volume	Description
Major Arterial	More than 5,000	Inter-community roadways connecting community centers or major facilities. Major arterials are generally intended to serve predominately "through" traffic with minimum direct service to abutting land uses. The minimum right-of-way width is typically 80 feet. No parking is usually allowed within the right-of-way. At volumes over 20,000 ADT these streets are generally five lanes wide with two through lanes in each direction and a two-way left-turn lane. Other channelization such as turn lanes at intersections is also provided as needed.
Secondary Arterial	1,500 to 10,000	Provides for intra-community travel for areas bounded by the major arterial system. Secondary arterials serve trips of moderate length and provide more direct access to abutting properties than major arterials. The minimum right-of-way width is typically 60 feet. Traffic lanes vary in width based upon traffic volume, design speed and the context of the roadway environment. Parking may be allowed, and parking lanes are typically 8-10 feet wide.
Collector	500 to 2,000	Provides for movement within a community, including connecting neighborhoods with smaller community centers. Collectors also provide connections to secondary and major arterials. Property access is generally a high

		priority for collectors, with a lower priority for through traffic movements. The minimum right-of-way width is typically 60 feet. Traffic lanes are at least 10 feet wide and parking lanes are 8 feet minimum. One through lane is provided in each direction, with parking and channelization as necessary.
Local Streets	Less than 1,000	Provides access to abutting properties and include a variety of designs to match the surrounding land uses.
Pedestrian	Limited	Designed and designated primarily for pedestrian use. A limited amount of vehicle traffic is allowed for specific uses, such as deliveries or construction.

F.2 MULTIMODAL LEVEL OF SERVICE METHODOLOGY AND EVALUATION

This section provides detailed methodology for measuring and evaluating multimodal level of service (LOS) standards adopted in the Transportation Element. The procedures in this appendix describe how LOS is calculated, how deficiencies are identified, and how results inform concurrency, capital planning, and the annual multimodal performance review. An evaluation of current conditions is provided for each mode of travel.

AUTOMOBILE LEVEL OF SERVICE METHODOLOGY

This section contains excerpts and maps from the 2020 Transportation Element Appendix as noted.

BACKGROUND

The operations of roadway facilities are described with the term level of service. Level of Service (LOS) is a qualitative description of traffic flow based on factors including speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, the best operating conditions, to LOS F, the worst operating conditions. LOS E represents “at-capacity” operations. When traffic volumes exceed the capacity, stop-and-go conditions result, and operations are designated as LOS F.

Exhibit 3 summarizes the relationship between the average control delay per vehicle and LOS, described above, for signalized intersections and unsignalized intersections.

Exhibit 2. Road classification map

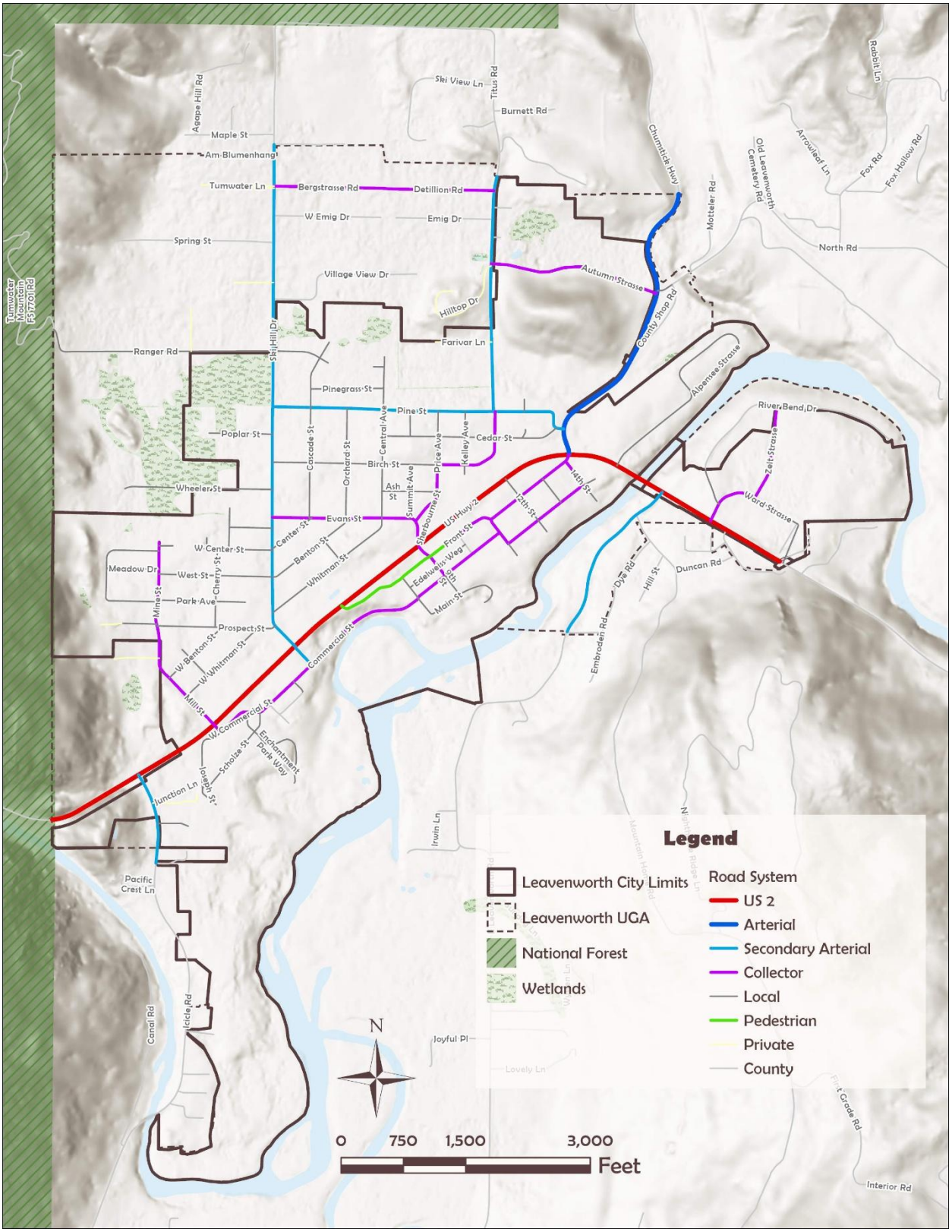


Exhibit 3. LOS descriptions

Level of Service	Description	Signalized Intersection Delay (seconds/vehicle)	Unsignalized Intersection Delay (seconds/vehicle)
A	Free flowing conditions	<10	0-10
B	Stable flows (slight delay)	>10-20	> 10-15
C	Stable flows (acceptable delays)	>20-35	> 15-25
D	Approaching Unstable Flow (tolerable delays)	>35-55	>25-35
E	Unstable flow (intolerable delays)	>55-80	>35-50
F	Forced flow (congestion and queues fail to clear)	>80	>50

Source: Highway Capacity Manual 6th Edition

LEVEL OF SERVICE STANDARDS

Because of Leavenworth's tourism economy and location along US 2, traffic patterns differ significantly between weekdays and summer weekends. Weekday traffic is characterized by local trips and light traffic, while weekends bring heavy visitor volumes. Weekend congestion disrupts local streets and regional traffic, making travel difficult for local residents and emergency response.

To reflect the differences in traffic, Leavenworth adopted LOS standards for both weekday peak hour and weekend, shown in Exhibit 4. Intersections that do not meet the LOS standards are considered deficient.

Exhibit 4. Automobile LOS standards

City Streets	US 2
Weekday Standard: LOS D or better. **Summer Weekend Standard:** LOS F acceptable only when delay remains less than 100 seconds (signalized) or 70 seconds (unsignalized).	LOS D; however, concurrency requirements do not apply to highways of state-wide significance, per RCW 36.70A.070(6).

EVALUATION PROCESS

The LOS evaluation for the 2026 update builds on data prepared for the 2020 Transportation Element (TE) update, along with 2023 and 2050 traffic volumes from the Chelan-Douglas Transportation Council (CDTC) countywide travel demand model. The CDTC model data was used primarily to confirm whether the LOS findings from the 2020 TE remain valid under

current and projected conditions. A key difference between this data is the timeframe. The 2020 TE forecast traffic to 2040, and the CDTC model forecasts traffic to 2050.

A comparison of traffic volumes between 2020 and 2023 shows that volumes at most studied intersections remain similar, indicating that the 2020 LOS determinations are still representative of 2026 conditions.

When comparing the 2040 and 2050 forecasts, some intersections show lower 2050 volumes, some are similar, and some are 20% or more higher. Given the 10-year difference in forecast horizons and the transportation improvements that have been completed or are planned, the 2040 LOS determinations from the 2020 TE will be carried forward for this update.

Methodology (excerpt from 2020 Transportation Element Appendix)
To evaluate how study intersections are performing, the Highway Capacity Manual, 6th Edition (HCM) methodology was applied using the Trafficware Synchro 10 software package. Synchro calculates vehicle delay and LOS based on procedures identified in Chapter 19 Section 3, Approach A. Per HCM 6th Edition methodology, LOS at signalized and all-way-stop control intersections is determined using the average delay experienced by all vehicles at the intersection. For side-street stop-controlled intersections, the delay experience by vehicles at the highest-delay approach is considered.

Current conditions LOS determination method (excerpt from 2020 Transportation Element Appendix)
Analysis for existing conditions was completed using data collected in August 2019 as part of the US 2 Upper Wenatchee Valley Transportation Corridor Study. The exception to this is Pine Street and Ski Hill Drive, the counts for which were collected in 2008 as part of the previous Leavenworth Transportation Element. For this assessment, analysis was completed for the PM peak hour on a typical weekday and a summer Friday. The peak hour was identified for the 8 study intersections and 6 roadway segments based on the PM peak period (4:00 to 6:00 PM) counts collected by Fehr & Peers.

The reason count data from previous years were used rather than collecting data in the summer of 2020 was the COVID-19 pandemic, which has caused a temporary but substantial decrease in travel within the City of Leavenworth that is not representative of normal traffic conditions. To estimate 2020 traffic volume under the different conditions, the following adjustments were made:

- **Adjusting Friday Counts to Typical Weekday**: Traffic volume data for the typical weekday PM peak hour was not collected in 2019; therefore, an adjustment factor was developed based on historical data available for US 2 intersections. This included several traffic studies completed for the City in recent years that looked at both typical weekday and weekend conditions. By comparing volume during the two time periods it was determined that on average traffic is 65% lower during the typical weekday PM peak hour than a summer weekend. This adjustment was applied to data collected on a summer weekend to reflect typical weekday conditions.
- **Adjusting Non-Friday counts to Friday**: The count for the intersection of Pine Street and Ski Hill Drive was performed on a typical weekday in 2008. To bring this

intersection in line with the other counts collected in 2019, study intersection counts taken in 2008 were compared to counts taken in 2019 at the same intersections. It was found that the average annual growth rate needed to grow these 2008 non-Friday counts to 2019 Friday conditions was 2% per year for non-US 2 intersections. This annual growth rate was applied to the intersection of Pine Street and Ski Hill Drive to adjust the count to reflect volume in 2019, then the volumes at this intersection were balanced against adjacent intersections to confirm the volumes were reasonable.

- **Growing Volumes from 2019 to 2020**: Because all volumes were based on a 2019 summer Friday, it was necessary to grow these volumes into approximate 2020 summer Friday traffic under normal conditions. An annual volume growth rate of 1% was calculated based on Chelan County's average population growth. This is consistent with how volumes were grown in similar calculations performed in the Chelan County Transportation Element. This 1% annual growth rate was applied to all intersection counts to reflect 2020 conditions. In the case of the intersection of Pine Street and Ski Hill Drive, the 2% annual growth rate used before was applied here to grow the intersection one more year, from 2019 to 2020 conditions.
- **Adjusting Volumes from August to July Conditions**: To confirm that volumes being used for analysis represented peak conditions within Leavenworth, volume conditions in July and August were compared to determine the peak month and check if the counts taken in August 2019 needed to be adjusted to July conditions. Daily traffic counts collected by WSDOT along US 2 near Leavenworth were compared for weekends in July and August. It was found that August daily volumes on weekends were 1.5% lower on average when compared to July weekend volumes. As such, the volume counts at all US 2 intersections were further grown by 1.5% to approximately July 2020 traffic under normal conditions.

2040 conditions LOS determination method (excerpt from 2020 Transportation Element Appendix)

To determine future traffic growth on US 2 and local roadways within Leavenworth, annual growth rates were derived from anticipated population growth within both Chelan County and Leavenworth. This was consistent with the method for determining traffic growth used in the Chelan County Transportation Element (2017), and with the method used previously to grow 2019 volume counts to 2020 conditions.

Based on this method, the following growth rates were estimated:

- Along US 2/Chumstick Highway: 1% annual traffic growth based on Chelan County's annual population growth.
- All other intersections/minor approaches at US 2 intersections: 0.5% annual traffic growth based on the City of Leavenworth's annual population growth.

These growth rates were used to grow observed traffic on a typical weekday summer Friday evening peak hour in 2020 existing conditions to 2040 forecasted conditions. In addition to applying this growth rate, the following known developments were assessed to determine future traffic impacts:

- Leavenworth Adventure Park

- Leavenworth Haus Apartments
- McDevitt Housing Development (Alpenglow)

Trips generated by Leavenworth Adventure Park and McDevitt Housing Development (Alpenglow) were taken from their respective traffic impact analyses, performed by RBT Consultants and Transportation Engineering Northwest respectively. Trips generated by Leavenworth Haus Apartments were calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition. The trips for all planned developments were then distributed throughout the Leavenworth roadway network to estimate potential volume increase at each of the study intersections. Once the intersection traffic growth due to these developments was known, it could be compared to the forecasted growth at intersections throughout the study area. The forecast was then adjusted where needed to ensure that growth resulting from these developments was accounted for in the 2040 traffic forecast.

CURRENT AND FUTURE CONDITIONS

The results of the traffic analysis indicate that in 2040, all study intersections will operate within the LOS standards during the weekday (Exhibit 5). During the weekend, two study intersection will operate below the weekend LOS standard (Exhibit 6). However, planned capacity improvements at and around the study intersections may improve LOS function.

Exhibit 5. Weekday traffic conditions

Studied Intersection	2020 LOS	2040 LOS	Traffic Control
US 2 and Icicle Road	C	N/A[1]	Roundabout
US 2 and Ski Hill Drive	B	C	TWSC[2]
US 2 and 9th Street	B	C	Signal
US 2 and Chumstick Highway	B	C	Signal
US 2 and Riverbend Drive	A	A	Signal
Ski Hill Drive and Pine Street	A	A	TWSC

1. This two way stop controlled intersection was replaced by a roundabout. The new intersection is presumed to operate within LOS standards in 2040.
2. Two way stop control

Exhibit 6. Summer weekend traffic conditions

Studied Intersection	2020 LOS	2040 LOS	Traffic Control
US 2 and Icicle Road	C	N/A[1]	Roundabout
US 2 and Ski Hill Drive	E	F (212 second delay)	TWSC[2]
US 2 and 9th Street	D	E	Signal
US 2 and Chumstick Highway	F	F (138 second delay)	Signal
US 2 and Riverbend Drive	B	D	Signal
Ski Hill Drive and Pine Street	A	A	TWSC

1. This two way stop controlled intersection was replaced by a roundabout. The new intersection is presumed to operate within LOS standards in 2040.
2. Two way stop control

Exhibit 7. Planned capacity improvements

Studied Intersection	Planned Capacity Improvements
US 2 and Icicle Road	Stop controlled intersection replaced with roundabout.
US 2 and Ski Hill Dr	Project in 6-year TIP to install signals which will improve LOS.
US 2 and 9th St	Planned pedestrian underpass may alleviate some congestion caused by pedestrians using the RRFB crossing to the east.
US 2 and Chumstick Highway	New road access from Chumstick Road to Titus Road (Autumn Strasse) and improvements to the Pine Street intersection may alleviate some congestion at the intersection.
US 2 and Riverbend Drive	Project in 6-year TIP to perform a planning study to develop intersection improvements.
Ski Hill Drive and Pine Street	None

The 2020 analysis of summer weekend traffic found that modeled conditions at some intersections appeared better than what was observed in the field. Several factors may have contributed to the discrepancy, including:

- Spillback between intersections due to queueing and congestion
- Congestion on US 2 limits the number of vehicles that are captured in the counts to the vehicles that can make it through the intersection during the peak hour
- US 2 is an active corridor with on-street parking and a high number of pedestrians crossing, which can create delay between intersections that is not captured in the LOS analysis.

EVALUATION METHOD

At each ten year periodic update and five year review, if needed, the City will collect traffic data to update the LOS analysis. New developments will conduct traffic impact analysis as required by the City. All studies will be performed according to the methodology in the most current version of the HCM.

BICYCLE LEVEL OF SERVICE METHODOLOGY

BACKGROUND

Bicycle level of service is based on the concept of "Level of Traffic Stress" (LTS), which measures how comfortable bicyclists of different skill levels feel using a facility (see Exhibit 8). The City's standard of LTS 2 on primary routes means facilities should be comfortable for adult riders.

The level of service for a bicycle segment or corridor is evaluated based on:

- Its Level of Traffic Stress (LTS) rating, and
- Its role within the primary bicycle network, and
- Its connectivity to key destinations

Exhibit 8. Bicycle LTS descriptions

LTS	Description
1	High comfort for all
2	High comfort for adults
3	Increasing stress for most
4	Strong and experienced riders only

LEVEL OF TRAFFIC STRESS CRITERIA

To determine the LTS in Leavenworth, the facility type is compared to an indicator and speed. Exhibit 9 provides a matrix for determining LTS.

Exhibit 9. Bicycle LTS rating matrix

Facility Type	Indicator	≤ 20 MPH	25 MPH	30 MPH	40 MPH	50 MPH
Activity Trails	> 10 ft buffer from travel lanes	1	1	1	1	1
	<10 ft buffer from travel lanes	1	1	2	2	3
2-3 lane street	≤750 ADT	1	1	2	3	4
	751-1,500 ADT	1	2	3	4	4
	1,501-3,000 ADT	2	2	2	3	4
	> 3,000 ADT	2	3	3	4	4
2-3 lane street with painted bike lanes	≤1,500 ADT	1	1	2	3	4
	1,501-3,000 ADT	1	2	2	3	4
	3,000-5,000 ADT	2	2	2	3	4
	5,000-7,000 ADT	2	2	3	4	4
	> 7,000 ADT	3	3	4	4	4
2-3 lane street with protected[1] bike lanes	<7,000 ADT	1	1	1	2	3
	≥7,000 ADT	1	1	2	2	3

1. A protected bike lane has a physical barrier between the bicyclist and vehicle, such as medians, curbs, shrubs, or other items.

BICYCLE LOS STANDARDS

Leavenworth aims to achieve the following LOS standards for bicycle facilities:

- All bike routes are continuous and connect to an activity trail or low volume street.
- 100% completion of planned regional on-street bikeways and planned regional pathways.
- No vehicle-bicycle collisions.

Ideally, Leavenworth would achieve LTS 1 on all streets. However, due to right of way restrictions, traffic levels, and other elements, not all streets in Leavenworth can support LTS 1. Exhibit 10 provides the target LTS for different street types. Exceptions may apply based on specific situations.

Exhibit 10. Bicycle LOS standards

Street Type	LTS Target
Any street within ¼ mile of a school	**1**
Arterials	**2**
Higher volume secondary arterials and collectors	**2**
Lower volume secondary arterials and collectors	**1**
Local Streets	**1**

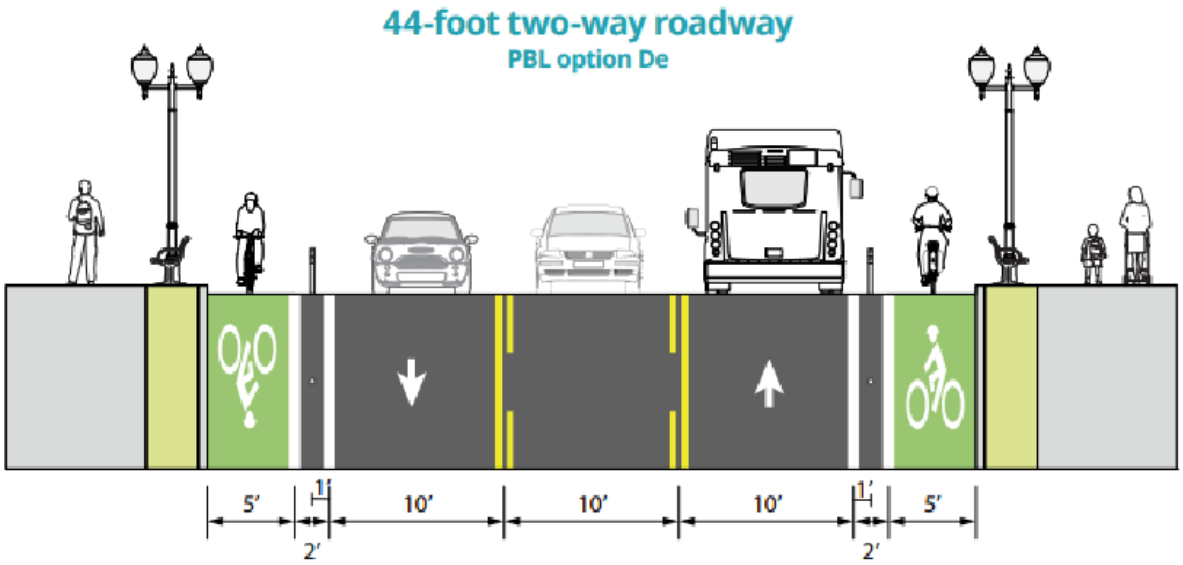
CURRENT CONDITIONS AND RECOMMENDATIONS

Exhibit 11. Current LTS conditions

Road Type	Current Conditions and Recommendations
US 2	**Current Conditions:** Dedicated bicycle lanes on US 2 are separated from the travel lanes by a solid white stripe. Street parking is not allowed on US 2 except for one eastbound section, from Front Street to 9th Street, which allows parking and does not have a bike lane. Bicyclists are directed to Front Street, a pedestrian-only street. **Current LTS**: 3-4 **Recommendations:** US 2 has limited right of way to create a fully separated bicycle lane. Focus should be on countermeasures that will increase safety of bicyclists while remaining within the confines of the right of way, such as: • Wider painted buffer • Painted bike lane • Maintaining high pavement rating • Traffic calming • Protected lane with barriers such as curbs or delineators (See Exhibit 12)

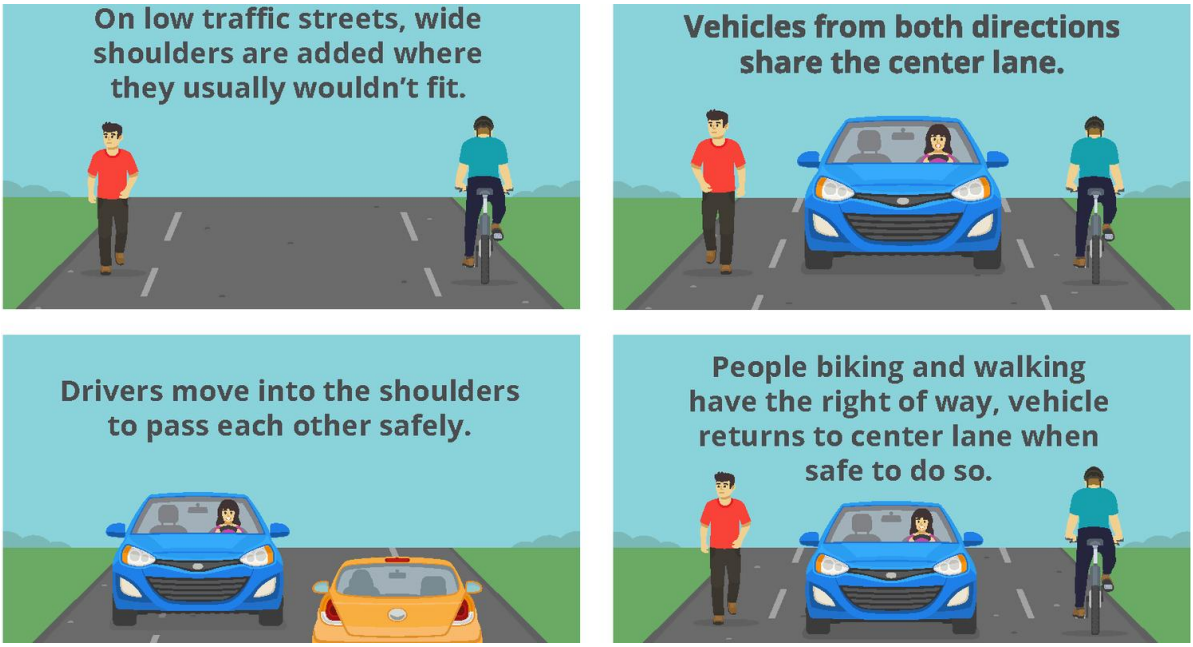
	• Bicycle signals or advanced stop lanes • Install missing segment of eastbound bike lane
Arterials	**Current Conditions:** Chumstick Highway has no marked bicycle lanes. The portion of the Chumstick Highway immediately north of US 2 has a sidewalk leading into a buffered activity trail that ends at city limits. **Current LTS**: Activity trail portion – LTS 1; Sidewalk portion – LTS 3 **Recommendations:** None – improvements are proposed as part of the Pine Street intersection reconstruction that will construct additional activity trail.
Secondary Arterials and Collectors	**Current Conditions:** Dedicated bicycle lanes on Ski Hill Drive are separated from the travel lanes by a solid white stripe. An activity trail runs parallel to Pine Street. There are no bicycle facilities on Icicle Road or any collectors. Collectors are mostly lower volume roads with 25 mph speed limit. **Current LTS**: Ski Hill Drive – LTS 2; Pine Street – LTS 1; Icicle Road – LTS 3; Collectors – LTS 2 **Recommendations:** Install protected or separated bicycle lanes on Icicle Road, Ski Hill Drive, and higher volume collectors.
Local Roads	**Current Conditions:** No bicycle lanes are present, but most local roads are low volume with 25 mph speed limit. **Current LTS**: Low volume streets – LTS 1; Higher volume streets – LTS 2 **Recommendations:** Consider developing shared street standards for low volume roadways that could support connectivity, such as sharrows or advisory bike lanes and shoulders, illustrated in Exhibit 13.

Exhibit 12. Example of a protected bike lane



Source: Portland Bureau of Transportation, Portland Protected Bicycle Lane Planning and Design Guidance

Exhibit 13. Advisory bike lanes and shoulders



Source: https://www.portland.gov/transportation/pbot-projects/construction/advisory-shoulders-bike-lanes-multiple-locations

PEDESTRIAN LEVEL OF SERVICE METHODOLOGY

BACKGROUND

Pedestrian level of service evaluates the quality of the walking environment based on facility width, connectivity, accessibility, and safety. Standards vary by roadway classification to reflect different pedestrian demands and contexts. The standards the City aims to meet are described below.

A pedestrian segment or crossing is deficient if it:

- Does not meet minimum sidewalk width standards,
- Has missing sidewalks in areas requiring full coverage,
- Includes non-compliant ADA ramps, or
- Exceeds adopted crossing spacing thresholds.

SIDEWALK WIDTH STANDARDS

The width of a sidewalk excludes furniture (light poles, signs, trees), building frontage, and curb. Minimum clear widths are provided in Exhibit 14.

Exhibit 14. Sidewalk clear widths

Classification	Minimum Clear Width	Context
US 2	8 feet	High pedestrian volumes, commercial areas
Local Streets	5 feet	Residential areas, lower demand, lower volume
Activity Trail	8+ feet	Multiple users

Exceptions to the clear width include:

- Constrained locations (existing development): 4-foot minimum acceptable with planned future improvements
- Commercial areas: Consider sidewalks (8-12+ feet) to accommodate window shopping, outdoor dining
- Front Street from US 2 to 10th Street: This portion of the street has been designated as a pedestrian only street.

SIDEWALK COVERAGE STANDARDS

Coverage standards are based on the type of street and location, as described in Exhibit 15.

Exhibit 15. Sidewalk coverage standards

	Coverage Standard
Areas requiring continuous sidewalks on both sides:	• US 2 corridor • All arterials and collectors • Within ¼ mile of schools • Within ¼ mile of transit stops • Commercial areas • High density areas
Areas requiring sidewalks on one side or shared facilities:	• Low-density residential with ADT < 750 • Areas with limited or no frontage development • Areas suitable for a shared use roadway
Regional priority:	• 100% completion of planned regional pathways

ADA COMPLIANCE STANDARDS

All pedestrian facilities must comply with current ADA standards that will be described in the ADA Transition Plan, when completed.

CROSSING STANDARDS

Intersections are where most vehicle-pedestrian fatalities and crashes occur. Providing safe crossings is integral to developing a high-quality pedestrian system.

Exhibit 16 provides standards for intersection crossings.

Exhibit 16. Crossing standards

Crossing element	Standard
Crossing location standards:	• Enhanced crossings on all legs of intersecting federally classified roads and US 2 (CDTC 2050). • No vehicle-pedestrian collisions.
Crossing spacing standards:	• US 2 Downtown (Ski Hill Drive to Leavenworth Park and Ride): Maximum 700 feet between marked crossings • US 2 Outside Downtown: Maximum 1,200 feet between marked crossings • Other roads: Maximum 800 feet between marked crossings or intersections
Signal timing standards:	• Walking speed assumption: 3.5 feet/second • Start-up interval: Minimum 7 seconds • Accessible pedestrian signals (APS) at all new/upgraded signals • Leading pedestrian interval at low visibility intersections or where turning movements are allowed during the walk signal

Exhibit 17 provides an example of crossing treatments and their general applicability. On US 2, crossing treatments selection should be based on impacts to pedestrian safety and traffic congestion. For example, HAWK signals were installed and then removed from US 2 because they increased traffic congestion.

Exhibit 17. Crossing treatment examples and general applicability

Treatment Type	Best Use of Application
High-visibility markings	All crossings in high use pedestrian areas, along US 2 or activity trails, on intersections with major or minor collectors, and near schools and parks
Rectangular Rapid Flashing Beacons (RRFB)	Unsignalized crossings on roadways with speed >30 mph or ADT >5,000
HAWK signals	Unsignalized crossings with high pedestrian volumes (>20/hour peak)
Median refuge islands	Multi-lane crossings where space permits
Curb extensions	Locations with on-street parking to improve visibility

PEDESTRIAN COMFORT AND AMENITIES

Pedestrian comfort is an important component of a well-designed pedestrian system. Exhibit 18 provides standards for pedestrian comfort and amenities.

Exhibit 18. Pedestrian comfort and amenities

Element	Standard
Lighting	• Pedestrian-scale lighting (12-15 feet height) on arterials and collectors • Lighting at all marked crossings • Target: 1-3 foot-candles maintained
Comfort	• Street trees or landscaping providing buffer from traffic on arterials • Benches near transit stops, downtown, and key destinations • Trash receptacles in downtown core and neat transit stops

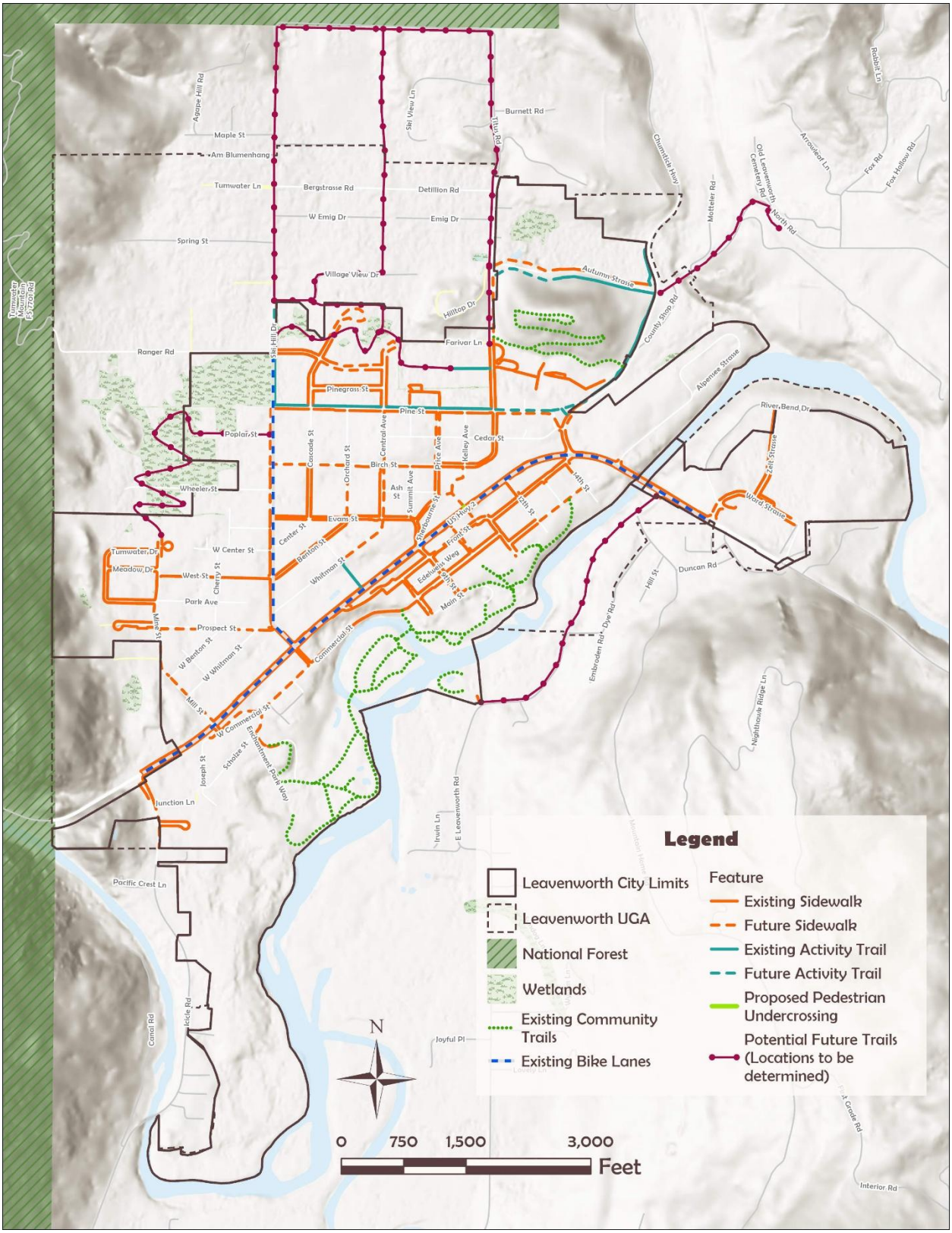
CURRENT CONDITIONS

The current condition of pedestrian treatments at intersections is listed in Exhibit 19. The ADA Transition Plan, when completed, will address ADA compliance. The current and proposed location of sidewalks and activity trails is shown in Exhibit 20.

Exhibit 19. Current pedestrian crossing conditions

Intersection	Crossing Type
US 2 & Mill Street	Signed marked crosswalk
US 2 & Ski Hill Drive	Signed marked crosswalk
US 2 & Front Street	Signalized intersection
US 2 & Evans/9th Street	Signalized intersection
US 2 at Leavenworth Park & Ride	Solar powered Rectangular Rapid Flashing Beacon (RRFB)
US & Chumstick Highway	Signalized intersection
US 2 & River Bend Drive	Signalized intersection
Minor Arterial and Collector Crossings	Most intersections have marked or inlaid crossings
Local Streets	Unmarked crossings, except at intersections with minor arterials and collectors or near schools

Exhibit 20. Existing and future sidewalk and activity trail locations



TRANSIT LEVEL OF SERVICE METHODOLOGY

Transit LOS focuses on elements within the City's influence: stop amenities, accessible pedestrian and bicycle access, and coordination with Link Transit. The City does not control routing, frequency, or fare structure. See Exhibit 21 for a description of transit roles.

The LOS methodology focuses on the City's roles while acknowledging the importance of coordinating with Link Transit on service quality.

Exhibit 21. Transit roles

Link Transit Role	City Role
• Shared responsibility for transit stop amenities (shelters, benches, lighting) • Route alignments and service frequency • Schedule and on-time performance • Vehicle operations and maintenance • Fare structure	• Shared responsibility for transit stop amenities (shelters, benches, lighting) • Pedestrian and bicycle infrastructure connecting to stops • Coordination and advocacy with Link Transit • Land use decisions that support transit-oriented development

STOP AMENITY STANDARDS

Standards for stop amenities are based on stop use. A High-Use Stop is a stop at a park-and-ride or stops that average more than 20 daily boardings. A Low-Use Stop is any stop that is not high-use. Desired and required amenities are described in Exhibit 22. Stops that do not include the required amenities are considered deficient.

Exhibit 22. Required amenities by stop type

Amenity	High-Use Stops	Low-Use Stops
Shelter	Required	Desired
Bench	Required	Required
Lighting	Required	Required
Trash receptacle	Required	Desired
Wayfinding signage	Required	Required
Route/schedule info	Required	Required
ADA accessibility	Required	Required

CURRENT CONDITIONS

Currently, almost all bus stops have the required amenities, except for wayfinding signage which will be addressed in a separate city-wide initiative. See Exhibit 23 for an inventory of amenities. ADA accessibility will be evaluated in the City's ADA Transition Plan and is not addressed in the table below.

Exhibit 23. Existing bus stop amenities

Stop	Existing Amenities	Needed Amenities
Eastbound		
Icicle Quick Stop	Lighting, route/schedule info	Bench, Wayfinding signage
Howard Johnson Hotel	Lighting, route/schedule info	Bench, Wayfinding signage
Front Street Park	Bench, lighting, trash receptacle, route/schedule info	Wayfinding signage
Leavenworth Park & Ride	Shelter, bench, lighting, trash receptacle, route/schedule info	Wayfinding signage
McDonalds	Lighting, route/schedule info	Bench, Wayfinding signage
Wilkommen Park & Ride	Shelter, bench, lighting, trash receptacle, route/schedule info, restroom	Wayfinding signage
Westbound		
Wilkommen Park & Ride	Shelter, bench, lighting, trash receptacle, route/schedule info, restroom	Wayfinding signage
McDonalds	Lighting, route/schedule info	Bench, Wayfinding signage
Leavenworth Park & Ride	Shelter, bench, lighting, trash receptacle, route/schedule info	Wayfinding signage
City Hall	Shelter, bench, lighting, trash receptacle, route/schedule info	Wayfinding signage
Glacier Parking Lot	Shelter, bench, lighting, trash receptacle, route/schedule info, restroom	Wayfinding signage

ENVIRONMENTAL JUSTICE EVALUATION

PURPOSE

The environmental justice (EJ) evaluation ensures transportation investments equitably serve all residents, particularly those with limited transportation options, lower incomes, and/or other disadvantages. EJ findings are incorporated into multimodal LOS evaluation by identifying where facilities in EJ areas fail to meet LOS standards and prioritizing corrective investments.

METHODOLOGY

Step 1: Identify Population and Geographic Areas

- Map locations of subsidized housing, multifamily residential
- Identify Census block groups with:
    - Higher than city average percentage below 200% poverty level
    - Higher than city average percentage over 65 years old

  - Higher than city average percentage under 18 years old
  - Higher than city average percentage with disabilities
  - Zero-vehicle households

Step 2: Evaluate Access to Opportunities

- Map pedestrian/bicycle network connectivity from identified areas to:
  - Grocery stores and essential retail
  - Medical facilities
  - Schools
  - Employment centers
  - Transit stops
  - Parks and recreation

Step 3: Assess Investment Distribution

- Review 6-year TIP project list
- Calculate percentage of pedestrian/bicycle/transit improvements serving identified areas
- Ensure proportional or greater investment in areas with higher transportation disadvantage

Step 4: Project-Level EJ Screening

- For major projects, evaluate:
  - Who benefits from the improvement?
  - Are there disproportionate negative impacts on disadvantaged?
  - Does the project improve or worsen access for transportation-disadvantaged?

Mapping of disadvantaged areas and proportional investment analysis will be completed during the next TIP cycle.

REPORTING

Include environmental justice considerations in annual TIP updates and comprehensive plan monitoring.

RELATIONSHIP TO OTHER PLANS AND STANDARDS

This multimodal framework implements and is consistent with:

- City of Leavenworth Comprehensive Plan – Land Use Element growth assumptions and community vision
- Chelan County Comprehensive Plan – Regional transportation coordination
- WSDOT Highway System Plan – Level of service on state facilities (US 2)
- Link Transit Comprehensive Operations Analysis – Regional transit planning
- Chelan-Douglas Transportation Council Transportation 2050
- City of Leavenworth Municipal Code – Street design standards
- 2026 Leavenworth Traffic Safety Plan