Background Analysis

Transportation

Introduction

The Lake Forest Park community is mostly residential with a commercial core located in the Town Center near the intersection of Bothell Way (SR 522) and Ballinger Way (SR 104). The city's transportation network is defined by two heavily traveled state routes that connect with winding minor arterials and local streets that serve ~~more quiet~~quieter residential neighborhoods. Transit service has historically been well utilized, as it connects to city with regional destinations, like downtown Seattle and University of Washington's Bothell campus. ~~is generally good traveling north/south along Bothell Way through the City, while there is more limited transit service available east/west on Ballinger Way.~~ With the ~~future~~ new light rail stations in the neighboring City of Shoreline, and planned Stride S3 service, Lake Forest Park's connection to the broader regional will improve. ~~traffic volumes in Lake Forest Park are likely to increase. The City may need to manage regional access to these stations if the connecting roadways to neighboring cities are not up to the same standards.~~

Walking routes have been identified throughout the city, although many routes do not have a completed sidewalk on one or both sides of the road. The Burke-Gilman Trail is a major ~~bicycle~~ shared use facility that parallels ~~to~~ the Lake Washington shoreline. Other bicycle routes have been identified throughout the city, but lack dedicated right-of-way or wayfinding signage. In general, most of these bicycle routes are shared with automobiles, and there are no road markings such as sharrows or painted bicycle lanes.

This section contains background information supporting the goals and polices in the Transportation Element of the Comprehensive Plan, including:

- Conditions for driving
- Conditions for transit
- Conditions for walking and biking
- Transportation funding
- Level of service policies

Conditions for Driving

Commented [JB1]: Coordinate with city on methods for forecasting volumes and operating conditions. Highlighted sections will be updated.

The City of Lake Forest Park has two state routes, (SR 522/Bothell Way and SR 104/Ballinger Way), that carry a large amount of regional travel and divide the City. Currently an estimated 40,000 vehicles per day travel on SR 522 and an estimated 16,000 vehicles per day travel on SR 104[1]. ~~These state routes carry 46,000 and 18,000 vehicles a day,[1] respectively~~. This is about a 12% volume reduction from the volume counts reported in the 2015 Comprehensive Plan, however~~and~~ the vehicle travel demand volumes on these routes are expected to increase in the next 20 years, with growth in both Lake Forest Park and the surrounding region. Most of the city's minor arterials and neighborhood connectors are narrow, tree lined winding roadways. Roadway functional classifications are characterized as the following (*Comprehensive Plan—Transportation Element*, 20~~10~~5, and *King County Road Services—Arterial Classification*):

- ***Principal Arterial:*** A major highway or through ~~-~~street that connects major community centers and facilities. Frequently, this type of roadway has certain restrictions on access (e.g., partial limitations on access at intersections or from driveways). Principal arterials generally carry the highest amount of traffic volumes and provide the best mobility to serve both urban and rural areas. Major bus routes are usually located on principal arterials. *Examples: Bothell Way (SR 522), Ballinger Way (SR 104).*
- ***Minor Arterial:*** An access street providing connection between local destinations within a community. This type of facility stresses mobility and circulation needs over providing specific access to properties. Minor arterials allow more densely populated areas easy access to principal arterials, adjacent land uses (i.e., shopping, schools, etc.) and have lower traffic volumes than principal arterials. *Examples: Brookside Boulevard, 35th Avenue NE, NE 178th Street, 40th Place NE.*
- ***Local Access Street:*** This category comprises streets that have the sole purpose of providing direct access to specific abutting properties (such as residences). This type of roadway usually connects with a minor arterial and enables access between a place of residence and a commercial business or place of employment. Typically, traffic moves at low speeds (20 to 25 miles per hour) on local access streets and there are numerous turning movements on these streets. Local streets that carry more traffic to connect with arterials have been identified as "Neighborhood Connectors" in Figure I.3 on page 86~~78~~. *Examples: 28th Avenue NE, Hamlin Road NE, 41st Avenue NE.*

Arterials within the City are listed in Table II.37 and mapped in Figure I.3.

Bothell Way and Ballinger Way are the most heavily traveled arterials in the city. These routes serve large volumes of regional through traffic, and can be very congested during the peak hours. By 2044~~35~~, it is expected that the average daily

traffic will grow from 406,000 to 57,000 daily vehicles on SR 522 near NE 160th Street.

1 ~~LFP Traffic Counts,~~ WSDOT Community Planning Portal, 2021~~1~~2.

Table II-7 Roadway functional classification system

Roadway Functional Classification	Example Roadways*
Principal Arterials	Bothell Way (SR 522); Ballinger Way (SR 104)
Minor Arterial	Brookside Boulevard; Forest Park Drive; 35th Avenue NE; 37th Avenue NE; 40th Place NE; NE 178th Street
Local Access Streets	NE 175th Street; NE 193rd Street; NE 195th Street; NE 196th Street

* This list is not comprehensive.

Sources: Fehr & Peers, 2015; City of Lake Forest Park Comprehensive Plan, 20~~0~~15.

Traffic volumes on SR 104 near NE 178th Street are forecast to increase from ~~18~~16,000 to 22,000 daily vehicles.[2] While the state routes are generally busy, other streets in Lake Forest Park carry fewer regional trips given their circuitous nature.[3] As the city is mostly built out, traffic volumes on non-state routes have remained relatively static compared to the traffic counts reported in the 2005 Comprehensive Plan (see Table II.38 below).

The two new light rail stations in Shoreline ~~are likely to~~ may increase traffic volumes through Lake Forest Park. As the mostly two-lane roadways in the city may not be up to the same standards as connecting roadways in neighboring cities, Lake Forest Park may become the choke point that limits regional travel and access to and from the new high capacity transit stations.

Table II-8 Daily and PM roadway traffic counts

Location	PM Peak Hour Count	Daily Count
SR 104 @ North City limits	~~1,800~~1,049	16,303~~—~~
SR 522 @ East City limits	~~4,831~~3,744	—
SR 522 @ West City limits	~~4,264~~4,096	—
25th NE/NE 178th	—	1,000
40th Pl NE/45th Pl NE	—	2,528
55th NE/NE 193rd	—	4,601
55th NE/NE 204th	—	4,696
NE 178th/25th NE	—	7,040
NE 178th/37th NE	—	6,294

Sources: City of Lake Forest Park, 2005 Comprehensive Plan; WSDOT, 2012–2014; City of Kenmore, 2015.

2 Fehr & Peers, PSRC Travel Demand Model, 2015.

3 Residents have reported instances of speeding on neighborhood streets by pass through traffic.

Impacts of Lake Forest Park Growth on State Facilities

To understand how the growth anticipated in this plan may impact the two state highways traversing the City of Lake Forest Park, Bothell Way (SR 522) and Ballinger Way NE (SR 104), PM peak hour traffic conditions were analyzed.

As stated in the Land Use Element Background Analysis, the City's Growth Targets include ~~551~~ 870 housing units and 244 additional employees in Lake Forest Park. To evaluate the transportation impacts of this growth, the additional vehicle trips that could be generated by this growth were estimated:

- For the housing growth the assumption was made that all of these units would be single-family detached units. This will result in a conservative value, as single-family detached units will generate the highest PM peak hour trips as compared to multi-family units. Using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition, the number of PM peak hour trips that would be generated is 1.01 per unit or 557 total trips. The ITE manual also suggests that 351 (63%) of these trips will be returning home and 206 (37%) will be leaving.
- For the employment growth, the assumption was made that it would be a mix of retail, services, and office employees. Using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition, and standard assumptions of the relationship between employment and square footage, the number of PM peak hour trips that would be generated from employment is 734 trips, with 385 arriving and 349 leaving.

This analysis assumes all of these trips will be using state routes to either enter or leave the City, resulting in 736 vehicular trips arriving and 555 leaving. This is an extremely conservative assumption in that it overstates the probable number of trips using state routes. Some of the housing trips will likely remain in their respective neighborhoods, make short trips to the shopping center or leave/enter via other arterial streets. Also some of the employment trips will likely come from inside Lake Forest Park.

Existing traffic volume counts were obtained from WSDOT and the recent Transportation Element Update for the City of Kenmore. Based on these counts, which were collected in 2012-2014, it is possible to distribute the additional entering and exiting traffic volumes on each of the state routes based on existing proportions. These additional traffic volumes are compared to the existing traffic volumes in Table II.39.

The projected growth for the City represents a 13% increase to the existing traffic for trips entering the City along state highways and a 10% increase to the existing

Formatted: Highlight

Table II-29 Existing and additional PM peak hour traffic volumes

	Existing Entering	Additional Entering	Existing Exiting	Additional Exiting	Total Additional
SR 104 @ North City limits	~~739~~709	100	~~1,061~~660	108	208
SR 522 @ East City limits	2,185	295	2,646	269	565
SR 522 @ West City limits	2,519	341	1,745	178	518

Sources: City of Lake Forest Park, 2005 Comprehensive Plan; WSDOT, 2012–2014; City of Kenmore, 2015.

traffic exiting the City along state highways. When these additional trips are aggregated by location, the totals become 208 to/from the north, 565 to/from the east, and 518 to/from the west.

Freight and Goods Movement

~~There are several~~ The routes in Lake Forest Park that are within WSDOT's designated Freight and Goods Transportation System are shown in ~~. As~~ Figure II.33. ~~ shows, SR 522 has a T2 tonnage class, meaning that it is amongst the region's most heavily used routes for goods movement. In addition, several routes have a~~All freight routes within the City have T3 designation which is defined as routes carrying 300,000 to 4 million tons per year.~~, including SR 104, NE 197th Street, and 35th Avenue NE. While these routes carry fewer goods (in terms of tonnage) than SR 522, they serve as critical connections to other major freight routes and destinations, such as I-5, a T1 route.~~

Knowing the designation of these routes is important, as it should inform how streets are planned, designed, and managed to provide for the continued efficient movement of goods while also ensuring the safety of citizens and travellers along these routes.

Figure II-3 Lake Forest Park ~~tonnage class T-1 to T-5~~WSDOT Freight and Goods Transportation System – 2023 Update

Lake identified that SR 522 (Bothell Way) and SR 104 (Ballinger Way) divide the community by their size, traffic volumes and designs and offered little in the way to accommodate people not traveling in a car. To improve the conditions for all travelers on these state routes, the City authorized the Safe Highways Plan. This plan provides recommendations for:

- SR 104 cross-sections and intersection layouts,
- SR 522 cross-sections and for 145th Street/SR 522 intersection layout,
- Active transportation access to transit investments,
- And additional considerations to achieve community goals, not tied to specific locations.

Conditions for Transit

Public transit service is operated by King County Metro and Sound Transit. Table II.40 summarizes the services and routes. Transit routes operate on Bothell Way (SR 522) and, Ballinger Way (SR 104)., and 35th Avenue NE/NE 1907th Street north of Ballinger Way. There is generally good transit service north-south from Lake Forest Park to large employment and shopping centers such as Downtown Seattle, University of Washington, and Northgate. On Bothell Way (SR 522) there is a continuous Business Access Transit (BAT) lane in the southbound direction and an almost continuous BAT lane in the northbound direction with a gap . There is a gap in the northbound BAT lane from just north of NE 145th Street to NE 170th St41st Avenue NE. There is more limited transit service that operates east-west through the city along Ballinger Way (SR 104). The Town Center transit stops see the city's highest daily transit boardings (390 boardings, based on the average spring 2014 transit data). Many transit riders use the Town Center parking lot as an unofficial park & ride. There have been discussions between the City and the shopping center owners about a park & ride within the Town Center, however, no agreement has been reached.

Table II.40 Roadway functional classification systemTransit Service

Route	Service Area	Service Hours
308	Downtown Seattle–Horizon View	Weekdays, Peak hour/direction only
309	Downtown Seattle–Kenmore	Weekdays, Peak hour/direction only
312	Downtown Seattle–Cascadia Community College	Weekdays, Peak hour/direction only
322	Kenmore P&R – First Hill	Weekday, Peak Hour Direction Only
331	Shoreline Community College–Kenmore P&R	Weekday & Wweekends, aAll Dday
342	Shoreline P&R–Bothell–Renton	Weekdays, Peak hour/direction only
372	University District–Woodinville P & RUW/CC Bothell Campus	Weekday, all day
522	Downtown SeattleRoosevelt–Woodinville P&R	Weekday and& Wweekends, Aall dDay

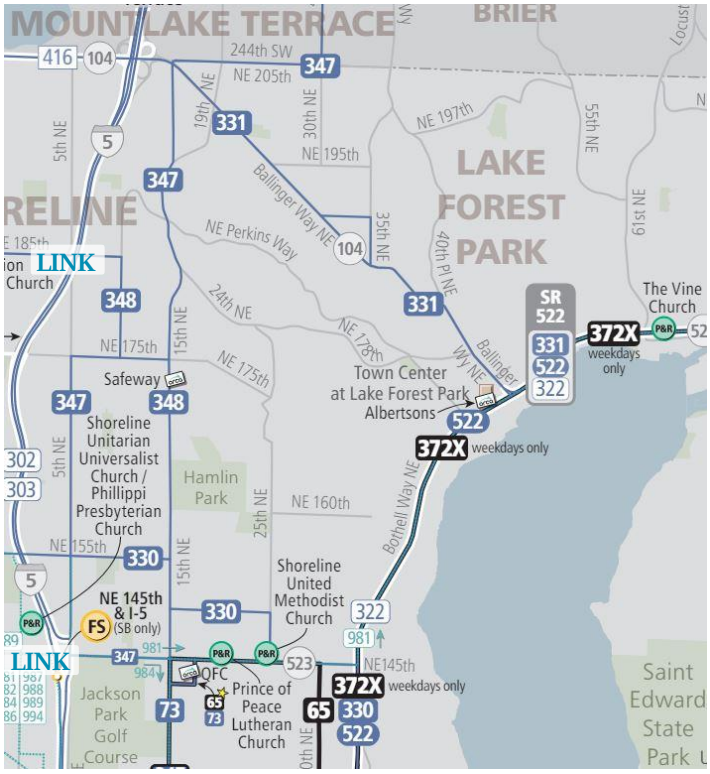
Source: King County Metro, Sound Transit, Fehr & Peers, 2015 24.

A map of public transit service in the area is in Figure II.34.

Future transit projects include Sound Transit's Lynnwood Link Extension of Line 1 light railfuture with two planned light rail stations west of Lake Forest Park at within the vicinity of NE 1458th Street and NE 185th Street nearalong I-5 in neighboring Shoreline. This extension of Line 1 will begin service in August 2024. In addition, Sound Transit's Stride S3 is planned to bring bus rapid transit line (BRT) service from the new Link 1 Line station at 148th Street in Shoreline through Lake Forest Park on Bothel Way (SR 522) to the SR 522/I-405 Transit Hub and connect to

Stride S2 which will run from Lynnwood to Bellevue along I-405 and further connect to Stride S1 which will run from further south from Bellevue to Burien. ~~*Sound Transit's Long-Range Plan* calls for a High Capacity Transit (HCT) between Bothell, Lake Forest Park, and Northgate via SR 522.~~

Figure II.34 Map of transit service in Lake Forest Park



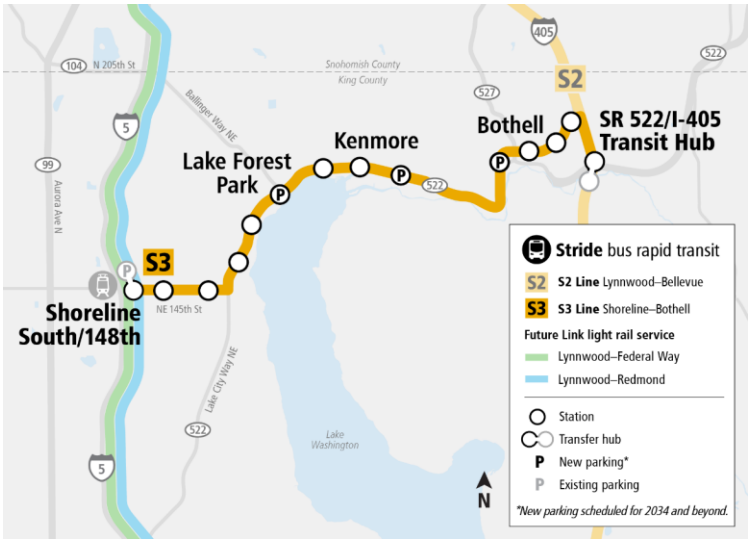
LINK *Future light rail station*

Bus Routes and Facilities

- 120 — frequent all-day route (every 15 minutes or less until 6pm Mo–Fr)
- 125 — all-day route
- 131 / 132 — all-day routes that combine for frequent service
- 123 — peak-only route
- TC | TCP — transit centers: no parking | with and park & ride
- P | P — park & ride: more than | less than 250 spaces
- FS — freeway station

Source: King County Metro System Map: Northwest Area

Figure II.35 Planned Stride S3 Route



Source: Sound Transit Stride S3 Project Map

Conditions for Walking & Biking

There are designated walking routes throughout Lake Forest Park. However, not all walking routes have sidewalks. Pedestrian facilities range from sidewalks with curb ramps to dirt paths along roadway shoulders. ~~*The Legacy 100-year Vision* inventoried all walking routes, and highlighted all routes without a sidewalk in red in Figure II.35 on the following page. The dashed yellow roadways are locations with sidewalks on one or both sides of the road.~~

Lake Forest Park identified the desire to make its streets safter for all users and to improve connection to transit and amenities like the Burke-Gilman Trail, Interurban Trail, Parks, schools, and retail. To achieve this goal, The City authorized three studies to prioritize projects to improve the multimodal network in Lake Forest Park. These studies are the Safe Streets Plan, Safe Highways Plan, and the Safe Streets: Town Center Connections Plan. The lists of prioritized project from each of these studies is listed below, along with a corresponding maps.

Safe Streets Plan Project List

Tier 1 (Highest Priority)

1. Brookside Elementary Safe Routes to School

Commented [JB2]: Coordinate with City to include status of project list

2. Permanent Speed Warning Signs
3. Lake Forest Park Elementary Safe Routes to School
4. Briarcrest Safe Routes to School
5. NE 178th Street Sidewalk

Tier 2 (Lower Priority)

6. 37th Avenue NE Traffic Calming
7. Perkins Way Pedestrian/Bike Infrastructure
8. North Area Pedestrian and Bike Connections
9. 55th Avenue NE Sidewalk
10. NE 187th Street, NE 184th Street, and 47th Avenue NE Sidewalk

Safe Streets: Town Center Connections Plan Project List

Tier 1 (Highest Priority)

1. Brookside Elementary Safe Routes to School
2. 44th Avenue/178th Street Improvements
3. 35th Avenue/40th Avenue/182nd Street Traffic Calming and Street Improvements
4. Brookside Boulevard Sidewalks and Bike Lanes
5. 47th Avenue/184th Street Traffic Calming and Street Improvements

Tier 2 (Lower Priority)

6. Westside Town Center Trail Connection
7. McKinnon Creet Trail Connection
8. Hamlin Road Sidewalks
9. 39th Avenue Sidewalks

Figure II.35 Safe Streets Project Recommendations

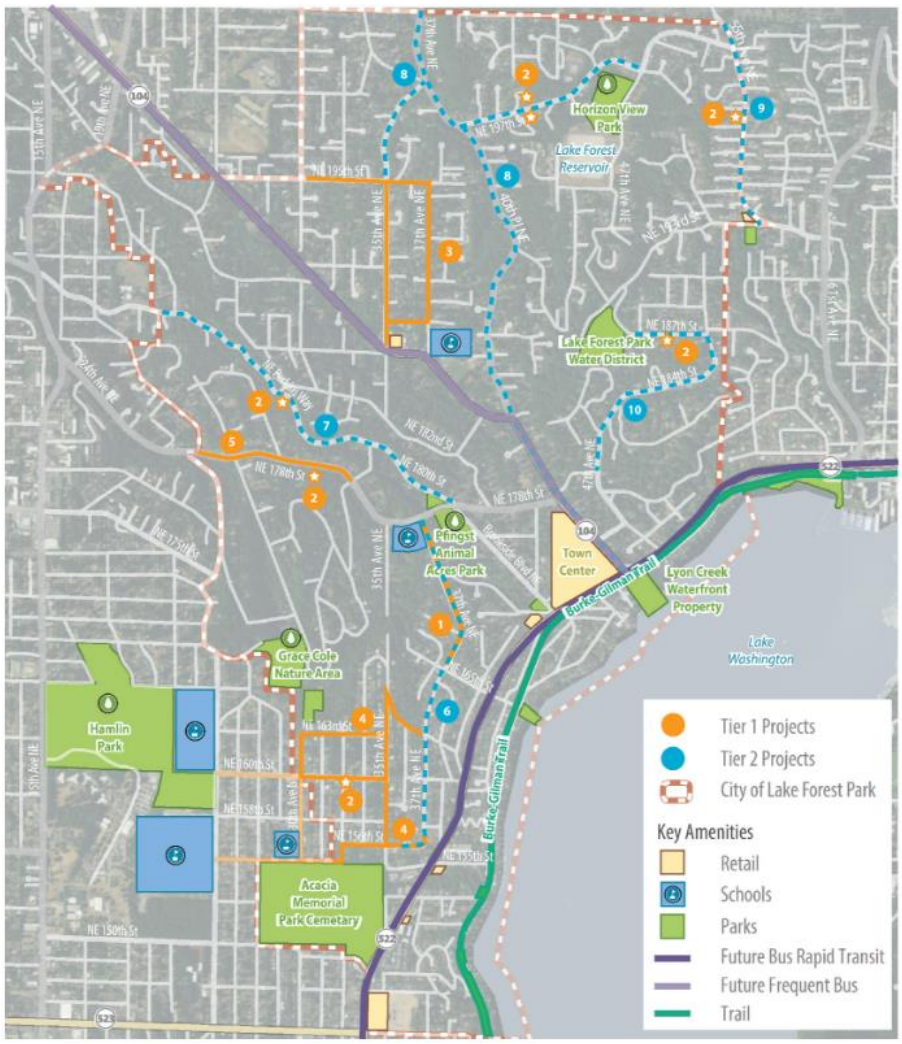
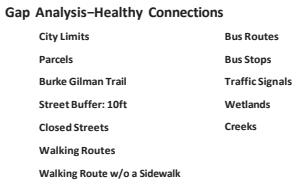


Figure II.36 Safe Streets Town Center Connections Plan Project Recommendations

~~**Figure II-35** Designated walking routes~~



~~*Source: City of Lake Forest Park Legacy 100-Year Vision, 2008.*~~

Figure II-36 Designated bicycle routes

Transportation Funding

Commented [JB3]: Coordinate with City on Funding Section

The City generally spends about $150,000 per year on street overlays. This amount varies due to the availability of outside funding and annual priorities. It is expected that this amount of funding will continue to be available in the future. Additional funding fluctuates year-to-year for various transportation projects depending on how successful Lake Forest Park is in competing for grants.

Table II.41 summarizes the planned capital projects for the next six years and Table II.42, the funding sources for these projects. Please see the discussion in Volume II, Capital Facilities for additional information.

Table II-41 Transportation improvement projects: 2015–2020

Project	Cost
Annual Street Overlay Program	$884,000
NE 178th Street Roadway Improvements Phase 2	$2,270,000
ADA Ramps	$77,400
37th Ave Sidewalk	$2,800,000
Transportation Master Plan	$40,000
Total	**$6,071,400**

Table II-42 Transportation capital improvement funding: 2015–2020

Project	Cost
Real Estate Excise Tax (REET) I	$60,000
Real Estate Excise Tax (REET)II	$1,011,400
State/Federal Funding	$5,000,000
Total	**$6,071,400**

A new *Transportation Master Plan* is also planned for the next six years. This plan will provide a long-term strategy for the City's transportation system and detailed information about projected project needs.

Beyond 2020, the City plans to continue the annual street overlay program and identified a number of street and trail improvements, including:

- Bike trail between the Interurban and Burke-Gilman Trails near Perkins Way
- Green street and pedestrian improvements on NE 178th Street
- Sidewalk and crosswalk improvements around the Town Center
- Demonstration green street between 33rd Avenue NE and 35th Avenue NE on NE 158th Street

Potential funding sources include conservation grants, state funding, and federal funding.

Level of Service Policies

The City plans to adopt these LOS standards

- Vehicle: Maintain vehicle LOS C/D
- Pedestrians: Strive to complete the pedestrian networks as prioritized in the Safe Street, Safe Highways, and Safe Streets Town Center Connection plans.
- Bicyclists: Strive to complete the bicycle network as prioritized in the Safe Street, Safe Highways, and Safe Streets Town Center Connection plans.
- Transit: coordinate with transit agencies to improve access to transit stops as prioritized in the Safe Street, Safe Highways, and Safe Streets Town Center Connection plans.
- Ensure that the development provides mitigation measures when required to maintain appropriate levels of service for all modes and to meet concurrency requirements.

~~The City is planning to update its *Non-Motorized Plan* as an early priority after Comprehensive Plan adoption, consistent with Policy T-2.1. As part of this effort, the City intends to develop non-motorized LOS standards that support the City's vision and align with multi-county planning policies, as described in Policy T-1.16. Table II.43 on the following page provides an example of the type of non-motorized transportation policy language the City will consider when it updates its Non-Motorized Plan.~~

~~**Table II.43** Example multimodal level-of-service policy language~~

Pedestrian LOS	Description
High Quality	Pedestrian facility where identified in *Non-Motorized Plan*, with a buffer
Needs Improvement	Pedestrian facility provided on one side of the street
Poor Quality	No pedestrian facility

Bicycle LOS	Description
High Quality	Provides minimum treatment* recommendation, as shown in *Non-Motorized Plan*
Needs Improvement	Provides a lower level facility* than recommended in the *Non-Motorized Plan*
Poor Quality	No Facility

~~* Bicycle facilities – lowest level to highest level of treatment: shared; bike lanes; buffered bike facility; separated trail.~~

~~Transit LOS~~	~~Transit Stop Amenities~~	~~Pedestrian Access~~	~~Frequency of Service~~
~~High Quality~~	~~High level~~	~~Sidewalks and marked crosswalks serving stops~~	~~All day service. Peak service 15 minutes or less, midday 30 minutes or less~~
~~Needs Improvement~~	~~Some amenities~~	~~Sidewalks and marked crosswalks serving some stops~~	~~All day service. Peak services 30 minutes or less, midday service 60 minutes or less~~
~~Poor Quality~~	~~Little or no amenities~~	~~General lack of sidewalks and marked crosswalks~~	~~Low level of service~~