



KITTELSON & ASSOCIATES, INC.

TRANSPORTATION ENGINEERING / PLANNING

610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

MEMORANDUM

Date: January 31, 2014

Project #: 13172.3

To: Jacob Graichen, City of St. Helens and Naomi Zwerdling, Oregon Department of Transportation

From: Ribeka Toda, Matthew Bell, and Chris Brehmer, P.E.

Project: US 30 & Columbia Boulevard/St. Helens Street Corridor Master Plan

Subject: Final Technical Memorandum #3 – Existing and Future Transportation Conditions

This memorandum summarizes existing and projected future transportation conditions along the segments of US 30, Columbia Boulevard, and St. Helens Street located within the US 30 & Columbia Boulevard/St. Helens Street Corridor Master Plan study area (herein referred to as the “study area”). The information presented in this memorandum provides the project team with an overview of the planned and potential future transportation improvements within the study area.

Much of the information presented in this memorandum was obtained from the *City of St. Helen's 2011 Transportation System Plan* (TSP) update prepared by Kittelson & Associates, Inc. (KAI) and Angelo Planning Group (APG) in conjunction with the city, Columbia County, and Oregon Department of Transportation (ODOT). Supplemental data and further analysis of the corridors was prepared to provide the following:

- An evaluation of the existing physical and operational characteristics of the study area corridors.
- An evaluation of existing motor vehicle volumes at select locations within the study area to understand daily traffic patterns and variations throughout a typical mid-week day,
- An assessment of existing pedestrian and bicycle volumes at select locations within the study area to identify areas that experience high levels of pedestrian and bicycle activity,
- A block-by-block assessment of existing bicycle infrastructure using a new methodology adopted by ODOT.

The remainder of the memorandum is organized as follows:

- Existing conditions
 - Roadway facilities
 - Pedestrian facilities

- Bicycle facilities
 - Traffic volumes
 - Intersection safety analysis
 - Bicycle infrastructure assessment
 - Long-term Future Travel Demand
 - Planned Transportation Improvements from the TSP
 - Roadway facilities
 - Pedestrian facilities
 - Bicycle facilities

Appendix "A" contains the TSP figures referenced throughout this memorandum.

EXISTING TRAFFIC CONDITIONS

This section documents the existing physical and operational characteristics of the multimodal transportation system within the study area and reflects all transportation related improvements that have occurred since adoption of the TSP. This section also includes a review of traffic volume patterns, traffic safety, and a qualitative evaluation of bicycle infrastructure.

ROADWAY FACILITIES

US 30 travels north-south through St. Helens connecting the City to communities such as Astoria, Clatskanie, Rainer, Prescott, and Columbia City to the north and Scappoose and the greater Portland metropolitan area to the south. US 30 is classified as a major arterial by the City of St. Helens and as a principal arterial by ODOT. Both US 30 and the Portland & Western Railroad rail line are barriers to providing connectivity for motorists, pedestrians, and cyclists within the community. The City and ODOT have been working together to identify and implement solutions to increase the frequency and improve the quality of the pedestrian and bicycle crossings on US 30. The City's current TSP includes several projects to enhance crossing conditions along US 30. The Corridor Plan will build upon this work and identify additional projects to improve multimodal connectivity within the community.

Columbia Boulevard and St. Helens Street form a couplet east of US 30. Both streets are classified as minor arterials by the City of St. Helens and ODOT. Both streets provide local access to a variety of land uses in the eastern part of the city, including the Houlton and St. Helens Olde Towne areas. Both streets are also relatively wide in many areas with the extra pavement width presenting both challenges and opportunities for connectivity and safety.

Historically, Columbia Boulevard and St. Helens Street served as major trucking routes to industries located along the Columbia River and were constructed to accommodate freight vehicles between US

30 and the river industrial area. Over time the amount of right-of-way needed to accommodate these wide roadways has become unnecessary due to the evolution of local industry and diminished large truck travel needs through the corridor. The wide roadways present challenges for the community in that they create a travel environment that contributes to speeding, requires lengthy pedestrian crossings, and is costly to maintain. While there are challenges, the wide roadways also present opportunities for the community in that there may be ways that the public right-of-way could be better used to create an environment where the focus can be on travel to instead of through the area. The City's current TSP includes several projects to address the challenges presented by the wide roadways. The Corridor Plan will build upon this work and identify additional projects to improve travel conditions.

PEDESTRIAN FACILITIES

The TSP provides an inventory of existing pedestrian facilities within the study area and identifies locations where there are gaps in the sidewalk network as well pedestrian crossings needing improvement. Figure 3-5 from the TSP illustrates the existing pedestrian facilities and known deficiencies. As shown, sidewalks are provided along both sides of US 30 between Wyeth Street and St. Helens Street and along the west side of US 30 south of St. Helens Street. There are no sidewalks provided along US 30 north of Wyeth Street. Sidewalks are also provided along both sides of Columbia Boulevard and St. Helens Street through the couplet and on both sides of Columbia Boulevard east of the couplet to 9th Street. Sidewalks are provided on the north side of Columbia Boulevard between 9th Street and 7th street and on both sides east of 7th Street.

Each of the signalized crossings along US 30 provides striped pedestrian crosswalks and pedestrian signals that can be activated by pedestrians at the intersection. Unsignalized intersections along US 30 do not have striped crosswalks. The lack of a sidewalk along the east side of US 30 between Gable Road and St. Helens Street, coupled with the presence of the Portland & Western Railroad to the east of the highway, limits but does not eliminate the number of pedestrian crossings across US 30 at unsignalized locations. Anecdotal information obtained from the public through the current corridor study process indicates that a number of pedestrian crossings occur along US 30 at unsignalized intersections and other mid-block locations, often to destinations without an adjacent sidewalk along the east side of the roadway.

The city has several marked and unmarked pedestrian crossings along Columbia Boulevard and St. Helens Street that rely on drivers to yield the right-of-way to pedestrians. These and other locations throughout the Houlton area tend to have wide (approximately 60 feet) roadway cross sections that require pedestrians to cross not only the travel lanes, but also on-street parking lanes provided on one or both sides of a given roadway. Figure 3-5 from the TSP identifies several intersections within the study area with unmarked or unimproved pedestrian crossings. The City's current TSP identifies several projects to address the gaps in the sidewalk network as well as improve crossing conditions along US 30, Columbia Boulevard, and St. Helens Street. The Corridor Plan will build upon this work and identify additional projects to pedestrian and bicycle access and circulation along the corridors.

BICYCLE FACILITIES

The TSP provides an inventory of existing bicycle facilities within the study area and identifies locations where there are missing bike lanes (on one or both sides of the roadway) and where crossing improvements are desirable. Figure 3-6 from the TSP illustrates the existing bicycle facilities and known deficiencies. As shown, US 30, Columbia Boulevard, and St. Helens Street currently have striped bike lanes. Field measurements completed in the fall of 2013 indicate that the width of the striped bike lanes do not meet the City's roadway design standards in some areas. The TSP indicates that bike lanes along Columbia Boulevard and St. Helens Street should be six feet wide, yet in some areas the bike lanes are less than six feet wide and/or overlap with the on-street parking. Figure 3-6 also illustrates two locations with identified bicycle crossing improvement needs. Although the City's current TSP does not include any projects to restripe Columbia Boulevard and/or St. Helens Street, it does include projects to enhance crossing conditions. The corridor master plan will contemplate solutions that can enhance bicycle travel within the study area.

TRAFFIC VOLUMES

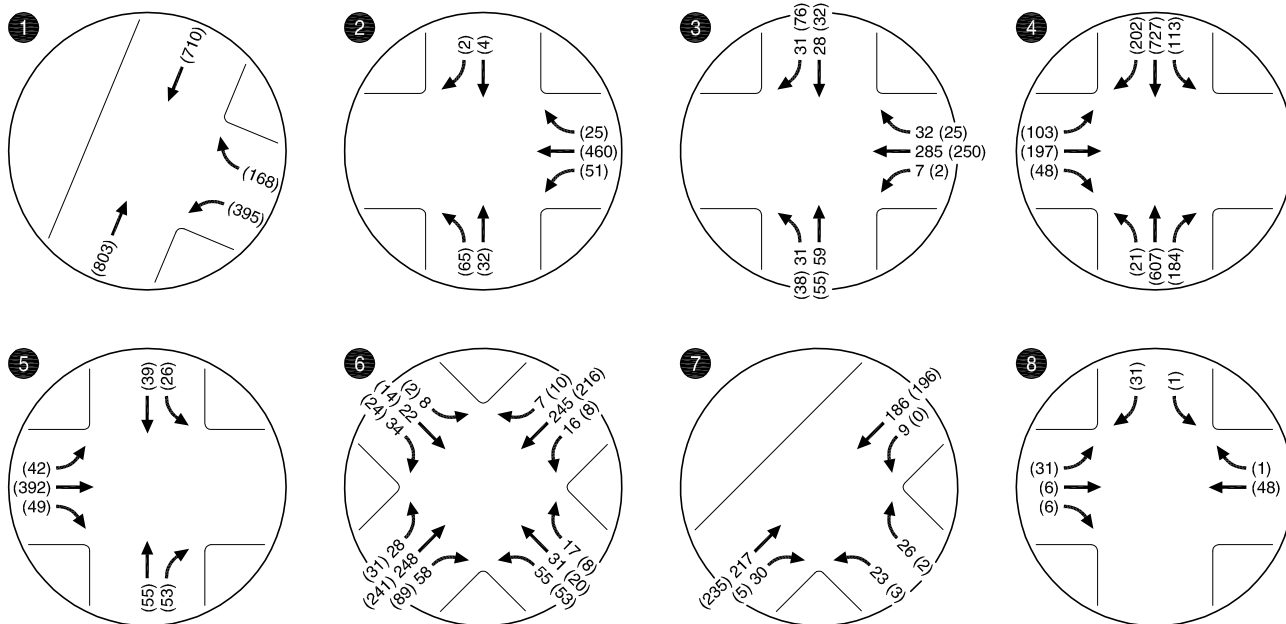
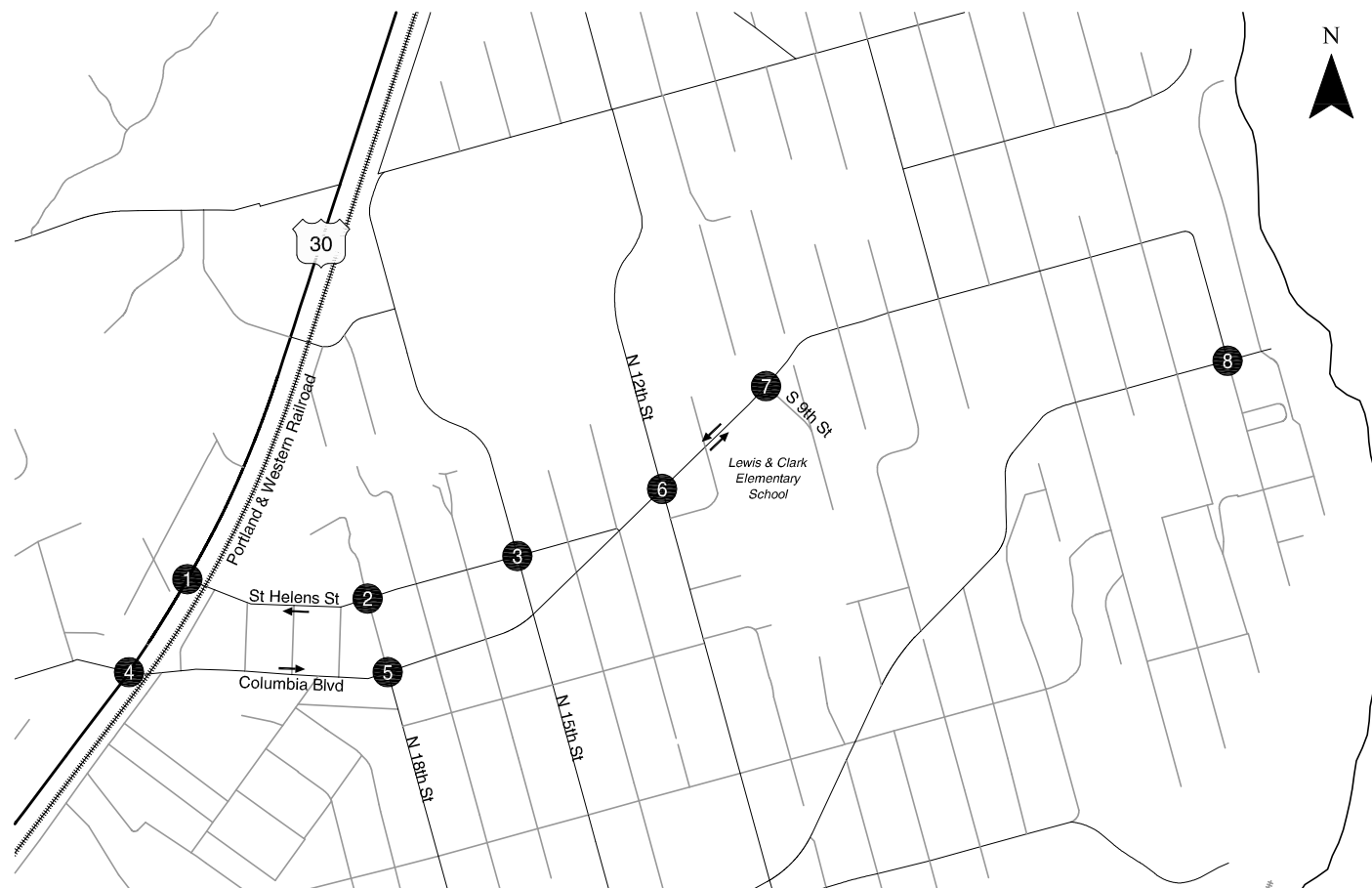
Manual turning movement counts were conducted by ODOT at eight intersections in October 2013. Five of the counts were conducted during the weekday evening (4:00 to 6:00 p.m.) peak time period consistent with the TSP and three were conducted over a 16-hour period (6:00 a.m. to 10:00 p.m.). The counts include the total number of pedestrian, bicycles, and motor vehicles at the following locations:

- US 30/St. Helens Street (2-hour count)
- US 30/Columbia Boulevard (2-hour count)
- 18th Street/St. Helens Street (2-hour count)
- 18th Street/Columbia Boulevard (2-hour count)
- 15th Street/St. Helens Street (16-hour count)
- S River Road/St. Helens Street (2-hour count)
- 12th Street/Columbia Boulevard (16-hour count)
- 9th Street/Columbia Boulevard (16-hour count)

The traffic volumes along US 30 were seasonally adjusted to reflect the 30th highest hour in a manner consistent with the TSP. Given the number of intersecting roadways and driveways along the study corridors, there was no basis to balance volumes between study intersections.

Based on a review of the turning movement counts, the weekday evening peak hour was found to occur from 4:30 to 5:30 p.m. Figure 1 summarizes the motor vehicle turning movement volumes at the study intersections during the weekday evening peak hour. Given the relatively high level of pedestrian and bicycle activity adjacent to local schools, additional turning movement volumes representing the school peak hour (2:00 to 3:00 p.m.) are included where applicable.

\\kittelerson.com\\fs\\h\\Portland\\profile\\13172 - US 30 & Columbia Blvd Streetscape Plan\\dwgs\\figs\\13172_Bike_Ped_Fig02.dwg Mar-06-2014 - 10:12am - mbell Layout Tab: Fig01



Legend
 # - School Volumes
 (#) - PM Volumes

Existing (2013) Motor Vehicle Turning Movements
 Weekday School & PM Peak Hours
 St Helens, Oregon

Figure
 1

Review of the traffic volumes shown in Figure 1 indicates that the roadway capacity along Columbia Boulevard and St. Helens Street exceeds the current traffic demand. Traffic volumes eastbound and westbound on the 2-lane segment of Columbia Boulevard east of 12th Street were measured to be *higher* than those eastbound and westbound on the couplet west of 18th Street where there are more travel lanes. These results indicate there may be opportunities to reconfigure the roadway cross sections while still preserving adequate capacity. For example, the eastbound right-turn lane on Columbia Boulevard at 18th Street could be eliminated (at least from an intersection capacity perspective) as was suggested during the corridor study walking tour (Business and Property Owners Meeting #1/CAC Meeting #1). Other opportunities to reconfigure the cross sections are presented later in this report.

Figure 2 illustrates the pedestrian crossing volumes measured by ODOT at the study intersections in October 2013 during the weekday evening peak hour (4:30 to 5:30 p.m.) and during the school peak hour (2:00 to 3:00 p.m.) where applicable. Our review indicates that the level of pedestrian crossing volumes at the 9th Street/Columbia Boulevard intersection and the 12th Street/Columbia Boulevard intersection may warrant additional treatments to facilitate comfortable and convenient crossings at these locations. Improvements may include curb extensions, raised median islands, flashing beacons, or other facilities. Opportunities to improve crossing conditions at these locations, as well as a number of others identified in the TSP are identified later in this report.

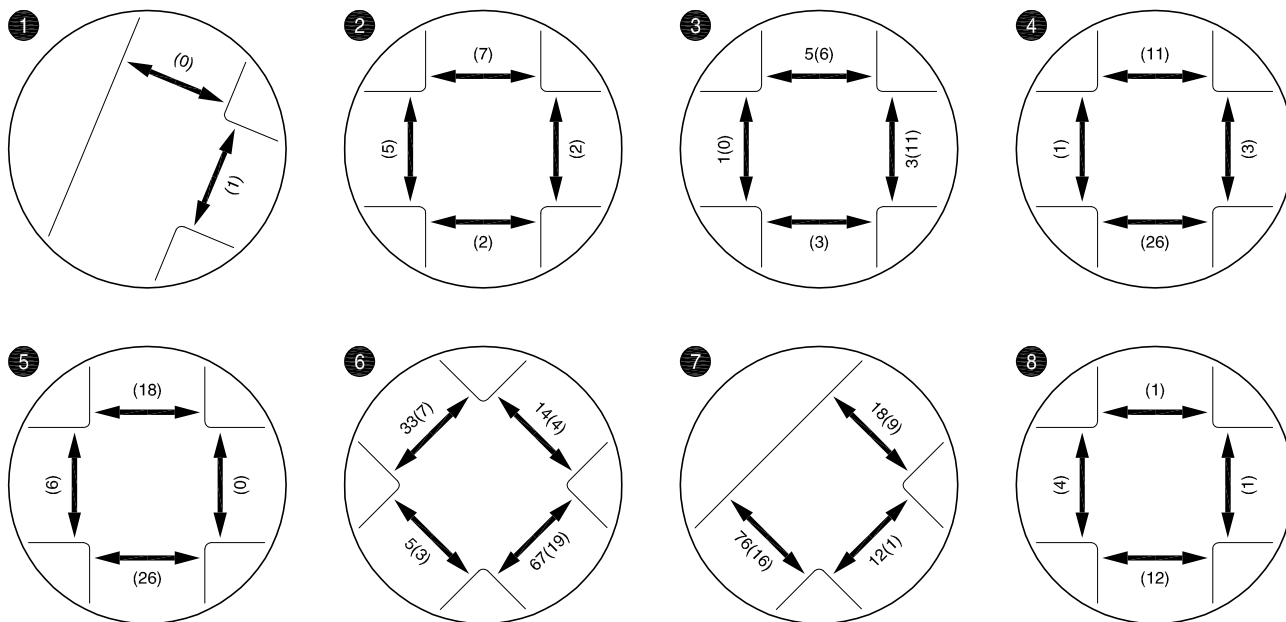
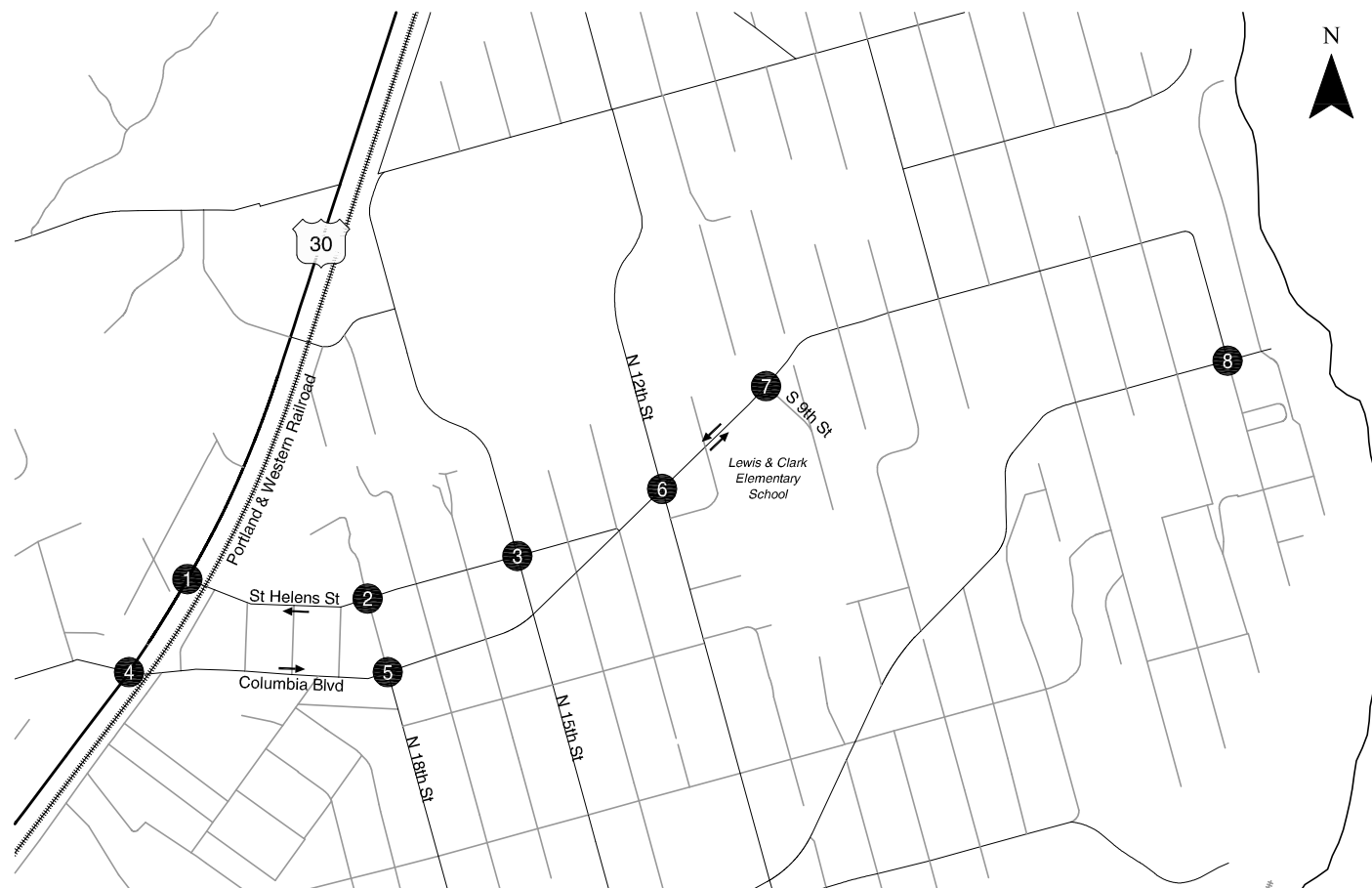
Figure 3 illustrates the bicycle volumes at the study intersections during the evening peak hour (4:30 to 5:30 p.m.) and during the school peak hour (2:00 to 3:00 p.m.) where applicable.

Automated through traffic counts were conducted by ODOT at three locations in October 2013. The counts include the total number of vehicles at the following locations over a 36-hour period:

- Columbia Boulevard, west of 18th Street
- St. Helens Boulevard, west of 18th Street
- Columbia Boulevard, east of 12th Street

Figure 4 illustrates the location of the through traffic counts and the highest 24-hour profile at each location. As shown, Columbia Boulevard and St. Helens Street west of 12th Street were found to experience higher traffic volumes during the mid-day and evening peak hours compared to the morning peak hour, but there does not appear to be a difference in the directional split of traffic. Columbia Boulevard east of 12th Street, however, was found to experience a morning peak hour similar to the mid-day and evening peak hours. This is, in part, reflective of its proximity to the Lewis and Clark Elementary School. The measured traffic volumes on these streets are consistent with the TSP facility designations. Further, the traffic volumes confirm that the evening peak time period evaluated as part of the TSP is an appropriate representation of the peak period of the day. *Appendix "B" contains the traffic count data provided by ODOT.*

\\kittelton.com\\fs\\h\\Portland\\profile\\13172 - US 30 & Columbia Blvd Streetscape Plan\\dwgs\\figs\\13172_Bike_Ped_Fig02.dwg Mar-06, 2014 - 10:12am - mbell Layout Tab: Fig02

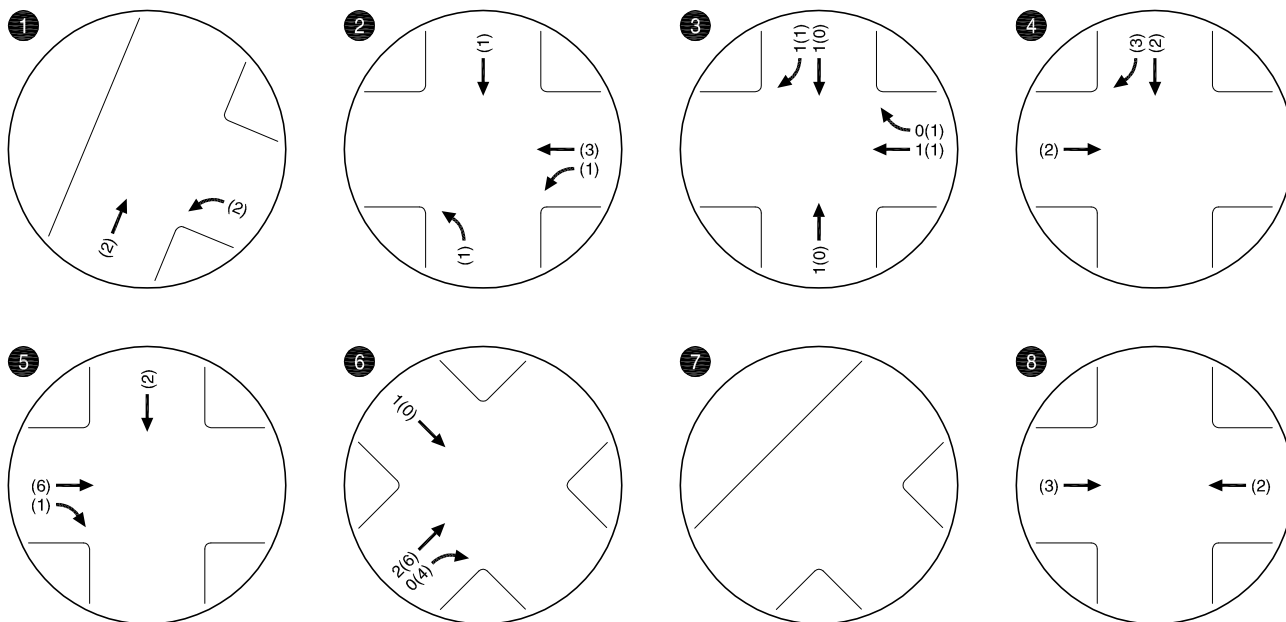


Legend
 # - School Volumes
 (#) - PM Volumes

Existing (2013) Pedestrian Volumes at Crosswalk
 Weekday School & PM Peak Hours
 St Helens, Oregon

Figure
 2

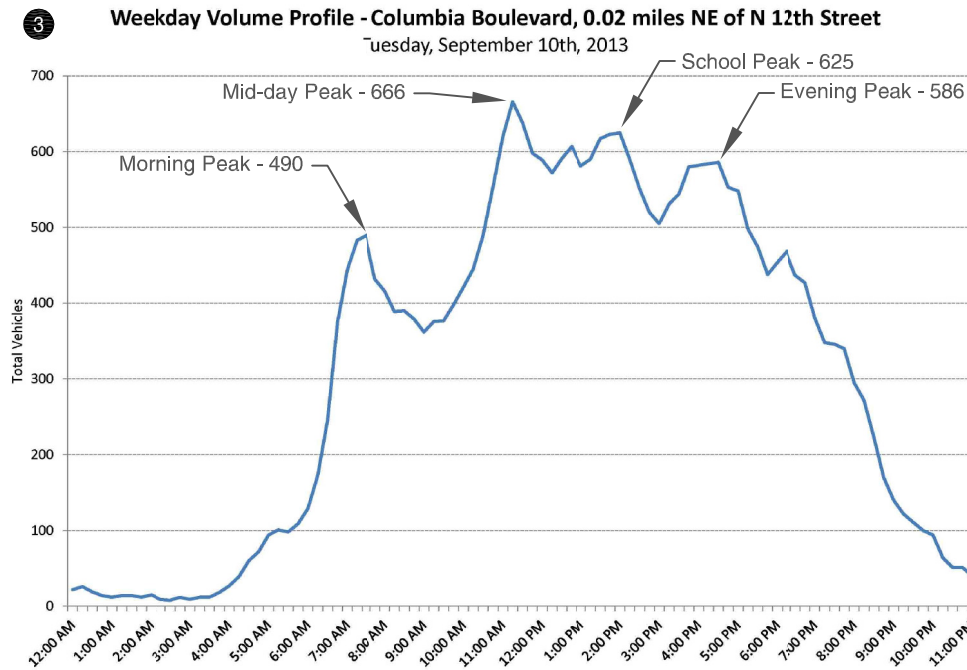
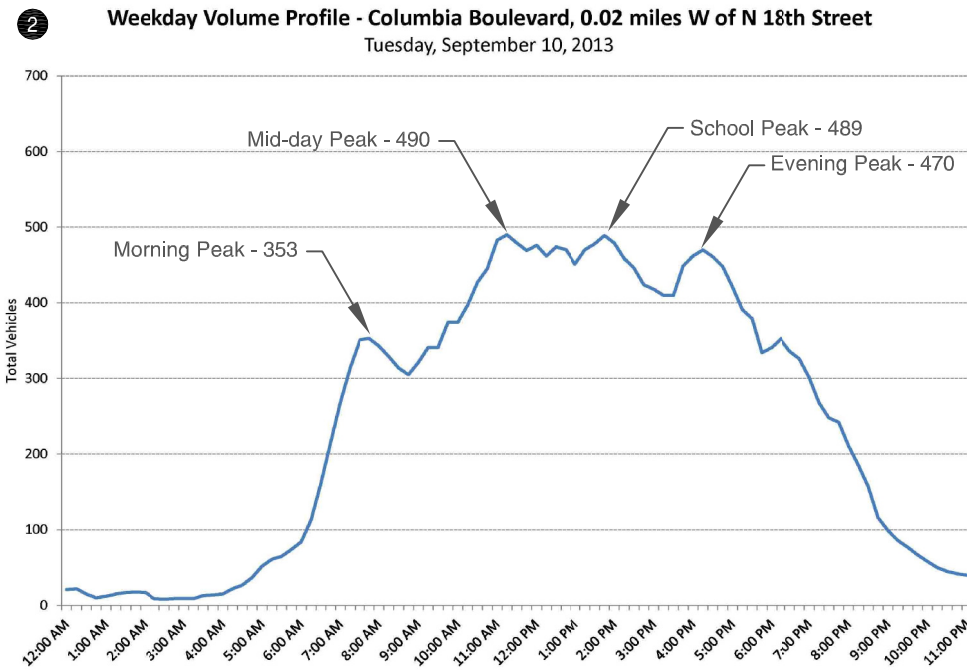
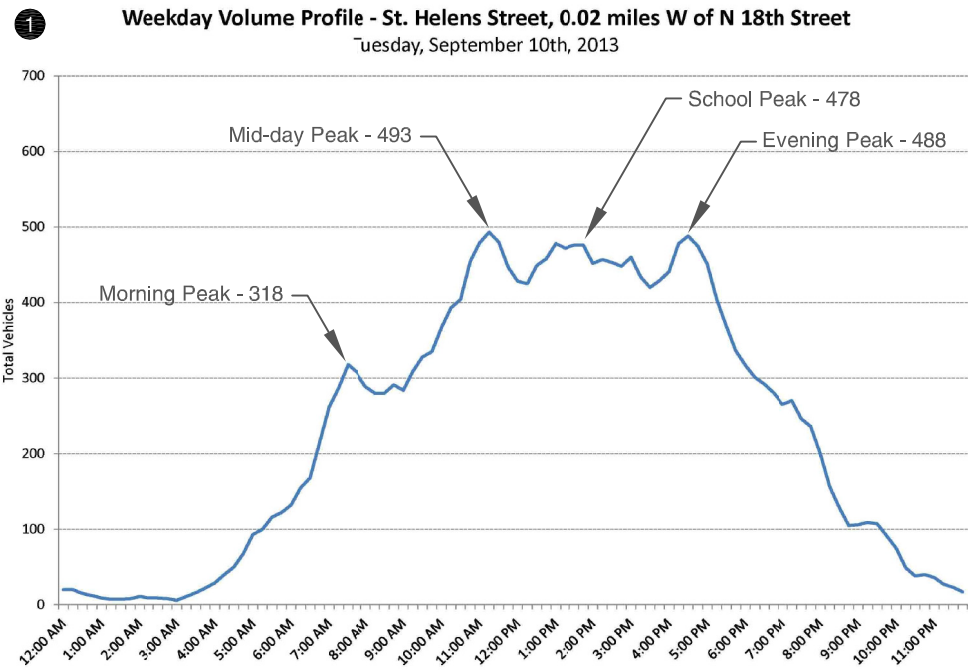
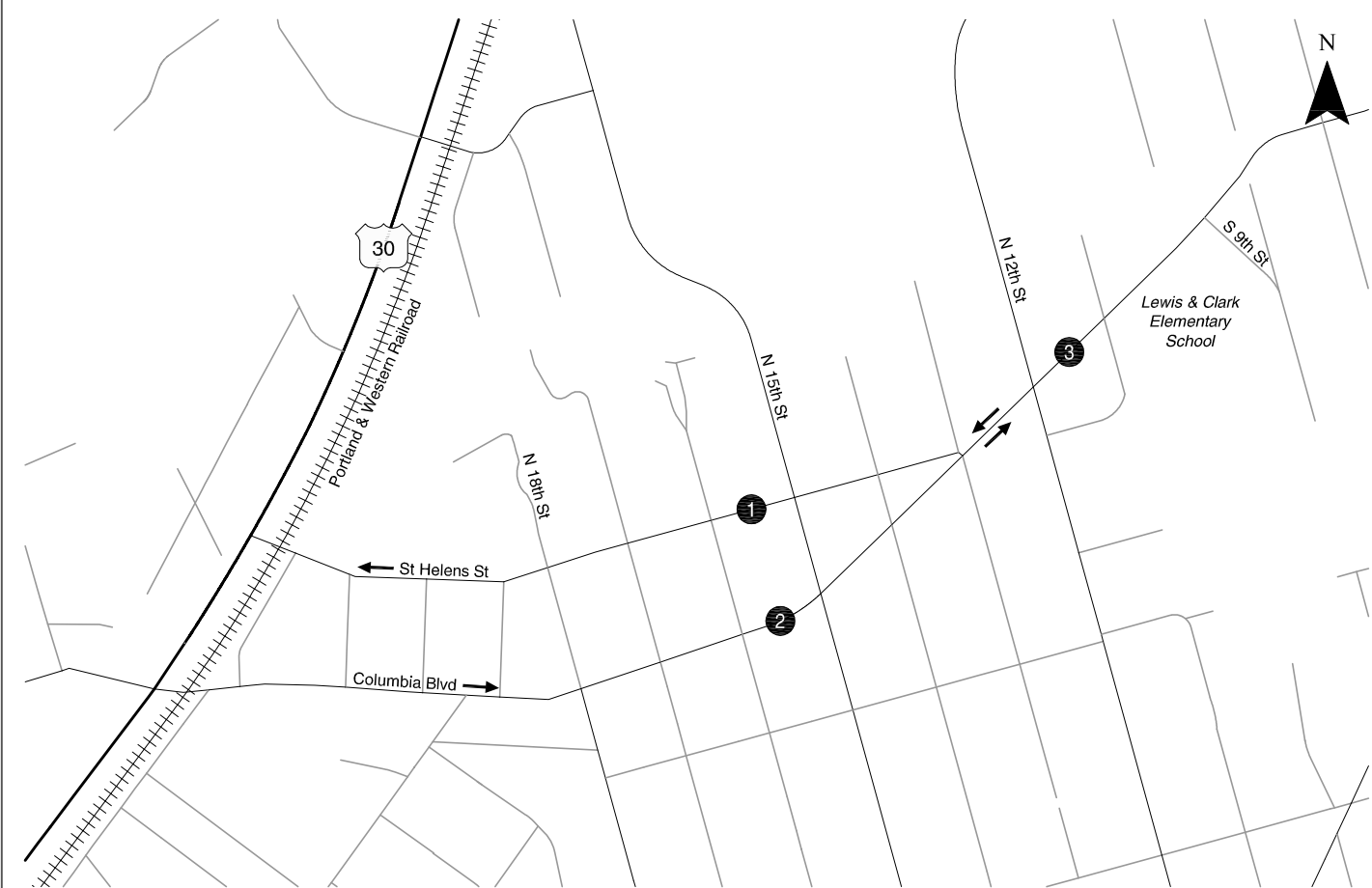
\\kittelton.com\\fs\\h_portland\\profile\\13172 - US 30 & Columbia Blvd Streetscape Plan\\dwgs\\figs\\13172_Bike_Ped_Fig02.dwg Mar 06, 2014 - 10:12am - mbell Layout Tab: Fig03



Legend
- School Volumes
(#) - PM Volumes

Existing (2013) Bicycle Movement Volumes
Weekday School & PM Peak Hours
St Helens, Oregon

Figure
3



24-Hour Weekday Volume Profile
St Helens, Oregon

Figure
4

SAFETY ANALYSIS

Traffic safety along US 30, Columbia Boulevard, and St. Helens Street was evaluated as part of the TSP. ODOT provided information from the Statewide Priority Index System as well as crash data for the segment of US 30 located within the City limits and for each of the study intersections included in the TSP. The following provides a summary of the safety analysis included in the TSP.

Statewide Priority Index System

The Statewide Priority Index System (SPIS) is a method developed by ODOT for identifying hazardous locations on state highways through consideration of crash frequency, crash rate, and crash severity. An intersection or roadway segment can be designated as a SPIS site if it experiences three or more crashes or one or more fatal crashes over a three-year period. Under this method, all state highways are analyzed in 0.10 mile segments to identify SPIS sites. At the time of the TSP, there were approximately 6,000 SPIS sites statewide, including two in St. Helens:

- US30/Sykes Road
- US 30/Gable Road

Given the frequency and severity of crashes at the intersections, the SPIS program identified potential safety improvements for the intersections that involve installation of a traffic separator, median islands, and access management at the US 30/Sykes Road intersection and provision of a dual left-turn lane from US 30 onto Gable Road in conjunction with installation of raised median and lane realignment treatments at the US 30/Gable Road intersection. No safety improvements are currently funded at either intersection.

Crash Data Analysis

The TSP also reviewed segment crash data within the study area, particularly along US 30. The TSP noted that the segment of US 30 between Gable Road and St. Helens Street exceeds the statewide average for similar facilities. Inspection of the crash data revealed that a majority of the crashes occurred at intersections, which is to be expected given the frequent and relatively closely spaced access points and street intersections along US 30.

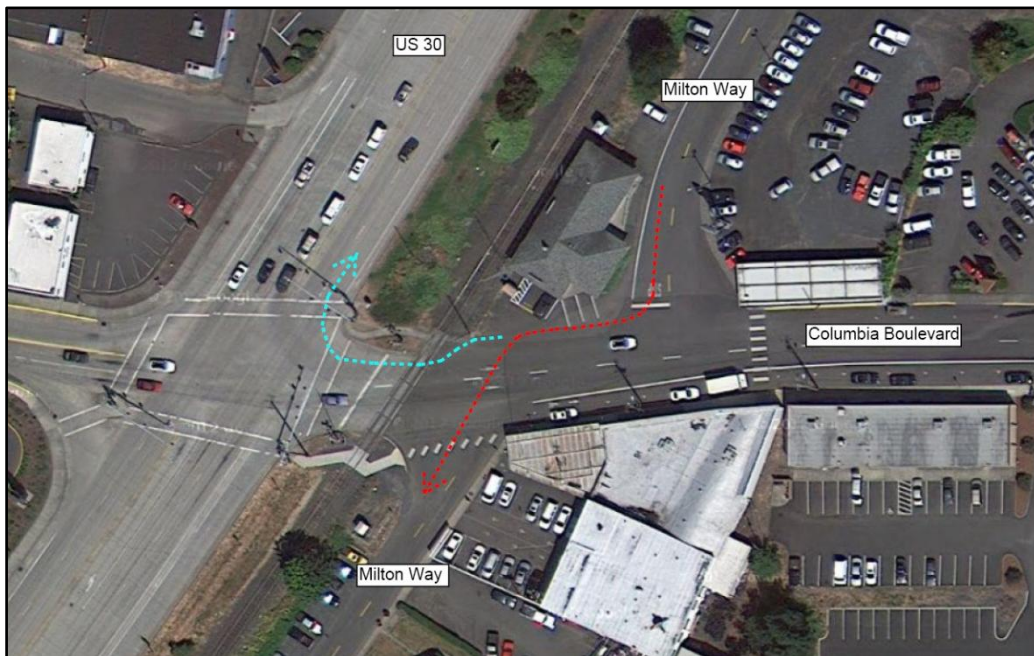
Intersection Crash Data Analysis

The TSP also documented individual intersection crash data at key locations. Review of the reported crashes confirmed that the US 30/Gable Road intersection was experiencing a high number of crashes and found that turn lane and access management improvements identified by ODOT should improve intersection safety. To date, no major improvements have been made at the intersection.

Other Observations

Citizen comments and observations made during the field walking tour of the Columbia Boulevard and St. Helens Street corridors (Business and Property Owners Meeting #1/CAC Meeting #1) identified wrong-way traffic movements occurring on Columbia Boulevard at Milton Way. Specifically, vehicles traveling southbound on Milton Way were observed to make a southbound right-turn onto Columbia Boulevard and travel westbound (within eastbound travel lanes) on Columbia Boulevard to reach the south continuation of Milton Way as shown in Exhibit 1. Meeting participants further noted that some drivers on Milton Way make a southbound right-turn onto Columbia Boulevard and travel westbound (within eastbound travel lanes) across the railroad tracks to then turn right on US 30.

Exhibit 1: Wrong-Way Turn Movement Patterns at Milton Way/Columbia Boulevard



Both of the turn movement patterns depicted in Exhibit 1 are illegal; however, no crashes have been reported at the Milton Way/Columbia Boulevard intersection over the last five-year period based on crash data provided by the City of St. Helens Police Department and ODOT.

Feedback obtained at the December 2013 Technical Advisory Committee and Citizens Advisory Committee meetings indicated that there is a strong desire to maintain the ability of drivers southbound on Milton Way to cross Columbia Boulevard and continue south on Milton Way. City staff noted that efforts previously undertaken by the City to restrict turns at Milton Way to left-turns only (eliminating the ability to cross Columbia Boulevard to continue south on Milton Way) were removed due to citizen complaint. Meeting participants noted that no other convenient alternatives are currently available for traffic westbound on St. Helens Street to reach Milton Way south of Columbia Boulevard and also that the automobile dealership located at the Milton Way/Columbia Boulevard intersection would be impacted by turn movement restrictions at Milton Way. The alternatives analysis

conducted as part of this corridor study should consider options to address the turn movement and connectivity needs at this location.

BICYCLE INFRASTRUCTURE ASSESSMENT

Since the time the TSP was prepared, ODOT has adopted an analysis procedure to evaluate bicycle infrastructure. This process, known as the Bicycle Level of Traffic Stress (LTS) methodology, can be used to evaluate the existing bicycle infrastructure and environment. As applied by ODOT, this method classifies four levels of traffic stress that a cyclist can experience on the roadway, ranging from LTS 1 (which represents little traffic stress) to LTS 4 (which represents high stress). A road segment with LTS 1 generally has low traffic speeds and low volumes and is suitable for all cyclists, including children. A road segment with LTS 4 generally has high speeds, high volumes and is perceived as unsafe by most adults. It is desirable to achieve an LTS 2 on most roadways to appeal to a majority of the bike-riding population. The LTS methodology originated with a document titled, "Low Stress Bicycling and Network Connectivity," published by the Mineta Transportation Institute.

The calculated LTS for the streets within the study area is shown in Figure 5. As shown, the calculated LTS for US 30 and the couplet exceed LTS 2. The Corridor Plan should contemplate solutions that lower the LTS at these locations. Key observations from the LTS review include:

- Generally, the LTS is lower on the eastern side of the study area (which primarily has residential land use) and increases toward US 30.
- The entire length of US 30 is currently at LTS 3 due to the higher roadway speed, multiple travel lanes, and the right turn configuration at intersections along the roadway.
- Most of the one-way segments of St. Helens Street and Columbia Boulevard are also at LTS 3 due to the number of vehicle lanes in each direction and the width of the bike lanes.
- The segment of Columbia Boulevard rated LTS 2 has a lower posted speed limit and only one vehicle lane per direction.
- The LTS ratings can be lowered in most areas by increasing the width of the bike lane and by changing the right turn configurations at intersections so that the right turn lane length is less than 150 feet long (shortening right-turn lanes along US 30 may not be possible due to competing vehicular storage needs and ODOT design requirements).
- The addition of a marked or physical buffer between the bike lane and the vehicular lane would also improve the LTS rating, especially in the one-way segments of St. Helens Street and Columbia Boulevard.

Several of the projects included in the City's current TSP will improve the LTS score. The corridor plan should build upon this work and identify additional projects to further enhance bicycle travel along the corridors. *Appendix "C" contains additional information related to the LTS estimate included in this analysis.*



- Legend
- LTS 1
 - LTS 2
 - LTS 3
 - LTS 4

Level of Traffic Stress (LTS)
St Helens, Oregon

Figure
5

YEAR 2031 TRAFFIC CONDITIONS

This section summarizes the planned improvements identified in the TSP for the roadway system as well as the pedestrian and bicycle systems. This section also presents opportunities to further enhance the transportation system in coordination with and beyond the improvements identified in the TSP.

The primary focus of the year 2031 traffic conditions analysis presented in the 2011 TSP was to address the long-term capacity needs at identified study intersections. Based on a review of the TSP, there are four intersections located within the study area that are expected to operate over capacity in the 2031, including US 30/Pittsburg Road, US 30 Wyeth Street, US 30/Gable Road, and 12th Street/Columbia Boulevard. The TSP includes projects to address the long term needs at each intersection. As indicated previously, the vehicle traffic counts confirm the weekday p.m. peak hour analysis provided in the TSP is an appropriate representation of peak vehicular travel demand along the corridors. Consequently there was no need to project future traffic volumes for other times of day or to reevaluate year 2031 traffic conditions.

PLANNED IMPROVEMENTS

The recommended TSP projects within the study are summarized below to provide context for the Corridor Master Plan.

Roadway Improvements

Figure 7-7 of the TSP illustrates the location of the planned roadway improvements within St. Helens. Within the study area, these improvements are not projected to be needed until the end of the planning horizon and are included in the long-term (2022 to 2031) transportation improvement program. The relevant projects in the study area and their respective timing are shown in Table 1 (which was obtained directly from the TSP).

Table 1: Long-Term (2022 to 2031) Transportation Improvement Program

Project No.	Project Location	Project Description	Estimated Cost
L01 ¹	US 30/Gable Road	Install westbound right-turn lane	\$485,000
L02 ²	US 30/Pittsburg Road	Install traffic signal	\$400,000
L03 ²	US 30/Vernonia Road	Install traffic signal	\$400,000
L04	12 th Street/Columbia Blvd.	Install traffic signal or roundabout	\$250,000

¹Project will require coordination/approval by ODOT and ODOT Rail Division. Engineering studies, traffic analysis, and conformance with ODOT standards will be evaluated as projects are developed.

²Project must meet traffic signal warrants and receive approval from State Traffic Engineer. Engineering studies, signal warrant and traffic analysis, and conformance with ODOT standards will be evaluated as projects are developed.

Pedestrian Improvements

Figure 7-5 of the TSP illustrates the location of the planned pedestrian improvements within St. Helens. As shown, there are several projects to improve pedestrian crossings along US 30, Columbia Boulevard,

and St. Helens Street. The pedestrian crossing improvements may include traffic signal modifications such as leading pedestrian interval and pedestrian countdown signals along US 30 as well as curb extensions, raised median islands, rectangular rapid flashing beacons, or pedestrian hybrid signal treatments along Columbia Boulevard and St. Helens Street.

The corridor master plan effort should evaluate opportunities to incorporate the TSP-identified improvements into the final plan. In addition, project stakeholder feedback identified the need to further assess improvement opportunities at key crossing locations specifically including:

- Safety/sight-distance at 15th Street/Columbia Boulevard;
- Safety/sight-distance at 1st Street/Columbia Boulevard;
- Safety/sight-distance at 1st Street/St Helens Street;
- Signal timing/crossing conditions at US 30/Columbia Boulevard;
- Crossing conditions at Milton Way/Columbia Boulevard; and
- Crossing conditions at the Wyeth Street/US 30 intersection¹.

Also shown in Figure 7-5, there are several additional planned improvements along roadways adjacent to the study area, including new sidewalks and multi-use paths. While not directly in the study area, these projects are expected to increase pedestrian activity within the study area and could be developed in support of the current corridor study recommendations. Table 2 summarizes the near-term pedestrian improvement projects within and adjacent to the study area (Table 2 was obtained from the TSP).

Table 2: Near-Term (2011 to 2016) Transportation Improvement Program

Project No.	Project Location	Project Description	Estimated Cost
N19	12 th Street (Columbia Blvd. to Old Portland Road)	Add curbs and sidewalks	\$580,000
N22	Columbia Boulevard (Sykes Road to US 30)	Add curbs and sidewalks	\$1,353,000
N24	Sykes Road (Columbia Blvd. to US 30)	Add curbs and sidewalks	\$190,000
N27	Gable Road (Bachelor Flat to US 30)	Add curbs and sidewalks	\$995,000
N32	Columbia Blvd./St. Helens Couplet	Install curb extensions (4 locations)	\$106,000
N33	Columbia Blvd. Couplet to 2 nd Street	Install curb extensions and island refuges (8 locations)	\$200,000
N34	Columbia Blvd./1 st Street	Install 1 striped crosswalk and 3 new ADA ramps	\$10,000
N35	St. Helens Street	Install curb extensions (4 locations)	\$106,000
N36	US 30 Corridor	Install Pedestrian Countdown Heads (5 Locations)	\$15,000

¹ Based on stakeholder feedback, ODOT will be conducting traffic counts at this intersection within the next month. The pedestrian, bicycle, and vehicular count information will then be used by the project team to assess improvement needs and potential options. This additional information will be provided to project stakeholders as it becomes available.

These improvements will enhance pedestrian connectivity in the area, establishing a more walkable neighborhood in St. Helens. Curb extensions and sidewalks will add pedestrian access to locations that are currently challenging to pedestrians, and striped crosswalks and island refuges can help facilitate the crossing of key roadways within the study area.

Bicycle Improvements

Figure 7-6 of the TSP illustrates the location of the planned bicycle improvements within St. Helens. As shown, two projects were previously identified to improve bicycle crossings along US 30 (one at Gable Road and one at St. Helens Street). The US 30 bicycle crossing improvements may include additional signing and striping to help facilitate bicycle crossings and/or the addition of bicycle detection at the two respective traffic signals. Bicycle detection improvements could include pavement markers to indicate where cyclists can actuate a signal as well as modifying the sensitivity of loop detectors to improve bicycle activation. The corridor study should evaluate opportunities to incorporate these improvements into the final plan.

In addition to the TSP-recommended improvements, potential improvement opportunities identified through the current corridor master planning effort include:

- Widening the existing bicycle lanes along Columbia Boulevard and St. Helens Street (potentially in conjunction with widening of select on-street parking areas);
- Adding buffers to the bicycle lanes along US 30 (a re-striping activity that would provide an additional striped pavement area between the bicycle lane and the closest vehicular travel lane);
- Improving bicycle paths through the Columbia Boulevard/US 30 intersection;
- Improving left and right-turn lane striping/geometric configurations at key intersections; and/or
- Incorporating bicycle parking in the commercial areas along US 30, Columbia Boulevard, and St. Helens Street as well as in the Olde Towne, Downtown, and Riverfront areas.

Also shown in Figure 7-6, there are several additional identified bicycle improvements along roadways adjacent to the study area, including new on-street bike lanes, shared roadways, and multi-use paths. While not directly in the study area, construction of these projects will improve connectivity of the bicycle network and create a more extensive environment for cyclists in St. Helens. Adding bike lanes should draw more cyclists to the area and reconfiguring striping and signage will also create a more bike-friendly environment. Table 3 summarizes the near-term bicycle improvement projects within and adjacent to the study area (obtained from the TSP).

Table 3: Near-Term (2011 to 2016) Transportation Improvement Program

Project No.	Project Location	Project Description	Estimated Cost
N05	12 th Street (Columbia Blvd. to Old Portland Road)	Widen roadway and add bike lanes	\$364,000
N09	Columbia Boulevard (Sykes Road to US 30)	Add bike lanes	\$30,000
N13	Gable Road (Bachelor Flat to US 30)	Widen roadway and add bike lanes	\$502,000
N16	US 30/St. Helens Street	Reconfigure bike lane striping across right turn lane	\$5,000
N17	US 30/Gable Road	Enhance existing bicycle facilities with pavement markings and signage	\$5,000

SUMMARY

Key findings to date include:

- Traffic demand along the Columbia Boulevard and St. Helens one-way couplet facilities is below the capacity of the two roadways east of US 30. As such, there may be opportunities to reconfigure the roadway cross sections while still preserving adequate capacity. In particular, it appears that the eastbound right-turn lane on Columbia Boulevard at 18th Street could be eliminated (at least from an intersection capacity perspective).
- The pedestrian and bicycle volume data offers insights as to prominent travel routes today, as well as those locations that are potentially less friendly to non-auto trips. This information could be used to help assess where near-term pedestrian and bicycle improvements could be focused.
- The vehicle traffic counts confirm the weekday p.m. peak hour analysis provided in the TSP is an appropriate representation of peak vehicular travel demand along the corridors.
- The upcoming alternatives analysis should consider options to eliminate wrong-way traffic movements occurring on Columbia Boulevard at Milton Way while ensuring sufficient connectivity and circulation to homes and businesses located along Milton Way.
- The bicycle level of stress evaluation provides insights as to areas where there are improvement needs and offers basic insights as to what improvements might be made.
- The crash data points to the need for thoughtful consideration of improvement opportunities on US 30 at Gable Road and Sykes Road.
- The list of planned improvements identified in the TSP offers insight as to previously identified infrastructure needs in the community, forming a context for the current planning effort and also leaving room for additional improvement projects to be identified during the Corridor planning process.

- In addition to the TSP-recommended bicycle improvement needs, potential improvement opportunities identified through the current corridor master planning effort include:
 - Widening the existing bicycle lanes along Columbia Boulevard and St. Helens Street (potentially in conjunction with widening of select on-street parking areas);
 - Adding buffers to the bicycle lanes along US 30 (a re-striping activity that would provide an additional striped pavement area between the bicycle lane and the closest vehicular travel lane);
 - Improving bicycle paths through the Columbia Boulevard/US 30 intersection;
 - Improving left and right-turn lane striping/geometric configurations at key intersections; and/or
 - Incorporating bicycle parking in the commercial areas along US 30, Columbia Boulevard, and St. Helens Street as well as in the Olde Towne, Downtown, and Riverfront areas.
- Other areas requiring further review during upcoming stages of the project include, but are not limited to:
 - Safety/sight-distance at 15th Street/Columbia Boulevard;
 - Safety/sight-distance at 1st Street/Columbia Boulevard;
 - Safety/sight-distance at 1st Street/St Helens Street;
 - Crossing conditions at US 30/Columbia Boulevard (signal timing/crosswalk length);
 - Crossing conditions at Milton Way/Columbia Boulevard;
 - Crossing conditions at the Wyeth Street/US 30 intersection;
 - Lane configurations at the St Helens Street/Columbia Boulevard couplet terminus;
 - Lane Configurations at the Columbia Boulevard/18th Street intersection;
 - Cross sections along Columbia Boulevard between 7th Street and 1st Street; and
 - Cross sections along St Helens Street between 4th Street and 1st Street.

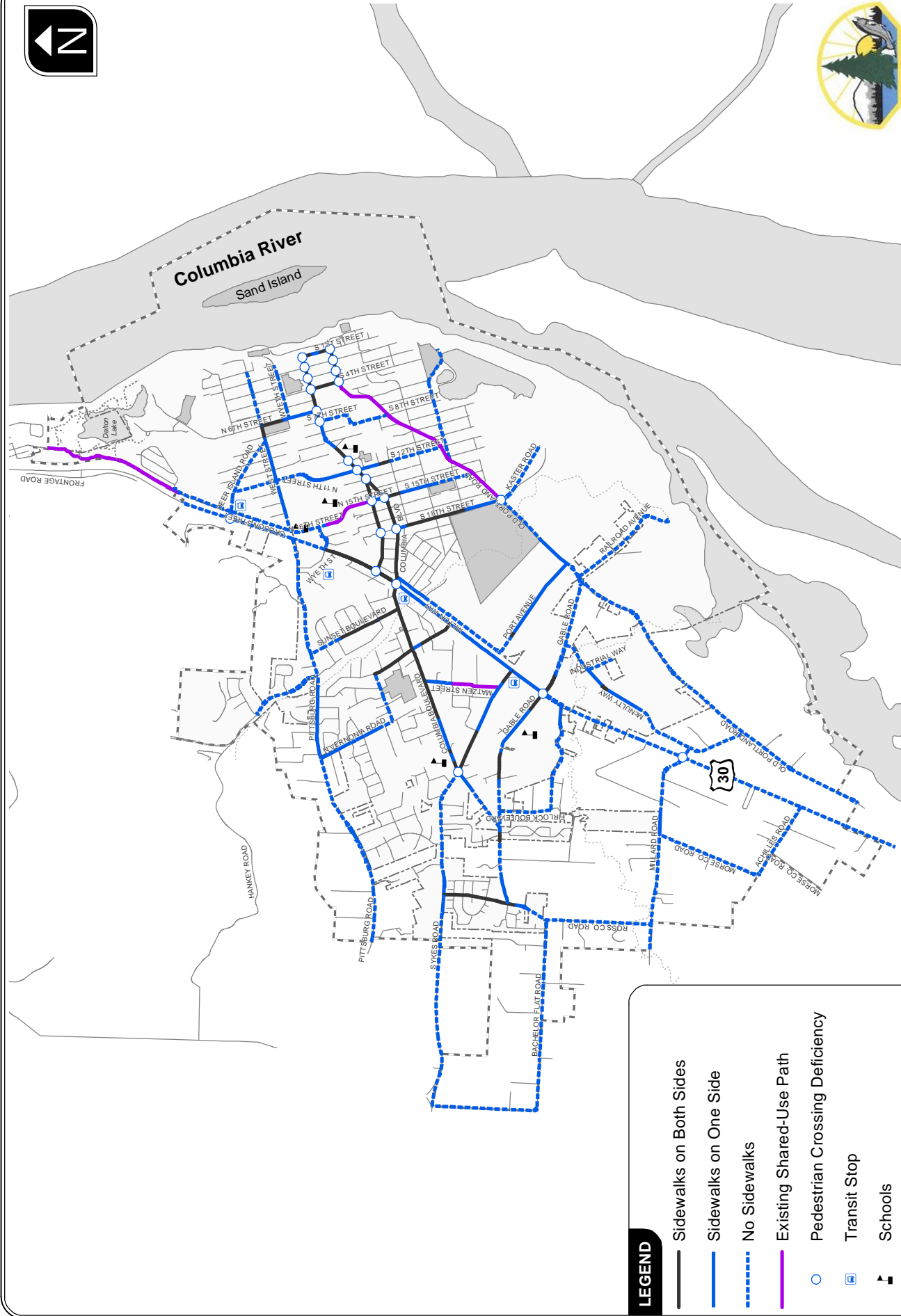
The maintenance and life cycle costs associated with each of the potential improvements identified above will be considered during the upcoming design phase of the corridor study.

Appendix A TSP Figures



FIGURE 3-5

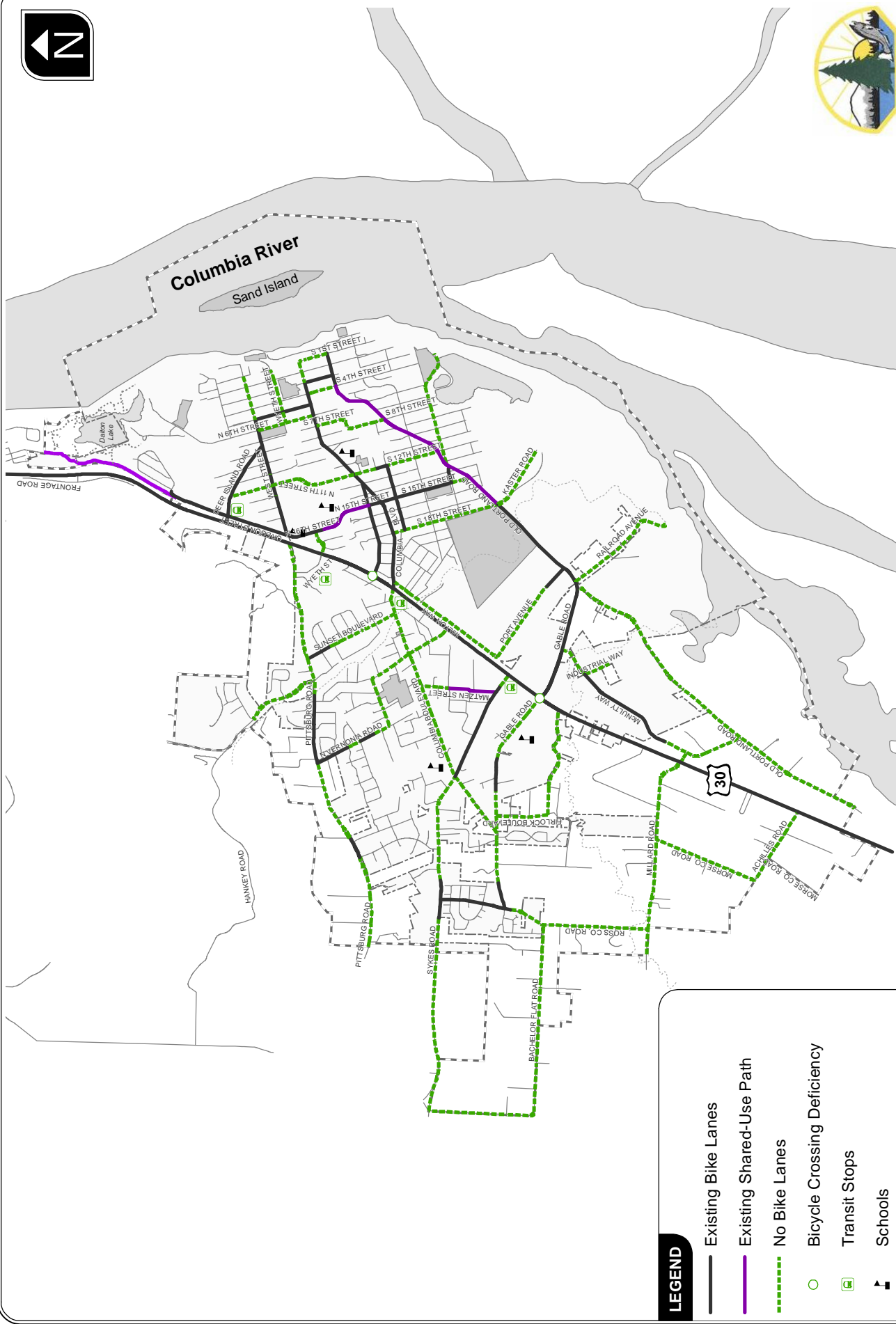
EXISTING PEDESTRIAN FACILITIES AND KNOWN DEFICIENCIES ST. HELENS, OREGON

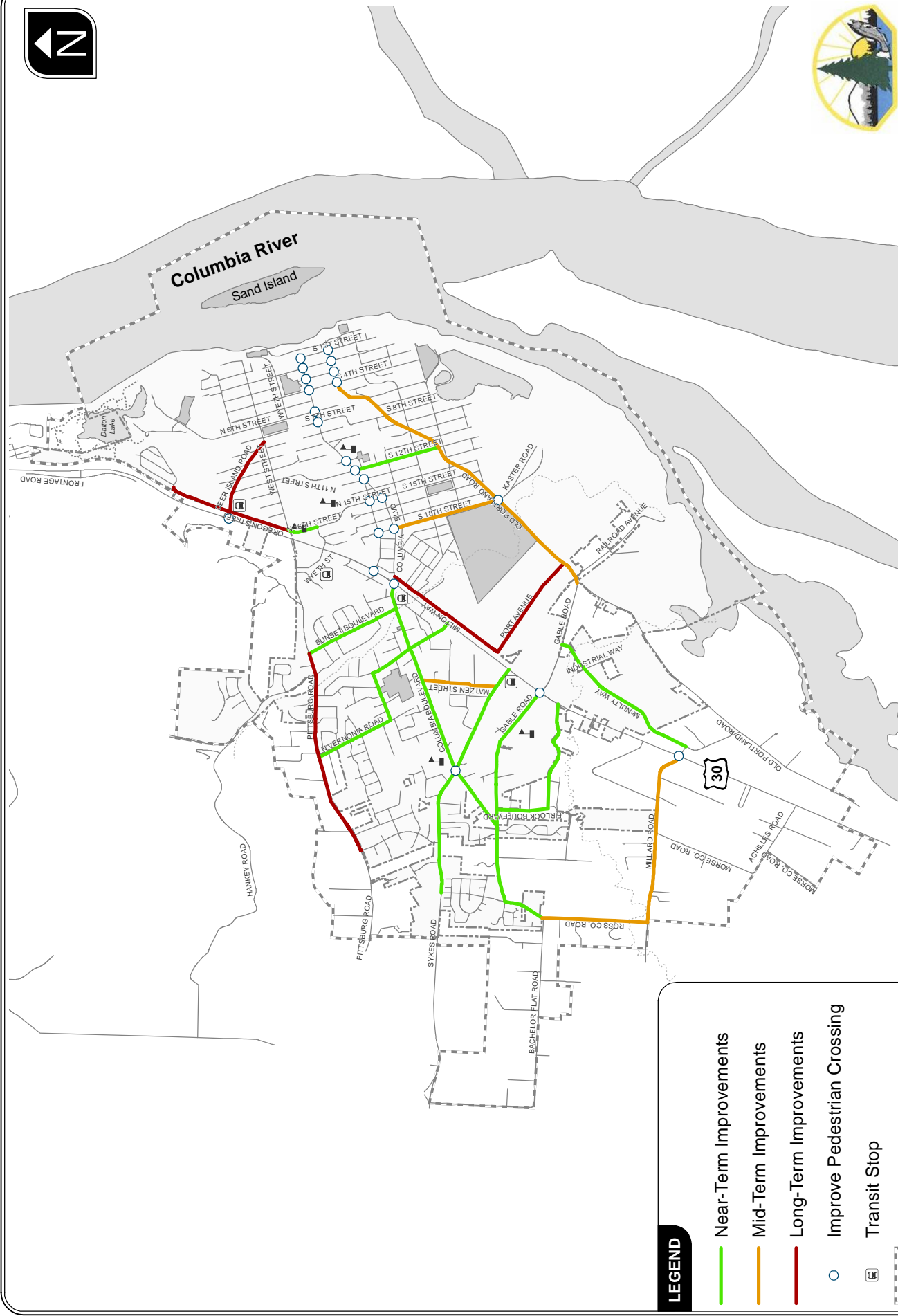


H:\profile\10639 - St Helens TSP Update\gis\draft tsp\Fig3-5.mxd



FIGURE 3-6





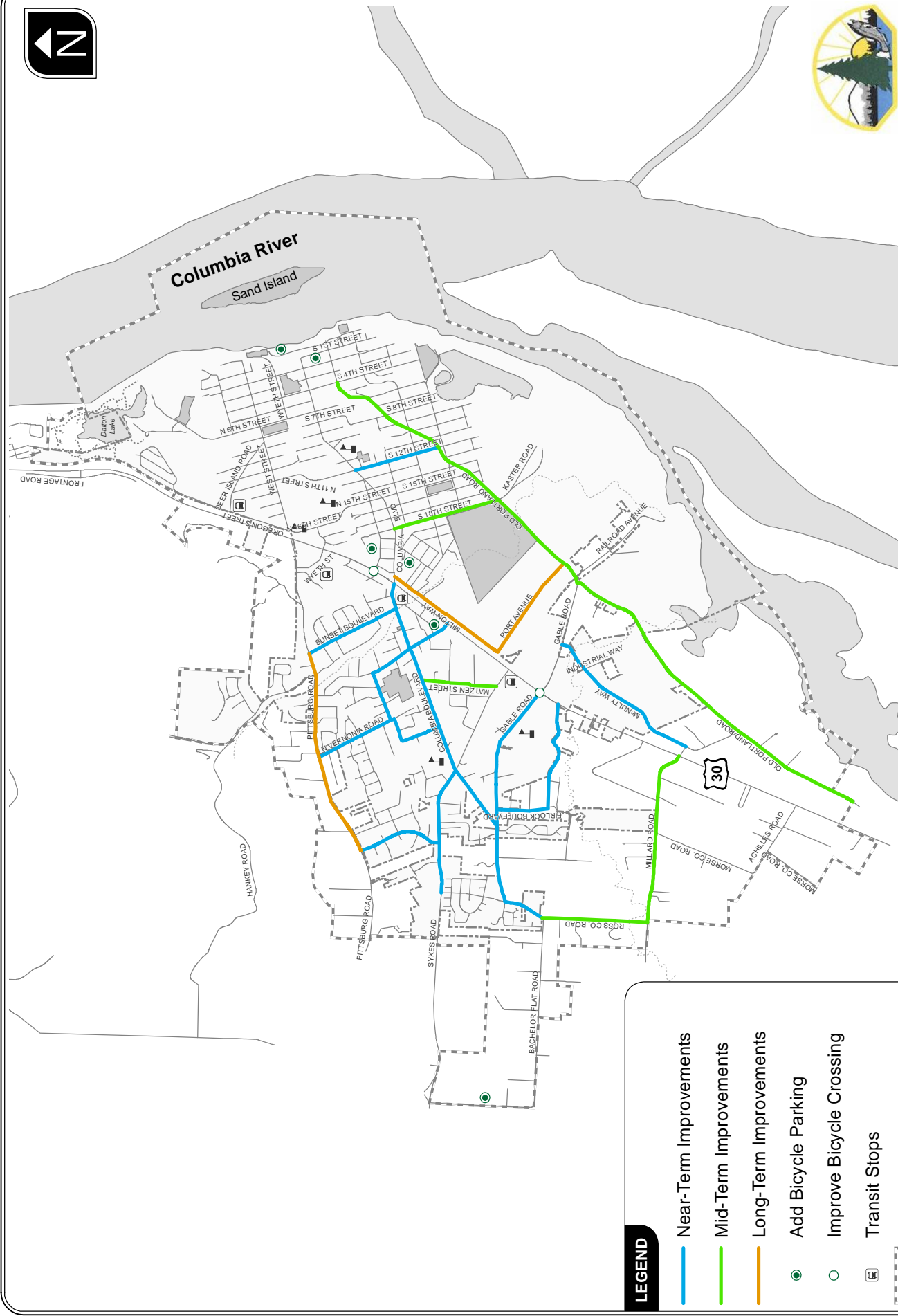
LEGEND

- Near-Term Improvements
- Mid-Term Improvements
- Long-Term Improvements
- Improve Pedestrian Crossing
- Transit Stop
- City UGB
- City Limits

FIGURE 7-5
PEDESTRIAN SYSTEM PLAN
ST. HELENS, OREGON



H:\profile\10639 - St Helens TSP Update\gis\draft\sp\Fig7-5.mxd



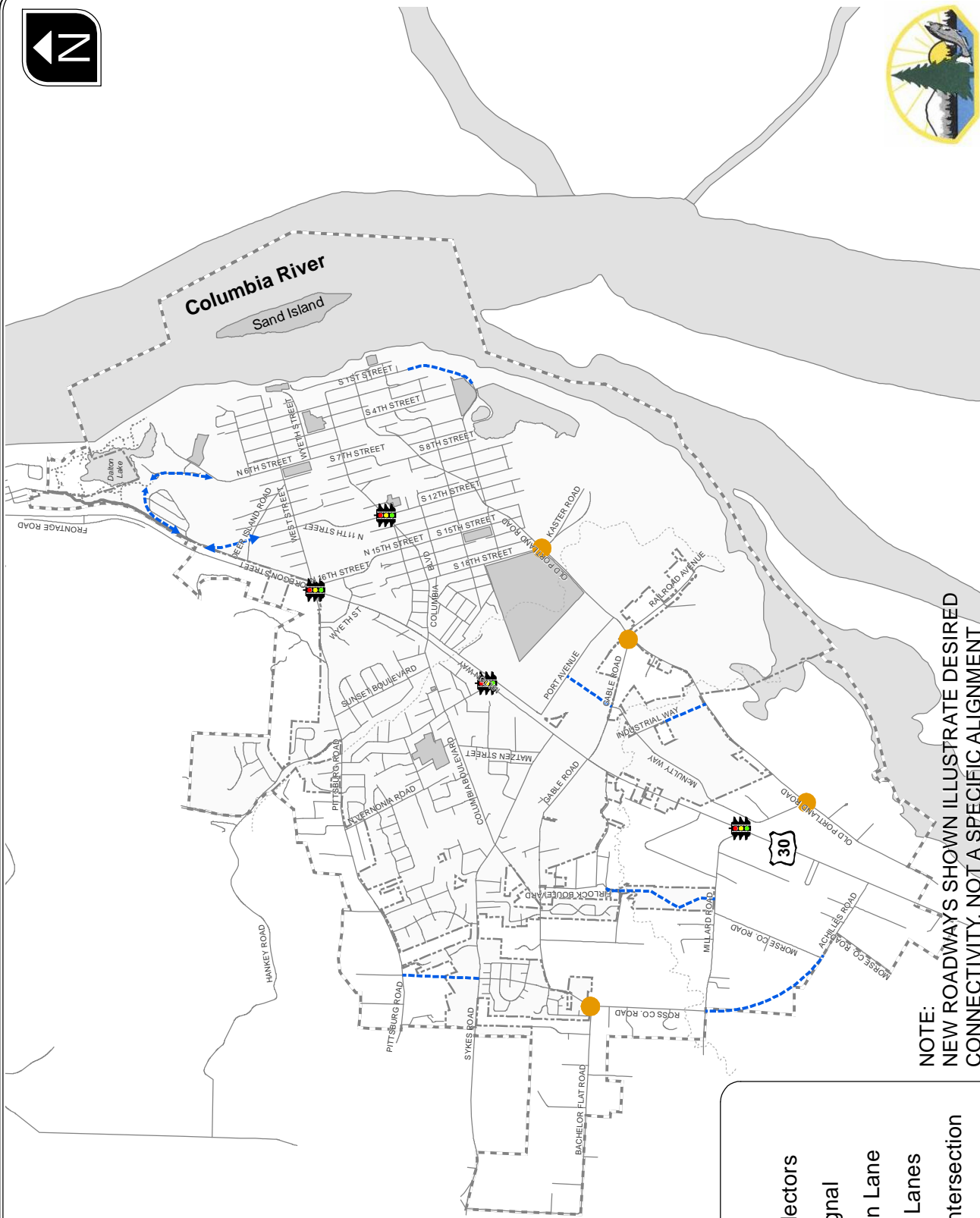
LEGEND

- Near-Term Improvements
- Mid-Term Improvements
- Long-Term Improvements
- Add Bicycle Parking
- Improve Bicycle Crossing
- Transit Stops
- City UGB
- City Limits

FIGURE 7-6
BICYCLE SYSTEM PLAN
ST. HELENS, OREGON



H:\profile\10639 - St Helens TSP Update\gis\draft\sp\Fig7-6.mxd



ROADWAY PLAN
ST. HELENS, OREGON

H:\profile\10639 - St Helens TSP Update\gis\draft\sp\Fig7-7.mxd

Appendix B Traffic Count Data

Transportation Development Division Transportation System Monitoring Unit Vehicular Volume

Time settings

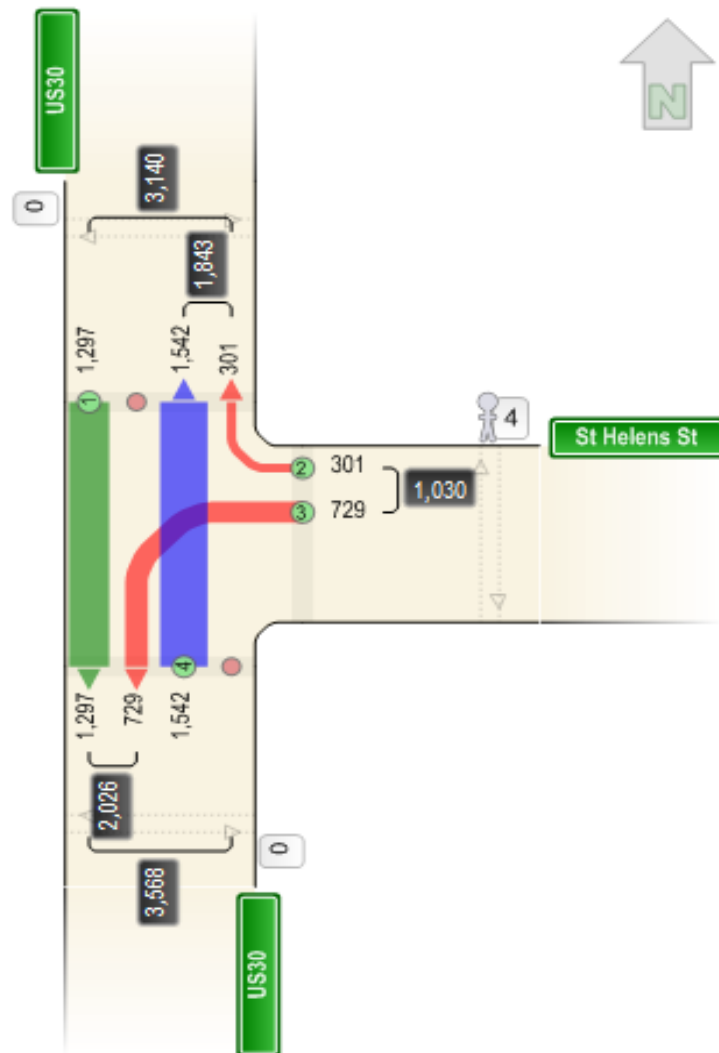
Date: 9/11/2013
Hours: 4:00 PM-6:00 PM
Weather: Clear

Source

Site Number: 38449
Mile Point: 28.67
Street Number: 092
Vehicle Type: Vehicles
Crossing Flow: Pedestrians

Source Description

Location Description: US30 and St Helens St
County: Columbia
City: St. Helens



Summary of Traffic Count Transportation Development Division

Site: 38449

Date: 9/11/2013

County: Columbia

Hours: 4:00 PM-6:00 PM

City: St. Helens

Highway #: 092

Milepoint: 28.67

Location: US30 and St Helens St

Count Number: 1.00

Weather: Clear

Time of Day	Summary By Movements						Entering Volumes		
	N-S	E-N	E-S	S-N		TOTAL	North	East	South
16:00	148	36	82	201		467	148	118	201
16:15	147	34	80	184		445	147	114	184
16:30	161	37	91	209		498	161	128	209
16:45	157	50	94	187		488	157	144	187
17:00	204	43	104	190		541	204	147	190
17:15	168	38	106	194		506	168	144	194
17:30	160	33	80	199		472	160	113	199
17:45	152	30	92	178		452	152	122	178
Total Count	1297	301	729	1542		3869	1297	1030	1542
24hr Factor	1	1	1	1		1	1	1	1
24hr Volume	1297	301	729	1542		3869	1297	1030	1542

Summary Of Bicycle Count Transportation Development Division

Site: 38449

Date: 9/11/2013

County: Columbia

Hours: 4:00 PM-6:00 PM

City: St. Helens

Highway #: 092

Milepoint: 28.67

Location: US30 and St Helens St

Count Number: 1.00

Weather: Clear

Time of Day	Summary By Movements						Entering Volumes		
	N-S	E-N	E-S	S-N		TOTAL	North	East	South
16:00	0	0	0	0		0	0	0	0
16:15	0	0	0	0		0	0	0	0
16:30	0	0	0	0		0	0	0	0
16:45	0	0	0	0		0	0	0	0
17:00	0	0	2	0		2	0	2	0
17:15	0	0	0	2		2	0	0	2
17:30	0	0	0	0		0	0	0	0
17:45	0	0	0	0		0	0	0	0
Total Count	0	0	2	2		4	0	2	2
24hr Factor	1	1	1	1		1	1	1	1
24hr Volume	0	0	2	2		4	0	2	2

Summary Of Pedestrian Count Transportation Development Division

Site: 38449
County: Columbia
City: St. Helens

Date: 9/11/2013
Hours: 4:00 PM-6:00 PM
Highway #: 092

Milepoint: 28.67
Count Number: 1.00

Location: US30 and St Helens St
Weather: Clear

Time of Day	Pedestrian		
	North	East	South
16:00		2	
16:15			
16:30		1	
16:45			
17:00			
17:15			
17:30			
17:45		1	
Total	0	4	0

Transportation Development Division Transportation System Monitoring Unit Vehicular Volume

Time settings

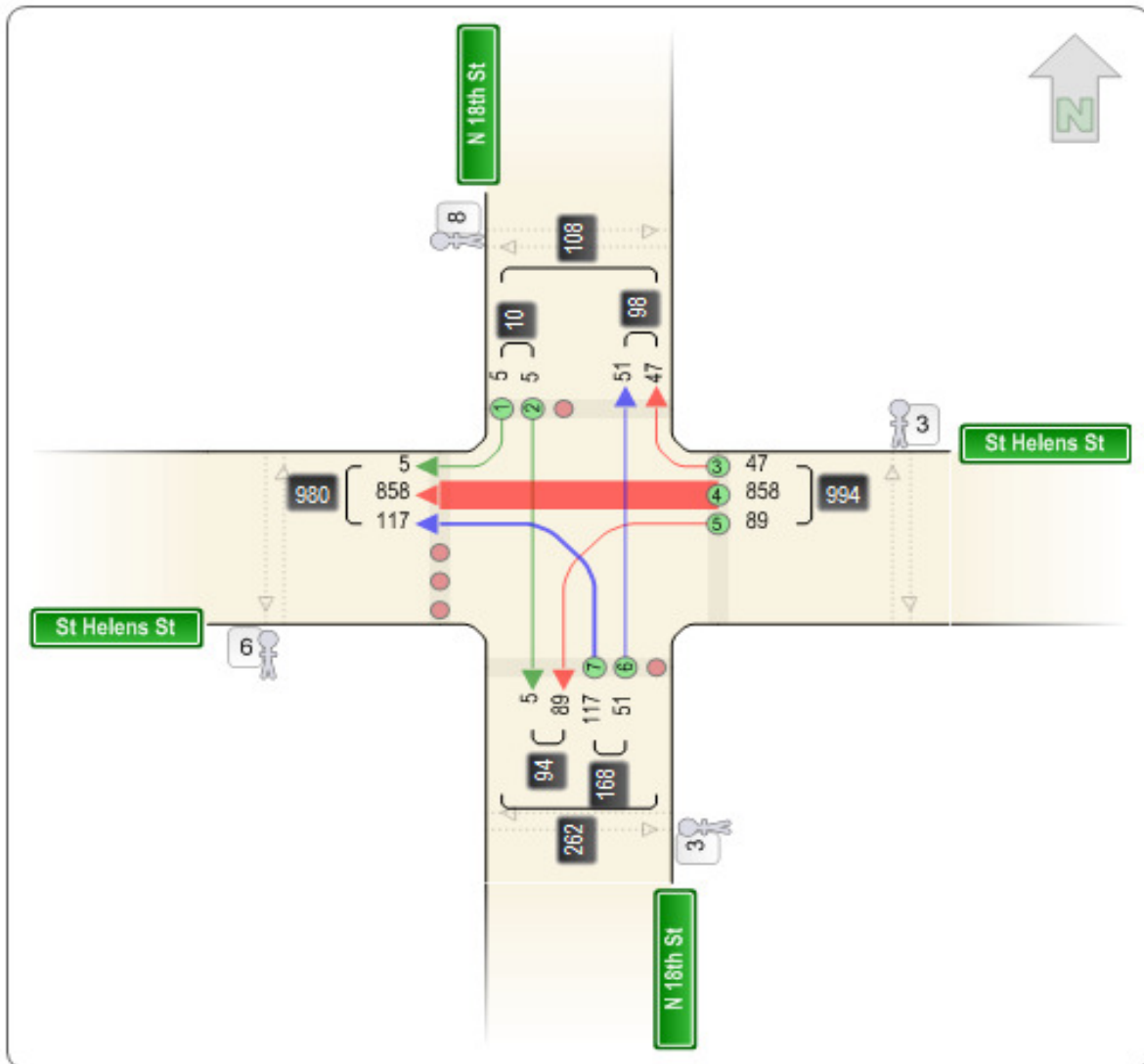
Date: 9/9/2013
Hours: 4:00 PM-6:00 PM
Weather: Clear

Source

Site Number: 38450
Mile Point: 0.26
Street Number: 2744
Vehicle Type: Vehicles
Crossing Flow: Pedestrians

Source Description

Location Description: St Helens St and N 18th St
County: Columbia
City: St. Helens



Summary of Traffic Count Transportation Development Division

<div> <div> Site: 38450 County: Columbia City: St. Helens </div> <div> Date: 9/9/2013 Hours: 4:00 PM-6:00 PM Highway #: 2744 </div> <div> Milepoint: 0.26 Count Number: 1.00 </div> <div> St Helens St and N 18th Location: St Weather: Clear </div> </div>											
Time of Day	Summary By Movements								Entering Volumes		
	N-S	N-W	E-N	E-S	E-W	S-N	S-W	TOTAL	North	East	South
16:00	1	2	7	13	121	8	17	169	3	141	25
16:15	0	0	6	14	105	6	9	140	0	125	15
16:30	3	0	5	16	116	5	16	161	3	137	21
16:45	0	0	7	9	102	5	17	140	0	118	22
17:00	1	2	8	8	154	15	18	206	3	170	33
17:15	0	0	5	18	88	7	14	132	0	111	21
17:30	0	1	3	8	87	5	16	120	1	98	21
17:45	0	0	6	3	85	0	10	104	0	94	10
Total Count	5	5	47	89	858	51	117	1172	10	994	168
24hr Factor	1	1	1	1	1	1	1	1	1	1	1
24hr Volume	5	5	47	89	858	51	117	1172	10	994	168

Summary Of Bicycle Count Transportation Development Division

<div> <div> Site: 38450 County: Columbia City: St. Helens </div> <div> Date: 9/9/2013 Hours: 4:00 PM-6:00 PM Highway #: 2744 </div> <div> Milepoint: 0.26 Count Number: 1.00 </div> <div> St Helens St and N 18th Location: St Weather: Clear </div> </div>											
Time of Day	Summary By Movements								Entering Volumes		
	N-S	N-W	E-N	E-S	E-W	S-N	S-W	TOTAL	North	East	South
16:00	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	1	0	0	1	0	1	0
16:30	0	0	0	0	1	0	0	1	0	1	0
16:45	0	0	0	0	1	0	0	1	0	1	0
17:00	1	0	0	1	1	0	1	4	1	2	1
17:15	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	5	0	0	5	0	5	0
17:45	0	0	0	0	0	0	0	0	0	0	0
Total Count	1	0	0	1	9	0	1	12	1	10	1
24hr Factor	1	1	1	1	1	1	1	1	1	1	1
24hr Volume	1	0	0	1	9	0	1	12	1	10	1

Summary Of Pedestrian Count

Transportation Development Division

Site: 38450
County: Columbia
City: St. Helens

Date: 9/9/2013
Hours: 4:00 PM-6:00 PM
Highway #: 2744

Milepoint: 0.26
Count Number: 1.00

St Helens St and N 18th
Location: St
Weather: Clear

Time of Day	Pedestrian			
	North	East	South	West
16:00		1		
16:15				1
16:30				
16:45	1	1		
17:00	2	1	2	
17:15	4			4
17:30	1			1
17:45			1	
Total	8	3	3	6

Transportation Development Division Transportation System Monitoring Unit Vehicular Volume

Time settings

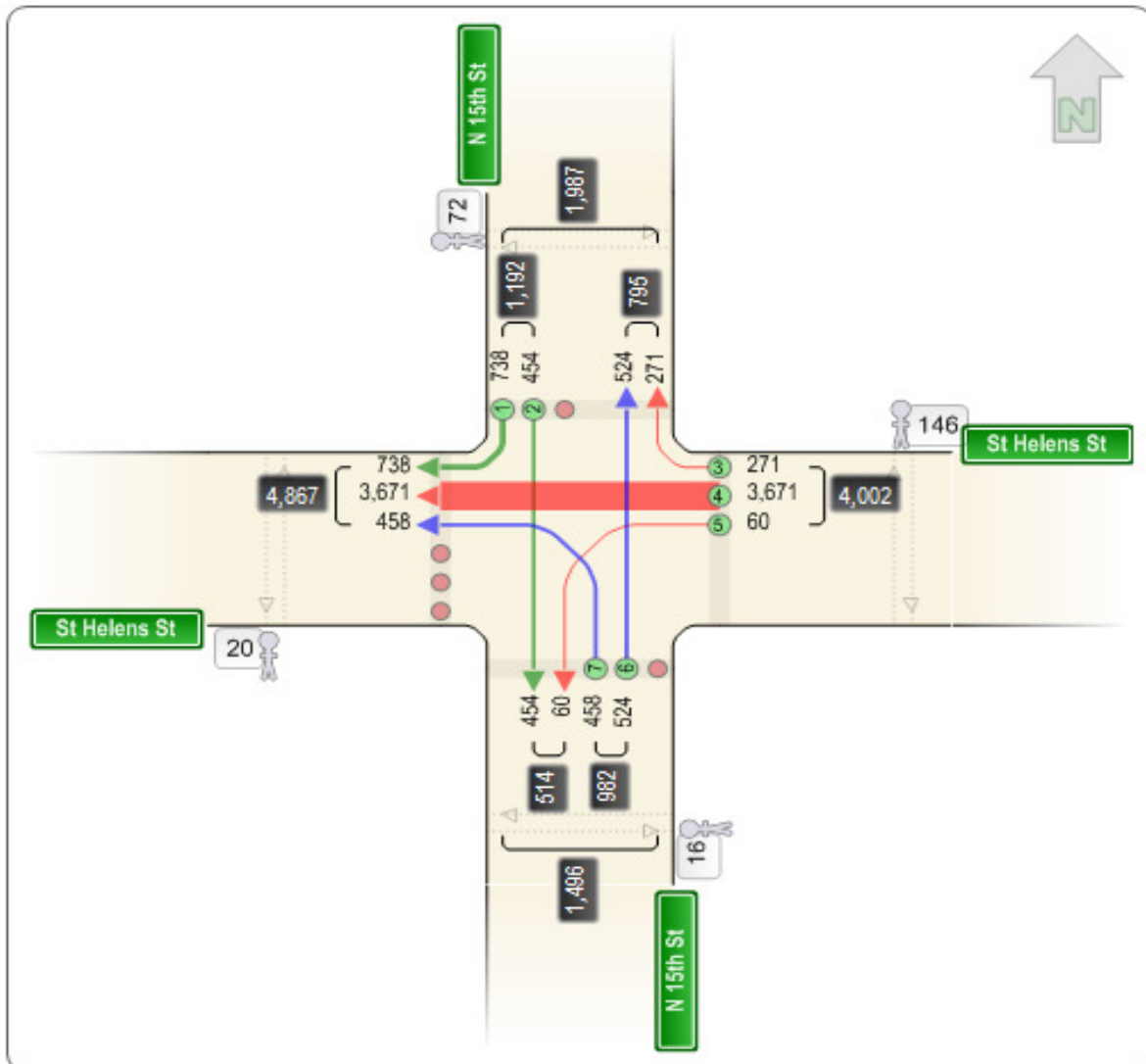
Date: 9/10/2013
Hours: 6:00 AM-10:00 PM
Weather: Clear

Source

Site Number: 38451
Mile Point: 0.11
Street Number: 2744
Vehicle Type: Vehicles
Crossing Flow: Pedestrians

Source Description

Location Description: St Helens St and N 15th St
County: Columbia
City: St. Helens



Summary of Traffic Count Transportation Development Division

Site: 38451
County: Columbia
City: St. Helens

Date: 9/10/2013
Hours: 6:00 AM-10:00 PM
Highway #: 2744

Milepoint: 0.11
Count Number: 1.00

Location: St Helens St and N 15th St
Weather: Clear

Time of Day	Summary By Movements									Entering Volumes		
	N-S	N-W	E-N	E-S	E-W	S-N	S-W		TOTAL	North	East	South
6:00	11	9	6	2	92	5	10		135	20	100	15
6:15	0	0	0	0	0	0	0		0	0	0	0
6:30	0	0	0	0	0	0	0		0	0	0	0
6:45	0	0	0	0	0	0	0		0	0	0	0
7:00	56	45	25	2	180	30	13		351	101	207	43
7:15	0	0	0	0	0	0	0		0	0	0	0
7:30	0	0	0	0	0	0	0		0	0	0	0
7:45	0	0	0	0	0	0	0		0	0	0	0
8:00	48	76	25	4	196	56	16		421	124	225	72
8:15	0	0	0	0	0	0	0		0	0	0	0
8:30	0	0	0	0	0	0	0		0	0	0	0
8:45	0	0	0	0	0	0	0		0	0	0	0
9:00	25	17	13	0	189	10	29		283	42	202	39
9:15	0	0	0	0	0	0	0		0	0	0	0
9:30	0	0	0	0	0	0	0		0	0	0	0
9:45	0	0	0	0	0	0	0		0	0	0	0
10:00	21	52	12	5	202	21	28		341	73	219	49
10:15	0	0	0	0	0	0	0		0	0	0	0
10:30	0	0	0	0	0	0	0		0	0	0	0
10:45	0	0	0	0	0	0	0		0	0	0	0
11:00	19	49	21	2	311	21	46		469	68	334	67
11:15	0	0	0	0	0	0	0		0	0	0	0
11:30	0	0	0	0	0	0	0		0	0	0	0
11:45	0	0	0	0	0	0	0		0	0	0	0
12:00	16	43	8	5	273	22	41		408	59	286	63
12:15	0	0	0	0	0	0	0		0	0	0	0
12:30	0	0	0	0	0	0	0		0	0	0	0
12:45	0	0	0	0	0	0	0		0	0	0	0
13:00	25	43	12	6	298	44	39		467	68	316	83
13:15	0	0	0	0	0	0	0		0	0	0	0
13:30	0	0	0	0	0	0	0		0	0	0	0
13:45	0	0	0	0	0	0	0		0	0	0	0
14:00	28	31	32	7	285	59	31		473	59	324	90
14:15	0	0	0	0	0	0	0		0	0	0	0
14:30	0	0	0	0	0	0	0		0	0	0	0
14:45	0	0	0	0	0	0	0		0	0	0	0
15:00	38	102	30	3	243	42	37		495	140	276	79
15:15	0	0	0	0	0	0	0		0	0	0	0
15:30	0	0	0	0	0	0	0		0	0	0	0
15:45	0	0	0	0	0	0	0		0	0	0	0
16:00	9	13	4	0	69	7	5		107	22	73	12
16:15	6	12	6	1	57	8	8		98	18	64	16
16:30	9	15	3	2	69	14	9		121	24	74	23

16:45	6	14	2	0	56	10	8		96	20	58	18
17:00	8	26	9	0	63	18	9		133	34	72	27
17:15	9	21	11	0	62	13	12		128	30	73	25
17:30	5	8	2	1	61	8	3		88	13	64	11
17:45	7	8	4	1	58	13	9		100	15	63	22
18:00	24	32	8	6	212	29	20		331	56	226	49
18:15	0	0	0	0	0	0	0		0	0	0	0
18:30	0	0	0	0	0	0	0		0	0	0	0
18:45	0	0	0	0	0	0	0		0	0	0	0
19:00	25	32	8	0	157	33	23		278	57	165	56
19:15	0	0	0	0	0	0	0		0	0	0	0
19:30	0	0	0	0	0	0	0		0	0	0	0
19:45	0	0	0	0	0	0	0		0	0	0	0
20:00	15	13	3	4	142	9	12		198	28	149	21
20:15	0	0	0	0	0	0	0		0	0	0	0
20:30	0	0	0	0	0	0	0		0	0	0	0
20:45	0	0	0	0	0	0	0		0	0	0	0
21:00	2	9	2	3	62	4	8		90	11	67	12
21:15	0	0	0	0	0	0	0		0	0	0	0
21:30	0	0	0	0	0	0	0		0	0	0	0
21:45	0	0	0	0	0	0	0		0	0	0	0
Total Count	412	670	246	54	3337	476	416		5611	1082	3637	892
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1	1.1
24hr Volume	454	737	271	60	3671	524	458		6173	1191	4001	982

Summary Of Bicycle Count Transportation Development Division

Site: 38451
County: Columbia
City: St. Helens

Date: 9/10/2013
Hours: 6:00 AM-10:00 PM
Highway #: 2744

Milepoint: 0.11
Count Number: 1.00

Location: St Helens St and N 15th St
Weather: Clear

Time of Day	Summary By Movements									Entering Volumes		
	N-S	N-W	E-N	E-S	E-W	S-N	S-W		TOTAL	North	East	South
6:00	0	0	0	0	0	1	0		1	0	0	1
6:15	0	0	0	0	0	0	0		0	0	0	0
6:30	0	0	0	0	0	0	0		0	0	0	0
6:45	0	0	0	0	0	0	0		0	0	0	0
7:00	1	1	3	0	1	2	0		8	2	4	2
7:15	0	0	0	0	0	0	0		0	0	0	0
7:30	0	0	0	0	0	0	0		0	0	0	0
7:45	0	0	0	0	0	0	0		0	0	0	0
8:00	0	0	2	0	1	0	0		3	0	3	0
8:15	0	0	0	0	0	0	0		0	0	0	0
8:30	0	0	0	0	0	0	0		0	0	0	0
8:45	0	0	0	0	0	0	0		0	0	0	0
9:00	0	0	0	0	1	0	0		1	0	1	0
9:15	0	0	0	0	0	0	0		0	0	0	0
9:30	0	0	0	0	0	0	0		0	0	0	0
9:45	0	0	0	0	0	0	0		0	0	0	0
10:00	1	1	0	0	1	1	1		5	2	1	2
10:15	0	0	0	0	0	0	0		0	0	0	0
10:30	0	0	0	0	0	0	0		0	0	0	0
10:45	0	0	0	0	0	0	0		0	0	0	0
11:00	0	0	1	0	4	1	0		6	0	5	1
11:15	0	0	0	0	0	0	0		0	0	0	0
11:30	0	0	0	0	0	0	0		0	0	0	0
11:45	0	0	0	0	0	0	0		0	0	0	0
12:00	0	2	0	0	2	0	0		4	2	2	0
12:15	0	0	0	0	0	0	0		0	0	0	0
12:30	0	0	0	0	0	0	0		0	0	0	0
12:45	0	0	0	0	0	0	0		0	0	0	0
13:00	0	0	0	0	2	0	0		2	0	2	0
13:15	0	0	0	0	0	0	0		0	0	0	0
13:30	0	0	0	0	0	0	0		0	0	0	0
13:45	0	0	0	0	0	0	0		0	0	0	0
14:00	1	1	0	0	1	1	0		4	2	1	1
14:15	0	0	0	0	0	0	0		0	0	0	0
14:30	0	0	0	0	0	0	0		0	0	0	0
14:45	0	0	0	0	0	0	0		0	0	0	0
15:00	0	2	0	0	3	0	0		5	2	3	0
15:15	0	0	0	0	0	0	0		0	0	0	0
15:30	0	0	0	0	0	0	0		0	0	0	0
15:45	0	0	0	0	0	0	0		0	0	0	0
16:00	0	0	0	0	1	0	0		1	0	1	0
16:15	0	0	3	0	0	0	0		3	0	3	0
16:30	0	0	0	0	1	0	0		1	0	1	0

16:45	0	0	0	0	0	0	0		0	0	0	0
17:00	0	1	1	0	0	0	0		2	1	1	0
17:15	0	0	0	0	0	0	0		0	0	0	0
17:30	0	0	1	0	0	0	0		1	0	1	0
17:45	0	2	0	0	0	0	0		2	2	0	0
18:00	0	0	0	0	0	2	0		2	0	0	2
18:15	0	0	0	0	0	0	0		0	0	0	0
18:30	0	0	0	0	0	0	0		0	0	0	0
18:45	0	0	0	0	0	0	0		0	0	0	0
19:00	0	1	1	0	2	1	0		5	1	3	1
19:15	0	0	0	0	0	0	0		0	0	0	0
19:30	0	0	0	0	0	0	0		0	0	0	0
19:45	0	0	0	0	0	0	0		0	0	0	0
20:00	1	0	1	0	1	1	0		4	1	2	1
20:15	0	0	0	0	0	0	0		0	0	0	0
20:30	0	0	0	0	0	0	0		0	0	0	0
20:45	0	0	0	0	0	0	0		0	0	0	0
21:00	0	0	0	0	0	1	0		1	0	0	1
21:15	0	0	0	0	0	0	0		0	0	0	0
21:30	0	0	0	0	0	0	0		0	0	0	0
21:45	0	0	0	0	0	0	0		0	0	0	0
Total Count	4	11	13	0	21	11	1		61	15	34	12
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1	1.1
24hr Volume	5	13	15	0	24	13	2		68	17	38	14

Summary Of Pedestrian Count Transportation Development Division

Site: 38451
County: Columbia
City: St. Helens

Date: 9/10/2013
Hours: 6:00 AM-10:00 PM
Highway #: 2744
St Helens St and N 15th
Location: St
Weather: Clear

Milepoint: 0.11
Count Number: 1.00

Time of Day	Pedestrian			
	North	East	South	West
6:00				
6:15				
6:30				
6:45				
7:00	7	23	1	5
7:15				
7:30				
7:45				
8:00	5	17	1	3
8:15				
8:30				
8:45				
9:00	9	3	1	
9:15				
9:30				
9:45				
10:00	4	15	1	2
10:15				
10:30				
10:45				
11:00	4	1	2	
11:15				
11:30				
11:45				
12:00	4	4		1
12:15				
12:30				
12:45				
13:00	1	4	1	2
13:15				
13:30				
13:45				
14:00	5	3		1
14:15				
14:30				
14:45				
15:00	18	53		6
15:15				
15:30				
15:45				
16:00				
16:15				
16:30	6	2	1	

16:45		6		
17:00				
17:15		3	2	
17:30		3		
17:45				
18:00	3		1	
18:15				
18:30				
18:45				
19:00	3	4	2	
19:15				
19:30				
19:45				
20:00		4	2	
20:15				
20:30				
20:45				
21:00	3	1	1	
21:15				
21:30				
21:45				
Total	72	146	16	20

Transportation Development Division Transportation System Monitoring Unit Vehicular Volume

Time settings

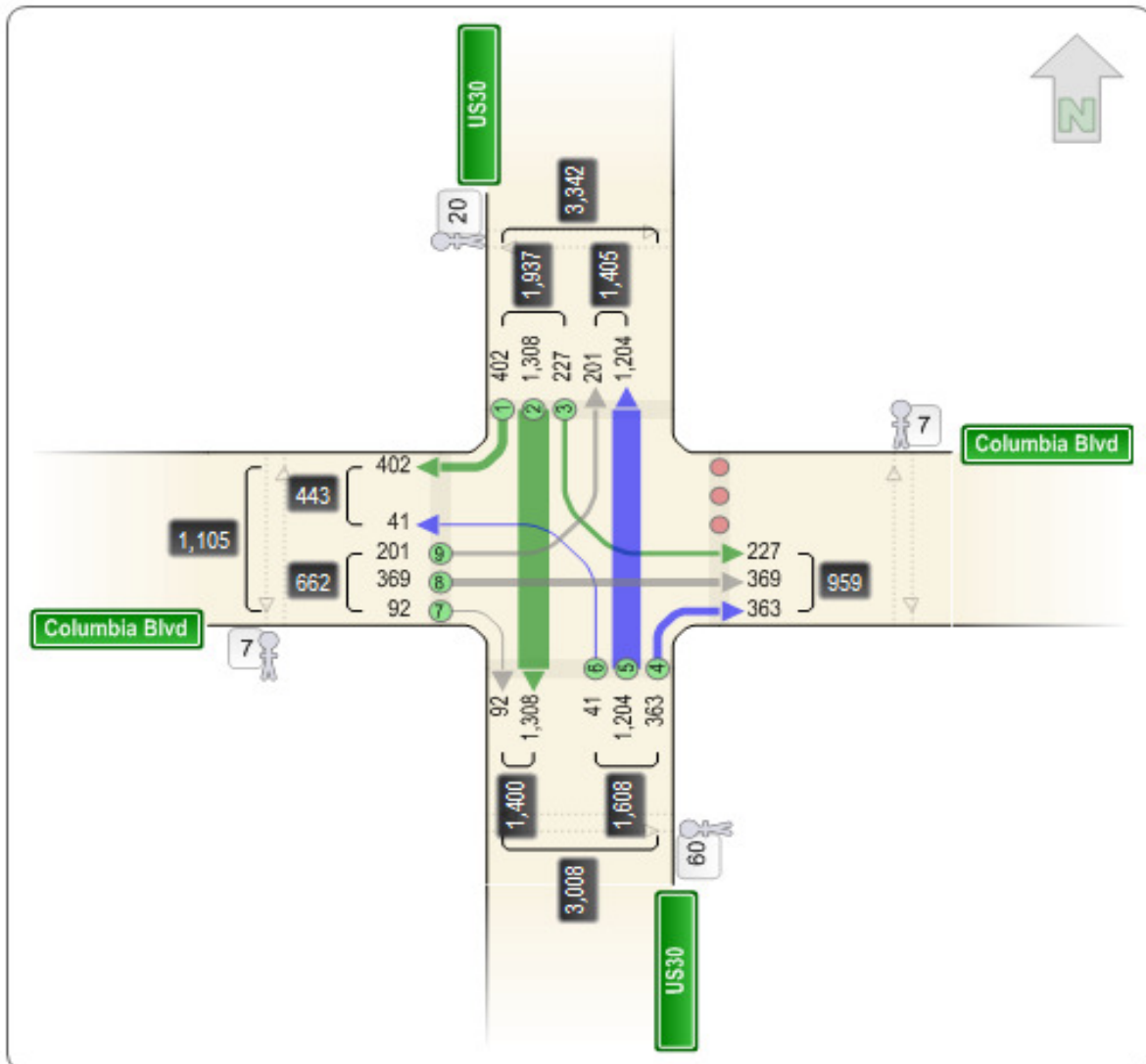
Date: 9/10/2013
Hours: 4:00 PM-6:00 PM
Weather: Clear

Source

Site Number: 38452
Mile Point: 28.56
Street Number: 092
Vehicle Type: Vehicles
Crossing Flow: Pedestrians

Source Description

Location Description: US30 and Columbia Blvd
County: Columbia
City: St. Helens



Summary of Traffic Count Transportation Development Division

Site: 38452
County: Columbia
City: St. Helens

Date: 9/10/2013
Hours: 4:00 PM-6:00 PM
Highway #: 092

Milepoint: 28.56
Count Number: 1.00

Location: US30 and Columbia Blvd
Weather: Clear

Time of Day	Summary By Movements										Entering Volumes		
	N-E	N-S	N-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL	North	South	West
16:00	30	157	42	143	48	3	23	49	19	514	229	194	91
16:15	25	172	51	123	46	7	26	40	6	496	248	176	72
16:30	35	160	57	151	51	5	31	62	11	563	252	207	104
16:45	30	148	43	139	41	6	24	43	11	485	221	186	78
17:00	23	224	55	154	46	5	30	44	16	597	302	205	90
17:15	25	174	47	146	46	5	18	48	10	519	246	197	76
17:30	34	145	42	175	39	7	21	45	9	517	221	221	75
17:45	25	128	65	173	46	3	28	38	10	516	218	222	76
Total Count	227	1308	402	1204	363	41	201	369	92	4207	1937	1608	662
24hr Factor	1	1	1	1	1	1	1	1	1	1	1	1	1
24hr Volume	227	1308	402	1204	363	41	201	369	92	4207	1937	1608	662

Summary Of Bicycle Count Transportation Development Division

Site: 38452
County: Columbia
City: St. Helens

Date: 9/10/2013
Hours: 4:00 PM-6:00 PM
Highway #: 092

Milepoint: 28.56
Count Number: 1.00

Location: US30 and Columbia Blvd
Weather: Clear

Time of Day	Summary By Movements										Entering Volumes		
	N-E	N-S	N-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL	North	South	West
16:00	0	0	0	0	0	0	0	1	0	1	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	1	1	0	0	0	0	0	0	2	2	0	0
16:45	0	1	1	0	0	0	0	1	0	3	2	0	1
17:00	0	0	1	0	0	0	0	0	0	1	1	0	0
17:15	0	0	0	0	0	0	0	1	0	1	0	0	1
17:30	0	1	0	0	0	0	0	1	0	2	1	0	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Count	0	3	3	0	0	0	0	4	0	10	6	0	4
24hr Factor	1	1	1	1	1	1	1	1	1	1	1	1	1
24hr Volume	0	3	3	0	0	0	0	4	0	10	6	0	4

Summary Of Pedestrian Count

Transportation Development Division

Site: 38452
County: Columbia
City: St. Helens

Date: 9/10/2013
Hours: 4:00 PM-6:00 PM
Highway #: 092

Milepoint: 28.56
Count Number: 1.00

Location: US30 and Columbia Blvd
Weather: Clear

Time of Day	Pedestrian			
	North	East	South	West
16:00	4		8	3
16:15	3	1	13	
16:30	6		3	1
16:45	1	2	9	
17:00	2	1	5	
17:15	2		9	
17:30	2	3	11	3
17:45			2	
Total	20	7	60	7

Transportation Development Division Transportation System Monitoring Unit Vehicular Volume

Time settings

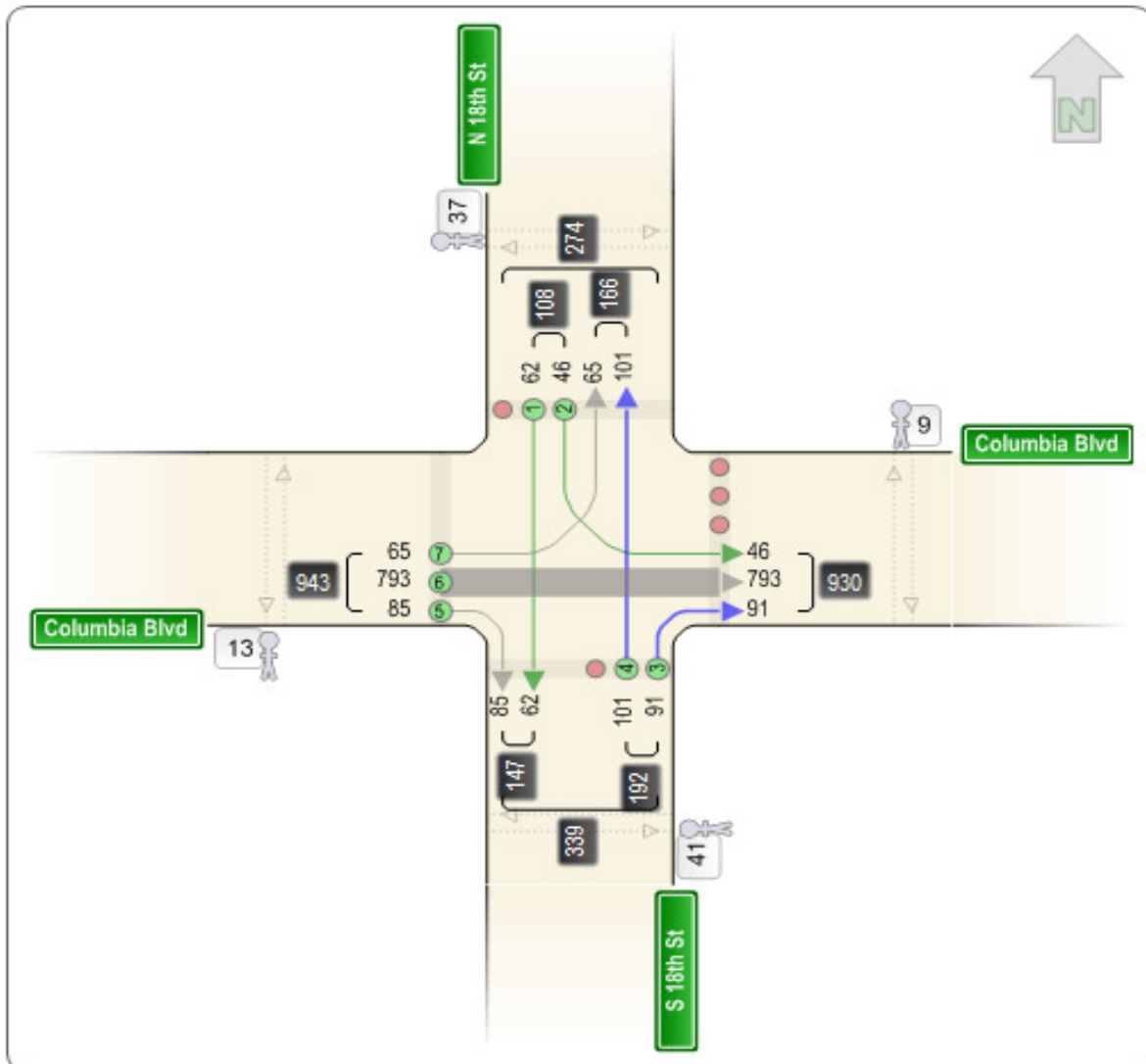
Date: 9/9/2013
Hours: 4:00 PM-6:00 PM
Weather: Clear

Source

Site Number: 38453
Mile Point: 1.53
Street Number: 2718
Vehicle Type: Vehicles
Crossing Flow: Pedestrians

Source Description

Location Description: Columbia Blvd and 18th St
County: Columbia
City: St. Helens



Summary of Traffic Count Transportation Development Division

Site: 38453
 County: Columbia
 City: St. Helens
 Date: 9/9/2013
 Hours: 4:00 PM-6:00 PM
 Highway #: 2718
 Milepoint: 1.53
 Count Number: 1.00
 Location: Columbia Blvd and 18th St
 Weather: Clear

Time of Day	Summary By Movements								Entering Volumes		
	N-E	N-S	S-N	S-E	W-N	W-E	W-S	TOTAL	North	South	West
16:00	9	8	15	11	8	103	10	164	17	26	121
16:15	8	6	8	10	10	113	9	164	14	18	132
16:30	11	14	11	16	9	96	12	169	25	27	117
16:45	6	3	12	14	16	103	13	167	9	26	132
17:00	7	8	17	10	13	92	16	163	15	27	121
17:15	2	14	15	13	4	101	8	157	16	28	113
17:30	3	6	14	9	5	109	11	157	9	23	125
17:45	0	3	9	8	0	76	6	102	3	17	82
Total Count	46	62	101	91	65	793	85	1243	108	192	943
24hr Factor	1	1	1	1	1	1	1	1	1	1	1
24hr Volume	46	62	101	91	65	793	85	1243	108	192	943

Summary Of Bicycle Count Transportation Development Division

<div> <div> Site: 38453 County: Columbia City: St. Helens </div> <div> Date: 9/9/2013 Hours: 4:00 PM-6:00 PM Highway #: 2718 </div> <div> Location: Columbia Blvd and 18th St Weather: Clear </div> </div>											
<div> Milepoint: 1.53 Count Number: 1.00 </div>											
Time of Day	Summary By Movements								Entering Volumes		
	N-E	N-S	S-N	S-E	W-N	W-E	W-S	TOTAL	North	South	West
16:00	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	1	0	1	0	0	1
16:30	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	1	0	1	0	0	1
17:00	0	2	0	0	0	2	1	5	2	0	3
17:15	0	0	0	0	0	3	0	3	0	0	3
17:30	0	0	0	0	0	1	0	1	0	0	1
17:45	0	0	0	0	0	3	0	3	0	0	3
Total Count	0	2	0	0	0	11	1	14	2	0	12
24hr Factor	1	1	1	1	1	1	1	1	1	1	1
24hr Volume	0	2	0	0	0	11	1	14	2	0	12

Summary Of Pedestrian Count Transportation Development Division

Site: 38453
 County: Columbia
 City: St. Helens
 Date: 9/9/2013
 Hours: 4:00 PM-6:00 PM
 Highway #: 2718
 Milepoint: 1.53
 Count Number: 1.00
 Location: Columbia Blvd and 18th St
 Weather: Clear

Time of Day	Pedestrian			
	North	East	South	West
16:00	3	3	7	4
16:15	11	4	7	2
16:30	10		11	2
16:45	6		6	1
17:00			1	
17:15	2		3	3
17:30	3	1	5	
17:45	2	1	1	1
Total	37	9	41	13

Transportation Development Division Transportation System Monitoring Unit Vehicular Volume

Time settings

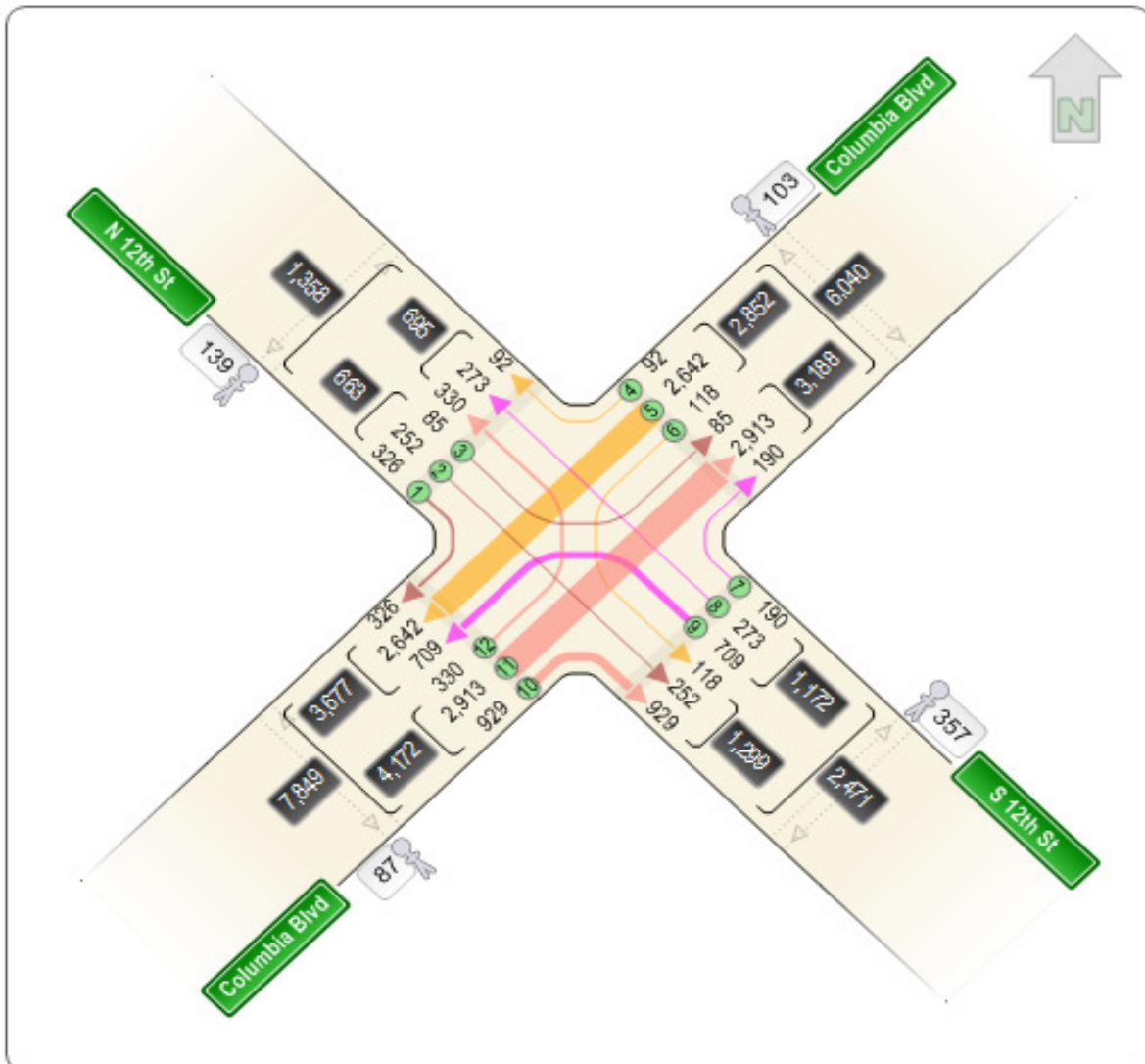
Date: 9/9/2013
Hours: 6:00 AM-10:00 PM
Weather: Clear

Source

Site Number: 38454
Mile Point: 1.88
Street Number: 2718
Vehicle Type: Vehicles
Crossing Flow: Pedestrians

Source Description

Location Description: Columbia Blvd and 12th St
County: Columbia
City: St. Helens



Summary of Traffic Count

Site: 38454
County: Columbia
City: St. Helens

Date: 9/9/2013
Hours: 6:00 AM-10:00 PM
Highway #: 2718

Location: Columbia Blvd and 12th St
Weather: Clear

Milepoint: 1.88
Count Number: 1.00

[illegible]

[illegible]

Summary Of Bicycle Count

Site: 38454
County: Columbia
City: St. Helens

Date: 9/9/2013
Hours: 6:00 AM-10:00 PM
Highway #: 2718

Milepoint: 1.88
Count Number: 1.00

Location: Columbia Blvd and 12th St
Weather: Clear

[illegible]

Summary Of Pedestrian Count Transportation Development Division								
Site: 38454 County: Columbia City: St. Helens				Date: 9/9/2013 Hours: 6:00 AM-10:00 PM Highway #: 2718				
Milepoint: 1.88 Count Number: 1.00				Location: Columbia Blvd and 12th St Weather: Clear				
Time of Day	Pedestrian				North- East	South- East	South- West	North- West
	North- East	South- East	South- West	North- West				
6:00		7	4	2				
6:15								
6:30								
6:45								
7:00	8	21	6	32				
7:15								
7:30								
7:45								
8:00	3	8	3	12				
8:15								
8:30								
8:45								
9:00		14	4					
9:15								
9:30								
9:45								
10:00	8	9	10					
10:15								
10:30								
10:45								
11:00	2	22	11	6				
11:15								
11:30								
11:45								
12:00	4	21	7	4				
12:15								
12:30								
12:45								

13:00	5	36	5	13
13:15				
13:30				
13:45				
14:00	14	67	5	33
14:15				
14:30				
14:45				
15:00	10	34	11	12
15:15				
15:30				
15:45				
16:00	1	8	2	
16:15	3	9		2
16:30	8	7	1	4
16:45		7	2	
17:00	3			1
17:15	3	5		2
17:30	2	3	1	2
17:45		5		
18:00	12	22	7	9
18:15				
18:30				
18:45				
19:00	4	22	2	3
19:15				
19:30				
19:45				
20:00	10	9		1
20:15				
20:30				
20:45				
21:00	3	21	6	1
21:15				
21:30				
21:45				
Total	103	357	87	139

Transportation Development Division Transportation System Monitoring Unit Vehicular Volume

Time settings

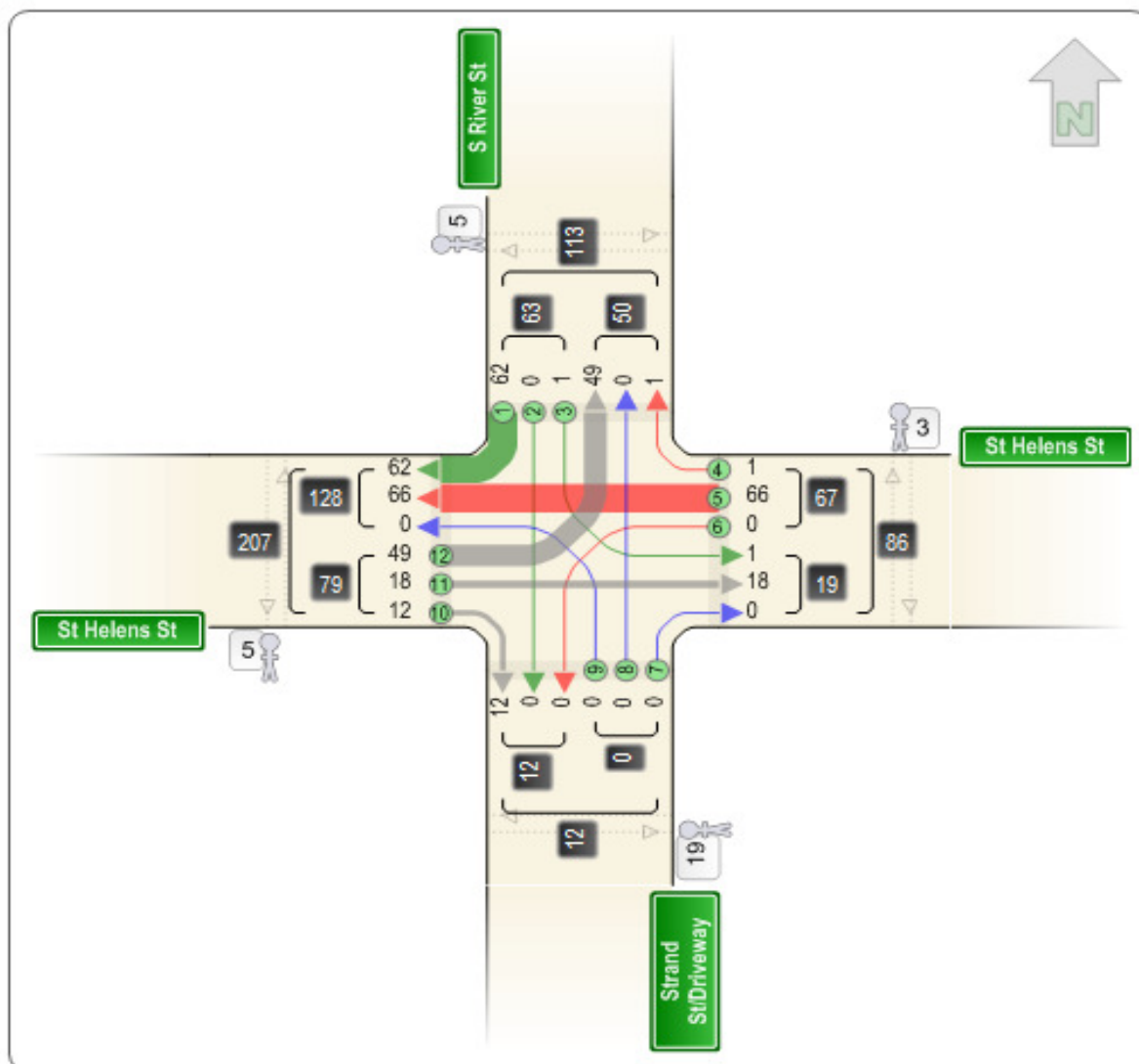
Date: 9/10/2013
Hours: 4:00 AM-6:00 AM
Weather: Clear

Source

Site Number: 38455
Street Number: 000
Vehicle Type: Vehicles
Crossing Flow: Pedestrians

Source Description

Location Description: St Helens St and S River St
County: Columbia
City: St. Helens



Summary of Traffic Count Transportation Development Division																			
Site: 38455				Date: 9/10/2013				County: Columbia				Hours: 4:00 AM-6:00 AM				Location: St Helens St and S River St Weather: Clear			
City: St. Helens				Highway #: 000															
Milepoint:				Count Number: 1.00															
Time of Day	Summary By Movements										Entering Volumes								
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL	North	East	South	West		
4:00	0	0	8	0	0	8	0	0	0	4	6	3	29	8	8	0	13		
4:15	0	0	5	0	0	4	0	0	0	2	3	1	15	5	4	0	6		
4:30	0	0	7	1	0	5	0	0	0	10	2	5	30	7	6	0	17		
4:45	0	0	4	0	0	10	0	0	0	9	2	1	26	4	10	0	12		
5:00	0	0	7	0	0	18	0	0	0	6	1	0	32	7	18	0	7		
5:15	1	0	13	0	0	15	0	0	0	6	1	0	36	14	15	0	7		
5:30	0	0	10	0	0	3	0	0	0	5	1	1	20	10	3	0	7		
5:45	0	0	8	0	0	3	0	0	0	7	2	1	21	8	3	0	10		
Total Count	1	0	62	1	0	66	0	0	0	49	18	12	209	63	67	0	79		
24hr Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
24hr Volume	1	0	62	1	0	66	0	0	0	49	18	12	209	63	67	0	79		

Summary Of Bicycle Count Transportation Development Division																	
Site: 38455 County: Columbia City: St. Helens				Date: 9/10/2013 Hours: 4:00 AM-6:00 AM Highway #: 000				Location: St Helens St and S River St Weather: Clear									
Milepoint: Count Number: 1.00																	
Time of Day	Summary By Movements										Entering Volumes						
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL	North	East	South	West
4:00	0	0	0	0	0	2	0	0	0	0	3	1	6	0	2	0	4
4:15	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	2
4:30	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0
4:45	0	0	0	0	0	1	0	0	0	0	2	0	3	0	1	0	2
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1
5:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Count	0	0	0	0	0	4	0	0	0	0	8	1	13	0	4	0	9
24hr Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24hr Volume	0	0	0	0	0	4	0	0	0	0	8	1	13	0	4	0	9

Summary Of Pedestrian Count Transportation Development Division				
Site: 38455		Date: 9/10/2013		
County: Columbia		Hours: 4:00 AM-6:00 AM		
City: St. Helens		Highway #: 000		
Milepoint:		St Helens St and S River		
Count Number: 1.00		Location: St		
		Weather: Clear		
Time of Day	Pedestrian			
	North	East	South	West
4:00	1	2	2	
4:15	2		3	1
4:30				2
4:45	1	1	5	
5:00			6	
5:15			1	1
5:30	1		2	1
5:45				
Total	5	3	19	5

**Transportation Development Division
Transportation System Monitoring Unit
Vehicular Volume**

Time settings

Date: 9/10/2013-9/11/2013

Hours: 9/10/2013 6:00 AM-9/11/2013 6:00 AM

Weather: Clear

Source

Site Number: 38456

Mile Point: 2.03

Street Number: 2718

Vehicle Type: Vehicles

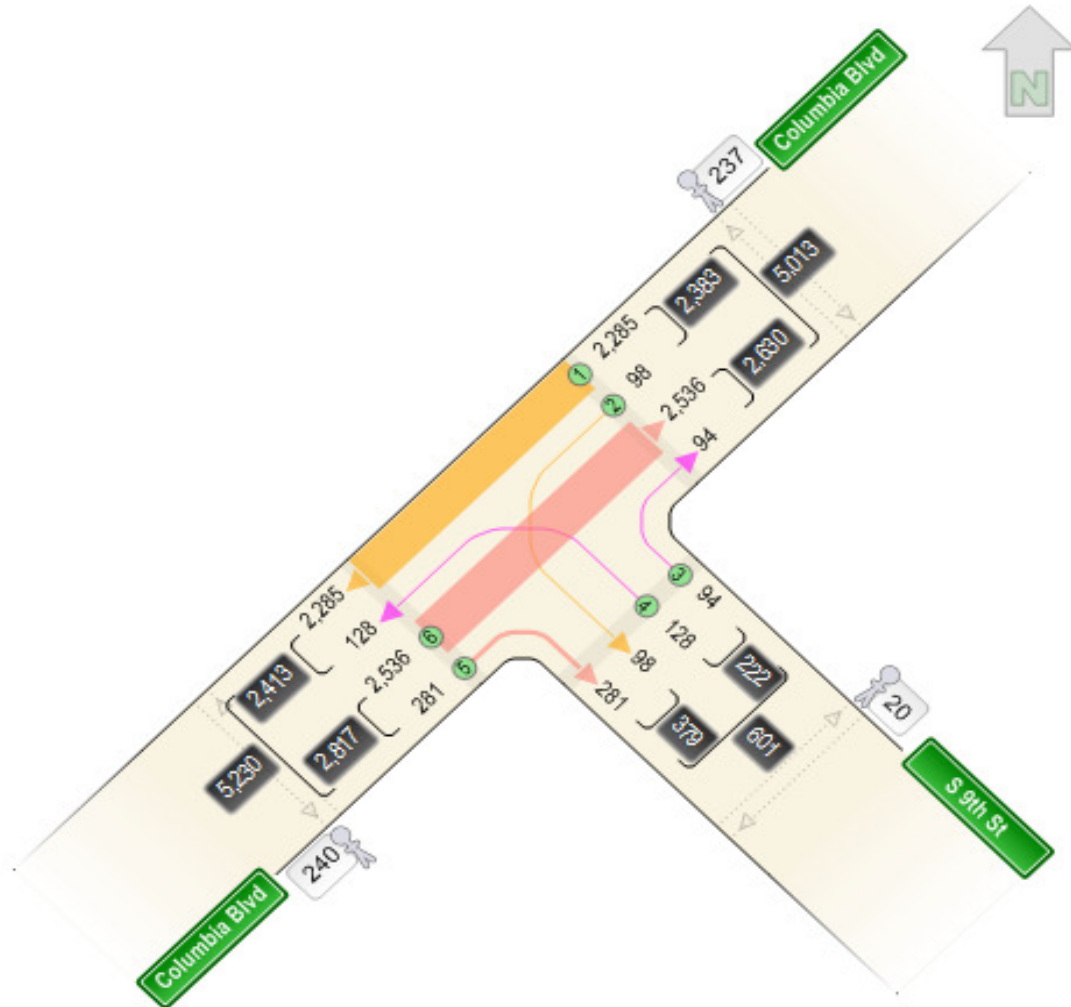
Crossing Flow: Pedestrians

Source Description

Location Description: Columbia Blvd and 9th St

County: Columbia

City: St. Helens



Summary of Traffic Count Transportation Development Division

Site: 38456
County: Columbia
City: St. Helens

Date: 9/10/2013-9/11/2013
Hours: 9/11/2013 6:00 AM
Highway #: 2718

Milepoint: 2.03
Count Number: 1.00

Location: Columbia Blvd and 9th St
Weather: Clear

Time of Day	Summary By Movements							TOTAL	Entering Volumes		
	NE-SE	NE-SW	SE-NE	SE-SW	SW-NE	SW-SE			North-East	South-East	South-West
0:00	0	0	0	0	0	0		0	0	0	0
0:15	0	0	0	0	0	0		0	0	0	0
0:30	0	0	0	0	0	0		0	0	0	0
0:45	0	0	0	0	0	0		0	0	0	0
1:00	0	0	0	0	0	0		0	0	0	0
1:15	0	0	0	0	0	0		0	0	0	0
1:30	0	0	0	0	0	0		0	0	0	0
1:45	0	0	0	0	0	0		0	0	0	0
2:00	0	0	0	0	0	0		0	0	0	0
2:15	0	0	0	0	0	0		0	0	0	0
2:30	0	0	0	0	0	0		0	0	0	0
2:45	0	0	0	0	0	0		0	0	0	0
3:00	0	0	0	0	0	0		0	0	0	0
3:15	0	0	0	0	0	0		0	0	0	0
3:30	0	0	0	0	0	0		0	0	0	0
3:45	0	0	0	0	0	0		0	0	0	0
4:00	0	0	0	0	0	0		0	0	0	0
4:15	0	0	0	0	0	0		0	0	0	0
4:30	0	0	0	0	0	0		0	0	0	0
4:45	0	0	0	0	0	0		0	0	0	0
5:00	0	0	0	0	0	0		0	0	0	0
5:15	0	0	0	0	0	0		0	0	0	0
5:30	0	0	0	0	0	0		0	0	0	0
5:45	0	0	0	0	0	0		0	0	0	0
6:00	1	59	2	2	19	5		88	60	4	24
6:15	0	0	0	0	0	0		0	0	0	0
6:30	0	0	0	0	0	0		0	0	0	0
6:45	0	0	0	0	0	0		0	0	0	0
7:00	52	92	45	40	102	124		455	144	85	226
7:15	0	0	0	0	0	0		0	0	0	0
7:30	0	0	0	0	0	0		0	0	0	0
7:45	0	0	0	0	0	0		0	0	0	0
8:00	2	134	0	8	168	8		320	136	8	176
8:15	0	0	0	0	0	0		0	0	0	0
8:30	0	0	0	0	0	0		0	0	0	0
8:45	0	0	0	0	0	0		0	0	0	0
9:00	2	130	4	6	127	4		273	132	10	131
9:15	0	0	0	0	0	0		0	0	0	0
9:30	0	0	0	0	0	0		0	0	0	0
9:45	0	0	0	0	0	0		0	0	0	0
10:00	4	140	1	9	151	24		329	144	10	175
10:15	0	0	0	0	0	0		0	0	0	0
10:30	0	0	0	0	0	0		0	0	0	0

10:45	0	0	0	0	0	0	0	0	0	0	0
11:00	4	201	3	5	238	25	476	205	8	263	
11:15	0	0	0	0	0	0	0	0	0	0	
11:30	0	0	0	0	0	0	0	0	0	0	
11:45	0	0	0	0	0	0	0	0	0	0	
12:00	5	190	4	8	230	9	446	195	12	239	
12:15	0	0	0	0	0	0	0	0	0	0	
12:30	0	0	0	0	0	0	0	0	0	0	
12:45	0	0	0	0	0	0	0	0	0	0	
13:00	12	216	0	7	203	18	456	228	7	221	
13:15	0	0	0	0	0	0	0	0	0	0	
13:30	0	0	0	0	0	0	0	0	0	0	
13:45	0	0	0	0	0	0	0	0	0	0	
14:00	9	186	26	23	217	30	491	195	49	247	
14:15	0	0	0	0	0	0	0	0	0	0	
14:30	0	0	0	0	0	0	0	0	0	0	
14:45	0	0	0	0	0	0	0	0	0	0	
15:00	2	166	4	6	194	7	379	168	10	201	
15:15	0	0	0	0	0	0	0	0	0	0	
15:30	0	0	0	0	0	0	0	0	0	0	
15:45	0	0	0	0	0	0	0	0	0	0	
16:00	2	44	1	1	49	0	97	46	2	49	
16:15	1	43	0	1	51	2	98	44	1	53	
16:30	0	53	0	0	73	1	127	53	0	74	
16:45	0	34	0	3	56	3	96	34	3	59	
17:00	0	54	2	0	46	1	103	54	2	47	
17:15	0	55	0	0	60	0	115	55	0	60	
17:30	0	36	0	1	41	2	80	36	1	43	
17:45	0	36	0	1	48	3	88	36	1	51	
18:00	0	47	0	1	29	1	78	47	1	30	
18:15	0	40	1	0	36	2	79	40	1	38	
18:30	0	37	0	1	43	1	82	37	1	44	
18:45	0	40	0	1	53	1	95	40	1	54	
19:00	1	110	0	2	132	4	249	111	2	136	
19:15	0	0	0	0	0	3	3	0	0	3	
19:30	0	0	0	0	0	0	0	0	0	0	
19:45	0	0	0	0	0	0	0	0	0	0	
20:00	0	98	0	1	106	3	208	98	1	109	
20:15	0	0	0	0	0	0	0	0	0	0	
20:30	0	0	0	0	0	0	0	0	0	0	
20:45	0	0	0	0	0	0	0	0	0	0	
21:00	1	44	1	1	64	0	111	45	2	64	
21:15	0	0	0	0	0	0	0	0	0	0	
21:30	0	0	0	0	0	0	0	0	0	0	
21:45	0	0	0	0	0	0	0	0	0	0	
22:00	0	0	0	0	0	0	0	0	0	0	
22:15	0	0	0	0	0	0	0	0	0	0	
22:30	0	0	0	0	0	0	0	0	0	0	
22:45	0	0	0	0	0	0	0	0	0	0	
23:00	0	0	0	0	0	0	0	0	0	0	
23:15	0	0	0	0	0	0	0	0	0	0	
23:30	0	0	0	0	0	0	0	0	0	0	
23:45	0	0	0	0	0	0	0	0	0	0	
Total Count	98	2285	94	128	2536	281	5422	2383	222	2817	

24hr Factor	1	1	1	1	1	1		1	1	1	1
24hr Volume	98	2285	94	128	2536	281		5422	2383	222	2817

Summary Of Bicycle Count Transportation Development Division

Site: 38456
County: Columbia
City: St. Helens

Date: 9/10/2013-9/11/2013
Hours: 9/10/2013 6:00 AM-9/11/2013
Highway #: 2718

Milepoint: 2.03
Count Number: 1.00

Location: Columbia Blvd and 9th St
Weather: Clear

Time of Day	Summary By Movements								Entering Volumes		
	NE-SE	NE-SW	SE-NE	SE-SW	SW-NE	SW-SE		TOTAL	North-East	South-East	South-West
0:00	0	0	0	0	0	0		0	0	0	0
0:15	0	0	0	0	0	0		0	0	0	0
0:30	0	0	0	0	0	0		0	0	0	0
0:45	0	0	0	0	0	0		0	0	0	0
1:00	0	0	0	0	0	0		0	0	0	0
1:15	0	0	0	0	0	0		0	0	0	0
1:30	0	0	0	0	0	0		0	0	0	0
1:45	0	0	0	0	0	0		0	0	0	0
2:00	0	0	0	0	0	0		0	0	0	0
2:15	0	0	0	0	0	0		0	0	0	0
2:30	0	0	0	0	0	0		0	0	0	0
2:45	0	0	0	0	0	0		0	0	0	0
3:00	0	0	0	0	0	0		0	0	0	0
3:15	0	0	0	0	0	0		0	0	0	0
3:30	0	0	0	0	0	0		0	0	0	0
3:45	0	0	0	0	0	0		0	0	0	0
4:00	0	0	0	0	0	0		0	0	0	0
4:15	0	0	0	0	0	0		0	0	0	0
4:30	0	0	0	0	0	0		0	0	0	0
4:45	0	0	0	0	0	0		0	0	0	0
5:00	0	0	0	0	0	0		0	0	0	0
5:15	0	0	0	0	0	0		0	0	0	0
5:30	0	0	0	0	0	0		0	0	0	0
5:45	0	0	0	0	0	0		0	0	0	0
6:00	0	0	0	0	0	0		0	0	0	0
6:15	0	0	0	0	0	0		0	0	0	0
6:30	0	0	0	0	0	0		0	0	0	0
6:45	0	0	0	0	0	0		0	0	0	0
7:00	0	0	0	0	0	0		0	0	0	0
7:15	0	0	0	0	0	0		0	0	0	0
7:30	0	0	0	0	0	0		0	0	0	0
7:45	0	0	0	0	0	0		0	0	0	0
8:00	0	0	0	0	0	0		0	0	0	0
8:15	0	0	0	0	0	0		0	0	0	0
8:30	0	0	0	0	0	0		0	0	0	0
8:45	0	0	0	0	0	0		0	0	0	0
9:00	0	0	0	0	0	0		0	0	0	0
9:15	0	0	0	0	0	0		0	0	0	0
9:30	0	0	0	0	0	0		0	0	0	0
9:45	0	0	0	0	0	0		0	0	0	0
10:00	0	0	0	0	0	0		0	0	0	0
10:15	0	0	0	0	0	0		0	0	0	0
10:30	0	0	0	0	0	0		0	0	0	0

24hr Factor	1	1	1	1	1	1		1	1	1	1
24hr Volume	0	0	0	0	0	0		0	0	0	0

Summary Of Pedestrian Count Transportation Development Division

Site: 38456
County: Columbia
City: St. Helens

Date: 9/10/2013-9/11/2013
Hours: 9/11/2013 6:00 AM
Highway #: 2718

Milepoint: 2.03
Count Number: 1.00

Location: Columbia Blvd and 9th St
Weather: Clear

Time of Day	Pedestrian		
	North-East	South-East	South-West
0:00			
0:15			
0:30			
0:45			
1:00			
1:15			
1:30			
1:45			
2:00			
2:15			
2:30			
2:45			
3:00			
3:15			
3:30			
3:45			
4:00			
4:15			
4:30			
4:45			
5:00			
5:15			
5:30			
5:45			
6:00	2		
6:15			
6:30			
6:45			
7:00	42		10
7:15			
7:30			
7:45			
8:00	7	1	9
8:15			
8:30			
8:45			
9:00	24	2	8
9:15			
9:30			
9:45			
10:00	14		13
10:15			
10:30			

10:45			
11:00	16		11
11:15			
11:30			
11:45			
12:00	6	1	3
12:15			
12:30			
12:45			
13:00	10		10
13:15			
13:30			
13:45			
14:00	18	12	76
14:15			
14:30			
14:45			
15:00	4		20
15:15			
15:30			
15:45			
16:00	2		7
16:15	2	1	2
16:30	1	1	6
16:45	4		1
17:00	1		4
17:15	3		5
17:30	1		4
17:45	7		3
18:00	4		6
18:15	3		5
18:30	2		2
18:45	4		3
19:00	21	2	11
19:15	8		
19:30	12		
19:45			
20:00	7		15
20:15			
20:30			
20:45			
21:00	12		6
21:15			
21:30			
21:45			
22:00			
22:15			
22:30			
22:45			
23:00			
23:15			
23:30			
23:45			
Total	237	20	240

Appendix C LTS Data

	Description	Class	Func. Class	One-way	Speed (mph)	# of Lanes*	Lane width**	Lane blockage	Turn Length (ft)	LTS	Notes
1	St. Helens St. from S 4th St to 1st St	Mixed traffic	Minor Arterial		25	2				3	Originally LTS 2, but X factor of diagonal parking bumps up to LTS 3
2	S 1st St from St. Helens to Columbia Blvd.	Mixed traffic	Collector		20	2				2	
3	Columbus Blvd. from S 1st St to S 3rd St	Bike lane with parking	Collector		25	1	15	Rare		1	
4	Columbus Blvd. from S 3rd St to S 4th St	Bike lane with parking	Minor Arterial		25	1	16 EB, 14 WB	Rare		1 EB, 2 WB	Ground measurements would be helpful
5	Columbus Blvd from S 4th St to 5th ST	Bike lane with parking	Minor Arterial		25	1	14	Rare		2	Ground measurements would be helpful
6	Columbus Blvd from S 5th St to 6th ST	Bike lane with parking	Minor Arterial		25	1	13.5 EB, 15 WB	Rare		3 EB, 1 WB	Ground measurements would be helpful
7	Columbus Blvd from S 6th St to 7th St	Bike lane with parking	Minor Arterial		25	1	14 EB, 15 WB	Rare		2 EB, 1 WB	
8	Columbus Blvd. from S 7th to S 9th St	Bike lane no parking	Minor Arterial		25	1	5	Rare		2	Ground measurements would be helpful
9	Columbus Blvd. from S 9th St to 11th St	Bike lane no parking	Minor Arterial		20	1	5.5		EB 90	2	School Zone. Intersection Approach Used for EB, assuming turning speed 15 mph
10	Columbus Blvd. from S 11th St to 12th St	Bike lane with parking	Minor Arterial		20	1	12 EB, 9 WB	Rare		3	School Zone.

	Description	Class	Func. Class	One-way	Speed (mph)	# of Lanes*	Lane width**	Lane blockage	Turn Length (ft)	LTS	Notes
11	Columbus Blvd. from S 12th St to 13th St	Bike lane with parking	Minor Arterial		25	1	12	Rare		3	Ground measurements would be helpful
12	St Helens St. from S 13th St to 14th St	Bike lane with parking	Minor Arterial	One-way	25	1	14	Rare		2	Start of one-way traffic
13	St Helens St. from S 14th to 21st St	Bike lane with parking	Minor Arterial	One-way	25	2	13	Rare		3	Ground measurements would be helpful
14	St Helens St. from S 21st St to US 30	Mixed traffic	Minor Arterial	One-way	25	3		Rare		4	Intersection Approach Used, assuming turning speed 15 mph
15	Columbus Blvd. from Bradley St to US 30	Mixed traffic	Minor Arterial		25	2				4	West leg of Columbia/US 30 analyzed to see EB approach. Intersection Approach Used, shared turn lane.
16	Columbus Blvd. from US 30 to S 19th St	Bike lane with parking	Minor Arterial	One-way	20	2	13	Rare		3	Bus blockage.
17	Columbus Blvd. from S 19th St to S 18th St		Minor Arterial	One-way	20	2	14.5		75	3	Intersection Approach Used, assuming turning speed 15 mph
18	Columbus Blvd. from S 18th St to 13th St	Bike lane with parking	Minor Arterial	One-way	25	2	13	Rare		3	Ground measurements would be helpful
19	US 30 from Pittsburg Rd to Gable Rd	Bike lane no parking	Major Arterial		35	2			All > 150	3	Intersection Approach Used, assuming turning speed 15 mph

* for lanes, counts both direction if mixed traffic, one direction if bike lane

** includes width of parking if there is street parking