



Final Environmental Impact Statement

Downtown and Timmen Landing Subarea Plans

City of La Center, Washington

June 2025





360.263.2782 • Fax 360.263.5700 • www.ci.lacenter.wa.us
210 East Fourth Street • La Center, WA 98629

June 5, 2025

Dear Reader,

The City of La Center is pleased to present the Final Environmental Impact Statement (EIS) for the Downtown and Timmen Landing Subarea Plans. We would like to thank everyone who commented on the Draft EIS and who participated in the process. Publication of this Final EIS follows an approximate two (2) year planning process, including a 30-day public comment period on the Draft EIS (May 1, 2025 to May 31, 2025)

The Downtown and Timmen Landing Subarea Plans will establish a new vision to promote economic and community growth for La Center that will complement existing businesses and incorporate landowner concerns. The City is undertaking the Downtown subarea plan and the Timmen Landing subarea plan as one process that guides the development of both subareas.

The project site is located within the city limits of the City of La Center. The Downtown and Timmen Landing subareas are comprised of 103 and 153 acres, respectively, and are separated by the East Fork Lewis River.

The City of La Center, as the State Environmental Policy Act (SEPA) lead agency, determined the need to prepare the EIS, as required under RCW 43.21C.030(2)(C). "Scoping" was conducted to help identify the elements of the environment to be evaluated in the EIS and to help identify and narrow the range of significant issues to be studied in the EIS.

The City intends to designate the Downtown and Timmen Landing subareas as a single "planned action" as defined under WAC-197-11-164. Future projects developing under the planned action will not require a project threshold determination or EIS at the time of permit application if the probable significant adverse environmental impacts have been adequately addressed with the range of alternatives and mitigation studied in the EIS.

EIS Alternatives:

The City studied two alternatives in the Draft and Final EIS:

- (1) a No-Action alternative that assumes the subarea plans would not be adopted, and development would occur under the current comprehensive plan and zoning, and
- (2) an Action Alternative that assumes the adoption and implementation of the subarea plans. The alternatives were developed based on input provided during the subarea planning process.

The EIS study area includes two subareas. As proposed, the subarea plans will allow for a variety of housing densities and typologies, a greater mix of commercial uses, and transportation and utility improvements. The subarea plans also identify public open space and recreational access improvements and facilities.



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Draft EIS Comments and Revisions to the Final EIS

During the 30-day public comment period (May 1, 2025 through May 31, 2025), The City of La Center received six (6) written comments that expressed concerns such as plants and animals, such as updates to the critical areas code including for wetlands and riparian areas; current trail use and access; a question about an agency's scoping comment; zoning; and development and development opportunity.

All comments received were reviewed and considered for the Final EIS, and responses to each comment are provided in the Final EIS. Where comments and/or new information resulted in changes to the Draft EIS, these revisions are shown in underline and strikethrough in the Final EIS.

The Final EIS can be reviewed at our offices and online at <https://ci.lacenter.wa.us/community/timmen-landing-and-downtown-subarea-plans/>

Next Steps:

The City of La Center has a two up-coming hearings for the adoption of the Downtown and Timmen Landing Subarea Plans, a companion planned action ordinance, and related amendments to the La Center Comprehensive Plan and Municipal Code Title 18.

The Planning Commission hearing for recommendation will be held on June 10, 2025 at 5:30PM and the City Council hearing for the adoption will be held on June 25, 2025 starting at 6:30PM.

Public comments for the recommendation and adoption of the subarea plans will be accepted at the public hearings. To submit comments regarding the plans or to ask questions in advance please contact Angie Merrill, Associate Planner, at 360.263.3654 or amerrill@ci.lacenter.wa.us.

If the plans are adopted, the City will then finalize implementing regulations.

Thank you for your interest in the Downtown and Timmen Landing Subarea Plans and for your participation in the planning and environmental review process.

Sincerely,

Tracy Coleman, Public Works & Community Development Director

City of La Center

FACT SHEET

Project Title

Downtown and Timmen Landing Subarea Plans

Proposed Action

The proposed action by the City of La Center (City) consists of the following elements:

- Adoption of subarea plans for Downtown and Timmen Landing to guide development;
- Adoption of amendments to the La Center Comprehensive Plan, including a comprehensive plan map amendment and supporting policies;
- Adoption of amendments to Title 18, Development Code of the La Center Municipal Code (LCMC), including uses within zoning categories and development of new zoning districts and zoning overlays;
- Adoption of zoning map amendments, including property rezones;
- Adoption of an ordinance designating the Downtown and Timmen Landing subarea plans as a planned action for purposes of future permit review and State Environmental Policy Act (SEPA) compliance; and
- Development of Downtown and Timmen Landing consistent with adopted provisions.

Alternatives

For the purpose of environmental review under SEPA, the environmental impact statement (EIS) considers two alternatives: a “No-Action Alternative” and a “Project Alternative.”

- 1) The No-Action Alternative assumes growth consistent with the La Center Comprehensive Plan 2016-2035 and the City’s land use and development code. This alternative is required under SEPA and provides a benchmark to which the Project Alternative can be compared.
- 2) The Project Alternative assumes that the Downtown and Timmen Landing subarea plans, the planned action ordinance, and the corresponding comprehensive plan and zoning code amendments are adopted, resulting in growth and development consistent with the subarea plans.

Location

The EIS study area is comprised of the Downtown and Timmen Landing subareas, and consists of approximately 256 acres within the city of La Center. See Figure 1 in Chapter 1 of this Final EIS.

Proponent and Lead Agency

City of La Center

Responsible Official

Tracy Coleman, Public Works & Community Development Director, City of La Center

EIS Contact Person

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Required Approvals

City of La Center: Adoption of the subarea plans, planned action ordinance, amendment of the comprehensive plan, and revised development regulations.

Additional approvals would be required in the future for individual projects within the study area.

EIS Authors and Principal Contributors

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Archaeological and Historic Resources Report (Appendix E):

Archaeological Investigations Northwest (AINW)

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Portland, OR 97230

Location of Background Information

City of La Center, City Hall

Prior Environmental Documents, Use of Existing Documents

These environmental documents are incorporated by reference for purposes of SEPA compliance:

- La Center Comprehensive Plan 2016-2035, March 23, 2016, as amended October 13, 2021
- La Center Comprehensive Plan Text & Map Update, SEPA Checklist and Determination of Nonsignificance, March 1, 2016
- La Center Comprehensive Plan Amendment Final Environmental Impact Statement, December 19, 2006

Date of Draft EIS Issuance

May 1, 2025

Draft EIS Public Comment Period

May 1 to May 31, 2025

Final EIS Issuance

June 10, 2025

Availability of Final EIS

A hard copy is available for review at City Hall, 210 East 4th Street, La Center, between 9 am and 4 pm, Monday through Friday. Digital copies are available for review on the project website at ci.lacenter.wa.us/downtown-la-center-and-timmen-landing-subarea-plans/ or by email through request to Angie Merrill at amerrill@ci.lacenter.wa.us or (360) 263-3654.

DISTRIBUTION LIST

The following were provided notice of availability of the Final EIS. Notice was also provided through the City's social media channels, the project website, and in The Columbian newspaper.

Federal Agencies

National Marine Fisheries, PRD Division
Forest Service, US Department of Agriculture, WA
US Army Corps of Engineers, Regulatory Functions
Federal Emergency Management Agency

State Agencies

Washington Department of Archaeology and Historic Preservation
Washington Department of Commerce
Washington Department of Ecology
Washington Department of Fish and Wildlife
Washington Department of Health
Washington Department of Natural Resources
Washington Department of Transportation
Washington Parks & Recreation Commission

Local and Regional Agencies

City of Battleground
City of Camas
City of Ridgefield
City of Vancouver
City of Woodland
Clark County Community and Economic Development
Clark County Parks and Recreation
Clark County Public Health
Clark County Public Works
Clark County Sheriff
Clark Public Utilities
Clark Regional Wastewater District
Clark-Cowlitz Fire and Rescue
Columbia River Economic Development Council
C-TRAN
La Center Community Library
La Center School District
Southwest Washington Clean Air Agency
Southwest Washington Regional Transportation Council
Town of Yacolt

City of La Center

Community Development Department
Public Works Department

Community Stakeholders

Lower Columbia Fish Recovery Board

Century Link

NW Natural

TDS Telecom

Vancouver Wildlife League

Media

The Columbian

Interested Individuals, Property Owners, and Organizations

Interested parties included the Downtown and Timmen Landing Subarea Plans project email list and those who provided contact information with their scoping comments.

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ACRONYMS AND ABBREVIATIONS

AINW	Archaeological Investigations Northwest, Inc.
AMI	Area median income
CARA	Critical aquifer recharge area
CCFR	Clark-Cowlitz Fire Rescue
City	City of La Center (government)
city	city of La Center (geographic location)
DAHP	Washington State Department of Archaeology and Historic Preservation
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EIS	Environmental impact statement
EPA	U.S. Environmental Protection Agency
ERU	Equivalent residential units
GHG	Greenhouse gas
GMA	Growth Management Act
gpm	Gallons per minute
LCMC	La Center municipal code
LCSD	La Center School District
LOS	Level of service
MGD	Million gallons per day
mph	Miles per hour
MTCO _{2e}	Metric tonnes of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PAO	Planned action ordinance
PHS	Priority Habitat and Species
PROS plan	Parks, Recreation and Open Space Comprehensive Plan
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SMP	Shoreline master program
s/veh	seconds per vehicle
SWCAA	Southwest Washington Clean Air Agency
TIFs	Traffic impact fees
TMDL	Total maximum daily load
TWSC	two-way stop-controlled
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
v/c	Volume-to-capacity ratios
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WISAARD	Washington Information System for Architectural and Archaeological Records Data
WSDOT	Washington State Department of Transportation

1.0 SUMMARY

1.1 PURPOSE AND PROPOSAL

The Downtown and Timmen Landing subarea plans will establish a new vision to promote economic and community growth for La Center that will complement existing businesses and incorporate landowner feedback. The City is undertaking the Downtown subarea plan and the Timmen Landing subarea plan as one process that guides the development of both subareas. (Note: herein, “City” refers to the government of La Center, while “city” refers to the geographic location.)

The City intends to designate the Downtown and Timmen Landing subarea plans as a single “planned action” as defined under Washington Administrative Code (WAC) 197-11-164 and has prepared this final environmental impact statement (EIS) to evaluate potential adverse impacts and to identify avoidance, minimization, and mitigation measures. More information about the planned action is provided in Section 1.6.

1.2 FINAL EIS FORMAT

Changes to the Draft EIS were made to address comments and/or reflect new information obtained by the City and are shown in Chapters 2 and 3 with new text in underline (i.e., underline) and deleted text in strikethrough (i.e., ~~strikethrough~~). Minor revisions, such as updating “draft” to “final”, spelling errors, and minor consistency edits are not in underline and strikethrough. Changes to figures are identified by a red “X” through the original figure with the new figure immediately following. Revisions to Chapter 1, Summary, are not in underline and strikethrough for document readability, as it is a summary of the Final EIS. Chapter 4, Draft EIS Comments and Responses, is also not in underline format for document readability, as it is a new chapter specific to the Final EIS.

1.3 STUDY AREA

The project is located in the city of La Center in Clark County, Washington. The Downtown and Timmen Landing subareas are comprised of 103 and 153 acres, respectively, and are separated by the East Fork Lewis River. The EIS study area is comprised of the two subareas, totaling approximately 256 acres, as shown in Figure 1.

The Downtown subarea is generally located within the historic downtown center of commerce, civic life, and adjacent historic neighborhoods. The Timmen Landing subarea is located in western La Center along NW La Center Road, generally between McCormick Creek and the East Fork Lewis River. Timmen Landing is largely undeveloped and contains low-density residential and agricultural uses. Both subareas face the East Fork Lewis River and the La Center Bottoms Natural Area, which are notable natural features in the city and valued components of the community’s identity.

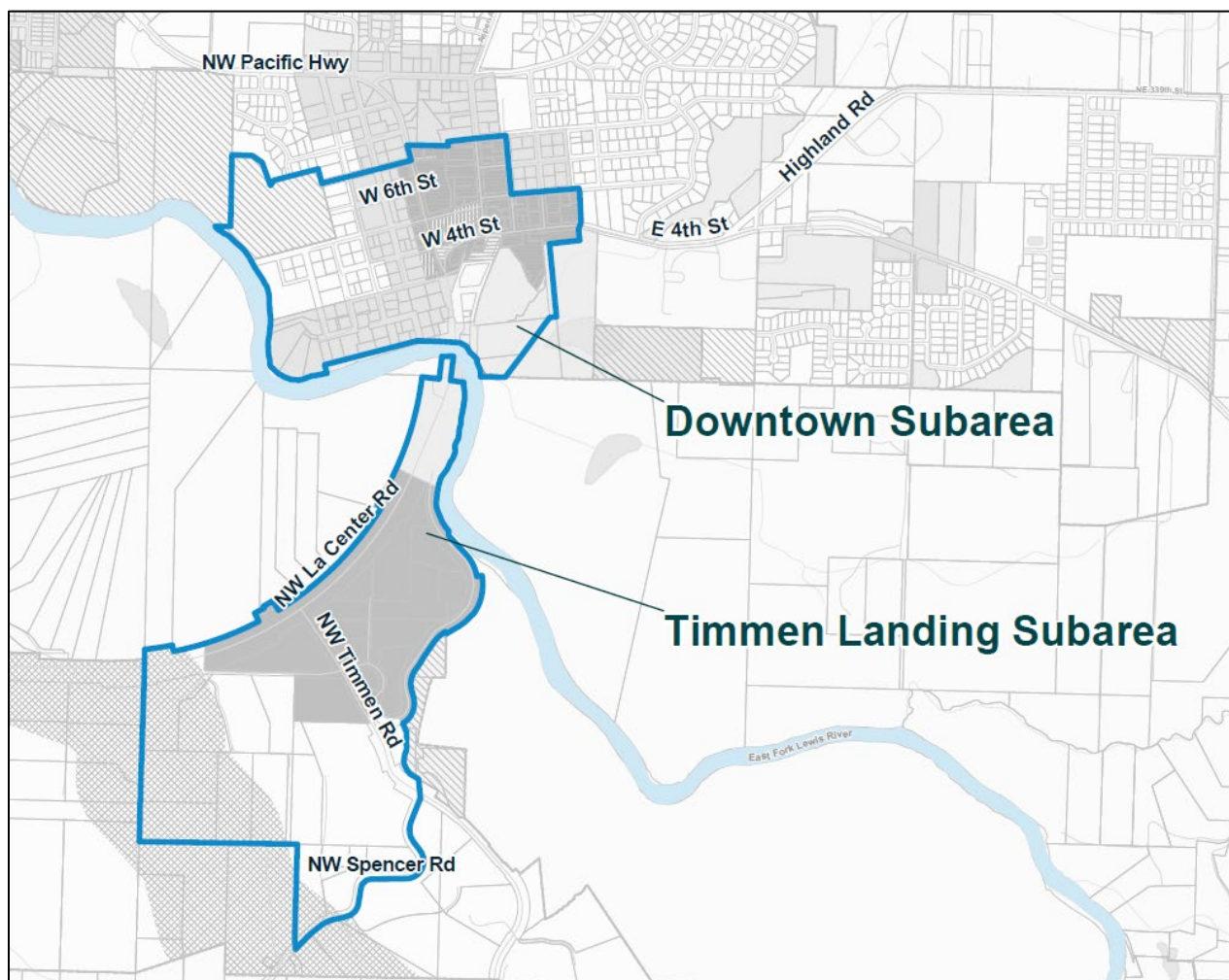
1.4 PLANNING PROCESS

The City’s comprehensive plan, *La Center Comprehensive Plan 2016 – 2035*, identifies downtown La Center and the corner of NW La Center Road and NW Timmen Road as areas to direct future growth in the city. The two subarea plans, Downtown and Timmen Landing, were prepared to fulfill this comprehensive planning goal. Additionally, the subarea plans will diversify La Center’s

economy and housing opportunities to promote economic and community growth as the cardroom industry becomes less significant (but still important within a transitional local economy).

The development of the subarea plans included extensive community and stakeholder outreach over an approximate 18-month period, as further described in Section 1.5. The subarea plans will be adopted into the amended comprehensive plan in summer 2025. Planning Commission and City Council workshops and hearings will occur prior to the adoption date.

Figure 1. Study Area



1.5 COMMUNITY ENGAGEMENT AND PUBLIC COMMENT OPPORTUNITIES

A comprehensive community engagement program was conducted throughout the project duration. The purpose of the program is to solicit community input to inform the City and project team in the subarea planning process. Activities have included four tabling events, four Community Advisory Committee meetings, four focus groups, an online survey, and two community open houses.

The Community Advisory Committee meetings were held from late 2023 through fall 2024 at key milestones in project development. These meetings brought together community leaders, stakeholders, and residents to discuss ongoing projects and initiatives.

Tabling events were conducted at various community locations to gather input and feedback from residents and the broader community. These events were instrumental in reaching a diverse audience and collecting valuable information on community needs and preferences.

The four focus groups were conducted to engage property owners, developers, and service providers in conversation about the draft concept plans. An online survey was also developed to hear from the community about their vision for the two subareas to help inform the project team's understanding and approach.

Lastly, community open houses were conducted on March 20, 2024, and January 15, 2025. The first open house engaged residents in an interactive session on the draft vision statements and concept plans for the Downtown and Timmen Landing subareas. The second community open house presented and solicited input on the revised concept plans. The second open house was also used to collect comments about the scope of this Final EIS. A summary of scoping comments is provided in Appendix B.

The public will be able to comment on the subarea plans during the public hearings with the Planning Commission and City Council prior to adoption. In addition, public feedback was sought on the Draft EIS during the public comment period. This Final EIS includes the public and agency comments received and provides responses to those comments (see Chapter 4).

1.6 PLANNED ACTION

The City is proposing that future development within the Downtown and Timmen Landing subareas be designated a “planned action” as defined under WAC 197-11-164. Review of future projects in the subareas would be simpler and more focused than for other projects, and would occur consistent with WAC 197-11-172. As a planned action, future development applications that are determined by the City to be consistent with the subarea plans and this EIS would not require a Washington State Environmental Policy Act (SEPA) threshold determination or EIS. If a proposed development at the time of permit application is not consistent with what is envisioned in the plans and analyzed in the EIS, then additional environmental analysis and a determination under SEPA would be required.

Cities and counties planning under the Growth Management Act (GMA) are given the authority to designated planned actions per Revised Code of Washington (RCW) 43.21C.440. Planned actions, defined under RCW 43.21C.440 and WAC 197-11-164, are projects that:

- Are designated planned actions by an adopted ordinance or resolution.
- Significant environmental impacts have been adequately addressed in an EIS prepared in conjunction with a comprehensive plan or subarea plan adopted under RCW 36.70A, or a master planned development or a phased project.
- Are subsequent to or are implementing projects for the plans listed above.
- Are located within an urban growth area, as defined in RCW 36.70A.030.
- Are not essential public facilities, as defined in RCW 36.70A.200.
- Are consistent with a comprehensive plan adopted under RCW 36.70A.

1.7 SUMMARY OF IMPACTS, BENEFITS, AND MITIGATION

Table 1 summarizes the impacts, benefits, and mitigation measures that would potentially result from the Project Alternative analyzed in this EIS.

Table 1. Summary of Impacts, Benefits, and Mitigation Measures by Alternative

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
Land & Shoreline Use			
No-Action	<ul style="list-style-type: none"> An increase of 537 residential units, 1,192 residents, and 491 jobs in the study area. Increased development-related land use and shoreline impacts. Inconsistent with countywide planning policies regarding densification, 20-year growth projections, and encouraging land use to diversify housing typology. Inconsistent with affordable housing needs as required by GMA. Inconsistent with comprehensive plan policies directing growth to downtown and the intersection of NW La Center Road and NW Timmen Road. Incohesive development of infrastructure and connectivity improvements. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> LCMC Title 12, Streets, Sidewalks, and Public Ways; Title 15, Buildings and Construction; Title 18, including Chapter 18.240, Mitigation of Adverse Impact, and Chapter 18.330, Shorelines. 	None
Project Alternative	<ul style="list-style-type: none"> An increase of 986 residential units, 2,189 population, and 563 jobs in the study area. Increased development-related land use and shoreline impacts than the No-Action. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Same as No-Action. <p>Included in the Subarea Plans:</p> <ul style="list-style-type: none"> Action Item: Adopt the Downtown and Timmen Landing subarea plans by reference into the La Center 	None

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
	<ul style="list-style-type: none"> • Intensification of existing land use patterns. • Displacement of existing uses through redevelopment. • Comprehensive plan map amendments from commercial to residential; commercial to mixed use; mixed use to residential; and residential to mixed use. • Rezoning of land from commercial to residential; commercial to mixed use; mixed use to residential; and residential to mixed use. • Some existing uses would become legal, non-conforming uses following the rezoning of properties. 	<p>Comprehensive Plan. Review existing comprehensive plan goals and policies to reference the subarea visions.</p> <ul style="list-style-type: none"> • Action Item: Amend the LCMC to codify the recommended code and zoning amendments, including limited use criteria for concessionaires, and establish recommended overlay zone. Implement recommended design guidelines to ensure future development reflects the subarea visions. • Downtown Land Use Goal: Concentrate mixed-density development in the downtown core to support access to diverse housing opportunities, local shops, and town history. • Timmen Landing Land Use Goal: Create a residential community that supports future population growth by forming higher-density housing in the core and lower-density on the subarea edges. • Subarea-Wide Environmental Goal: Protect and manage environmentally sensitive areas with practices based on best available science. 	

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
Transportation			
No-Action	<ul style="list-style-type: none"> Population growth would cause 2 intersections to operate below the City's mobility standard, although most would continue to meet mobility standards. The La Center transportation capital facilities plan identifies several planned improvement projects within or near the subareas. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Development that would cause transportation operations to exceed adopted mobility targets would be required by the City to provide mitigation. Development would be required to pay traffic impact fees pursuant to LCMC Chapter 3.35. Development would be required to meet off-street parking and loading requirements, LCMC Chapter 18.280. 	Two intersections would not meet the City's mobility standard.
Project Alternative	<ul style="list-style-type: none"> Population and jobs growth would cause 7 intersections to operate below the City's mobility standard, although most would continue to meet mobility standards. A new bus stop would be located at the La Center/Timmen Road junction. The grid network in the northwestern portion of the Downtown subarea would include full road width improvements, including sidewalks. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Same as No-Action. <p>Included in the Subarea Plans:</p> <ul style="list-style-type: none"> Mitigation treatments proposed at several intersections. Subarea-Wide Transportation Goal: Expand the existing road network to support future residential development. Downtown Transportation Goal: Improve pedestrian, transit, and recreational access between 	<p>Without mitigation, seven intersections would not meet the mobility standard.</p> <p>With proposed mitigation, all intersections would meet the mobility standard.</p>

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
	<ul style="list-style-type: none"> New pedestrian pathways would be built to improve connectivity to the proposed plaza. New trail connections along the river to the west and south. 	<p>downtown and outlying neighborhoods.</p> <ul style="list-style-type: none"> Timmen Landing Transportation Goal: Create a pedestrian-oriented community while enhancing motorized vehicle access to regional job opportunities. 	
Historic & Cultural Resources			
No-Action	<ul style="list-style-type: none"> New development or redevelopment could impact historic structures, specifically along the alignment of the former Pacific Highway (present-day NW Pollock Road) in Timmen Landing. There are several structures in Downtown that could be NRHP eligible that may be impacted. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Section 106 of the NHPA Section 4(f) of the U.S. Department of Transportation Act Governor’s Executive Order 21-02, Archaeological and Cultural Resources Chapter 27.44 RCW, Indian Graves and Records Chapter 27.48 RCW, Preservation of Historic Materials Chapter 27.53 RCW, Archaeological Sites and Resources Chapter 68.60 RCW, Abandoned and Historic Cemeteries and Historic Graves Chapter 25.48 WAC, Archaeological Excavation and Removal Permit 	None

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
		<ul style="list-style-type: none"> LCMC Chapter 18.360, Archaeological Resource Protection 	
Project Alternative	<ul style="list-style-type: none"> Similar to the No-Action, but the increased development and redevelopment may have a greater impact on historic structures and archeological sites. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Same as No-Action. <p>Included in the Subarea Plans:</p> <ul style="list-style-type: none"> Action Item: Conduct archaeological predetermination-level studies for areas that have not yet been investigated and where future developments are proposed within the subareas, including John Pollock's Grave site in Timmen Landing. Downtown Land Use Policies: <ul style="list-style-type: none"> Encourage a compact, active "heart" for the city that thrives through new mixed-use development, multi-family residential, office, retail, restaurants, public facilities and historic sites. Promote placemaking and local identity by creating a pedestrian plaza that connects historic sites between W 6th Street and recreational opportunities on the East Fork River. Maintain the quaint, historic downtown character by retaining 	None

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
		and remodeling existing vacant commercial buildings.	
Public Services			
No-Action	<ul style="list-style-type: none"> 298 new students would be generated: 159 elementary, 67 middle school, and 72 high school students. The new students would exceed capacity at the elementary school and further strain the already overcapacity high school. An increased population will impact law enforcement services. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Development would be required to pay school impact fees pursuant to LCMC Chapter 3.35, Impact Fees. CCFR annual report of service level performance to monitor service level impacts pursuant to RCW 35.103.040. 	None
Project Alternative	<ul style="list-style-type: none"> 16 acres of parks and open space will be added, ensuring that service level standards for parks will continue to be met. 478 new students would be generated: 254 elementary, 107 middle school, and 117 high school students. The new students would exceed existing capacity at all schools. An increased population will result in impacts to law enforcement services greater than the No-Action Alternative. An increase in the amount of park acreage, trails, natural resource linkages, and recreational activities 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Same as No-Action. Additional capacity needs will be planned through LCSD's capital facilities planning to ensure adequate LOS at LCSD facilities. <p>Included in the Subarea Plans:</p> <ul style="list-style-type: none"> Additional 16 acres of parks/open space. Subarea-Wide Environmental Policy: Continue to work with agencies and organizations, such as the Lower Columbia Restoration Estuary Partnership and the East Fork Lewis River Partnership, to identify restoration opportunities along for 	None

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
	<p>will accommodate the intensified growth.</p> <ul style="list-style-type: none"> Police, fire, and emergency services may become more efficient as the subarea plans promote compact growth and reduce growth in outlying areas. Development of the subareas would result in additional tax revenues, including construction and retail sales tax, property tax, utility tax, licenses and permits, and other fees. 	<p>the East Fork Lewis River and other habitat areas.</p> <ul style="list-style-type: none"> Downtown Land Use Policy: Promote placemaking and local identity by creating a pedestrian plaza that connects historic sites between W 6th Street and recreational opportunities on the East Fork River. Downtown Transportation Policy: Encourage walkable, bikeable, and non-motorized access between the pedestrian plaza and the East Fork Lewis River. Action Item: Update the City PROS Plan to incorporate park and trail locations proposed in the Downtown and Timmen Landing subarea plans. Action Item: Coordinate the refinement of park and trail locations with future development proposals. 	
Utilities			
No-Action	<ul style="list-style-type: none"> Increase in utility demand (water, sewer, stormwater, etc.) compared to existing conditions due to population growth. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> New water service connections will require payment of connection fees and system development charges to mitigate for development impacts to 	

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
		<p>source, supply, and storage capacities.</p> <ul style="list-style-type: none"> • New development would be required to meet Department of Health and City municipal code standards that would, at a minimum, maintain existing system performance. • Required improvements would be included in the Capital Improvement Plan. 	
Project Alternative	<ul style="list-style-type: none"> • Greater increase in utility demand (water, sewer, stormwater, etc.) compared to No-Action due to larger population growth. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> • Same as No-Action. <p>Included in the Subarea Plans:</p> <ul style="list-style-type: none"> • Develop a stormwater detention pond at Pollock Park, as shown in Figure 2. • Ensure that new developments comply with LCMC 18.320, Stormwater and Erosion Control, as there are no existing stormwater facilities in Timmen Landing. • Formally adopt the 2023 Sewer Collection and Treatment Master Plan to address the flows of the subareas along with the proposed loadings. • Connect the existing septic system in Timmen Landing to the City sewer collection system. 	

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
		<ul style="list-style-type: none"> Complete and adopt a formal Stormwater Master Plan, including a map of the existing system, review of design criteria for new development, and recommendations for new development in the development code (LCMC). Complete a review of the CPU water system plan to verify that demand estimates are aligned with Planning, and that peak day demands in the subareas can be met independently from the 12-inch river crossing. 	
Air			
No-Action	<ul style="list-style-type: none"> Higher-intensity development and more vehicle trips would increase air emissions. Development would create approximately 1,275,000 MTCO₂e, which would be lower than the Project Alternative. However, per capita emissions (1,070 MTCO₂e) would be higher than the Project Alternative. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Compliance with federal, state, and local air quality rules, including NAAQS and National Emission Standard for Asbestos. Federal and state regulations related to safe removal and disposal of asbestos-containing materials. 	None
Project Alternative	<ul style="list-style-type: none"> Adoption of the subarea plans would result in an increase in residential units and population, increasing air emissions associated 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Same as No-Action. <p>Included in the Subarea Plans:</p>	None

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
	<p>with development and human activity.</p> <ul style="list-style-type: none"> Development would create approximately 1,980,000 MTCO₂e, which would be higher than the No-Action Alternative. Per capita emissions (904 MTCO₂e) would be lower than the No-Action Alternative. 	<ul style="list-style-type: none"> Subarea-Wide Transportation Goal: Expand the existing road network to support future residential development. Downtown Transportation Goal: Improve pedestrian, transit, and recreational access between downtown and outlying neighborhoods. Timmen Landing Transportation Goal: Create a pedestrian-oriented community while enhancing motorized vehicle access to regional job opportunities. 	
Earth			
No-Action	<ul style="list-style-type: none"> Increased development and population growth would increase ground/soil disturbance, changes in topography, and new development in and/or near geologically hazardous areas. Increase in development activities, including clearing, grading, and erosion. Increase in impervious surfaces to support infrastructure and road networks associated with new development. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Clean Water Act Safe Drinking Water Act National Pollution Discharge Elimination System permits Washington State Stormwater Management Manual for Western Washington Washington State Water Pollution Control Act of 1971 LCMC Chapters 18.300, Critical Areas, and 18.320, Stormwater and Erosion Control 	None

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
		<ul style="list-style-type: none"> Where required, additional site investigation of potential soil/groundwater contamination, cleanup, handling and disposal of contamination. 	
Project Alternative	<ul style="list-style-type: none"> Increased development compared to existing conditions and the No-Action Alternative, with the potential for increased direct and indirect effects (described above). 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Same as No-Action. <p>Included in the Subarea Plans:</p> <ul style="list-style-type: none"> Subarea-Wide Environmental Goal: Protect and manage environmentally sensitive areas with practices based on best available science. Action Item: Perform a critical areas delineation for catalyst sites to identify the locations and types of potential development limitations form critical areas. 	None
Water			
No-Action	<ul style="list-style-type: none"> Increased development has a greater impact for surface water runoff and potential pollution and disturbance to water resources. Increased impervious surface area and soil compaction would decrease opportunities for infiltration and groundwater recharge. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Clean Water Act Safe Drinking Water Act La Center Shoreline Master Program LCMC Chapters 18.300, Critical Areas, and 18.320, Stormwater and Erosion Control 	None

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
	<ul style="list-style-type: none"> Potential impacts to wetlands associated with future development under each alternative could include impacts to wetland hydrology, degradation due to temporary construction impacts, and loss of wetland habitat 		
Project Alternative	<ul style="list-style-type: none"> Increased development compared to existing conditions and the No-Action Alternative, with the potential for increased direct and indirect effects (described above). 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Same as No-Action. <p>Included in the Subarea Plans:</p> <ul style="list-style-type: none"> Subarea-Wide Environmental Goal: Protect and manage environmentally sensitive areas with practices based on best available science. Action Item: Perform a critical areas delineation for catalyst sites to identify the locations and types of potential development limitations from critical areas. Action Item: Develop a stormwater detention pond at Pollock Park, as shown in Figure 2. Action Item: Ensure that new developments comply with LCMC 18.320, Stormwater and Erosion Control, as there are no existing stormwater facilities in Timmen Landing. 	None

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
		<ul style="list-style-type: none"> Action Item: Connect the existing septic system in Timmen Landing to the City sewer collection system. Action Item: Complete and adopt a formal Stormwater Master Plan, including a map of the existing system, review of design criteria for new development, and recommendations for new development in the development code (LCMC). 	
Plants & Animals			
No-Action	<ul style="list-style-type: none"> Increased development compared to existing conditions (but less than the Project Alternative), with the potential for direct and indirect effects to habitat and wildlife through increases in impervious surfaces, stormwater runoff, noise, and other impacts associated with more human activity. 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Endangered Species Act Migratory Bird Treaty Act Bald and Golden Eagle Protection Act LCMC 12.235.060, Landscaping Requirements; LCMC Chapter 18.300, Critical Areas; 18.320, Stormwater and Erosion Control; 18.350, Tree Protection; 18.340, Native Plant List 	None.
Project Alternative	<ul style="list-style-type: none"> Increased development compared to existing conditions and the No-Action Alternative, with the potential for increased direct and indirect effects (described above). 	<p>Existing Regulations and Other Mitigation:</p> <ul style="list-style-type: none"> Same as No-Action. <p>Included in the Subarea Plans:</p>	None.

Resource	Potential Benefits and Impacts	Potential Avoidance, Minimization, and Mitigation Measures	Significant Unavoidable Adverse Impacts
		<ul style="list-style-type: none"> • Subarea-Wide Environmental Goal: Protect and manage environmentally sensitive areas with practices based on best available science. • Action Item: Perform a critical areas delineation for catalyst sites to identify the locations and types of potential development limitations form critical areas. 	

For acronyms and abbreviations used in this table, please refer to the Acronyms and Abbreviations list.

1.8 POTENTIAL CUMULATIVE EFFECTS

The City's development review map was used to identify projects in review, approved, and under construction within approximately a ½ mile of the study area. A ½ mile radius is the area in which other development is proximate enough to the study area that potential impacts to traffic, utilities, habitat, and other environmental resources, could overlap. Projects were reviewed to determine whether they had the potential to contribute to cumulative impacts when potential impacts from the proposed action are combined with other nearby development. Proposals considered are identified in Table 2.

Table 2. Other Projects Within 1/2 Mile of the Study Area

Proposal	Project Status	Location
Larsen Subdivision – 41 lot single-family subdivision	Engineering review	NW Pacific Highway, directly east of Riverside Estates
Juniper Ridge Subdivision – 65 lot single-family subdivision with rezone	Preliminary review	34077 & 34017 NW 9th Avenue, La Center
Breeze Creek Subdivision – 15 lot single-family subdivision	Subdivision approved with conditions. The application is in engineering review.	South of La Center Elementary School, west of Holley Park Subdivision.
Pacific Highway Short Plat/Duplex	Pre-application	725 NW Pacific Highway, La Center
Fortune Casino Addition – 1,159 square foot, single-story addition to existing casino	Final site plan review	Fortune Casino; 318 NW Pacific Highway, La Center
Relyea Subdivision – 168 lot single-family subdivision	Pre-application	31010, 31012 & 310018 NW Spencer Road, Ridgefield
NW 9th Avenue Subdivision – 82 lot subdivision with mix of single-family detached and attached dwellings and rezone.	Pre-application	33901 NW Pacific Highway, La Center

The identified projects will typically require individual SEPA review to assess impacts and provide recommended mitigation. Given the scale and number of development proposals within the project vicinity, the proposed action together with other planned development is not anticipated to result in impacts different or greater than those otherwise identified in the effects analysis.

2.0 ALTERNATIVES

This Planned Action EIS evaluates two alternatives:

- 1) The No-Action alternative assumes the subarea plans would not be adopted, and development would occur under the current comprehensive plan and zoning.
- 2) The Project Alternative assumes the adoption and implementation of the subarea plans. The alternatives were developed based on input provided during the subarea planning process.

Table 3 summarizes the development totals proposed under each alternative and the sections that follow include additional details. The methodology and assumptions used to determine the development totals are discussed in Appendix C.

Table 3. Summary of Alternatives

	No-Action Alternative	Project Alternative
Population	1,192 Downtown: 439 Timmen Landing: 753	2,189 Downtown: 866 Timmen Landing: 1,323
Housing Units	537 Downtown: 198 Timmen Landing: 339	986 Downtown: 390 Timmen Landing: 596
Jobs	491 Downtown: 430 Timmen Landing: 61	563 Downtown: 408 Timmen Landing: 155
Land Use Designation – Net Acres¹ (except P/OS)		
Lower Density Residential	26 acres Downtown: 6 acres Timmen Landing: 20 acres	50 acres Downtown: 19 acres Timmen Landing: 31 acres
Higher Density Residential	0 acres Downtown: 0 acres Timmen Landing: 0 acres	19 acres Downtown: 6 acres Timmen Landing: 13 acres
Mixed Use	25 acres Downtown: 7 acres Timmen Landing: 18 acres	4 acres Downtown: 4 acres Timmen Landing: 0 acres
Commercial	9 acres Downtown: 9 acres Timmen Landing: 0 acres	6 acres Downtown: 6 acres Timmen Landing: 0 acres ⁶
Parks and Open Space	22 acres Downtown: 15 acres Timmen Landing: 7 acres	38 acres Downtown: 24 acres Timmen Landing: 14 acres
Public Facilities	3 acres Downtown: 3 acres Timmen Landing: 0 acres	3 acres Downtown: 3 acres Timmen Landing: 0 acres

Source: See Appendix C.

2.1 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, and as further described in the Section 3.1, the current land use designations as shown in Figure 2 and Figure 3 would remain the same. Development throughout the study area would occur parcel-by-parcel, consistent with current land use and zoning designations. Individual property owners would propose to develop or redevelop based on perceived market opportunities and their individual goals for their properties.

Because development under the No-Action Alternative would not be part of adopted subarea plans and planned action ordinance, future applicants would be required to pursue a SEPA threshold determination for each individual project. Any required mitigation would be decided project-by-project. Utility infrastructure and transportation improvements would occur as planned in existing capital improvement and transportation plans and as necessary to support future development.

Compared to the Project Alternative, the No-Action Alternative would result in fewer residential units, population, and jobs through 2045. However, housing and population growth would still occur (compared to existing conditions). The No-Action Alternative would have less land designated for lower and higher density residential and parks and open space than the Project Alternative. While the No-Action Alternative would have more lands designated for mixed-use and commercial, it is anticipated it would have less jobs than the Project Action based on current development trends. Please see Appendix C for the assumptions and methodology used to develop the No-Action Alternative.

Figure 2. No-Action Alternative in Downtown

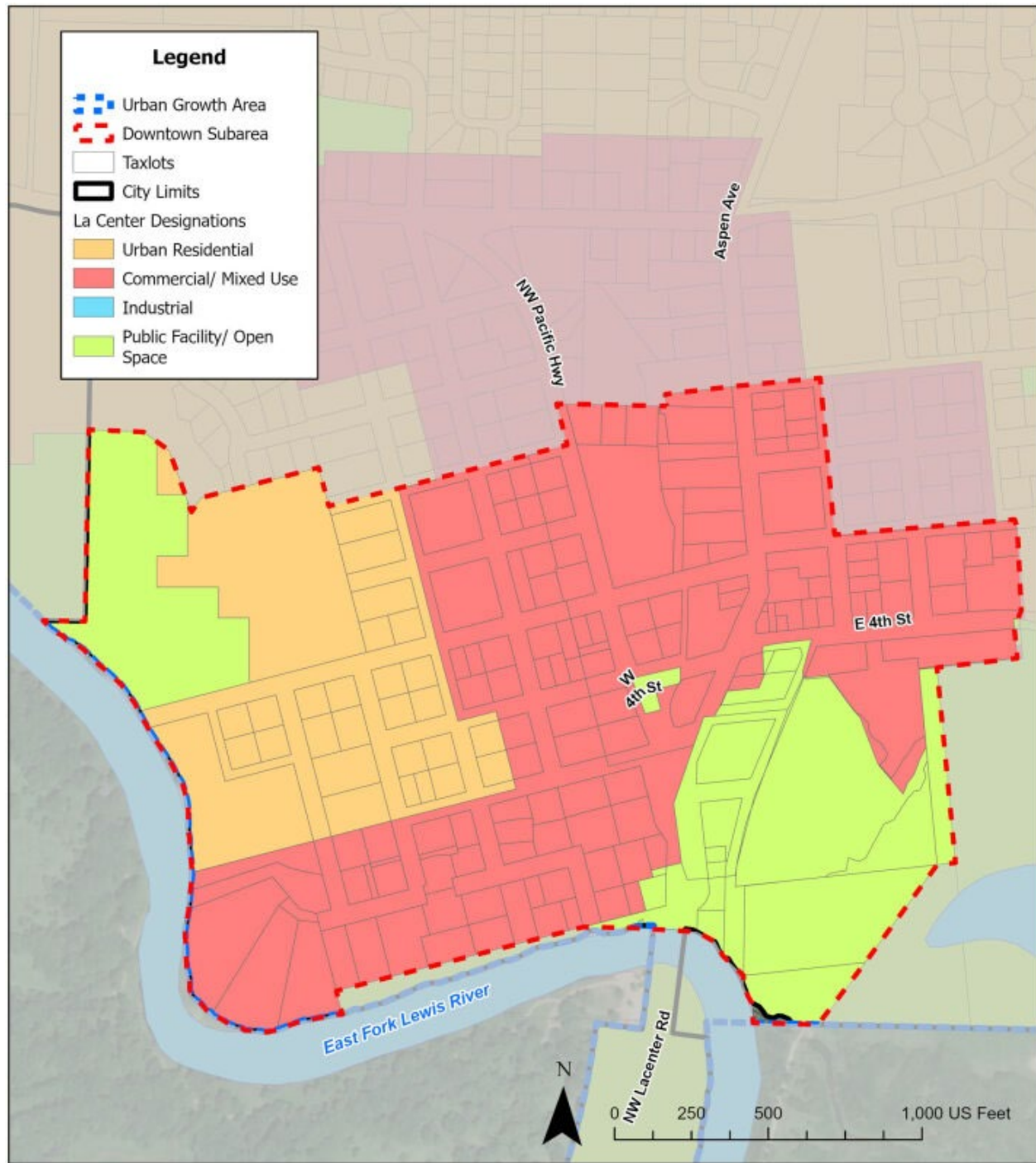
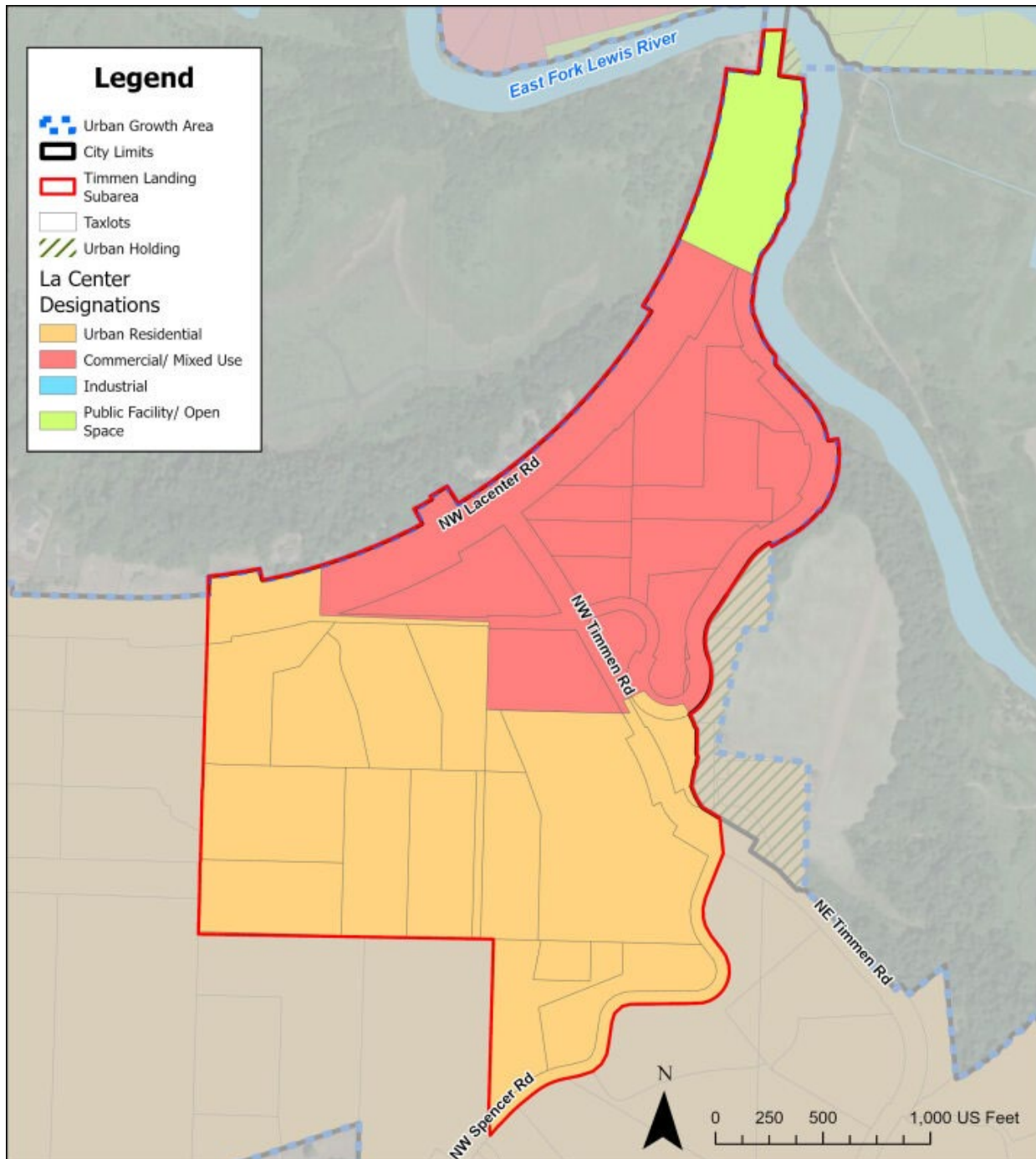


Figure 3. No-Action Alternative in Timmen Landing



2.2 PROJECT ALTERNATIVE

Under the Project Alternative, the current land use designations and zones would be changed to the land use designations as proposed in Figure 4 and Figure 5. As further described in Section 3.1, Land and Shoreline Use, the Project Alternative proposes new areas of commercial, mixed-use, parks and open space, and low-, medium-, and high-density residential. Compared to the No-Action Alternative, the Project Alternative would result in more residential units, population, and

jobs through 2045. The Project Alternative would have more lands designated for lower and higher density residential and parks and open space than the No-Action Alternative. The Project Alternative would have less lands designated for mixed-use and commercial uses, but would include commercial overlays in both subareas. The Project Alternative would not affect the land designated Public Facility compared to the No-Action Alternative or existing conditions.

Changes to the City's land use development regulations and standards are proposed under the Project Alternative to implement the land use designations of the subarea plans.

In the future, the City's review of proposed projects in the subareas would occur consistent with the project review procedures for planned actions identified in WAC 197-11-172. Future development applications that are determined by the City to be consistent with the subarea plans and this EIS would not require a SEPA threshold determination or EIS.

Please see Appendix C for the methodology and assumptions used to estimate changes under the Project Alternative.

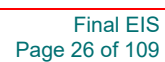
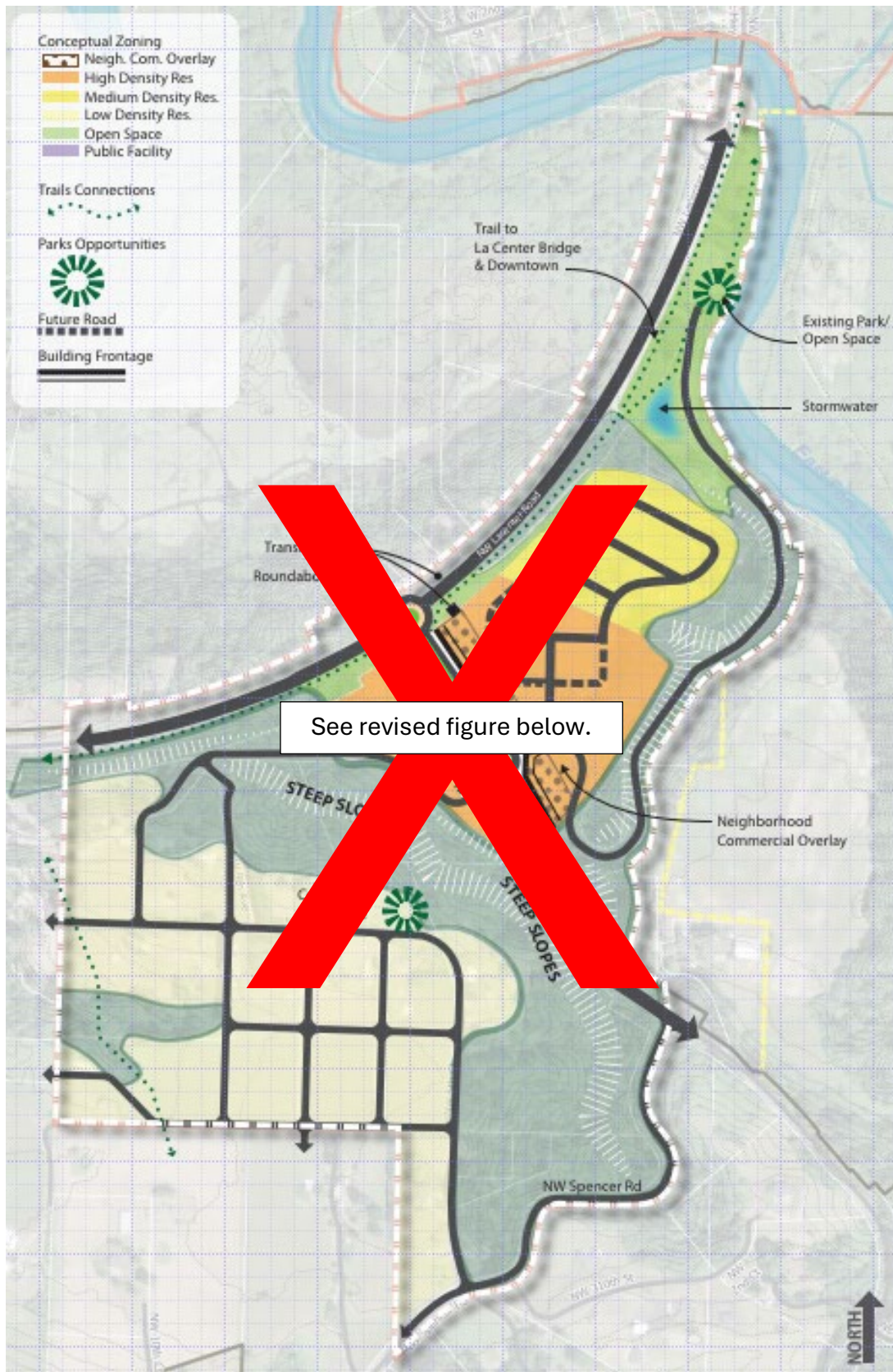
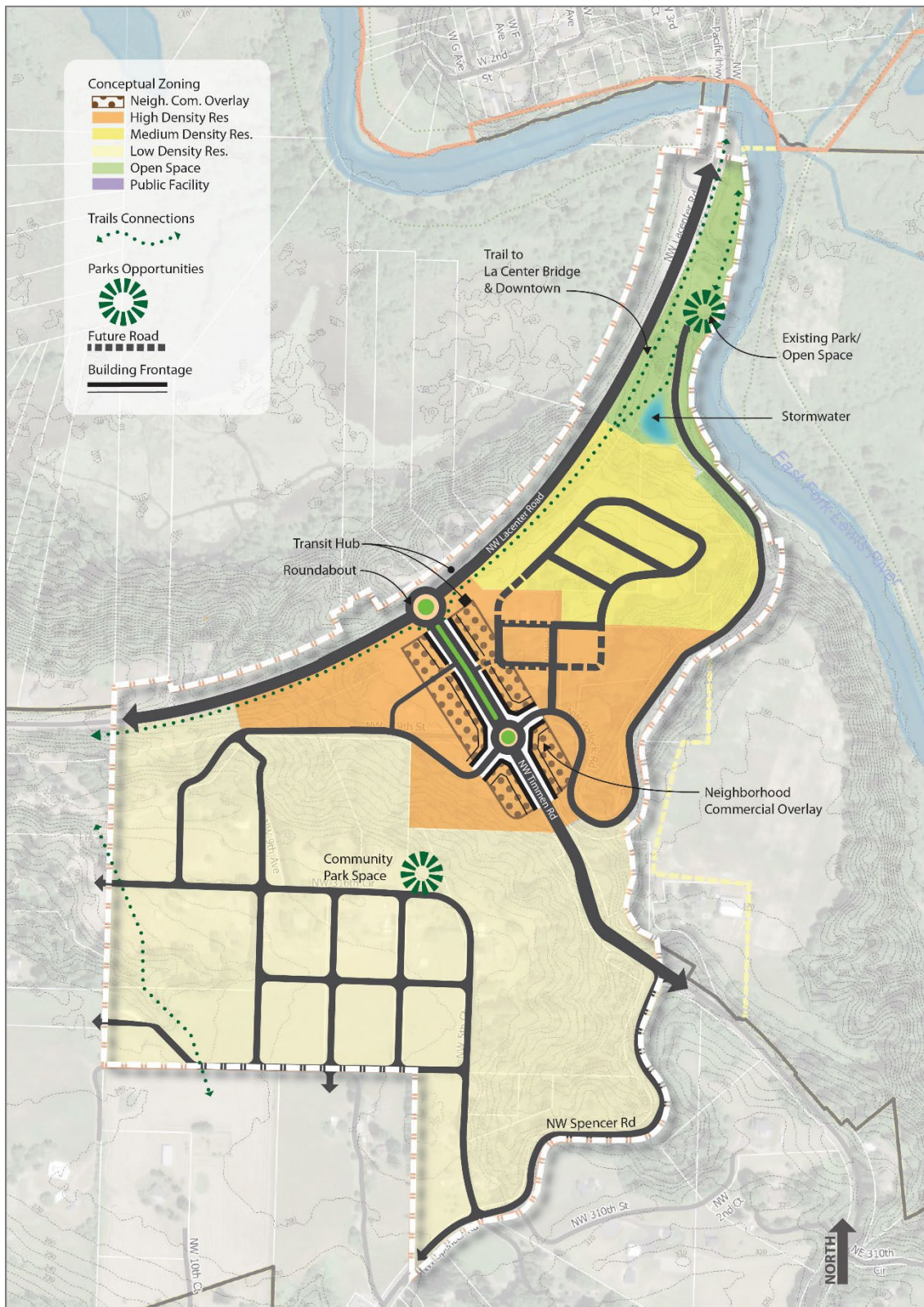


Figure 5. Project Alternative in Timmen Landing





3.0 **AFFECTED ENVIRONMENT, IMPACTS, AND MITIGATION**

3.1 **LAND AND SHORELINE USE**

3.1.1 **Methodology**

The EIS authors reviewed relevant information sources and policies about land and shoreline use, including population and housing growth, including the following:

- Clark County countywide planning policies
- Clark County 2045 population, housing, and jobs allocations
- La Center Comprehensive Plan 2016-2035 (City 2021)
- La Center Housing Needs Analysis and Strategy (WSP 2024)
- La Center Shoreline Master Program (SMP) (City 2021)
- La Center Municipal Code (LCMC) Title 18, Development Code

The EIS authors reviewed the alternatives to identify potential adverse impacts and avoidance, minimization, or mitigation measures considering the following:

- Incompatibility/inconsistency with policies and existing or planned land uses
- Inability to accommodate population and housing targets

3.1.2 **Affected Environment**

In 2024, the Clark County Council adopted 2045 countywide housing and population allocations for each of its jurisdictions, including La Center. Table 4 shows the projected additional housing units, total population, and jobs that La Center should plan and accommodate for. Per the new GMA housing element requirement, all fully-planning jurisdictions must also plan and accommodate for housing by various income segments as measured by area median income (AMI), as shown in Table 5. AMI refers to the midpoint of a specific area’s income distribution representing the household income for the median household in a region where 50 percent of households earn above the median and 50 percent earn less than the median.

Table 4. La Center 2045 Housing, Population, and Job Allocations

Housing Units	Population	Jobs
2,123	8,793	2,142

Table 5. La Center 2045 Housing Allocation by Income Segment

Housing Units	<80% AMI Units	>80% AMI Units
2,123	1,050	1,073

La Center’s 2045 housing, population, and jobs allocations were considered in the development of the subarea plans, and a key purpose of the plans is to direct growth and development consistent with the citywide allocations. As detailed below, the Project Alternative would result in greater capacity of housing, population, and jobs than the No-Action Alternative, including for accommodating affordable housing (defined as less than 80 percent AMI). The subarea plans are strategic plans to concentrate and organize growth in specific, feasible areas of the city with access to adequate infrastructure, including transportation, public services, and utilities.

Existing Land Uses

Downtown

The Downtown subarea is mostly developed and consists of La Center's historic downtown and its cardrooms. The subarea has a mix of local commercial establishments along the north side of E 4th Street and NW Pacific Highway that are primarily service-oriented, including restaurants, and the Heritage Center, a newer development with craftsman architecture with a mix of office, retail, and service uses. The south side of E 4th Street includes City-owned properties: the old and new City Hall buildings and Sternwheeler Park with trails connecting to the La Center Bottoms (Bottoms), open spaces, and an amphitheater.

Surrounding the commercial areas of Downtown are older homes on smaller lots dating from the original city plat to 1914, and undeveloped lots east of La Center Road, including areas along the north shore of the East Fork Lewis River. Western and northwestern portions of the subarea include additional older homes on smaller lots and vacant and underutilized properties. Areas closest to the East Fork Lewis River are encumbered by steep slopes and other critical areas and tend to be undeveloped or have only minor improvements, including the recently annexed 14-acre Barnhart property.

Major destinations in the Downtown subarea include City Hall, Sternwheeler Park, the La Center cardrooms, the Heritage Center, and various downtown establishments. The subarea includes the major intersection of the main arterials in the city: NW La Center Road, W 4th Street, and NW Pacific Highway. These three roadways converge at the roundabout that defines the entry to Downtown. Many La Center residents and visitors travel to and from the city through this roundabout. Downtown is framed by its views of the La Center Bottoms and the river.

Timmen Landing

The Timmen Landing subarea consists of farmland, undeveloped forested areas, and large-lot single-family residential areas. NW La Center Road creates the northern boundary of the subarea, which is the main arterial connecting La Center to Interstate 5 (I-5); therefore, most La Center residents travel along the northern boundary of the subarea when traveling in and out of the city, making it a highly visible community focal point. The subarea includes the John Pollock Water Trail Park and the John Pollock Historic Gravesite along the northeastern border near the East Fork Lewis River. To the northwest and northeast, the subarea sits across the East Fork Lewis River from the La Center Bottoms Natural Area, a Clark County-owned stewardship site that consists of a wetlands complex of floodplains, shorelines, and forested uplands, which provides habitat for wildlife and both biological and ecological functions. The Bottoms will remain in Clark County Legacy Lands ownership and are unlikely to be developed. Timmen Landing is perched on a hillside and enjoys extensive views of the distant Cascade Mountains, Downtown La Center, and the Bottoms.

Comprehensive Plan

The City's current comprehensive plan outlines the community's vision and objectives to guide land use and development in La Center through 2035. The plan includes goals such as housing diversity, economic independence, safety and walkability, environmental protection, and social cohesion, with the aim to improve quality of life across its diverse population. The comprehensive plan is a tool to organize planning priorities to meet the needs of current and future residents. The City is undertaking the state-mandated periodic update to its comprehensive plan and is required to plan through 2045. This updated plan must be adopted by ~~June 30~~ December 31, 2025.

The comprehensive plan uses four basic land use designations that correspond to and guide the application of more discrete zoning units detailed within the LCMC:

- **Urban Residential:** Allows for a broad range of residential living, including attached and detached units, duplexes, apartments, cottage housing, accessory dwelling units, and other low and medium density developments.
- **Commercial/Mixed Use:** Provides land for small- to medium-scale commercial retail and services, offices, and residential uses compatible with the existing character of downtown. It also provides mixed use development opportunities and medium-density developments.
- **Industrial:** Promotes more intensive job-related land uses that pay higher wages and research and technology related industries located in a campus-like setting.
- **Public Facilities/Open Space:** Provides for public park and open spaces to serve the recreational needs of the community and land for public facilities such as schools, community centers, government buildings, and public and private utility providers.

Table 6 lists the zoning districts that can be applied within each of the land use designations (zoning is regulated by the LCMC). This matrix assigns a level of review to proposed zoning changes. Changing zoning within a comprehensive plan designation requires a zone change, whereas changing from one plan designation to another requires a comprehensive plan amendment; the latter may only be approved once a year.

Table 6. Comprehensive Plan Designations and Overlay Districts

Plan Designation	Urban Residential (UR)	Commercial Mixed Use (C/MX)	Industrial (I)	Public Facilities/ Open Space (PF/OS)
Implementing Zone	Low Density (LDR-7.5) Medium Density (MDR-16)	Commercial (C1, C3) Mixed Use (MX) Residential Professional (RP) Junction Plan Zoning District (JP)	Employment Campus (EC) Light Industrial (LI) Junction Plan Zoning District (JP)	Urban Public (UP) Parks & Open Space (P/OS)
LDR-7.5				
MDR-16				
C-1				
C-3				
RP				
MX				
EC				
LI				
JP				
P/OS				
UP				
UH-10				

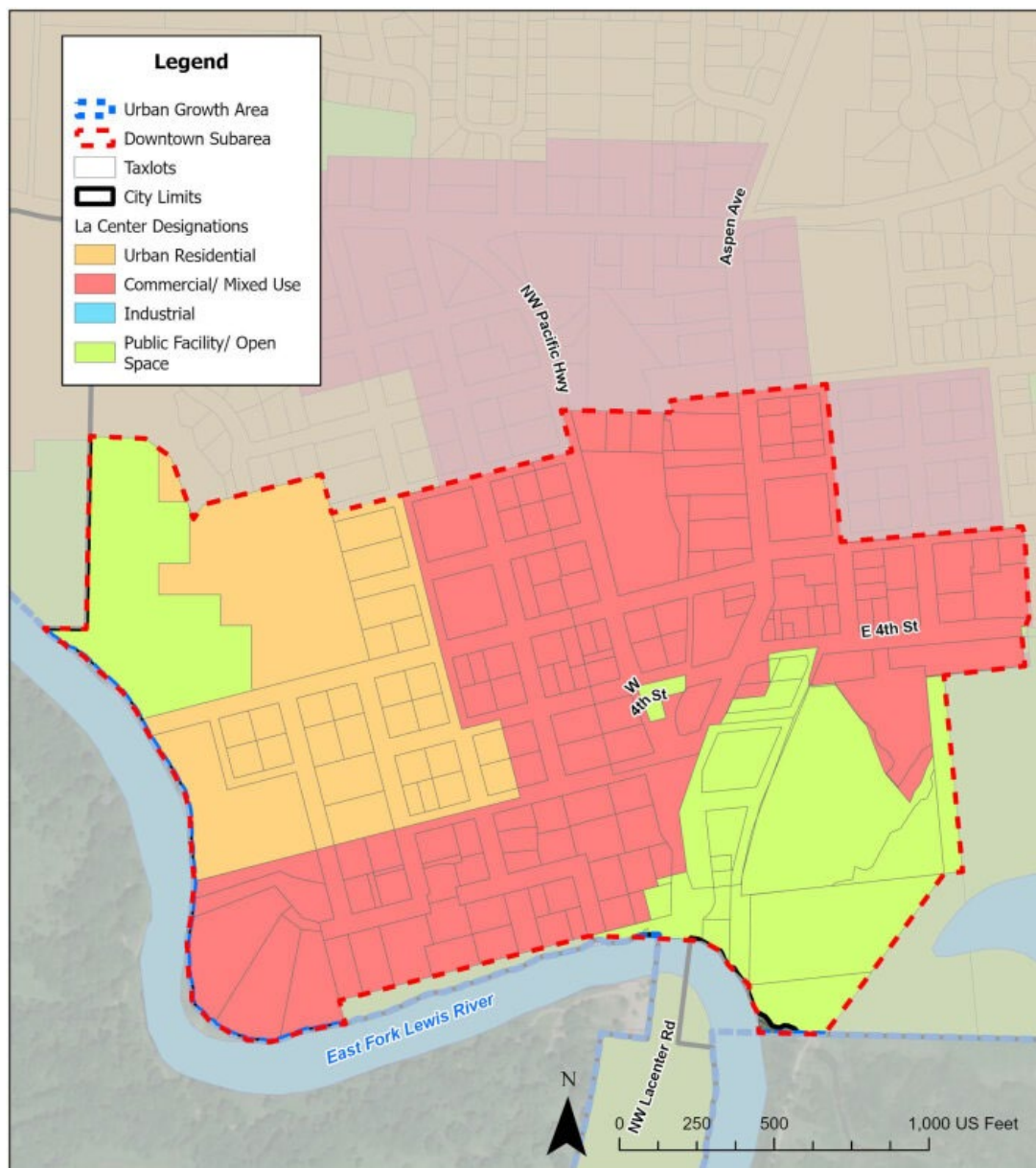
Downtown

The Downtown subarea includes areas designated as Commercial/Mixed Use (57 acres), Public Facilities/Open Space (25 acres), and Urban Residential (22 acres) (Figure 6). The area has historically been defined by the entertainment and casino industry as its economic anchor. With recent declines in this industry, the City is looking to position downtown for redevelopment. These opportunities include several City-owned parcels, including the old City Hall and Public Works

Building properties. Private properties may also be primed for redevelopment in cooperation with the owners, including the New Frontier Casino offsite parking lot and potentially including the undeveloped or underutilized properties in the western subarea near the river.

In recognition of the subarea's unique set of opportunities and constraints, the City's comprehensive plan identifies policies and goals to support future development in downtown. These policies focus on enhancing economic opportunities in Downtown, enhancing connections to Downtown from adjacent residential areas, protecting the functions of the East Fork Lewis River and its shoreline, and recognizing the seismic change in the local economy from the opening of the Cowlitz Tribe casino at the I-5 junction.

Figure 6. Downtown Comprehensive Plan Designations

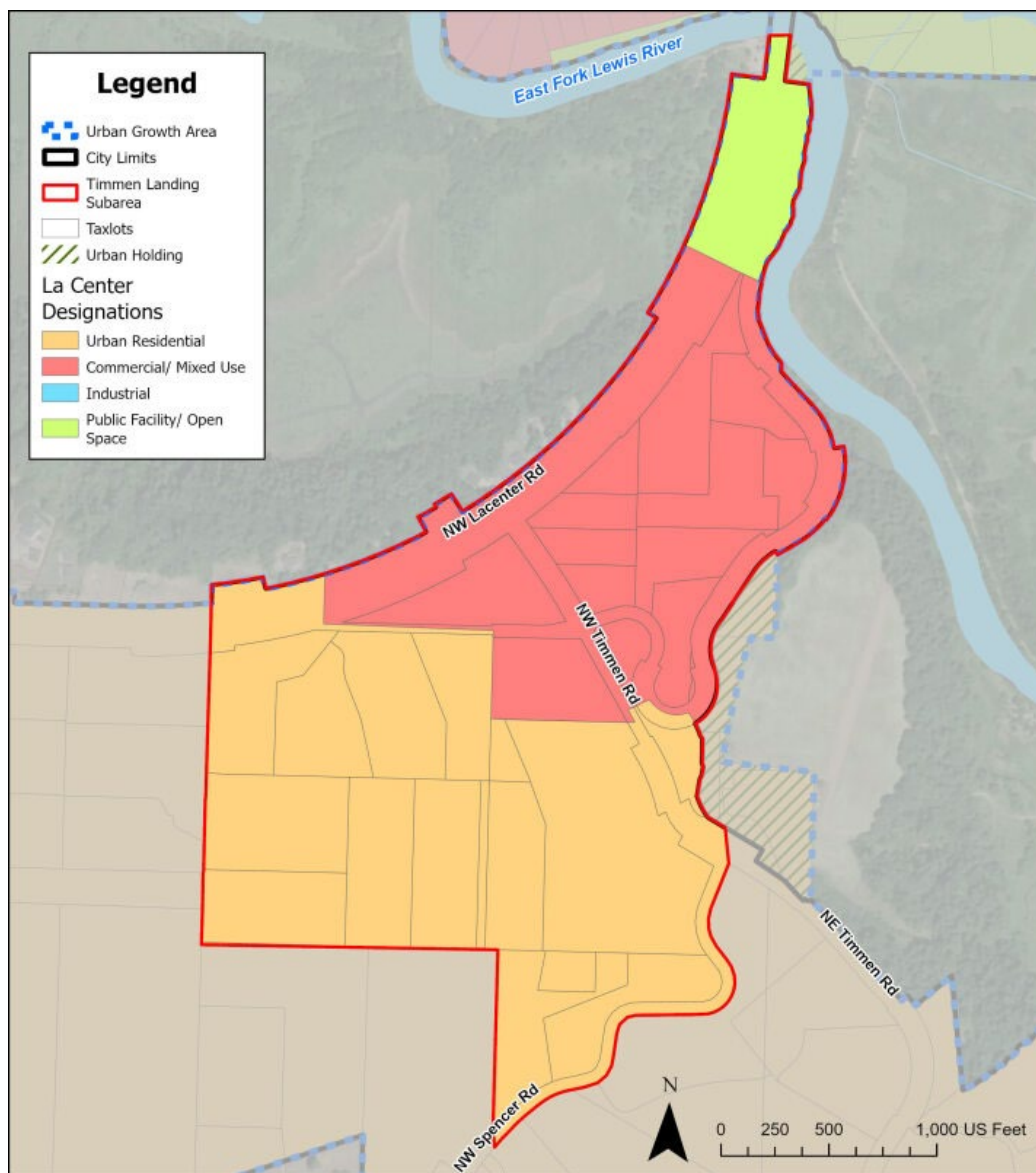


Timmen Landing

The subarea is designated as approximately half residential and half commercial/mixed use under the comprehensive plan, consisting primarily of low-density residential and low-intensity agricultural uses, with small amounts of open space along the East Fork Lewis River; Urban Residential comprises 85-acres, Commercial/Mixed Use comprises 58-acres, and Public Facility/Open Space comprises 9-acres (see Figure 7). However, no mixed-use projects have progressed in the 10 years since the Mixed-Use District was established.

The City's comprehensive plan identifies specific policies and goals to support future development in Timmen Landing. These policies generally focus on residential land designations and development, encouragement of commercial development, future park needs, and functional protections along the East Fork Lewis River and its shoreline jurisdiction.

Figure 7. Timmen Landing Comprehensive Plan Designations



Zoning

Downtown

Zoning within the subarea is as listed in Table 7 and shown in Figure 8. Zoning includes a mix of Residential/Professional (RP), Downtown Commercial (C-1), Urban Public Facilities (UP), Parks/Open Space (P/OS), and Low Density Residential (LDR-7.5). Three overlay districts exist within the subarea: Downtown (DT), Cardroom (C-3), and Urban Holding (UH-10). The DT overlay occurs across the entire C-1 zone in the subarea and on a few P/OS properties (part of Sternwheeler Park) along W 4th Street.

The purpose of the DT overlay is to implement the adopted 2005 La Center Downtown Design Plan and Guidelines. The Downtown Design Guidelines sets a vision for downtown and a general planning and design direction to retain the historic nature of the city's downtown while also accommodating new development. Many but not all the design guidelines were placed into the DT overlay code to require these design principles. Guidelines that have not been adopted may be considered as future policy recommendations for the subarea plan.

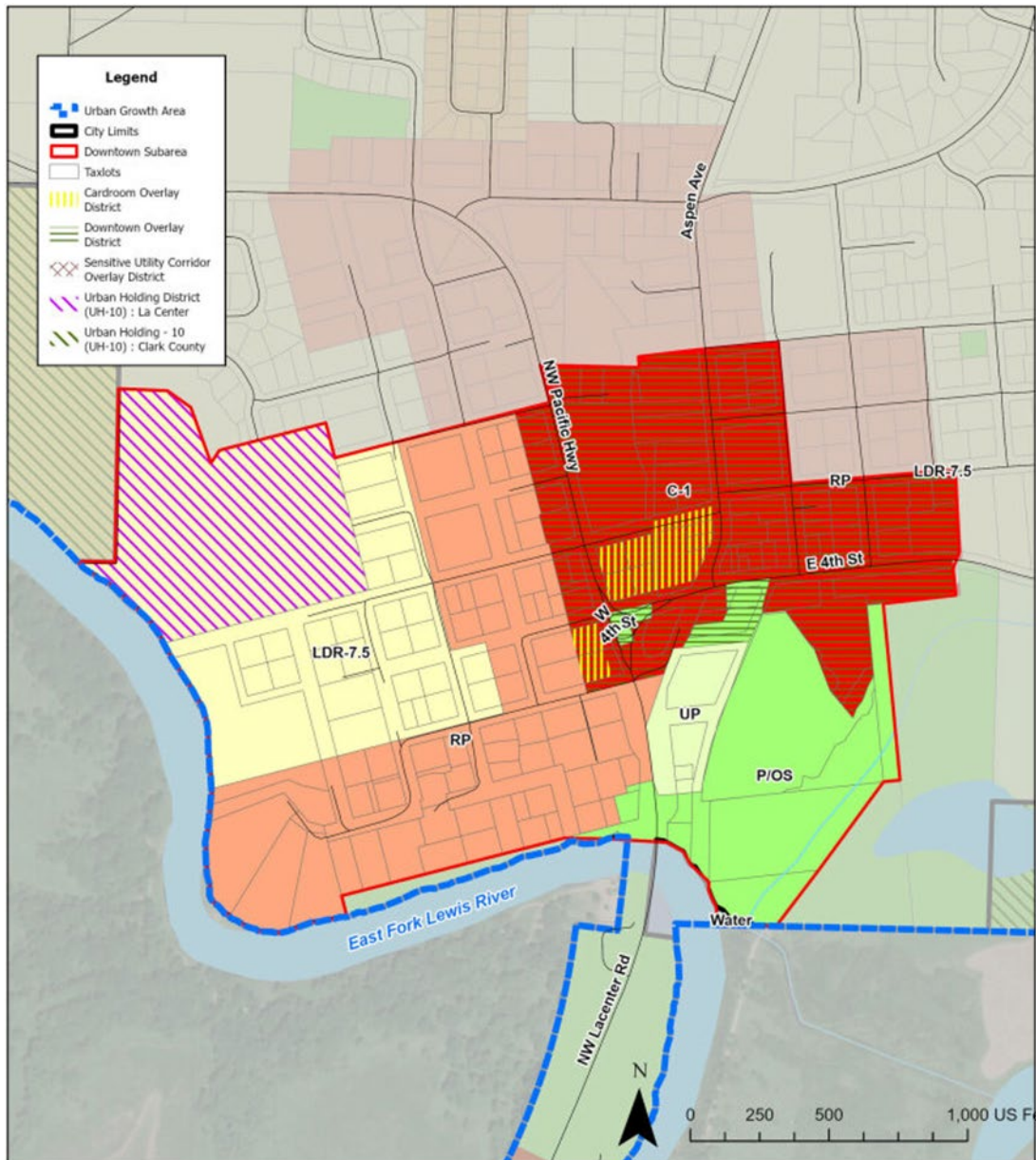
The C-3 overlay is only located across the C-1 zone in the subarea; as such, it is also located within the DT overlay. The C-3 overlay is located on a handful of properties, which are the cardrooms. These are located to the west and northeast of the 4th Street roundabout. The purpose of this overlay is to provide for the location of cardrooms and for all uses, except parking areas, to be contained entirely within an enclosed building. The UH-10 is located across the recently annexed Barnhart property at the far northwestern corner of the subarea. The purpose of the UH-10 overlay is to protect lands identified within the city limits from premature development due to inadequate capital facilities to support development.

Table 7. Zoning in Downtown

Zone	Acres	Percent
Low Density Residential (LDR-7.5)	29	28%
Downtown Commercial (C-1)	28	27%
Residential/Professional (RP)	29	27%
Parks / Open Space (P/OS)	15	14%
Urban Public District (UP)	3	3%

Note: Data are rounded and approximate, and percentages may not total 100.

Figure 8. Downtown Subarea Zoning



Timmen Landing

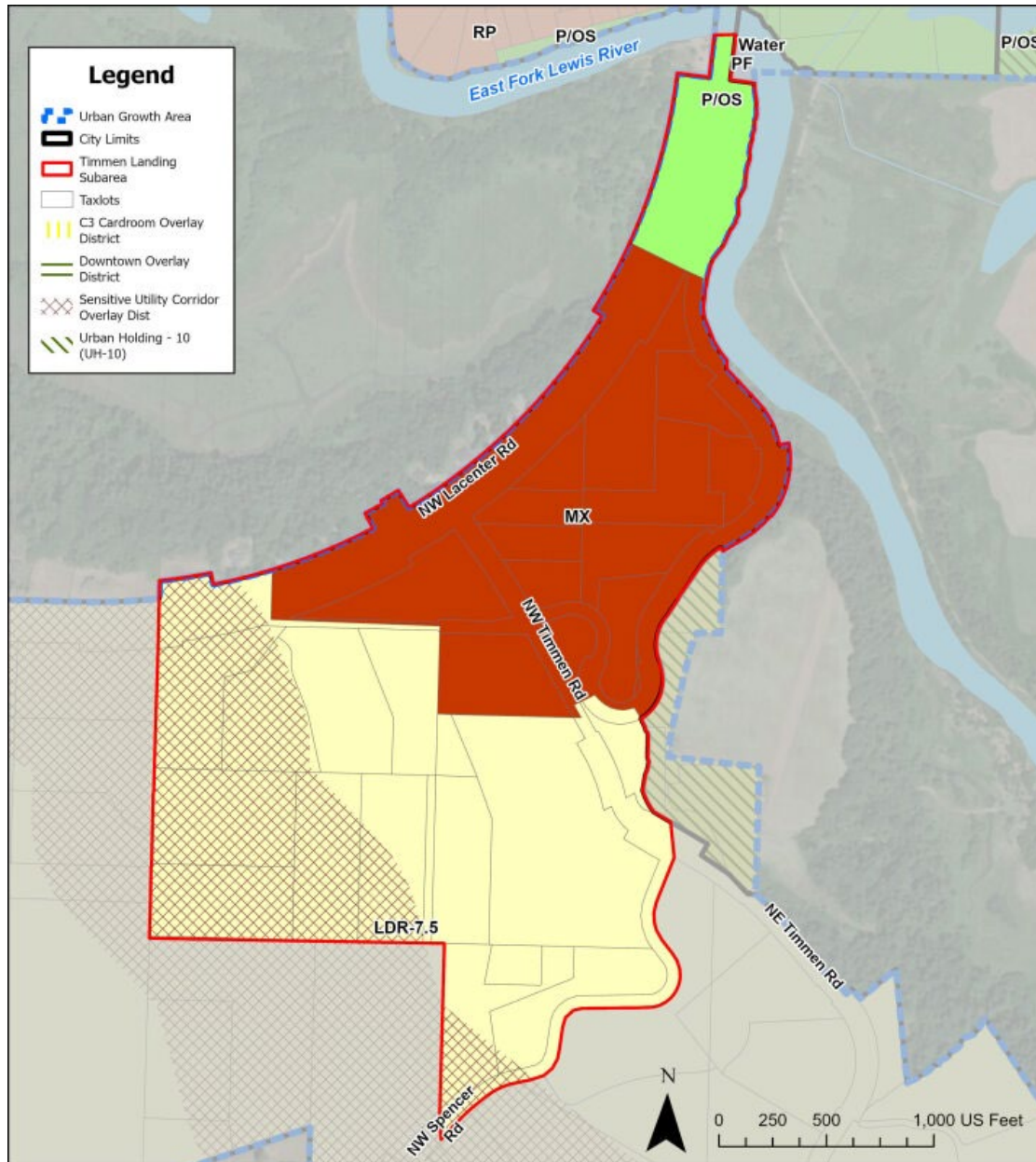
Zoning within the subarea is listed in Table 8 and shown in Figure 9. Zoning includes a mix of Low Density Residential District (LDR-7.5), Mixed-Use (MX), and Parks/Open Space (P/OS). A Sensitive Utility Corridor overlay district extends across the western portion of the subarea (entirely in LDR-7.5 zoning) along the Northwest Williams Pipeline, a primary artery for the transmission of natural gas for the Pacific Northwest region. Much of the area is zoned for mixed-use development composed of commercial and residential uses. Commercial uses are limited to a maximum of 35 percent of the MX district, with no minimum required. Residential uses, which can theoretically cover the entire MX district, are limited to a maximum of 50 percent of one housing type (single-family detached, single-family attached, or multifamily).

Table 8. Zoning in Timmen Landing

Zone	Acres	Percent
Low Density Residential (LDR-7.5)	85	57%
Mixed Use (MX)	58	39%
Parks/Open Space (P/OS)	7	5%

Note: Data are rounded and approximate, and percentages may not total 100.

Figure 9. Timmen Landing Subarea Zoning



Shoreline Master Program

Consistent with the State's Shoreline Management Act (RCW 90.58), the La Center SMP focuses on preserving the environment and promoting water-oriented uses and public access along shorelines in the city, including the East Fork Lewis River. The SMP sets goals for development, use, and preservation of the shoreline, and establishes specific development regulations. As outlined in the SMP, the general goals of the program are to:

- Use the full potential of shorelines in accordance with the opportunities presented by their relationship to the surrounding area, their natural resource values, and their unique aesthetic qualities offered by water, topography, and views; and
- Develop a physical environment that is both ordered and diversified, and which integrates water and shoreline uses while achieving a net gain of ecological function.

The SMP operates in conjunction with local, state, and federal laws regulating development activities and maintains the tenets of the City's comprehensive plan. Both subareas border the East Fork Lewis River, which is designated as a shoreline of statewide significance under the State's Shoreline Management Act. All future development activities must comply with SMP policies if located within SMP jurisdiction (generally within 200 feet of the shoreline).

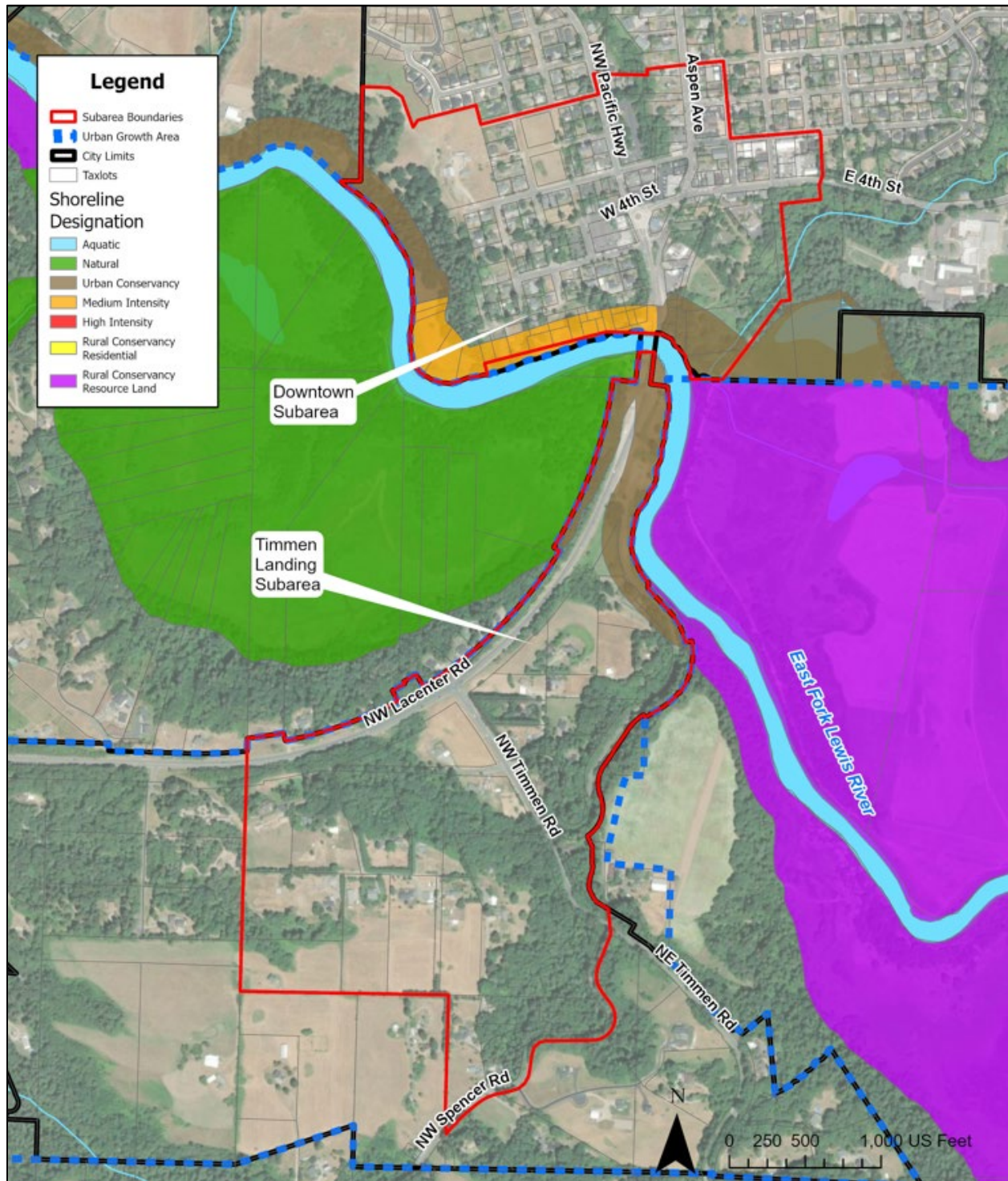
The SMP assigns "environment designations" to shoreline areas, which are a type of overlay zone that serves as the basic framework for the use and development regulations in the SMP. Each shoreline environment designation is managed in accordance with its designated purpose as described in the SMP. Although approximate shoreline jurisdiction is shown on the SMP's shoreline designations map (Figure 10), the actual extent is determined by site conditions. As shown, there are three shoreline designations in the study area. The SMP specifies what uses are permitted, conditionally permitted, or prohibited in each designation. Permitted and conditional uses must comply with setback, maximum height, and other standards.

The purpose of the Aquatic designation is to protect, restore, and manage the unique characteristics of the areas waterward of the ordinary high water mark. This use allows motorized and non-motorized boat launches, water-dependent recreational uses, dredging, and disposal as part of ecological restoration/enhancement, shoreline restoration and enhancement, and bioengineered shoreline stabilization. Additional uses are conditionally permitted, including water-dependent commercial uses.

The purpose of the Urban Conservancy designation is to protect and restore ecological functions of open space, floodplains, and other sensitive lands where they exist adjacent to urban and developed settings. This designation allows a variety of compatible uses, including permitted uses such as non-motorized boat launches; docks, piers, mooring buoys; water-dependent and water-related recreational uses; single-family residential; and shoreline ecological restoration or enhancement. Conditional uses include (but are not limited to) water-dependent institutional uses and non-water-oriented recreational uses.

The purpose of the Medium Intensity designation is to accommodate residential development and accessory structures and allow other development consistent with policies of this designation. This designation is also intended to provide appropriate public access and recreational uses. Uses permitted in this designation include non-motorized boat launches; water-dependent and water-related commercial, institutional, and recreational uses; water-dependent and water-related recreational uses; and single-family and multifamily residential. Conditional uses include (but are not limited to) motorized boat launches and non-water-oriented commercial, institutional, and recreational uses.

Figure 10. Shoreline Designations



There are no changes proposed to the SMP or shoreline designation under either alternative, and the SMP would continue to regulate and protect shorelines and shoreline uses in the study area.

3.1.3 Potential Impacts

This section describes the potential land use impacts that could result from the two alternatives considered in the EIS.

Impacts Common to All Alternatives

Growth is expected to occur in La Center and the subareas under both the No-Action and Project Action alternatives. Clark County is projecting that La Center will double its population by 2045. There is currently vacant and underutilized building capacity to generate housing units, population, and jobs; however, as further discussed below, the Project Alternative would generate a greater amount of housing units, population, and jobs. Increasing residential development, population, and jobs generally increases typical development-related land use impacts, which are generally mitigated by development regulations and land use policies and goals. However, as further discussed under the Project Alternative, additional mitigation measures will need to be implemented to offset impacts from a greater yield and intensity of general development, housing, population, and jobs.

Development in the subareas under both alternatives are expected to be consistent with the SMP and its land use designations, which include Urban Conservancy and Medium Intensity along the East Fork Lewis River. Therefore, no impacts or changes to the SMP are expected.

No-Action Alternative

Under the No-Action Alternative, land use patterns in both Downtown and Timmen Landing are not expected to change. No cohesively planned development or redevelopment is assumed in the No-Action Alternative, therefore, several properties in Downtown and Timmen Landing may remain underutilized and/or undeveloped. No existing land uses would be displaced. Over time, each area may develop and/or redevelop per the current zoning, but not according to a cohesive plan for that particular subarea. Infrastructure and connectivity improvements, such as pedestrian and vehicular circulation, would occur incrementally as development is proposed and constructed. As there is limited amount of development anticipated under the No-Action Alternative for both areas, the land use character is not anticipated to change much compared to existing conditions.

Since the land use patterns in both Downtown and Timmen Landing under the No-Action Alternative are not expected to change, the No-Action Alternative may be inconsistent with several Clark County countywide planning policies, including policies regarding densification, supporting 20-year growth projections, encouraging land use to diversify housing typology, directing growth around transportation corridors, and implementing alternatives to support 20-year growth other than adjusting urban growth boundaries.

The No-Action Alternative assumes an increase of 537 residential units (198 in Downtown and 339 in Timmen Landing), 1,192 more people (439 in Downtown and 753 in Timmen Landing), and an increase of 491 jobs (430 in Downtown and 61 in Timmen Landing) in the study area by 2045. This increase would occur incrementally through 2045, as development would not be driven by a coordinated planning effort. No adverse impacts on overall housing, population, and jobs are expected. However, impacts to affordable housing needs per recent GMA requirements may occur. Under the No-Action Alternative, current land zones and residential unit capacities would remain, which would provide less overall housing capacity than the Project Alternative and provide less land use zoning capacity to support housing typologies that provide affordable housing. Currently, the City's zoning capacity is insufficient to support and meet the need of the 2045 projected affordable housing (Table 5), which the No-Action Alternative would reinforce.

The comprehensive plan identifies the city center and the intersection of NW La Center Road and NW Timmen Road as areas to "prioritize development". Under the No-Action Alternative, the City

would not adopt subarea plans for Downtown (city center) and Timmen Landing (NW La Center Road/NW Timmen Road) that would prioritize cohesive development plans in these portions of the city. Therefore, this alternative would not align with the comprehensive plan policies directing and prioritizing growth and development to these areas of the city.

Development in the subarea plan areas under the No-Action Alternative is expected to comply with the City land use and development code (LCMC Title 18). Therefore, no impacts or changes to the code are expected.

Project Alternative

Under the Project Alternative, the subarea plans would be formally adopted as an amendment to the comprehensive plan. The plan provides direction for new business, mixed-use, and housing developments, as well as improvements to open space and transportation facilities. At full buildout, the Project Alternative would provide 986 residential units (390 in Downtown and 596 in Timmen Landing), resulting in 2,189 more people (866 in Downtown and 1,323 in Timmen Landing) and 563 jobs (408 in Downtown and 155 in Timmen Landing).

The Project Alternative would increase residential units, population, and jobs capacity more than the No-Action Alternative. Adoption of the subarea plans would contribute to an intensification of residential uses in both subareas and an intensification of commercial and mixed-uses in the Downtown subarea. This would result in altering the existing character of the study area.

The Project Alternative would result in the incremental redevelopment over time of underutilized and undeveloped properties within all zoning districts in the study area. The Downtown subarea contains the most underutilized properties with redevelopment opportunities, which could result in some displacement of businesses and residents. However, it is anticipated these businesses and residents would have the opportunity to relocate within new mixed-use and housing developments within the subareas.

The Project Alternative anticipates significant public and private investment in the study area. The plans include redesign and reconstruction of existing roadways and development of new roads, especially in the undeveloped portions of Timmen Landing. The Downtown subarea plan includes development of a new plaza, waterfront park and trail access, and civic uses. While these infrastructure improvements do not directly result in changes to land use, together with the proposed mixed-use development, they would change the character of the study area.

The comprehensive plan identifies the city center and the intersection of NW La Center Road and NW Timmen Road as areas to “prioritize development”. Under the Project Alternative, the City would prioritize cohesive development plans in these portions of the city. Therefore, this alternative would be consistent with the comprehensive plan policies directing and prioritizing growth and development to these areas of the city.

However, under the Project Alternative, the proposed land use designations do not align with the land use designations as outlined in Policy 1.3.2 of the current comprehensive plan. Specific to Timmen Landing, Policies 1.2.3 and 1.3.2 specifically call for a mixed-use land use designation, including at the intersection of La Center Road and Timmen Road, where high-density residential and an area of the Timmen Landing Neighborhood Commercial overlay neighborhood-commercial overlay are proposed under the Project Alternative.

Development in the study area under the Project Alternative is not expected to comply with the current land use and development code (LCMC Title 18) as some of the proposed land use designations, including high-density residential, commercial mixed use, and commercial overlays are not consistent with the zones and zoning regulations as outlined in LCMC Title 18. However,

code amendments would be adopted under the Project Alternative that would align the code with the adopted subarea plans.

Adoption of the subarea plans would also result in changes to the comprehensive plan designation and zoning of some of the study area, as shown in Table 9 and Table 10. Adoption of the subarea plans would increase the overall land dedicated for residential development, including lower density, medium, and higher density residential, and parks and open space. Adoption would decrease the overall land dedicated for commercial and mixed-use, while land dedicated for public facilities would remain relatively the same.

Table 9. Comprehensive Plan Designations

Designation	No-Action Alternative	Project Alternative
Urban Residential (UR)	107 acres <i>Downtown: 22</i> <i>Timmen Landing: 85</i>	188 acres <i>Downtown: 50</i> <i>Timmen Landing: 138</i>
Commercial /Mixed Use (C/MX)	115 acres <i>Downtown: 57</i> <i>Timmen Landing: 58</i>	25 acres ¹ <i>Downtown: 25</i> <i>Timmen Landing: 0</i>
Public Facilities/Open Space (PF/OS)	34 acres <i>Downtown: 25</i> <i>Timmen Landing: 9</i>	44 acres <i>Downtown: 30</i> <i>Timmen Landing: 14</i>

¹ Does not include commercial overlays in Downtown and Timmen Landing. See Table 10.

Note: Acreages are rounded and approximate.

Table 10. Zoning Districts

Zoning District	No-Action Alternative	Project Alternative
Low Density Residential (LDR-7.5)	114 acres <i>Downtown: 29</i> <i>Timmen Landing: 85</i>	121 acres <i>Downtown: 36</i> <i>Timmen Landing: 85</i>
Medium Density Residential (MDR-16)	0 acres	22 acres <i>Downtown: 3</i> <i>Timmen Landing: 19</i>
High Density Residential (new zone)	0 acres	45 acres <i>Downtown: 11</i> <i>Timmen Landing: 34</i>
Residential/Professional (RP)	29 acres <i>Downtown: 29</i> <i>Timmen Landing: 0</i>	0 acres
Mixed Use (MX)	58 acres <i>Downtown: 0</i> <i>Timmen Landing: 58</i>	8 acres <i>Downtown: 8</i> <i>Timmen Landing: 0</i>
Downtown Commercial (C-1)	28 acres <i>Downtown: 28</i> <i>Timmen Landing: 0</i>	16 acres ¹ <i>Downtown: 16</i> <i>Timmen Landing: 0</i>
Parks/Open Space (P/OS)	22 acres <i>Downtown: 15</i> <i>Timmen Landing: 7</i>	38 acres <i>Downtown: 24</i> <i>Timmen Landing: 14</i>
Urban Public District (UP)	3 acres <i>Downtown: 3</i> <i>Timmen Landing: 0</i>	6 acres <i>Downtown: 6</i> <i>Timmen Landing: 0</i>

¹Timmen Landing has 4 gross acres and Downtown has 8 gross acres of commercial overlay.
Note: Acreages are rounded and approximate.

The proposed plans recommend amendments to various chapters of LCMC Title 18. The amendments include the addition of a new mixed-use zone (Downtown Mixed Use) and two commercial overlays (Timmen Landing Neighborhood Commercial overlay and Downtown Gateway Overlay) for the Downtown and Timmen Landing subareas. The City currently does not have a high-density residential zone or regulations in LCMC Title 18. The subarea plans both have high-density residential land uses proposed (High Density Residential) and the amendments to LCMC Title 18 will include implementing the new land use designation. Zoning requirements for the new mixed-use zone, high-density residential zone, and commercial overlays and design guidelines for the overall subareas will be created as part of the first stage of implementation of the plan and will require a separate Planning Commission and City Council adoption process, including opportunities for public input and review. The new zones will be based upon existing city zones and are anticipated to include specific standards and requirements related to building massing and scale and other considerations.

Adoption of the subarea plans would also be consistent with the findings, recommendations, and goals outlined in La Center’s Housing Needs Analysis and Strategy (WSP 2024), including providing sufficient land use for a variety of housing types and income ranges, zoning residential land in proximity to employment locations, and rezoning lands for large-lot single-family development to higher density residential development. The City is also in the midst of updating its comprehensive plan, including the Housing element, which will include similar goals and policies that the subarea plans would be consistent with.

With adoption of the subarea plans and a planned action ordinance, the Project Alternative enables a planned approach to site redevelopment ensuring a consistent quality and character of design throughout the study area.

3.1.4 Avoidance, Minimization, and Mitigation Measures

Included in the Subarea Plans

The Project Alternative includes the following action items, goals, and policies that have the potential to have a positive impact on land use and shorelines in the study area.

- Action Item: Adopt the Downtown and Timmen Landing subarea plans by reference into the La Center Comprehensive Plan. Review existing comprehensive plan goals and policies to reference the subarea visions.
- Action Item: Amend the LCMC to codify the recommended code and zoning amendments, including limited use criteria for concessionaires, and established recommended overlay zones. Implement recommended design guidelines to ensure future development reflects the subarea visions.
- Downtown Land Use Goal: Concentrate mixed-density development in the downtown core to support access to diverse housing opportunities, local shops, and town history.
 - Policy: Encourage a compact, active “heart” for the city that thrives through new mixed-use development, multi-family residential, office, retail, restaurants, public facilities and historic sites.

- Policy: Promote transitioning development patterns where higher-density residential and commercial areas are centralized while lower-density residential uses develop on the outer edges of downtown.
- Policy: Promote placemaking and local identity by creating a pedestrian plaza that connects historic sites between W 6th Street and recreational opportunities on the East Fork River.
- Timmen Landing Land Use Goal: Create a residential community that supports future population growth by forming higher-density housing in the core and lower-density on the subarea edges.
 - Policy: Encourage high-density housing and neighborhood commercial on NW Timmen Road, and a “view corridor” near NW Pollock Road with medium-density residential such as townhomes and small multi-unit apartment buildings.
- Subarea-Wide Environmental Goal: Protect and manage environmentally sensitive areas with practices based on best available science.
 - Policy: Continue to work with agencies and organizations, such as the Lower Columbia Estuary Partnership and the East Fork Lewis River Partnership, to identify restoration opportunities for the East Fork Lewis River and other habitat areas.
 - Policy: Consider the effects of new roads on natural resources and, where feasible, incorporate design features to reduce impacts on wildlife movement, fish passage, and water quality.

Regulations and Other Mitigation

Legal non-conforming uses created by the adoption and implementation of the subarea plans would be regulated under LCMC 18.255, Nonconforming Uses. Mitigation of adverse impacts created by development would also be regulated under LCMC 18.240, Mitigation of Adverse Impact.

All development within the subareas will be subject to Title 18, Development Code (as amended); Title 12, Streets, Sidewalks, and Public Ways; and Title 15, Buildings and Construction.

No additional mitigation measures have been identified beyond existing regulations and those already included in the project, as described above.

3.1.5 Significant Unavoidable Adverse Impacts

The impacts of increased bulk, scale, and building height, including increasing density and typology of permitted housing and the mixing of such housing, would be mitigated with the implementation of new and updated land use designations and supporting goals and policies in the comprehensive plan, and new and updated zoning regulations codified in the LCMC. While the study area will potentially change in character and scale compared to existing conditions, if proposed mitigation strategies are implemented, no significant unavoidable adverse impacts are anticipated.

3.2 TRANSPORTATION

3.2.1 Methodology

The EIS authors reviewed relevant information sources and policies to describe existing conditions for transportation, including the following:

- Transportation Technical Report (WSP 2025) (Appendix D)
- La Center Transportation Capital Facilities Plan (City 2019)

- La Center Draft Transportation Capital Facilities Plan (DKS 2025)
- Washington Department of Transportation (WSDOT) crash data (2018-2022)

The EIS authors reviewed the alternatives to identify potential adverse impacts and associated avoidance, minimization, or mitigation measures considering the following metrics:

- Increased traffic generated from new development in the Downtown and Timmen Landing subareas
- Decrease in traffic operations based on adopted mobility standards

3.2.2 Affected Environment

The transportation analysis evaluates impacts to various transportation modes, including motor vehicle, transit, biking, and walking. A technical report was completed for the subarea plans and is included as Appendix D.

Motor Vehicles

In coordination with the City, 18 study intersections were identified for evaluation in the transportation analysis. An overview map of the transportation impact study area is provided in Figure 11, and Table 11 identifies the functional classification and posted speed limit for each roadway in the study area.

The study area is made up entirely of a two-lane roadway system without provision for any median space separating both travel directions. The La Center Transportation Capital Facilities Plan outlines the five roadway function classifications to assess the level of mobility experienced by all travel modes. Functional classifications are organized from the highest to the lowest level of intended access and usage.

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Street

Figure 11. Transportation Impact Study Area

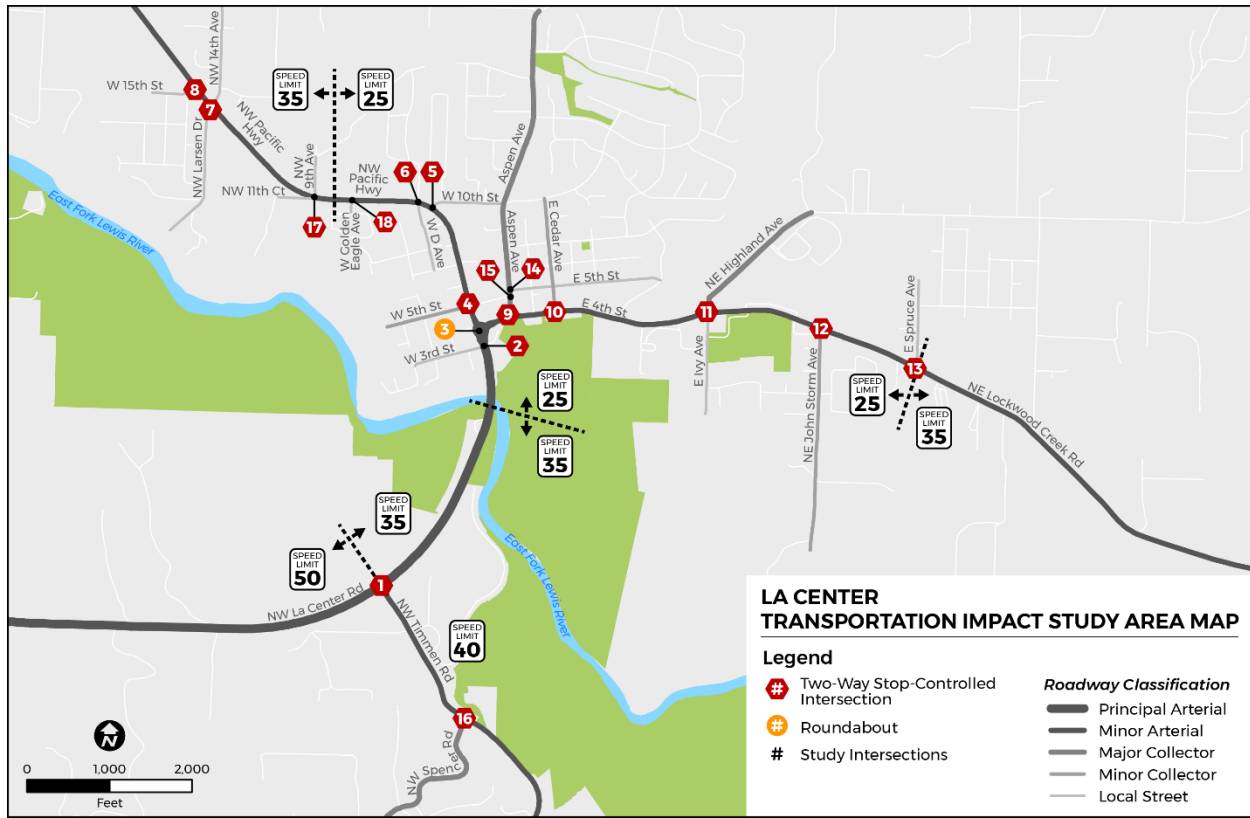


Table 11. Existing Roadway Classification and Posted Speed Limits

Roadway	Functional Classification	From	To	Speed Limit
NW La Center Road	Principal Arterial	NW Timmen Road	W 4th Street	50 mph (I-5 northbound on- and off-ramps to NW Timmen Road) 35 mph (NW Timmen Road to NW Pacific Highway/W 4th Street)
NW Timmen Road	Minor Arterial	NW La Center Road	NW Spencer Road	40 mph
NW Pacific Highway	Minor Arterial	W 4th Street	W 15th Street	25 mph (W 4th Street to NW 9th Avenue) 35 mph (NW 9th Avenue to W 15th Street)
W 4th Street	Minor Arterial	NW La Center Road	Aspen Avenue	25 mph

Roadway	Functional Classification	From	To	Speed Limit
E 4th Street	Minor Arterial	Aspen Avenue	NE Highland Avenue	25 mph
NE Lockwood Creek Road	Minor Arterial	NE Highland Avenue	E Spruce Avenue	25 mph
Aspen Avenue	Major Collector	E 4th Street	E 5th Street	25 mph
NE Highland Avenue	Major Collector	E 4th Street	-	20 mph
NW Spencer Road	Major Collector	NW Timmen Road	-	25 mph
W 5th Street	Minor Collector	NW Pacific Highway	Aspen Avenue	25 mph
E Cedar Avenue	Minor Collector	E 4th Street	E 5th Street	25 mph
NE John Storm Avenue	Minor Collector	NE Lockwood Creek Road	-	25 mph
W 3rd Street	Local Street	NW La Center Road	-	25 mph
E 5th Street	Local Street	Aspen Avenue	E Cedar Avenue	25 mph
W 10th Street	Local Street	NW Pacific Highway	-	25 mph
W D Avenue	Local Street	NW Pacific Highway	-	25 mph
W 14th Avenue	Local Street	NW Pacific Highway	-	25 mph
W 15th Street	Local Street	NW Pacific Highway	-	25 mph
NW Larsen Drive	Local Street	NW Pacific Highway	-	25 mph
E Ivy Avenue	Local Street	E 4th Street	-	25 mph
E Spruce Avenue	Local Street	NE Lockwood Creek Road	-	25 mph
NW 9th Avenue	Local Street	NW Pacific Highway	-	25 mph
NW 11th Court	Local Street	NW Pacific Highway	-	25 mph
W Golden Eagle Avenue	Local Street	NW Pacific Highway	-	25 mph

Notes: mph = miles per hour.

Safety

A review of crash history was conducted to analyze crash patterns and frequency within the Downtown and Timmen Landing subareas. The most recent five-year crash history was obtained from WSDOT for the time period of 2018 to 2022 for all study intersections. There were no crashes reported at seven of the 18 study intersections during the five-year period. There were also no

reported crashes involving pedestrians and/or bicycles at any of the intersections during the five-year period. The intersection with the highest number of reported crashes was at NW La Center Road/NW Timmen Road with six crashes; all other intersections ranged from zero to two crashes. The total yearly number of crashes at all intersections ranged from six crashes per year (in 2018 and 2021) to one crash per year (in 2020).

Mobility Standards

The La Center Transportation Capital Facilities Plan (2019) sets out mobility standards adopted by the City, which are relevant for the 18 unsignalized intersections in the transportation impact study area. The plan stipulates all movements during the highest one-hour period on an average weekday (typically, but not always the evening peak period between 4:00 p.m. and 6:00 p.m.) shall be Level of Service (LOS) “E” or better.

Table 12 summarizes the results of the operations analysis (see Appendix D for details). The operations analysis suggests all 18 study intersections currently comply with expected mobility standards applicable to the transportation impact study area.

Table 12. Existing Intersection Delay and Level of Service – 2023 PM Peak Hour

No.	Intersection	Traffic Control	Mobility Standard	2023 PM Peak Hour		
				v/c	Delay (s/veh)	LOS
1	NW La Center Road / NW Timmen Road	TWSC	LOS E	0.19	31	D
2	NW La Center Road / W 3rd Street	TWSC	LOS E	0.10	24	C
3	NW La Center Road / NW Pacific Highway / W 4th Street (SIDRA 9.1)	Roundabout	LOS E	-	8	A
4	NW Pacific Highway / W 5th Street	TWSC	LOS E	0.07	13	B
5	NW Pacific Highway / W 10th Street	TWSC	LOS E	0.07	12	B
6	NW Pacific Highway / W D Avenue	TWSC	LOS E	0.05	12	B
7	NW Pacific Highway / NW 14th Avenue / NW Larsen Drive	TWSC	LOS E	0.08	11	B
8	NW Pacific Highway / W 15th Street	TWSC	LOS E	0.05	10	A
9	W 4th Street / E 4th Street / Aspen Avenue	TWSC	LOS E	0.11	27	D
10	E 4th Street / E Cedar Avenue	TWSC	LOS E	0.11	14	B
11	E 4th Street / NE Lockwood Creek Rd / NE Highland Avenue	TWSC	LOS E	0.02	21	C
12	NE Lockwood Creek Road / NE John Storm Avenue	TWSC	LOS E	0.20	15	B
13	NE Lockwood Creek Road / E Spruce Avenue	TWSC	LOS E	0.04	10	A
14	Aspen Avenue / E 5th Street	TWSC	LOS E	0.04	11	B
15	Aspen Avenue / W 5th Street	TWSC	LOS E	0.01	10	A

No.	Intersection	Traffic Control	Mobility Standard	2023 PM Peak Hour		
				v/c	Delay (s/veh)	LOS
16	NW Timmen Road / NW Spencer Road	TWSC	LOS E	0.11	11	B
17	NW Pacific Highway / NW 9th Avenue / NW 11th Court	TWSC	LOS E	0.03	11	B
18	NW Pacific Highway / W Golden Eagle Avenue	TWSC	LOS E	0.03	11	B

Notes: v/c = volume-to-capacity; s/veh = seconds per vehicle; LOS = level of service; TWSC = two-way stop-controlled.

Parking

On-street parking in the transportation impact study area consists of both unmarked and marked spaces (see Table 13).

Table 13. Existing On-Street Parking

Roadway	Type of On-Street Parking	From	To
NW Pacific Highway	Unmarked	W 4th Street	NW 9th Avenue
W 5th Street	Unmarked	NW Pacific Highway	Aspen Avenue
E Cedar Avenue	Unmarked	E 4th Street	E 5th Street
NE John Storm Avenue	Unmarked	NE Lockwood Creek Road	-
W 3rd Street	Unmarked	NW La Center Road	-
E 5th Street	Unmarked	Aspen Avenue	E Cedar Avenue
E 4th Street	Marked (24 spaces)	Aspen Avenue	E Cedar Avenue
Aspen Avenue	Marked (7 spaces)	E 4th Street	E 5th Street

On-street parking along NW Pacific Highway is only permitted within the 25 miles per hour (mph) posted speed limit zone between W 4th Street and NW 9th Avenue. E 4th Street and Aspen Avenue accommodate 31 on-street parking spaces that are either angled or parallel type; demarcated with striping; and built-out with entry and exit tapers. One of the seven remaining on-street parking spaces along Aspen Avenue is allocated for people with disability. Additional on-street parking is available along E 4th Street on either side of E Cedar Avenue, accessed in the westbound direction, which is not striped but built-out with entry and exit tapers.

On-street parking along W 10th Street is not permitted and is regulated by “No Parking at Any Time” signage. Other roadways within the transportation impact study area that currently do not permit on-street parking lack signage to regulate illegal parking occurrences.

Ample off-street public parking lot spaces are available in immediate vicinity of the transportation impact study area at the following locations:

- Holley Park south of NE Lockwood Creek Road between E Ivy Avenue and NE John Storm Avenue

- Sternwheeler Park south of E 4th Street
- City paver parking lot north of NE Lockwood Creek Road opposite Holley Park

Overall, accommodating on-street parking along roadways subject to the 25-mph posted speed limit is reasonable as parking maneuvers along high-speed roadways are likely to raise safety concerns. To assess the adequacy of current on-street parking, parking demand surveys are further recommended to demonstrate the need for providing new on-street parking elsewhere within the transportation impact study area.

Transit

Existing transit service is provided by C-TRAN. In January 2025, bus route #48 was extended to La Center, serving a new stop at E Birch Avenue and E 6th Street in Downtown. The bus route connects to Ridgefield, the Ridgefield Junction Park and Ride, and the 99th Street Transit Center, and has eight scheduled stops in La Center on weekdays and six on weekends. A small lot near the bus stop serves as a park and ride facility.

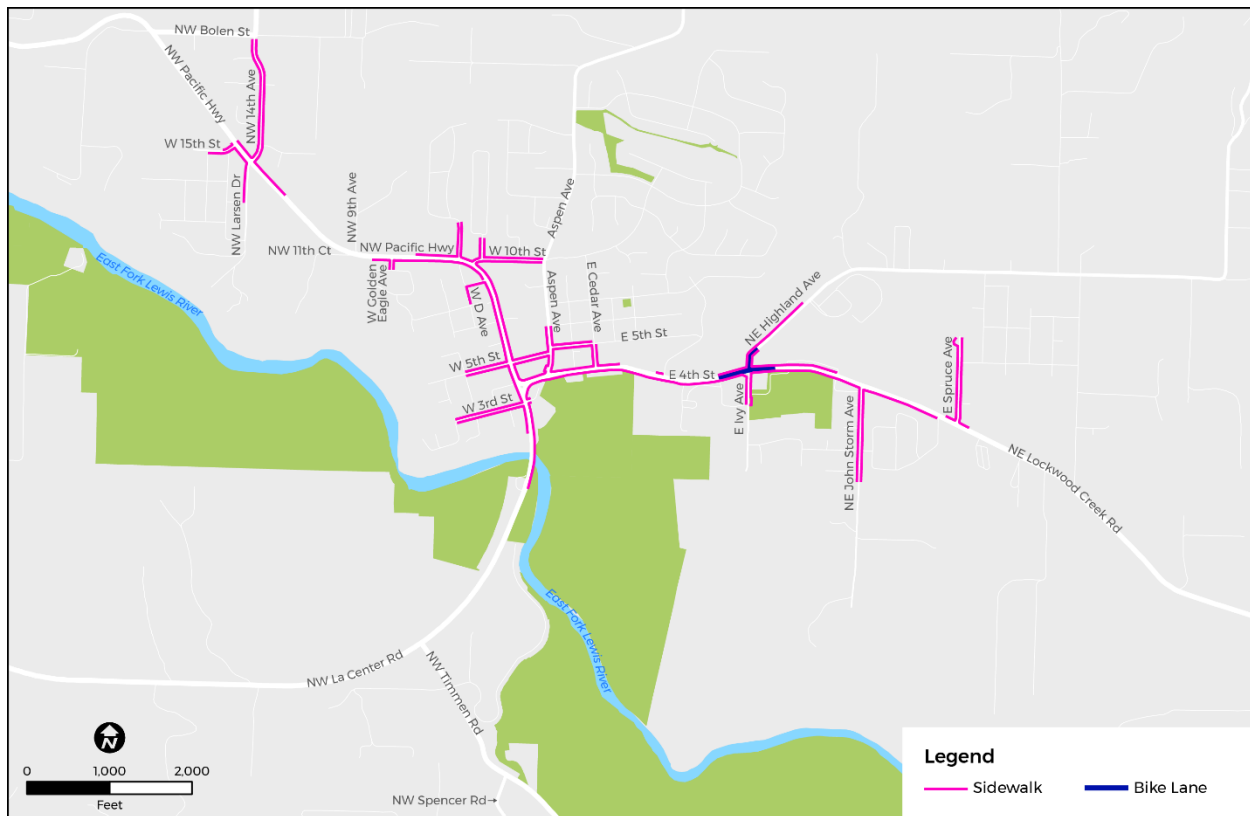
In addition, the study area is served by C-TRAN's "the Current", which is an app-based on-demand rideshare service that provides point-to-point service. The Current provides customers with a flexible option to travel throughout the service area, which includes all of La Center. Users can use this service to connect to the Ridgefield Junction Park and Ride and then transfer for trips to Vancouver and other locations. The Current service is provided between the hours of 5:30 a.m. and 7:00 p.m. on weekdays and from 8:00 a.m. to 6:00 p.m. on weekends. C-TRAN also provides paratransit services throughout their service area.

Pedestrian and Bicycle Facilities

Existing pedestrian and bicycle facilities are illustrated in Figure 12 below. This inventory is based on available maps and aerial imagery and may not reflect recently completed projects. Existing pedestrian facilities include mostly complete sidewalks in the Downtown subarea as well as in new subdivisions, with fewer facilities and more connectivity gaps in other areas. There are no sidewalks either on NW Timmen Road or NW Spencer Road. There are some planned improvements, which are described in the following section, under the No-Action Alternative.

Existing bicycle facilities are present only at the intersection of NE Highland Avenue and E 4th Street/NE Lockwood Creek Road. Bike lanes are present on those three legs of the intersection, but not along E Ivy Avenue, the south leg of the intersection.

Figure 12. Existing Pedestrian and Bicycle Facilities



3.2.3 Potential Impacts

Impacts Common to All Alternatives

Population growth, development, and transportation improvements would occur under both alternatives, as detailed below. Each alternative would result in increases in people using the transportation system in the study area, including motor vehicle, bicycle, and pedestrian facilities. Planned transportation improvements identified in the adopted transportation capital facilities plan would occur under either alternative. The City is currently in the process of adopting a revised transportation capital facilities plan, and for the purposes of the EIS, it is assumed that projects identified in the draft plan would occur under either alternative.

Under both alternatives, population growth and development would cause some intersections to operate below the established mobility standards, although most would continue to meet mobility standards. Table 14 lists the intersection operational analysis results for the PM peak hour in 2045 and compares them to the mobility target for each location. Of the 18 study intersections, 15 would operate within mobility standards under the No Action Alternative and 11 would operate within mobility standards under the Project Alternative. Intersections that would not meet the mobility standards are shown in red. Mitigation measures were developed for the Project Alternative (described below), and all study intersections would meet the City's mobility standard with the proposed mitigation.

Table 14. Future Operations Analysis – Intersection Delay and Level of Service

No.	Intersection	Traffic Control	Mobility Standard	2045 No-Action Alternative PM Peak Hour			2045 Project Alternative PM Peak Hour		
				v/c	Delay (s/veh)	LOS	v/c	Delay (s/veh)	LOS
1	NW La Center Road / NW Timmen Road	TWSC / Roundabout	LOS E	0.66	120	F	-	134	F
2	NW La Center Road / W 3rd Street	TWSC	LOS E	0.26	51	F	0.27	44	E
3	NW La Center Road / NW Pacific Highway / W 4th Street (SIDRA 9.1)	Roundabout	LOS E	-	10	A	-	79	F
4	NW Pacific Highway / W 5th Street	TWSC	LOS E	0.13	16	C	>1	>300	F
5	NW Pacific Highway / W 10th Street	TWSC	LOS E	0.08	15	B	0.15	23	C
6	NW Pacific Highway / W D Avenue	TWSC	LOS E	0.08	14	B	0.15	23	C
7	NW Pacific Highway / NW 14th Avenue / NW Larsen Drive	TWSC	LOS E	0.13	14	B	0.23	22	C
8	NW Pacific Highway / W 15th Street	TWSC	LOS E	0.07	10	A	0.10	12	B
9	W 4th Street / E 4th Street / Aspen Avenue	TWSC	LOS E	0.38	71	F	>1	>300	F
10	E 4th Street / E Cedar Avenue	TWSC	LOS E	0.23	20	C	>1	185	F
11	E 4th Street / NE Lockwood Creek Rd / NE Highland Avenue	TWSC	LOS E	0.05	38	E	0.13	101	F
12	NE Lockwood Creek Road / NE John Storm Avenue	TWSC	LOS E	0.37	22	C	0.90	111	F
13	NE Lockwood Creek Road / E Spruce Avenue	TWSC	LOS E	0.06	10	B	0.10	14	B
14	Aspen Avenue / E 5th Street	TWSC	LOS E	0.08	12	B	0.12	13	B
15	Aspen Avenue / W 5th Street	TWSC	LOS E	0.04	12	B	0.17	13	B
16	NW Timmen Road / NW Spencer Road	TWSC	LOS E	0.18	12	B	0.26	14	B
17	NW Pacific Highway / NW 9th Avenue / NW 11th Court	TWSC	LOS E	0.03	13	B	0.06	18	C
18	NW Pacific Highway / W Golden Eagle Avenue	TWSC	LOS E	0.03	13	B	0.06	18	C

v/c = volume-to-capacity; s/veh = seconds per vehicle; LOS = level of service; TWSC = two-way stop-controlled

The Transportation Technical Report identifies mitigation for each intersection that does not meet the mobility standard under the Project Alternative. With the proposed mitigation, all study intersections would meet the City's mobility standard.

No-Action Alternative

The No-Action Alternative assumes growth consistent with the current adopted planning and policy documents, including the comprehensive plan and transportation capital facilities plan. It is assumed that, without the adoption of the subarea plans, development would occur incrementally over time and would align with forecasted growth totals for the city.

Motor Vehicles

The No-Action Alternative represents future conditions based on current zoning and population/job trends, and assumes the improvements identified in the transportation capital facilities plan would occur. It is also assumed that future redevelopment would require concurrency review and additional transportation improvements could be required at that time.

Table 14 (above) provides a summary of the AM and PM peak hour intersection v/c ratios, intersection delay, and LOS. As shown, the following three intersections would not meet the mobility standard during the PM peak hour under the No-Action Alternative:

- NW La Center Road / NW Timmen Road
- NW La Center Road / W 3rd Street
- W 4th Street / E 4th Street / Aspen Avenue

Under the No-Action Alternative, parking in the study area would be developed/redeveloped in conjunction with future development proposals consistent with city parking standards. No significant parking impacts are expected as a result of the No-Action Alternative, but parking demand would increase due to increased residential and commercial development.

Transit

The No-Action Alternative assumes retention of the existing C-TRAN transit service. There are no known planned improvements to the transit system serving the study area.

Pedestrian and Bicycle Facilities

As noted under Affected Environment, existing bicycle facilities are limited in the study area. However, a project currently underway (the E 4th Street Improvement Project) will extend the bike lanes along E 4th Street from NE Highland Avenue to E Cedar Avenue. This project will also fill gaps in sidewalk connectivity for this segment. Another project is currently under design for a 10-foot wide, paved shared use path from NW Larsen Drive connecting to Downtown, which will include the existing sidewalk and bike lane at Kay's Subdivision.

The City's draft transportation capital facilities plan, which has not been adopted yet, was also reviewed for potential planned improvements. The draft plan identifies several projects that would add or extend pedestrian and bicycle facilities in the study area, including new pedestrian and bicycle facilities on Spencer Road and Timmen Road. A shared use path is proposed along NW La Center Road along with a proposed trail at the southwestern portion of the Timmen Landing subarea.

Future development proposed under the No-Action Alternative may include other bicycle or pedestrian facility improvements; however, improvements would be project-specific and are not anticipated to substantially change the bicycle and pedestrian environment that currently exists in the study area.

Project Alternative

It is assumed that the planned improvements to the transportation system would also occur under the Project Alternative, as the subarea plans are consistent with these improvements.

Motor Vehicles

A summary of the AM and PM peak hour intersection v/c ratios, intersection delay, and LOS is provided in Table 14 (above), and detailed reports are included in Appendix D. As shown, most study area intersections would meet the established mobility standards. The following seven intersections would not meet the mobility standard during the PM peak hour; two of these would also not meet the standard under the No-Action Alternative.

- NW La Center Road / NW Timmen Road (also under No-Action)
- W 4th Street / E 4th Street / Aspen Avenue (also under No-Action)
- NW La Center Road / NW Pacific Highway / W 4th Street
- NW Pacific Highway / W 5th Street
- E 4th Street / E Cedar Avenue
- E 4th Street / NE Lockwood Creek Rd / NE Highland Avenue
- NE Lockwood Creek Road / NE John Storm Avenue

Similar to the No-Action Alternative, parking would be developed/redeveloped in conjunction with future development proposals consistent with city parking standards. The Project Alternative would increase parking demand in the study area compared to the No-Action Alternative.

Transit

As with the No-Action Alternative, there are no known proposed improvements to the transit network serving La Center. The Project Alternative would include a new bus stop at the La Center/Timmen Road junction. In addition, several goals and policies would promote transit access, as detailed in the following section.

Pedestrian and Bicycle Facilities

All of the planned improvements identified under the No-Action Alternative would also occur under the Project Alternative, in addition to several improvements proposed in the subarea plans. The grid network in the northwestern portion of the Downtown subarea (primarily north of 5th Street and west of Pacific Highway) would include full road width improvements, including sidewalks, as this area is currently substandard with minimal sidewalks and connectivity. New pedestrian pathways would be built to improve connectivity to the proposed plaza west of W 6th Street and W F Street. There also would be new trail connections along the river to the west and south. In addition, several subarea goals and policies would promote pedestrian and bicycle connectivity, as detailed in the following section.

3.2.4 Avoidance, Minimization, and Mitigation Measures

Included in the Subarea Plans

Table 15 provides a summary of the proposed mitigation recommended at each study intersection impacted by the 2045 Project Alternative scenario (details are provided in Appendix D). With the identified mitigation, all study intersections would meet the City's mobility standard.

Table 15. Potential Motor Vehicle Mitigation

Intersection	Proposed Traffic Control	Summary of Mitigation Treatments
NW La Center Road / W 3rd Street	Right-In Right-Out	<ul style="list-style-type: none"> • Modify existing intersection to a three-legged right-in right-out intersection to facilitate proposed mitigation treatments at NW La Center Road / NW Pacific Highway / W 4th Street. • All left-turning project alternative trips in and out of W 3rd Street to be re-assigned to W 5th St. • W 3rd Street eastbound right-turn to be designed as a free right turn to NW La Center Road.
NW La Center Road / NW Pacific Highway / W 4th Street (SIDRA 9.1)	Roundabout ¹	Modify existing roundabout to – <ul style="list-style-type: none"> • accommodate two-lane approaches; and • refine lane discipline along all approaches.
NW Pacific Highway / W 5th Street	Traffic Signal	Signalize existing intersection.
E 4th Street / E Cedar Avenue	Traffic Signal ¹	Signalize existing intersection.
E 4th Street / NE Lockwood Creek Rd / NE Highland Avenue	Traffic Signal	Signalize existing intersection (under construction 2025 and operational by 2026).
NE Lockwood Creek Road / NE John Storm Avenue	Traffic Signal ¹	Signalize existing intersection.

¹The City is currently updating its Transportation Capital Facility Plan (CFP), which includes reviewing traffic data, including future conditions with the proposed Downtown and Timmen Landing subareas. The CFP will identify any recommendations and mitigations from this analysis.

In addition to the mitigation identified above, the following goals and policies included under the Project Alternative have the potential to improve transportation in the study area.

- Subarea-Wide Transportation Goal: Expand the existing road network to support future residential development.
 - Policy: Enhance commercial and residential access by expanding the existing local road network and creating new streets such as W 6th Street and W 7th Street.
- Downtown Transportation Goal: Improve pedestrian, transit, and recreational access between downtown and outlying neighborhoods.
 - Policy: Encourage walkable, bikeable, and non-motorized access between the pedestrian plaza and the East Fork Lewis River.
 - Policy: Promote multimodal access to the C-TRAN transit center to expand equitable connections between downtown and outlying neighborhoods.
 - Policy: Proactively plan for and mitigate the impacts of new development on the transportation system, particularly on local roads.
- Timmen Landing Transportation Goal: Create a pedestrian-oriented community while enhancing motorized vehicle access to regional job opportunities.

- Policy: Enhance vehicle access between the community and regional job opportunities by constructing new roundabouts at NW Timmen Road.
- Policy: Promote sidewalks throughout Timmen Landing with a regional sidewalk network on NW La Center Road that connects the new residential to commercial businesses downtown and nearby parks.

Regulations and Other Mitigation

Under both alternatives, new development or redevelopment within the Timmen Landing and Downtown subareas would be required to meet applicable city codes and pay traffic impact fees (TIFs).

Any new development that would cause transportation operations to exceed adopted mobility targets is required by the City to provide mitigation, such as improvements to the affected streets and intersections, which could include infrastructure or funding for transportation demand management or alternative transportation modes.

Chapter 3.35 of the LCMC describes the applicability and implementation of TIFs. La Center collects TIFs for new development, which provide a funding source for transportation system capacity projects. The funds collected can be used to pay for new construction or improvements to portions of roadways impacted by new development and increased traffic demand.

Per the La Center Complete Streets Program (LCMC 12.30), the City shall, to the extent practical, scope, plan, design, construct, operate and maintain appropriate facilities for the safe accommodation of all users in all new construction, retrofit, or reconstruction projects.

Off-street parking and loading requirements are described in LCMC Chapter 18.280. New developments in the study area would be required to meet the requirements for parking and any new updates that are included as part of the comprehensive plan update.

3.2.5 Significant Unavoidable Adverse Impacts

Without mitigation, the Project Alternative would result in more intersections not meeting mobility standards than the No-Action Alternative. With the proposed mitigation treatments identified above, all study intersections impacted by the Project Alternative would meet the City's mobility standards. In addition, the City is currently updating its Transportation CFP that will identify projects to meet the future level of service citywide and within the subareas, including updating TIF rates to fund these future projects.

3.3 HISTORIC AND CULTURAL RESOURCES

3.3.1 Methodology

The EIS authors reviewed relevant information sources and policies about historic and cultural resources, including the following:

- Memo: Review of Existing Conditions for Archaeological and Historic Resources (AINW 2024, Appendix E)
- LCMC Chapter 18.360, Archaeological Resource Protection

Additional details on the methodology and sources used are provided in the technical memorandum for historic and cultural resources (Appendix E).

The EIS authors reviewed the alternatives to identify potential adverse impacts and avoidance, minimization, or mitigation measures considering the following:

- Increased impacts to National Register of Historic Places (NRHP) sites
- Increased risk of uncovering archaeological resources

3.3.2 Affected Environment

This section summarizes the results of background research and field reconnaissance conducted by AINW to review existing conditions and identify documented and potential cultural resources within the two subareas.

Archaeological Resources

Downtown

Washington’s statewide archaeological predictive model indicates that most of the Downtown subarea falls within the category labeled “Archaeological Survey Highly Advised: Very High Risk” for archaeological resources. Steeper terrain in the vicinity of Brezee Creek falls within categories labeled “Survey Highly Advised: High Risk” to “Survey Recommended: Moderate Risk” for archaeological resources.

Most of the Downtown subarea has not been previously studied for archaeological resources. Previously completed studies that overlap the subarea consist of survey-level or predetermination-level investigations in support of floodplain restoration and habitat mitigation projects along the East Fork Lewis River (Gall and Smith 2011; Solimano et al. 2015), construction of a roundabout on 4th Street (Mastrangelo and Holschuh 2014), upgrades to the City’s wastewater treatment plant (Freed 2007), installation of a fiber optic line along NW La Center Road (Cooper 2001), widening of E 4th Street and replacing a culvert on Brezee Creek (Williams-Larson et al. 2020), construction of the Kays Subdivision (Easton 2007), installation of a stormwater outfall from the Kays Subdivision to the East Fork Lewis River (Holschuh 2015), a four-plex housing project on Parcel 63663620000 (Cogley and Gall 2021), and an archaeological predetermination for what is now Sternwheeler Park (Mills 2002a).

Though no pre-contact archaeological sites have been recorded within the subarea, there are three pre-contact archaeological sites and one isolated artifact that have been identified and recorded within about 220 meters (725 feet) of the subarea. An isolated flaked cobble is recorded to the north of the subarea. Two archaeological sites are to the east of the subarea near the course of Brezee Creek, and one site is southeast of the subarea on the southeast side of the East Fork Lewis River Levee.

There is one recorded historic-period archaeological site within the Downtown subarea (Mills 2002). As it was recorded, the site consisted of a scatter of historic-period artifacts and architectural debris, including fragments of brick, glass, ceramics, bone, metal, and concrete. Temporally diagnostic artifacts indicated that the items were manufactured between circa 1890 and 1930, and the deposit was interpreted to be the remnants of two buildings that were destroyed by fire in the 1930s and subsequently pushed over the edge of the terrace (Mills 2002b). The boundary of the site has not been delineated, and the site has not been evaluated for NRHP eligibility.

Similar to Timmen Landing, timber piles are visible along both banks of the East Fork Lewis River, which forms the southern and western boundary of the Downtown subarea. Other historic-period archaeological sites are likely present in the historically developed parts of La Center.

Timmen Landing

AINW conducted a review of records available in the Washington State Department of Archaeology and Historic Preservation’s (DAHP) online database, the Washington Information System for

Architectural and Archaeological Records Data (WISAARD). Washington’s statewide archaeological predictive model (available on WISAARD) indicates that most of the Timmen Landing subarea falls within the category labeled “Archaeological Survey Highly Advised: Very High Risk” for archaeological resources. The northwestern portion of the Timmen Landing subarea, where the terrain is steeper in the vicinity of NW La Center Road and NW 319th Street, fall within categories labeled “Survey Recommended: Moderate Risk” to “Survey Contingent Upon Project Parameters: Low Risk” for archaeological resources.

Most of the Timmen Landing subarea has not been previously studied for archaeological resources. The few archaeological studies previously completed in the subarea consist mainly of limited survey or predetermination-level investigations done for installation of buried utilities that include a fiber optic line (Cooper 2001), water lines (Cowan and Tisdale 2016; Freed 2011; Taber and Roulette 2022), and a natural gas meter station (Lorain and Trost 2021). No archaeological resources were identified as a result of these previous investigations, which were all located on or near major roads in the subarea.

There is one recorded archaeological site within the Timmen Landing subarea. The site consists of pre-contact lithic artifacts and historic-period artifacts identified on a terrace landform adjacent to the East Fork Lewis River.

Also within the Timmen Landing subarea is John Pollock’s Grave located at 32324 NW Pollock Road (Figure 13). The grave site is listed in the Washington Heritage Register, but it has not been evaluated for eligibility to be listed in the NRHP (Woolridge n.d.).

Figure 13. John Pollock's Grave



At the northern end of the subarea, timber pilings are visible in the water along both banks of the East Fork Lewis River (Figure 14). The pilings are remnants of previous structures, including a previous bridge over the river as well as docks and other structures, that were present in the vicinity of Downtown and Timmen Landing in the late nineteenth and early twentieth centuries. The pilings meet the definition of an archaeological site; however, they have not yet been documented or recorded or evaluated for NRHP eligibility. In addition, there may be submerged archaeological resources in the river. Several steamboats are known to have sunk in this vicinity (La Center Historical Museum 2023).

Figure 14. Timber Piling Along the East Fork Lewis River



Historic Resources

Downtown

Within the Downtown subarea, there are three historic buildings and one structure that have been previously documented.

- In 1994, Giovanni's Pizza Granita & Espresso was documented as having been constructed circa 1925 at 320 NW Pacific Highway (Garris 1994a). At the time of documentation, the building was noted as having poor integrity. The building has since been modified and is unlikely to have the aspects of integrity required to support eligibility for listing in the NRHP.
- The building at 318 NW Pacific Highway was constructed circa 1915 and was documented in 1994 as having moderate integrity (Garris 1994b). The building has since been extensively altered and is unlikely to be eligible for listing in the NRHP (Figure 15).
- The East Fork Lewis River Levee is located south of Sternwheeler Park and east of the East Fork Lewis River. Constructed circa 1941, the levee was determined to be not eligible for listing in the NRHP by the Bonneville Power Administration in 2015 (Goodwin 2015).
- The La Center Grange at 328 W 5th Street was previously documented in 1978, at which time it was theorized as having been constructed as early as 1875 (Pundt 1978). However, local students later reported that the building was constructed in 1900 (Davis et al. 2000). The building is currently unevaluated but likely to meet minimum eligibility requirements for listing in the NRHP due to its adequate historical integrity and association with the social history of La Center near the turn of the twentieth century.

Figure 15. Buildings at 318 (left) and 320 (right) NW Pacific Highway



Reconnaissance of the Downtown area revealed a mixture of historic-period residences and commercial buildings with civic buildings, parks, recreation facilities, and residences constructed within the last 50 years. Due to the mixture of building uses and dates of construction, the potential for a historic district to be present in the Downtown area and meet minimum eligibility requirements for listing in the NRHP is limited. However, there are two clusters of historic-period buildings that likely merit further investigation of potential eligibility for listing in the NRHP, both individually and collectively.

- Five commercial buildings along E 4th Street (103-127) are clustered between Aspen Avenue to the west and E Birch Avenue to the east (Figure 16). The buildings appear to date to the early to mid-twentieth century.
- Four houses along Aspen Avenue (530-630) are clustered on the west side of the street between E 5th Street to the south and E 7th Street to the north (Figure 17). Three of the four appear to have been constructed near the turn of the twentieth century, with the fourth house appearing to have been constructed circa 1940.

Figure 16. Cluster of Historic Commercial Buildings Along E 4th Street



Figure 17. Cluster of Historic Period Residences on Aspen Avenue



Individual buildings were also identified as having potential to be eligible for listing in the NRHP under Criterion C, as they exhibit distinctive characteristics of their type and period of construction and appear to retain adequate historical integrity. Additional research would be needed to discern potential associations with significant events (Criterion A) or people (Criterion B) of the past, in addition to assessing potential for each building to be a principal source of important information about the past (Criterion D).

- A house at 420 E Birch Avenue that appears to have been constructed circa 1900
- A bank building at 214 E 4th Street that appears to have been constructed circa 1976
- A house at 510 W 5th Street that was constructed circa 1944

- The Barnhart farm at 555 W 5th Street. Clark County records document the house as having been constructed circa 1912; a barn and shed were constructed circa 1924.
- A small building, likely a residence at 105 W 6th Street, that was constructed circa 1920

Timmen Landing

Reconnaissance of the Timmen Landing area indicates there is a section of the former Pacific Highway that was paved in 1921 and now operates as NW Pollock Road (Fortin and Smits 2016). Historic-period bollards, gutters, and curbing were observed in the area between NW Pollock Road's intersection with NW 4th Court to the road's terminus at the John Pollock Water Trail Park to the northeast (Figure 18). This section of the former highway is likely to meet minimum eligibility requirements for listing in the NRHP.

Figure 18. Former Pacific Highway (NW Pollock Road)



The Timmen Landing area is characterized by semi-rural residential development. Most buildings within the area appear to have been constructed within the last 50 years and are set back from adjacent roadways. Private drives limited the extent to which the Timmen Landing area could be observed for the presence of historic resources with potential to be eligible for listing in the NRHP. It is unlikely that a historic district is present in this subarea, unless the section of the Pacific Highway along NW Pollock Road is found to be part of an overarching linear historic district relating to the Pacific Highway.

3.3.3 Potential Impacts

Impacts Common to All Alternatives

The potential impacts to cultural and historic resources are similar for the No-Action and Project alternatives. Under the alternatives, both subareas are anticipated to experience some development or redevelopment. Potential development or redevelopment in either subarea could potentially impact previously recorded archaeological sites as well as historic resources.

Most of the study area has not previously been studied for archaeological resources. Archaeological predetermination-level or survey-level studies (depending on compliance requirements) are recommended for areas that have not yet been investigated and where future developments are proposed. As with previously completed investigations, future projects could occur within each subarea that could impact known or unknown archaeological sites. There are two recorded archaeological sites in Timmen Landing and one recorded historic-period archaeological site in Downtown. Additional recorded archaeological sites are also located outside the Downtown subarea boundary. Ground disturbance activities along either bank of the East Fork Lewis River will need to consider timber pilings located in the river, which are considered an archaeological site and should be documented and recorded. If an archaeological site is identified that cannot be avoided by future development or redevelopment, additional archaeological investigations may be needed, and a permit from DAHP may also be needed.

For historic resources, potential development or redevelopment could impact historic buildings or structures that are currently listed or eligible for listing in the NRHP. Within the Timmen Landing subarea, a primary concern is the potential for projects within the Timmen Landing area to affect the former Pacific Highway alignment (present-day NW Pollock Road). The section of roadway between NW 4th Court and the John Pollock Water Trail Park is likely eligible for listing in the NRHP and has not yet been documented in DAHP's WISAARD database. Within the Downtown subarea, there is the potential for projects to either affect a historic district or historic buildings. However, there is limited potential for a historic district to be present within the Downtown subarea that would meet minimum eligibility requirements for listing in the NRHP. Regarding buildings, there are two notable clusters of historic buildings, one consisting of commercial buildings along E 4th Street and another of residences along Aspen Avenue, that are eligible for listing in the NRHP on an individual basis rather than as part of an overarching district resource. Outside of the cluster of commercial buildings and houses, five other individual buildings, including farm structures associated with the Barnhart farm at 555 W 5th Street, are also eligible for listing in the NRHP.

No-Action Alternative

Under the No-Action Alternative, the two subarea plans would not be adopted and new development or redevelopment would occur consistent with the existing zoning and comprehensive plan. As indicated above, previous survey-level or predetermination-level studies have been completed in both subareas and did not identify archaeological resources. There are various historic resources in both subareas that are likely eligible for listing in the NRHP.

The VBLM indicates that new development will occur on vacant or underutilized residential and commercial parcels. Redevelopment would potentially occur within parcels currently zoned as low density residential, mixed use, or commercial. More new development could occur in Timmen Landing as more vacant and underutilized land is available in that subarea. Areas recorded for archaeological sites or NRHP eligibility in the Timmen Landing subarea are within areas identified in the Clark County VBLM as either park constrained or commercial constrained, commercial underutilized constrained, or built constrained. For the Downtown subarea, parcels for new development are not specifically identified, however, there are areas within the subarea that are assessed by the VBLM as buildable acres in proximity to a recorded archaeological site south of W 4th Street and historical resources eligible for listing in the NRHP north of W 4th Street and east of Aspen Avenue. Other buildable acres, particularly areas within the recently annexed area in the northwestern portion of Downtown, may be in proximity to cultural or historic resources and new development or redevelopment would be subject to applicable and regulations for cultural and historic resources.

While certain areas are identified as buildable lands in proximity to cultural or historic resources, specific parcels for redevelopment or development have not been identified and impacts to these resources are not anticipated under the No-Action Alternative. Archaeological predetermination-level or survey-level studies (depending on compliance requirements) are recommended for areas that have not yet been investigated and where future developments are proposed.

Project Alternative

Under the Project Alternative, both subarea plans would be adopted and new development or redevelopment would occur consistent with goals and policies for each subarea. The Project Alternative assumes more residential development and less commercial development than the No-Action Alternative and subsequently more site disturbance. The Timmen Landing subarea would modify existing zoning to assign more acres from mixed use and commercial zones to low and higher density residential, and parks and open space. For the Downtown subarea, zoning would be diversified with more low and higher density residential, less mixed use and commercial, more parks and open space, and some increase in public facilities.

Most of the study area has not been studied for archaeological resources. The proposed changes in zoning distribution could potentially lead to new development or redevelopment. In the Downtown subarea, existing zoning could be redistributed to accommodate higher density residential, generate new commercial development, and increase access to recreation and open space near the East Fork Lewis River. In Timmen Landing, the current mixed-use zone would include higher residential development and a neighborhood overlay. Past projects in both subareas included archaeological predetermination-level or survey-level studies and it is likely that prior subsurface disturbance occurred. Recommended avoidance, minimization, and mitigation measures are described below to offset any potential impacts to archaeological resources.

New development or redevelopment under the Project Alternative could impact historic structures. The primary concern for historic resources in Timmen Landing is the potential to affect the former Pacific Highway alignment (present-day NW Pollock Road). Specific development is not proposed along NW Pollock Road, although any projects, such as roadway realignment, within the neighborhood overlay to accommodate the newly zoned higher density residential development could require ground disturbance and potentially affect NW Pollock Road. There are several historic structures in the Downtown subarea that could be eligible for listing in the NRHP. As indicated above, buildings along the two notable clusters are likely to be determined eligible for listing in the NRHP on an individual basis rather than part of a historical district. Also, previously documented buildings along NW Pacific Highway are unlikely to be eligible for listing and the East Fork Lewis River Levee has been determined not eligible for listing. Recommended avoidance, minimization, and mitigation measures are described below to offset potential impacts to historic resources.

3.3.4 Avoidance, Minimization, and Mitigation Measures

Included in the Subarea Plans

The Project Alternative includes the following policies and action items that have the potential to have a positive impact on historic and cultural resources in the study area.

- Action Item: Conduct archaeological predetermination-level studies for areas that have not yet been investigated and where future developments are proposed within the subareas, including John Pollock's Grave site in Timmen Landing.

- **Downtown Land Use Policies:**
 - Encourage a compact, active “heart” for the city that thrives through new mixed-use development, multi-family residential, office, retail, restaurants, public facilities and historic sites.
 - Promote placemaking and local identity by creating a pedestrian plaza that connects historic sites between W 6th Street and recreational opportunities on the East Fork River.
 - Maintain the quaint, historic downtown character by retaining and remodeling existing vacant commercial buildings.

Regulations and Other Mitigation

Future development in the two subareas will likely be subject to compliance review for cultural resources under the LCMC and other laws and regulations that may be applicable, which are summarized below.

Section 106 Federal

If future development projects within the Downtown and Timmen Landing subareas involve federal funding or federal permitting, those developments may be subject to review for cultural resources under Section 106 of the National Historic Preservation Act. Federally funded transportation projects are also subject to review under Section 4(f) of the U.S. Department of Transportation Act. If future development encounters tribal gravesites, the development would be subject to the Native American Graves Protection and Repatriation Act. Lastly, impacted historic properties are subject to the Secretary of the Interiors Guidelines for Treatment of Historic Properties, as applicable.

Governor’s Executive Order 21-02

If future development projects within the Downtown and Timmen Landing subareas involve state capital funding, those developments may be subject to review for cultural resources under Governor’s Executive Order 21-02.

Washington State Department of Archaeology and Historic Preservation

Washington state laws regarding archaeological sites and permitting through DAHP (Chapter 27.53 RCW) may be applicable for locations where archaeological sites are identified. Washington state laws also protect State Historical Societies (Chapter 27.34 RCW), Indian graves and records (Chapter 27.44 RCW), preservation of historic materials (Chapter 27.48 RCW), and abandoned and historic cemeteries and historic graves (Chapter 68.60 RCW). If an archaeological and/or cultural resource is identified and must be removed, an Archaeological Excavation and Removal Permit shall be obtained from the State pursuant to Chapter 25.48 WAC. If an archaeological site is identified that cannot be avoided by future development, additional archaeological investigations may be needed, and a permit from DAHP may also be needed.

La Center Municipal Code

Under LCMC Chapter 18.360, the City provides procedures and standards for identifying, documenting, and preserving cultural resources that include archaeological and historic resources.

3.3.5 Significant Unavoidable Adverse Impacts

Based on the implementation of the proposed avoidance, minimization, and mitigation measures described above, it is not anticipated that the Project Alternative would result in significant unavoidable adverse impacts for historic and cultural resources.

3.4 PUBLIC SERVICES

3.4.1 Methodology

The EIS authors reviewed relevant information sources and policies about public services (parks and recreation, schools, police, and fire and emergency services), including the following:

- City of La Center Parks, Recreation and Open Space (PROS) Comprehensive Plan (City 2024)
- La Center School District (LCSD) Capital Facilities Plan 2019-2025 (LCSD 2019)
- FLO Analytics Memorandum – LCSD 2024-25 to 2033-34 Enrollment Forecasts (FLO Analytics 2024)
- Clark-Cowlitz Fire Rescue (CCFR) Strategic Plan 2020-2022 (CCFR 2020)
- Conversations with LCSD and CCFR
- La Center Comprehensive Plan 2016-2035 (City 2021)

The EIS authors reviewed the alternatives to identify potential adverse impacts and avoidance, minimization, or mitigation measures considering the following:

- Reduced access to parks or open space
- Increased demand for schools beyond planned capacity
- Increased response times for police or fire and emergency services
- Increased demand for police or fire and emergency services beyond planned operational capabilities

3.4.2 Affected Environment

Parks and Recreation

The existing parks system comprises 32 acres of parks and special use areas (city-wide), in addition to two short trail corridors. The City adopted an updated PROS plan in 2024, which includes goals and policies for parks and recreation services in the city. Goals address topics such as maintenance, park amenities, trail connectivity, open space conservation, and climate change resiliency.

The PROS plan classifies the following types of parks within the city: Community Parks, Neighborhood Parks, Family Parks, Trails, and Open Space. All parks are maintained by the City, with the exception of Family Parks.

Community Parks: These parks are planned and designed to provide structured recreation opportunities. Service areas are typically a 3-mile radius and sizes range from 10 to 15 acres. La Center Holley Park is an 11.14-acre community park located on the south side of 4th Street and Lockwood Road and serves as a meeting place for community events and activities. Sternwheeler Park is another 7.44-acre community park located on the Bottoms between 4th Street and the East Fork Lewis River. This park includes both natural and developed areas.

Neighborhood Parks: Typical sizes for these parks range from 2 to 5 acres, and their focus is on adjacent residences within 0.5 mile and are typically used for non-supervised and non-organized recreation activities. Heritage Park is a 2.05-acre park including park facilities such as play structures, swings, walking path, restrooms, and picnic tables. Elmer Soehl Park is a smaller 0.21-acre park with similar park facilities. Riverside Park is a new public park of 5.2 acres, with a wetland area and an improved area including a small parking lot, play structure, basketball court, and sports field.

Family Parks: Family Parks are similar to Neighborhood Parks, but they tend to be developed and maintained by the local homeowner associations.

Special Use Areas: Special use areas are miscellaneous park lands or stand-alone recreation sites designed to support a specific, specialized use. John Pollock Water Trail Park is a 3.8-acre special use park located on the East Fork Lewis River east of NW La Center Road and provides river access for non-motorized watercraft recreation. River Access Park is a 2-acre area with shoreline access to the East Fork Lewis River providing picnic tables, off-street parking, and natural open spaces and trails.

Open Space: Open spaces include City-owned open spaces, open spaces located within the city but on private lands, and open spaces owned by the County or State. City-owned open spaces include:

- Southview Heights riparian area
- Areas adjacent to Brezee Creek
- Wetland area within Riverside Park

Open spaces on private land include:

- McCormick Creek drainage way just outside of the existing western city limits
- Heritage Trails open space and wetlands in South View Heights
- Brezee Creek corridor that bisects the city, just east of downtown, extending to the La Center Bottoms areas and in a northeast direction beyond the La Center High School
- Jenny Creek corridor that extends northeast from the East Fork Lewis River
- Bolen Creek, which bisects northwestern portions of the city from NW Bolen Street south to the East Fork Lewis River

Open Spaces on County or State lands include:

- East Fork Lewis River, generally to the west and south of the city limits
- Legacy Lands in the La Center Bottoms
- Paradise Point State Park

The primary open space corridors within or adjacent to Downtown and Timmen Landing include the McCormick Creek drainage way, the East Fork Lewis River, Brezee Creek, and Legacy Lands.

Trails: Similar to sidewalks and streets, trails help tie a community together. There are seven trails within the city totaling 3.44 miles. These include the Brezee Creek Trail, Heritage Trail, Hillside Farm HOA Trail, Holley Park, La Center Bottoms (County), Sternwheeler Park, and the Water Trail Park to Sternwheeler.

Other Recreational Opportunities in or near La Center: Additional facilities are located within the vicinity of La Center and provide regional recreational opportunities for residents. These facilities include the following:

- La Center Bottoms
- Paradise Point State Park
- Tri-Mountain Golf Course
- East Fork Lewis River Greenery
- Pekin Ferry RV Park

The Bottoms runs through La Center and are adjacent to Downtown and Timmen Landing. It is a 314-acre regional park operated by Clark County and includes 3,500 feet of shoreline on the East Fork Lewis River. The East Fork Lewis River Greenway offers a variety of recreational activities, many of which extend along the river and into Downtown and Timmen Landing.

School District Lands: The City's Comprehensive and Capital Facilities Plans encourage the City to form an interagency agreement with the LCSD. The agreement would help facilitate and formalize the existing practice of the school district allowing the community at large to make use of school district recreational facilities and property. The La Center park system and school district mutually benefit from each other's facilities. The majority of the athletic playing fields within the UGA are owned and operated by the LCSD. These facilities are generally open for public recreational use at no charge. However, the school district charges a small fee for use of the playing fields by profit making ventures. Following is a list of the facilities that exist in the LCSD:

- La Center High School. Located east of Downtown La Center at 725 NE Highland Road, the public school facility includes about 12 acres and football, baseball, softball and soccer fields, and a full-size track.
- La Center Elementary School. Located at 700 E 4th Street, the facility totals about 20 acres and includes playgrounds, a track and field facility, basketball courts, and baseball and football fields.
- La Center Middle School. The approximately 8-acre facility is located at the east end of the city at 2001 NE Lockwood Creek Road. The school was constructed in 2020 and includes parking and pedestrian access. The school includes playgrounds and sports courts.

The 2024 PROS conducted a gap analysis of the park system to examine and assess the current distribution of parks throughout the city and understand where acquisition efforts should be considered. The analysis produced a map with potential acquisition areas within the city and urban growth area for future parks and trails for the near to long term.

- Acquisition Area A: Multiple neighborhood or family parks estimated between 2 to 6 acres across southwestern La Center, near NW La Center Road.
- Acquisition Area B: Multiple neighborhood or family parks estimated between 1 and 2 acres in eastern La Center, north of NE Lockwood Creek Road.
- Acquisition Area C: Multiple neighborhood or family parks estimated between 0.5 to 1 acre in northeastern La Center, near NE North Fork Avenue.
- Acquisition Area D: Potential for community park with extension of Heritage Trail. Multiple neighborhood or family parks estimated between 0.5 to 1 acre in northwestern La Center. Potential areas for family parks include areas near NW 9th Avenue, NW Bolen Street, NW 14th Avenue, W 16th Street, and NW 11th Avenue.
- Acquisition Area E: Potential riverfront site south of NW Pacific Highway and to support East Fork Lewis River North Shore Trail concept.

An LOS review was conducted in addition to and in support of the gap analysis to understand the distribution of parkland acreage by classification. The LOS was updated in 2024 for community parks, to 5.5 acres for every 1,000 residents and for neighborhood parks, to 1.5 acres for every 1,000 residents.

Approximately 7 acres (5 percent) of the Timmen Landing subarea are currently zoned as Parks and Open Space. The subarea includes the John Pollock Water Trail Park, which provides a community boat and kayak launch. To the north, the subarea is directly adjacent to the Bottoms.

Approximately 15 acres (14 percent) of the Downtown subarea are currently zoned as Parks and Open Space. Sternwheeler Park is a community park located in the south of the Downtown subarea. Park amenities include an amphitheater, gazebo, picnic tables, and walking trails. The PROS Plan includes recommendations to increase access and capacity that will tie into the downtown design guidelines and improve park facilities. These include formalizing trail connections in the southwest section install additional picnic tables, ADA upgrades, and restore the creek area.

Schools

The LCSD serves the city of La Center and comprises approximately 38 square miles. The district is bordered by the Woodland School District to the north, the Green Mountain District to the northeast, the Battle Ground School District to the southeast, and the Ridgefield School District to the west. Total school enrollment for 2023-2024 is 1,832, and the district includes four schools: La Center Elementary School, La Center Middle School, La Center High School, and La Center Academy. Approximately 3 percent of students are English language learners and 31 percent are low income (OSPI 2023). A comparison of school and district-wide demographics is shown in Table 16.

Table 16. Student Demographics

Demographic	Elementary School	Middle School	High School	Academy	LCSD
American Indian/Alaskan Native	0.1%	0%	0%	2.6%	0.1%
Asian	1.1%	1.2%	0.7%	2.6%	1.0%
Black/African American	0.5%	0.5%	0.9%	0%	0.7%
Hispanic/Latino of any race(s)	10.7%	11.9%	8.3%	23.1%	10.6%
Native Hawaiian/Other Pacific Islander	0.5%	0.2%	0%	2.6%	0.3%
Two or More Races	5.4%	4.4%	3.9%	2.6%	4.7%
White	81.7%	81.8%	86%	66.7%	82.6%

The comprehensive plan notes that the City acquired land north of Bolen Road for use as a new middle school. However, this site was not chosen and instead the La Center Middle School opened at the site east of downtown off NE Lockwood Creek Road during the 2021-2022 school year. The LCSD capital facilities plan proposes the construction of a second, 500-student elementary school as well as certain improvements at the high school to serve forecasted growth (LCSD 2019). Additional capacity may be provided in the form of new classroom spaces and expanded common areas, with the potential to utilize portable classrooms to meet the needs of a growing student population in the meantime. The LCSD capital facilities plan will be reviewed and updated starting in spring 2025.

Police

The Clark County Sheriff's Office provides police services in La Center. Washington State Patrol also has concurrent jurisdiction on all state routes within Clark County, including I-5. The City shares uses of the Clark County Jail, Municipal Court Facilities in Battle Ground, the 911 Clark Regional Emergency Service Agency, and the Child Abuse Intervention Center.

The City's comprehensive plan notes that to meet future demand, the department will provide staff support as demands and resources are available in addition to replacing aging cruisers every 48 months or 100,000 miles traveled. The department also anticipates the need to add additional office, holding, and storage space over the twenty-year comprehensive plan period.

Fire and Emergency Medical Services

The city is served by CCFR. The CCFR response area covers over 125 square miles and serves a population of approximately 52,000. Approximately 5,000 fire and medical calls are received and responded to each year from a staff of full-time and volunteer firefighters (CCFR n.d.).

One CCFR fire station, Station 23, is located in Downtown La Center at the northeast corner of E 5th Street and E Cedar Avenue. The CCFR's Strategic Plan outlines goals consistent with three strategic imperatives: providing emergency response, education, and enforcement programs (CCFR 2020). The City's current comprehensive plan also identifies the need for future equipment and staffing to maintain emergency response times as the city's population increases.

CCFR's emergency medical service provides Advanced Life Support and Basic Life Support services to the city. Each CCFR firefighter is cross trained to a minimum level of Emergency Medical Technician-Basic, which is someone capable of administering Basic Life Support skills to the sick and injured. CCFR firefighter and paramedic staff also provide Advanced Life Support to critically sick or injured citizens. Engine 23 in Downtown La Center is equipped with Advanced Life Support supplies.

3.4.3 Potential Impacts

Impacts Common to All Alternatives

The population of the study area will increase under both the No-Action Alternative and the Project Alternative. The No-Action Alternative assumes population growth from 264 people today, to 1,192 people in 2045. The Project Alternative assumes a greater growth in population over time, to 2,189 people in 2045. Similarly, residential units increase under both alternatives, from 119 today, to 537 units in the No-Action Alternative and 986 units in the Project Alternative.

Parks

As a result of projected population increases, development under either the No-Action Alternative or the Project Alternative would have the potential to increase the demand for parks and recreational facilities that serve the study area. Table 17 lists park acreage needed to maintain LOS under the No-Action and Project Alternatives.

As shown, the existing acreages of parks and open space meets the LOS as defined in the PROS for parks and trails in the subareas. Under either alternative, the parks and open space zoning acreage would continue to meet the LOS standards for Neighborhood and Community parks.

Table 17. Parks Level of Service Standards

	Existing	No-Action Alternative (2045)	Project Alternative (2045)
Population	264 people	1,192 people	2,189 people

	<i>Downtown: 204 Timmen Landing: 60</i>	<i>Downtown: 439 Timmen Landing: 753</i>	<i>Downtown: 866 Timmen Landing: 1,323</i>
Land Zoned for Parks/Open Space	22 acres <i>Downtown: 15 Timmen Landing: 7</i>	22 acres <i>Downtown: 15 Timmen Landing: 7</i>	38 acres <i>Downtown: 24 Timmen Landing: 14</i>
Neighborhood Parks LOS (1.5 acres/1,000 people)	0.4 acres needed to serve existing population <i>Downtown: 0.3 Timmen Landing: 0.1</i>	1.8 acres needed to serve 2045 population <i>Downtown: 0.7 Timmen Landing: 1.1</i>	3.3 acres needed to serve 2045 population <i>Downtown: 1.3 Timmen Landing: 2</i>
Community Parks LOS (5.5 acres/1,000 people)	1.5 acres needed to serve existing population <i>Downtown: 1.2 Timmen Landing: 0.3</i>	6.5 acres needed to serve 2045 population <i>Downtown: 2.4 Timmen Landing: 4.1</i>	12 acres needed to serve 2045 population <i>Downtown: 4.7 Timmen Landing: 7.3</i>

Source: 2024 PROS

Schools

Development under the Project Alternative or the No-Action Alternatives would have the potential to impact schools within the district and school capacities. Increases in population within the subareas would result in an associated increase in new students at LCSD facilities. New students generated by residential development would represent an increase in annual LCSD enrollment. Projected student generation for each alternative is based on the average student generation rate. The average generation rate distinguishes between single family and multifamily development, with a higher generation rate of 0.654 students (K – 12) per single family unit, and 0.169 students (K – 12) per multifamily unit. The No-Action Alternative assumes a consistent acreage of residential density to today, which is primarily single family. The Project Alternative increases high density residential acreage which would likely result in more multifamily units.

The LCSD capital facilities plan includes district educational program standards of service. For elementary school grades K-3, the student to teacher ratio is 19:1 and for grades 4-5, 20:1. For middle school (grades 6-8) and high school (grades 9-12), the student to teacher ratio is 22:1.

As of 2019, the elementary school had capacity for an additional 31 students and the middle school had capacity for an additional 74 students. The high school was exceeding capacity by 148 students.

Increases in the student population resulting from either alternative will be reviewed annually. Additional capacity needs would be addressed through LCSD's capital facilities planning process to ensure an adequate LOS at LCSD facilities. New residential development in the study area would be required to pay school impact fees per unit in accordance with LCMC Chapter 15.35 (School Impact Fees) to help offset additional demand for school services.

Police

Under either of the alternatives, there could be an increase in demand for police services due to an increase in population and jobs. The EIS authors provided the Clark County Sheriff's office with

information about anticipated growth in the subareas but did not receive a response to our request for comment on the EIS analysis. The increase in population and employment would be incremental over time and is not anticipated to result in a discernible increase in police service calls or impact response times.

Fire and Emergency Services

Growth and development will occur in the study area under the No-Action Alternative and the Project Alternative. Typically, LOS decreases as population increases. However, CCFR has confirmed the ability to absorb the increase in demand with existing resources given the amount of population growth in both alternatives.

No-Action Alternative

Parks

Under the No-Action Alternative, the existing park space will continue to meet the needs of the growing population in the study area based on the LOS standards.

Schools

The No-Action Alternative represents the lowest amount of residential development among the alternatives, with a projected total of 537 residential units. In the years 2017-2022, 723 housing units were built in La Center. Of those units, 80 percent were single family and 20 percent were multifamily. Carrying this split forward to 2045, residential development (430 single family and 107 multifamily units) under the No-Action Alternative would generate approximately 298 new students (0.654 students/single family unit; 0.169 students/multifamily unit [Flo Analytics 2024]). The 298 new students would include approximately 159 elementary students, 67 middle school students, and 72 high school students, as shown in Table 18.

Based on these projections and current LCSD enrollment and capacity, it is anticipated that new students associated with the No-Action Alternative would exceed existing capacity at the elementary school. The middle school could accommodate the expected growth in the study area. As of 2017, the high school enrollment exceeded capacity and additional growth in the subareas would contribute to this exceedance.

Table 18. No-Action Alternative Student Generation

	No-Action Alternative (2045)
Residential Units	537 units
Single Family	430 units
Multifamily	107 units
Student Generation	298 students
Elementary School	159 students
Middle School	67 students
High School	72 students

As described under Impacts Common to All Alternatives, increases in the student population will be reviewed annually and additional capacity needs would be addressed through LCSD's capital facilities planning. New residential development would be required to pay school impact fees per unit in accordance with LCMC Chapter 15.35 (School Impact Fees) to help offset additional demand for school services.

Police

The No-Action Alternative would result in incremental development over time. The No-Action Alternative assumes a population increase from 264 to 1,192 people and an increase in jobs, from 209 to 491. The increase in population and employment would be incremental over time and the City and service providers would allocate additional support and staff as needed to address changes in demand.

Fire and Emergency Services

The No-Action Alternative represents a lower amount of development and population growth. The increase in population associated with the No-Action Alternative would be accommodated by existing service providers, as noted under Impacts Common to All Alternatives.

Project Alternative

Parks

The Project Alternative provides an additional 16 acres of parks and open space. Of that, 7 acres are added to the downtown subarea, and 9 acres are added to the Timmen Landing subarea. The subarea plans do not specify the type of parks added. However, with the addition of 16 acres of parks and open space, the city will continue to meet the LOS standards for parks as the population grows.

Schools

The Project Alternative represents a greater amount of residential development among the alternatives with a projected total of 986 residential units in the subareas. The Project Alternative assumes an increase in multifamily units compared to the No-Action Alternative. Based on acreage for lower and higher density residential, it is assumed that approximately 65 percent of residential units in 2045 will be single family, and 35 percent will be multifamily.

As shown in Table 19, residential development under the Project Alternative would generate approximately 478 students (0.654 students/single family unit; 0.169 students/multifamily unit), including approximately 254 elementary students, 107 middle school students, and 117 high school students.

Based on these projections and current LCSD enrollment and capacity, it is anticipated that new students associated with the Project Alternative would exceed existing capacity at the elementary, middle, and high schools.

Table 19. Project Alternative Student Generation

	Project Alternative (2045)
Residential Units	986 units
Single Family	641 units
Multifamily	345 units
Student Generation	478 students
Elementary School	254 students
Middle School	107 students
High School	117 students

As described under Impacts Common to All Alternatives, increases in the student population will be reviewed annually and additional capacity needs would be addressed through LCSD's capital facilities planning. New residential development would be required to pay school impact fees per unit in accordance with LCMC Chapter 15.35 (School Impact Fees) to help offset additional demand for school services.

Police

At full build out, the Project Alternative would result in a population increase from 264 to 2,189 people and an increase in jobs from 209 to 563. The Project Alternative would result in the highest demand for police services due to higher development levels when compared with the No-Action Alternative. The increase in population and employment would be incremental over time and the City and service providers would allocate additional support and staff as needed to address changes in demand.

Fire and Emergency Services

The Project Alternative represents a greater amount of development and population growth. The increase in population associated with the Project Alternative would be accommodated by existing service providers.

3.4.4 Avoidance, Minimization, and Mitigation Measures

Included in the Subarea Plans

Parks

The Project Alternative increases park acreage and trails in both subareas. In the Downtown subarea, the Project Alternative will include opportunities for recreational activities that connect the waterfront, linking natural resources with a safe network that accommodates biking and walking. Timmen Landing will be a gateway to La Center that will feature access to downtown and the river's natural areas. There will also be access to biking and walking paths.

The following goals, policies, and action items included under the Project Alternative have the potential to have a positive impact on parks and recreation in the study area:

- Subarea-Wide Environmental Policy: Continue to work with agencies and organizations, such as the Lower Columbia Restoration Estuary Partnership and the East Fork Lewis River Partnership, to identify restoration opportunities along for the East Fork Lewis River and other habitat areas.
- Downtown Land Use Policy: Promote placemaking and local identity by creating a pedestrian plaza that connects historic sites between W 6th Street and recreational opportunities on the East Fork River.
- Downtown Transportation Policy: Encourage walkable, bikeable, and non-motorized access between the pedestrian plaza and the East Fork Lewis River.
- Action Item: Update the City PROS Plan to incorporate park and trail locations proposed in the Downtown and Timmen Landing subarea plans.
- Action Item: Coordinate the refinement of park and trail locations with future development proposals.

Schools

None identified.

Police, Fire and Emergency Services

The subarea plans promote more compact growth and development within an existing urban framework, which could reduce growth in outlying areas of the city. This compact form of development could result in more efficient delivery of police, fire and emergency services. The following policies included under the Project Alternative have the potential to have a positive impact on these services in the study area:

- Encourage a compact, active “heart” for the city that thrives through new mixed-use development, multi-family residential, office, retail, restaurants, public facilities and historic sites.
Promote transitioning development patterns where higher-density residential and commercial areas are centralized while lower-density residential uses develop on the outer edges of downtown.

Regulations and Other Mitigation

Parks

Development under either alternative would be required to meet city code and pay park impact fees pursuant to LCMC Chapter 3.35.

Schools

Increases in the student population are reviewed annually by LCSD. Additional capacity needs would be determined through LCSD’s capital facilities planning to ensure an adequate LOS at LCSD facilities. LCSD is currently updating its capital facilities plan to accommodate additional residential growth in the subareas and citywide, and the updated plan is anticipated to be completed in 2025. Development in the study area will result in additional tax revenues, including construction sales tax, property tax, utility tax, licenses and permits, and other fees. A portion would accrue to the City and LCSD and would be used to accommodate student generation. Development would be required to pay school impact fees pursuant to LCMC Chapter 15.35.

Police

Clark County Sheriff’s Office analyzes staffing, equipment, and facility needs through the strategic planning and biennial budgeting processes. Increases in residents over the buildout period of the subarea plans, as well as general growth in the city, would be assessed as part of this process and additional resources would be added as needed to offset impacts to police services.

Development of the study area would result in additional tax revenues from construction and retail sales tax, property tax, utility tax, licenses and permits, and other fees. A portion would accrue to the City and Clark County Sheriff to help offset the increase in demand for police services.

Fire and Emergency Services

All new buildings constructed would be constructed in compliance with the most current version of the International Fire Code. Adequate fire flow to serve new developments, emergency access standards, and required spacing standards for fire hydrants would be provided as required by the City’s specific code requirements.

Development of the subareas will result in additional tax revenues, including construction and retail sales tax, property tax, utility tax, licenses and permits, and other fees. A portion would accrue to the City and CCFR, which would help offset the increase in demand for fire and emergency services.

Potential temporary construction-related impacts would be mitigated through compliance with all local, state, and federal safety regulations and standards on site and coordination with the CCFR to maintain proper emergency access during construction.

In order to monitor service level impacts from the subareas and pursuant to RCW 35.103.040, CCFR is required to annually report service level performance.

3.4.5 Significant Unavoidable Adverse Impacts

With the implementation of avoidance, minimization, and mitigation measures, no significant unavoidable adverse impacts to parks, schools, police and fire and emergency services are anticipated for any of the alternatives.

3.5 UTILITIES

3.5.1 Methodology

The EIS authors reviewed relevant information sources and policies related to utilities (potable water, sanitary sewer, and stormwater), including the following:

- Utility Assessment: Timmen Landing and Downtown Subarea Plan (WSP 2024)
- Clark Public Utilities (CPU) Water System Plan (CPU 2024)
- La Center Draft General Sewer Plan Update (Gray & Osborne 2023)
- La Center Comprehensive Plan 2016-2035 (City 2021)
- LCMC Title 13, Public Utilities, and Title 18, Development Code

The EIS authors reviewed the alternatives to identify potential adverse impacts and avoidance, minimization, or mitigation measures considering the following metrics:

- Increased demand for utilities that exceeds levels of service/capabilities
- Inconsistency with capital improvement plans

3.5.2 Affected Environment

The utilities analysis evaluates impacts to potable water, sanitary sewer, and stormwater utilities. A technical report was completed for the subarea plans and is included as Appendix F.

Water

Water service in the city is owned and operated by CPU. The current adopted water plan for the area is the 2024 Water System Plan (CPU 2024). The existing water system is hydraulically connected to the CPU water network, which extends throughout much of the surrounding rural areas in Clark County. Per the City's comprehensive plan, the source for the full system is approximately 34 production wells and the storage capacity for the La Center system is provided by a reservoir in the northern portion of the city. The CPU La Center water system consists of two 500,000-gallon reservoirs, one booster pump, and a pumping station. The city is currently served by a backbone of a 12-inch diameter water transmission main located at NE North Fork Ave.

The eastern Downtown subarea's water system is comprehensive and well-established, covering most streets with 6-inch, 8-inch, and 12-inch water pipes. Water is transmitted through NW La Center Road in the Timmen Landing subarea using a combination of 24-inch, 8-inch, and 6-inch water mains. Per a phone discussion with CPU staff, the system adequately meets the current water demand, serving both residential and commercial areas effectively (B. Lovingood, personal communication, August 2, 2023).

Sanitary Sewer

The City maintains and operates the sewer system including approximately 5 miles of sanitary sewer collection lines and mains within city limits. Per the City's Draft General Sewer Plan (Gray & Osborne 2023), the sewer system consists of a network of gravity sewers along with a few pump stations. The plan notes that the existing sewage collection system is generally adequate to meet the current condition but required portions of the pipes to be upsized to accommodate the anticipated 20-year flow condition.

The City reacquired the wastewater conveyance and treatment systems from CPU in 2006, which had owned and operated the facilities since 1992 (City 2021). The City measures sewer waste capacity in terms of equivalent residential units (ERUs). One ERU is equal to approximately 300 gallons of waste per day. In 1994, CPU provided service to approximately 240 ERUs (0.072 million gallons per day [MGD]). In 2011, the total annual average daily flow was estimated at 0.30 MGD along with a total peak daily flow of 0.62 MGD. In 2016, capacity was 5,558 ERUs (1.7 MGD). The present capacity at the wastewater treatment facility has been expanded by the City to approximately 10,000 ERUs (3 MGD) per the City's Wastewater Department website. Per the General Sewer Plan (2013), the projected ERUs in 2023 was 10,282. Therefore, the wastewater treatment facility is likely to be adequate to accommodate current demand.

The sanitary sewer system serves most of the Downtown subarea except certain properties on the western side. These areas include certain properties adjacent to East Fork Lewis River and Sternwheeler Park located just west of Brezee Creek. Most of this collection system consists of 8-inch diameter pipes with a short section consisting of 6-inch diameter pipes. On the west side of downtown, smaller pipes flow into larger 18-inch PVC trunk mains in 5th Avea and NW Pacific Hwy.

The Timmen Landing subarea is served by septic tanks and no sanitary sewer infrastructure is present. In September 2018, the City adopted a latecomer agreement with the Cowlitz Indian Tribe to recover their cost to construct a sewer pump station and a sewer trunk line from the wastewater treatment plant up La Center Road to the I-5 Junction. The latecomer agreement will require property owners to pay the fee when they develop their property and connect to the City's sewer system.

The collection system to support Downtown and Timmen Landing subareas utilizes four sewage pumps. Most of the lines leverage gravity sewers to convey untreated wastewater to the wastewater treatment facility located on the north bank of the East Fork Lewis River. The four sewage pump stations that serve the sewer system include one located within the wastewater treatment plant (total capacity of 2.7 MGD), one located between E 4th Street and Stonecreek Drive (total capacity of 0.29 MGD), one located at McCormick Creek, and one located between NE John Storm Avenue and E 1st Circle (total capacity of 0.29 MGD).

The wastewater treatment plant is located at 101 Aspen Avenue. After conveyance to the treatment facility, influent wastewater undergoes biological treatment via advanced membrane bioreactor technology. The final discharge of disinfected secondary effluent is transported via a 10-inch outfall and multiport diffuser into the East Fork Lewis River.

Stormwater

According to the comprehensive plan, the East Fork Lewis River and its tributaries, such as Brezee Creek and other unnamed streams, form the primary drainage system in the vicinity of the subareas. The river flows west to the Lewis River and the Columbia River. Rivers and other surface waters convey stormwater away from the land.

The East Fork Lewis River and its tributaries are listed on the state's Section 303(d) list of impaired water bodies for high in-stream temperatures and fecal coliform bacteria problems (see Section 3.8, Water, for more details). It is anticipated that future development will include stormwater detention/retention basins sized appropriately to handle stormwater runoff in a way that minimizes impacts to the established wastewater system and local streams, rivers, wetlands, and lakes. The Washington Department of Ecology (Ecology) prepared the East Fork Lewis River Alternative Restoration Plan to expedite the voluntary implementation of best management practices to improve water quality in the East Fork Lewis River (Rostorfer 2021). Stormwater treatment within

the study area will need to provide enhanced water quality treatment and may potentially be subject to future total maximum daily loads (TMDLs).

The City owns and operates the majority of the stormwater system and is allowed to operate without a National Pollutant Discharge Elimination System (NPDES) permit. The City's municipal code requires new development to contain stormwater drainage within the development site, minimizing any new point source discharges to the river.

The current system has, for the most part, been mapped and verified. However, a formal stormwater master plan has never been completed or adopted. According to the City Engineer there are likely missing pieces of information regarding existing piping and/or detention facilities.

Within the Timmen Landing subarea, there are various cross-culverts along NW Timmen Road, NW Pollock Road, and NW Spencer Road to provide roadside drainage between various local roads and driveways. The sizes of these culverts are unknown. Storm drain information is not available within most of the Downtown and Timmen Landing subareas per the Clark County GIS website. However, there is a network of storm piping through Downtown that flows to a drainage ditch behind the wastewater treatment plant, and then to Brezee Creek through drainage ditches.

The areas immediately north and south of the NW La Center Road bridge over the East Fork Lewis River have a few 10-inch, 12-inch, and bioswale drainage features that likely outfall into the East Fork Lewis River. The area west of Downtown includes a 30-inch HDPE pipe from W Golden Eagle Avenue that outfalls to the East Fork Lewis River.

In addition, as part of the Critical Areas Mitigation Plan for the Brezee Creek Culvert Replacement/4th Street Widening Project (PBS 2021), the E 4th Street culvert (48-inch corrugated metal pipe) and the Mill Pond dam culvert (30-inches in diameter) will be removed as identified fish passage barriers per the Washington Department of Fish and Wildlife (WDFW).

3.5.3 Potential Impacts

Impacts Common to All Alternatives

The No-Action Alternative and Project Alternative assume an overall increase in residential units and population by 2045. Residential units will increase from 119 units to 537 units in the No-Action Alternative and 986 units in the Project Alternative. Population will increase from 264 people to 1,192 people in the No-Action Alternative and 2,189 people in the Project Alternative.

Water

An increase in residential units and population will increase demand for potable water by 2045. CPU's updated master plan will include analysis of the ability to serve these areas in the planned timeline. This includes any needed acquisition of future water rights and water supply to meet these needs, along with any needed infrastructure to meet demand.

The City will need to continue to develop its source supply and treatment and storage capacities to accommodate long-term growth. The local transmission and distribution system can be extended from the existing City's backbone (the 12-inch water transmission main) and transmission system.

Sanitary Sewer

An increase in residential units and population will increase demand for sewer services by 2045. The current 2023 planning documents have accounted for the additional flow from the two planning areas, and the City has planned for an expansion to 6 MGD when it is needed. As a result of the City's planning efforts, the wastewater treatment plant is well positioned to handle any additional flows or loading from both the No-Action and Project Alternative.

The collection system is also planned for the anticipated population growth and is more than adequate for purposes of planning. At present, the City plans to adopt the sewer collection and treatment master plan in late 2025. The Downtown subarea plan is primarily gravity flow directly to the treatment plant while the Timmen Landing subarea plan is pumped on La Center Road to the high point of Timmen Road at which point it goes to gravity flow across the East Fork Lewis River.

There are two force mains coming from the McCormick Creek pump station on La Center Road. One of these force mains is 8-inch and is not in use. The other force main is 6-inch and is in use but due to low flows it currently requires flushing cycles. Between these two force mains there is significant future capacity to serve the Timmen Landing subarea. In addition, the redundancy of the mains across the river ensures that flows can be conveyed to the treatment plant even if one is taken offline for maintenance.

While there are some septic systems in the Timmen Landing subarea, they do not serve constrained neighborhoods. The additional load that will result from these existing septic systems being connected to the sewer collection system will not significantly impact available capacity.

Stormwater

An increase in residential units will likely increase impermeable surfaces and potentially increase the amount of runoff to treat onsite by 2045. Due to the Section 303d listing of the East Fork Lewis River and tributaries, stormwater treatment within the subareas could be required to provide enhanced water quality treatment and may potentially be subject to future TMDL. However, the City currently operates under the 1992 Puget Sound Manual and the State does not require any treatment as long as the City remains in compliance with the 1992 Manual. Increased density, which typically reduces infiltration and increases runoff, will need to be analyzed for each proposed development to ensure it complies with the City's municipal code. The increased density may prove to be challenging to comply with the code requirement to contain drainage on site and may require allowing smaller design storms¹ being conveyed to the existing system.

No-Action Alternative

The No-Action Alternative assumes an increase in residential units, population and jobs by 2045. Residential units increase from 119 to 537, population increases from 264 to 1,192, and jobs from 209 to 491. Under the No-Action Alternative, there would be no additional impacts to utilities beyond those discussed under Impacts Common to All Alternatives.

Project Alternative

The Project Alternative assumes a greater increase in residential units, jobs, and population compared to the No-Action Alternative compared to the No-Action Alternative. Residential units will increase from 119 to 986, population will increase from 254 to 2,189, and jobs will increase from 209 to 563. The growth will increase the demand on utilities compared to existing conditions and the No-Action Alternative; however, impacts will be similar to those described under Impacts Common to All Alternatives.

¹ A design storm is a precipitation event used to design and assess stormwater infrastructure. They are based on the likelihood of a specific precipitation event happening in a given year.

3.5.4 Avoidance, Minimization, and Mitigation Measures

Included in the Subarea Plans

The Project Alternative includes the following recommended action items that have the potential to have a positive impact on utilities in the study area.

- Ensure that new developments comply with LCMC 18.320, Stormwater and Erosion Control, as there are no existing stormwater facilities in Timmen Landing.
- Formally adopt the 2023 Sewer Collection and Treatment Master Plan to address the flows of the subareas along with the proposed loadings.
- Connect the existing septic system in Timmen Landing to the City sewer collection system.
- Complete and adopt a formal Stormwater Master Plan, including a map of the existing system, review of design criteria for new development, and recommendations for enforcement.
- Complete a review of the CPU water system plan to verify that demand estimates are aligned with Planning, and that peak day demands in the subareas can be met independently from the 12-inch river crossing.
- Perform a detailed fire flow analysis to ensure the system can meet peak day demand with reservoirs half-full.

Regulations and Other Mitigation

Increases in utility demand are reviewed annually by the City and service providers. Additional capacity needs would be determined through the established capital facilities planning process to ensure adequate service is maintained in coordination with CPU. Additionally, current and future potable water connection and delivery would be subject to the Washington Department of Health Drinking Water standards. Development in the study area will result in additional tax revenues, including construction sales tax, property tax, utility tax, licenses and permits, and other fees. A portion would accrue to the City and CPU and would be used to improve utility infrastructure and service in the study area. Development would be required to comply with applicable sections of the LCMC, including Title 13, Public Utilities.

3.5.5 Significant Unavoidable Adverse Impacts

With the implementation of avoidance, minimization, and mitigation measures, no significant unavoidable adverse impacts to utilities are anticipated for any of the alternatives.

3.6 AIR

3.6.1 Methodology

The EIS authors reviewed relevant information sources and policies to describe existing conditions and potential air quality impacts related to emissions of criteria air pollutants, mobile source air toxics, and greenhouse gases (GHGs), including the following:

- U.S. Environmental Protection Agency (EPA) Green Book (EPA n.d.)
- Department of Ecology Climate Commitment Act website (Ecology n.d.)
- Southwest Washington Clean Air Agency (SWCAA) website (SWCAA 2025)

The EIS authors reviewed the alternatives to identify potential adverse impacts and avoidance, minimization, or mitigation measures considering the following metrics:

- Incompatibility with air quality standards

- Potential for increased GHG emissions

3.6.2 Affected Environment

Air quality is typically evaluated by determining whether concentrations of air pollutants are (or would be in the future) higher or lower than air quality standards set to protect human health and welfare. The Federal Clean Air Act requires EPA to set ambient air quality standards for six common health-related air pollutants (“criteria” air pollutants): carbon monoxide, particulate matter, lead, ozone, nitrogen dioxide, and sulfur dioxide. These standards are known as the National Ambient Air Quality Standards (NAAQS).

Three agencies have jurisdiction over air quality in the study area: the EPA, Ecology, and SWCAA. These agencies establish regulations that govern the concentrations of pollutants in the outdoor air. Air quality in Clark County is monitored by the SWCAA, which was created in response to the Washington Clean Air Act of 1967. SWCAA enforces federal, state, and local air pollution laws in the county.

Several agencies operate air quality monitors throughout the state of Washington that monitor concentrations of air pollutants in accordance with EPA protocols. The monitors are operated by EPA, Ecology, Tribes, and local clean air agencies, and measure EPA’s criteria air pollutants as well as atmospheric measures such as wind speed, temperature, and humidity.

Key sources of air toxics in Washington include on-road vehicles (e.g., cars and trucks) and non-road vehicles (e.g., locomotives, airplanes, ships, and construction equipment) (Ecology n.d.). Geographic areas in which concentrations of a pollutant exceed the NAAQS are classified as “nonattainment areas”. Federal regulations require states to prepare state implementation plans for nonattainment areas to bring air quality into compliance with the NAAQS and to maintain compliance. Nonattainment areas that return to compliance are called “maintenance areas”.

The city of La Center has never been designated as a nonattainment area, and air quality in Southwest Washington has generally improved since the early 1980s, when Vancouver, Camas, and Washougal were designated nonattainment areas for carbon monoxide and ground level ozone concentrations. Those cities have since obtained attainment status, however, portions of the city of Vancouver were recently designated by Ecology as one of 16 communities that are “overburdened and highly impacted by criteria air pollution” under the State’s Climate Commitment Act. This designation is limited to Vancouver and does not include La Center.

Despite the county’s generally good to moderate air quality, Clark County received an “F” grade from the American Lung Association in 2024 for particle pollution. The Associations’ State of the Air Report tracks ozone, particle pollution and populations at risk (American Lung Association 2024).

Cities and urban growth areas in Southwest Washington, including La Center, are permanent “no burn” areas under Washington’s outdoor burning rules, which prohibits outdoor burning except for natural materials grown on site and firewood (SWCAA n.d.).

3.6.3 Potential Impacts

Impacts Common to All Alternatives

Impacts to air quality would occur under each alternative as the result of construction emissions (emissions associated with construction vehicles, equipment, and activities) and operation. The demolition of existing structures would require the removal and disposal of building materials that could possibly contain asbestos and lead-based paint. While no large industrial or commercial

uses are anticipated under either alternative, each alternative would see an increase in vehicle emissions associated with increased traffic.

GHG emissions related to increased growth and development within the subareas were estimated using the *King County SEPA Greenhouse Gas Emissions Inventory Worksheet* (see Appendix G). The worksheet was developed by King County to help SEPA applicants determine GHG emissions over the lifespan of a given project. While the worksheet was designed to evaluate individual projects, it remains a useful tool to assess the magnitude of GHG emissions associated with different kinds of development.

The worksheet estimates GHG emissions associated with obtaining construction materials, fuel used during construction, energy consumed during a building's operation, and transportation by building occupants. GHG emission estimates are reported in metric tons of carbon dioxide equivalents (MTCO₂e). MTCO₂e is a unit used to compare the global warming potential of different GHGs.

A summary of the results for both alternatives is provided in Table 20. Under each alternative, GHG emissions would be generated by new building and roadway construction, heating and cooling, waste production, and on-road vehicles. The completed worksheets for each alternative, as well as an explanation of the methodology and assumptions used to create the estimates, are included as Appendix G.

Table 20. Estimated Greenhouse Gas Emissions

Source	Population	Total GHG Emissions (MTCO ₂ e)	Per Capita GHG Emissions (MTCO ₂ e)
No-Action Alternative	1,192	1,274,900	1,070
Project Alternative	2,189	1,978,500	905

Source: See Appendix G. Numbers are rounded and approximate.

No-Action Alternative

The No-Action Alternative would continue developing Downtown into an urban center with higher-density commercial uses while Timmen Landing would continue to develop as primarily low-density residential uses. The resulting residential growth would increase population and jobs when compared to existing conditions. The potential air quality impacts that would occur under this alternative would be caused by continuing population growth and development based on current zoning and development trends.

Vehicle trips would increase during the weekday and PM peak hours, but there would be less trips generated than under the Project Alternative. As such, the vehicle emissions and impacts to air quality under this alternative would be lower than under the Project Alternative.

GHG emissions from the No-Action Alternative are presented in Table 20. This alternative would produce approximately 1,274,900 MTCO₂e (1,070 MTCO₂e per person) and would have lower total GHG emissions compared to the Project Alternative, but higher per capita emissions.

Project Alternative

The intensity of residential development under the Project Alternative would be higher than the No-Action Alternative because this alternative encourages a livable, higher density residential urban center, while creating a mid/lower-density neighborhood at Timmen Landing. The potential air quality impacts that would occur under this alternative would primarily be caused by increased

growth in residential units, population, and jobs. This growth would generate more vehicle trips than the No-Action Alternative, and as such would increase vehicle emissions.

GHG emissions from the Project Alternative are presented in Table 20. This alternative would produce approximately 1,978,500 MTCO₂e (904 MTCO₂e per person) and would have higher total GHG emissions than the No-Action Alternative, but lower per capita emissions. The increased emissions would be caused by zoning and land use changes that promote more development in the study area, with additional residential and commercial development leading to increased emissions from construction, vehicles, and building energy. Per capita emissions would be lower due to the higher density of residential units in the Project Alternative.

3.6.4 Avoidance, Minimization, and Mitigation Measures

Included in the Subarea Plans

The following goals and policies included under the Project Alternative have the potential to reduce vehicle emissions (and associated air pollutants and GHG emissions) in the study area.

- Subarea-Wide Transportation Goal: Expand the existing road network to support future residential development.
 - Policy: Enhance commercial and residential access by expanding the existing local road network and creating new streets such as W 4th Street and W 6th Street.
- Downtown Transportation Goal: Improve pedestrian, transit, and recreational access between downtown and outlying neighborhoods.
 - Policy: Encourage walkable, bikeable, and non-motorized access between the pedestrian plaza and the East Fork Lewis River.
 - Policy: Promote multimodal access to the C-TRAN transit center to expand equitable connections between downtown and outlying neighborhoods.
 - Policy: Proactively plan for and mitigate the impacts of new development on the transportation system, particularly local roads.
- Timmen Landing Transportation Goal: Create a pedestrian-oriented community while enhancing motorized vehicle access to regional job opportunities.
 - Policy: Enhance vehicle access between the community and regional job opportunities by constructing new roundabouts at NW Timmen Road.
 - Policy: Promote sidewalks throughout Timmen Landing with a regional sidewalk network on NW La Center Road that connects the new residential to commercial businesses downtown and nearby parks.

Regulations and Other Mitigation

The federal and state regulations for air pollution are incorporated into the SWCAA permitting program. Emission sources are required to register or obtain an operating permit when emitting 10 tons or more of hazardous air pollution per year to ensure that they do not contribute to air quality impacts. It is not anticipated that new significant sources of emissions from commercial uses are likely to be developed under either alternative. Should any be developed, sources will be required to register or obtain an operating permit from SWCAA. Some transportation system improvements are also reviewed by SWCAA to ensure that they do not contribute to air quality impacts and are compliant with NAAQS and also the National Emission Standard for Asbestos. These regulations will apply to individual developments or transportation projects that result from the implementation of the Project Alternative or development under the No-Action Alternative.

Construction equipment and material hauling can affect traffic flow in a project area if construction vehicles travel during peak periods or other heavy-traffic hours of the day and pass through congested areas, thereby further impeding traffic flow. Under existing regulations, construction contractors would be required to comply with all relevant federal, state, and local air quality rules. In addition, implementation of required best management practices would reduce emissions related to the construction of future development. Demolition contractors would be required to comply with the existing federal and state regulations related to the safe removal and disposal of any asbestos containing materials.

3.6.5 Significant Unavoidable Adverse Impacts

With the implementation of avoidance, minimization, and mitigation measures, no significant unavoidable adverse impacts to air quality are anticipated for any of the alternatives.

3.7 EARTH

3.7.1 Methodology

The EIS authors reviewed relevant information sources and policies to describe geology, topography, soils, and geologically hazardous areas, including the following:

- Washington Department of Natural Resources (DNR) Geologic Information Portal (DNR 2025)
- Web Soil Survey (NRCS USDA 2025)
- Clark County MapsOnline
- LCMC 18.300, Critical Areas
- LCMC 18.320, Stormwater and Erosion Control

The EIS authors reviewed the alternatives to identify potential adverse impacts and avoidance, minimization, or mitigation measures using the following metrics:

- Potential for increased exposure to geologic hazard risks at existing and future development sites
- Potential conflicts with regulations for geologically hazardous areas
- Potential for increased risk of erosion at future development sites

3.7.2 Affected Environment

Geology and Topography

The city of La Center is located within the Portland Basin physiographic province and is situated near the junction of two major geologic units: sedimentary rocks of the Upper Tertiary (Pliocene-Miocene) and volcanic rocks of the Lower Tertiary (Oligocene- Paleocene) (Smedes & Associates 2006). Surface geology in the study area is generally characterized by Quaternary alluvium deposits along the East Fork Lewis River and Pleistocene outburst-flood deposits in the upland areas (DNR 2025).

The topography of the study area encompasses terrace and hillside landforms that slope down towards the East Fork Lewis River. Slopes vary throughout the study area, with slopes ranging from less than 5 percent to more than 40 percent. Elevation in the study area ranges from approximately 10 to 300 feet above mean sea level.

Soils in the study area consist primarily of Gee silt loam series (GeB, GeD, GeF) and Hillsboro silt loam series (HoA, HoB, HoC, HoD, HoE, HoG), which are moderately well drained soils. Hydric soils are present along the southern bank of the East Fork Lewis River (NRCS USDA 2025).

Geologically Hazardous Areas

Mapped geologically hazardous areas are shown in Figure 19 through Figure 21. Geologically hazardous areas are regulated as critical areas under LCMC 18.300.090(4) and are divided into three main categories, as described below. Managing geologically hazardous areas is necessary to ensure the safety and wellbeing of city residents, and to prevent avoidable damage and/or loss of public and private property. In addition, geologically hazardous areas serve an important function in maintaining habitat integrity as events can contribute sediment and wood for building complex instream habitats (Commerce 2018).

Erosion hazard areas, shown in Figure 19, are areas that contain soils that, according to the U.S. Department of Agriculture soil classification system, may experience severe to very severe erosion. Severe erosion hazard areas are mapped throughout most of the study area. Any development within the mapped areas will be required to minimize modifications of topography and vegetation to preserve the long-term stability of sensitive slopes, reduce erosion potential and stormwater runoff, and preserve related ecological values.

Landslide hazard areas, shown in Figure 20, are areas potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors. Landslide hazard areas mapped within the study area include areas of potential instability and areas of older landslide debris; no active landslides are mapped within the study area. The mapped areas of instability are associated with slopes greater than 15 percent and are located along the eastern portion and diagonally through the middle of the Timmen Landing subarea, and near Aspen Avenue and E Birch Avenue near E 4th Street in Downtown. Additionally, areas of older landslide debris are mapped near the southern terminus of Golden Eagle Avenue and in Sternwheeler Park, west of Brezee Creek.

Seismic hazard areas are areas subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, or soil liquefaction. Most of the study area is rated low to very low for liquefaction susceptibility, although some areas near the river are rated moderate to high (see Figure 21). DNR maps a seismogenic fault beneath the East Fork Lewis River and the areas associated with the river are rated the highest relative hazard on the National Earthquake Hazards Reduction Program scale (site class E and D-E). However, most of the study area is rated low on the scale (site class C), with small areas rated moderate (site class D).

Figure 19. Erosion Hazard Areas

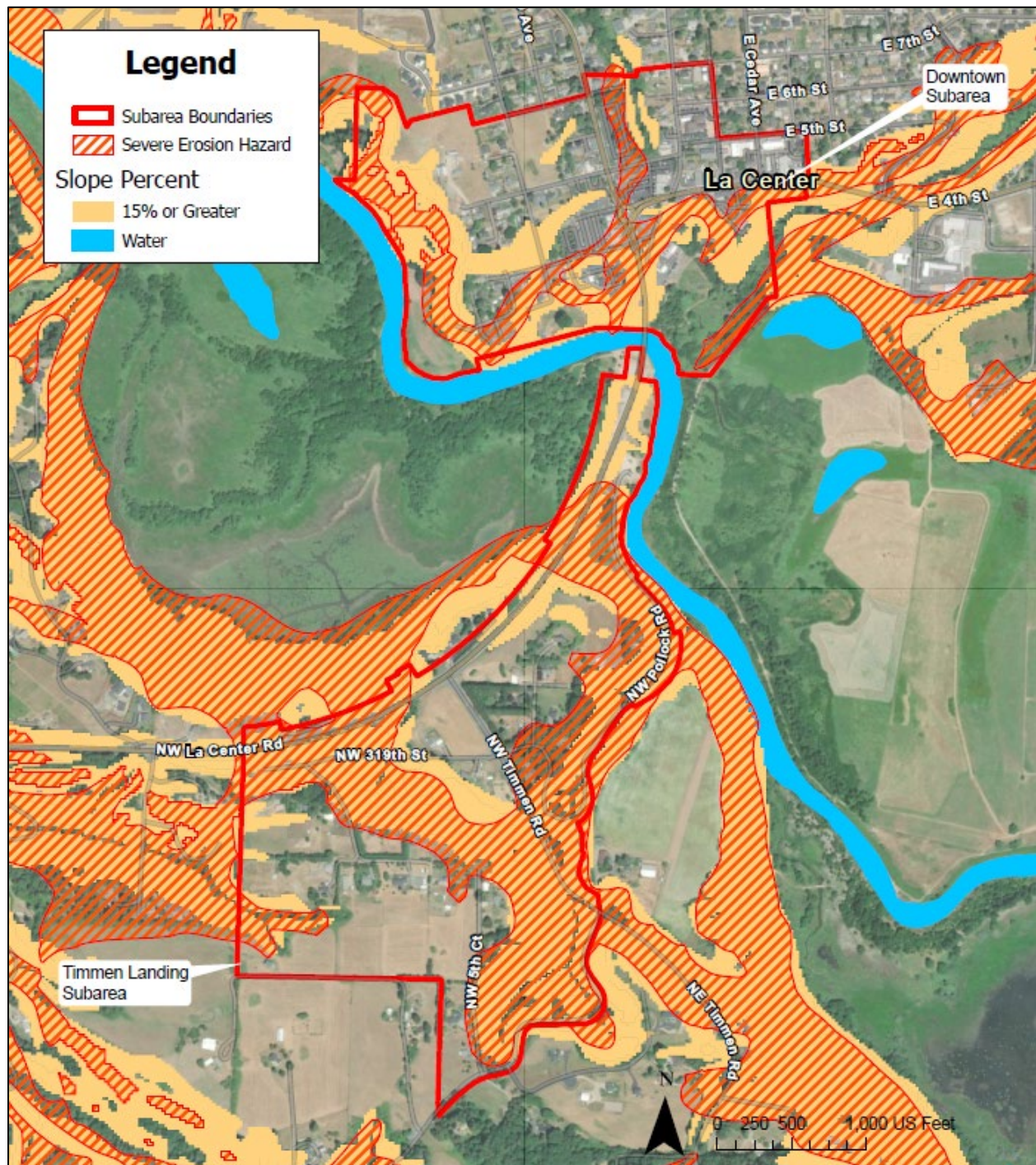


Figure 20. Landslide Hazard Areas

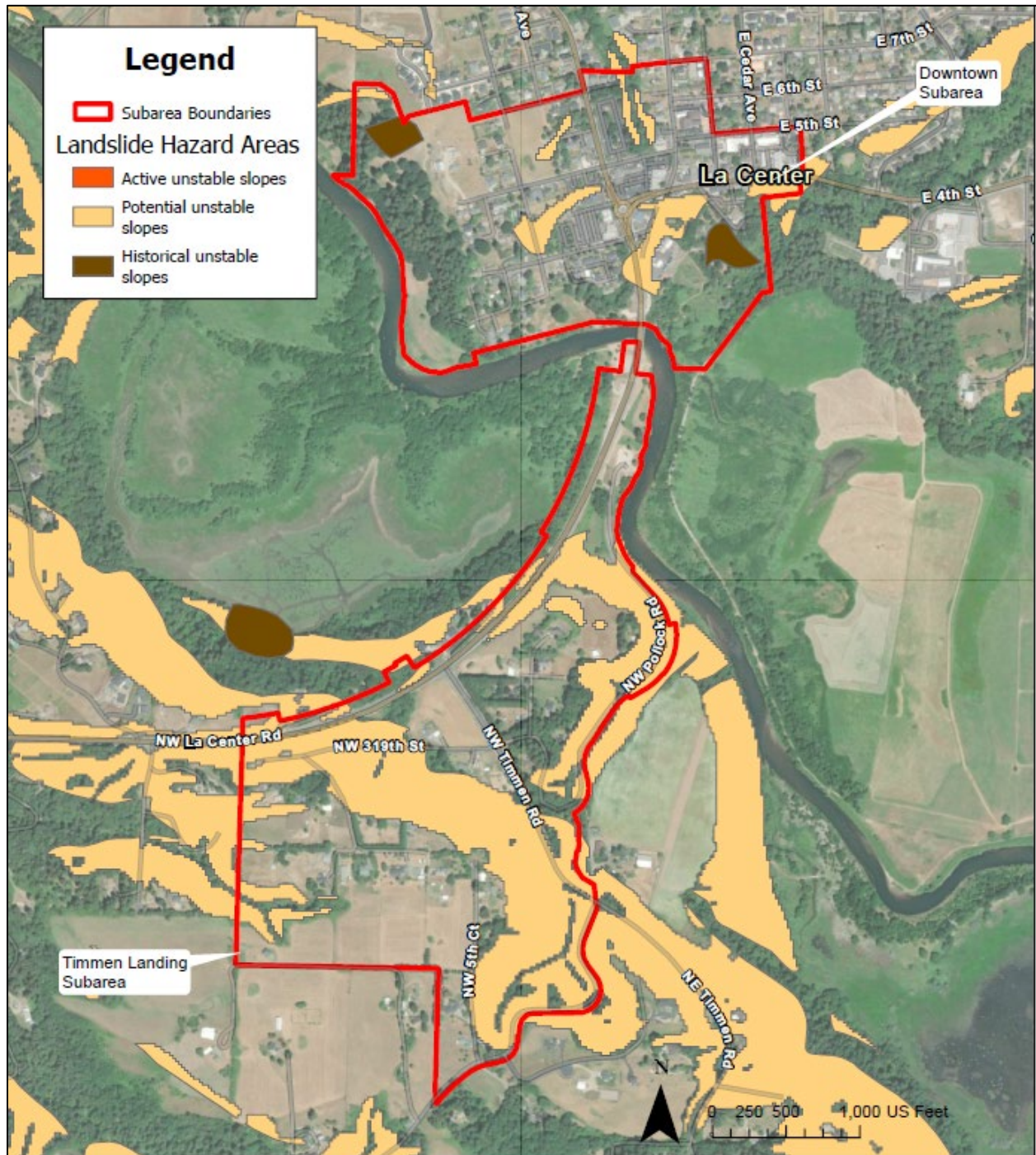
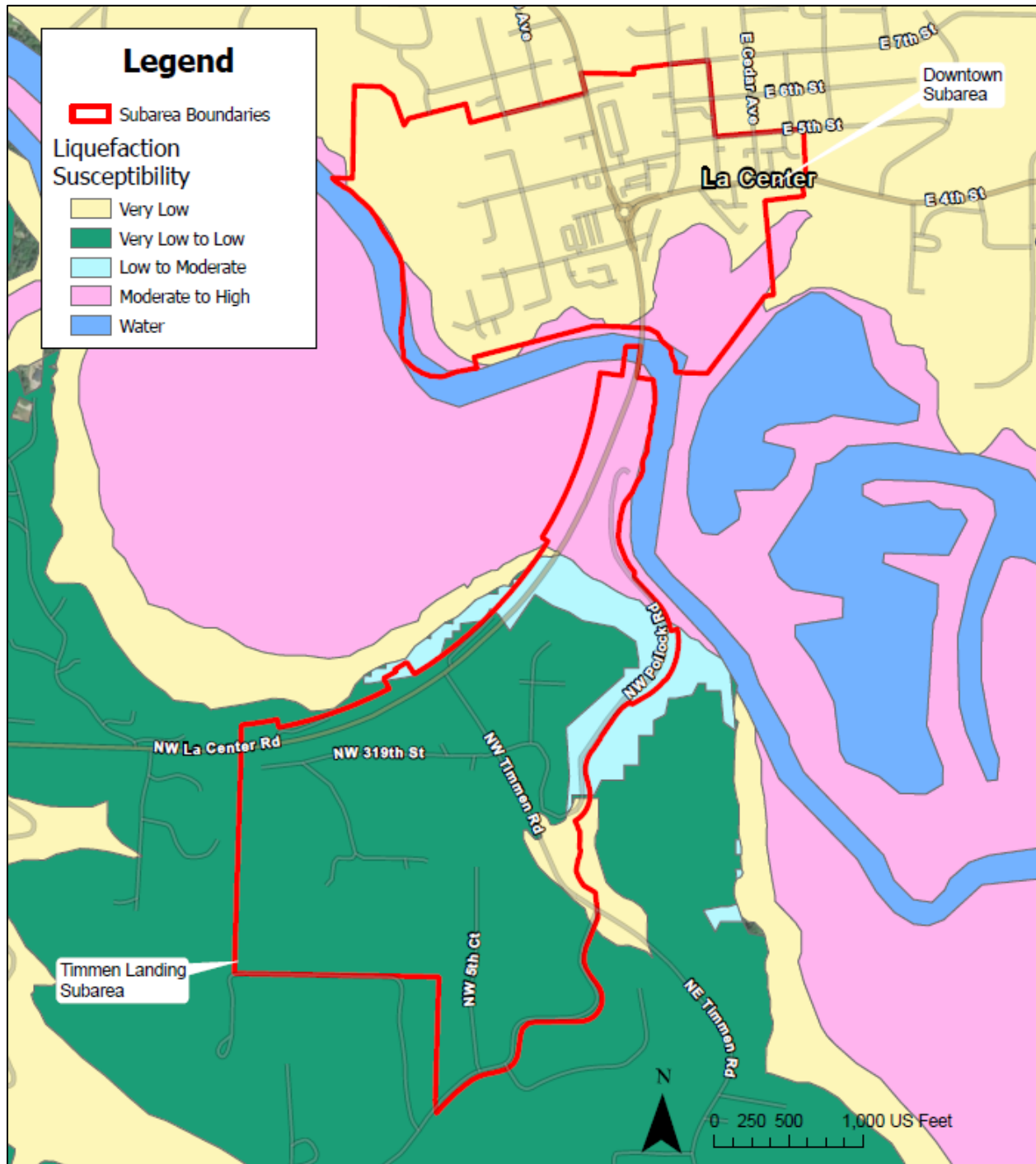


Figure 21. Liquefaction Susceptibility



3.7.3 Potential Impacts

Impacts Common to All Alternatives

Increased development and population growth would occur under both alternatives, which would lead to increased ground and soil disturbance (and risk of erosion), changes to topography, and new development in and/or near geologically hazardous areas. None of the alternatives propose changes to policies in the La Center critical areas ordinance, building code, or other regulatory

documents that protect earth resources. The existing regulations would continue to protect public health and safety, which would help to avoid, minimize, and mitigate impacts to earth resources.

No-Action Alternative

Under the No-Action Alternative, there would be no additional impacts to earth resources beyond those discussed under Impacts Common to All Alternatives.

Project Alternative

The Project Alternative would have more capacity for housing and general development than the No-Action Alternative, as described in Chapter 2. While the proposed land use designations would not generate impacts on earth resources themselves, it is anticipated that these designations would lead to an increase in development activities and subsequent impacts to earth resources, including clearing, grading, and erosion. There would also be an increase in impervious surfaces compared to the No-Action Alternative, to support infrastructure and road networks associated with new development.

3.7.4 Avoidance, Minimization, and Mitigation Measures

Included in the Subarea Plans

The following goal, policies, and action item included under the Project Alternative have the potential to have a positive impact on earth resources in the study area.

- Subarea-Wide Environmental Goal: Protect and manage environmentally sensitive areas with practices based on best available science.
 - Policy: Continue to work with agencies and organizations, such as the Lower Columbia Estuary Partnership and the East Fork Lewis River Partnership, to identify restoration opportunities for the East Fork Lewis River and other habitat areas.
 - Policy: Consider the effects of new roads on natural resources and, where feasible, incorporate design features to reduce impacts on wildlife movement, fish passage, and water quality.
- Action Item: Perform a critical areas delineation for catalyst sites to identify the locations and types of potential development limitations form critical areas.

Regulations and Other Mitigation

State of Washington

All developments with ground disturbing activity in La Center and the subareas are subject to the Washington State Stormwater Management Manual for Western Washington and the Washington State Water Pollution Control Act of 1971 to limit and reduce onsite erosion and water pollution. The City's development regulations are consistent with these standards as discussed below.

Federal

All developments within La Center and the subareas are also subject to the erosion control, source water, and water pollution standards of the Clean Water Act, the Safe Drinking Water Act, and the National Pollution Discharge Elimination System permits.

City of La Center

Under any alternative, development projects will be required to comply with existing city and state regulations for protecting human health and safety from geologically hazardous areas and to minimize and control erosion. The City's permit review process will ensure compliance with LCMC 18.300, which requires development and redevelopment to avoid or minimize changes to geologically hazardous areas. Development standards for geologically hazardous areas include

limiting modification of topography and vegetation and restricting certain types of development that are considered higher risk (e.g., utility facilities that transfer or use hazardous substances, which may create hazardous conditions during or following a seismic event or landslide). Future development within a geologic hazard area may require critical areas reports prepared by a registered geotechnical engineer or registered geologist. The reports would include an evaluation of the impacts of the geologic hazard area(s) on the proposed development, and recommendations for mitigation measures to protect human health and safety.

The City's permit review process will also ensure compliance with LCMC 18.320, which requires all ground-disturbing activities in excess of 500 square feet follow the requirements of the latest edition of the City of La Center Erosion Control Guidelines. Construction areas would be required to minimize and control erosion on site until construction has been completed.

In addition to existing regulations and mitigation included in the subarea plans, the following measures may be required to address site-specific impacts. The need to implement these measures will be addressed during permit review:

- Additional site investigations to determine the potential for contamination on the property.
- Additional site investigations of soil and groundwater to evaluate the type, concentration, and extent of contamination, if present.
- Cleanup of contamination sources (e.g. removal of underground storage tanks, excavation of contaminated soil) in accordance with Ecology's current guidelines and regulations.
- Handling and disposing of contaminated soil and groundwater according to local and state regulations.

3.7.5 Significant Unavoidable Adverse Impacts

With the implementation of avoidance, minimization, and mitigation measures, no significant unavoidable adverse impacts to earth resources are anticipated for any of the alternatives.

3.8 WATER

This section addresses wetlands, frequently flooded areas, water quality, and groundwater. For an assessment of fish and wildlife habitat associated with the East Fork Lewis River and other surface waters, please see Section 3.9, Plants and Animals. For an assessment of potable water and stormwater utilities, please see Section 3.5, Utilities.

3.8.1 Methodology

The EIS authors reviewed relevant information sources and policies to describe water resources in the study area, including the following:

- Washington Department of Health Source Water Assessment Program (SWAP) mapping tool (DOH 2025)
- Department of Ecology Water Quality Atlas (Ecology 2025)
- Department of Ecology East Fork Lewis River Improvement Project (Ecology n.d.)
- Washington DNR Forest Practices Application mapping tool (DNR 2025)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (USFWS 2025)
- City of La Center SMP
- Clark County MapsOnline GIS mapping tool
- LCMC 18.300, Critical Areas
- LCMC 18.320, Stormwater and Erosion Control

The EIS authors reviewed the alternatives to identify potential adverse impacts and associated avoidance, minimization, or mitigation measures considering the following metrics:

- Increased impervious surfaces and runoff
- Increased impacts to groundwater hydrology
- Potential for flooding in areas identified for new growth and development

3.8.2 Affected Environment

Wetlands

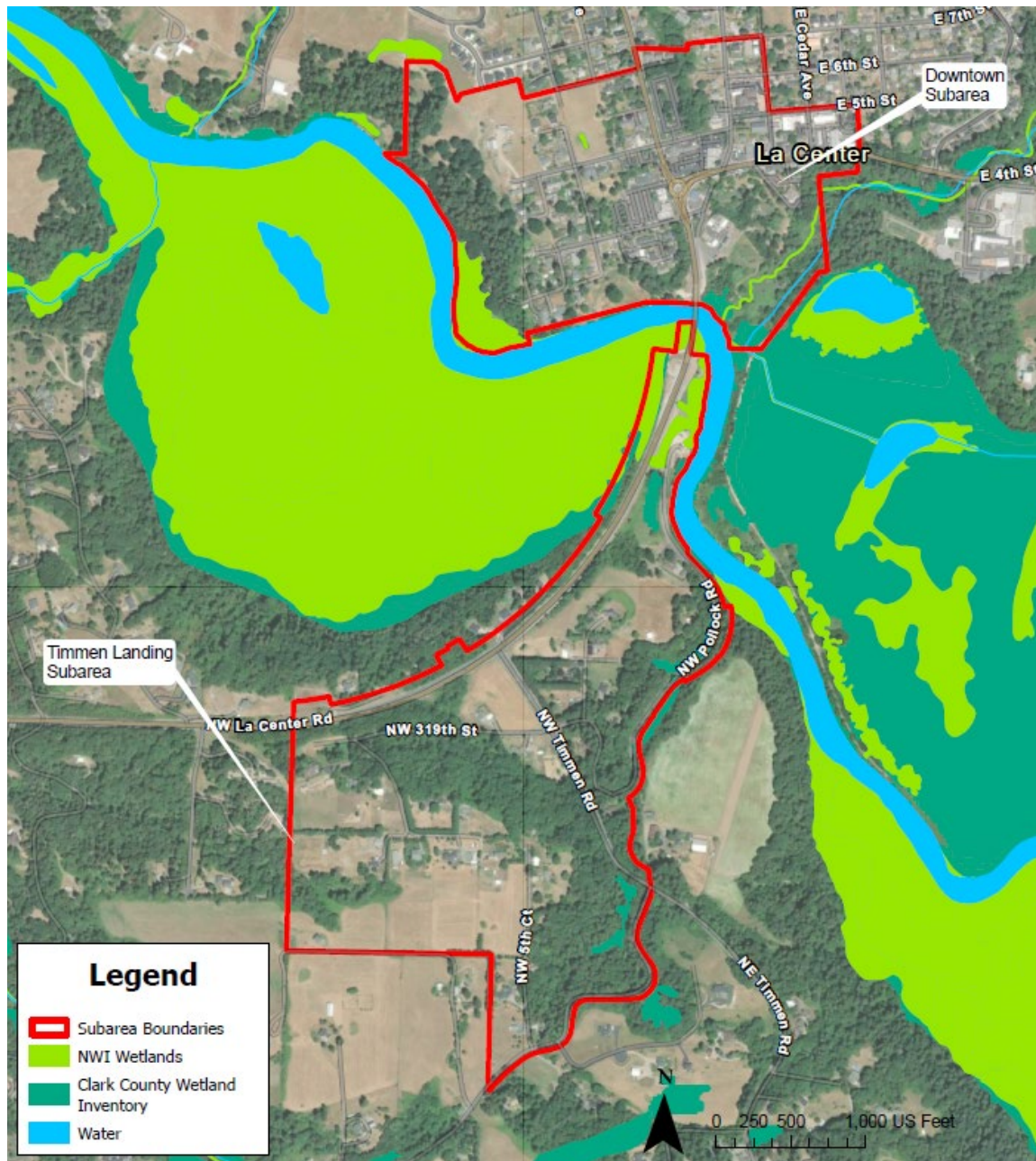
Wetlands are defined as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (LCMC 18.300.030(84)). Mapped wetlands in the study area are shown in Figure 22. Wetlands constitute important natural resources that provide significant environmental functions. They help flood waters, maintain summer stream flows, filter pollutants, recharge groundwater, and provide significant habitat for fish and wildlife.

Wetlands are protected by several laws overseen by federal, state, and local agencies, and tribes. Wetlands are considered “critical areas,” which are ecologically sensitive and hazardous areas that the State and City have identified for certain development restrictions in order to protect their functions and values, while allowing for reasonable use of property. The National Environmental Policy Act, SEPA, and LCMC 18.300 establish regulations and procedures to regulate impacts to wetlands.

The Downtown subarea contains approximately 5.8 acres of wetlands. The National Wetlands Inventory identifies wetlands adjacent to the East Fork Lewis River, and another wetland in the northeast corner of E Avenue and E 5th Street. The mapped wetlands include freshwater emergent wetlands. The wetlands mapped on the County’s GIS site (MapsOnline) are consistent with the National Wetlands Inventory map.

The Timmen Landing subarea contains approximately 7.6 acres of wetlands. Like in Downtown, the National Wetlands Inventory map identifies wetlands adjacent to the East Fork Lewis River. The mapped wetlands include freshwater emergent wetlands and freshwater forested/shrub wetlands. MapsOnline also identifies modeled wetlands along NW Pollock Road and NW Spencer Road.

Figure 22. Wetlands



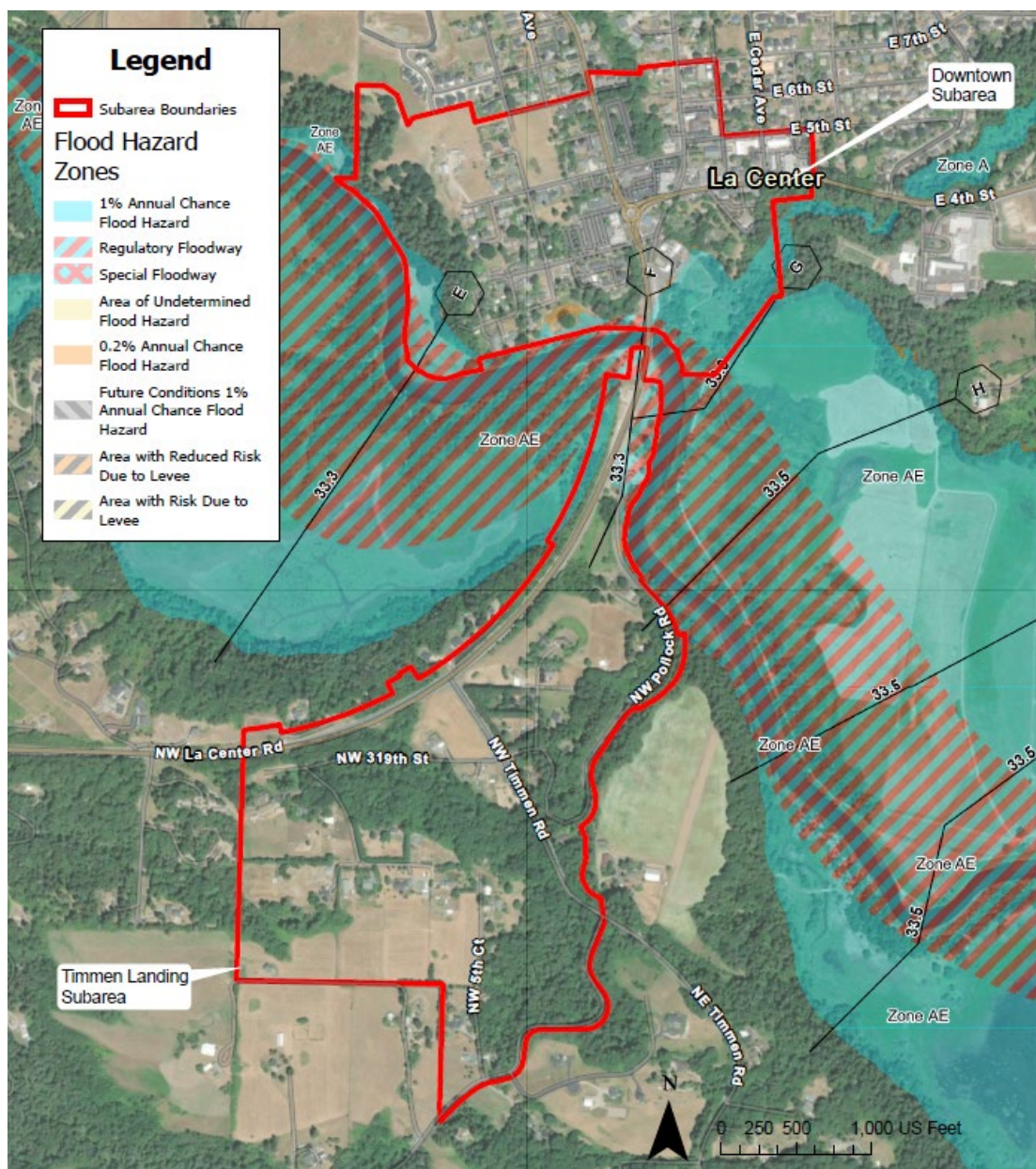
Frequently Flooded Areas

Frequently flooded areas are areas of special flood hazard identified in flood insurance studies and accompanying flood insurance rate maps produced by the Federal Insurance and Mitigation Administration. Frequently flooded areas are regulated locally as a critical area under LCMC 18.300.090(3). Development within the floodway or 100-year floodplain, which are defined as “special flood hazard areas” by the Federal Emergency Management Agency, requires compliance with LCMC 18.300, and may require a floodplain permit.

Mapped frequently flooded areas are shown in Figure 23. As shown, lands adjacent to the East Fork Lewis River in both the Downtown and Timmen Landing subareas are within the 100-year floodplain

and are susceptible to flooding. The Timmen Landing subarea contains approximately 6.3 acres of frequently flooded areas and the Downtown subarea contains approximately 18.2 acres.

Figure 23. Frequently Flooded Areas



Groundwater

The GMA requires the protection of groundwater because it supplies our drinking water and, without replenishment, the amount of water in aquifers can be diminished or even depleted (Ecology 2005). In addition, “some aquifers may also have critical recharging effects on streams, lakes, and wetlands that provide critical fish and wildlife habitat. Protecting adequate recharge of these aquifers may provide additional benefits in maintaining fish and wildlife habitat conservation areas” (WAC 365-190-100).

Drinking water in La Center is provided and managed by CPU (see Section 3.5, Utilities for a discussion of potable water service in the study area). CPU operates and maintains 42 wells (which

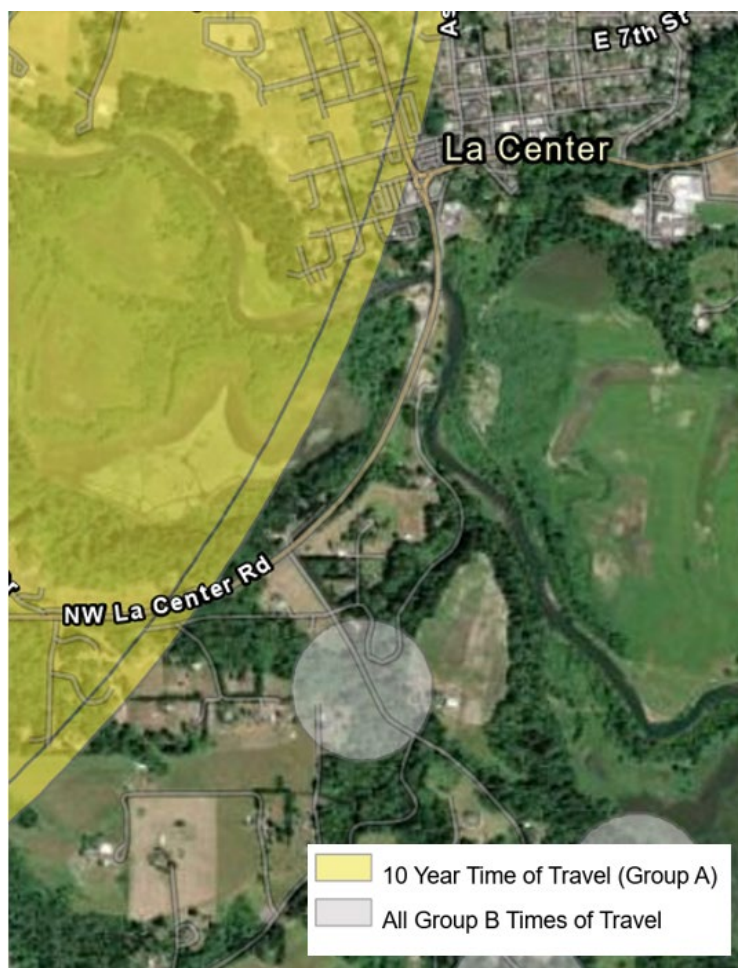
are located outside of the study area). Drinking water is sourced from four aquifers: the Recent Alluvial Aquifer, Troutdale Aquifer, Sand and Gravel Aquifer, and Fractured basalt formations. Most of the water is provided by wells located in the Salmon Creek watershed, which is located outside of and south of La Center (Gray & Osborne 2024).

A “critical aquifer recharge area” (CARA) means an area with a critical recharging effect on an aquifer used for potable water, including an area where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability, or is susceptible to reduced recharge. CARAs are regulated as a critical area under LCMC 18.300.090, although the LCMC only regulates category I CARAs, which include lands within the 10-year zone of contribution around Group A wellheads.

The Washington Department of Health’s SWAP mapping tool identifies several Group A wellhead protection areas in the study area. Approximately half of the Downtown subarea and the northwest corner of the Timmen Landing subarea are located within the 10-year time of travel for two Group A wellhead protection areas for CPU groundwater wells. Figure 24 shows the wellhead protection areas in the study area as identified by the SWAP mapping tool.

There is also an approximately 0.4-mile (2,000 foot) diameter Group B wellhead protection area in Timmen Landing, near the intersection of NW 3rd Place and Timmen Road. SWAP identifies this well as a private water system. Group B water systems are not regulated as a category 1 CARA.

Figure 24. Wellhead Protection Areas



Water Quality

Within and adjacent to the study area, the East Fork Lewis River and its tributaries, including Brezee Creek, are listed on Washington State's impaired waters list (Section 303d) for warm water temperatures and bacteria pollution (fecal coliform). Under the federal Clean Water Act, waters on a Section 303d list require the development of a water cleanup plan (alternatively known as a TMDL study). In advance of a TMDL study, Ecology developed the East Fork Lewis River Alternative Restoration Plan (Rostorfer 2021) with the goal of outlining a strategy to reduce pollution to meet temperature and bacteria water quality standards.

Per the Alternative Restoration Plan, high levels of bacteria increase risks to people swimming, wading, or fishing, and high water temperatures create poor conditions for fish and other wildlife. Most of the pollution sources in the East Fork Lewis River are from nonpoint sources of pollution (Rostorfer 2021). The plan prioritizes addressing nonpoint source impacts from septic systems, agriculture, and stormwater to help ensure waterbodies are in compliance with bacteria water quality standards, and increasing riparian and streamflow restoration to make progress towards achieving temperature water quality standards.

Per Ecology's Water Quality Atlas (Ecology 2025), other water quality issues (which do not rise to the level of Section 303d) in the East Fork Lewis River west of the La Center Road bridge include temperature and bacteria (fecal coliform). Water quality issues in Brezee Creek that do not rise to a Section 303(d) listing include dissolved oxygen, pH, and benthic macroinvertebrates bioassessments.

3.8.3 Potential Impacts

Impacts Common to All Alternatives

Increased development and population growth is expected to occur under both the No-Action and Project alternatives. Development can impact water resources through an increase in impervious surfaces (e.g., new roads and buildings) which can reduce groundwater recharge and increase stormwater runoff, altering hydrological conditions and drainage.

Development within floodplains and wetlands is regulated at the federal, state, and local level, with requirements for developers to demonstrate no net loss of ecological function. It is worth noting that the U.S. Army Corps of Engineers, Ecology, and some Washington jurisdictions encourage the use of mitigation banks and in-lieu fee programs over on-site mitigation because they can offer greater assurance for mitigation (Hruby et al. 2009; USACE and EPA 2008). Per this guidance, a loss of wetlands in one location can be offset in another location within the same watershed without a loss of overall value and function. La Center is currently updating their critical areas ordinance, and the draft ordinance is consistent with this guidance.

Groundwater can become contaminated through a process known as "base flow," which refers to when runoff at the surface infiltrates downward through the soil until it reaches an aquifer. An increase in impervious surfaces, which would occur under both alternatives, can also have a negative effect on groundwater recharge, as water is carried across surfaces or in stormwater infrastructure and away from the underlying aquifer. It is not anticipated that any land uses that constitute a high risk to aquifers would be proposed under either alternative, given the existing and proposed land use designations and zoning (e.g., chemical treatment storage).

As noted above, some of the causes of low water quality in the river and tributaries include decreased groundwater recharge and increased impervious surfaces. The bacteria water quality issues are primarily attributed to septic systems and stormwater outfalls (Rostorfer 2021). The Timmen Landing subarea is currently served by septic tanks, but the latecomer agreement will require the property owners to connect to the City's sewer system under either alternative (see Section 3.5, Utilities), which will help address this existing issue.

There are no proposed changes under the No-Action or Project alternatives to current policies in the La Center critical areas ordinance, SMP, or other regulatory documents that would affect water resources. The City's critical areas ordinance, SMP, and other regulations, such as the building code, would continue to protect surface and groundwaters in and adjacent to the study area.

The City is updating its critical areas ordinance in accordance with best available science and the latest state agency guidance for critical areas protection and management. The updates include using "site potential tree height" to determine the width of riparian buffers, consistent with WDFW's current guidance (Rentz et al. 2020). The updated ordinance would increase buffers along Type N (non-fish-bearing) streams in the study area to 195-feet (current Type N buffers are 75-feet for seasonal streams and 150-feet for perennial). The increased buffers would help minimize pollutant runoff reaching McCormick Creek, Brezee Creek, and the East Fork Lewis River. While the update would reduce regulation riparian buffers along Type S (shorelines of the state) and Type F (fish bearing) streams to 195 feet (from 250 feet and 200 feet, respectively), these stream types in the study area are within shoreline jurisdiction, and the protections of the SMP would continue to apply to lands within 200 feet (or more) of the waterbodies.

The City is also working on an update to its comprehensive plan, and several draft policies under consideration would help protect water quality, including a policy to consider using green infrastructure in future stormwater system improvements.

No-Action Alternative

Under the No-Action Alternative, there would be no additional impacts to water resources beyond those discussed under Impacts Common to All Alternatives.

Project Alternative

The Project Alternative would have more capacity for housing and general development in both subareas compared to the No-Action Alternative. Increased development would lead to increased potential for impacts to water resources. As discussed under Impacts Common to All Alternatives, current regulations regarding development in or near water resources would stay in place. These regulations are aimed at ensuring a no net loss of functions and values of wetlands, surface waterbodies, floodplains, and CARAs. In addition, the subarea plans contain several goals and policies to reduce impacts to water resources (described below).

3.8.4 Avoidance, Minimization, and Mitigation Measures

Included in the Subarea Plans

The following goals and policies included under the Project Alternative have the potential to have a positive impact on water resources in the study area.

- Subarea-Wide Environmental Goal: Protect and manage environmentally sensitive areas with practices based on best available science.
 - Policy: Continue to work with agencies and organizations, such as the Lower Columbia Estuary Partnership and the East Fork Lewis River Partnership, to identify restoration opportunities for the East Fork Lewis River and other habitat areas.

- Policy: Consider the effects of new roads on natural resources and, where feasible, incorporate design features to reduce impacts on wildlife movement, fish passage, and water quality.
- Action Item: Perform a critical areas delineation for catalyst sites to identify the locations and types of potential development limitations form critical areas.
- Action Item: Develop a stormwater detention pond at Pollock Park, as shown in Figure 2.
- Action Item: Ensure that new developments comply with LCMC 18.320, Stormwater and Erosion Control, as there are no existing stormwater facilities in Timmen Landing.
- Action Item: Connect the existing septic system in Timmen Landing to the City sewer collection system.
- Action Item: Complete and adopt a formal Stormwater Master Plan, including a map of the existing system, review of design criteria for new development, and recommendations for enforcement. The City is currently is undergoing this process with planned completion and adoption in 2027.

Regulations and Other Mitigation

This section provides an overview of federal, state, and local regulations applicable to future development within the study area.

Clean Water Act and Safe Drinking Water Act

At the federal level, water quality is controlled by the Clean Water Act (33 US Code [U.S.C.] § 1251 et seq.) and the Safe Drinking Water Act (42 U.S.C. §300f et seq.). These acts are administered at the state level by various state departments. In Washington, Ecology administers the Clean Water Act and Safe Drinking Water Act.

Ecology and local partners, including the City of La Center, are currently implementing the measures identified in the East Fork Lewis River Alternative Restoration Plan (Rostorfer 2021) to bring water quality into compliance with the Clean Water Act. Mitigation measures focus on reducing nonpoint source impacts from septic systems, agriculture, and stormwater for bacteria and increasing riparian and streamflow restoration for temperature water quality standards. Ecology will continue to monitor water quality and, if water quality standards are not achieved through the implementation actions, a traditional TMDL study will be required.

National Pollutant Discharge Elimination System

Ecology also administers the NPDES permit program. NPDES permits address water pollution by regulating sources that discharge to waters of the U.S. The permit includes limits on discharge, monitoring and reporting requirements, and other provisions to ensure that the discharge does not negatively impact water quality or human health.

State Water Pollution Control Act and Forest Practices Act

Ecology implements the State Water Pollution Control Act (RCW 90.48) and Forest Practices Act (RCW 76.09). The State Water Pollution Control Act makes it unlawful for any person to “cause, permit or suffer to be thrown, run, drained, allowed to seep or otherwise discharged any organic or inorganic matter that shall cause or tend to cause pollution of waters of the state” (RCW 90.48.080). The Forest Practices Act grants Ecology the regulatory authority to implement and enforce Forest Practices Rules and the Timber, Fish, and Wildlife agreement. Instream flow rules established through WAC 173-527 provide regulatory authority for enforcement related to water consumption and instream flows in the watershed.

La Center Shoreline Master Program

The City's SMP guides the development of shorelines in the city by providing long range, comprehensive policies and regulations for development and use of the city's shorelines. The program applies to all shorelands and waters within the La Center city and UGA limits that fall under the jurisdiction of RCW 90.58. The program seeks to ensure, at minimum, no net loss of shoreline ecological functions and processes and to plan for restoring shorelines that have been impaired or degraded.

La Center Municipal Code

Water quality is also protected by several local ordinances codified under the municipal code. This includes LCMC Chapter 18.300, Critical Areas, and Chapter 18.320, Stormwater and Erosion Control. As mentioned above, the City drafted an update to its critical areas ordinance in accordance with best available science and the latest state agency guidance for critical areas protections and management. The updates include utilizing the latest WDFW guidance to revise riparian area buffer widths.

Generally, for erosion and sediment control, property owners who conduct land-disturbing activities in excess of 500 square feet must comply with the requirements and best management practices established in LCMC Chapter 18.320, Stormwater and Erosion Control. The greater the land-disturbing activity, the more stringent the requirements.

3.8.5 Significant Unavoidable Adverse Impacts

With the implementation of avoidance, minimization, and mitigation measures, no significant unavoidable adverse impacts to water resources are anticipated for either of the alternatives.

3.9 PLANTS AND ANIMALS

3.9.1 Methodology

The EIS authors reviewed relevant information sources and policies to describe existing conditions for plants, fish, and other wildlife, including the following:

- Information for Planning and Consultation mapping tool (USFWS 2025)
- WDFW Priority Habitat and Species (PHS) list (WDFW 2025)
- Washington DNR Forest Practices Application mapping tool (DNR 2025)
- Ecology Water Quality Atlas (Ecology 2025)
- LCMC 18.300, Critical Areas
- LCMC 18.340, Native Plant List
- LCMC 18.350, Tree Protection

The EIS authors reviewed the alternatives to identify potential adverse impacts and associated avoidance, minimization, or mitigation measures considering the following metrics:

- Potential for increased impacts to tree canopy and loss of vegetation
- Potential for increased impacts to plant, fish, or wildlife populations
- Potential for increased impacts to habitat areas

3.9.2 Affected Environment

Mapped fish and wildlife habitat conservation areas are shown in Figure 25. Fish and wildlife habitat conservation areas are defined in LCMC 18.300.090(2), and include the following categories:

- Riparian areas
- Endangered or threatened species
- Local habitat areas
- Priority habitat and species areas
- Naturally occurring ponds under 20 acres
- Waters of the state
- Lakes, ponds, streams, and rivers planted with game fish by a local governmental or tribal entity.
- State natural areas preserves, natural resource conservation areas, and state wildlife areas
- Buffers

Aquatic and Riparian Habitat

The study area includes aquatic habitats (waters of the state, wetlands, and streams) and their associated riparian habitat, as well as areas associated with threatened or endangered species, state priority habitat, and areas associated with state priority species (e.g., salmon and steelhead in the East Fork Lewis River).

The primary aquatic habitat in the study area is the East Fork Lewis River, a Type S (shoreline of the state) stream, as designated by the DNR, that runs adjacent to both subareas, and its associated riparian habitat. PHS on the Web also identifies the East Fork Lewis River Riparian Corridor, a high-quality habitat with a multi-layered canopy, and the East Fork Lewis Wintering Waterfowl Area, an area known to support breeding and wintering waterfowl. State priority species, including Tundra swan (*Cygnus columbianus*) and trumpeter swan (*Cygnus buccinator*), are known to use the area.

The East Fork Lewis River is mapped by PHS on the Web as having occurrences of the following priority fish species:

- Steelhead (*Oncorhynchus mykiss*)
- Chum salmon (*Oncorhynchus keta*)
- Coho salmon (*Oncorhynchus kisutch*)
- Cutthroat trout (*Oncorhynchus clarki*)
- Chinook salmon (*Oncorhynchus tshawytscha*)

Breeze Creek, a Type F (fish-bearing) stream, is located in the southeast portion of the Downtown subarea and flows into the East Fork Lewis River. There is also an unnamed Type N (non-fish-bearing) stream mapped along the east side of NW Pollock Road in Timmen Landing that turns into a Type F stream closer to the East Fork Lewis River.

Breeze Creek is also mapped as having occurrences of steelhead and Coho salmon. As noted under Section 3.8, Water, high water temperatures in the East Fork Lewis River and Breeze Creek contribute to poor habitat conditions for fish and other wildlife (Rostorfer 2021).

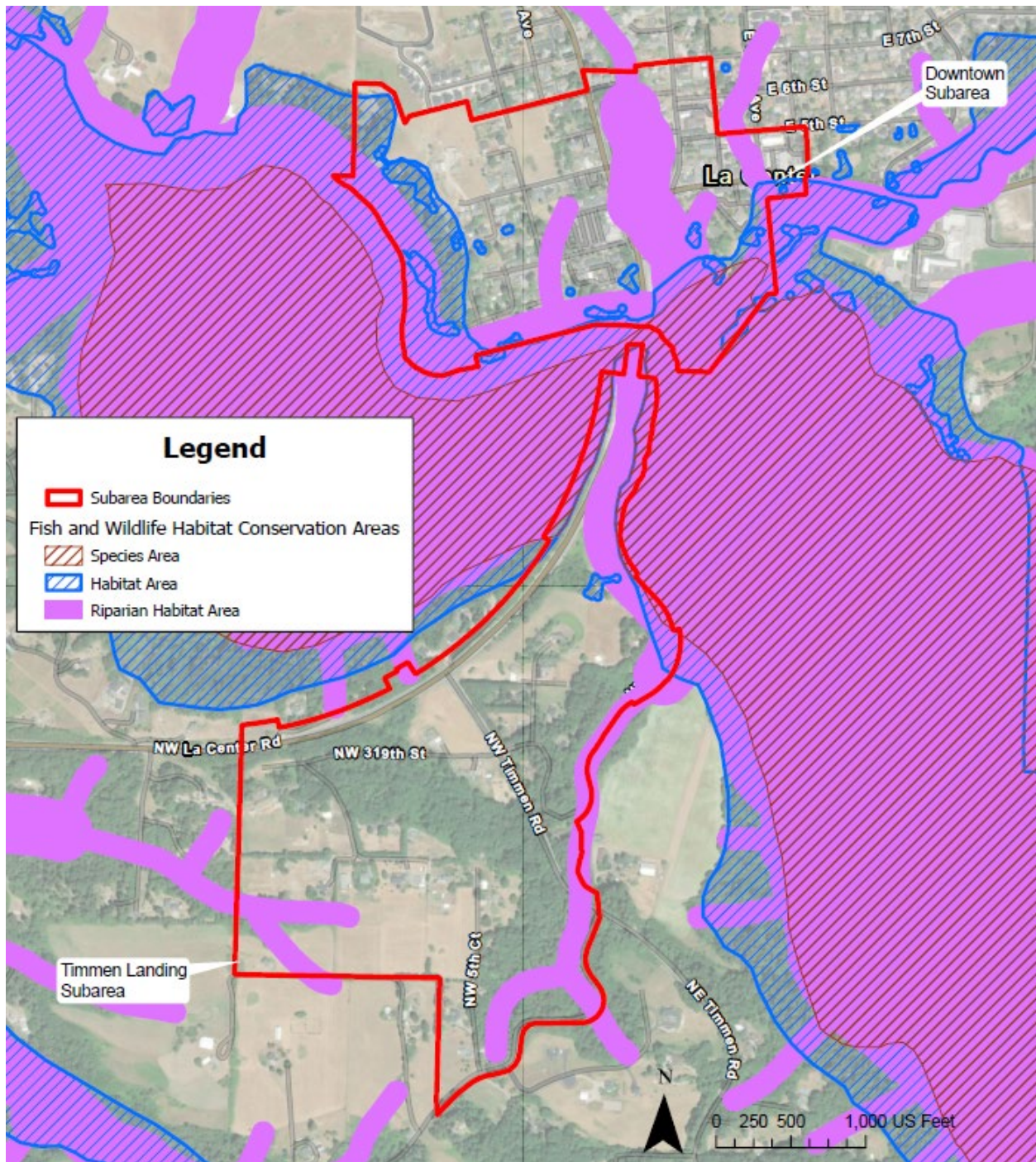
Terrestrial Habitat

Several small areas of the Downtown subarea and a small portion of the Timmen Landing subarea, near the northern terminus of NW Pollock Road, are mapped as oak woodland habitat by PHS on the Web. Per WDFW, ground conditions (e.g., boundaries) will vary from the map. WDFW recommends using site-scale information to inform land use decisions, and the oak woodland habitat would need to be field verified to determine the exact extents.

Additionally, the entire township is mapped by PHS on the Web as having occurrences of little brown bat (*Myotis lucifugus*) and Yuma myotis (*Myotis yumanensis*). While these are not WDFW priority species, roosting concentrations are a WDFW priority habitat.

The La Center Bottoms Natural Area is located south of the Downtown subarea and across the East Fork Lewis River from Timmen Landing. This County-owned stewardship site is approximately 314-acres and consists of wetlands, floodplain, shoreline, and forested uplands. The site was developed in partnership with CPU, the City of La Center, TDS Telecom, and private ownerships. It is a popular spot for wildlife watching and provides habitat for coyotes, otters, swans, and migratory waterfowl (Clark County n.d.).

Figure 25. Fish and Wildlife Habitat Conservation Areas



3.9.3 Potential Impacts

Impacts Common to All Alternatives

Increased development and population growth is expected to occur in the Downtown and Timmen Landing subareas under both the No-Action and Project alternatives. More development and human activity could have adverse impacts on habitat and wildlife, including increases in foot traffic, littering, noise, stormwater runoff/erosion, and invasive species. Development may also

lead to a loss of available habitat, including tree canopy. While the Bottoms are not located within the study area, development could still affect this natural area (e.g., noise or runoff could reach the Bottoms).

There are no proposed changes under the No-Action or Project alternatives to current regulations and policies in the La Center critical areas ordinance, comprehensive plan, or other regulatory documents, and they would continue to protect priority habitat and species in the study area. In many cases, on-site conditions will need to be verified during future permitting processes, and critical areas reports may be required to demonstrate no net loss of ecological function.

The City is currently working on an update to its critical areas ordinance. The updates include utilizing the latest WDFW guidance to establish riparian area buffer widths and updating critical areas report requirements for Oregon White Oaks to determine ecological function, the scale of temporal and permanent impacts and mitigation, and a recommended maintenance plan. The updated ordinance would increase buffers along Type N (non-fish-bearing) streams in the study area to 195-feet (current Type N buffers are 75-feet for seasonal streams and 150-feet for perennial). While the update would reduce regulation riparian buffers along Type S (shorelines of the state) and Type F (fish bearing) streams to 195 feet (from 250 feet and 200 feet, respectively), these stream types in the study area are within shoreline jurisdiction, and the protections of the SMP would continue to apply to lands within 200 feet (or more) of the waterbodies.

The draft critical areas ordinance has been reviewed by both the City's Planning Commission and City Council and is on hold for concurrent adoption with the updated comprehensive plan, which will occur by December 31, 2025 as required by GMA. These updates, if adopted, would provide greater protections for plants and animals in the study area, including the mapped riparian areas, aquatic habitat, and oak woodlands.

The City is also working on an update to its comprehensive plan, and several draft policies under consideration would help protect plants and animals. These include policies to consider green infrastructure in stormwater system updates, discouraging invasive non-native plants, and encouraging native plants in landscaping, parks, and open space areas, particularly adjacent to critical areas.

No-Action Alternative

Under the No-Action Alternative, there would be no additional impacts to plants and animals beyond those discussed under Impacts Common to All Alternatives.

Project Alternative

The Project Alternative would have more capacity for housing and general development than the No-Action Alternative, as described in Chapter 2. It is anticipated that land use designations would lead to an increase in development, human activities, and impervious surfaces and subsequent impacts to plants and animals. However, as discussed under Impacts Common to All Alternatives, protective policies and regulations would remain in place, which aim to ensure no net loss of priority habitats and species. In addition, the subarea plans contain several goals and policies to reduce impacts to plants and animals (see below).

3.9.4 Avoidance, Minimization, and Mitigation Measures

Included in the Subarea Plans

The following goal, policies, and action item included under the Project Alternative have the potential to have a positive impact on plants and animals in the study area.

- Subarea-Wide Environmental Goal: Protect and manage environmentally sensitive areas with practices based on best available science.
 - Policy: Continue to work with agencies and organizations, such as the Lower Columbia Estuary Partnership and the East Fork Lewis River Partnership, to identify restoration opportunities for the East Fork Lewis River and other habitat areas.
 - Policy: Consider the effects of new roads on natural resources and, where feasible, incorporate design features to reduce impacts on wildlife movement, fish passage, and water quality.
- Action Item: Perform a critical areas delineation for catalyst sites to identify the locations and types of potential development limitations from critical areas.

Regulations and Other Mitigation

This section provides an overview of federal, state, and local regulations applicable to future development within the study area. Regulations listed under Water would also protect aquatic and riparian habitats.

Federal Endangered Species Act

The Endangered Species Act, as amended in 1988, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants and the preservation of the ecosystems on which they depend. The Endangered Species Act is administered jointly by USFWS (plants and most terrestrial and freshwater wildlife species) and the National Oceanic and Atmospheric Administration Fisheries (most marine and anadromous species). The Endangered Species Act defines procedures for listing species, designating critical habitat for listed species, and preparing recovery plans. It also specifies prohibited actions and exceptions.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 U.S.C. 703-712, as amended) implements various treaties and conventions between the United States and other countries for the protection of migratory birds. Under the act, taking, killing, or possessing migratory birds or their eggs or nests is unlawful. Most species of birds are classified as migratory under the act, with the exception of upland and nonnative birds such as house sparrows, European starlings, and rock doves.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) aims to protect bald and golden eagles by prohibiting the “taking” of these birds, which includes actions like pursuing, shooting, poisoning wounding, killing, capturing, trapping, collecting, and disturbing them. Key points of the act include protection of eagles and their parts, including feathers, nests, and eggs; permitting; and penalties.

La Center Municipal Code

LCMC 18.300 (Critical Areas) establishes regulations that are protective of sensitive plant, fish, and wildlife resources. The code establishes fish and wildlife habitat conservation areas and associated riparian management areas and riparian buffers, which are protective of fish and wildlife habitat resources. LCMC 18.300 also establishes protections for wetlands and floodplains, which are protective of many plants and animals. The City is currently updating its critical areas regulations to comply with GMA periodic update requirements and best available science, including regulations for riparian buffers. These updates are anticipated to be adopted by end of 2025.

If critical areas are determined to be present or likely to be present on the site of a proposed development, a detailed habitat analysis (critical areas report) is typically required in order to establish the presence of critical areas, anticipated impacts of a proposed development, and what mitigation is proposed to address impacts.

Note the SMP also contains regulations for critical areas within shoreline jurisdiction, which includes the shorelines of the East Fork Lewis River and some of Brezee Creek in the study area. Under the SMP, projects must avoid and minimize removal of shoreline vegetation and would be required to replant any disturbed areas with native vegetation, which would help address current water quality issues associated with high temperatures.

Other applicable chapters of the LCMC include 18.235.060, which includes landscaping requirements for developments; 18.320, which provides protections for water quality; 18.350, which specifies requirements for protecting and replacing trees; and 18.340, which encourages the use of native plant species.

3.9.5 Significant Unavoidable Adverse Impacts

With the implementation of avoidance, minimization, and mitigation measures, no significant unavoidable adverse impacts to water resources are anticipated for either of the alternatives.

4.0 DRAFT EIS COMMENTS AND RESPONSES

This chapter includes all comments submitted on the Downtown and Timmen Landing Subarea Plans Draft EIS. Comments on the Draft EIS were accepted by the City from May 1, 2025 to May 31, 2025. Six comments were received and are provided below, in the order in which they were received, followed by a detailed response.

Comment #1

RE: City of LaCenter Subarea EIS

From DNR RE SEPACENTER <[REDACTED]>

Date Mon 5/5/2025 6:25 AM

To Angie Merrill [REDACTED]

1 attachment (342 KB)

T Sears Comment RE City of La Center Notice of Determination of Significance and Request for Comments on Scope of EIS.pdf;

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Angie,

While looking through the Draft EIS, I don't see any mention of the comment submitted in January during the scoping period by our Geology Division (see attached). Could you help me understand why it wasn't included?

Thank you,

Emma Oliver

SEPA External Affairs Coordinator

Office of Legal Affairs & Business Practices

Washington State Department of Natural Resources (DNR)

[REDACTED]

[REDACTED]

www.dnr.wa.gov

Response to Comment #1

Thank you for your comment. The exclusion of the previously provided comment from the Summary of Scoping Comments (Appendix B of the Draft EIS) was an oversight and the City confirms that your comment, transmitted to the City on January 13, 2025, was received by the City during the scoping period. The comment has been added to the Summary of Scoping Comments in the Final EIS (Appendix B). The comment recommended including geologic hazards in the scope of the EIS, and the Draft and Final SEIS evaluate geologic hazards consistent with your comment. Please refer to Section 3.7, Earth, for details.

Comment #2



State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Southwest Region 5 • 5525 South 11th St Ridgefield, WA 98642
Telephone: (360) 696-6211 • Fax: (360) 906-6776

May 20th, 2025

Angie Merrill
City of La Center
210 East 4th Street
La Center, WA 98629

Dear Angie,

Thank you for the opportunity to comment on the City of La Center's Draft Environmental Impact Statement (EIS) for the Timmen Landing and Downtown Subarea Plans. In our letter dated January 22, 2025, WDFW encouraged the incorporation of our new Riparian Management Recommendations for establishing riparian buffers, the new Oregon White Oak (OWO) guidance for ensuring adequate mitigation for oak impacts and offered strategies for the mitigation sequence portion of the EIS. We want to take this opportunity to commend the City of LaCenter for incorporating our suggestions into this draft EIS and within future Critical Areas Ordinance (CAO) and Comprehensive Plan Updates.

As noted in our previous letter, the East Fork (EF) Lewis Riparian Corridor provides habitat for ESA listed salmonids species and functions as a key migration corridor. Any development within this sensitive area threatens to degrade the habitat and increase flood risk to infrastructure. We want to reiterate our appreciation for the City's efforts to preserve land along the EF Lewis as parks and open space. This will ensure these habitats are protected for the long term while providing public access and recreational opportunities.

According to the EIS, the draft CAO is now on hold for concurrent adoption with the updated Comprehensive Plan and includes the following: *"The updates include utilizing the latest WDFW guidance to establish riparian area buffer widths and updating critical areas report requirements for Oregon White Oaks to determine ecological function, the scale of temporal and permanent impacts and mitigation, and a recommended maintenance plan. The updated ordinance would increase buffers along Type N (non-fish-bearing) streams in the study area to 195-feet (current Type N buffers are 75-feet for seasonal streams and 150-feet for perennial)." We want to offer our strong support and appreciation for these incorporations into the updated CAO. This will not only protect Priority Habitats and Species (PHS) within these subareas, but will ensure all future development throughout the city encompasses these protective standards.*

The EIS also highlights that the City is advancing several draft policies as part of the updated Comprehensive Plan. Per the EIS: *"These include policies to consider green infrastructure in stormwater system updates, discouraging invasive non-native plants, and encouraging native plants in landscaping, parks, and open space areas, particularly adjacent to critical areas".* These policies incorporate the comments we provided in our previous letter, ensuring that the City's Comprehensive Plan and associated ordinances align with best available science (BAS) and state guidance. We commend the city for this effort.

Thank you for your consideration. We look forward to working with the city in future updates.

A handwritten signature in blue ink that reads "Brittney Salter".

Brittney Salter
WDFW Southwest Washington Land Use Planning Lead

Amaia Smith, Assistant Regional Habitat Program Manager
Isaac Holowatz, Habitat Biologist

Response to Comment #2

Thank you for your comment. The City appreciates your confirmation that the Draft EIS incorporates and reflects the comments and suggestions provided by WDFW during the scoping period. As noted, the City is currently updating its critical areas ordinance to reflect best available science and to be consistent and compliant with the latest state agency guidance. The City's updated critical areas ordinance is scheduled to be adopted by December 31, 2025, along with the updated comprehensive plan.

Comment #3

Timmen Landing Project

From Kelly España >

Date Tue 5/20/2025 3:51 PM

To Angie Merrill >

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

Is the city actively trying to acquire/buy properties located within the potential Timmens Landing project? If so, I'd be interested in learning more as my property is currently within that boundary.

Thank you,

Kelly España
[Redacted Signature]

Response to Comment #3

Thank you for your comment. The City is not currently actively trying to acquire or buy any properties located within the Timmen Landing subarea. All privately owned properties within Timmen Landing would be privately developed at the discretion of the property owner. Please reach out to City staff for additional details and to answer questions about future development in Timmen Landing. If you have additional concerns or comments about the subarea plans, there will be an opportunity for public comment at the upcoming public hearings.

Comment #4

Timmen Landing and Downtown Subarea Plans

From sara lee [REDACTED]

Date Wed 5/21/2025 8:41 AM

To Angie Merrill [REDACTED]

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To Whom It May Concern,

After reviewing the proposed renderings, I have a few questions regarding our property and neighborhood. We reside at [REDACTED], La Center, WA 98642.

Could you please clarify what these plans mean for our property and surrounding area? We did not see our home or our neighbors' homes reflected in the renderings and would appreciate further context.

Thank you for your time and assistance.

Sincerely,

Sara Lee

Response to Comment #4

Thank you for your comment. The Timmen Landing subarea plan helps achieve the vision in the City's comprehensive plan, *La Center Comprehensive Plan 2016 – 2035*, which identifies the corner of NW La Center Road and NW Timmen Road as an area to direct future growth in the city. Additionally, the subarea plans will diversify La Center's economy and housing opportunities to promote economic and community growth. Historically, the current zoning code and regulations in the Timmen Landing subarea have prevented development in an area of the city envisioned for growth.

The proposed land use designations in Timmen Landing are shown in Figure 5. This figure has been revised in the Final EIS to remove the "steep slopes" layer to more clearly illustrate the conceptual zoning. As shown, the property identified in your comment, as well as adjacent properties, would be designated as (and eventually rezoned for) high density residential by the subarea plan. The proposed rezone would not affect the current use of your property or home, or that of surrounding properties. All properties that are rezoned would be able to maintain their current uses. However, if a property owner decided to redevelop their property, the development would then need to comply with the zoning requirements in place at that time. For example, a property zoned high density residential could be redeveloped with multifamily residential units (if desired by the property owner).

Please also note that adoption of the subarea plans does not include adoption of new zoning code. The EIS considers anticipated zoning changes in order to assess potential impacts that could result from those changes. The zoning changes evaluated in the EIS have been identified as a measure necessary to implement the subarea plans. The La Center City Council, as the ultimate decision maker for the subarea plans and zoning code, will make a final decision on the subarea plans and any implementation measures.

If you have additional concerns or comments about the subarea plans, there will be an opportunity for public comment at the upcoming public hearings.

Comment #5

La center Timmens proposed development

From Caroline Meighan [REDACTED]
Date Thu 5/22/2025 9:53 AM
To Angie Merrill [REDACTED]

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I am an equestrian that currently uses this area as a staging area to access the trails. There is not a better area for approaching the trails. With the proposed development, are there plans to have a new staging area? If it is commercial use, I suspect any parking that is available for boats/trailers will no longer be an option. Also, what will development of that area have on the riparian area right there at the boat launch?

Currently we have limited use of trails in Clark county as more land gets developed. How will the development serve the residents (human and original non-human inhabitants) that already live and use this area? I suspect negatively.

Caroline Meighan

Response to Comment #5

Thank you for your comment. There are currently no plans to designate or develop an equestrian staging area in the Downtown or Timmen Landing subareas. The existing parking areas at the boat launch will not be impacted by the subarea plans. In the Timmen Landing subarea, high, medium, and low density residential uses are proposed, with a small strip of neighborhood commercial overlay along NW Timmen Road (see Figure 5). This overlay provides neighborhood-scaled commercial opportunities such as cafes, restaurants, and community-scaled services such as a laundromat or dentist office. The subarea plan does not propose commercial uses near the boat launch or within the riparian areas associated with the East Fork Lewis River.

Any proposed development within riparian areas will be subject to the City's critical areas regulations in LCMC Chapter 18.300. The City is currently updating the critical areas ordinance to reflect best available science and to be consistent with the latest state agency guidance, including new guidance from WDFW on the protection of riparian areas. The updated critical areas ordinance is scheduled to be adopted by December 31, 2025.

The subareas plans do not include the removal of any existing trails, and would add additional trails in some locations, which would improve pedestrian connectivity. The additional residential density

permitted in the subarea plans may increase use of these trails, but impacts are expected to be offset by the addition of new trails and recreation opportunities.

Comment #6

Please include me on the Downtown and Timmen Landing Subarea Plans email list

From Harrier House [REDACTED]
Date Sat 5/31/2025 5:15 PM
To Angie Merrill [REDACTED]

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I should be one of these:

Interested Individuals, Property Owners, and Organizations Interested parties included the Downtown and Timmen Landing Subarea Plans project email list and those who provided contact information with their scoping comments.

As such, I have not received any emails.

Thank you, for your consideration,

- Daina McLean
Harrier House LLC

Response to Comment #6

Thank you for your comment. The City contacted the commentor separately on this matter and will ensure this contact is included on future emails associated with the project. If you have additional concerns or comments about the subarea plans, there will be an opportunity for public comment at the upcoming public hearings.

APPENDIX A. REFERENCES

- AINW (Archaeological Investigations Northwest, Inc.). 2024. *Review of Existing Conditions for Archaeological and Historic Resources, Timmen Landing and Downtown Planned Action Areas Project, La Center, Clark County, Washington, AINW Report No. 5074 (Redacted to Remove Sensitive Archaeological Information)*. February 27, 2024.
- American Lung Association. 2024. *State of the Air Report, 2024, Clark County, WA*. Available at: <https://www.lung.org/research/sota/city-rankings/states/washington/clark>
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APPENDIX B. SUMMARY OF SCOPING COMMENTS



Memorandum

Date: February 10, 2025, revised May 29, 2025

Subject: Summary of EIS Scoping Comments
Downtown and Timmen Landing Subarea Plans

From: Emma Johnson, WSP USA
Alec Egurrola, WSP USA

To: Angie Merrill, City of La Center

Route to: File, Project Team

INTRODUCTION

The City of La Center proposes to adopt subarea plans for Downtown and Timmen Landing. The two subareas consist of existing residential neighborhoods, parks, schools, open space and recreation areas, commercial business, and mixed-use zones. The subarea plans will include recommendations for economic, civic and recreational activities that connect to the waterfront and river natural areas, a safe network that accommodates biking and walking, diverse housing choices and development opportunities with neighborhood focused commercial outlets, and access to quality schools and public services.

The City of La Center, as the State Environmental Policy Act (SEPA) lead agency, has determined this proposal is likely to have a significant adverse impact on the environment. An environmental impact statement (EIS) is required under RCW 43.21C.030 (2)(c) and will be prepared. The City intends to designate these two subareas as a planned action as defined under WAC 197-11-164 and will prepare a planned action EIS. A future project developing under the planned action will not require an individual SEPA determination at the time of permit application if the City determines the project is consistent with the range of alternatives and mitigation studied in the EIS.

Per the requirements of WAC 197-11-360, the City published and issued a “Notice of Determination of Significance and Request for Comments on Scope of Environmental Impact Statement” on January 7, 2025. The scoping notice preliminarily identified the following elements of the environment for discussion in the EIS.

- Land and Shoreline Use
- Transportation
- Public Services
- Utilities

- Air
- Earth
- Water
- Plants and Animals

While not identified in the scoping notice, the EIS will also evaluate historic and cultural resources. During the scoping comment period, scoping comments were received at the project open house on January 15, 2025, and via email. The 21-day scoping comment period closed on January 28, 2025. This memorandum provides a summary of comments received and a recommendation on the scope of the EIS based on scoping comments.

COMMENTS RECIEVED

The scoping period ran from January 7, 2025, until January 28, 2025. During the scoping period, ~~44~~¹² comment submissions (e.g., an email or letter) were received, which focused on a variety of concerns related to land use, transportation, historic resources, public services, earth, water, and plants and animals. Comments are summarized below by category and a comment and response log is included as an attachment. In many cases, one comment submission included several comments about different topics (e.g., land use, plants and animals, etc.).

Land Use

Four comments pertained to land use, specifically housing density, location of medium and high-density housing and commercially zoned land, access to recreation, and concerns regarding increased growth and urbanization.

Transportation

Five transportation related comments were submitted. In general, comments focused on concerns related to potential traffic increases associated with additional development, specifically the ability of the existing transportation network to accommodate additional traffic.

Historic and Cultural Resources

One comment questioned how the project would affect historic houses in the study area.

Utilities

Two comments raised concerns with the stormwater system's ability to handle increased runoff, one noting this issue will be exacerbated by anticipated changes in climatic conditions.

Earth

One comment noted that portions of both subareas are located in geologically hazardous areas, including landslide hazards, erosion hazards, and seismic hazards. The commenter recommended that these hazard areas should be considered in the planning and design effort of the subarea plans to avoid and minimize impacts to people and property.

Water

Five comments were received related to surface and ground water quality impacts due to increased development, including increased stormwater runoff and pollutants reaching surface waters.

Plants and Animals

Six commenters raised concerns regarding impacts to plants and animals, including habitat associated with the La Center Bottoms and the East Fork Lewis River. Specific concerns included wetlands, floodplains, riparian habitat, priority habitats and species, and waterfowl concentrations.

Other

One commenter noted general opposition to the project and to increased development, but did not comment on specific impacts or the scope of the EIS.

RECOMMENDATION

As outlined above, the scoping comments received during the EIS scoping period are consistent with the areas identified for study in the DS and scoping notice. Information and concerns identified in the comments will be taken into consideration during preparation of the EIS. No additional analysis is recommended based on the scoping comments.



#	Comment	Date	Category	Method	Submitted by
1	<p>Hello,</p> <p>My concerns are housing density and traffic impacts.</p> <p>I believe most La Center residents live on the north side of the bridge, and I'd like the commute-traffic impact (especially at the circle) to be taken into consideration prior to any residential and commercial zoning decisions.</p> <p>The City will not be able to remedy any future congestion issues after housing is already in place, unless the bridge is widened, another bridge is built, or another I5 exit is installed.</p> <p>It seems to make more sense for most of the MDR and high density commercial zoning to be south of the bridge in the Timmons Landing area, as that road can be widened.</p> <p>It also seems to make more sense to have high traffic commercial areas closer to the freeway for the convenience of out of town business. I.e. grocery store. Fast food restaurants (door dash for locals and hotel guests?) Ctran buses?</p> <p>I'd prefer a quaint, boutique downtown, with river recreation and higher end shops and restaurants, which could become a hotspot for people to come and spend the day. Saturday markets. Farmers markets. Regular events and celebrations. Downtown will need to be taken into consideration.</p> <p>I know some cites like MDR near downtown areas but traffic is an issue here. Since the town is so small, both areas will still be walkable. I doubt there will ever be a time when most residents will be employed locally.</p> <p>I would also like to see more major roads and arterials as part of the plan to give more commute options. Two main roads merging into one during rush hour will not maintain the "easy commute to I5" selling point to home buyers and retention of existing homeowners. It's already congested.</p> <p>Please traffic study the circle and bridge and project the number of potential traffic for all available undeveloped LDR and double that for possible MDR. Also, please project for future annexations with developers moving in. How much traffic can that circle and bridge take at 6-8 am and 5-7 pm and suggest residential and commercial zoning based on that study. La Center is also the detour route for I5.</p> <p>Again, suggest MDR and high traffic commercial closer to the freeway (more profitable for business) and fewer commuters traveling over one bridge.</p>	1/10/25	Land Use, Transportation	Email	M. Thomas

#	Comment	Date	Category	Method	Submitted by
	I'm curious who keeps suggesting MDR on the north side that are noted in city council meeting minutes? Are they a resident or someone with other interests? It's hard to believe anyone living on the north side would agree with more traffic. Thank you, Mariah Thomas				
<u>2</u>	<u>Hello,</u> <u>Thank you for sharing this information!</u> <u>The document you provided described the project "Timmen Landing and Downtown Subarea Plans." I checked the link you sent for additional information. I found the "Existing Conditions and Key Considerations for Subarea Planning Timmen Landing and Downtown Subareas City of La Center, Washington April 2024" document and reviewed it. Of note, related to geologic hazards and other things I look for, the "Existing Conditions" document described geologically hazardous areas for landslide hazard, erosion hazard, and seismic hazard. The text in the document and the maps in Appendix E, reveal that La Center has extensive areas of potential unstable slopes on the Landslide Hazard Areas map, extensive areas of severe erosion hazard on the Erosion Hazard Areas map, and extensive areas of moderate to high liquefaction susceptibility on the Seismic Hazard Areas map. As part of the planning effort, I recommend this information to be considered seriously and thoughtfully in the design so as to avoid and minimize hazard impacts to people and property.</u> <u>Thank you and cheerio,</u> <u>Tricia</u>	<u>1/10/25</u>	<u>Earth</u>	<u>Email</u>	<u>T. Sears, Washington Department of Natural Resources</u>
3	How can we improve water recreation in the summer? Are there opportunities for waterfront commercial activities?	1/15/25	Land Use	Open House Comment Form	Anonymous
4	I am very concerned about the impact of Timmen Landing on the La Center Bottoms. Especially, the wild swans (Cygnus columbianum). They are very sensitive disturbance. The Lower Columbia Restoration Partnership does long-term wetland and fish monitoring. They have data you need to consider. There are listed fish species in the wetland. There is no need for a transit station. Let's see how this new bus stop works. All high density development should be at I-5.	1/15/25	Plants and Animals, Transportation, Land Use	Open House Comment Form	Anonymous

#	Comment	Date	Category	Method	Submitted by
5	<p>Dear City Planners,</p> <p>Below are my comments and concerns relative to the plans for city expansion, specifically with the Timmon Landing and Downtown subarea.</p> <p>My wife and I moved to La Center almost 4 years ago and moved to this lovely city for both its charm as well as its urban ecosystem which we feel is one of its biggest draws. As active outdoors people who frequent the trails and kayaking the East Lewis River, we appreciate the close proximity to bald eagles, hawks, owls, deer, otters, beavers, and the other vast wildlife in the area.</p> <p>As I've reviewed the proposed city expansion plans, I became very concerned, as are many of my neighbors, with potential impact to this fragile urban ecosystem. My biggest concerns center around degradation of the riparian areas and the potential for increased river pollution, loss of habitat for river flora and fauna, and added increased density housing adding significant impervious surfaces, increasing pollution, fire risk, and degrading natural water filtration.</p> <p>Each of these potentially disrupts the sensitive nutrient and biogeochemical cycles in the area as well as habitats for sensitive populations of migratory birds like our beloved swans.</p> <p>The city plans to me reflect the disregard for these things and I am concerned that the city will not be adequately addressing these things in the environment impact review and statement creation. It would be a real loss if the city only prioritized growth and revenue over a balanced, and well planned urban ecosystem. I implore the planners and decision makers to not disregard the charm and history of La Center, and make rash long-term decisions that don't lead to a well planned, well loved community that respects its people and its natural appeal.</p> <p>Happy to discuss further.</p> <p>Regards,</p> <p>Randy and Lisa Kreibich</p>	1/21/25	Plants and Animals, Water	Email	R. and L. Kreibich
6	<p>Dear Angie,</p> <p>Thank you for the opportunity to comment on the City of La Center's Determination of Significance and Request for Comments on the Environmental Impact Statement (EIS) for Timmen Landing and Downtown Subarea Plans. The Washington Department of Fish and Wildlife (WDFW) is writing to offer our support for La Center's Subarea Plan and provide guidance on key environmental topics to consider in the EIS currently under development. We understand that the city is seeking feedback on the elements to be evaluated in the EIS. As the planning process moves forward, we wish to express concern</p>	1/22/25	Plants and Animals, Water	Email	B Salter, Washington Department of Fish and Wildlife

#	Comment	Date	Category	Method	Submitted by
	<p>regarding the potential for future development projects within the subarea to proceed without individual environmental reviews. Such an approach could overlook critical site-specific environmental considerations, potentially leading to cumulative, unanticipated impacts on critical areas. To assist in this effort, we encourage the City of La Center to consider the following environmental topics for inclusion in the EIS.</p> <p><i>Critical Area Designation / Impacts</i></p> <p>It is essential that critical areas, including wetlands, floodplains, and Priority Habitats and Species (PHS) such as the East Fork Lewis Riparian Corridor, Oregon White Oak (OWO) woodlands and waterfowl concentrations, are identified and designated early in the planning process. These areas must be evaluated in the EIS to prevent further degradation through development. We support the proposed subarea plans incorporating low-density zoning around critical areas to reduce development pressures. We are also supportive of the current buffers for the EF Lewis and Type F streams of 250 and 200 feet, respectively, per the La Center Critical Areas Ordinance (CAO). The EF Lewis Riparian Corridor provides habitat for many ESA listed salmonids species and also functions as a key migration corridor. Impacts to this critical area can significantly degrade the environment and cause unintended consequences for people due to the increased risk of natural disasters such as flooding. Based on experience over the past two decades, we know that infrastructure, residences, and businesses that are built in flood prone areas are inevitably going to be damaged and this can only be avoided by preventing development of that kind in those habitats.</p> <p>We would like to express that the city’s current buffer widths for seasonal, non-fish bearing streams of 75 feet are a concern. WDFW recently released new riparian management recommendations, Riparian Ecosystems, Volume 1: Science Synthesis and Management Implications (Quinn et al. 2020) and Riparian Ecosystems, Volume 2: Management Recommendations (Rentz et al. 2020). In the new riparian management recommendations, WDFW no longer has a set buffer width for fish and non-fish bearing streams, and instead bases it on the Site Potential Tree Height of 200 years (SPTH200) to ensure the riparian ecosystem has the greatest functionality. These ecological functions outlined in Riparian Ecosystems, Volume 1 include, but are not limited to: stream morphology, erosion and sedimentation process, fish and wildlife habitat availability, wood recruitment, stream temperature, shading, pollutant removal, and nutrient cycling. If SPTH cannot be implemented, current science recommends having a riparian zone of no less than 100 ft to help minimize pollutant runoff.</p>				

#	Comment	Date	Category	Method	Submitted by
	<p>We recognize the city’s commitment to including areas along the East Fork Lewis Riparian Corridor as parks, open spaces, and water recreational areas, and we believe this is an important step toward ensuring the long-term environmental health of the area. With the development of new parks and trails, the city should anticipate an increase in human activity that could lead to environmental degradation and disrupt the normal behavior of wildlife. Increased foot traffic, noise, and pollution could disturb natural habitats, interfere with migration patterns, and negatively impact species that rely on these ecosystems for survival. Impacts such as the spread of invasive species, soil compaction, increased erosion risks, and littering could all negatively affect the health of surrounding natural areas. We recommend that the EIS address these potential impacts.</p> <p><i>Strategies for Mitigation Sequence</i></p> <p>While it is likely that some ecological impacts cannot be entirely avoided, it is crucial that the City of La Center adheres to the principle of no net loss of ecosystem functions. To this end, we recommend that the EIS outline strategies for compensatory mitigation, particularly when unavoidable harm to ecosystems is anticipated. The city should prioritize landscape-scale avoidance and minimization measures, as well as site-scale development strategies. The following recommendations could further strengthen the mitigation section of the EIS:</p> <p><u>Habitat Enhancement:</u> WDFW previously commented on the La Center Parks, Recreation and Open Space (PROS) Plan which contained goals and policies for habitat protection that were commendable. We suggest expanding on Goal 4.9 of the PROS Plan, which focuses on riparian corridor reforestation and streambank restoration, to include habitat enhancement within existing parks and open spaces. Improving habitat complexity will benefit wildlife, increase viewing opportunities, and reflect the natural character of La Center. Specific recommendations for habitat enhancement include:</p> <ul style="list-style-type: none">• Planting a diversity of native species to provide food and shelter for wildlife.• Installing nest boxes for birds and bats.• Creating wildlife snags where they will not pose a risk to recreation or infrastructure.• Implementing invasive species management wherever possible. <p><u>Best Management Practices (BMPs) for Trails:</u> To minimize impacts on riparian areas, we recommend the city adopt BMPs for the design and maintenance of trails. Trails should be aligned perpendicular to streams to minimize the footprint within the riparian zone. Impacts from the increase in human presence could be mitigated for by consolidating recreational activities to designated stream access points, with</p>				

#	Comment	Date	Category	Method	Submitted by
	<p>clear signage and educational materials that explain the importance of riparian ecosystems. Additionally, ensuring an adequate number of trash receptacles throughout the area will help reduce litter.</p> <p><u>Stormwater Management</u>: Incorporating green stormwater infrastructure into the Subarea Plan will help reduce runoff and filter pollutants. Green infrastructure measures, such as vegetated stormwater ponds, rain gardens, permeable pavement, and bioswales, should be prioritized. Wherever possible, impervious surfaces like roads and trails should be minimized to allow water to infiltrate into the soil.</p> <p><u>Road Management</u>: Assess the impact of new roads on wildlife movement and fish passage. Roads and traffic affect connectivity by creating barriers to movement and fragmenting habitat. Roads also lead to wildlife mortality by vehicles. The expansion of road systems should be managed carefully to avoid creating new barriers.</p> <p><u>Oregon White Oaks</u>: WDFW’s new guidance, <i>Management Recommendations for Washington's Priority Habitats: Best Management Practices for Mitigating Impacts to Oregon White Oak</i>, outlines how to minimize construction impacts on Oregon White Oak (OWO) habitat and calculate baseline ecological function to inform mitigation. This ensures no net loss of ecological function, though mature OWOs, which take decades or centuries to develop, pose challenges. The loss of mature trees results in both a physical and temporal loss of function so avoidance and minimization should be prioritized for OWO present within the subarea. Mitigation for physical loss involves planting seedlings, while temporal loss can be addressed by enhancing existing oak stands. We are available to assist with identification and mitigation efforts.</p> <p><i>Community Engagement, Education, and Outreach</i></p> <p>We encourage the city to promote sustainable environmental practices among residents, including the use of native landscaping and incorporating habitat features into smaller urban spaces such as balconies and patios. Public education campaigns can also increase awareness of the importance of wildlife habitats, biodiversity, and sustainable growth. Engaged communities are more likely to support conservation initiatives and contribute to the long-term success of environmental strategies. Habitat at Home, formerly known as the Backyard Wildlife Sanctuary Program, is WDFW’s effort to encourage Washingtonians to connect with nature where they live, work, and play. By learning ways to increase biodiversity through planting native plants, coexisting with wildlife, and making decisions that positively impact the health of our communities, we can all make a difference.</p> <p>In closing, we strongly recommend that the City of La Center incorporate these considerations into the scope of the EIS to ensure that future development is aligned with the principles of habitat preservation,</p>				

#	Comment	Date	Category	Method	Submitted by
	<p>ecological sustainability, and responsible growth. We also emphasize the need for careful planning to ensure no net loss of ecosystems functions and values, with future projects proceeding without environmental review. By addressing these topics, the city will be better positioned to protect and enhance its natural resources while supporting sustainable development.</p> <p>Thank you for your consideration,</p> <p>Brittney Salter</p> <p>WDFW Southwest Washington Land Use Planning Lead</p> <p>CC: Amaia Smith, Assistant Regional Habitat Program Manager</p> <p>CC: Isaac Holowatz, Habitat Biologist</p>				
7	<p>Hi Angie,</p> <p>Below are elements that should be considered in the City's Environmental Impact Statement for the Timmen Landing and Downtown subareas.</p> <ul style="list-style-type: none">• Analysis of the vegetation removal, soil compaction and creation of impervious surface with a quantitative analysis of volumes created and a realistic plan on how these will be mitigated and prevented from polluting existing wetlands and waterways.• Gather current data about water quality and predict potential impacts to water quality from proposed development.• Full review and consideration of data from the Lower Columbia Estuary Partnership related to their La Center Wetlands Action Effectiveness Monitoring Project:• https://public.tableau.com/app/profile/aemr.epmonitoring/viz/LaCenterWetlandsRestorationProjectResearchDashboards/WelcometotheLaCenterWetlandsRestorationProjectResearchDashboard• An analysis of the increased traffic, including air pollution, traffic signals and roadway upgrades and maintenance that will be needed.• Analysis of increased noise pollution and how it will impact residents and wildlife.• Gather data about the threatened Lewis River Chinook that are documented to use the La Center wetlands, include a plan of how they will not experience more stress and pollution from additional nearby development. Include latest survey data of fish species from the State of Washington.• Conduct a comprehensive bird population census and a reasonable plan of how the habitat will be protected from the new development; include a special focus on how this development may impact the	1/27/25	Plants and Animals, Water	Email	L. Appel

#	Comment	Date	Category	Method	Submitted by
	<p>wild Tundra swans (<i>Cygnus columbianum</i>) that spend the winter in the La Center wetlands and how they will be protected from disturbance - these birds are the icons of La Center.</p> <ul style="list-style-type: none"> • Conduct a stakeholder analysis of groups that have an interest in the quality of wetlands and water quality, including any watershed committee working on water quality issues on the Lewis River. This should include federal, state, county and local government partners and include Clark PUD and non-government organizations. Create a plan on how those stakeholders will be regularly informed and engaged in the process. <p>Thanks for your consideration.</p>				
8	<p>Hello,</p> <p>We do not support the Downtown Subarea plans for La Center. As long-time residents on West E Avenue (27 years), we do not support the plan for high density housing off of WE Avenue. Please reconsider the plan and instead focus on attracting businesses to the area. La Center would greatly benefit from a grocery store and a hardware store instead.</p>	1/27/25	Other	Email	K. and T. Lichliter
9	<p>The proposed 2025 comprehensive plan is flawed in numerous ways, among them: it does not consider the preservation of natural areas and natural resources in any manner, it does not reflect the general wish of the citizenry to limit growth, and continues down the path that the city has embarked upon of unsustainable growth.</p> <p>The so-called "downtown" that has been proposed, located directly on the river and adjacent to the relatively undisturbed natural area, will create noise, surface runoff, and light pollution impacting the "bottoms" area. Many nesting and migrating birds, along with a wide variety of other wildlife, depend upon this area and the value that it provides as it is currently relatively quiet and mostly free from lights. This development, which is not needed by the residents of the city, will negatively impact these aspects and the additional hard surfacing will increase untreated surface flow to the river.</p> <p>As has been already declared at numerous council meetings and other forums the Vineyard Vista development will clear cut a mature forest destroying the habitat that it provides, increase stormwater runoff into existing neighborhoods and the Breezee Creek, increase traffic, and burden an infrastructure that has already reached its limit, among other negative impacts previously defined. We are told we need more development, to get more tax money, to pay for more infrastructure, which will require more taxes and thus more development. It's unsustainable. The proposed Timmons project creates all of the same issues while even further impacting traffic and with runoff going directly to the river further diminishing water quality of the La Center Bottoms and the overall Columbia River watershed. As was learned from</p>	1/27/25	Plants and Animals, Water, Land Use	Email	C. Tylenda

#	Comment	Date	Category	Method	Submitted by
	<p>the recent wildfires in southern California, the practice of pushing sprawling development further into rural spaces, beyond what has already been done, should be ended, not encouraged.</p> <p>The comprehensive plan should be rewritten to show a future that creates a green natural buffer to prevent future expansion. Using Ridgefield's rapid environmental destruction as an example and the rampant devastation of open spaces, loss of wildlife habitat connectivity, and overcrowding as an example, the future of La Center should take an entirely different path. This path should include planning for a city with rural and natural areas, that doesn't become a replica of what we already have 10 minutes away (in Ridgefield), and shows a respect for the natural world and the values it provides. Such planning would engage land conservancy organizations, environmental, and other diverse groups in developing the plan, solidify urban growth boundaries by prohibiting annexation for the benefit of wealthy developers and at the expense of everyone and everything else, require permitting and remediation for the removal of any mature native trees, and prohibit the discharge of additional stormwater runoff to the Breezee Creek and Lewis River.</p>				
10	<p>Public Comment on the Proposed 2025 Comprehensive Plan</p> <p>The effects of climate change are no longer distant concerns; they are here and escalating. Record-breaking heatwaves, intensifying storms, and rising sea levels are impacting communities worldwide, including ours. Washington State, for example, has experienced a 30% increase in extreme rainfall events over the past decade, placing towns like La Center at greater risk of flooding. This is not a future challenge but a present crisis that demands bold and informed action from our leaders.</p> <p>As a resident of La Center, I care deeply about the future of our community. The 2025 Comprehensive Plan has the potential to shape the direction of our town for years to come, but I am concerned that the current proposal falls short of addressing critical issues. Our city is at a crossroads, and we must take decisive action to ensure that growth does not come at the expense of our natural resources, infrastructure, and quality of life. I am writing to share my concerns and to urge city leaders to adopt stronger, more actionable measures that reflect the needs of our environment and community.</p> <p>Challenges and Recommendations</p> <p>Urban Development, Habitat Destruction, and Environmental Impacts</p> <p>As climate change accelerates, the loss of wetlands and forest compounds its effects, increasing the frequency and severity of natural disasters like flooding and heat waves. Wetlands like the La Center Bottoms act as nature's buffer against extreme weather, mitigating flooding and providing critical</p>	1/27/25	Plants and Animals, Water, Utilities, Transportation	Not available	C. Monroe

#	Comment	Date	Category	Method	Submitted by
	<p>habitats for migratory birds, salmon, and other species. The pressures of urban development threaten to erode these natural defenses.</p> <p>The current Sub-Area Plans propose both commercial and high-density housing directly adjacent to La Center Bottoms. They threaten to disrupt critical habitats for keystone species like the Tundra Swans and will increase the community's vulnerability to the escalating effects of climate change, such as more intense storms and rising temperatures. Similar consequences have been observed in flood-prone areas where poor planning magnifies the impacts of extreme weather.</p> <p>Unchecked development also exacerbates the heat island effect by removing tree canopies and replacing natural landscapes with impermeable surfaces. This not only contributes to rising local temperatures but also increases stormwater runoff, overwhelming drainage systems and polluting nearby waterways, such as the East Fork Lewis River and surrounding wetlands.</p> <p>Key Impacts:</p> <ul style="list-style-type: none">• Habitat destruction leading to biodiversity loss, particularly affecting keystone species like our beloved Tundra Swans, which are highly sensitive to disturbances such as noise and light pollution.• Increased flooding risks and pollution due to wetland degradation.• Long-term costs of disaster mitigation and reduced ecosystem resilience. <p>Examples:</p> <ul style="list-style-type: none">• In California, suburban sprawl has led to the loss of oak woodlands and chaparral ecosystems, critical for wildlife and carbon storage.• Philadelphia reduced stormwater overflow by 85% through green stormwater infrastructure, showcasing the benefits of sustainable planning. <p>Recommendations:</p> <ul style="list-style-type: none">• Reconsider the options for placement of high-density housing and commercial development to ensure minimum habitat disruption.• Integrate biodiversity protection into land-use policies by preserving significant areas of natural habitat.• Develop habitat corridors to connect fragmented ecosystems, ensuring natural movement and genetic diversity for wildlife.• Engage local communities in habitat monitoring and conservation to foster shared responsibility and awareness. <p>Building Practices and City Codes</p>				

#	Comment	Date	Category	Method	Submitted by
	<p>Current development practices in La Center often involve clearing large tracts of land, destroying native habitats, and significantly altering ecosystems. This approach results in the loss of critical natural resources, including mature trees and biodiversity, while contributing to increased flooding risks and soil erosion. Buildings constructed without consideration for the surrounding environment further exacerbate these challenges by failing to align with sustainable practices.</p> <p>Key Impacts:</p> <ul style="list-style-type: none">• Land clearing removes natural vegetation that prevents soil erosion and filters stormwater, leading to sedimentation in nearby rivers and wetlands.• Habitat destruction isolates wildlife populations, reducing genetic diversity and resilience to environmental changes.• The loss of tree canopies increases urban heat island effects and decreases carbon sequestration. <p>Examples:</p> <ul style="list-style-type: none">• The widespread clearing of mature forests for development in suburban areas has led to increased flooding and habitat fragmentation.• Portland's green building codes mitigate these impacts by promoting construction practices that preserve natural features, such as native vegetation and mature trees.• Washington, D.C., requires developers to offset environmental impacts by planting new trees or contributing to urban forestry initiatives, demonstrating how proactive policies can balance development with conservation. <p>Recommendations:</p> <ul style="list-style-type: none">• Require site-sensitive construction practices that minimize land clearing and retain native vegetation.• Mandate ecological assessments for new developments to identify and protect critical habitats.• Mandate the preservation of native vegetation and mature trees within development sites.• Require developers to contribute to local conservation funds.• Promote low-impact development (LID) techniques, such as permeable pavements, green roofs, and bioswales, to reduce environmental harm while managing stormwater effectively.• Require green building standards that integrate energy-efficient designs and renewable materials.• Incentivize developers to minimize environmental impact through tax benefits or expedited permits. <p>Infrastructure and Climate Resilience</p>				

#	Comment	Date	Category	Method	Submitted by
	<p>The failures of aging infrastructure in La Center, such as undersized stormwater systems, are increasingly exposed by the intensifying effects of climate change. Recent heavy rainfall events have tested the limits of these systems, resulting in localized flooding. Increased rainfall, droughts, and extreme weather expose the vulnerabilities of systems designed for a past climate, making modernization essential. Local governments must prioritize climate assessments and resilient design to prepare for these escalating challenges.</p> <p>Existing roads in La Center are another critical issue. Many roads are in significant decline, with potholes, cracking pavement, and insufficient drainage creating hazards for drivers. Poorly maintained roads also increase wear and tear on vehicles, impose higher repair costs on residents, and make travel unsafe during heavy rain or freezing conditions.</p> <p>The burden of funding these improvements should not fall solely on the current tax base. Rapid growth in La Center necessitates that new developments contribute proportionally to the cost of infrastructure upgrades to ensure equitable financial responsibility.</p> <p>Key Impacts:</p> <ul style="list-style-type: none">• Aging stormwater systems fail to manage increased rainfall, exacerbating flooding risks.• Deteriorating road conditions pose safety hazards for drivers and increase the cost of maintenance for both residents and the city.• Insufficient impact fees leave the city unable to fund critical upgrades, shifting the financial burden onto existing taxpayers. <p>Examples:</p> <ul style="list-style-type: none">• Cities with renewable energy microgrids report a 70% reduction in outages during extreme weather events.• Grants like the Federal Emergency Management Agency (FEMA) Building Resilient Infrastructure and Communities (BRIC) program provide funding for green initiatives, such as flood mitigation and renewable energy projects. For example, Charleston, SC, secured BRIC funding to create a stormwater management plan that incorporates green infrastructure.• Portland has adopted pavement management systems to prioritize repairs and optimize limited resources, reducing long-term costs and improving road safety.• Neighboring cities in Washington have implemented tiered impact fee systems, where developers contribute proportionally to the cost of infrastructure improvements. <p>Recommendations:</p> <ul style="list-style-type: none">• Prioritize road repairs, focusing on areas with significant wear and tear or safety hazards.				

#	Comment	Date	Category	Method	Submitted by
	<ul style="list-style-type: none">Require new developments to cover a proportional share of infrastructure costs through updated impact fees.Pursue federal and state grants, such as those under the Infrastructure Investment and Jobs Act, FEMA BRIC, and the Clean Water State Revolving Fund, to support climate-resilient projects and green infrastructure development.Modernize infrastructure using green technologies, such as renewable energy grids and green stormwater systems, ensuring resilience to future climate risks. <p>Traffic Safety The proposed high-traffic roundabout at Timmens Road and La Center Road presents significant challenges due to its location on a steep hill and its role as a critical commuter route connecting La Centerto Interstate 5. The steep incline, combined with high-speed limits (50 mph), increases the likelihood of collisions and operational inefficiencies, particularly during inclement weather. Additionally, residents have voiced concerns about the potential for increased congestion and safety risks at this critical junction.</p> <p>Key Concerns:</p> <ul style="list-style-type: none">The steep slope reduces visibility and reaction time, increasing risks for drivers approaching the roundabout.Heavy commuter traffic and abrupt elevation changes can create additional hazards, particularly during peak travel times or adverse weather conditions. <p>Recommendations:</p> <ul style="list-style-type: none">Do not proceed with constructing a roundabout in this location, as it may exacerbate safety and traffic flow issues.Consider alternative traffic solutions, such as installing a traffic light to regulate vehicle flow and improve safety.Explore options for bypass routes or dedicated commuter lanes to alleviate congestion.Use reflective markings, adequate lighting, rumble strips, and advance warning signage to improve safety and alertness for drivers. <p>A Vision for Transformation Climate change is testing the limits of our resilience. Communities that act decisively now will not only withstand these challenges but also thrive in a greener, more sustainable future. La Center has an opportunity to lead by example, preserving its natural heritage while ensuring growth aligns with environmental sustainability.</p>				

#	Comment	Date	Category	Method	Submitted by
	<p>This requires leaders who understand the urgency of climate action, are willing to engage with climate experts, and are ready to educate themselves and the public. The La Center Bottoms and the East Fork Lewis River provide an opportunity to model conservation efforts that enhance both ecological and community resilience. Proactive planning now will mitigate the economic and social costs of future climate impacts. Let us not wait until it is too late to act.</p> <ul style="list-style-type: none"> • Strengthening city codes to prioritize sustainable building practices, such as energy- efficient designs and the preservation of native habitats, with specific focus on areas like the La Center Bottoms. • Protecting wetlands and sensitive habitats with strict buffer zones and policies to prevent habitat destruction, while promoting biodiversity along the East Fork Lewis River. • Transforming infrastructure with investments in renewable energy, green stormwater systems, and designs that adapt to future climate risks, ensuring La Center remains resilient in the face of escalating challenges. <p>Final Comment As a resident who values La Center's unique natural environment and close-knit community, I urge city leaders to consider the long-term consequences of unchecked urban development. By adopting the recommendations outlined in this submission, La Center can grow in a way that respects its natural resources, strengthens its infrastructure, and ensures a sustainable future for generations to come. Together, we can create a community that is not only prepared for growth but also resilient in the face of environmental challenges. Thank you for your consideration.</p>				
11	<p>Hello, Downtown subarea plan: Is the plan to create a 6th street between Pacific Hwy and Aspen? Isn't that currently the parking lot of the casino? Not that I necessarily agree with it, but if that street was built, wouldn't it make sense to align it with E 6th street? What would happen to the historic homes on Aspen - 530, 580, and 602 Aspen Ave? Timmen's landing subarea plan: Please make sure that the existing stormwater system from 31907 NW Pollock road to NW 4th Court remains and is taken into consideration for the new widening plans for NW 4th Ct. Please let me know if there is intent to retain that or not.</p>	1/28/25	Transportation, Historic and Cultural, Utilities	Email	H. House
12	<p>The La Center school students (track teams, I think) run up Pollock Road from the LC bottoms. Many people use it as a walking or running trail. Please ensure that plans are in place to keep it as such and reach out to the school to get their opinion.</p>	Not available	Transportation	Not available	D. McLean

#	Comment	Date	Category	Method	Submitted by
	<p>Also, I recommend more parking at Pollock Park (or La Center Water Trail Park & Kayak Launch East Fork Lewis River as it is called on google maps), as I have often seen it overcrowded. Perhaps a horse corral or tie up (on either side of the river) and working with a local trail riding group to create trails just for the horses.</p> <p>Could a grants such as the:</p> <ul style="list-style-type: none">• https://www.washingtonhistory.org/across-washington/grants/ be used to update Pollock road, the old posts, the Pollock gravesite and improve parking on Pollock?• or Maybe the historic marker grant program: https://www.wgpfoundation.org/history/historic-transportation/?• Or the https://wsdot.wa.gov/business-wsdot/support-local-programs/funding-m:ograms/pedestrian-bicycle-program?• Or the https://www.transportation.rants/SS4A or a combination thereof help with Pollock's updates? <p>I have mentioned that since the area is near water and has lots of traffic (especially during the summer), that consideration be made to have some commercial down near the waterfront. As the City gets more residents, this will be more and more useful. It would be accessible to foot traffic coming over the bridge and on the trails, kayakers from the East Fork (that launched somewhere else), drivers down Pollock, and from residents in the higher areas of Timmen Landing. I even mentioned it to WSP and was told that I had a good point. Has anyone asked a developer like Gramer about it? They built Lake Oswego and Vancouver waterfront commercial areas. Please correct me if I'm wrong, but isn't it the closest piece of property that is near the water and could ever hope for any kind of commercial/ retail stores?</p> <p>Additionally, why is only half of my property shown as a neighborhood commercial overlay if it is only one lot?</p> <p>Did anyone look into the right of way easement to connect Spencer to Pollock? Thank you, in advance, for your consideration and responses,</p>				

APPENDIX C. ALTERNATIVES ASSUMPTIONS

The Planned Action Environmental Impact Statement (EIS) for the Downtown and Timmen Landing subarea plans will evaluate two alternatives: a No-Action Alternative and a Project Alternative. The Project Alternative assumes the subarea plans are adopted, and that future growth and development in the study area (the combined Downtown and Timmen Landing subareas) occurs consistent with the subarea plans.

The No-Action Alternative, which is required by SEPA, assumes future growth and development would occur in line with existing conditions. The purpose of the No-Action Alternative is to provide a benchmark from which the Project Alternative can be compared. It is typically defined as what would be most likely to happen if the proposal did not occur.

No-Action Alternative – Development Assumptions

The following assumptions comprise the No-Action Alternative.

- The existing comprehensive plan (2016-2035), zoning map, and development code (La Center Municipal Code Title 18) would remain in effect.
- Although the 2016-2035 comprehensive plan does not reflect recent state-mandated changes to housing requirements, the No-Action Alternative assumes the following will be in place as they are mandatory.
 - RCW 35A.21.430 and RCW 35.21.683: Permanent supportive housing and transitional housing must be allowed where residences and hotels are allowed. An assumption was made that this will not affect future housing capacity under the No-Action Alternative.
 - RCW 36.70A.070(2): Plan for and accommodate housing with adequate provisions for moderate, low, very low, and extremely low-income households, emergency housing, and permanent supportive housing. An assumption was made that this will not affect future housing capacity under the No-Action Alternative.
 - RCW 36.70A.680: Up to two accessory dwelling units (ADUs) must be allowed within a residential lot. An assumption was made that 15 percent of residential lots in the subareas will develop one ADU, which is reflective of recent development applications in the city.
- Existing residential units in the study area will remain (i.e., no units will be demolished unless replaced at the same ratio).
- The number of new residential units is based on the zoning capacity and residential density assumptions in Clark County's 2023 Vacant Buildable Lands Model (VBLM), as follows.
 - Low Density Residential: 5 units per acre
 - Medium-Density Residential: 12 units per acre
 - Mixed use residential: 12 units per acre
- With the exception of the cardrooms in Downtown, no redevelopment of existing commercial areas will occur.
- In Downtown, redevelopment will occur on 50 percent (2.45 acres) of the cardroom land area.
- No commercial development will occur in Timmen Landing. Mixed-use zones will continue to develop as residential-only, consistent with recent land use and building applications.

- The number of new jobs is based on Clark County's 2023 VBLM assumption of 20 jobs/acre for developable commercial lands.

Table 1 identifies the estimated residential units, population, and jobs that currently exist in the subareas. Tables 2 and 3 identify the estimated new and total development that would occur under the No-Action Alternative, based on the assumptions described above.

Table 1. Existing Conditions

	Residential Units	Population	Jobs
Downtown	92	204	209
Timmen Landing	27	60	0
Study Area	119	264	209

Residential units are per Clark County GIS. Population is based on the average household size in La Center (2.22) (2022 American Community Survey). The number of jobs is from the U.S. Census Bureau's OnTheMap application.

Table 2. New Development under No-Action Alternative

	Residential Units	Population	Jobs
Downtown	106	235	221
Timmen Landing	312	693	61
Study Area	418	928	282

Residential units and jobs are based on Clark County's 2023 VBLM. Residential units also consider the assumption that 15 percent of lots will develop an ADU. Population is based on the average household size in La Center (2.22) per the 2022 American Community Survey. Jobs are based on Clark County's 2023 VBLM assumption of 20 jobs/acre for developable commercial lands. Total jobs include 17.2% work from home jobs per 2023 ACS 5-Year Estimate Table S0901.

Table 3. Total Development under No-Action Alternative (Existing and New)

	Residential Units	Population	Jobs
Downtown	198	439	430
Timmen Landing	339	753	61
Study Area	537	1,192	491

See notes under Tables 1 and 2.

Alternatives Comparison – Development Assumptions

The following table provides a comparison of how the study area would develop in the future under the No-Action Alternative and the Project Alternative.

Table 4. Comparison of Alternatives

	Existing	No-Action Alternative (2045)	Project Alternative (2045)
Residential Units	119 <i>Downtown: 92</i> <i>Timmen Landing: 27</i>	537 <i>Downtown: 198</i> <i>Timmen Landing: 339</i>	986 <i>Downtown: 390</i> <i>Timmen Landing: 596</i>
Population	264 <i>Downtown: 204</i> <i>Timmen Landing: 60</i>	1,192 <i>Downtown: 439</i> <i>Timmen Landing: 753</i>	2,189 <i>Downtown: 866</i> <i>Timmen Landing: 1,323</i>
Jobs	209 <i>Downtown: 209</i> <i>Timmen Landing: 0</i>	491 <i>Downtown: 430</i> <i>Timmen Landing: 61</i>	563 <i>Downtown: 408</i> <i>Timmen Landing: 155</i>
Zoning/Designations – Net Acres¹ (except P/OS)			
Lower Density Residential ²	26 acres <i>Downtown: 6</i> <i>Timmen Landing: 20</i>	Same as existing.	50 acres <i>Downtown: 19</i> <i>Timmen Landing: 31</i>
Medium Density Residential ³	0 acres <i>Downtown: 0</i> <i>Timmen Landing: 0</i>	Same as existing.	7 acres <i>Downtown: 1</i> <i>Timmen Landing: 6</i>
Higher Density Residential ⁴	0 acres <i>Downtown: 0</i> <i>Timmen Landing: 0</i>	Same as existing.	19 acres <i>Downtown: 6</i> <i>Timmen Landing: 13</i>
Mixed Use ⁵	25 acres <i>Downtown: 7</i> <i>Timmen Landing: 18</i>	Same as existing.	4 acres <i>Downtown: 4</i> <i>Timmen Landing: 0</i>
Commercial ⁶	9 acres <i>Downtown: 9</i> <i>Timmen Landing: 0</i>	Same as existing.	6 acres <i>Downtown: 6</i> <i>Timmen Landing: 0</i>
Parks and Open Space (gross acres)	22 acres <i>Downtown: 15</i> <i>Timmen Landing: 7</i>	Same as existing.	38 acres <i>Downtown: 24</i> <i>Timmen Landing: 14</i>
Public Facilities	3 acres <i>Downtown: 3</i> <i>Timmen Landing: 0</i>	Same as existing.	3 acres <i>Downtown: 3</i> <i>Timmen Landing: 0</i>

¹Net acres were determined by deducting 30 percent of the gross land area to account for environmental constraints and infrastructure.

² For existing conditions and the No-Action Alternative, this includes Low Density Residential (LDR-7.5).

³ For existing conditions and the No-Action Alternative, this includes Medium Density Residential (MDR-16).

⁴ For existing conditions and the No-Action Alternative, this zone/designation is not present.

⁵ Mixed Use includes the City's Mixed Use (MX) and Residential/Professional (RP) zones.

⁶ For existing conditions and the No-Action Alternative, this includes Downtown Commercial (C-1). For the Project Alternative, Timmen Landing has 4 gross acres and Downtown has 8 gross acres of commercial overlay.

APPENDIX D. TRANSPORTATION TECHNICAL REPORT



Transportation Technical Report

Downtown and Timmen Landing Subarea Plans
City of La Center, Washington

April 2025



TRANSPORTATION TECHNICAL REPORT

Downtown and Timmen Landing Subarea Plans City of La Center, Washington

Submitted to

**Tracy Coleman, Community Development and Public Works Director
City of La Center, Washington**

April 2025

Prepared by

WSP USA

TRANSPORTATION TECHNICAL REPORT
Downtown and Timmen Landing Subarea Plans
La Center, Washington

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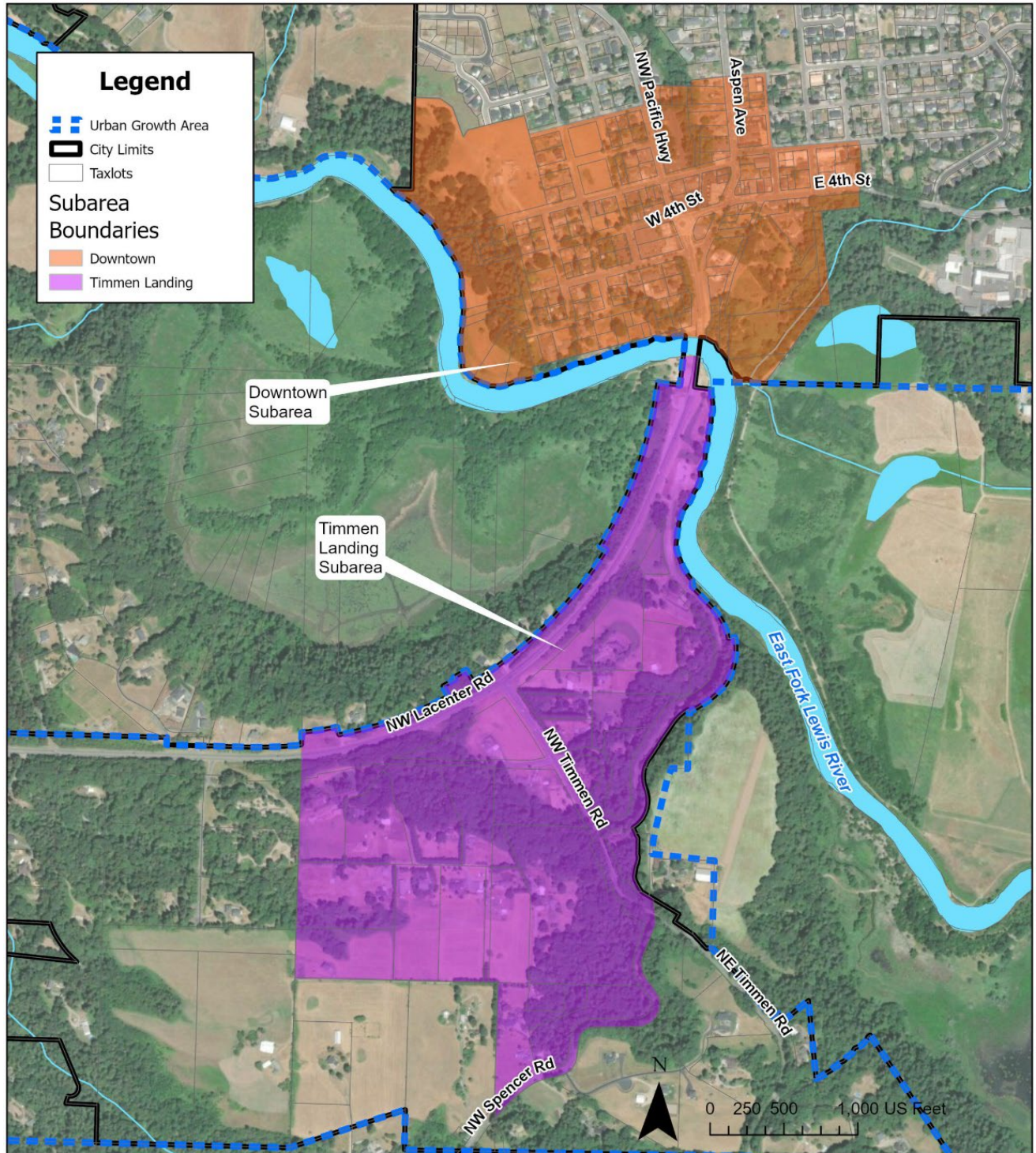
1.0 INTRODUCTION

The city of La Center is a small city located in northern Clark County, Washington, approximately 16 miles north of downtown Vancouver. The community takes pride in its identity, including the character of its downtown, hometown football games, and festivals throughout the year such as Our Days, the annual Christmas Tree Lighting, and farmers markets during the summer. According to the April 1, 2024 Washington State Office of Financial Management population estimate, La Center has a population of approximately 4,045 people.

The City is preparing two subarea plans, Downtown and Timmen Landing (see Figure 1), to diversify the city's economy beyond the local cardroom industry, which served as largest source of the city's revenue for the past 30 years. The Timmen Landing subarea is approximately 153 acres located in western La Center along Northwest La Center Road and generally between McCormick Creek and the East Fork Lewis River and south to the city limits. The subarea is largely undeveloped and contains low-intensity residential and agricultural uses. The Downtown subarea is approximately 103 acres and is generally located within the historic downtown center of commerce, civic life, and adjacent historic neighborhoods. Both subareas face the East Fork Lewis River and the La Center Bottoms Natural Area, which are natural features of the city and valued components of the community's identity. The City envisions that Timmen Landing and Downtown will develop as two separate subareas with distinct but complementary uses.

This transportation technical report summarizes information on the transportation analysis performed for the No-Action Alternative and Project Alternative.

Figure 1 - Downtown and Timmen Landing Subareas



2.0 EXISTING CONDITIONS

2.1 LAND USES AND ZONING

2.1.1 Existing Land Use

Downtown

The Downtown subarea is mostly developed and consists of La Center's historic downtown that includes cardrooms and associated parking lots occupying downtown blocks. The subarea has a mix of local commercial establishments along the north side of East Fourth Street and Northwest Pacific Highway that are primarily service-oriented, including restaurants, and the Heritage Center, a newer development with craftsman architecture with a mix of office, retail, and service uses. The south side of East Fourth Street includes City-owned properties: the old and new City Hall buildings and Sternwheeler Park with trails connecting to the Bottoms, open spaces, and an amphitheater. Surrounding the commercial areas of downtown are historic homes on smaller lots dating from the original city plat to 1914; and undeveloped lots east of La Center Road, including areas along the north shore of the East Fork Lewis River. Western and northwestern portions of the subarea include additional historic homes on smaller lots and vacant and underutilized lots, especially those closest to the river, including the recently annexed 14-acre Barnhart property.

Major destinations in the Downtown subarea include City Hall, Sternwheeler Park, the cardrooms, the Heritage Center, and various downtown establishments. The subarea includes the major intersection of the main arterials in the city: Northwest La Center Road, West Fourth Street, and Northwest Pacific Highway. These three roadways converge at the roundabout that defines the entry to downtown. Many La Center residents and visitors travel to and from the city through this roundabout, which serves as a gateway to downtown. Like Timmen Landing, Downtown is framed by its views of the La Center Bottoms and the river.

Timmen Landing

The Timmen Landing subarea consists of farmland, undeveloped forested areas, and large-lot single-family residential areas. Northwest La Center Road creates the northern boundary of the subarea, which is the main arterial connecting La Center to Interstate 5 (I-5); therefore, most La Center residents travel along the northern boundary of the proposed subarea when traveling in and out of the city, making it a highly visible community focal point. The subarea includes the John Pollock Water Trail Park and the John Pollock Historic Gravesite along the northeastern border near the East Fork of the Lewis River. To the northwest and northeast, the subarea borders the La Center Bottoms Natural Area, a Clark County-owned stewardship site that consists of a wetlands complex of flood plains, shorelines, and forested uplands next to the East Fork of the Lewis River, which is critical habitat for wildlife and both biological and ecological functions. The "Bottoms" will remain in Clark County Legacy Lands ownership and are unlikely to be developed. Timmen Landing is perched on a hillside and enjoys extensive views of the distant Cascade Mountains, Downtown La Center, and the Bottoms.

2.1.2 Zoning

Downtown

Zoning within the subarea is as shown in Figure 2 and listed in Table 1. Zoning includes a mix of Residential/Professional (RP), Downtown Commercial (C-1), Urban Public Facilities (UP), P/OS, and LDR-7.5. Three overlay districts exist within the subarea: the Downtown (DT) Cardroom (C-3), and Urban Holding (UH-10) overlay districts. The DT overlay district occurs across the entire C-1 zone in the subarea and also on a few P/OS zoned properties (part of Sternwheeler Park) along West Fourth Street. The purpose of the DT overlay is to implement the adopted 2005 La Center Downtown Design Plan and Guidelines, which is further discussed below. The C-3 overlay district occurs only across the C-1 zone in the subarea; therefore, it also occurs within the DT overlay. The C-3 overlay occurs on a handful of properties, which are the cardrooms. These are located to the west and northeast of the downtown roundabout. The purpose of this overlay district is to provide for the location of cardrooms and for all uses, except parking areas, to be contained entirely within an enclosed building. The UH-10 overlay district occurs across the recently annexed Barnhart property at the far northwestern corner of the subarea. The purpose the UH-10 overlay is to protect lands identified within the city limits from premature development due to inadequate capital facilities to support development.

Figure 2 - Downtown Subarea Zoning Map

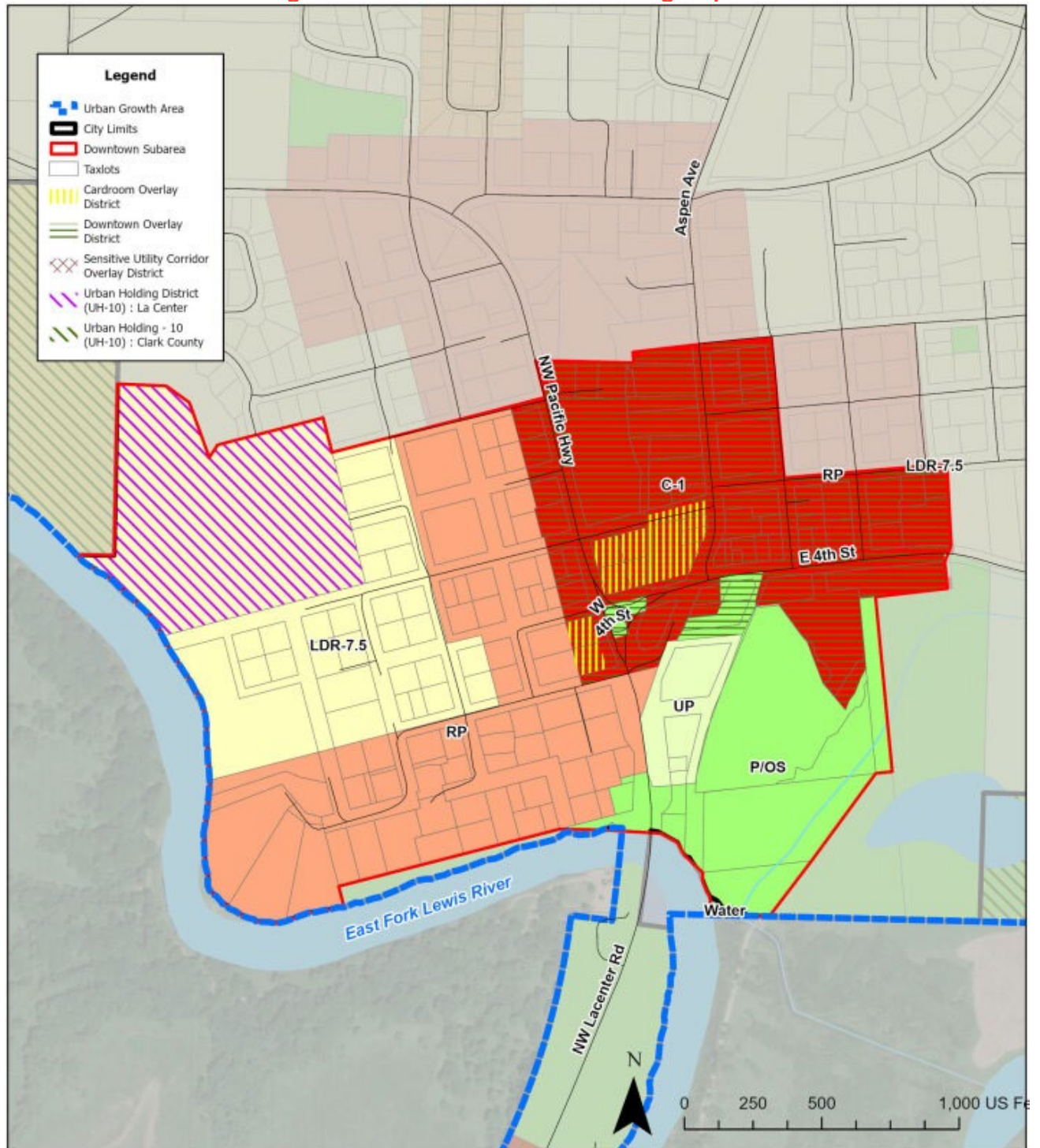


Table 1 - Zoning in Downtown

Zone	Acres	Percent
Downtown Commercial (C-1)	28	27%
Residential/Professional (RP)	29	27%
Parks / Open Space (P/OS)	15	14%
Urban Public Facilities (UP)	3	3%
Low Density Residential (LDR-7.5)	29	28%

Note: Data are rounded and approximate. Percentages may not total 100 due to rounding.

Zoning adjacent to the Downtown subarea includes the La Center zones of RP and LDR-7.5 to the north and west. Across the East Fork Lewis River, County zoned AG-20 occurs to the west and south of the western boundaries of the subarea. To the south, directly across the East Fork Lewis River bridge, is land zoned La Center P/OS, which is in the Timmen Landing subarea, and County zoned Parks/Wildlife Refuge. To the east are lands zoned La Center LDR-7.5 and P/OS.

Timmen Landing

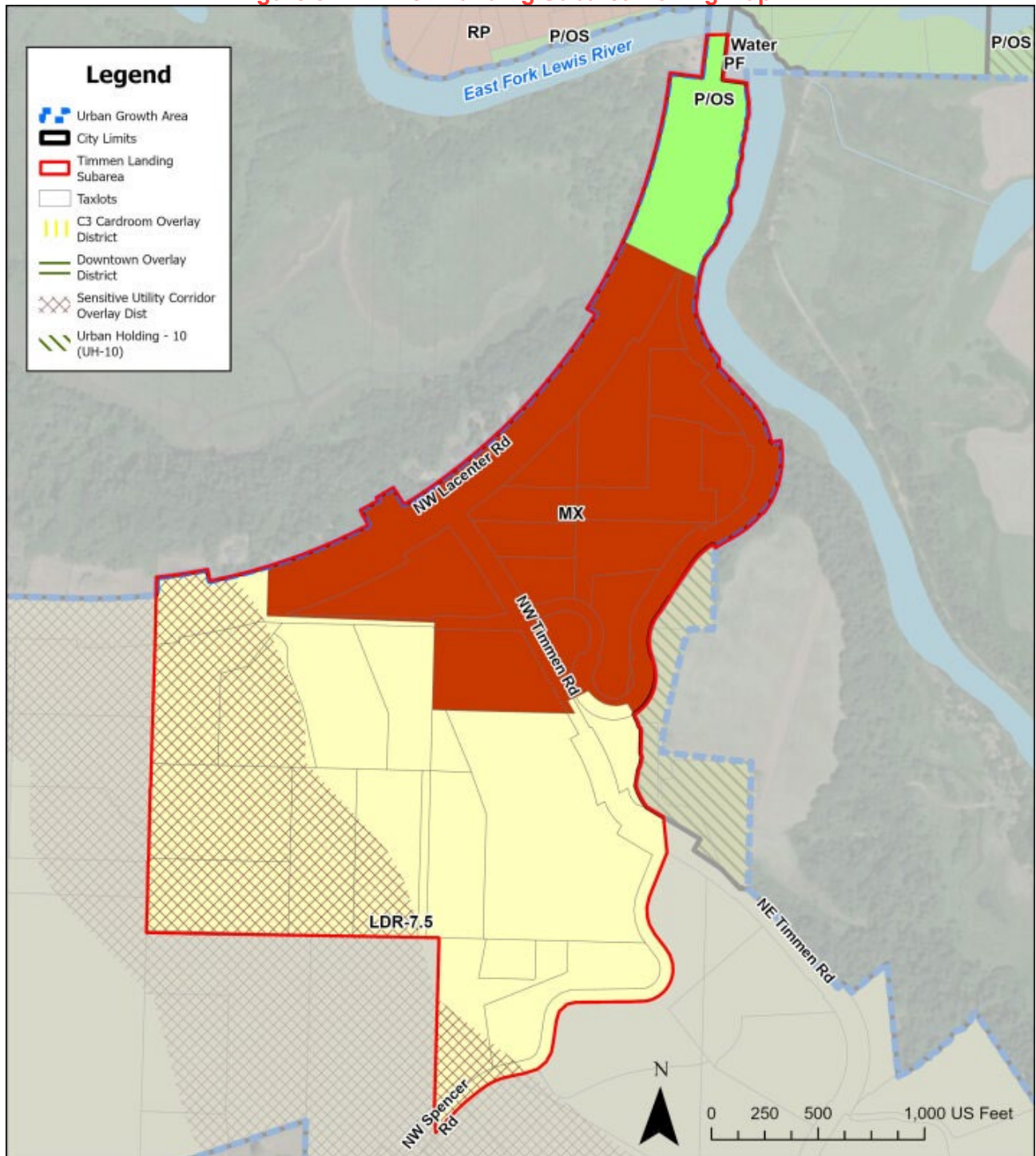
Zoning within the subarea is shown in Figure 3 and listed in Table 2, zoning includes a mix of Low Density Residential District (LDR-7.5), Mixed-Use (MX), and Parks/Open Space (P/OS). A Sensitive Utility Corridor overlay district extends across the western portion of the subarea (entirely in LDR-7.5 zoning) along the Northwest Williams Pipeline, a primary artery for the transmission of natural gas for the Pacific Northwest region. Much of the area is zoned for mixed-use development composed of commercial and residential uses. Commercial uses are limited to a maximum of 35 percent of the MX district, with no minimum required. Residential uses, which can theoretically cover the entire MX district, are limited to a maximum of 50 percent of one housing type (single-family detached, single-family attached, or multifamily).

Table 2 - Zoning in Timmen Landing

Zone	Acres	Percent
Low Density Residential (LDR-7.5)	85	57%
Mixed Use (MX)	58	39%
Parks/Open Space (P/OS)	7	5%

Note: Data are rounded and approximate. Percentages may not total 100 due to rounding.

Figure 3 - Timmen Landing Subarea Zoning Map



Zoning adjacent to the Timmen Landing subarea consists of La Center LDR-7.5 to the west, south, and southeast. To the north are County zones Rural-5 (R-5) and Agriculture-20 (AG-20). To the east are five parcels along Northwest Pollock Road zoned County R1-10 (which are within the La Center UGA) and the Urban Holding Overlay (UH-10) district). To the east are County zoned AG-20 properties.

2.2 EXISTING TRANSPORTATION CONDITIONS

This section provides an overview of existing transportation conditions and documents the basis for the transportation impact analysis for the subareas.

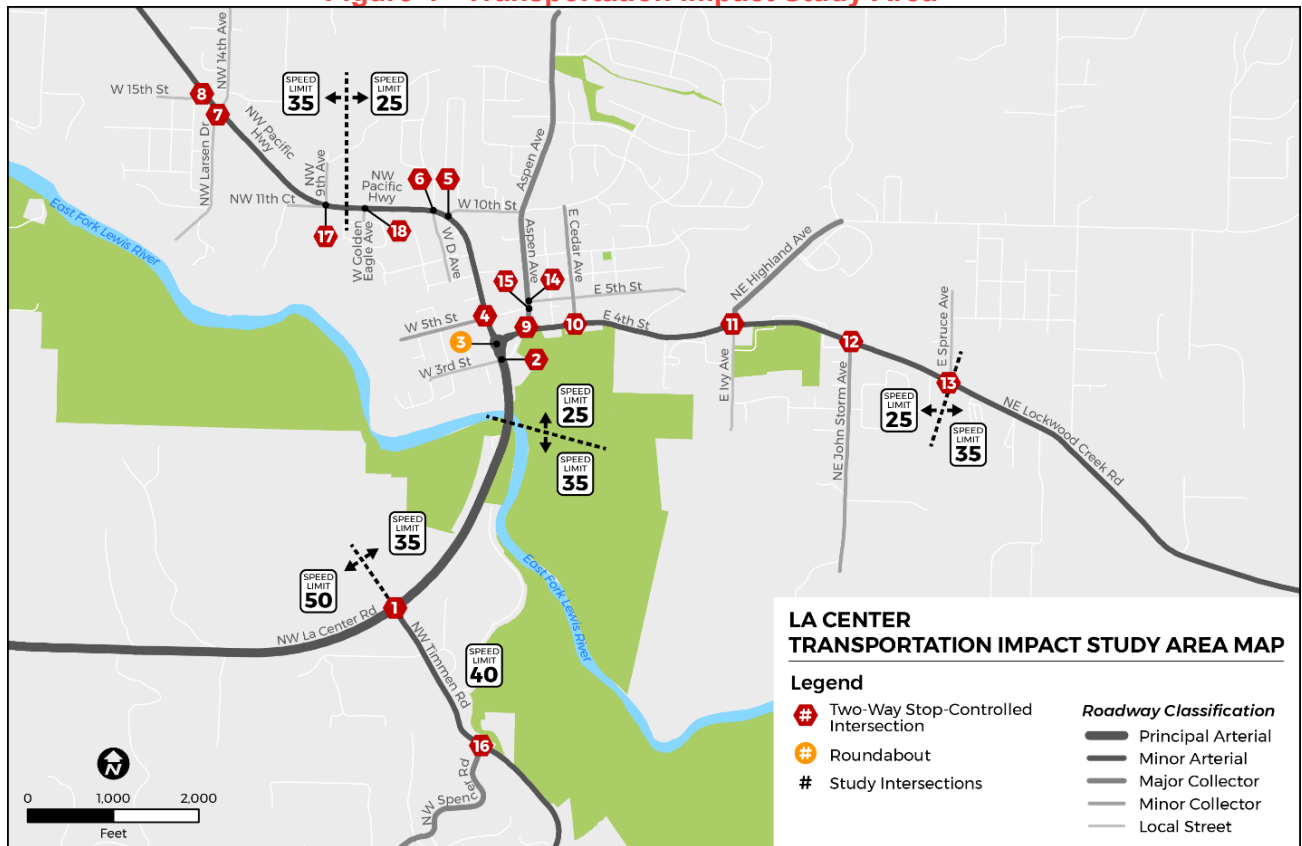
2.2.1 Transportation Impact Study Area

In coordination with the City of La Center, 18 study intersections in the immediate vicinity of the Downtown and Timmen Landing subareas were identified within the transportation impact study area. An overview map of the transportation impact study area is provided in Figure 4. The 18 existing intersections enumerated below correspond to the study intersection numbers shown in Figure 4.

1. Northwest La Center Road/Northwest Timmen Road
2. Northwest La Center Road/West Third Street
3. Northwest La Center Road/Northwest Pacific Highway / West Fourth Street
4. Northwest Pacific Highway/West Fifth Street
5. Northwest Pacific Highway/West 10th Street
6. Northwest Pacific Highway/West D Avenue
7. Northwest Pacific Highway/Northwest 14th Avenue/Northwest Larsen Drive
8. Northwest Pacific Highway/West 15th Street
9. West Fourth Street/East Fourth Street/Aspen Avenue
10. East Fourth Street/East Cedar Avenue
11. East Fourth Street/Northeast Lockwood Creek Road/Northeast Highland Avenue
12. Northeast Lockwood Creek Road/Northeast John Storm Avenue
13. Northeast Lockwood Creek Road/East Spruce Avenue
14. Aspen Avenue/East Fifth Street
15. Aspen Avenue/West Fifth Street
16. Northwest Timmen Road/Northwest Spencer Road
17. Northwest Pacific Highway/Northwest 9th Avenue/ Northwest 11th Court
18. Northwest Pacific Highway/W Golden Eagle Avenue

All study intersections are currently unsignalized, and 17 intersections operate with a two-way stop-controlled arrangement, where the mainline approaches have operational priority over the side street approach(s). The Northwest La Center Road/Northwest Pacific Highway/West Fourth Street intersection currently operates as a roundabout, where vehicular traffic along all three approaches yield to circulating vehicular traffic.

Figure 4 - Transportation Impact Study Area



2.2.2 Overview of Existing Transportation System

Roadway Classification and Posted Speed Limits

The La Center Transportation Capital Facilities Plan (2019) outlines five roadway functional classifications, from the highest to the lowest level of intended access and usage, to assess the level of mobility experienced by all travel modes:

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Street.

The transportation impact study area is made up entirely of a two-lane roadway system without provision for any median space separating both travel directions. A breakdown of the federal functional classification of existing roadways within the transportation impact study area with applicable posted speed limits is shown in Table 3.

Table 3 - Existing Roadway Classification, Posted Speed Limits, and Parking Provision

Roadway	Functional Classification	From	To	Applicable Posted Speed Limit
NW La Center Road	Principal Arterial	NW Timmen Road	W 4th Street	35 mph
NW Timmen Road	Minor Arterial	NW La Center Road	NW Spencer Road	40 mph
NW Pacific Highway	Minor Arterial	W 4th Street	W 15th Street	25 mph (from W 4th Street to NW 9th Avenue) 35 mph (from NW 9th Avenue to W 15th Street)
W 4th Street	Minor Arterial	NW La Center Road	Aspen Avenue	25 mph
E 4th Street	Minor Arterial	Aspen Avenue	NE Highland Avenue	25 mph
NE Lockwood Creek Road	Minor Arterial	NE Highland Avenue	E Spruce Avenue	25 mph
Aspen Avenue	Major Collector	E 4th Street	E 5th Street	25 mph
NE Highland Avenue	Major Collector	E 4th Street	-	20 mph
NW Spencer Road	Major Collector	NW Timmen Road	-	25 mph
W 5th Street	Minor Collector	NW Pacific Highway	Aspen Avenue	25 mph
E Cedar Avenue	Minor Collector	E 4th Street	E 5th Street	25 mph
NE John Storm Avenue	Minor Collector	NE Lockwood Creek Road	-	25 mph
W 3rd Street	Local Street	NW La Center Road	-	25 mph
E 5th Street	Local Street	Aspen Avenue	E Cedar Avenue	25 mph
W 10th Street	Local Street	NW Pacific Highway	-	25 mph
W D Avenue	Local Street	NW Pacific Highway	-	25 mph
W 14th Avenue	Local Street	NW Pacific Highway	-	25 mph
W 15th Street	Local Street	NW Pacific Highway	-	25 mph
NW Larsen Drive	Local Street	NW Pacific Highway	-	25 mph
E Ivy Avenue	Local Street	E 4th Street	-	25 mph
E Spruce Avenue	Local Street	NE Lockwood Creek Road	-	25 mph
NW 9th Avenue	Local Street	NW Pacific Highway	-	25 mph
NW 11th Court	Local Street	NW Pacific Highway	-	25 mph
W Golden Eagle Avenue	Local Street	NW Pacific Highway	-	25 mph

Source: Functional classifications from the La Center Transportation Capital Facilities Plan (2019). Posted speed limits from © 2023 Google Maps.

Current Parking Provisions

Table 4 provides an overview of existing on-street parking within the transportation impact study area.

Table 4 - Current On-Street Parking Provisions

Roadway	Type of On-Street Parking	From	To
NW Pacific Highway	Unmarked	W 4th Street	NW 9th Avenue
W 5th Street	Unmarked	NW Pacific Highway	Aspen Avenue
E Cedar Avenue	Unmarked	E 4th Street	E 5th Street
NE John Storm Avenue	Unmarked	NE Lockwood Creek Road	-
W 3rd Street	Unmarked	NW La Center Road	-
E 5th Street	Unmarked	Aspen Avenue	E Cedar Avenue
E 4th Street	Marked (24 spaces)	Aspen Avenue	Cedar Avenue
Aspen Avenue	Marked (7 spaces)	E 4th Street	E 5th Street

On-street parking along Northwest Pacific Highway is only permitted within the 25-miles-per-hour (mph) posted speed limit zone between West Fourth Street and Northwest Ninth Avenue.

East Fourth Street and Aspen Avenue accommodate 31 on-street parking spaces that are either angled or parallel type; demarcated with striping; and built-out with entry and exit tapers. Of these, 24 on-street parking spaces are provided along East Fourth Street between Aspen Avenue and East Cedar Avenue. One of the seven remaining on-street parking spaces along Aspen Avenue is allocated for people with disability. Additional on-street parking is available along East Fourth Street on either side of East Cedar Avenue, accessed in the westbound direction, which is not striped but built-out with entry and exit tapers.

On-street parking along West 10th Street is not permitted and is regulated by “No Parking at Any Time” signage. Other roadways within the transportation impact study area that currently do not permit on-street parking lack signage to regulate illegal parking occurrences.

Ample off-street public parking lot spaces are available in immediate vicinity of the transportation impact study area at the following locations:

- Holley Park south of Northeast Lockwood Creek Road between East Ivy Avenue and Northeast John Storm Avenue
- Sternwheeler Park south of East Fourth Street
- City paver parking lot north of Northeast Lockwood Creek Road opposite Holley Park

Overall, accommodating on-street parking along roadways subject to the 25-mph posted speed limit is reasonable as parking maneuvers along high-speed roadways are likely to raise safety concerns. To assess the adequacy of current on-street parking, parking demand surveys are further recommended to demonstrate the need for providing new on-street parking elsewhere within the transportation impact study area.

Pedestrian, Bicycle, and Transit Facilities Inventory

Existing pedestrian and bicycle facilities were inventoried at and between the study intersections as identified in Section 2.2.1, as well as in the immediate vicinity of the intersections along the roadways identified in Table 3. The existing pedestrian and bicycle facilities are illustrated in

Figure 5 below. This inventory is based on available maps and aerial imagery and may not reflect current conditions for recently completed projects.

Pedestrian

Existing pedestrian facilities include mostly complete sidewalks in the La Center Downtown subarea as well as in new subdivisions, with fewer facilities and more connectivity gaps in other areas.

Along Northwest La Center Road, sidewalks are present from slightly south of the East Fork Lewis River to West Fourth Street. On Northwest Pacific Highway, sidewalks are present from West Fourth Street to West D Avenue, continue on the southbound side to near Northwest Ninth Avenue, and near West 15th Street. Along Fourth Street, sidewalks are present from Northwest La Center Road/Northwest Pacific Highway to the East Cedar Avenue intersection, with eastbound sidewalks continued to East 18th Place via Northeast Lockwood Creek Road. In the westbound direction, sidewalks resume at the Northeast Highland Avenue intersection and follow Northeast Lockwood Creek Road to the east parking lot entrance of La Center High School. Sidewalks are also present along Northeast Lockwood Creek Road at the offset intersection of East 18th Place and East Spruce Avenue. At East Spruce Avenue, sidewalks continue northward on both sides of the street, providing connections to new development.

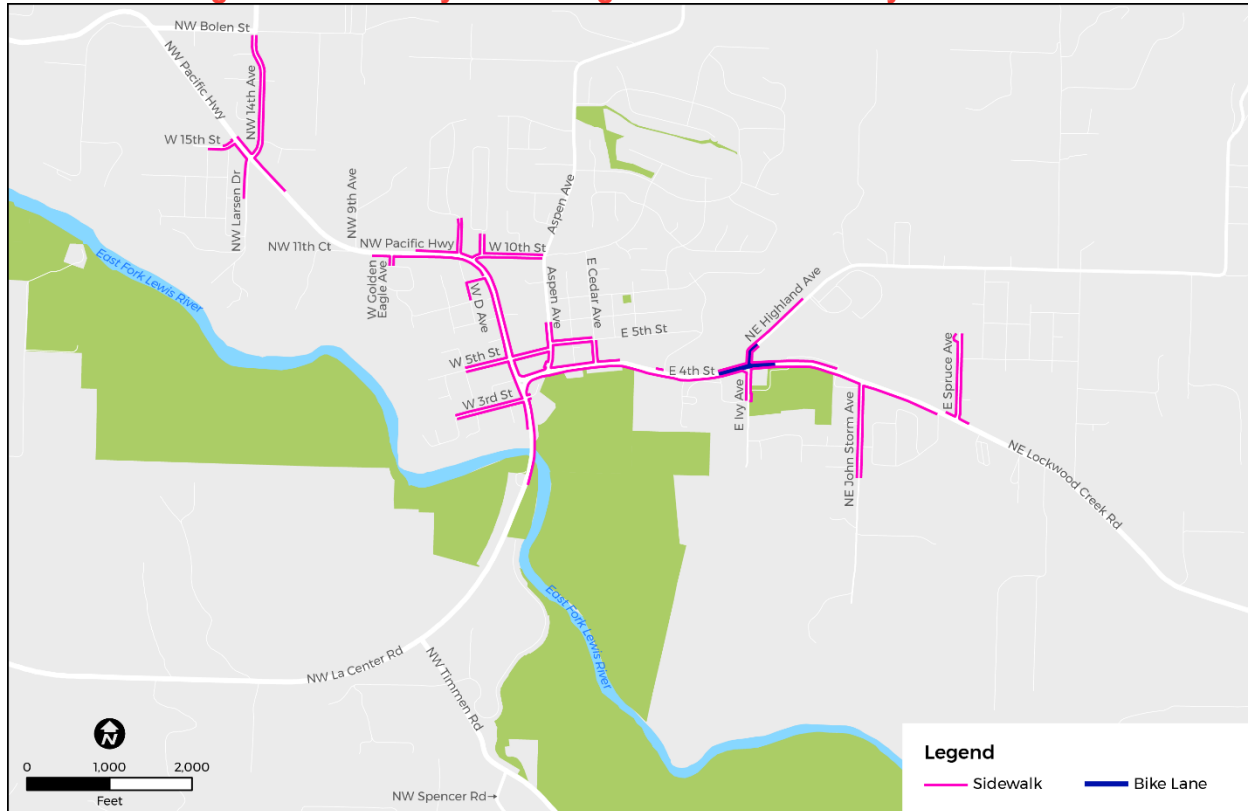
Heading back westbound towards downtown via Lockwood Creek Road/Fourth Street, Northeast John Storm Avenue includes sidewalks on both sides until the full roadway ends south of East 1st Circle. Following Northeast Highland Avenue, the northbound sidewalk extends slightly beyond the intersection and the southbound sidewalk extends to the main parking lot entrance for La Center High School. Traveling southward on East Ivy Avenue, sidewalks extend slightly south of the intersection to the La Center Elementary School driveway.

In the downtown core, sidewalks extend northward from Fourth Street on both sides of East Cedar Avenue, East Birch Avenue, and Aspen Avenue. The entire extent was not collected as this inventory is focused on the study intersections and their connections and/or immediate vicinities. From Aspen Avenue, sidewalks extend eastward along both sides of East Fifth Street. In the westward direction, West Fifth Street provides sidewalks in both directions from Aspen Avenue to Northwest Pacific Highway and beyond. In parallel, West Third Street provides sidewalks in both directions between Northwest La Center Road and its end at West F Avenue. Along West 10th Street, sidewalks are present in both directions between Northwest Pacific Highway and its end at Aspen Avenue. At Northwest Pacific Highway, West D Avenue extends northward with sidewalks on both sides until its end at West 12th Way/West E Place. In the southward direction, sidewalks are present only between West Ninth Street and West Eighth Street along West D Avenue.

Further north, Northwest Larsen Drive provides access from Northwest Pacific Highway to a newer subdivision, but sidewalks are present only on the southbound side to West 13th Avenue. In the northward direction, West 14th Avenue provides sidewalks on both sides of the road to Northwest Bolen Street. Near Northwest Larsen Drive, West 15th Street provides another ingress to the subdivision with sidewalks along both sides of the entrance.

There are no sidewalks either on Northwest Timmen Road or on Northwest Spencer Road. Additional sidewalks exist throughout La Center that were not inventoried because they are outside of the transportation study area.

Figure 5 - Inventory of Existing Pedestrian and Bicycle Facilities



Bicycle

Existing bicycle facilities are present only at the intersection of Northeast Highland Avenue and East Fourth Street/Northeast Lockwood Creek Road. Bike lanes are present on those three legs of the intersection, but not along East Ivy Avenue, the south leg of the intersection. No other bike facilities were found to exist in La Center. However, a project currently underway (the East Fourth Street Improvement Project) will extend the bike lanes along East Fourth Street from Northeast Highland Avenue to East Cedar Avenue. This project will also fill gaps in sidewalk connectivity for this segment. A project is currently under design for a 10-foot wide paved shared use path between NW Larsen Drive to the existing sidewalk and bike lane at Kay's Subdivision.

Transit

Existing transit services are provided by C-TRAN. In January 2025, bus route #48 was extended to La Center, serving a new stop at E Birch Avenue and 6th Street in Downtown. The bus route connects to Ridgefield, the Ridgefield Junction Park and Ride, and the 99th Street Transit Center, and has eight scheduled stops in La Center on weekdays and six on weekends. A small lot near the bus stop serves as a park and ride facility.

In addition, the study area is served by C-TRAN's "the Current", which is an app-based on-demand microtransit service. The Current Ridgefield/La Center service provides customers with a flexible option to travel throughout the service area within La Center and Ridgefield. Users can

use this service to connect to the Ridgefield Junction Park and Ride and then transfer to the C-TRAN #48 bus services to facilitate trips to Vancouver and other locations. The Current service is provided between the hours of 5:30 a.m. and 7:00 p.m. on weekdays and from 8:00 a.m. to 6:00 p.m. on weekends. C-TRAN also provides paratransit services throughout their service area.

2.2.3 Intersection Safety Assessment Summary

A review of crash history was conducted to analyze crash patterns and frequency within the Timmen Landing and La Center Downtown areas. The most recent five-year crash history was obtained from the Washington State Department of Transportation (WSDOT) for the time period of 2018 to 2022 for all study intersections (see Appendix A).

There were no crashes reported at seven of the 18 study intersections during the five-year period. The intersection with the highest number of reported crashes was at Northwest La Center Road/Northwest Timmen Road with six crashes; all other intersections ranged from zero to two crashes. The total yearly number of crashes at all intersections ranged from six crashes per year (in 2018 and 2021) to one crash per year (in 2020). There was a reduction in crash frequency in 2020, likely due to lower traffic volumes during the COVID-19 pandemic period. Appendix A includes the crash total at each of the study intersections for the five-year period.

Crash Severity

Most crashes at the study intersections resulted in property damage only or possible injury. The most severe crashes occurred at the intersection of Northwest La Center Road/Northwest Timmen Road, and East Fourth Street/East Cedar Avenue with a possible injury crash reported at each. There were no fatal or serious injury crashes reported at the remaining study intersections during the five-year look back period. Appendix A includes a summary of crash severity at each of the study intersections for the five-year period.

Crash Type

The most common crash type involved fixed object or off-road collisions with eight incidents, followed by four angle type crashes, four rear-end type crashes, one sideswipe type crash, and one head-on crashes. Rear-end crashes are the most common type of crash. However, the intersections at Northwest La Center Road / Northwest Timmen Road and Northwest Pacific Highway/Northwest 14th Avenue/Northwest Larsen Drive the largest number of reported off-road/other objects type crashes. At Northwest Pacific Highway/Northwest 14th Avenue/Northwest Larsen Drive both crashed involved a vehicle going into a roadway ditch. Appendix A includes a summary of crash type at each of the study intersections for the five-year period.

Pedestrian and Bicycle Crashes

There were no reported crashes involving pedestrians and/or bicycles at any of the study intersections in the five-year period.

Highway Safety Manual Predictive Analysis

Safety analysis for existing conditions (year 2023) included calculating predicted and expected crash frequencies (i.e., the number of crashes) for the study intersections using the Highway Safety Manual (HSM) Part C methodology (AASHTO 2010), which was further calibrated by WSDOT to Washington State conditions and preferences. The number of predicted crashes is the number of crashes a similar intersection is anticipated to experience on average. The number of expected crashes is the number of crashes the study intersection is anticipated to have based on physical variables, volumes, and crash history. The number of predicted/expected crashes are reported in decimal form since it represents a calculation over time—for example, a 0.2 crash could be defined as, on average, one crash occurring in a five-year period. This methodology estimates predicted and expected crash frequency as a function of traffic volume and roadway characteristics (e.g., number of lanes, median type, intersection control, number of approach legs) and crash history at each intersection. The safety analysis was conducted using existing turn movement volumes for the study facilities, adjusted to daily volume.

shows the predicted number of crashes versus the expected number of crashes for each intersection, by severity for existing conditions (year 2023). The intersection with the most potential for improvement is East Fourth Street/Northwest Lockwood Creek Road/Northeast Highland Ave with 0.5 crash per year. There is a potential to reduce the number of fatal and injury crashes on average per year by 1.1 and those resulting in property damage only by 1.2 throughout all the study intersection in this analysis. Additional HSM analysis will be included in an appendix to the final report.

Table 5. HSM Analysis Existing Conditions Year (2023)

Intersection	Fatal and Injury Crashes			Property Damage Only Crashes		
	Predicted average crash frequency	Expected average crash frequency	Potential for improvement	Predicted average crash frequency	Expected average crash frequency	Potential for improvement
NW La Center Road / NW Timmen Road	0.2	0.0	0.0	0.4	0.0	0.0
NW La Center Road / W 3rd Street	0.3	0.4	0.1	0.5	0.6	0.1
NW La Center Road / NW Pacific Highway / W 4th Street	0.3	0.5	0.2	0.5	0.9	0.2
NW Pacific Highway / W 5th Street	0.2	0.1	0.0	0.4	0.2	0.0
NW Pacific Highway / W 10th Street	0.0	0.1	0.1	0.1	0.2	0.1
NW Pacific Highway / W D Avenue	0.2	0.3	0.1	0.4	0.5	0.1
NW Pacific Highway / NW 14th Avenue / NW Larsen Drive	0.1	0.2	0.1	0.2	0.4	0.1
NW Pacific Highway / W 15th Street	0.0	0.0	0.0	0.0	0.0	0.0
W 4th Street / E 4th Street / Aspen Avenue	0.1	0.1	0.0	0.1	0.1	0.0
E 4th Street / E Cedar Avenue	0.1	0.3	0.1	0.2	0.4	0.1
E 4th Street / NW Lockwood Creek Road / NE Highland Avenue	0.2	0.4	0.2	0.3	0.7	0.2
NE Lockwood Creek Road / NE John Storm Avenue	0.2	0.1	0.0	0.5	0.2	0.0
NE Lockwood Creek Road / E Spruce Avenue.	0.1	0.2	0.1	0.1	0.2	0.1
Aspen Avenue / E 5th Street	0.1	0.1	0.0	0.1	0.1	0.0
Aspen Avenue / W 5th Street	0.0	0.0	0.0	0.0	0.0	0.0
NW Timmen Road / NW Spencer Road	0.1	0.3	0.1	0.2	0.4	0.2
NW Pacific Highway / NW 9th Avenue / NW 11th Court	0.1	0.3	0.2	0.2	0.5	0.3
NW Pacific Highway / W Golden Eagle Avenue	0.1	0.1	0.0	0.3	0.2	0.0
Total	2.4	3.5	1.3	4.50	5.60	1.5

Source: WSDOT Public Records

2.2.4 Existing Conditions Operations Analysis

Mobility Standards

The La Center Transportation Capital Facilities Plan (2019)¹ sets out mobility standards adopted by the City, which are relevant for the 18 unsignalized intersections in the transportation impact study area. The plan stipulates all movements during the highest one-hour period on an average weekday (typically, but not always the evening peak period between 4:00 p.m. and 6:00 p.m.) shall be Level of Service (LOS) “E” or better.

Data Collection

To conduct an assessment of existing operational conditions prevalent within the transportation impact study area, the following traffic data was obtained for all 16 study intersections:

- Two-hour PM peak period (4:00 p.m. to 6:00 p.m.) intersection Turning Movement Counts (TMC) were collected on Tuesday, July 11, 2023, including pedestrian, bicycle, and heavy vehicle volumes.
- 24-hour Tube counts recorded over three days (from Tuesday, July 11, 2023, to Thursday, July 13, 2023) by utilizing the existing marker located to the south of Northwest La Center Road/Northwest Timmen Road intersection. ADT Tube counts included vehicle classification, speeds, and volume in both travel directions.

A copy of raw TMC and Tube count data is included within Appendix B.

System Peak Hour Selection, Volume Balancing, and Volume Rounding

Subsequent analysis was conducted on two-hour peak period TMC data gathered for the 16 intersections to derive a single system peak hour. This is the peak single hour of the day that has shown the highest hourly volume throughput across the entire transportation impact study area. Based on this examination, 4:15 p.m. to 5:15 p.m. was utilized as the PM peak hour for existing conditions operations analysis.

TMC data at the 16 intersections were collected on the same day (July 11, 2023).

The peak hour volume for 2 intersections viz: NW Pacific Highway / NW 9th Avenue / NW 11th Court, and NW Pacific Highway / W Golden Eagle Avenue were estimated based on the recorded peak hour traffic along the NW Pacific Highway segment between NW 14th Avenue/Larsen Drive, and W D Avenue, and the ITE Trip Generation Manual, 11th Edition (Single-Family Detached Housing (210), Weekday PM peak hour of generator).

Further details on system peak hour selection, volume adjustments, and rounded count volumes are included within Appendix C.

¹ 2019 Transportation Capital Facilities Plan - <https://ci.lacenter.wa.us/city-departments/community-development/community-development-planning>

An overview of existing conditions turn movement volumes (rounded) at study intersections is provided by Figure 6 to Figure 8.

Figure 6 - Existing Conditions Turn Movement Volumes (1 of 3)

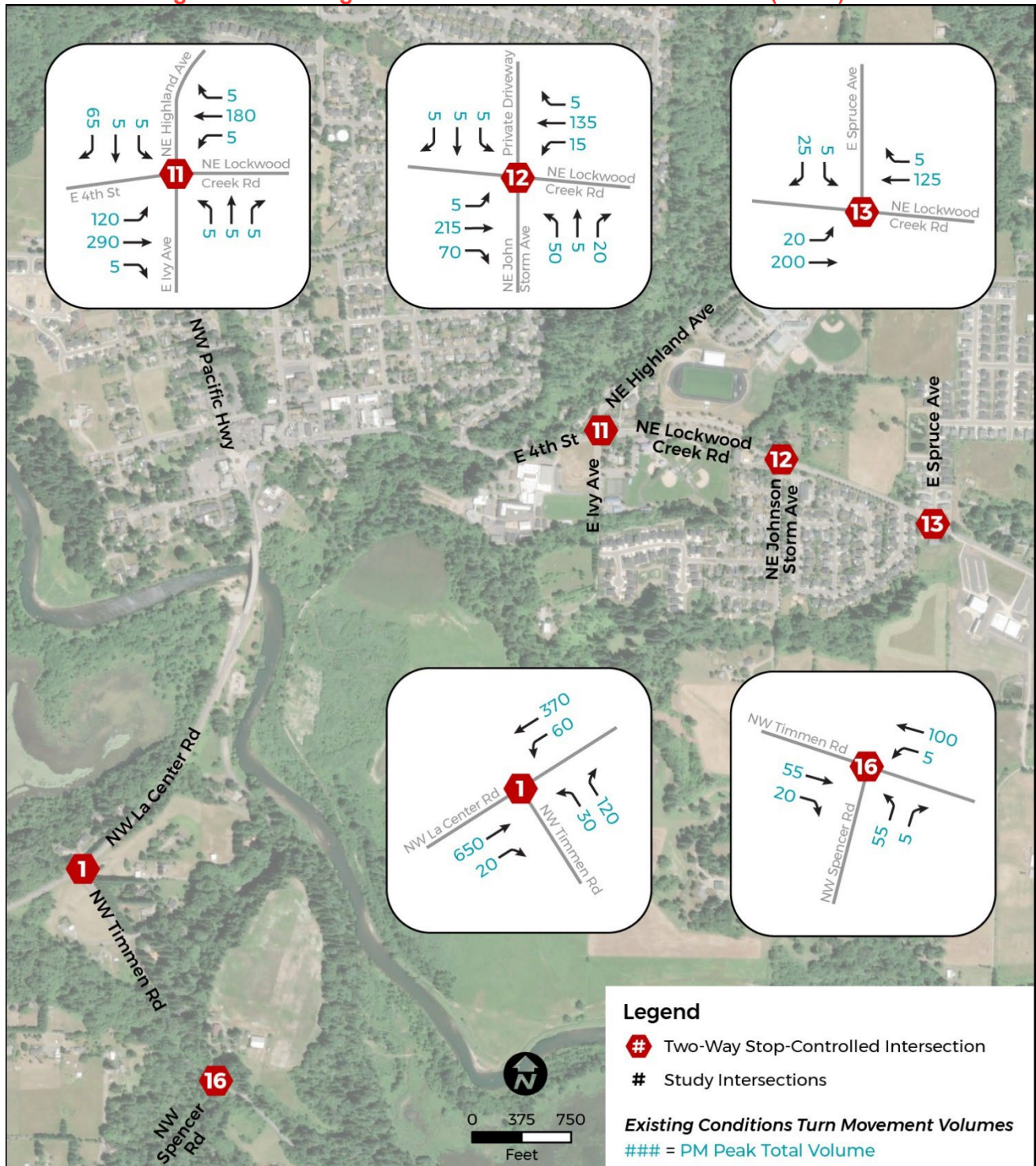


Figure 7 - Existing Conditions Turn Movement Volumes (2 of 3)

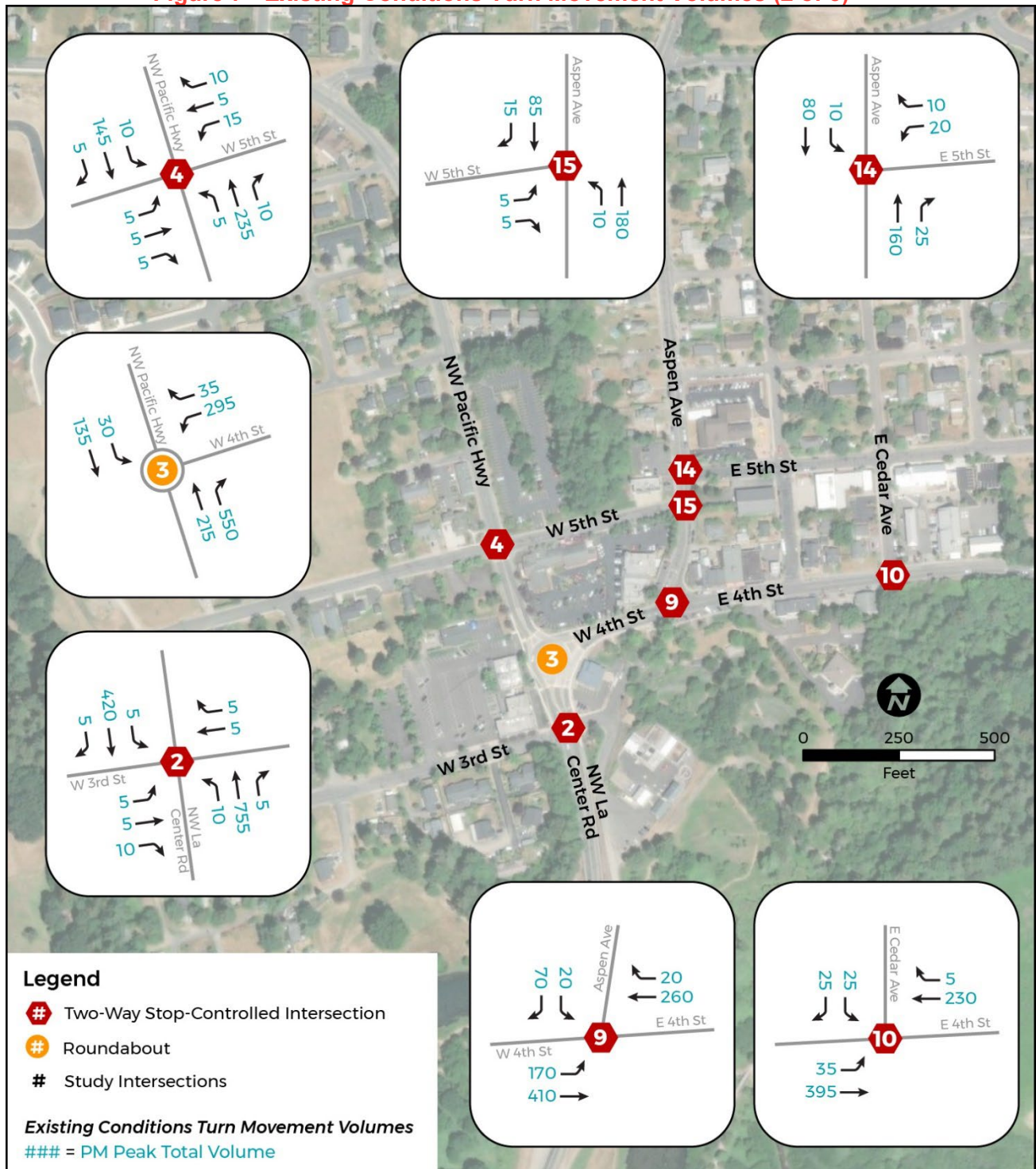
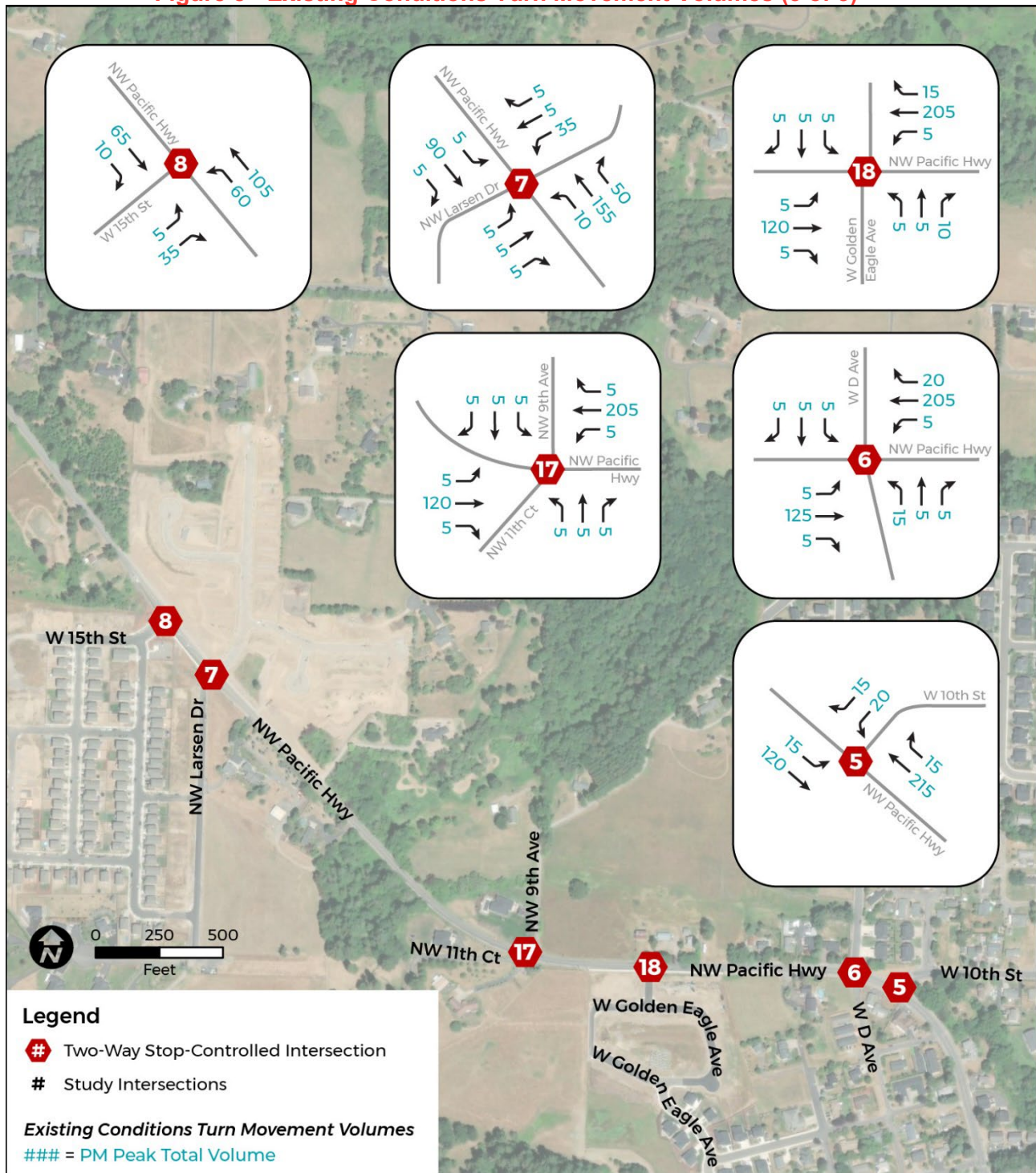


Figure 8 - Existing Conditions Turn Movement Volumes (3 of 3)



Operations Analysis Tools, Performance Measures, and Scenarios

The weekday PM peak-hour existing conditions operations analysis for the study intersections was performed using Synchro 11 software, with results reflecting the Highway Capacity Manual Version 6 (HCM6) reporting methodology (TRB 2016). Synchro is an analysis software package developed by Trafficware that is widely used for evaluating intersection operational performance and supporting design decisions.

Additionally, PM Peak hour analysis at existing Northwest La Center Road/Northwest Pacific Highway/West Fourth Street roundabout was performed in SIDRA 9.1, which is a software widely utilized for evaluating standalone roundabouts.

A defined set of performance measures were used to assess operational performance of study area intersections on motor vehicle travel. Typical performance measures and outputs generated by Synchro include average vehicle delays, v/c ratios, and LOS.

Average vehicle delay represents the average wait times in seconds per vehicle, at intersection locations.

The v/c ratio is the degree of utilization of the capacity of a segment, an intersection, or an approach. In general, a lower v/c ratio indicates smooth operations and minimal delays. As the ratio approaches 1.0, congestion increases and hence the operational performance is reduced.

LOS is a performance measure or index, defined in the HCM6, that is commonly used in transportation studies to represent congestion levels for vehicles on arterials, rural highways, and intersections. LOS for intersections is based on average vehicle control delay (seconds per vehicle), with letter “grades” of A through F representing little to no delay through very high delays, respectively.

The “Existing 2023 PM Peak” scenario was analyzed within Synchro 11 to assess existing conditions operations at study intersections (Table 6).

Existing Conditions Operations Analysis Results

Table 6 - Existing Conditions Operations Analysis Results – 2023 PM Peak Hour

No.	Intersection	Traffic Control	Mobility Standard	2023 PM Peak Hour		
				v/c	Delay (s/veh)	LOS
1	NW La Center Road / NW Timmen Road	TWSC	LOS E	0.19	31	D
2	NW La Center Road / W 3rd Street	TWSC	LOS E	0.10	24	C
3	NW La Center Road / NW Pacific Highway / W 4th Street (SIDRA 9.1)	Roundabout	LOS E	-	8	A
4	NW Pacific Highway / W 5th Street	TWSC	LOS E	0.07	13	B
5	NW Pacific Highway / W 10th Street	TWSC	LOS E	0.07	12	B
6	NW Pacific Highway / W D Avenue	TWSC	LOS E	0.05	12	B
7	NW Pacific Highway / NW 14th Avenue / NW Larsen Drive	TWSC	LOS E	0.08	11	B
8	NW Pacific Highway / W 15th Street	TWSC	LOS E	0.05	10	A
9	W 4th Street / E 4th Street / Aspen Avenue	TWSC	LOS E	0.11	27	D
10	E 4th Street / E Cedar Avenue	TWSC	LOS E	0.11	14	B
11	E 4th Street / NE Lockwood Creek Rd / NE Highland Avenue	TWSC	LOS E	0.02	21	C
12	NE Lockwood Creek Road / NE John Storm Avenue	TWSC	LOS E	0.20	15	B
13	NE Lockwood Creek Road / E Spruce Avenue	TWSC	LOS E	0.04	10	A
14	Aspen Avenue / E 5th Street	TWSC	LOS E	0.04	11	B
15	Aspen Avenue / W 5th Street	TWSC	LOS E	0.01	10	A
16	NW Timmen Road / NW Spencer Road	TWSC	LOS E	0.11	11	B
17	NW Pacific Highway / NW 9th Avenue / NW 11th Court	TWSC	LOS E	0.03	11	B
18	NW Pacific Highway / W Golden Eagle Avenue	TWSC	LOS E	0.03	11	B

Notes:

v/c ratio, delay, and LOS results from Synchro 11 HCM6 reports for all intersections.

Minor street worst movement results are reported for all unsignalized two-way stop-controlled intersections. Worst movement results among all approaches are reported for the roundabout modeled within SIDRA 9.1 software.

v/c = volume-to-capacity; s/veh = seconds per vehicle; LOS = level of service; TWSC = Two-Way Stop-Controlled.

Overall, the existing conditions operations analysis suggests all 18 study intersections currently comply with applicable mobility standards for the transportation impact study area. Full Synchro 11 HCM6 reports for each study intersection and SIDRA 9.1 reports for the roundabout are included in Appendix D.

3.0 FUTURE CONDITIONS

Future traffic operations under the No-Action Alternative and Project Alternative in 2045 were analyzed for all study intersections within the study area to determine impacts of the Project Alternative.

3.1 NO-ACTION ALTERNATIVE TURN MOVEMENT VOLUMES

An annual linear growth rate assumption of 2% was applied to the existing conditions turn movement volumes (Figure 6 to Figure 8) for developing the 2045 No-Action Alternative turn movement volumes at all study intersections.

An overview of 2045 No-Action Alternative turn movement volumes (rounded) at study intersections is provided by Figure 9 to Figure 11.

Figure 9 - 2045 No-Action Alternative Turn Movement Volumes (1 of 3)

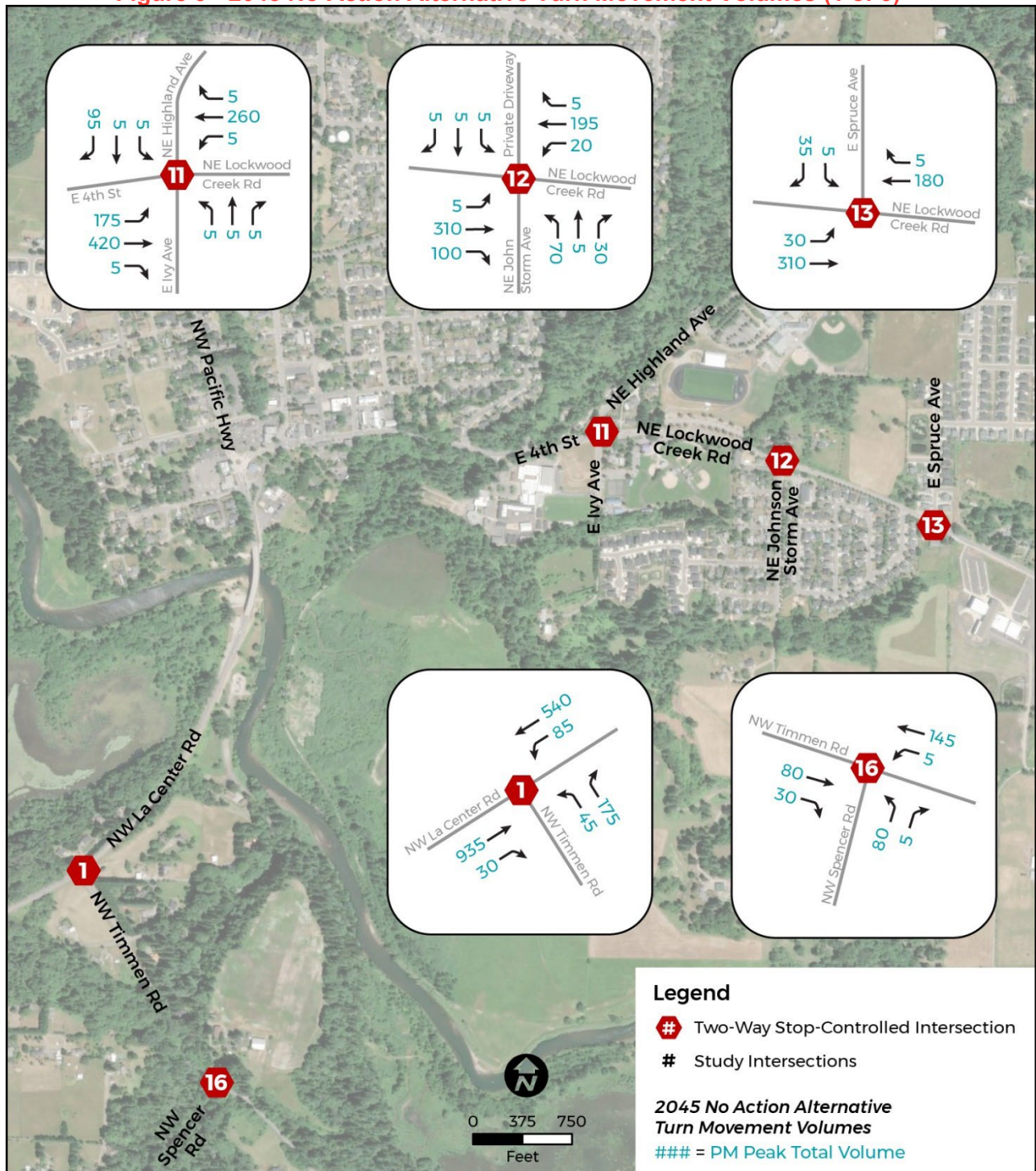


Figure 10 - 2045 No-Action Alternative Turn Movement Volumes (2 of 3)

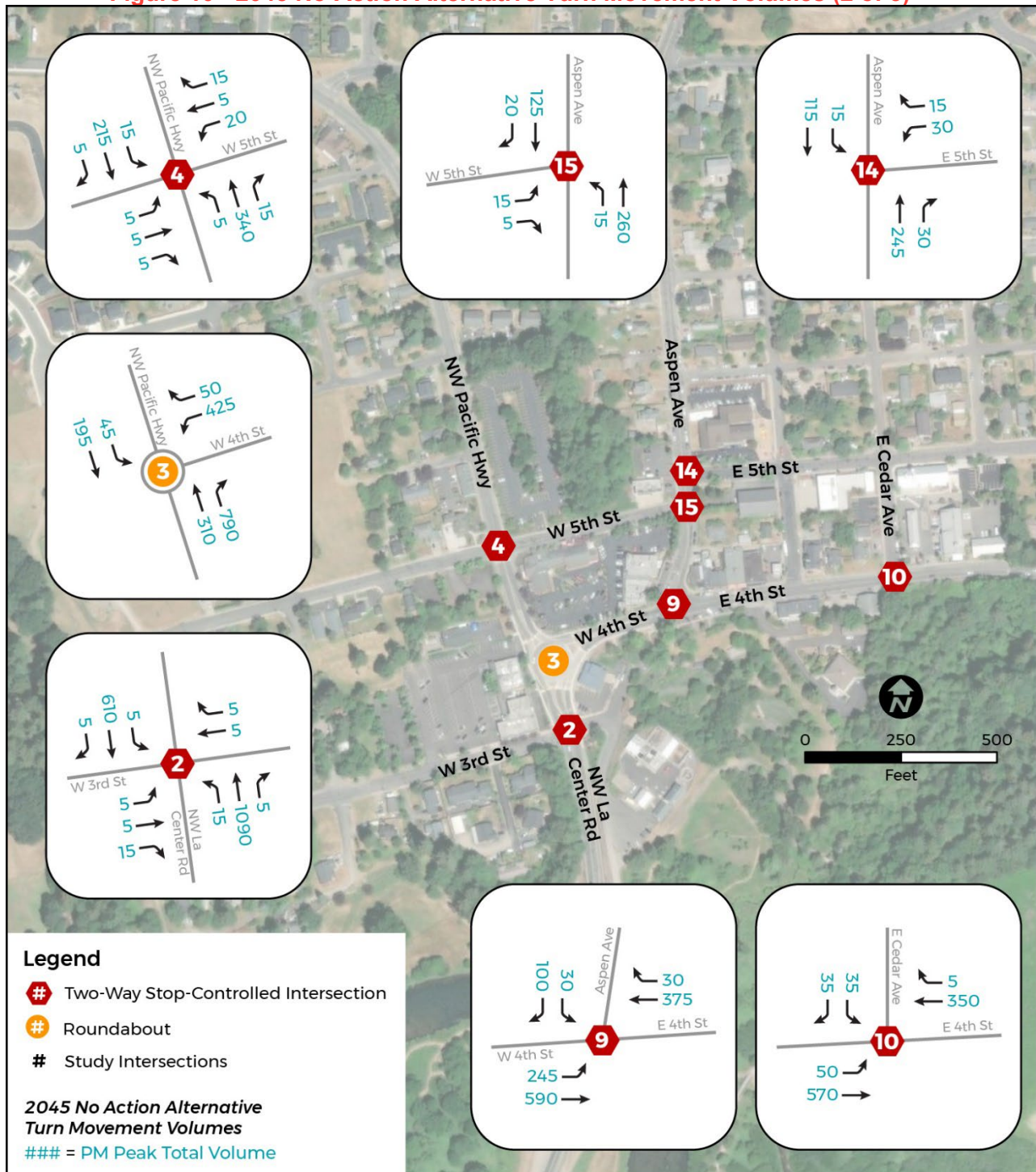
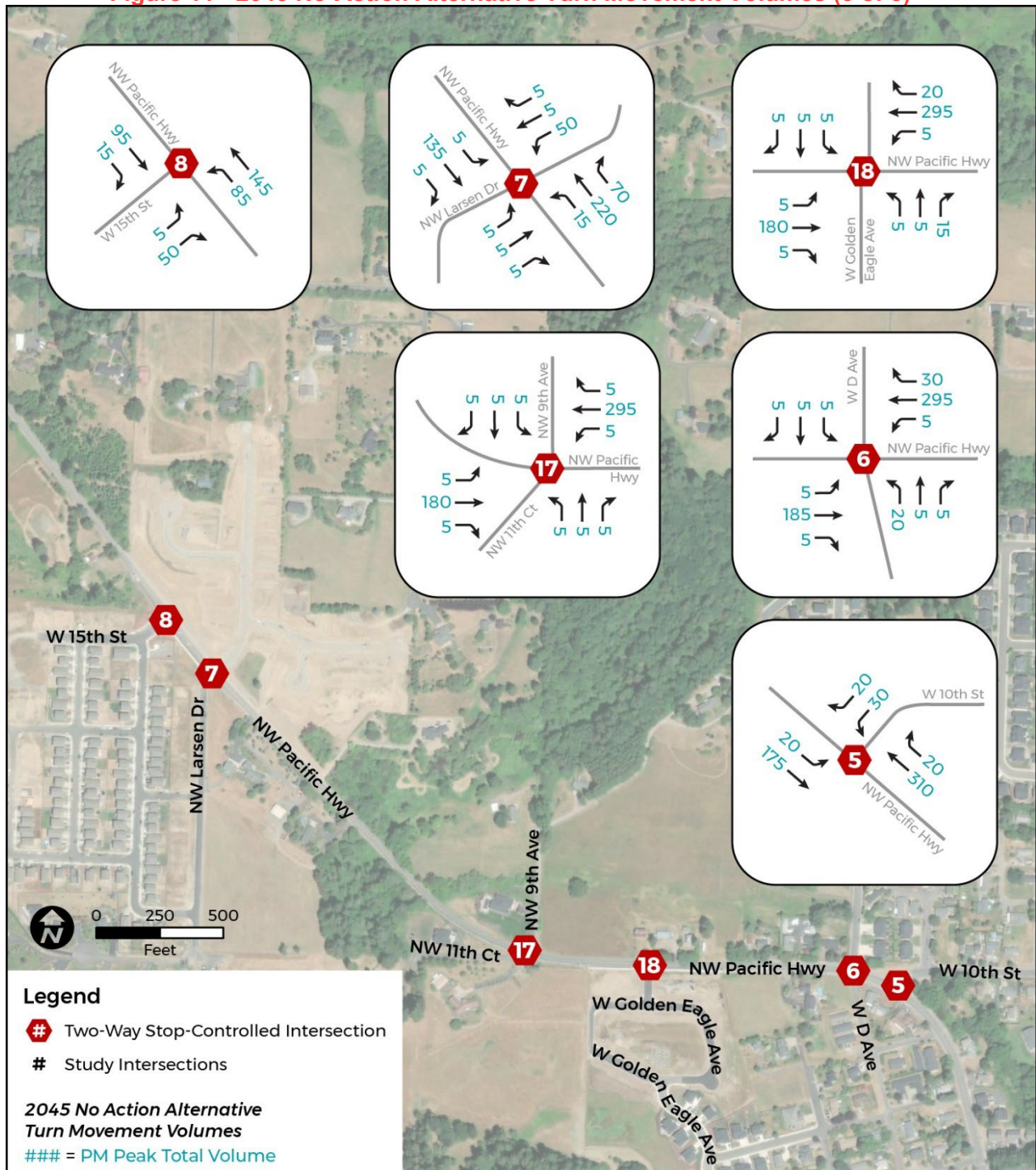


Figure 11 - 2045 No-Action Alternative Turn Movement Volumes (3 of 3)



3.2 PROJECT ALTERNATIVE TRIP GENERATION

The trip generation approach is based on the zoning within the subarea, La Center Municipal Code (LCMC) development and zoning standards, projected increase in residential units and employment, and the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition).

Table 7 shows the net increase of housing units in buildable areas for La Center's Downtown and Timmen Landing subareas.

Table 7 - Projected Net Increase in Residential Units for Subareas

Area	Zoning	Net Acres	Housing Units
Downtown	Low	19.13	96
	Medium	1.08	12
	High	1.99	120
	Mixed Use	1.44	70
	Subtotal	23.64	298
Timmen Landing	Low	30.61	153
	Medium	7.5	90
	High	13.3	279
	Overlay		47
	Subtotal	51.41	569
Total		75.05	867

To determine the trip generated from each zone, the zones are assigned with corresponding land use(s) from the ITE Trip Generation Manual (11th Edition), as shown in Table 8 below:

Table 8 - ITE Trip Generation Manual (11th Edition) Land Use Codes

Zoning	Land Use
Low Density Residential	Single-Family Detached Housing (Land use: 210)
Medium Density Residential	Single-Family Attached Housing (Land use: 215)
High Density Residential	Multi-Family Housing (Low-Rise) (Land use: 220)
Downtown Commercial	Various land uses in line with air emissions analysis, including – 25% Food Sales/Services, 10% Healthcare Outpatient, 15% Lodging, 20% Retail, 15% Office, and 15% other Services
Mixed Use	Combination of Residential, and Commercial land uses
Downtown Commercial Overlay	Hotel (Land Use: 310)
Timmen Commercial Overlay	Strip Retail Plaza (Land use: 820)

Parks and Open Spaces	Public Park (Land Use: 411)
Public Facilities	

The ITE Trip Generation Manual (11th Edition) provides fitted curve equations, and average trip rates for various land uses purposes. Fitted curve equations are preferred over the average rates whenever there are sufficient studies used to derive such equations. For the purpose of this report, fitted curve equations (vehicle trips vs. dwelling units) are used to calculate the total trips generated for Low, Medium, and High residential land use zones in Table 3. The net acreage of zones is calculated by deducting 40 percent of the gross land area to account for environmental constraints and infrastructure. Also, the number of new jobs is based on Clark County's 2023 VBLM assumption of 20 jobs/acre for developable commercial lands.

Overall, total trips generated by the Downtown Commercial zone were determined by aggregating trips produced by each commercial land use anticipated within the Downtown subarea (per Table 8).

For Commercial and Overlay zones, based on the availability of previous studies, either the number of employees, or Gross Leasable Area (GLA) is used as the variable that dictates the trips generated. The average trip rates are used for commercial zones due to lack of studies which support the fitted curve equation derived in the ITE Trip Generation Manual (11th Edition).

Table 9 and Table 10 provide a summary of trip generation for Downtown area during weekday, and PM peak hour respectively. Overall, 12,679 average daily trips, and 1,163 trips during the PM peak hour would be generated for the Downtown subarea.

Table 9 - Downtown Weekday Trips

Zoning	Net Acres	ITE Variable	Variable Assumptions	Average Trip rate	Trips
Low Density Residential	19.13	Dwelling Units	96	$\ln(T) = 0.92 \ln(X) + 2.68$	972
Medium Density Residential	1.08	Dwelling Units	12	$T = 7.62(X) - 50.48$	41
High Density Residential	1.99	Dwelling Units	120	$T = 6.41(X) + 75.31$	845
Commercial Overlay	2.4	Employee Count	48	14.34	688
Mixed Use - Med Dwelling	1.44	Dwelling Units	35	$T = 7.62(X) - 50.48$	216
Mixed Use - High Dwelling		Dwelling Units	35	$T = 6.41(X) + 75.31$	300
Mixed Use - Commercial		1000 Sq ft. GLA	19	67.52	1,260
Commercial	6	1000 Sq ft. GLA Employee Count	Varies	Varies	8,173
Parks and Open Space	9	Acres	9	$T = 0.64(X) + 88.46$	94
Public Facilities	3	Acres	3	$T = 0.64(X) + 88.46$	90
Totals	44.04				12,679

Table 10 - Downtown PM Peak Hour Trips

Zoning	Net Acres	ITE Variable	Variable Assumptions	Average Trip rate	Trips
Low Density Residential	19.13	Dwelling Units	96	$\ln(T) = 0.94 \ln(X) + 0.27$	96
Medium Density Residential	1.08	Dwelling Units	12	$T = 0.6(X) - 3.93$	3
High Density Residential	1.99	Dwelling Units	120	$T = 0.43(X) + 20.55$	72
Commercial Overlay	2.4	Employee Count	48	$\ln(T) = 0.84 \ln(X) + 0.72$	53
Mixed Use - Med Dwelling	1.44	Dwelling Units	35	$T = 0.6(X) - 3.93$	17
Mixed Use - High Dwelling		Dwelling Units	35	$T = 0.43(X) + 20.55$	36
Mixed Use - Commercial		1000 Sq ft. GLA	19	5.19	97
Commercial	6	1000 Sq ft. GLA Employee Count	Varies	Varies	743
Parks and Open Space	9	Acres	9	$T = 0.06(X) + 22.60$	23
Public Facilities	3	Acres	3	$T = 0.06(X) + 22.60$	23
Totals	44.04				1,163

Similarly, Table 11 and Table 12 outline the trip generation calculations for Timmen Landing area during weekday, and PM peak hour. A total of 6,896 average daily trips, and 654 trips during the PM peak hour would be generated for the Timmen Landing subarea.

Table 11 - Timmen Landing Weekday Trips

Zoning	Net Acres	ITE Variable	Variable Assumptions	Average Trip rate	Trips
Low Density Residential	30.61	Dwelling Units	153	$\ln(T) = 0.92 \ln(X) + 2.68$	1,492
Medium Density Residential	7.5	Dwelling Units	90	$T = 7.62(X) - 50.48$	635
High Density Residential	13.3	Dwelling Units	279	$T = 6.41(X) + 75.31$	1,864
Overlay - High Dwelling	1.2	Dwelling Units	47	$T = 6.41(X) + 75.31$	377
Overlay - Commercial		1000 Sq ft. GLA	52	$T = 42.20(X) + 229.68$	2,436
Parks and Open Space	7	Acres	7	$T = 0.64(X) + 88.46$	93
Totals	59.61				6,896

Table 12 - Timmen Landing PM Peak Hour Trips

Zoning	Net Acres	ITE Variable	Variable Assumptions	Average Trip rate	Trips
Low Density Residential	30.61	Dwelling Units	153	$\ln(T) = 0.94 \ln(X) + 0.27$	148
Medium Density Residential	7.5	Dwelling Units	90	$T = 0.6(X) - 3.93$	50
High Density Residential	13.3	Dwelling Units	279	$T = 0.43(X) + 20.55$	141
Overlay - High Dwelling	1.2	Dwelling Units	47	$T = 0.43(X) + 20.55$	41
Overlay - Commercial		1000 Sq ft. GLA	52	$\ln(T) = 0.71 \ln(X) + 2.72$	252
Parks and Open Space	7	Acres	7	$T = 0.06(X) + 22.60$	23
Totals	59.61				654

3.3 PROJECT ALTERNATIVE TRIP DISTRIBUTION

The trip distribution for Downtown and Timmen Landing is based on the existing conditions PM Peak hour traffic pattern. The travel pattern in and out of the study area is assumed to remain similar. The trip distributions are as shown in Figure 12 and Figure 13.

For Downtown access, 16% of the total trips are expected to use the northern end on NW Pacific Highway. The majority of the trips (47%) are distributed on the southern end of downtown where NW Pacific Highway connects to the NW La Center Road during the PM peak hour. In addition, 25% of the total trips are expected to use the East 4th Street access. Few trips are also expected to access the downtown through other arterials namely, Aspen Avenue and E Cedar Avenue from the North.

For Timmen Landing Area, there are three major points where trips are anticipated to access the area. 48% of the total trips are projected to use the NW La Center Road from the North which connects to the downtown area. 9% of the total trips are anticipated to use the NW Timmen Road. The remaining 43% of trips would use the NW La Center Road on the west side of the project area, which connects to I-5, and Cowlitz Way farther west.

An overview of trips assigned across Downtown and Timmen Landing subareas based on the Project Alternative is provided within Appendix E

Figure 12 - Downtown Subarea Trip Distribution

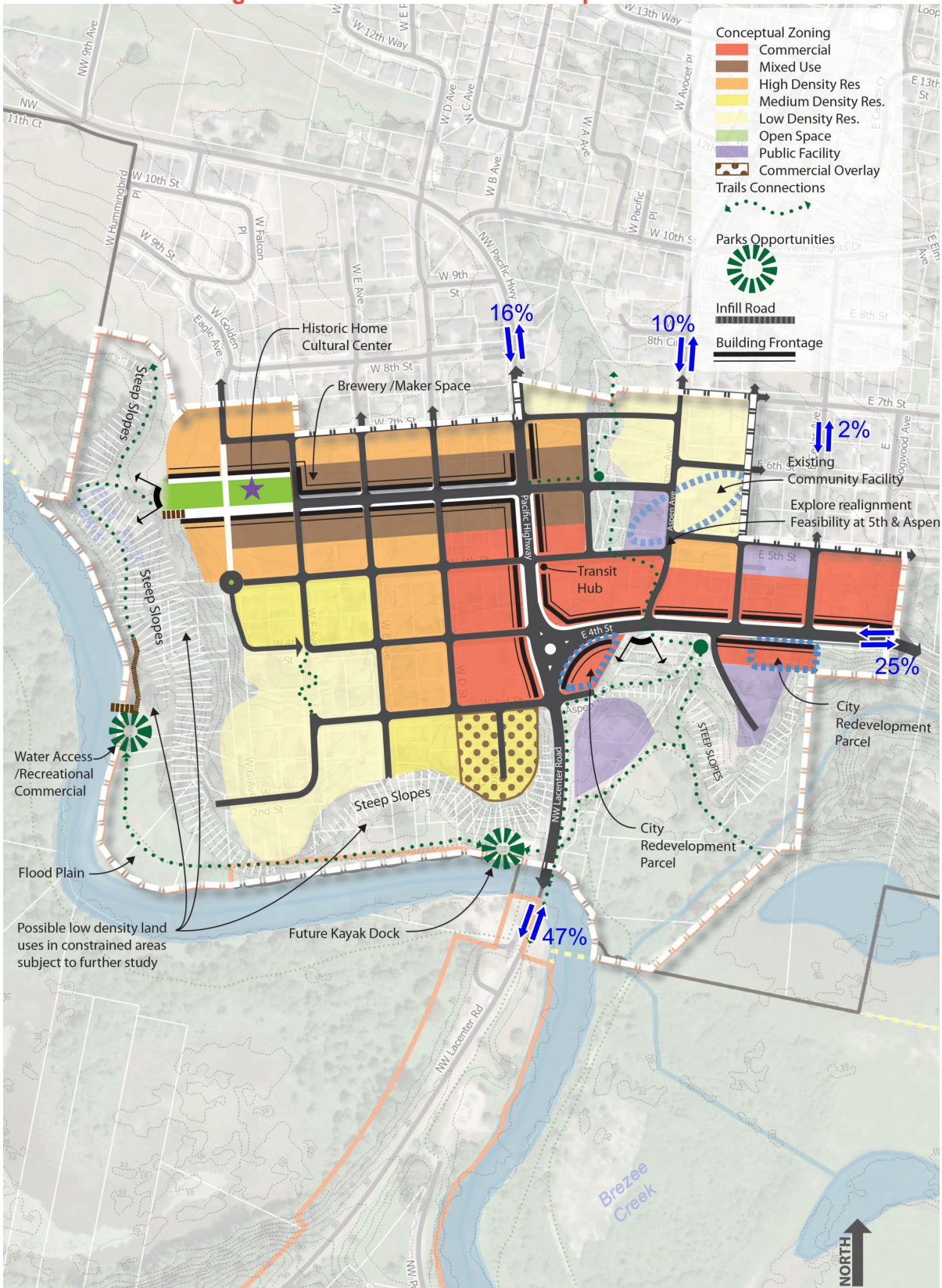


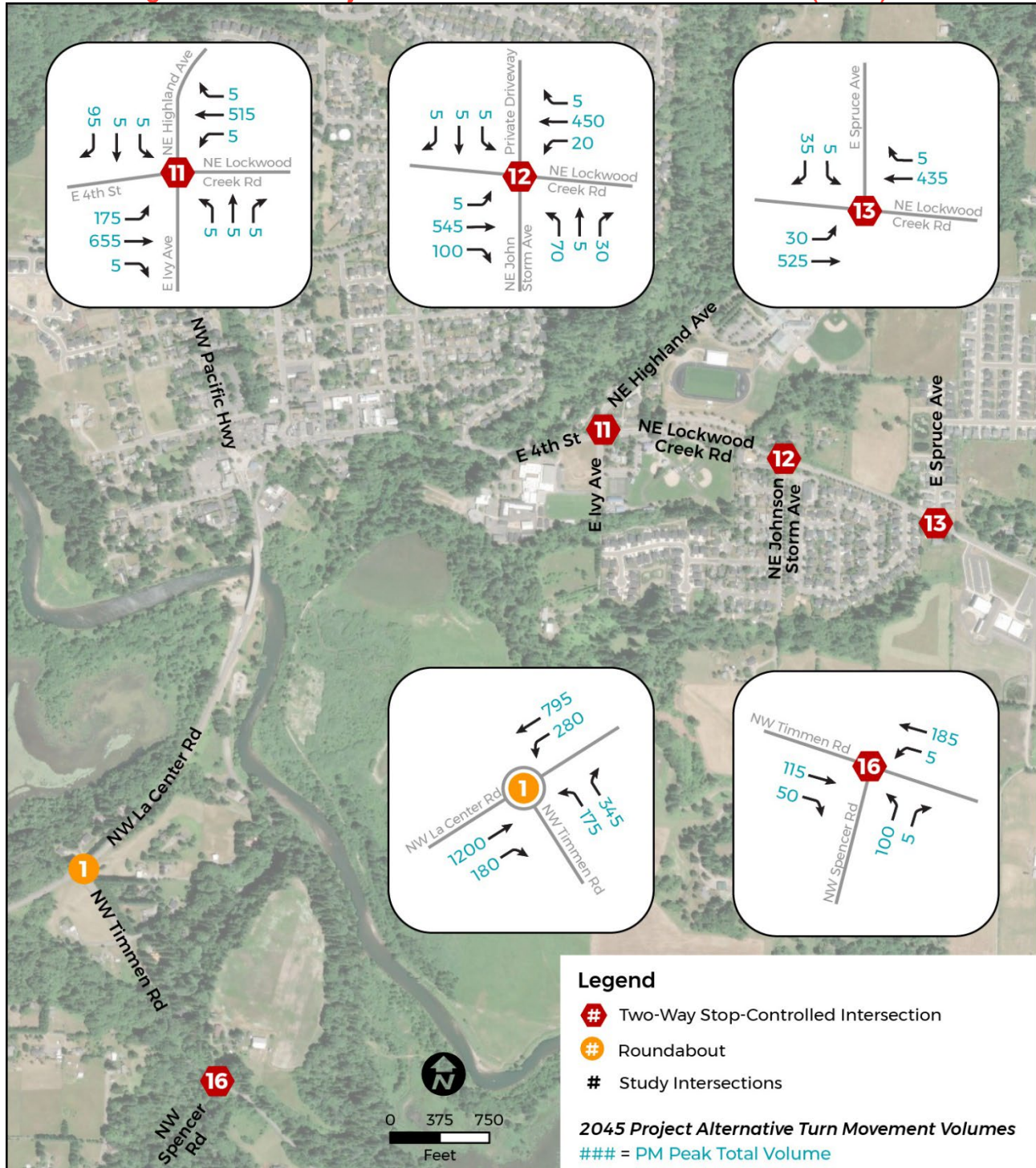
Figure 13 - Timmen Landing Subarea Trip Distribution



3.4 PROJECT ALTERNATIVE TURN MOVEMENT VOLUMES

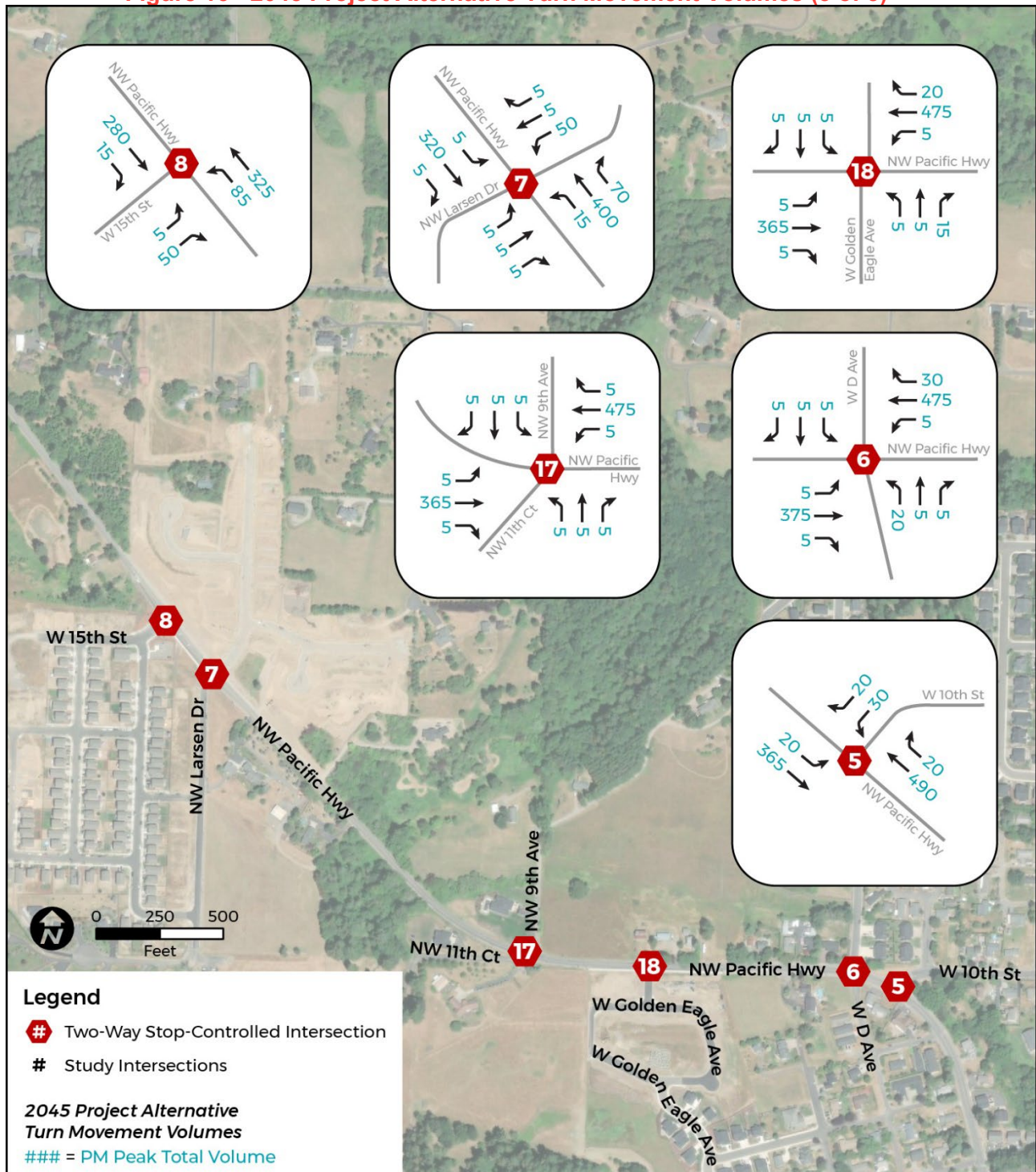
An overview of 2045 Project Alternative turn movement volumes (rounded) at study intersections is provided by Figure 14 to Figure 16.

Figure 14 - 2045 Project Alternative Turn Movement Volumes (1 of 3)



[illegible]

Figure 16 - 2045 Project Alternative Turn Movement Volumes (3 of 3)



3.5 TRAFFIC OPERATIONS

The weekday PM peak-hour future conditions operations analysis for the study intersections was performed using Synchro 11 software, with results reflecting the Highway Capacity Manual Version 6 (HCM6) reporting methodology (TRB 2016).

Additionally, PM Peak hour analysis at existing Northwest La Center Road/Northwest Pacific Highway/West Fourth Street roundabout and the new NW La Center Road / NW Timmen Road roundabout was performed in SIDRA 9.1, which is a software widely utilized for evaluating standalone roundabouts.

A defined set of performance measures were used to assess operational performance of study area intersections on motor vehicle travel. Typical performance measures and outputs generated by Synchro include average vehicle delays, v/c ratios and LOS.

Table 13 lists the No-Action Alternative and Project Alternative intersection operational analysis results for the PM peak hour (see Appendix F and Appendix G for details) in 2045 and compares them to the mobility target for each location. Of the 18 study intersections, 15 would operate within identified mobility standard of LOS E under the No Action Alternative and 11 would operate within identified mobility standard of LOS E under the Project Alternative.

As shown in Table 13, the following two intersections would not meet the mobility standard during the PM peak hour under both the No-Action Alternative and Project Alternative:

- NW La Center Road / NW Timmen Road
- W 4th Street / E 4th Street / Aspen Avenue

The following five intersections would not meet the mobility standard during the PM peak hour under the Project Alternative; however, they would meet the standard under the No-Action Alternative:

- NW La Center Road / NW Pacific Highway / W 4th Street
- NW Pacific Highway / W 5th Street
- E 4th Street / E Cedar Avenue
- E 4th Street / NE Lockwood Creek Rd / NE Highland Avenue
- NE Lockwood Creek Road / NE John Storm Avenue

The majority of trips generated from development of the Downtown and Timmen Landing subareas would utilize NW La Center Road and E 4th Street. Four out of the five intersections are two-way stop-controlled with the exception of the roundabout at NW La Center Road / NW Pacific Highway / W 4th Street. With the increase in volume along the major streets under the Project Alternative, the stop-controlled minor street approaches experience significant delay resulting in a LOS F.

Table 13 - Future Conditions Operations Analysis Results – 2045 PM Peak Hour

No.	Intersection	Traffic Control	Mobility Standard	2045 No-Action Alternative PM Peak Hour			2045 Project Alternative PM Peak Hour		
				v/c	Delay (s/veh)	LOS	v/c	Delay (s/veh)	LOS
1	NW La Center Road / NW Timmen Road	TWSC / Roundabout	LOS E	0.66	120	F	-	134	F
2	NW La Center Road / W 3rd Street	TWSC	LOS E	0.26	51	F	0.27	44	E
3	NW La Center Road / NW Pacific Highway / W 4th Street (SIDRA 9.1)	Roundabout	LOS E	-	10	A	-	79	F
4	NW Pacific Highway / W 5th Street	TWSC	LOS E	0.13	16	C	>1	>300	F
5	NW Pacific Highway / W 10th Street	TWSC	LOS E	0.08	15	B	0.15	23	C
6	NW Pacific Highway / W D Avenue	TWSC	LOS E	0.08	14	B	0.15	23	C
7	NW Pacific Highway / NW 14th Avenue / NW Larsen Drive	TWSC	LOS E	0.13	14	B	0.23	22	C
8	NW Pacific Highway / W 15th Street	TWSC	LOS E	0.07	10	A	0.10	12	B
9	W 4th Street / E 4th Street / Aspen Avenue	TWSC	LOS E	0.38	71	F	>1	>300	F
10	E 4th Street / E Cedar Avenue	TWSC	LOS E	0.23	20	C	>1	185	F
11	E 4th Street / NE Lockwood Creek Rd / NE Highland Avenue	TWSC	LOS E	0.05	38	E	0.13	101	F
12	NE Lockwood Creek Road / NE John Storm Avenue	TWSC	LOS E	0.37	22	C	0.90	111	F
13	NE Lockwood Creek Road / E Spruce Avenue	TWSC	LOS E	0.06	10	B	0.10	14	B
14	Aspen Avenue / E 5th Street	TWSC	LOS E	0.08	12	B	0.12	13	B
15	Aspen Avenue / W 5th Street	TWSC	LOS E	0.04	12	B	0.17	13	B
16	NW Timmen Road / NW Spencer Road	TWSC	LOS E	0.18	12	B	0.26	14	B
17	NW Pacific Highway / NW 9th Avenue / NW 11th Court	TWSC	LOS E	0.03	13	B	0.06	18	C
18	NW Pacific Highway / W Golden Eagle Avenue	TWSC	LOS E	0.03	13	B	0.06	18	C

Notes:

v/c ratio, delay, and LOS results from Synchro 11 HCM6 reports for all TWSC intersections.

Minor street worst movement results are reported for all unsignalized two-way stop-controlled intersections. Worst movement results among all approaches are reported for the roundabout modeled within SIDRA 9.1 software.

v/c = volume-to-capacity; s/veh = seconds per vehicle; LOS = level of service; TWSC = Two-Way Stop-Controlled.

3.6 PEDESTRIAN, BICYCLE, AND TRANSIT IMPROVEMENTS

For Downtown, the grid network in the northwestern portion (primarily north of 5th Street and west of Pacific Highway) will include full road width improvements, including sidewalks as this area is currently substandard with minimal sidewalks and/or connectivity.

West of 6th Street/F St is a plaza and new pedestrian pathways would be built to improve connectivity. There would be new trail connections along the river to the west and south.

A shared use path is proposed along NW La Center Road along with a proposed trail at the southwestern portion of the Timmen Landing subarea.

In January 2025, bus route #48 was extended to La Center, serving a new stop at E Birch Avenue and 6th Street in Downtown. There are no known proposed improvements to the transit network serving La Center.

4.0 MITIGATION

Table 14 below provides a summary of potential mitigation treatments recommended at each study intersection impacted by the 2045 Project Alternative scenario.

Table 14 – Summary of Mitigation Treatments and Operations Analysis Results

Reference No.	Study Intersection	Proposed Traffic Control	Summary of Mitigation Treatments	Mobility Standard	2045 Project Alternative PM Peak Hour		
					v/c	Delay (s/veh)	LOS
2	NW La Center Road / W 3rd Street	Right-In Right-Out	<p>Modify existing intersection to a three-legged right-in right-out intersection to facilitate proposed mitigation treatments at NW La Center Road / NW Pacific Highway / W 4th Street.</p> <p>All left-turning project alternative trips in and out of W 3rd Street to be re-assigned to W 5th St.</p> <p>West 3rd Street eastbound right-turn to be designed as a free right turn to NW La Center Road.</p>	LOS E	-	-	-
3	NW La Center Road / NW Pacific Highway / W 4th Street (SIDRA 9.1)	Roundabout	<p>Modify existing roundabout to –</p> <ul style="list-style-type: none"> • accommodate two-lane approaches; and • refine lane discipline along all approaches. 	LOS E	-	23	C
4	NW Pacific Highway / W 5th Street	Traffic Signal	Signalize existing intersection.	LOS D v/c =<0.95	0.77	9	A
10	E 4th Street / E Cedar Avenue	Traffic Signal	Signalize existing intersection.	LOS D v/c =<0.95	0.79	22	C
11	E 4th Street / NE Lockwood Creek Rd / NE Highland Avenue	Traffic Signal	Signalize existing intersection (under construction 2025 and operational by 2026).	LOS D v/c =<0.95	0.45	19	B
12	NE Lockwood Creek Road /	Traffic Signal	Signalize existing intersection.	LOS D	0.56	22	C

	NE John Storm Avenue			v/c =<0.95			
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Notes:

Delay/LOS results from Synchro 11 HCM6 reports and v/c ratio results from Synchro 11 HCM 2000 reports for all signalized intersections.

Minor street worst movement results are reported for all unsignalized two-way stop-controlled intersections. Worst movement results among all approaches are reported for the roundabout modeled within SIDRA 9.1 software.

v/c = volume-to-capacity; s/veh = seconds per vehicle; LOS = level of service; TWSC = Two-Way Stop-Controlled.

As shown in Table 14 above, with the identified mitigation treatments, all study intersections impacted by the Project Alternative would meet the City's mobility standard.

APPENDIX A: CRASH DATA AND HSM SHEETS

OFFICER REPORTED CRASHES THAT OCCURRED *at OR in the vicinity of* MULTIPLE INTERSECTIONS IN THE CITY OF LA CENTER

01/01/2018 - 12/31/2022 See 2nd tab below for road info

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	MILEPOST
City Street	Clark	La Center	E 4TH ST	0	E CEDAR AVE					
City Street	Clark	La Center	E 4TH ST	0	NE HIGHLAND RD					
City Street	Clark	La Center	NE HIGHLAND RD	400		157	F	N	E 4TH ST	
City Street	Clark	La Center	NE LOCKWOOD CREEK RD	1800	E SPRUCE AVE					
City Street	Clark	La Center	NW LA CENTER RD	32088	NW TIMMEN RD					
City Street	Clark	La Center	NW LA CENTER RD	32088	NW TIMMEN RD					
City Street	Clark	La Center	NW LA CENTER RD	32088	NW TIMMEN RD					
City Street	Clark	La Center	NW LACENTER RD	32100		100	F	NE	NW TIMMEN RD	
City Street	Clark	La Center	NW PACIFIC HWY	0	NW LARSON DR					
City Street	Clark	La Center	NW PACIFIC HWY	0	W 10TH ST					
City Street	Clark	La Center	NW PACIFIC HWY	0	W 3RD ST					
City Street	Clark	La Center	NW PACIFIC HWY	0	W D AVE					
City Street	Clark	La Center	NW PACIFIC HWY	34200		200	F	SE	NW LARSON DR	
City Street	Clark	La Center	NW TIMMEN RD	31986	NW LA CENTER RD					
City Street	Clark	La Center	NW TIMMEN RD	0	NW LACENTER RD					
City Street	Clark	La Center	NW TIMMEN RD	31600		100	F	NW	NW SPENCER RD	
City Street	Clark	La Center	W 4TH ST		NW PACIFIC HWY					
City Street	Clark	La Center	W 4TH ST	0	NW PACIFIC HWY					

A/B	SR ONLY HISTORY/ SUSPENSE	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# I N J	# F A T	# V E H	# P E D	# B I K E S	VEHICLE 1 TYPE
	No	E760159	01/06/2018	15:50	Possible Injury	2	0	2	0	0	Passenger Car
	No	E826699	06/14/2018	11:25	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
	No	E795549	03/22/2018	14:59	No Apparent Injury	0	0	2	0	0	Passenger Car
	No	EB67457	08/02/2021	12:58	No Apparent Injury	0	0	1	0	0	Passenger Car
	No	EB92925	11/20/2021	15:30	No Apparent Injury	0	0	2	0	0	Passenger Car
	No	EB98726	12/09/2021	13:23	No Apparent Injury	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
	No	ED04764	10/21/2022	12:36	Suspected Minor Injury	1	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
	No	E837059	09/11/2018	16:05	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
	No	EA27197	01/29/2020	19:45	No Apparent Injury	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
	No	EA27195	03/30/2020	01:00	No Apparent Injury	0	0	1	0	0	Passenger Car
	No	E794883	05/04/2018	15:20	No Apparent Injury	0	0	2	0	0	Passenger Car
	No	E918933	04/13/2019	17:50	No Apparent Injury	0	0	2	0	0	Passenger Car
	No	EA44289	06/25/2020	00:28	Suspected Minor Injury	1	0	1	0	0	Passenger Car
	No	EC15297	12/18/2021	23:24	Suspected Minor Injury	1	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
	No	E839247	08/29/2018	19:45	Possible Injury	1	0	2	0	0	Passenger Car
	No	EA00050	12/12/2019	16:00	No Apparent Injury	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
	No	ED06718	11/19/2022	20:09	No Apparent Injury	0	0	1	0	0	Truck Tractor & Semi-Trailer
	No	E996098	12/14/2019	18:21	No Apparent Injury	0	0	2	0	0	Passenger Car

VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER	ROADWAY SURFACE CONDITION
Pickup,Panel Truck or Vanette under 10,000 lb	Driveway Related but Not at Driveway	Clear or Partly Cloudy	Wet
Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry
Passenger Car	Not at Intersection and Not Related	Raining	Wet
	At Intersection and Not Related	Clear or Partly Cloudy	Dry
Pickup,Panel Truck or Vanette under 10,000 lb	At Driveway within Major Intersection	Clear	Dry
	At Intersection and Not Related	Overcast	Wet
Passenger Car	At Intersection and Related	Raining	Wet
Pickup,Panel Truck or Vanette under 10,000 lb	Not at Intersection and Not Related	Raining	Wet
	At Intersection and Not Related	Overcast	Wet
	At Intersection and Not Related	Raining	Wet
Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy	Dry
Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining	Wet
	Not at Intersection and Not Related	Clear	Dry
	At Intersection and Related	Snowing	Wet
Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry
	Not at Intersection and Not Related	Clear	Dry
	Circulating Roundabout	Clear	Dry
Not Stated	Circulating Roundabout	Fog or Smog or Smoke	Wet

LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION
Daylight	From same direction - both going straight - one stopped - rear-end	Stopped for Traffic
Daylight	Entering at angle	Going Straight Ahead
Daylight	From opposite direction - both going straight - sideswipe	Going Straight Ahead
Daylight	Fence	Overtaking and Passing
Daylight	Entering at angle	Going Straight Ahead
Daylight	Vehicle Strikes Deer	Going Straight Ahead
Daylight	From same direction - both going straight - both moving - rear-end	Slowing
Daylight	From same direction - both going straight - both moving - rear-end	Slowing
Dark-Street Lights On	Roadway Ditch	Going Straight Ahead
Dark-Street Lights On	Tree or Stump (stationary)	Going Straight Ahead
Daylight	Entering at angle	Making Left Turn
Daylight	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead
Dark-Street Lights On	Roadway Ditch	Going Straight Ahead
Dark-Street Lights On	Guardrail - Through, Over or Under	Going Straight Ahead
Dusk	Entering at angle	Other*
Dusk	Guardrail - Face	Going Straight Ahead
Dark-Street Lights On	Retaining Wall (concrete, rock, brick, etc.)	Making Left Turn
Dark-Street Lights On	From opposite direction - all others	Making Right Turn

VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)
Going Straight Ahead	West	Vehicle Stopped	West	East	None
Going Straight Ahead	North	South	East	West	Did Not Grant RW to Vehicle
Going Straight Ahead	North	Northeast	North	South	Exceeding Reas. Safe Speed
	West	East			Improper Passing
Making Right Turn	Southwest	Northeast	Northwest	Southwest	None
	Southwest	Northeast			None
Going Straight Ahead	West	East	West	East	None
Slowing	Southwest	Northeast	Southeast	Northwest	None
	Northwest	Southeast			Overcorrecting / Oversteering
	Northwest	Southeast			Operating Defective Equipment
Going Straight Ahead	West	North	North	South	Did Not Grant RW to Vehicle
Stopped for Traffic	West	East	Vehicle Stopped	Vehicle Stopped	Exceeding Reas. Safe Speed
	North	South			Under Influence of Alcohol
	Southeast	Northwest			Under Influence of Alcohol
Going Straight Ahead	North	West	West	East	Did Not Grant RW to Vehicle
	North	South			None
	South	West			None
Going Wrong Way on Divided Hwy	South	Northeast			None

MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)
		Follow Too Closely		
		None		
		None		
		Unknown Distraction		
		Other Distractions	Follow Too Closely	
		Apparently Fatigued		
		None		
Follow Too Closely		None		
Operating Handheld Cell Phone	Disregard Traffic Sign and Signals			
		Driver Not Distracted		
		Other Contributing Circ Not Listed		

FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
Lane of Primary Trafficway	1087877.30	200600.07
Lane of Primary Trafficway	1089710.55	200594.81
Lane of Primary Trafficway	1089723.25	200753.93
Past the Outside Shoulder of Primary Trafficway	1092222.94	199937.35
Lane of Primary Trafficway	1085769.12	197298.37
Lane of Primary Trafficway	1085769.12	197298.37
Lane of Primary Trafficway	1085769.12	197298.37
Lane of Primary Trafficway	1085845.40	197363.28
Past the Outside Shoulder of Primary Trafficway	1083698.97	203100.84
Past the Outside Shoulder of Primary Trafficway	1086370.04	201862.37
Lane of Primary Trafficway	1087018.91	200201.99
Lane of Primary Trafficway	1086224.03	201921.26
Past the Outside Shoulder of Primary Trafficway	1083833.96	202953.75
Other Location (City/County/Misc. Trafficway)	1085769.12	197298.37
Lane of Primary Trafficway	1085768.80	197299.71
Outside Shoulder of Primary Trafficway	1086707.18	195762.02
Median Shoulder of Primary Trafficway	1086951.62	200418.80
Lane of Primary Trafficway	1087021.99	200383.21

CRASH DATA SUMMARIES BY INTERSECTION

Crash Summary by Intersection, 2018-2022

Intersection	2018	2019	2020	2021	2022	Total
NW Lacenter Road/NW Timmen Road	2	-	-	3	1	6
NW Pacific Highway/W 3rd Street	1	-	-	-	-	1
NW Pacific Highway/W 4th Street	-	1	-	-	1	2
NW Pacific Highway/W 5th Street	-	-	-	-	-	0
NW Pacific Highway/10th Street	-	-	1	-	-	1
NW Pacific Highway/D Avenue	-	1	-	-	-	1
NW Pacific Highway/NW 14th Avenue/Larsen Drive	-	-	-	2	-	2
NW Pacific Highway/W 15th Street	-	-	-	-	-	0
W 4th Street/E 4th Street/Aspen Avenue	-	-	-	-	-	0
E 4th Street/E Cedar Avenue	1	-	-	-	-	1
E 4th Street/NW Lockwood Creek Rd/NE Highland Ave	2	-	-	-	-	2
NE Lockwood Creek Road/NE John Storm Avenue	-	-	-	-	-	0
NE Lockwood Creek Road/E Spruce Avenue.	-	-	-	1	-	1
Aspen Avenue/E 5th Street	-	-	-	-	-	0
Aspen Avenue/W 5th Street	-	-	-	-	-	0
NW Timmen Road/NW Spencer Road	-	1	-	-	-	1
NW Pacific Highway/NW 9th Avenue/NW 11 TH Ct *	-	1	-	1	-	2
NW Pacific Highway/W Golden Eagle Avenue*	-	-	-	-	-	0
Total	6	4	1	7	2	20

*Crash records obtained from WSDOT crash data portal

Source: WSDOT Public Records

Crash Summary by Severity, Cumulative 5-Year, 2018-2022

Intersection	Fatality	Possible Injury	Minor Injury	PDO	Total
NW Lacenter Road/NW Timmen Road	-	1	2	3	6
NW Pacific Highway/W 3rd Street	-	-	-	1	1
NW Pacific Highway/W 4th Street	-	-	-	2	2
NW Pacific Highway/W 5th Street	-	-	-	-	0
NW Pacific Highway/10th Street	-	-	-	1	1
NW Pacific Highway/D Avenue	-	-	-	1	1
NW Pacific Highway/NW 14th Avenue/Larsen Drive	-	-	1	1	2
NW Pacific Highway/W 15th Street	-	-	-	-	0
W 4th Street/E 4th Street/Aspen Avenue	-	-	-	-	0
E 4th Street/E Cedar Avenue	-	1	-	-	1
E 4th Street/NW Lockwood Creek Rd/NE Highland Ave	-	-	-	2	2
NE Lockwood Creek Road/NE John Storm Avenue	-	-	-	-	0
NE Lockwood Creek Road/E Spruce Avenue.	-	-	-	1	1
Aspen Avenue/E 5th Street	-	-	-	-	0
Aspen Avenue/W 5th Street	-	-	-	-	0
NW Timmen Road/NW Spencer Road	-	-	-	1	1
NW Pacific Highway/NW 9th Avenue/NW 11 TH Ct *	-	1	1	-	2
NW Pacific Highway/W Golden Eagle Avenue*	-	-	-	-	0
Total	0	3	4	13	20

*Crash records obtained from WSDOT crash data portal

Source: WSDOT Public Records

Crash Summary by Crash Type, Cumulative 5-Year, 2018-2022

Intersection	Angle	Fix Object/ Off-Road	Head- on	Rear-end	Sideswipe	Total
NW Lacerter Road/NW Timmen Road	2	2	-	2	-	6
NW Pacific Highway/W 3rd Street	1	-	-	-	-	1
NW Pacific Highway/W 4th Street	-	1	1	-	-	2
NW Pacific Highway/W 5th Street	-	-	-	-	-	0
NW Pacific Highway/10th Street	-	1	-	-	-	1
NW Pacific Highway/D Avenue	-	-	-	1	-	1
NW Pacific Highway/NW 14th Avenue/Larsen Drive	-	2	-	-	-	2
NW Pacific Highway/W 15th Street	-	-	-	-	-	0
W 4th Street/E 4th Street/Aspen Avenue	-	-	-	-	-	0
E 4th Street/E Cedar Avenue	-	-	-	1	-	1
E 4th Street/NW Lockwood Creek Rd/NE Highland Ave	1	-	-	-	1	2
NE Lockwood Creek Road/NE John Storm Avenue	-	-	-	-	-	0
NE Lockwood Creek Road/E Spruce Avenue.	-	1	-	-	-	1
Aspen Avenue/E 5th Street	-	-	-	-	-	0
Aspen Avenue/W 5th Street	-	-	-	-	-	0
NW Timmen Road/NW Spencer Road	-	1	-	-	-	1
NW Pacific Highway/NW 9th Avenue/NW 11 TH Ct *	-	-	-	-	-	2
NW Pacific Highway/W Golden Eagle Avenue*	-	-	-	-	-	0
Total	4	8	1	4	1	20

*Crash records obtained from WSDOT crash data portal

Source: WSDOT Public Records

APPENDIX B: RAW TMC AND TUBE COUNTS



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Location: 1 NW LACENTER RD & NW TIMMEN RD PM

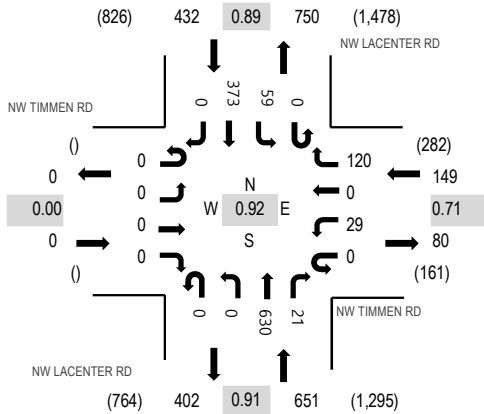
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

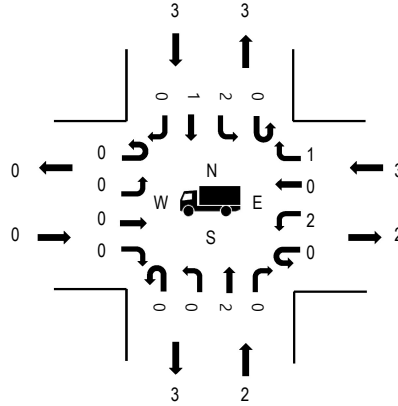
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

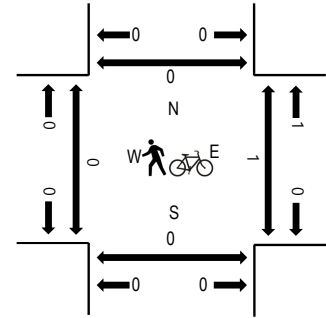
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.00
WB	2.0%	0.71
NB	0.3%	0.91
SB	0.7%	0.89
All	0.6%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	NW TIMMEN RD Eastbound				NW TIMMEN RD Westbound				NW LACENTER RD Northbound				NW LACENTER RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	10	0	30	0	0	133	3	0	16	82	0	274	1,208
4:15 PM	0	0	0	0	0	5	0	33	0	0	174	3	0	15	106	0	336	1,232
4:30 PM	0	0	0	0	0	9	0	21	0	0	147	6	0	17	92	0	292	1,217
4:45 PM	0	0	0	0	0	5	0	23	0	0	171	8	0	14	85	0	306	1,214
5:00 PM	0	0	0	0	0	10	0	43	0	0	138	4	0	13	90	0	298	1,195
5:15 PM	0	0	0	0	0	5	0	34	0	0	166	5	0	11	100	0	321	
5:30 PM	0	0	0	0	0	4	0	26	0	0	146	10	0	15	88	0	289	
5:45 PM	0	0	0	0	0	3	0	21	0	0	172	9	0	12	70	0	287	
Count Total	0	0	0	0	0	51	0	231	0	0	1,247	48	0	113	713	0	2,403	
Peak Hour	0	0	0	0	0	29	0	120	0	0	630	21	0	59	373	0	1,232	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	2	2	5	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	2	1	1	4	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	2	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	0	1
5:00 PM	0	0	2	0	2	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0
5:15 PM	0	1	1	1	3	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	1	1	1	3	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	1	0	1	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	6	7	8	21	Count Total	0	0	0	1	1	Count Total	0	0	1	0	1
Peak Hour	0	2	3	3	8	Peak Hour	0	0	0	1	1	Peak Hour	0	0	1	0	1



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Location: 2 NW LACENTER RD & W 3RD ST PM

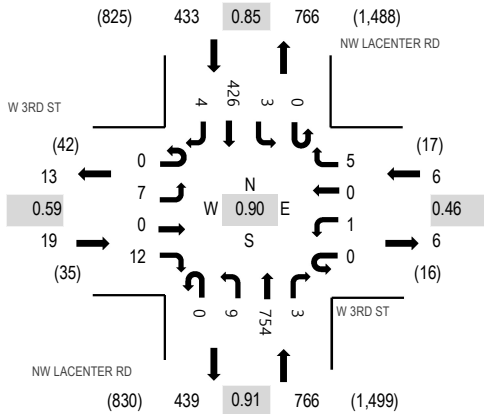
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

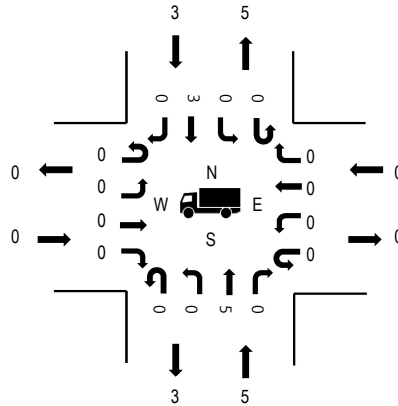
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

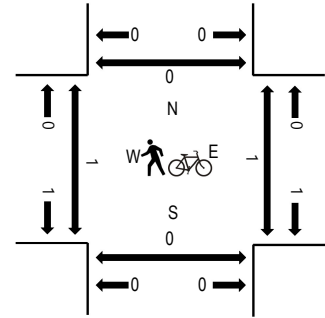
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.59
WB	0.0%	0.46
NB	0.7%	0.91
SB	0.7%	0.85
All	0.7%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	W 3RD ST Eastbound				W 3RD ST Westbound				NW LACENTER RD Northbound				NW LACENTER RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	3	0	0	0	6	0	1	161	0	0	3	94	2	270	1,201
4:15 PM	0	1	0	2	0	0	0	0	0	1	208	1	0	2	123	3	341	1,224
4:30 PM	0	3	0	5	0	1	0	3	0	5	170	1	0	1	100	0	289	1,203
4:45 PM	0	2	0	3	0	0	0	1	0	2	191	0	0	0	101	1	301	1,198
5:00 PM	0	1	0	2	0	0	0	1	0	1	185	1	0	0	102	0	293	1,175
5:15 PM	0	2	0	1	0	0	0	3	0	5	191	2	0	2	112	2	320	
5:30 PM	0	1	0	6	0	0	0	0	0	9	171	1	0	2	94	0	284	
5:45 PM	0	1	0	2	0	1	0	1	0	7	185	0	0	0	78	3	278	
Count Total	0	11	0	24	0	2	0	15	0	31	1,462	6	0	10	804	11	2,376	
Peak Hour	0	7	0	12	0	1	0	5	0	9	754	3	0	3	426	4	1,224	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	2	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	5	0	1	6	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	2	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	1	0	1
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1	5:00 PM	1	0	0	0	1
5:15 PM	0	2	0	0	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	1	0	1	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	1	0	1	2	5:45 PM	0	0	0	0	0	5:45 PM	1	0	0	0	1
Count Total	0	9	0	7	16	Count Total	0	0	0	1	1	Count Total	2	0	1	0	3
Peak Hour	0	5	0	3	8	Peak Hour	0	0	0	1	1	Peak Hour	1	0	1	0	2

Location: 3 NW LACENTER RD & W 4TH ST PM

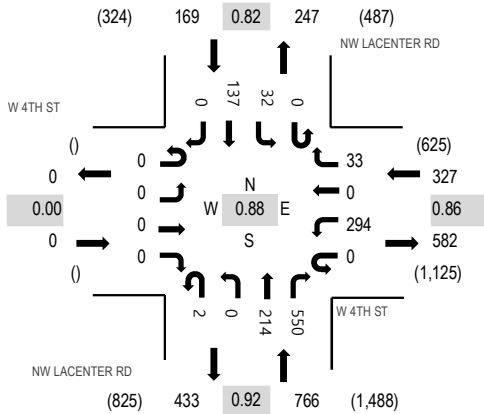
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

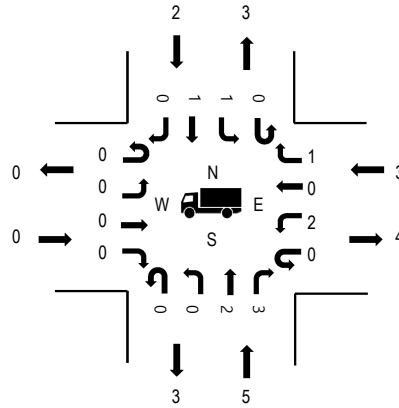
Motorized Vehicles



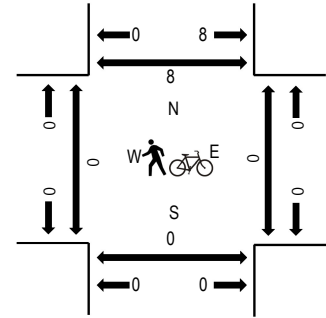
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.9%	0.86
NB	0.7%	0.92
SB	1.2%	0.82
All	0.8%	0.88

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	W 4TH ST Eastbound				W 4TH ST Westbound				NW LACENTER RD Northbound				NW LACENTER RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	64	0	9	0	0	44	123	0	7	35	0	282	1,243
4:15 PM	0	0	0	0	0	83	0	12	1	0	63	145	0	10	44	0	358	1,262
4:30 PM	0	0	0	0	0	65	0	10	1	0	46	129	0	4	35	0	290	1,229
4:45 PM	0	0	0	0	0	70	0	7	0	0	59	135	0	10	32	0	313	1,228
5:00 PM	0	0	0	0	0	76	0	4	0	0	46	141	0	8	26	0	301	1,194
5:15 PM	0	0	0	0	0	76	0	10	1	0	68	127	0	4	39	0	325	
5:30 PM	0	0	0	0	1	69	0	8	1	0	45	126	0	13	26	0	289	
5:45 PM	0	0	0	0	0	58	0	3	1	0	53	133	0	9	22	0	279	
Count Total	0	0	0	0	1	561	0	63	5	0	424	1,059	0	65	259	0	2,437	
Peak Hour	0	0	0	0	0	294	0	33	2	0	214	550	0	32	137	0	1,262	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	1	1	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	2	2
4:15 PM	0	5	2	1	8	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	1	1
4:30 PM	0	0	1	1	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	2	2
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	5	5
5:15 PM	0	2	0	0	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	1	0	1	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	1	1
5:45 PM	0	1	0	1	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	2	2
Count Total	0	9	4	5	18	Count Total	0	0	0	1	1	Count Total	0	0	0	13	13
Peak Hour	0	5	3	2	10	Peak Hour	0	0	0	1	1	Peak Hour	0	0	0	8	8



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Location: 4 NW LACENTER RD & W 5TH ST PM

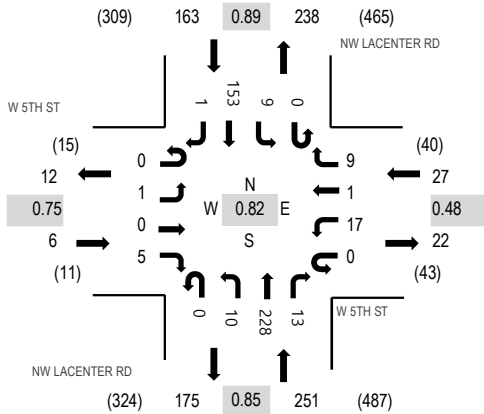
Date: Tuesday, July 11, 2023

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

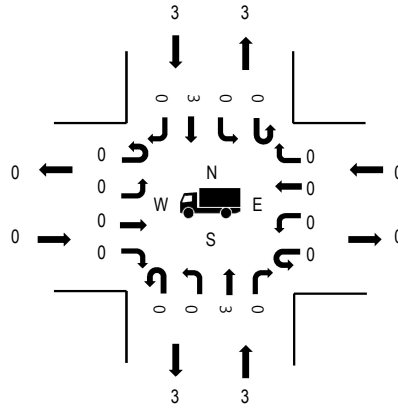
Motorized Vehicles



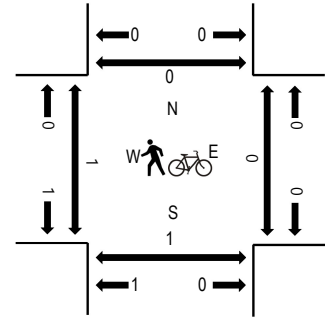
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.75
WB	0.0%	0.48
NB	1.2%	0.85
SB	1.8%	0.89
All	1.3%	0.82

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	W 5TH ST Eastbound				W 5TH ST Westbound				NW LACENTER RD Northbound				NW LACENTER RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	1	0	4	1	1	0	3	49	2	0	4	35	1	101	447
4:15 PM	0	1	0	1	0	10	0	4	0	1	67	6	0	1	45	0	136	434
4:30 PM	0	0	0	1	0	2	0	1	0	1	53	3	0	3	36	0	100	424
4:45 PM	0	0	0	2	0	1	0	3	0	5	59	2	0	1	37	0	110	419
5:00 PM	0	0	0	0	0	3	0	0	0	0	49	1	0	3	32	0	88	400
5:15 PM	0	1	0	1	0	4	0	2	0	0	74	3	0	2	39	0	126	
5:30 PM	0	0	1	1	0	1	0	1	0	2	47	3	0	2	37	0	95	
5:45 PM	0	0	0	1	0	1	0	1	0	1	52	4	0	2	29	0	91	
Count Total	0	2	1	8	0	26	1	13	0	13	450	24	0	18	290	1	847	
Peak Hour	0	1	0	5	0	17	1	9	0	10	228	13	0	9	153	1	447	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	1	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	3	0	1	4	4:15 PM	0	0	0	0	0	4:15 PM	1	0	0	0	1
4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	1	0	0	1
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	4	0	5	9	Count Total	0	0	0	0	0	Count Total	1	1	0	0	2
Peak Hour	0	3	0	3	6	Peak Hour	0	0	0	0	0	Peak Hour	1	1	0	0	2



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Location: 5 NW PACIFIC HWY & W 10TH ST PM

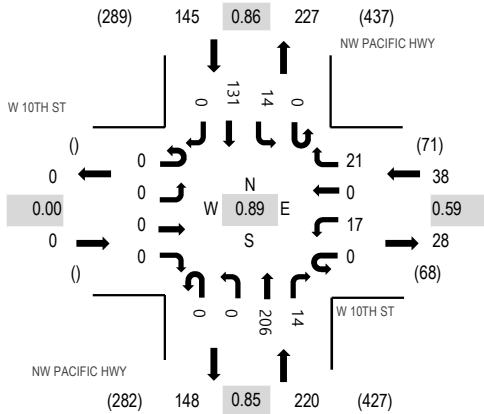
Date: Tuesday, July 11, 2023

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

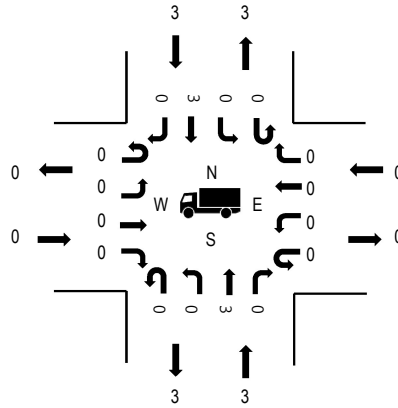
Motorized Vehicles



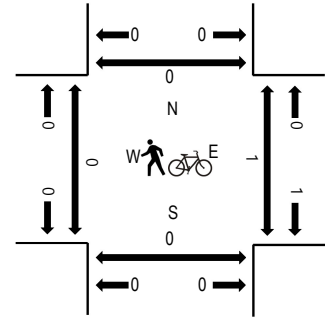
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.0%	0.59
NB	1.4%	0.85
SB	2.1%	0.86
All	1.5%	0.89

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	W 10TH ST Eastbound				W 10TH ST Westbound				NW PACIFIC HWY Northbound				NW PACIFIC HWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	5	0	11	0	0	51	0	0	6	36	0	109	403
4:15 PM	0	0	0	0	0	5	0	7	0	0	56	9	0	3	33	0	113	378
4:30 PM	0	0	0	0	0	5	0	2	0	0	50	2	0	4	28	0	91	383
4:45 PM	0	0	0	0	0	2	0	1	0	0	49	3	0	1	34	0	90	388
5:00 PM	0	0	0	0	0	6	0	3	0	0	43	2	0	6	24	0	84	384
5:15 PM	0	0	0	0	0	6	0	8	0	0	63	5	0	4	32	0	118	
5:30 PM	0	0	0	0	0	0	0	7	1	0	41	5	0	9	33	0	96	
5:45 PM	0	0	0	0	0	1	0	2	0	0	43	4	0	5	31	0	86	
Count Total	0	0	0	0	0	30	0	41	1	0	396	30	0	38	251	0	787	
Peak Hour	0	0	0	0	0	17	0	21	0	0	206	14	0	14	131	0	403	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	1	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	3	0	1	4	4:15 PM	0	0	0	0	0	4:15 PM	0	0	1	0	1
4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	2	0	2
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	4	0	5	9	Count Total	0	0	0	1	1	Count Total	0	0	3	0	3
Peak Hour	0	3	0	3	6	Peak Hour	0	0	0	0	0	Peak Hour	0	0	1	0	1



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Location: 6 NW PACIFIC HWY & W D AVE PM

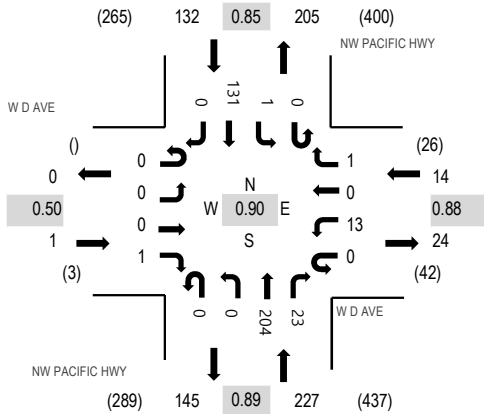
Date: Tuesday, July 11, 2023

Peak Hour: 04:00 PM - 05:00 PM

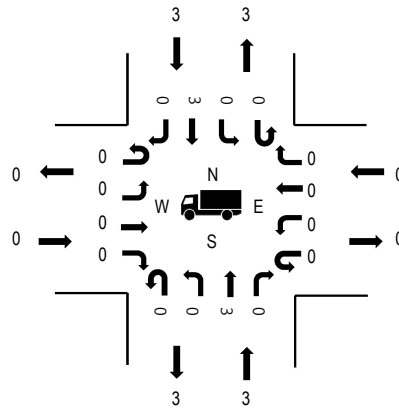
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

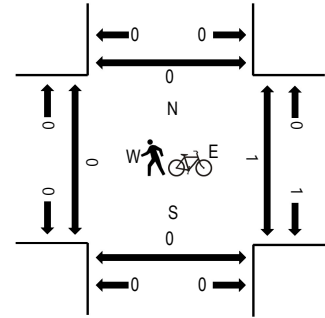
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.50
WB	0.0%	0.88
NB	1.3%	0.89
SB	2.3%	0.85
All	1.6%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	W D AVE Eastbound				W D AVE Westbound				NW PACIFIC HWY Northbound				NW PACIFIC HWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	1	0	4	0	0	0	0	58	3	0	1	37	0	104	374
4:15 PM	0	0	0	0	0	4	0	0	0	0	55	9	0	0	32	0	100	346
4:30 PM	0	0	0	0	0	2	0	0	0	0	46	6	0	0	30	0	84	354
4:45 PM	0	0	0	0	0	3	0	1	0	0	45	5	0	0	32	0	86	360
5:00 PM	0	0	0	0	0	4	0	0	0	0	44	2	0	0	26	0	76	357
5:15 PM	0	0	0	1	0	3	0	0	0	0	66	5	0	1	32	0	108	
5:30 PM	0	0	0	0	0	3	0	0	0	0	47	1	0	0	39	0	90	
5:45 PM	0	1	0	0	0	1	0	1	0	0	36	9	0	0	35	0	83	
Count Total	0	1	0	2	0	24	0	2	0	0	397	40	0	2	263	0	731	
Peak Hour	0	0	0	1	0	13	0	1	0	0	204	23	0	1	131	0	374	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	1	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	1	0	1
4:15 PM	0	3	0	1	4	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1	5:00 PM	1	0	1	0	2
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	4	0	5	9	Count Total	0	0	0	1	1	Count Total	1	0	2	0	3
Peak Hour	0	3	0	3	6	Peak Hour	0	0	0	0	0	Peak Hour	0	0	1	0	1

Location: 7 NW PACIFIC HWY & NW 14TH AVE/LARSEN DR PM

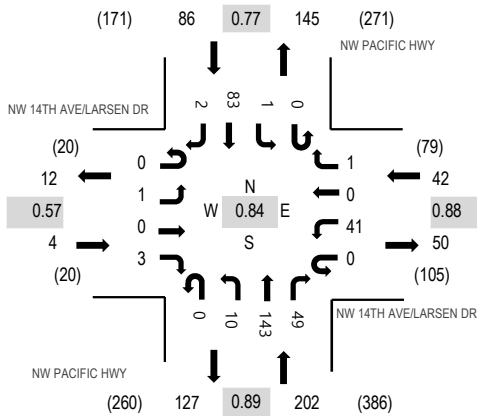
Date: Tuesday, July 11, 2023

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

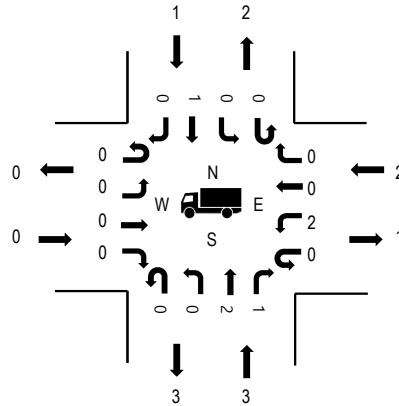
Motorized Vehicles



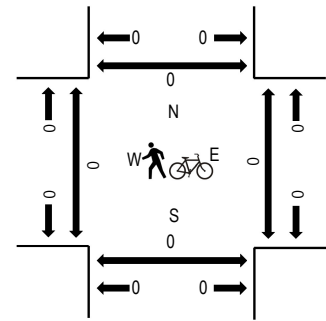
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.57
WB	4.8%	0.88
NB	1.5%	0.89
SB	1.2%	0.77
All	1.8%	0.84

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	NW 14TH AVE/LARSEN DR Eastbound				NW 14TH AVE/LARSEN DR Westbound				NW PACIFIC HWY Northbound				NW PACIFIC HWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	2	0	12	0	0	0	3	42	12	0	0	28	0	99	334
4:15 PM	0	1	0	0	0	7	0	1	0	3	41	11	0	0	18	0	82	304
4:30 PM	0	0	0	1	0	10	0	0	0	3	28	15	0	0	21	1	79	315
4:45 PM	0	0	0	0	0	12	0	0	0	1	32	11	0	1	16	1	74	321
5:00 PM	0	0	0	3	0	7	0	0	0	1	27	13	0	0	18	0	69	322
5:15 PM	0	1	0	3	0	7	0	0	0	4	36	19	0	1	22	0	93	
5:30 PM	0	3	0	4	0	14	0	0	0	3	31	11	0	0	19	0	85	
5:45 PM	0	0	0	2	0	9	0	0	0	0	28	11	0	0	25	0	75	
Count Total	0	5	0	15	0	78	0	1	0	18	265	103	0	2	167	2	656	
Peak Hour	0	1	0	3	0	41	0	1	0	10	143	49	0	1	83	2	334	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	3	0	1	4	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	0	1	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	1	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	4	4	1	9	Count Total	0	0	0	0	0	Count Total	0	0	0	0	0
Peak Hour	0	3	2	1	6	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	2	0	1	3	4:15 PM	0	0	0	0	0	4:15 PM	1	0	0	0	1
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1	5:00 PM	1	0	0	0	1
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	3	0	1	4	Count Total	0	0	0	1	1	Count Total	2	0	0	0	2
Peak Hour	0	2	0	1	3	Peak Hour	0	0	0	0	0	Peak Hour	1	0	0	0	1



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Location: 9 ASPEN AVE & E 4TH ST PM

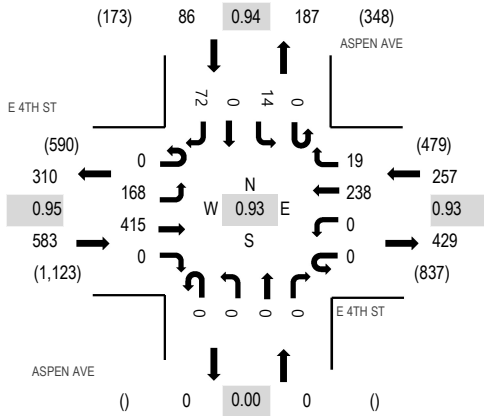
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

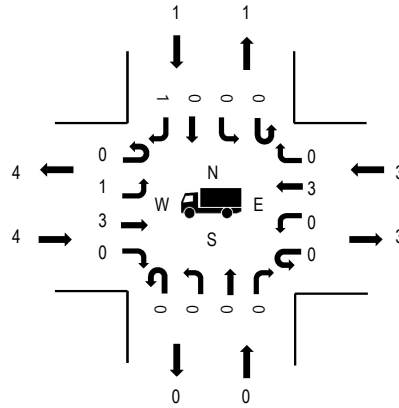
Motorized Vehicles



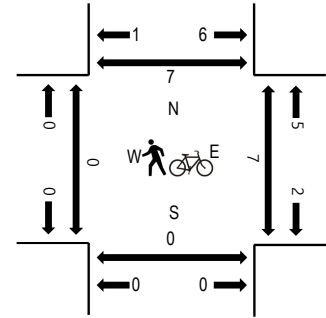
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.7%	0.95
WB	1.2%	0.93
NB	0.0%	0.00
SB	1.2%	0.94
All	0.9%	0.93

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	E 4TH ST Eastbound				E 4TH ST Westbound				ASPEN AVE Northbound				ASPEN AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	31	100	0	1	0	49	9	0	0	0	0	0	2	0	16	208	896
4:15 PM	0	42	109	0	0	0	66	3	0	0	0	0	0	3	0	25	248	926
4:30 PM	0	47	92	0	0	0	57	4	0	0	0	0	0	3	0	13	216	898
4:45 PM	0	38	101	0	0	0	57	7	0	0	0	0	0	5	0	16	224	894
5:00 PM	0	41	113	0	0	0	58	5	0	0	0	0	0	3	0	18	238	879
5:15 PM	0	46	83	0	0	0	65	3	0	0	0	0	0	2	0	21	220	
5:30 PM	0	27	107	0	0	0	53	1	0	0	0	0	0	3	0	21	212	
5:45 PM	0	40	106	0	0	0	37	4	0	0	0	0	0	4	0	18	209	
Count Total	0	312	811	0	1	0	442	36	0	0	0	0	0	25	0	148	1,775	
Peak Hour	0	168	415	0	0	0	238	19	0	0	0	0	0	14	0	72	926	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	4	0	2	0	6	4:15 PM	0	0	0	0	0	4:15 PM	0	0	2	1	3
4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	5	0	5
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	6	6
5:15 PM	1	0	0	1	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	2	2
5:30 PM	2	0	0	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	2	2
5:45 PM	2	0	0	0	2	5:45 PM	0	0	0	0	0	5:45 PM	1	0	0	1	2
Count Total	9	0	4	2	15	Count Total	0	0	0	0	0	Count Total	1	0	7	12	20
Peak Hour	4	0	3	1	8	Peak Hour	0	0	0	0	0	Peak Hour	0	0	7	7	14



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Location: 10 E CEDAR AVE & E 4TH ST PM

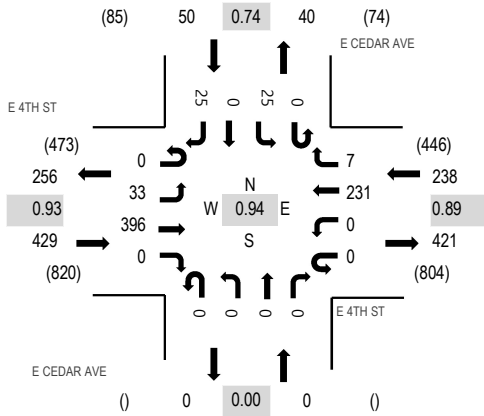
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 04:15 PM - 04:30 PM

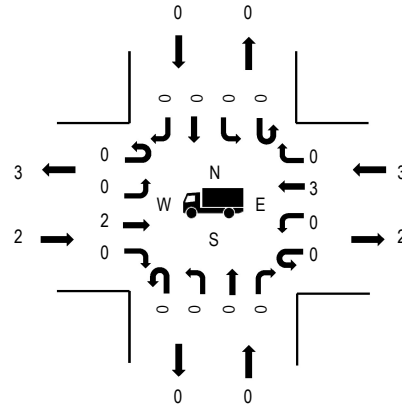
Peak Hour

Motorized Vehicles

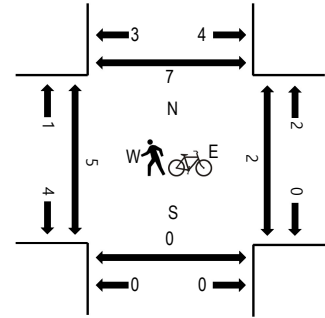


	HV%	PHF
EB	0.5%	0.93
WB	1.3%	0.89
NB	0.0%	0.00
SB	0.0%	0.74
All	0.7%	0.94

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	E 4TH ST Eastbound				E 4TH ST Westbound				E CEDAR AVE Northbound				E CEDAR AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	5	94	0	0	0	52	4	0	0	0	0	0	5	0	7	167	698
4:15 PM	0	10	104	0	0	0	64	3	0	0	0	0	0	6	0	4	191	717
4:30 PM	0	6	88	0	0	0	51	1	0	0	0	0	0	9	0	8	163	677
4:45 PM	0	9	97	0	0	0	61	3	0	0	0	0	0	3	0	4	177	682
5:00 PM	0	8	107	0	0	0	55	0	0	0	0	0	0	7	0	9	186	653
5:15 PM	0	8	70	0	0	0	60	4	0	0	0	0	0	1	0	8	151	
5:30 PM	0	3	105	0	0	0	50	3	0	0	0	0	0	5	0	2	168	
5:45 PM	0	7	99	0	0	0	35	0	0	0	0	0	0	4	0	3	148	
Count Total	0	56	764	0	0	0	428	18	0	0	0	0	0	40	0	45	1,351	
Peak Hour	0	33	396	0	0	0	231	7	0	0	0	0	0	25	0	25	717	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0	2	1	4	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	1	1
4:15 PM	1	0	3	0	4	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	3	3
4:30 PM	1	0	0	0	1	4:30 PM	1	0	0	0	1	4:30 PM	5	0	2	3	10
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	1	1
5:30 PM	1	0	0	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	5	0	5	1	11	Count Total	1	0	0	0	1	Count Total	5	0	2	9	16
Peak Hour	2	0	3	0	5	Peak Hour	1	0	0	0	1	Peak Hour	5	0	2	7	14



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Location: 11 NE HIGHLAND AVE & E 4TH ST PM

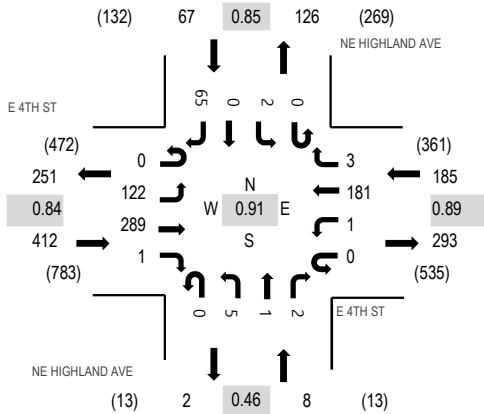
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

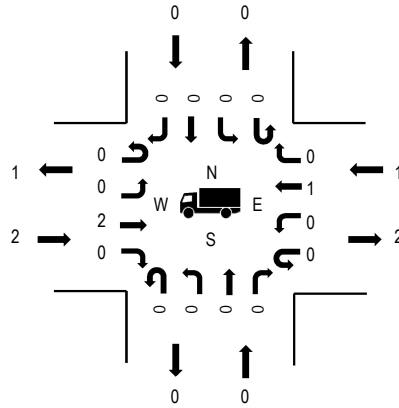
Motorized Vehicles



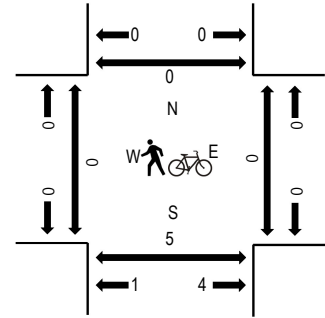
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.5%	0.84
WB	0.5%	0.89
NB	0.0%	0.46
SB	0.0%	0.85
All	0.4%	0.91

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	E 4TH ST Eastbound				E 4TH ST Westbound				NE HIGHLAND AVE Northbound				NE HIGHLAND AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	25	64	1	0	1	44	0	0	1	0	2	0	0	0	17	155	643
4:15 PM	0	30	82	0	0	1	52	0	0	1	0	0	0	1	0	16	183	672
4:30 PM	0	25	64	0	0	0	44	1	0	1	0	0	0	1	0	13	149	625
4:45 PM	0	25	63	1	0	0	44	1	0	3	1	2	0	0	0	16	156	650
5:00 PM	0	42	80	0	0	0	41	1	0	0	0	0	0	0	0	20	184	646
5:15 PM	0	22	49	1	0	0	49	1	0	1	0	0	0	0	0	13	136	
5:30 PM	0	44	65	2	0	0	36	7	0	0	0	1	0	0	0	19	174	
5:45 PM	0	36	58	4	0	2	29	7	0	0	0	0	1	3	0	12	152	
Count Total	0	249	525	9	0	4	339	18	0	7	1	5	1	5	0	126	1,289	
Peak Hour	0	122	289	1	0	1	181	3	0	5	1	2	0	2	0	65	672	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0	2	1	4	4:00 PM	0	0	0	0	0	4:00 PM	0	1	0	0	1
4:15 PM	1	0	1	0	2	4:15 PM	0	0	0	0	0	4:15 PM	0	1	0	0	1
4:30 PM	1	0	0	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	1	0	0	1
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	3	0	0	3
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	1	0	0	1
5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	5	0	2	7
Count Total	5	0	4	1	10	Count Total	0	0	0	0	0	Count Total	0	12	0	2	14
Peak Hour	2	0	1	0	3	Peak Hour	0	0	0	0	0	Peak Hour	0	5	0	0	5



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Location: 12 NE JOHN STORM AVE & NE LOCKWOOD CREEK RD PM

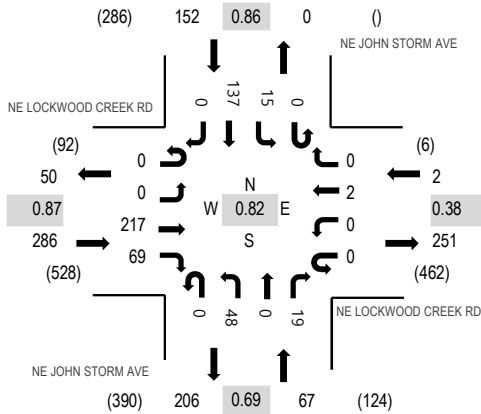
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

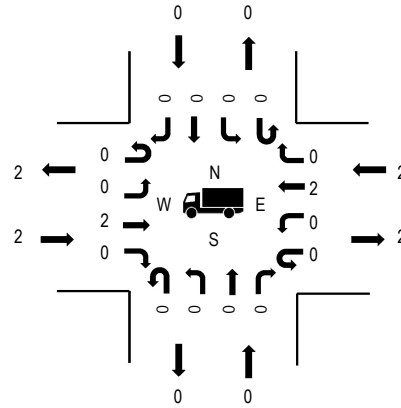
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

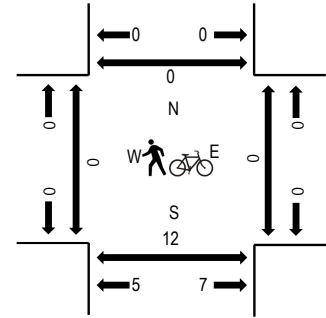
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.7%	0.87
WB	100.0%	0.38
NB	0.0%	0.69
SB	0.0%	0.86
All	0.8%	0.82

Traffic Counts - Motorized Vehicles

Interval Start Time	NE LOCKWOOD CREEK RD Eastbound				NE LOCKWOOD CREEK RD Westbound				NE JOHN STORM AVE Northbound				NE JOHN STORM AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	47	18	0	0	2	0	0	9	0	7	0	4	35	0	122	499
4:15 PM	0	0	58	24	0	0	1	0	0	20	0	8	0	7	36	0	154	507
4:30 PM	0	0	47	14	0	0	0	0	0	13	0	6	0	3	26	0	109	462
4:45 PM	0	0	52	12	0	0	0	0	0	10	0	4	0	2	34	0	114	461
5:00 PM	0	0	60	19	0	0	1	0	0	5	0	1	0	3	41	0	130	445
5:15 PM	0	0	41	12	0	0	2	0	0	14	0	4	0	6	30	0	109	
5:30 PM	0	0	54	13	0	0	0	0	0	11	0	5	0	1	24	0	108	
5:45 PM	0	0	38	19	0	0	0	0	0	4	0	3	0	1	33	0	98	
Count Total	0	0	397	131	0	0	6	0	0	86	0	38	0	27	259	0	944	
Peak Hour	0	0	217	69	0	0	2	0	0	48	0	19	0	15	137	0	507	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	2	0	2	4:00 PM	0	0	0	0	0	4:00 PM	0	5	0	0	5
4:15 PM	1	0	1	0	2	4:15 PM	2	0	0	0	2	4:15 PM	0	5	0	0	5
4:30 PM	1	0	0	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	3	0	0	3
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	1	0	0	1
5:00 PM	0	0	1	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	3	0	0	3
5:15 PM	0	0	2	0	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	4	0	6	0	10	Count Total	2	0	0	0	2	Count Total	0	17	0	0	17
Peak Hour	2	0	2	0	4	Peak Hour	2	0	0	0	2	Peak Hour	0	12	0	0	12

Location: 13 E SPRUCE AVE & NE LOCKWOOD CREEK RD PM

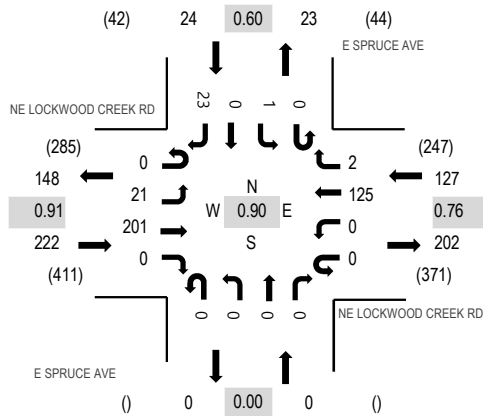
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

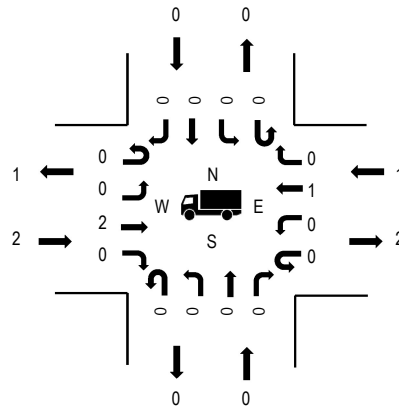
Motorized Vehicles



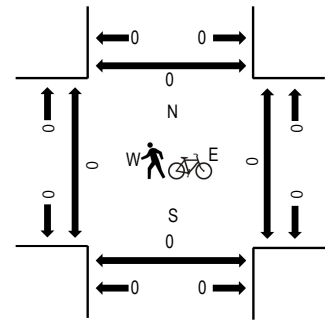
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.9%	0.91
WB	0.8%	0.76
NB	0.0%	0.00
SB	0.0%	0.60
All	0.8%	0.90

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk

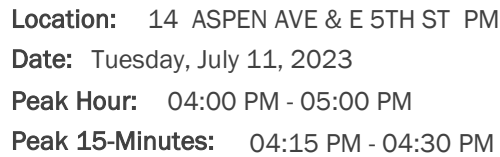


Traffic Counts - Motorized Vehicles

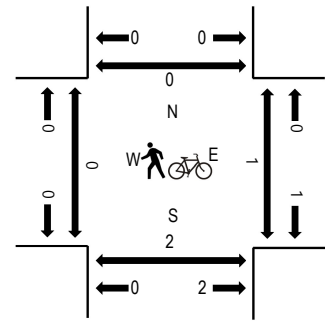
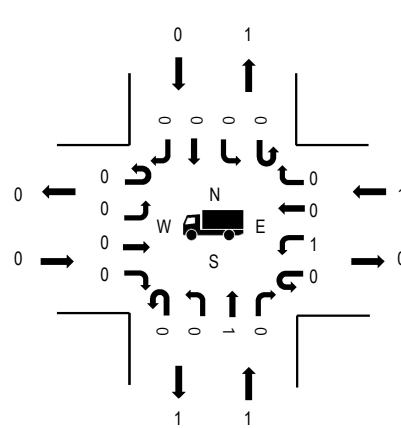
Interval Start Time	NE LOCKWOOD CREEK RD Eastbound				NE LOCKWOOD CREEK RD Westbound				E SPRUCE AVE Northbound				E SPRUCE AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	4	50	0	0	0	38	0	0	0	0	0	0	0	0	3	95	365
4:15 PM	0	9	52	0	0	0	31	2	0	0	0	0	0	0	0	10	104	373
4:30 PM	0	2	46	0	0	0	25	0	0	0	0	0	0	0	0	3	76	350
4:45 PM	0	2	54	0	0	0	27	0	0	0	0	0	0	0	0	7	90	354
5:00 PM	0	8	49	0	0	0	42	0	0	0	0	0	0	1	0	3	103	335
5:15 PM	1	7	35	0	0	0	29	1	0	0	0	0	0	1	0	7	81	
5:30 PM	1	4	50	0	0	0	24	0	0	0	0	0	0	0	0	1	80	
5:45 PM	0	4	33	0	0	0	27	1	0	0	0	0	0	0	0	6	71	
Count Total	2	40	369	0	0	0	243	4	0	0	0	0	0	2	0	40	700	
Peak Hour	0	21	201	0	0	0	125	2	0	0	0	0	0	1	0	23	373	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	1	0	1	0	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	1	0	0	0	1	4:30 PM	1	0	0	0	1	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	3	0	3	0	6	Count Total	1	0	0	0	1	Count Total	0	0	0	0	0
Peak Hour	2	0	1	0	3	Peak Hour	1	0	0	0	1	Peak Hour	0	0	0	0	0



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.00
WB	2.9%	0.80
NB	0.6%	0.88
SB	0.0%	0.93
All	0.6%	0.98

Interval Start Time	E 5TH ST Eastbound				E 5TH ST Westbound				ASPEN AVE Northbound				ASPEN AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	4	0	7	0	0	34	8	0	8	16	0	77	311
4:15 PM	0	0	0	0	0	7	0	4	0	0	41	1	0	1	25	0	79	302
4:30 PM	0	0	0	0	0	2	0	2	0	0	43	10	0	6	16	0	79	302
4:45 PM	0	0	0	0	0	8	0	1	0	0	37	5	0	5	20	0	76	284
5:00 PM	0	0	0	0	0	2	0	4	0	0	40	5	0	0	17	0	68	278
5:15 PM	0	0	0	0	0	4	0	3	0	0	44	3	0	5	20	0	79	
5:30 PM	0	0	0	0	0	6	0	4	0	0	26	3	0	4	18	0	61	
5:45 PM	0	0	0	0	0	2	0	2	0	0	41	2	0	6	17	0	70	
Count Total	0	0	0	0	0	35	0	27	0	0	306	37	0	35	149	0	589	
Peak Hour	0	0	0	0	0	21	0	14	0	0	155	24	0	20	77	0	311	

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	2	0	0	2
4:30 PM	0	0	1	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	0	1
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	1	0	0	1
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	2	0	0	2
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	2	0	0	2
Count Total	0	2	1	0	3	Count Total	0	0	0	0	0	Count Total	0	7	1	0	8
Peak Hour	0	1	1	0	2	Peak Hour	0	0	0	0	0	Peak Hour	0	2	1	0	3



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Location: 15 ASPEN AVE & W 5TH ST PM

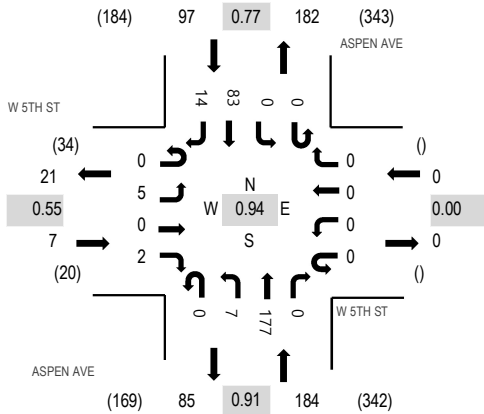
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

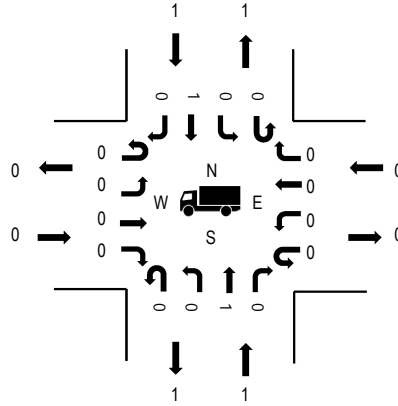
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

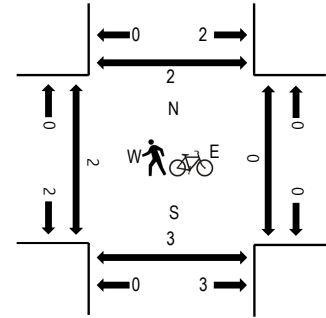
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.55
WB	0.0%	0.00
NB	0.5%	0.91
SB	1.0%	0.77
All	0.7%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	W 5TH ST Eastbound				W 5TH ST Westbound				ASPEN AVE Northbound				ASPEN AVE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	5	0	0	0	0	0	0	0	3	37	0	0	0	19	1	65	286
4:15 PM	0	0	0	1	0	0	0	0	0	2	42	0	0	0	27	5	77	288
4:30 PM	0	3	0	0	0	0	0	0	0	2	50	0	0	0	15	3	73	285
4:45 PM	0	0	0	0	0	0	0	0	0	1	42	0	0	0	22	6	71	268
5:00 PM	0	2	0	1	0	0	0	0	0	2	43	0	0	0	19	0	67	260
5:15 PM	0	1	0	0	0	0	0	0	0	3	46	0	0	0	22	2	74	
5:30 PM	0	3	0	2	0	0	0	0	0	1	26	0	0	0	22	2	56	
5:45 PM	0	2	0	0	0	0	0	0	0	1	41	0	0	0	19	0	63	
Count Total	0	16	0	4	0	0	0	0	0	15	327	0	0	0	165	19	546	
Peak Hour	0	5	0	2	0	0	0	0	0	7	177	0	0	0	83	14	288	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	3	1	0	0	4
4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	1	0	2	3
4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	2	2	0	0	4
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	1	0	0	1
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	2	0	0	2
Count Total	0	2	0	1	3	Count Total	0	0	0	0	0	Count Total	5	7	0	2	14
Peak Hour	0	1	0	1	2	Peak Hour	0	0	0	0	0	Peak Hour	2	3	0	2	7



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Location: 16 NW TIMMEN RD & NW SPENCER RD PM

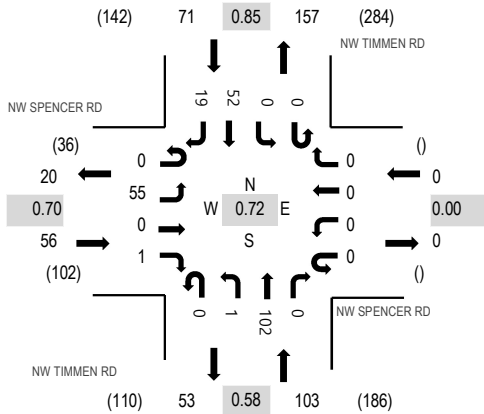
Date: Tuesday, July 11, 2023

Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

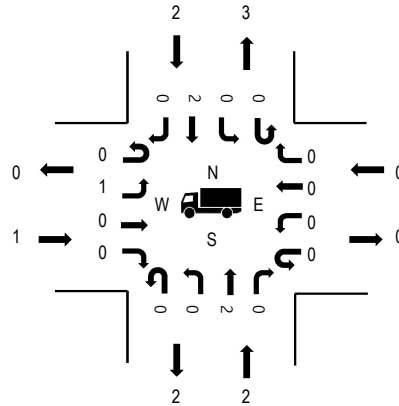
Motorized Vehicles



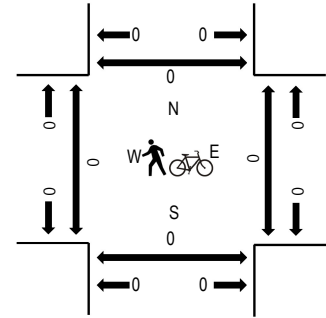
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.8%	0.70
WB	0.0%	0.00
NB	1.9%	0.58
SB	2.8%	0.85
All	2.2%	0.72

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	NW SPENCER RD Eastbound				NW SPENCER RD Westbound				NW TIMMEN RD Northbound				NW TIMMEN RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	15	0	1	0	0	0	0	0	0	24	0	0	0	13	4	57	207
4:15 PM	0	11	0	0	0	0	0	0	0	0	24	0	0	0	12	5	52	230
4:30 PM	0	12	0	0	0	0	0	0	0	1	19	0	0	0	17	5	54	230
4:45 PM	0	11	0	0	0	0	0	0	0	0	14	0	0	0	14	5	44	228
5:00 PM	0	21	0	1	0	0	0	0	0	0	45	0	0	0	9	4	80	223
5:15 PM	0	16	0	1	0	0	0	0	0	0	20	0	0	0	11	4	52	
5:30 PM	0	7	0	0	0	0	0	0	0	0	22	0	0	0	19	4	52	
5:45 PM	0	6	0	0	0	0	0	0	0	0	17	0	0	0	12	4	39	
Count Total	0	99	0	3	0	0	0	0	0	1	185	0	0	0	107	35	430	
Peak Hour	0	55	0	1	0	0	0	0	0	1	102	0	0	0	52	19	230	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	1	0	0	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	1	0	0	1	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	2	0	0	2	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0
5:15 PM	1	0	0	1	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	1	0	1	2	5:30 PM	0	1	0	0	1	5:30 PM	0	0	1	0	1
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	1	1	5:45 PM	0	0	0	0	0
Count Total	3	4	0	4	11	Count Total	0	1	0	2	3	Count Total	0	0	1	0	1
Peak Hour	1	2	0	2	5	Peak Hour	0	0	0	1	1	Peak Hour	0	0	0	0	0

Date Start: 11-Jul-23
Date End: 13-Jul-23
NW LACENTER RD S.O NW TIMMEN RD

Start Time	11-Jul-23 Tue	NB	SB							Total
12:00 AM		47	50							97
01:00		32	42							74
02:00		16	48							64
03:00		19	62							81
04:00		39	127							166
05:00		48	299							347
06:00		132	454							586
07:00		187	586							773
08:00		257	451							708
09:00		260	395							655
10:00		258	407							665
11:00		288	384							672
12:00 PM		383	344							727
01:00		377	343							720
02:00		429	352							781
03:00		501	330							831
04:00		645	394							1039
05:00		650	370							1020
06:00		521	295							816
07:00		380	214							594
08:00		302	211							513
09:00		251	125							376
10:00		146	107							253
11:00		94	73							167
Total		6262	6463							12725
Percent		49.2%	50.8%							
AM Peak	-	11:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	288	586	-	-	-	-	-	-	773
PM Peak	-	17:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	650	394	-	-	-	-	-	-	1039

Date Start: 11-Jul-23
Date End: 13-Jul-23
NW LACENTER RD S.O NW TIMMEN RD

Start Time	12-Jul-23 Wed	NB	SB							Total
12:00 AM		61	53							114
01:00		34	55							89
02:00		33	53							86
03:00		28	48							76
04:00		35	123							158
05:00		44	305							349
06:00		122	490							612
07:00		198	549							747
08:00		254	448							702
09:00		224	396							620
10:00		247	410							657
11:00		284	352							636
12:00 PM		368	327							695
01:00		347	380							727
02:00		422	364							786
03:00		531	366							897
04:00		612	338							950
05:00		633	341							974
06:00		547	245							792
07:00		373	236							609
08:00		346	179							525
09:00		273	133							406
10:00		151	105							256
11:00		104	55							159
Total		6271	6351							12622
Percent		49.7%	50.3%							
AM Peak	-	11:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	284	549	-	-	-	-	-	-	747
PM Peak	-	17:00	13:00	-	-	-	-	-	-	17:00
Vol.	-	633	380	-	-	-	-	-	-	974

Date Start: 11-Jul-23
Date End: 13-Jul-23
NW LACENTER RD S.O NW TIMMEN RD

Start Time	13-Jul-23 Thu	NB	SB							Total
12:00 AM		41	50							91
01:00		32	44							76
02:00		26	41							67
03:00		27	65							92
04:00		28	118							146
05:00		56	314							370
06:00		113	467							580
07:00		166	576							742
08:00		252	477							729
09:00		224	417							641
10:00		304	383							687
11:00		318	354							672
12:00 PM		340	313							653
01:00		383	344							727
02:00		397	319							716
03:00		465	323							788
04:00		598	342							940
05:00		694	339							1033
06:00		457	268							725
07:00		334	175							509
08:00		259	150							409
09:00		188	114							302
10:00		132	87							219
11:00		90	70							160
Total		5924	6150							12074
Percent		49.1%	50.9%							
AM Peak	-	11:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	318	576	-	-	-	-	-	-	742
PM Peak	-	17:00	13:00	-	-	-	-	-	-	17:00
Vol.	-	694	344	-	-	-	-	-	-	1033
Grand Total		18457	18964							37421
Percent		49.3%	50.7%							
ADT		ADT 12,474	AADT 12,474							

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Date Start: 11-Jul-23
Date End: 13-Jul-23
NW LACENTER RD S.O NW TIMMEN RD

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/11/23	0	40	5	0	2	0	0	0	0	0	0	0	0	47
01:00	0	30	2	0	0	0	0	0	0	0	0	0	0	32
02:00	0	13	3	0	0	0	0	0	0	0	0	0	0	16
03:00	0	17	1	0	0	0	0	0	1	0	0	0	0	19
04:00	0	30	7	0	0	1	0	0	1	0	0	0	0	39
05:00	2	33	10	0	2	0	0	1	0	0	0	0	0	48
06:00	5	93	26	1	4	1	0	2	0	0	0	0	0	132
07:00	4	138	32	1	8	2	1	1	0	0	0	0	0	187
08:00	6	174	60	1	10	1	3	2	0	0	0	0	0	257
09:00	0	198	41	0	14	1	0	5	0	0	0	0	1	260
10:00	7	183	50	3	11	2	0	1	1	0	0	0	0	258
11:00	3	218	51	0	10	2	1	2	1	0	0	0	0	288
12 PM	6	296	58	2	17	2	0	2	0	0	0	0	0	383
13:00	1	300	58	1	9	3	0	3	0	0	0	0	2	377
14:00	0	334	81	1	9	2	0	1	0	1	0	0	0	429
15:00	7	398	77	0	13	2	0	3	0	1	0	0	0	501
16:00	4	501	119	0	17	0	0	4	0	0	0	0	0	645
17:00	5	496	122	0	25	0	0	2	0	0	0	0	0	650
18:00	6	410	88	1	14	0	0	2	0	0	0	0	0	521
19:00	5	313	55	0	7	0	0	0	0	0	0	0	0	380
20:00	3	245	46	0	6	0	0	1	1	0	0	0	0	302
21:00	0	209	38	0	3	0	0	1	0	0	0	0	0	251
22:00	0	125	19	0	2	0	0	0	0	0	0	0	0	146
23:00	0	83	11	0	0	0	0	0	0	0	0	0	0	94
Day Total	64	4877	1060	11	183	19	5	33	5	2	0	0	3	6262
Percent	1.0%	77.9%	16.9%	0.2%	2.9%	0.3%	0.1%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	08:00	10:00	09:00	07:00	08:00	09:00	03:00				09:00	11:00
Vol.	7	218	60	3	14	2	3	5	1				1	288
PM Peak	15:00	16:00	17:00	12:00	17:00	13:00		16:00	20:00	14:00			13:00	17:00
Vol.	7	501	122	2	25	3		4	1	1			2	650

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Date Start: 11-Jul-23
Date End: 13-Jul-23
NW LACENTER RD S.O NW TIMMEN RD

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/12/23	0	52	7	0	2	0	0	0	0	0	0	0	0	61
01:00	1	31	2	0	0	0	0	0	0	0	0	0	0	34
02:00	0	26	6	0	1	0	0	0	0	0	0	0	0	33
03:00	0	23	3	0	2	0	0	0	0	0	0	0	0	28
04:00	2	27	4	0	1	0	0	0	1	0	0	0	0	35
05:00	5	31	3	0	4	0	0	1	0	0	0	0	0	44
06:00	2	93	21	0	4	0	0	2	0	0	0	0	0	122
07:00	8	125	47	2	8	2	0	5	0	1	0	0	0	198
08:00	4	179	50	1	14	0	2	4	0	0	0	0	0	254
09:00	0	169	42	0	7	2	0	2	1	1	0	0	0	224
10:00	1	194	45	0	4	1	0	1	0	1	0	0	0	247
11:00	3	210	52	0	8	1	1	5	3	1	0	0	0	284
12 PM	1	279	76	1	9	0	0	2	0	0	0	0	0	368
13:00	2	275	54	2	10	1	0	3	0	0	0	0	0	347
14:00	3	319	83	0	11	3	0	1	0	1	0	0	1	422
15:00	6	418	91	1	9	3	0	3	0	0	0	0	0	531
16:00	3	471	111	0	23	0	0	2	2	0	0	0	0	612
17:00	9	493	108	1	17	0	0	4	1	0	0	0	0	633
18:00	8	429	95	0	10	1	0	3	1	0	0	0	0	547
19:00	3	298	57	0	13	0	1	1	0	0	0	0	0	373
20:00	5	271	62	0	8	0	0	0	0	0	0	0	0	346
21:00	2	238	28	0	3	0	0	1	1	0	0	0	0	273
22:00	1	136	12	0	1	0	0	1	0	0	0	0	0	151
23:00	1	98	5	0	0	0	0	0	0	0	0	0	0	104
Day Total	70	4885	1064	8	169	14	4	41	10	5	0	0	1	6271
Percent	1.1%	77.9%	17.0%	0.1%	2.7%	0.2%	0.1%	0.7%	0.2%	0.1%	0.0%	0.0%	0.0%	
AM Peak	07:00	11:00	11:00	07:00	08:00	07:00	08:00	07:00	11:00	07:00				11:00
Vol.	8	210	52	2	14	2	2	5	3	1				284
PM Peak	17:00	17:00	16:00	13:00	16:00	14:00	19:00	17:00	16:00	14:00			14:00	17:00
Vol.	9	493	111	2	23	3	1	4	2	1			1	633

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Date Start: 11-Jul-23
Date End: 13-Jul-23
NW LACENTER RD S.O NW TIMMEN RD

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/13/23	0	37	4	0	0	0	0	0	0	0	0	0	0	41
01:00	0	29	3	0	0	0	0	0	0	0	0	0	0	32
02:00	1	17	7	0	1	0	0	0	0	0	0	0	0	26
03:00	0	25	2	0	0	0	0	0	0	0	0	0	0	27
04:00	1	23	3	0	1	0	0	0	0	0	0	0	0	28
05:00	1	43	10	0	0	0	0	2	0	0	0	0	0	56
06:00	3	85	17	2	3	2	0	1	0	0	0	0	0	113
07:00	6	111	36	1	5	3	1	0	2	1	0	0	0	166
08:00	1	171	65	2	9	1	0	1	2	0	0	0	0	252
09:00	2	161	45	0	14	1	0	0	1	0	0	0	0	224
10:00	2	229	60	0	6	0	1	5	1	0	0	0	0	304
11:00	5	230	63	0	14	3	0	2	0	1	0	0	0	318
12 PM	3	251	63	0	15	3	2	1	1	0	0	0	1	340
13:00	6	289	67	0	11	1	2	6	1	0	0	0	0	383
14:00	1	321	60	0	11	2	1	0	1	0	0	0	0	397
15:00	2	344	106	0	12	0	1	0	0	0	0	0	0	465
16:00	4	460	113	0	15	1	1	3	1	0	0	0	0	598
17:00	4	532	133	0	22	1	0	1	0	1	0	0	0	694
18:00	3	369	71	0	10	1	0	3	0	0	0	0	0	457
19:00	4	269	54	0	5	1	0	1	0	0	0	0	0	334
20:00	3	209	42	0	4	0	0	1	0	0	0	0	0	259
21:00	0	164	17	0	6	0	0	1	0	0	0	0	0	188
22:00	0	111	20	0	0	0	0	1	0	0	0	0	0	132
23:00	0	83	7	0	0	0	0	0	0	0	0	0	0	90
Day Total	52	4563	1068	5	164	20	9	29	10	3	0	0	1	5924
Percent	0.9%	77.0%	18.0%	0.1%	2.8%	0.3%	0.2%	0.5%	0.2%	0.1%	0.0%	0.0%	0.0%	
AM Peak	07:00	11:00	08:00	06:00	09:00	07:00	07:00	10:00	07:00	07:00				11:00
Vol.	6	230	65	2	14	3	1	5	2	1				318
PM Peak	13:00	17:00	17:00		17:00	12:00	12:00	13:00	12:00	17:00			12:00	17:00
Vol.	6	532	133		22	3	2	6	1	1			1	694
Grand Total	186	14325	3192	24	516	53	18	103	25	10	0	0	5	18457
Percent	1.0%	77.6%	17.3%	0.1%	2.8%	0.3%	0.1%	0.6%	0.1%	0.1%	0.0%	0.0%	0.0%	

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Date Start: 11-Jul-23
Date End: 13-Jul-23
NW LACENTER RD S.O NW TIMMEN RD

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/11/23	0	43	5	0	0	2	0	0	0	0	0	0	0	50
01:00	2	31	5	0	1	1	0	1	1	0	0	0	0	42
02:00	0	37	8	0	1	0	0	0	2	0	0	0	0	48
03:00	0	51	10	0	0	1	0	0	0	0	0	0	0	62
04:00	1	84	32	0	5	1	0	2	2	0	0	0	0	127
05:00	0	208	79	0	10	0	0	2	0	0	0	0	0	299
06:00	3	315	100	0	32	2	1	1	0	0	0	0	0	454
07:00	2	462	101	1	17	1	0	2	0	0	0	0	0	586
08:00	0	354	78	1	11	4	1	2	0	0	0	0	0	451
09:00	2	302	66	0	21	1	1	2	0	0	0	0	0	395
10:00	5	313	65	3	15	3	2	1	0	0	0	0	0	407
11:00	1	310	51	0	16	1	0	3	2	0	0	0	0	384
12 PM	4	262	54	0	15	4	2	2	1	0	0	0	0	344
13:00	2	261	58	1	11	4	0	4	0	0	0	0	2	343
14:00	4	268	60	1	14	2	1	2	0	0	0	0	0	352
15:00	2	260	54	0	7	3	1	2	1	0	0	0	0	330
16:00	4	327	51	0	9	1	0	1	1	0	0	0	0	394
17:00	3	283	68	2	10	0	0	4	0	0	0	0	0	370
18:00	3	239	40	0	9	2	0	2	0	0	0	0	0	295
19:00	4	170	31	0	3	3	1	2	0	0	0	0	0	214
20:00	3	178	21	0	5	2	1	0	1	0	0	0	0	211
21:00	2	104	15	0	1	2	0	0	1	0	0	0	0	125
22:00	0	92	12	0	1	0	0	0	2	0	0	0	0	107
23:00	0	63	6	0	3	1	0	0	0	0	0	0	0	73
Day Total	47	5017	1070	9	217	41	11	35	14	0	0	0	2	6463
Percent	0.7%	77.6%	16.6%	0.1%	3.4%	0.6%	0.2%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	07:00	07:00	10:00	06:00	08:00	10:00	11:00	02:00					07:00
Vol.	5	462	101	3	32	4	2	3	2					586
PM Peak	12:00	16:00	17:00	17:00	12:00	12:00	12:00	13:00	22:00				13:00	16:00
Vol.	4	327	68	2	15	4	2	4	2				2	394

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Date Start: 11-Jul-23
Date End: 13-Jul-23
NW LACENTER RD S.O NW TIMMEN RD

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/12/23	1	45	4	0	0	1	0	0	2	0	0	0	0	53
01:00	3	46	1	0	0	5	0	0	0	0	0	0	0	55
02:00	2	38	9	0	2	2	0	0	0	0	0	0	0	53
03:00	0	43	4	0	0	0	0	1	0	0	0	0	0	48
04:00	1	86	28	0	6	1	0	1	0	0	0	0	0	123
05:00	1	204	79	0	16	1	0	4	0	0	0	0	0	305
06:00	2	345	109	0	28	2	0	3	1	0	0	0	0	490
07:00	0	421	97	0	24	1	2	4	0	0	0	0	0	549
08:00	1	355	75	1	9	2	1	2	2	0	0	0	0	448
09:00	3	322	52	0	12	4	0	3	0	0	0	0	0	396
10:00	1	312	67	2	14	7	0	4	2	0	0	0	1	410
11:00	0	274	57	0	8	6	2	2	3	0	0	0	0	352
12 PM	1	260	48	2	5	4	1	4	1	1	0	0	0	327
13:00	3	291	66	3	8	4	0	3	2	0	0	0	0	380
14:00	3	288	53	1	9	2	5	3	0	0	0	0	0	364
15:00	1	291	50	2	12	4	1	3	2	0	0	0	0	366
16:00	3	263	57	0	12	1	1	1	0	0	0	0	0	338
17:00	3	266	61	0	7	1	0	2	1	0	0	0	0	341
18:00	1	205	30	0	9	0	0	0	0	0	0	0	0	245
19:00	5	183	38	0	5	3	0	2	0	0	0	0	0	236
20:00	1	157	17	0	4	0	0	0	0	0	0	0	0	179
21:00	0	116	16	0	1	0	0	0	0	0	0	0	0	133
22:00	2	88	11	0	1	1	0	2	0	0	0	0	0	105
23:00	1	43	8	0	2	0	0	0	1	0	0	0	0	55
Day Total	39	4942	1037	11	194	52	13	44	17	1	0	0	1	6351
Percent	0.6%	77.8%	16.3%	0.2%	3.1%	0.8%	0.2%	0.7%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	01:00	07:00	06:00	10:00	06:00	10:00	07:00	05:00	11:00				10:00	07:00
Vol.	3	421	109	2	28	7	2	4	3				1	549
PM Peak	19:00	13:00	13:00	13:00	15:00	12:00	14:00	12:00	13:00	12:00				13:00
Vol.	5	291	66	3	12	4	5	4	2	1				380

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Date Start: 11-Jul-23
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NW LACENTER RD S.O NW TIMMEN RD

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/13/23	1	44	1	0	2	1	0	0	1	0	0	0	0	50
01:00	3	35	3	0	0	2	0	0	1	0	0	0	0	44
02:00	0	37	4	0	0	0	0	0	0	0	0	0	0	41
03:00	2	43	15	0	3	1	0	1	0	0	0	0	0	65
04:00	0	80	31	0	5	1	0	1	0	0	0	0	0	118
05:00	3	215	71	0	19	4	0	1	1	0	0	0	0	314
06:00	2	319	113	2	21	3	0	6	1	0	0	0	0	467
07:00	1	457	100	1	14	1	0	2	0	0	0	0	0	576
08:00	1	379	74	1	13	4	1	3	1	0	0	0	0	477
09:00	2	321	70	1	16	1	0	4	1	0	0	0	1	417
10:00	2	295	69	0	10	2	1	2	0	1	0	0	1	383
11:00	0	295	43	0	9	2	2	2	1	0	0	0	0	354
12 PM	1	255	41	0	12	1	0	2	1	0	0	0	0	313
13:00	3	271	54	1	11	2	0	1	1	0	0	0	0	344
14:00	3	257	52	0	6	0	0	1	0	0	0	0	0	319
15:00	1	262	48	0	9	1	0	2	0	0	0	0	0	323
16:00	0	263	58	0	15	1	3	2	0	0	0	0	0	342
17:00	3	268	55	2	9	1	0	1	0	0	0	0	0	339
18:00	2	215	38	1	7	3	1	1	0	0	0	0	0	268
19:00	4	144	20	0	3	1	1	2	0	0	0	0	0	175
20:00	1	124	22	0	0	1	0	2	0	0	0	0	0	150
21:00	1	98	12	1	2	0	0	0	0	0	0	0	0	114
22:00	1	69	15	0	2	0	0	0	0	0	0	0	0	87
23:00	1	61	6	0	0	2	0	0	0	0	0	0	0	70
Day Total	38	4807	1015	10	188	35	9	36	9	1	0	0	2	6150
Percent	0.6%	78.2%	16.5%	0.2%	3.1%	0.6%	0.1%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	01:00	07:00	06:00	06:00	06:00	05:00	11:00	06:00	00:00	10:00			09:00	07:00
Vol.	3	457	113	2	21	4	2	6	1	1			1	576
PM Peak	19:00	13:00	16:00	17:00	16:00	18:00	16:00	12:00	12:00					13:00
Vol.	4	271	58	2	15	3	3	2	1					344
Grand Total	124	14766	3122	30	599	128	33	115	40	2	0	0	5	18964
Percent	0.7%	77.9%	16.5%	0.2%	3.2%	0.7%	0.2%	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	

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Date Start: 11-Jul-23
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NW LACENTER RD S.O NW TIMMEN RD

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
07/11/23	0	0	0	2	6	13	13	9	3	1	0	0	0	0	47	36-45	26
01:00	0	0	0	1	5	8	12	3	2	1	0	0	0	0	32	36-45	20
02:00	0	0	0	0	1	7	8	0	0	0	0	0	0	0	16	36-45	15
03:00	0	0	0	0	0	5	7	5	1	0	1	0	0	0	19	36-45	12
04:00	0	0	0	3	4	12	11	8	0	0	0	1	0	0	39	36-45	23
05:00	0	0	0	0	0	8	25	12	3	0	0	0	0	0	48	41-50	37
06:00	7	0	0	1	4	31	59	26	2	1	0	0	0	1	132	36-45	90
07:00	13	0	0	0	11	49	82	28	4	0	0	0	0	0	187	36-45	131
08:00	11	0	0	2	27	79	112	24	0	1	0	0	0	1	257	36-45	191
09:00	2	0	0	1	19	82	122	30	4	0	0	0	0	0	260	36-45	204
10:00	14	0	2	6	30	78	95	27	3	1	0	2	0	0	258	36-45	173
11:00	5	1	2	5	35	116	102	19	2	0	0	0	0	1	288	36-45	218
12 PM	8	0	1	3	17	97	191	62	3	1	0	0	0	0	383	36-45	288
13:00	4	0	2	2	19	91	198	57	3	0	1	0	0	0	377	36-45	289
14:00	4	0	5	0	15	95	213	89	8	0	0	0	0	0	429	36-45	308
15:00	1	0	0	1	11	80	284	119	3	0	0	0	1	1	501	41-50	403
16:00	2	0	0	0	17	134	352	134	6	0	0	0	0	0	645	36-45	486
17:00	4	0	0	5	18	122	334	153	13	1	0	0	0	0	650	41-50	487
18:00	1	0	0	0	13	100	273	122	11	1	0	0	0	0	521	41-50	395
19:00	0	0	0	1	14	71	187	93	12	2	0	0	0	0	380	41-50	280
20:00	2	0	0	0	18	87	128	62	4	1	0	0	0	0	302	36-45	215
21:00	0	0	0	0	31	67	119	29	4	0	1	0	0	0	251	36-45	186
22:00	0	0	0	1	12	41	65	24	2	1	0	0	0	0	146	36-45	106
23:00	0	0	1	1	2	25	46	14	2	3	0	0	0	0	94	36-45	71
Total	78	1	13	35	329	1498	3038	1149	95	15	3	3	1	4	6262		
Percent	1.2%	0.0%	0.2%	0.6%	5.3%	23.9%	48.5%	18.3%	1.5%	0.2%	0.0%	0.0%	0.0%	0.1%			
AM Peak	10:00	11:00	10:00	10:00	11:00	11:00	09:00	09:00	07:00	00:00	03:00	10:00		06:00		11:00	
Vol.	14	1	2	6	35	116	122	30	4	1	1	2		1		288	
PM Peak	12:00		14:00	17:00	21:00	16:00	16:00	17:00	17:00	23:00	13:00		15:00	15:00		17:00	
Vol.	8		5	5	31	134	352	153	13	3	1		1	1		650	

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Date Start: 11-Jul-23
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NW LACENTER RD S.O NW TIMMEN RD

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
07/12/23	1	0	0	1	5	23	20	10	1	0	0	0	0	0	61	36-45	43
01:00	0	0	0	0	1	9	13	6	4	1	0	0	0	0	34	36-45	22
02:00	1	0	0	1	1	10	11	5	3	0	0	0	0	1	33	36-45	21
03:00	0	0	0	0	6	5	12	4	1	0	0	0	0	0	28	36-45	17
04:00	2	0	0	2	3	6	15	6	1	0	0	0	0	0	35	36-45	21
05:00	2	0	1	0	1	13	18	7	2	0	0	0	0	0	44	36-45	31
06:00	4	0	0	0	5	34	49	26	2	1	1	0	0	0	122	36-45	83
07:00	12	0	1	4	16	58	93	12	2	0	0	0	0	0	198	36-45	151
08:00	11	5	0	8	15	72	116	23	4	0	0	0	0	0	254	36-45	188
09:00	3	1	1	8	13	75	97	25	1	0	0	0	0	0	224	36-45	172
10:00	1	0	0	1	21	61	115	48	0	0	0	0	0	0	247	36-45	176
11:00	2	0	0	4	21	81	129	43	3	0	0	1	0	0	284	36-45	210
12 PM	0	0	0	5	15	88	190	64	6	0	0	0	0	0	368	36-45	278
13:00	0	0	1	1	20	88	164	70	3	0	0	0	0	0	347	36-45	252
14:00	1	0	0	5	10	97	230	75	4	0	0	0	0	0	422	36-45	327
15:00	4	0	1	1	10	146	268	95	5	1	0	0	0	0	531	36-45	414
16:00	2	0	0	1	4	132	303	157	12	0	1	0	0	0	612	41-50	460
17:00	3	0	0	0	16	149	323	125	15	1	0	0	1	0	633	36-45	472
18:00	4	0	0	0	8	90	311	123	11	0	0	0	0	0	547	41-50	434
19:00	0	0	5	0	22	106	160	67	10	1	0	0	1	1	373	36-45	266
20:00	4	0	2	7	14	93	162	56	8	0	0	0	0	0	346	36-45	255
21:00	0	0	0	1	23	100	120	27	2	0	0	0	0	0	273	36-45	220
22:00	0	0	0	2	7	46	66	22	4	1	2	1	0	0	151	36-45	112
23:00	1	0	0	2	8	37	38	14	4	0	0	0	0	0	104	36-45	75
Total	58	6	12	54	265	1619	3023	1110	108	6	4	2	2	2	6271		
Percent	0.9%	0.1%	0.2%	0.9%	4.2%	25.8%	48.2%	17.7%	1.7%	0.1%	0.1%	0.0%	0.0%	0.0%			
AM Peak	07:00	08:00	05:00	08:00	10:00	11:00	11:00	10:00	01:00	01:00	06:00	11:00		02:00	11:00		
Vol.	12	5	1	8	21	81	129	48	4	1	1	1		1	284		
PM Peak	15:00		19:00	20:00	21:00	17:00	17:00	16:00	17:00	15:00	22:00	22:00	17:00	19:00	17:00		
Vol.	4		5	7	23	149	323	157	15	1	2	1	1	1	633		

Date End: 13-Jul-23

NB

15th Percentile :	36 MPH
50th Percentile :	41 MPH
85th Percentile :	46 MPH
95th Percentile :	49 MPH

Stats	10 MPH Pace Speed :	36-45 MPH
	Number in Pace :	13498
	Percent in Pace :	73.1%
	Number of Vehicles > 50 MPH :	371
	Percent of Vehicles > 50 MPH :	2.0%
	Mean Speed(Average) :	42 MPH

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Date Start: 11-Jul-23
Date End: 13-Jul-23
NW LACENTER RD S.O NW TIMMEN RD

SB

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
														999			
07/11/23	1	0	0	1	3	12	17	13	2	1	0	0	0	0	50	41-50	30
01:00	1	0	3	2	6	12	11	3	4	0	0	0	0	0	42	36-45	23
02:00	1	0	0	0	5	12	18	10	2	0	0	0	0	0	48	36-45	30
03:00	7	0	0	1	1	21	16	14	1	0	1	0	0	0	62	36-45	37
04:00	5	0	0	2	13	27	32	37	9	2	0	0	0	0	127	41-50	69
05:00	10	0	0	0	4	24	134	104	20	1	0	0	2	0	299	41-50	238
06:00	16	0	1	3	4	53	210	144	20	3	0	0	0	0	454	41-50	354
07:00	14	8	13	13	10	99	282	133	14	0	0	0	0	0	586	41-50	415
08:00	15	1	5	12	34	104	199	69	9	2	0	1	0	0	451	36-45	303
09:00	9	3	4	16	13	83	189	71	5	0	1	0	0	1	395	36-45	272
10:00	12	0	6	24	47	132	140	38	6	2	0	0	0	0	407	36-45	272
11:00	10	1	2	7	57	130	137	36	3	0	0	0	0	1	384	36-45	267
12 PM	12	0	1	7	14	111	126	60	10	1	2	0	0	0	344	36-45	237
13:00	4	0	2	10	18	81	164	57	6	0	0	0	0	1	343	36-45	245
14:00	9	1	3	7	19	72	166	64	5	3	1	0	1	1	352	36-45	238
15:00	10	0	4	5	8	70	160	65	6	1	0	0	0	1	330	36-45	230
16:00	14	0	0	1	14	88	194	68	12	2	0	0	0	1	394	36-45	282
17:00	6	1	0	6	18	74	168	85	11	1	0	0	0	0	370	41-50	253
18:00	5	0	2	3	3	55	139	80	4	2	1	0	0	1	295	41-50	219
19:00	6	4	1	3	5	47	95	45	5	1	0	0	0	2	214	36-45	142
20:00	4	0	3	6	16	35	102	39	3	1	1	0	0	1	211	41-50	141
21:00	0	3	0	7	8	39	44	21	3	0	0	0	0	0	125	36-45	83
22:00	0	0	0	3	7	26	45	22	4	0	0	0	0	0	107	36-45	71
23:00	0	0	0	6	6	24	22	10	4	1	0	0	0	0	73	36-45	46
Total	171	22	50	145	333	1431	2810	1288	168	24	7	1	3	10	6463		
Percent	2.6%	0.3%	0.8%	2.2%	5.2%	22.1%	43.5%	19.9%	2.6%	0.4%	0.1%	0.0%	0.0%	0.2%			
AM Peak	06:00	07:00	07:00	10:00	11:00	10:00	07:00	06:00	05:00	06:00	03:00	08:00	05:00	09:00	07:00		
Vol.	16	8	13	24	57	132	282	144	20	3	1	1	2	1	586		
PM Peak	16:00	19:00	15:00	13:00	14:00	12:00	16:00	17:00	16:00	14:00	12:00		14:00	19:00	16:00		
Vol.	14	4	4	10	19	111	194	85	12	3	2		1	2	394		

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Date Start: 11-Jul-23
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NW LACENTER RD S.O NW TIMMEN RD

SB

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
														999			
07/12/23	1	0	2	1	3	12	22	7	5	0	0	0	0	0	53	36-45	34
01:00	0	0	5	5	5	12	17	8	3	0	0	0	0	0	55	36-45	29
02:00	2	0	2	3	2	11	21	8	4	0	0	0	0	0	53	36-45	32
03:00	3	0	0	0	3	10	20	12	0	0	0	0	0	0	48	40-49	32
04:00	7	4	2	1	4	19	48	30	6	1	0	1	0	0	123	41-50	78
05:00	1	0	3	3	6	44	161	74	11	2	0	0	0	0	305	41-50	235
06:00	15	0	2	5	4	49	275	129	9	1	0	0	0	1	490	41-50	404
07:00	17	2	1	6	23	96	284	103	15	0	1	0	1	0	549	41-50	387
08:00	16	0	1	3	19	78	228	89	10	1	2	1	0	0	448	41-50	317
09:00	6	0	2	4	24	82	169	95	14	0	0	0	0	0	396	41-50	264
10:00	7	0	2	8	25	113	171	70	13	0	0	0	0	1	410	36-45	284
11:00	2	0	1	3	25	81	171	63	5	0	0	0	0	1	352	36-45	252
12 PM	7	0	0	10	23	74	150	55	7	1	0	0	0	0	327	36-45	224
13:00	11	1	1	6	29	89	161	65	11	2	1	2	0	1	380	36-45	250
14:00	7	0	14	9	27	92	149	48	10	7	0	0	0	1	364	36-45	241
15:00	10	0	1	6	19	86	160	76	6	2	0	0	0	0	366	36-45	246
16:00	15	0	1	0	14	74	149	66	13	3	0	0	0	3	338	36-45	223
17:00	11	0	2	3	9	72	167	64	5	3	1	0	0	4	341	36-45	239
18:00	9	0	0	0	12	56	105	59	3	0	0	0	0	1	245	41-50	164
19:00	7	2	5	2	14	63	99	38	5	1	0	0	0	0	236	36-45	162
20:00	4	0	1	1	7	58	71	36	1	0	0	0	0	0	179	36-45	129
21:00	0	0	0	2	6	35	65	20	3	1	1	0	0	0	133	36-45	100
22:00	0	0	0	0	6	38	35	20	4	2	0	0	0	0	105	36-45	73
23:00	0	0	3	3	5	8	27	7	1	1	0	0	0	0	55	36-45	35
Total	158	9	51	84	314	1352	2925	1242	164	28	6	4	1	13	6351		
Percent	2.5%	0.1%	0.8%	1.3%	4.9%	21.3%	46.1%	19.6%	2.6%	0.4%	0.1%	0.1%	0.0%	0.2%			
AM Peak	07:00	04:00	01:00	10:00	10:00	10:00	07:00	06:00	07:00	05:00	08:00	04:00	07:00	06:00	07:00		
Vol.	17	4	5	8	25	113	284	129	15	2	2	1	1	1	549		
PM Peak	16:00	19:00	14:00	12:00	13:00	14:00	17:00	15:00	16:00	14:00	13:00	13:00		17:00	13:00		
Vol.	15	2	14	10	29	92	167	76	13	7	1	2		4	380		

Date Start: 11-Jul-23
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NW LACENTER RD S.O NW TIMMEN RD

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
07/13/23	0	0	2	4	6	15	15	8	0	0	0	0	0	0	50	36-45	30
01:00	2	1	2	0	5	10	11	10	1	1	1	0	0	0	44	36-45	21
02:00	0	0	0	2	5	13	16	4	1	0	0	0	0	0	41	36-45	29
03:00	0	0	1	3	3	17	21	13	5	2	0	0	0	0	65	36-45	38
04:00	2	0	0	0	1	17	49	43	6	0	0	0	0	0	118	41-50	92
05:00	4	0	3	4	8	34	117	120	18	5	0	1	0	0	314	41-50	237
06:00	14	0	8	6	10	21	183	184	34	4	2	1	0	0	467	41-50	367
07:00	17	1	3	5	24	97	252	154	20	3	0	0	0	0	576	41-50	406
08:00	10	0	2	9	14	84	228	118	7	5	0	0	0	0	477	41-50	346
09:00	6	1	2	8	18	72	205	96	8	1	0	0	0	0	417	41-50	301
10:00	6	0	0	11	21	72	177	80	12	2	2	0	0	0	383	41-50	257
11:00	9	0	0	10	20	73	161	69	10	2	0	0	0	0	354	36-45	234
12 PM	9	1	1	4	16	83	132	52	12	3	0	0	0	0	313	36-45	215
13:00	7	0	1	5	8	63	164	84	6	1	0	1	0	4	344	41-50	248
14:00	12	0	4	3	7	64	135	79	10	3	1	1	0	0	319	41-50	214
15:00	13	0	1	0	4	53	152	84	14	0	0	1	0	1	323	41-50	236
16:00	14	1	0	10	17	58	149	75	13	2	1	0	0	2	342	41-50	224
17:00	36	3	1	4	7	53	158	60	12	1	1	1	0	2	339	41-50	218
18:00	14	0	3	2	3	61	107	64	11	3	0	0	0	0	268	41-50	171
19:00	3	1	1	3	7	39	81	32	7	1	0	0	0	0	175	36-45	120
20:00	2	0	3	1	5	37	66	32	4	0	0	0	0	0	150	36-45	103
21:00	0	0	0	1	7	33	49	23	1	0	0	0	0	0	114	36-45	82
22:00	1	0	0	1	11	22	37	14	1	0	0	0	0	0	87	36-45	59
23:00	2	0	1	3	10	20	23	9	2	0	0	0	0	0	70	36-45	43
Total	183	9	39	99	237	1111	2688	1507	215	39	8	6	0	9	6150		
Percent	3.0%	0.1%	0.6%	1.6%	3.9%	18.1%	43.7%	24.5%	3.5%	0.6%	0.1%	0.1%	0.0%	0.1%			
AM Peak	07:00	01:00	06:00	10:00	07:00	07:00	07:00	06:00	06:00	05:00	06:00	05:00				07:00	
Vol.	17	1	8	11	24	97	252	184	34	5	2	1			576		
PM Peak	17:00	17:00	14:00	16:00	16:00	12:00	13:00	13:00	15:00	12:00	14:00	13:00		13:00	13:00		
Vol.	36	3	4	10	17	83	164	84	14	3	1	1		4	344		
Total	512	40	140	328	884	3894	8423	4037	547	91	21	11	4	32	18964		
Percent	2.7%	0.2%	0.7%	1.7%	4.7%	20.5%	44.4%	21.3%	2.9%	0.5%	0.1%	0.1%	0.0%	0.2%			

15th Percentile : 36 MPH
50th Percentile : 42 MPH
85th Percentile : 47 MPH
95th Percentile : 49 MPH

Stats
10 MPH Pace Speed : 41-50 MPH
Number in Pace : 12460
Percent in Pace : 65.7%
Number of Vehicles > 50 MPH : 706
Percent of Vehicles > 50 MPH : 3.7%
Mean Speed(Average) : 42 MPH

APPENDIX C: EXISTING COUNTS ROUNDING, BALANCING, SYSTEM PEAK

Int #	Intersection	Time	Peak Hours	System Peak
1	NW La Center Road / NW Timmen Road	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM
2	NW La Center Road / W 3rd Street	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM
3	NW La Center Road / NW Pacific Highway / W 4th Street	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM
4	NW Pacific Highway / W 5th Street	PM	04:00 PM - 05:00 PM	04:15 PM - 05:15 PM
5	NW Pacific Highway / W 10th Street	PM	04:00 PM - 05:00 PM	04:15 PM - 05:15 PM
6	NW Pacific Highway / W D Avenue	PM	04:00 PM - 05:00 PM	04:15 PM - 05:15 PM
7	NW Pacific Highway / NW Larsen Drive / NW 14th Street	PM	04:00 PM - 05:00 PM	04:15 PM - 05:15 PM
8	NW Pacific Highway / NW 15th Street	PM	04:00 PM - 05:00 PM	04:15 PM - 05:15 PM
9	W 4th Street / Aspen Avenue / E 4th Street	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM
10	E 4th Street / E Cedar Avenue	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM
11	E 4th Street / NE Lockwood Creek Road / NE Highland Avenue	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM
12	NE Lockwood Creek Road / NE John Storm Avenue	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM
13	NE Lockwood Creek Road / E Spruce Avenue	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM
14	Aspen Avenue / E 5th Street	PM	04:00 PM - 05:00 PM	04:15 PM - 05:15 PM
15	Aspen Avenue / W 5th Street	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM
16	NW Timmen Road / NW Spencer Road	PM	04:15 PM - 05:15 PM	04:15 PM - 05:15 PM

Intersection Peaks	Frequency
04:15 PM - 05:15 PM	10
04:00 PM - 05:00 PM	6

Count volumes adjusted to match System Peak

Count volumes adjusted to match System Peak

Count volumes adjusted to match System Peak

Count volumes adjusted to match System Peak

Count volumes adjusted to match System Peak

Count volumes adjusted to match System Peak

2023 Count Volumes															
Int #	Intersection	Time	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight	NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	
1	NW La Center Road / NW Timmen Road	PM	0	0	0	29	0	120	0	630	21	59	373	0	
2	NW La Center Road / W 3rd Street	PM	7	0	12	1	0	5	9	754	3	3	426	4	
3	NW La Center Road / NW Pacific Highway / W 4th Street	PM	0	0	0	294	0	33	0	214	550	32	137	0	
4	NW Pacific Highway / W 5th Street	PM	1	0	4	16	0	8	7	228	12	8	150	0	Count volumes adjusted to match System Peak
5	NW Pacific Highway / W 10th Street	PM	0	0	0	18	0	13	0	198	16	14	119	0	Count volumes adjusted to match System Peak
6	NW Pacific Highway / W D Avenue	PM	0	0	0	13	0	1	0	190	22	0	120	0	Count volumes adjusted to match System Peak
7	NW Pacific Highway / NW Larson Drive / NW 14th Street	PM	1	0	4	36	0	1	8	128	50	1	73	2	Count volumes adjusted to match System Peak
8	NW Pacific Highway / NW 15th Street	PM	7	0	33	0	0	61	69	0	0	0	43	9	Count volumes adjusted to match System Peak
9	W 4th Street / Aspen Avenue / E 4th Street	PM	168	415	0	0	238	19	0	0	0	14	0	72	
10	E 4th Street / E Cedar Avenue	PM	33	396	0	0	231	7	0	0	0	25	0	25	
11	E 4th Street / NE Lockwood Creek Road / NE Highland Avenue	PM	122	289	1	1	181	3	5	1	2	2	0	65	
12	NE Lockwood Creek Road / NE John Storm Avenue	PM	0	217	69	0	2	0	48	0	19	15	137	0	
13	NE Lockwood Creek Road / E Spruce Avenue	PM	21	201	0	0	125	2	0	0	0	1	0	23	
14	Aspen Avenue / E 5th Street	PM	0	0	0	0	19	0	11	0	161	21	12	78	Count volumes adjusted to match System Peak
15	Aspen Avenue / W 5th Street	PM	5	0	2	0	0	0	7	177	0	0	83	14	
16	NW Timmen Road / NW Spencer Road	PM	55	0	1	0	0	0	1	102	0	0	52	19	
17	NW Pacific Hwy / NW 11th Ct/NW 9th Ave	PM	1	0	0	0	0	1	2	187	2	1	117	0	Count volumes estimated based on int. #6 & #7, and ITE Trip Generation Manual, 11th ed.
18	NW Pacific Hwy / W Golden Eagle Ave	PM	1	0	0	1	0	9	16	186	2	2	116	1	Count volumes estimated based on int. #6 & #7, and ITE Trip Generation Manual, 11th ed.

2023 Rounded Count Volumes															
Int #	Intersection	Time	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight	NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	
1	NW La Center Road / NW Timmen Road	PM	0	0	0	30	0	120	0	630	20	60	375	0	
2	NW La Center Road / W 3rd Street	PM	5	0	10	0	0	5	10	755	5	5	425	5	
3	NW La Center Road / NW Pacific Highway / W 4th Street	PM	0	0	0	295	0	35	0	215	550	30	135	0	
4	NW Pacific Highway / W 5th Street	PM	0	0	5	15	0	10	5	230	10	10	150	0	
5	NW Pacific Highway / W 10th Street	PM	0	0	0	20	0	15	0	200	15	15	120	0	
6	NW Pacific Highway / W D Avenue	PM	0	0	0	15	0	0	0	190	20	0	120	0	
7	NW Pacific Highway / NW Larson Drive / NW 14th Street	PM	0	0	5	35	0	0	10	130	50	0	75	0	
8	NW Pacific Highway / NW 15th Street	PM	5	0	35	0	0	0	60	70	0	0	45	10	
9	W 4th Street / Aspen Avenue / E 4th Street	PM	170	415	0	0	240	20	0	0	0	15	0	70	
10	E 4th Street / E Cedar Avenue	PM	35	395	0	0	230	5	0	0	0	25	0	25	
11	E 4th Street / NE Lockwood Creek Road / NE Highland Avenue	PM	120	290	0	0	180	5	5	0	0	0	0	65	
12	NE Lockwood Creek Road / NE John Storm Avenue	PM	0	215	70	0	0	0	50	0	20	15	135	0	
13	NE Lockwood Creek Road / E Spruce Avenue	PM	20	200	0	0	125	0	0	0	0	0	0	25	
14	Aspen Avenue / E 5th Street	PM	0	0	0	20	0	10	0	160	20	10	80	0	
15	Aspen Avenue / W 5th Street	PM	5	0	0	0	0	5	175	0	0	0	85	15	
16	NW Timmen Road / NW Spencer Road	PM	55	0	0	0	0	0	0	100	0	0	50	20	
17	NW Pacific Hwy / NW 11th Ct/NW 9th Ave	PM	0	0	0	0	0	0	0	185	0	0	115	0	
18	NW Pacific Hwy / W Golden Eagle Ave	PM	0	0	0	0	0	10	15	185	0	0	115	0	

Note - for analysis purpose, all zero turning movement volumes have been added as 5 in Synchro/SIDRA model if the movement is permitted.

APPENDIX D: EXISTING CONDITIONS SYNCHRO AND SIDRA REPORTS






HCM 6th TWSC

1: NW La Center Rd & NW Timmen Rd

02/10/2025

Intersection

Int Delay, s/veh 2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	120	650	20	60	370
Future Vol, veh/h	30	120	650	20	60	370
Conflicting Peds, #/hr	1	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	0	0	2	2
Mvmt Flow	33	130	707	22	65	402

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1252	720	0
Stage 1	719	-	-
Stage 2	533	-	-
Critical Hdwy	6.44	6.24	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.336	-
Pot Cap-1 Maneuver	188	425	-
Stage 1	479	-	-
Stage 2	584	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	174	424	-
Mov Cap-2 Maneuver	174	-	-
Stage 1	479	-	-
Stage 2	540	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.8	0	1.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	174	424
HCM Lane V/C Ratio	-	-	0.187	0.308
HCM Control Delay (s)	-	-	30.4	17.2
HCM Lane LOS	-	-	D	C
HCM 95th %tile Q(veh)	-	-	0.7	1.3

HCM 6th TWSC
2: NW La Center Rd & W 3rd St

02/10/2025

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	5	5	10	0	5	5	10	755	5	5	420	5
Future Vol, veh/h	5	5	10	0	5	5	10	755	5	5	420	5
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	6	6	11	0	6	6	11	839	6	6	467	6

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1354	1351	472	-	1351	844	474	0	0	846	0	0
Stage 1	483	483	-	-	865	-	-	-	-	-	-	-
Stage 2	871	868	-	-	486	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	-	6.5	6.2	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	-	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	-	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	4	3.3	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	128	152	596	0	152	366	1093	-	-	795	-	-
Stage 1	569	556	-	0	374	-	-	-	-	-	-	-
Stage 2	349	372	-	0	554	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	120	148	595	-	148	365	1092	-	-	794	-	-
Mov Cap-2 Maneuver	120	148	-	-	148	-	-	-	-	-	-	-
Stage 1	558	551	-	-	367	-	-	-	-	-	-	-
Stage 2	332	365	-	-	549	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.5		23		0.1		0.1	
HCM LOS	C		C					

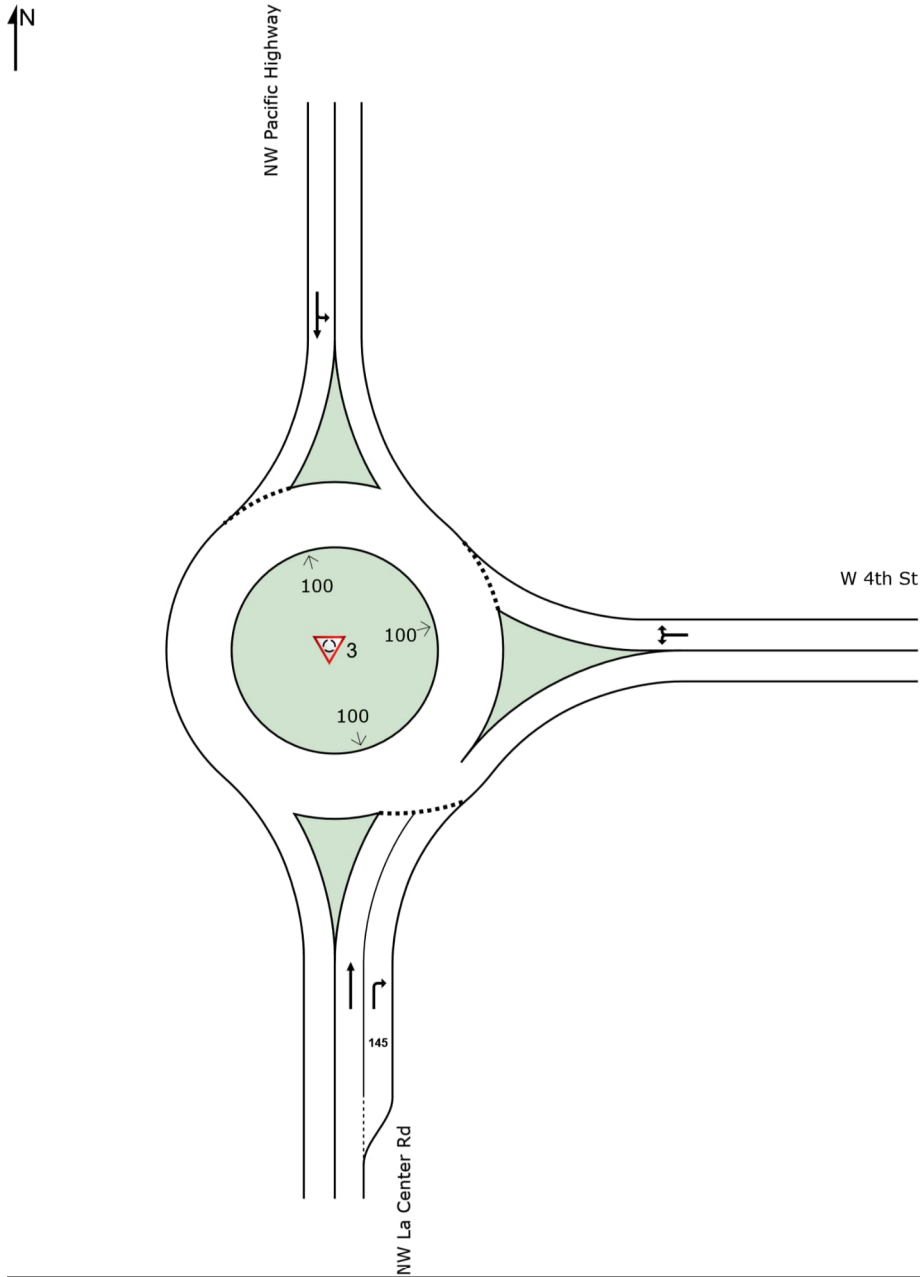
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1092	-	-	217 211	794	-	-
HCM Lane V/C Ratio	0.01	-	-	0.102 0.053	0.007	-	-
HCM Control Delay (s)	8.3	0	-	23.5 23	9.6	-	-
HCM Lane LOS	A	A	-	C C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3 0.2	0	-	-

SITE LAYOUT

 **Site: 3 [NW La Center Rd_W 4th St_Existing (Site Folder: General)]**

Existing PM Peak
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 Site: 3 [NW La Center Rd_W 4th St_Existing (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Existing PM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: NW La Center Rd															
8	T1	All MCs	244	1.0	244	1.0	0.203	2.0	LOS A	1.2	30.0	0.17	0.25	0.17	23.4
18	R2	All MCs	625	1.0	625	1.0	0.406	5.6	LOS A	3.1	78.7	0.19	0.57	0.19	20.5
Approach			869	1.0	869	1.0	0.406	4.6	LOS A	3.1	78.7	0.19	0.48	0.19	21.3
East: W 4th St															
1	L2	All MCs	335	2.0	335	2.0	0.346	7.4	LOS A	1.9	49.1	0.45	0.59	0.45	20.5
16	R2	All MCs	40	2.0	40	2.0	0.346	6.6	LOS A	1.9	49.1	0.45	0.59	0.45	16.2
Approach			375	2.0	375	2.0	0.346	7.3	LOS A	1.9	49.1	0.45	0.59	0.45	20.2
North: NW Pacific Highway															
7	L2	All MCs	34	2.0	34	2.0	0.193	7.9	LOS A	1.1	28.5	0.54	0.50	0.54	9.0
4	T1	All MCs	153	2.0	153	2.0	0.193	3.8	LOS A	1.1	28.5	0.54	0.50	0.54	21.7
Approach			188	2.0	188	2.0	0.193	4.5	LOS A	1.1	28.5	0.54	0.50	0.54	19.2
All Vehicles			1432	1.4	1432	1.4	0.406	5.3	LOS A	3.1	78.7	0.30	0.51	0.30	20.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: R:\USVAN100\Project2023\31000652_La Center\Planning\Task 5 - EIS and PAO\Draft EIS\Background Information\Transportation\02 Synchrono\SIDRA\La Center Rd Site 3 RBT Modified.sip9

HCM 6th TWSC
4: NW Pacific Hwy & W 5th St

02/10/2025

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	5	5	15	5	10	5	235	10	10	145	5
Future Vol, veh/h	5	5	5	15	5	10	5	235	10	10	145	5
Conflicting Peds, #/hr	1	0	1	1	0	0	1	0	1	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	6	6	6	19	6	13	6	294	13	13	181	6

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	534	531	186	531	528	303	188	0	0	308	0	0
Stage 1	211	211	-	314	314	-	-	-	-	-	-	-
Stage 2	323	320	-	217	214	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	460	457	861	462	459	741	1392	-	-	1258	-	-
Stage 1	796	731	-	701	660	-	-	-	-	-	-	-
Stage 2	693	656	-	790	729	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	441	448	859	447	450	740	1391	-	-	1257	-	-
Mov Cap-2 Maneuver	441	448	-	447	450	-	-	-	-	-	-	-
Stage 1	791	721	-	697	656	-	-	-	-	-	-	-
Stage 2	671	652	-	767	720	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12		12.5		0.2		0.5	
HCM LOS	B		B					





Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1391	-	-	530	516	1257	-
HCM Lane V/C Ratio	0.004	-	-	0.035	0.073	0.01	-
HCM Control Delay (s)	7.6	0	-	12	12.5	7.9	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-

HCM 6th TWSC
5: NW Pacific Hwy & W 10th St

02/10/2025

Intersection

Int Delay, s/veh 1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	15	215	15	15	120
Future Vol, veh/h	20	15	215	15	15	120
Conflicting Peds, #/hr	1	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	24	18	256	18	18	143

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	446	267	0	0	275	0
Stage 1	266	-	-	-	-	-
Stage 2	180	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	574	777	-	-	1294	-
Stage 1	783	-	-	-	-	-
Stage 2	856	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	564	776	-	-	1293	-
Mov Cap-2 Maneuver	564	-	-	-	-	-
Stage 1	782	-	-	-	-	-
Stage 2	842	-	-	-	-	-






Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 564 776 1293	-	-
HCM Lane V/C Ratio	-	- 0.042 0.023 0.014	-	-
HCM Control Delay (s)	-	- 11.7 9.7 7.8	0	
HCM Lane LOS	-	- B A A	A	A
HCM 95th %tile Q(veh)	-	- 0.1 0.1 0	-	-

HCM 6th TWSC
6: W D Ave & NW Pacific Hwy

02/10/2025

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	125	5	5	205	20	15	5	5	5	5	5
Future Vol, veh/h	5	125	5	5	205	20	15	5	5	5	5	5
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	6	144	6	6	236	23	17	6	6	6	6	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	260	0	0	151	0	0	427	432	149	427	424	250
Stage 1	-	-	-	-	-	-	160	160	-	261	261	-
Stage 2	-	-	-	-	-	-	267	272	-	166	163	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1310	-	-	1436	-	-	541	519	903	541	525	794
Stage 1	-	-	-	-	-	-	847	769	-	748	696	-
Stage 2	-	-	-	-	-	-	743	688	-	841	767	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1309	-	-	1435	-	-	527	513	901	528	519	792
Mov Cap-2 Maneuver	-	-	-	-	-	-	527	513	-	528	519	-
Stage 1	-	-	-	-	-	-	842	764	-	744	692	-
Stage 2	-	-	-	-	-	-	727	684	-	824	762	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			11.6			11.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	571	1309	-	-	1435	-	-	590				
HCM Lane V/C Ratio	0.05	0.004	-	-	0.004	-	-	0.029				
HCM Control Delay (s)	11.6	7.8	0	-	7.5	0	-	11.3				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1				





Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	5	5	35	5	5	10	155	50	5	90	5
Future Vol, veh/h	5	5	5	35	5	5	10	155	50	5	90	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	5	5	38	5	5	11	167	54	5	97	5
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	331	353	100	331	328	194	102	0	0	221	0	0
Stage 1	110	110	-	216	216	-	-	-	-	-	-	-
Stage 2	221	243	-	115	112	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	626	575	961	624	592	850	1496	-	-	1354	-	-
Stage 1	900	808	-	789	726	-	-	-	-	-	-	-
Stage 2	786	708	-	892	805	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	612	568	961	610	585	850	1496	-	-	1354	-	-
Mov Cap-2 Maneuver	612	568	-	610	585	-	-	-	-	-	-	-
Stage 1	893	805	-	783	720	-	-	-	-	-	-	-
Stage 2	769	702	-	878	802	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.5		11.2		0.3		0.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1496	-	-	676	627	1354	-	-				
HCM Lane V/C Ratio	0.007	-	-	0.024	0.077	0.004	-	-				
HCM Control Delay (s)	7.4	0	-	10.5	11.2	7.7	-	-				
HCM Lane LOS	A	A	-	B	B	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-				

HCM 6th TWSC
8: NW Pacific Hwy & W 15th St

02/10/2025

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	35	60	105	65	10
Future Vol, veh/h	5	35	60	105	65	10
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	6	40	68	119	74	11






Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	339	84	87	0	-	0
Stage 1	82	-	-	-	-	-
Stage 2	257	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	661	981	1509	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	791	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	629	977	1506	-	-	-
Mov Cap-2 Maneuver	629	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	789	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1506	-	914	-	-
HCM Lane V/C Ratio	0.045	-	0.05	-	-
HCM Control Delay (s)	7.5	-	9.1	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	170	410	260	20	20	70
Future Vol, veh/h	170	410	260	20	20	70
Conflicting Peds, #/hr	7	0	0	14	14	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	183	441	280	22	22	75

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	316	0	0 1126 312
Stage 1	-	-	- 305 -
Stage 2	-	-	- 821 -
Critical Hdwy	4.11	-	- 6.41 6.21
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.209	-	- 3.509 3.309
Pot Cap-1 Maneuver	1250	-	- 228 731
Stage 1	-	-	- 750 -
Stage 2	-	-	- 434 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1233	-	- 189 716
Mov Cap-2 Maneuver	-	-	- 189 -
Stage 1	-	-	- 631 -
Stage 2	-	-	- 428 -

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	14.1
HCM LOS			B




Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1233	-	-	-	189	716
HCM Lane V/C Ratio	0.148	-	-	-	0.114	0.105
HCM Control Delay (s)	8.4	-	-	-	26.5	10.6
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.4	0.4

HCM 6th TWSC
10: E 4th St & E Cedar Ave

02/10/2025

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	395	230	5	25	25
Future Vol, veh/h	35	395	230	5	25	25
Conflicting Peds, #/hr	12	0	0	9	9	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	37	420	245	5	27	27









Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	262	0	0 763 272
Stage 1	-	-	- 260 -
Stage 2	-	-	- 503 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1314	-	- 375 772
Stage 1	-	-	- 788 -
Stage 2	-	-	- 612 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1299	-	- 353 754
Mov Cap-2 Maneuver	-	-	- 353 -
Stage 1	-	-	- 750 -
Stage 2	-	-	- 605 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1299	-	-	-	481
HCM Lane V/C Ratio	0.029	-	-	-	0.111
HCM Control Delay (s)	7.9	0	-	-	13.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	120	290	5	5	180	5	5	5	5	5	5	65
Future Vol, veh/h	120	290	5	5	180	5	5	5	5	5	5	65
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	125	-	-	65	-	-	65	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	132	319	5	5	198	5	5	5	5	5	5	71

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	203	0	0	329	0	0	845	804	332	807	804	206
Stage 1	-	-	-	-	-	-	591	591	-	211	211	-
Stage 2	-	-	-	-	-	-	254	213	-	596	593	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1375	-	-	1236	-	-	285	319	714	302	319	840
Stage 1	-	-	-	-	-	-	497	498	-	796	731	-
Stage 2	-	-	-	-	-	-	755	730	-	494	497	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1375	-	-	1230	-	-	235	286	707	271	286	836
Mov Cap-2 Maneuver	-	-	-	-	-	-	235	286	-	271	286	-
Stage 1	-	-	-	-	-	-	447	448	-	720	728	-
Stage 2	-	-	-	-	-	-	679	727	-	436	447	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.3			0.2			16.3			11		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	235	407	1375	-	-	1230	-	-	271	735
HCM Lane V/C Ratio	0.023	0.027	0.096	-	-	0.004	-	-	0.02	0.105
HCM Control Delay (s)	20.7	14.1	7.9	-	-	7.9	-	-	18.6	10.5
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.1	0.3	-	-	0	-	-	0.1	0.3

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	215	70	15	135	5	50	5	20	5	5	5
Future Vol, veh/h	5	215	70	15	135	5	50	5	20	5	5	5
Conflicting Peds, #/hr	0	0	12	12	0	0	12	0	12	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	6	262	85	18	165	6	61	6	24	6	6	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	171	0	0	359	0	0	551	536	329	548	575	180
Stage 1	-	-	-	-	-	-	329	329	-	204	204	-
Stage 2	-	-	-	-	-	-	222	207	-	344	371	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1412	-	-	1205	-	-	448	454	717	450	431	868
Stage 1	-	-	-	-	-	-	688	650	-	803	737	-
Stage 2	-	-	-	-	-	-	785	734	-	676	623	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1412	-	-	1191	-	-	422	439	701	418	417	858
Mov Cap-2 Maneuver	-	-	-	-	-	-	422	439	-	418	417	-
Stage 1	-	-	-	-	-	-	677	640	-	799	724	-
Stage 2	-	-	-	-	-	-	751	722	-	636	613	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.8			14.4			12.4		
HCM LOS							B			B		




Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	473	1412	-	-	1191	-	-	504
HCM Lane V/C Ratio	0.193	0.004	-	-	0.015	-	-	0.036
HCM Control Delay (s)	14.4	7.6	0	-	8.1	0	-	12.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0.1

HCM 6th TWSC
13: NE Lockwood Creek Rd & E Spruce Ave

02/10/2025

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	200	125	5	5	25
Future Vol, veh/h	20	200	125	5	5	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	0	0
Mvmt Flow	11	222	139	6	6	28

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	145	0	386
Stage 1	-	-	142
Stage 2	-	-	244
Critical Hdwy	4.11	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.209	-	3.5
Pot Cap-1 Maneuver	1443	-	621
Stage 1	-	-	890
Stage 2	-	-	801
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1443	-	615
Mov Cap-2 Maneuver	-	-	615
Stage 1	-	-	882
Stage 2	-	-	801

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9.4
HCM LOS			A




Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1443	-	-	-	843
HCM Lane V/C Ratio	0.008	-	-	-	0.04
HCM Control Delay (s)	7.5	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
14: Aspen Ave & E 5th St

02/10/2025

Intersection

Int Delay, s/veh 1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	10	160	25	10	80
Future Vol, veh/h	20	10	160	25	10	80
Conflicting Peds, #/hr	4	1	0	4	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	1	1	0	0
Mvmt Flow	21	10	167	26	10	83

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	291	185	0
Stage 1	184	-	-
Stage 2	107	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	698	855	-
Stage 1	845	-	-
Stage 2	915	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	687	851	-
Mov Cap-2 Maneuver	687	-	-
Stage 1	842	-	-
Stage 2	904	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.8
HCM LOS	B		




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	734	1383
HCM Lane V/C Ratio	-	-	0.043	0.008
HCM Control Delay (s)	-	-	10.1	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC
15: Aspen Ave & W 5th St

02/10/2025

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	10	180	85	15
Future Vol, veh/h	5	5	10	180	85	15
Conflicting Peds, #/hr	4	5	5	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	5	5	11	191	90	16

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	320	108	111
Stage 1	103	-	-
Stage 2	217	-	-
Critical Hdwy	6.4	6.2	4.11
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.209
Pot Cap-1 Maneuver	678	951	1485
Stage 1	926	-	-
Stage 2	824	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	666	942	1478
Mov Cap-2 Maneuver	666	-	-
Stage 1	914	-	-
Stage 2	820	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.4	0
HCM LOS	A		




Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1478	-	780	-	-
HCM Lane V/C Ratio	0.007	-	0.014	-	-
HCM Control Delay (s)	7.5	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
16: NW Spencer Rd & NW Timmen Rd

02/10/2025

Intersection

Int Delay, s/veh 2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	55	20	5	100	55	5
Future Vol, veh/h	55	20	5	100	55	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	76	28	7	139	76	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	104
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1494
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1494
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	759	-	-	1494	-
HCM Lane V/C Ratio	0.11	-	-	0.005	-
HCM Control Delay (s)	10.3	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	120	5	5	205	5	5	5	5	5	5	5
Future Vol, veh/h	5	120	5	5	205	5	5	5	5	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	130	5	5	223	5	5	5	5	5	5	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	135	0	0	384	381	133	384	381	226
Stage 1	-	-	-	-	-	-	143	143	-	236	236	-
Stage 2	-	-	-	-	-	-	241	238	-	148	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1340	-	-	1449	-	-	574	552	916	574	552	813
Stage 1	-	-	-	-	-	-	860	779	-	767	710	-
Stage 2	-	-	-	-	-	-	762	708	-	855	777	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1340	-	-	1449	-	-	563	548	916	563	548	813
Mov Cap-2 Maneuver	-	-	-	-	-	-	563	548	-	563	548	-
Stage 1	-	-	-	-	-	-	857	776	-	764	707	-
Stage 2	-	-	-	-	-	-	748	705	-	841	774	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			10.8			11		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	639	1340	-	-	1449	-	-	621				
HCM Lane V/C Ratio	0.026	0.004	-	-	0.004	-	-	0.026				
HCM Control Delay (s)	10.8	7.7	0	-	7.5	0	-	11				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

HCM 6th TWSC
18: W Golden Eagle Avenue & NW Pacific Hwy

02/10/2025

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	120	5	5	205	15	5	5	10	5	5	5
Future Vol, veh/h	5	120	5	5	205	15	5	5	10	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	130	5	5	223	16	5	5	11	5	5	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	239	0	0	135	0	0	389	392	133	392	386	231
Stage 1	-	-	-	-	-	-	143	143	-	241	241	-
Stage 2	-	-	-	-	-	-	246	249	-	151	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1328	-	-	1449	-	-	570	544	916	567	548	808
Stage 1	-	-	-	-	-	-	860	779	-	762	706	-
Stage 2	-	-	-	-	-	-	758	701	-	851	777	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1328	-	-	1449	-	-	559	540	916	553	544	808
Mov Cap-2 Maneuver	-	-	-	-	-	-	559	540	-	553	544	-
Stage 1	-	-	-	-	-	-	857	776	-	759	703	-
Stage 2	-	-	-	-	-	-	744	698	-	832	774	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			10.4			11		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	687	1328	-	-	1449	-	-	614				
HCM Lane V/C Ratio	0.032	0.004	-	-	0.004	-	-	0.027				
HCM Control Delay (s)	10.4	7.7	0	-	7.5	0	-	11				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

APPENDIX E: PROJECT ALTERNATIVE TRIP GENERATION AND TRIP ASSIGNMENT

Downtown Weekday Trips					
Zoning	Acres	ITE Variable	Variable Assumptions	Average Trip rate	Trips
Low Density Residential	19.13	Dwellings	96	$\ln(T) = 0.92 \ln(X) + 2.68$	972
Medium Density Residential	1.08	Dwellings	12	$T = 7.62(X) - 50.48$	41
High Density Residential	1.99	Dwellings	120	$T = 6.41(X) + 75.31$	845
Commercial Overlay	2.4	Employee	48	14.34	688
Mixed Use - Med Dwelling	1.44	Dwellings	35	$T = 7.62(X) - 50.48$	216
Mixed Use - High Dwelling		Dwellings	35	$T = 6.41(X) + 75.31$	300
Mixed Use - Commercial		1000 Sq ft. GLA	19	67.52	1260
Commercial	6	1000 Sq ft. GLA / Employee	Varies	Varies	8173
Parks and Open Space	9	Acres	9	$T = 0.64(X) + 88.46$	94
Public Facilities	3	Acres	3	$T = 0.64(X) + 88.46$	90
Totals	44.04				12679

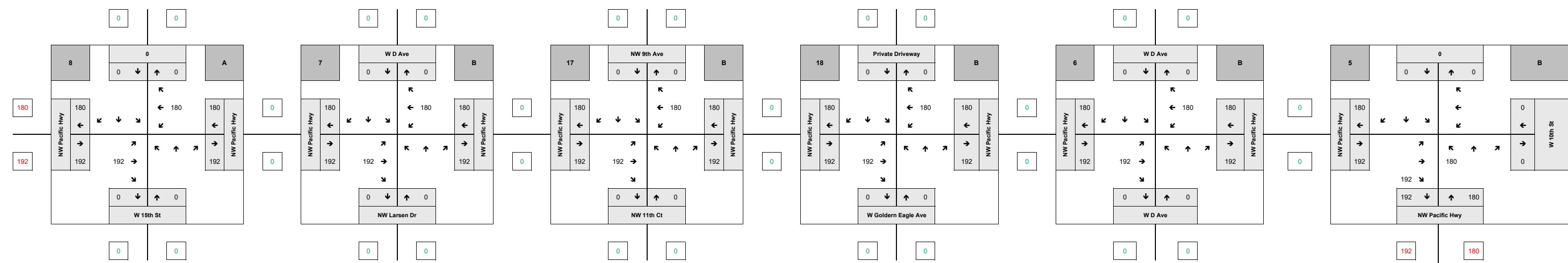
Downtown PM Peak Hour Trips					
Zoning	Net Acres	ITE Variable	Variable Assumptions	Average Trip rate	Trips
Low Density Residential	19.13	Dwellings	96	$\ln(T) = 0.94 \ln(X) + 0.27$	96
Medium Density Residential	1.08	Dwellings	12	$T = 0.6(X) - 3.93$	3
High Density Residential	1.99	Dwellings	120	$T = 0.43(X) + 20.55$	72
Commercial Overlay	2.4	Employee	48	$\ln(T) = 0.84 \ln(X) + 0.72$	53
Mixed Use - Med Dwelling	1.44	Dwellings	35	$T = 0.6(X) - 3.93$	17
Mixed Use - High Dwelling		Dwellings	35	$T = 0.43(X) + 20.55$	36
Mixed Use - Commercial		1000 Sq ft. GLA	19	5.19	97
Commercial	6	1000 Sq ft. GLA / Employee	Varies	Varies	743
Parks and Open Space	9	Acres	9	$T = 0.06(X) + 22.60$	23
Public Facilities	3	Acres	3	$T = 0.06(X) + 22.60$	23
Totals	44.04				1163

Timmen Landing Weekday Trips

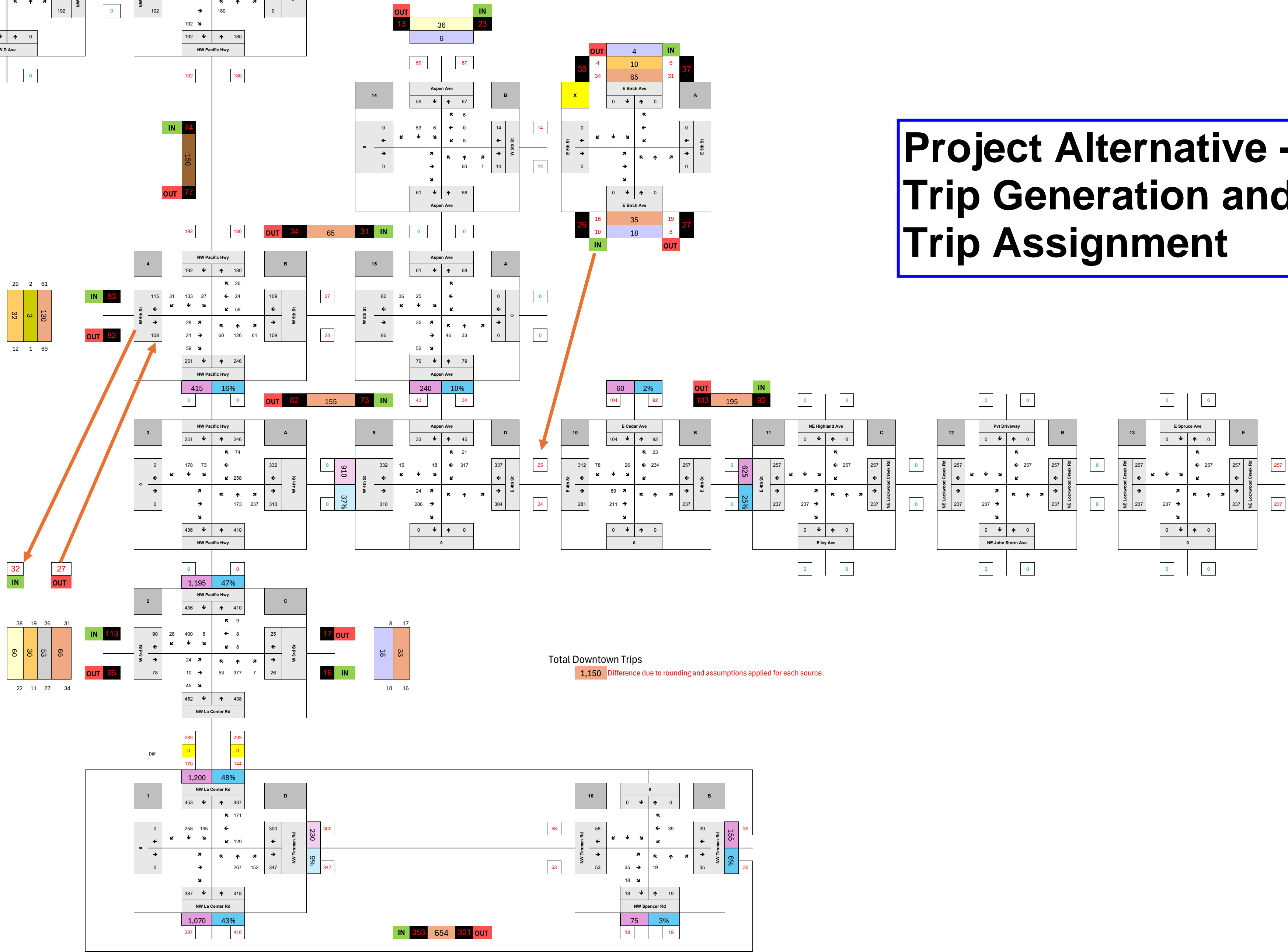
Zoning	Acres	ITE Variable	Variable Assumptions	Average Trip rate	Trips
Low Density Residential	30.61	Dwellings	153	$\ln(T) = 0.92 \ln(X) + 2.68$	1492
Medium Density Residential	7.5	Dwellings	90	$T = 7.62(X) - 50.48$	635
High Density Residential	13.3	Dwellings	279	$T = 6.41(X) + 75.31$	1864
Overlay - High Dwelling	1.2	Dwellings	47	$T = 6.41(X) + 75.31$	377
Overlay - Commercial		1000 Sq ft. GLA	52	$T = 42.20(X) + 229.68$	2436
Parks and Open Space	7	Acres	7	$T = 0.64(X) + 88.46$	93
Totals	59.61				6896

Timmen Landing PM Peak Hour Trips

Zoning	Acres	ITE Variable	Variable Assumptions	Average Trip rate	Trips
Low Density Residential	30.61	Dwellings	153	$\ln(T) = 0.94 \ln(X) + 0.27$	148
Medium Density Residential	7.5	Dwellings	90	$T = 0.6(X) - 3.93$	50
High Density Residential	13.3	Dwellings	279	$T = 0.43(X) + 20.55$	141
Overlay - High Dwelling	1.2	Dwellings	47	$T = 0.43(X) + 20.55$	41
Overlay - Commercial		1000 Sq ft. GLA	52	$\ln(T) = 0.71 \ln(X) + 2.72$	252
Parks and Open Space	7	Acres	7	$T = 0.06(X) + 22.60$	23
Totals	59.61				654



Commercial Overlay	53
Commercial	743
Mixed Use	150
High Residential	72
Med Residential	3
Low Residential	96
Open Space & Public Facilities	46
	1163








Project Alternative - Trip Generation and Trip Assignment

Total Downtown Trips
1,150 Difference due to rounding and assumptions applied for each source.

APPENDIX F: FUTURE CONDITIONS NO-ACTION ALTERNATIVE SYNCHRO AND SIDRA REPORTS

Intersection

Int Delay, s/veh 7.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	175	935	30	85	540
Future Vol, veh/h	45	175	935	30	85	540
Conflicting Peds, #/hr	1	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	0	0	2	2
Mvmt Flow	49	190	1016	33	92	587

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1806	1035	0
Stage 1	1034	-	-
Stage 2	772	-	-
Critical Hdwy	6.44	6.24	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.336	-
Pot Cap-1 Maneuver	86	279	-
Stage 1	340	-	-
Stage 2	452	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	74	278	-
Mov Cap-2 Maneuver	74	-	-
Stage 1	340	-	-
Stage 2	389	-	-

Approach	WB	NB	SB
HCM Control Delay, s	57.9	0	1.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 74 278	662	-
HCM Lane V/C Ratio	-	- 0.661 0.684	0.14	-
HCM Control Delay (s)	-	- 119.8 42	11.3	-
HCM Lane LOS	-	- F E	B	-
HCM 95th %tile Q(veh)	-	- 3 4.6	0.5	-

HCM 6th TWSC
2: NW La Center Rd & W 3rd St

02/10/2025

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	5	5	15	0	5	5	15	1090	5	5	610	5
Future Vol, veh/h	5	5	15	0	5	5	15	1090	5	5	610	5
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	6	6	17	0	6	6	17	1211	6	6	678	6

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1949	1946	683	-	1946	1216	685	0	0	1218	0	0
Stage 1	694	694	-	-	1249	-	-	-	-	-	-	-
Stage 2	1255	1252	-	-	697	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	-	6.5	6.2	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	-	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	-	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	4	3.3	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	49	66	453	0	66	223	913	-	-	576	-	-
Stage 1	436	447	-	0	247	-	-	-	-	-	-	-
Stage 2	212	246	-	0	446	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	42	61	452	-	61	223	912	-	-	575	-	-
Mov Cap-2 Maneuver	42	61	-	-	61	-	-	-	-	-	-	-
Stage 1	410	442	-	-	232	-	-	-	-	-	-	-
Stage 2	190	231	-	-	441	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	50.1		47.3		0.1		0.1	
HCM LOS	F		E					

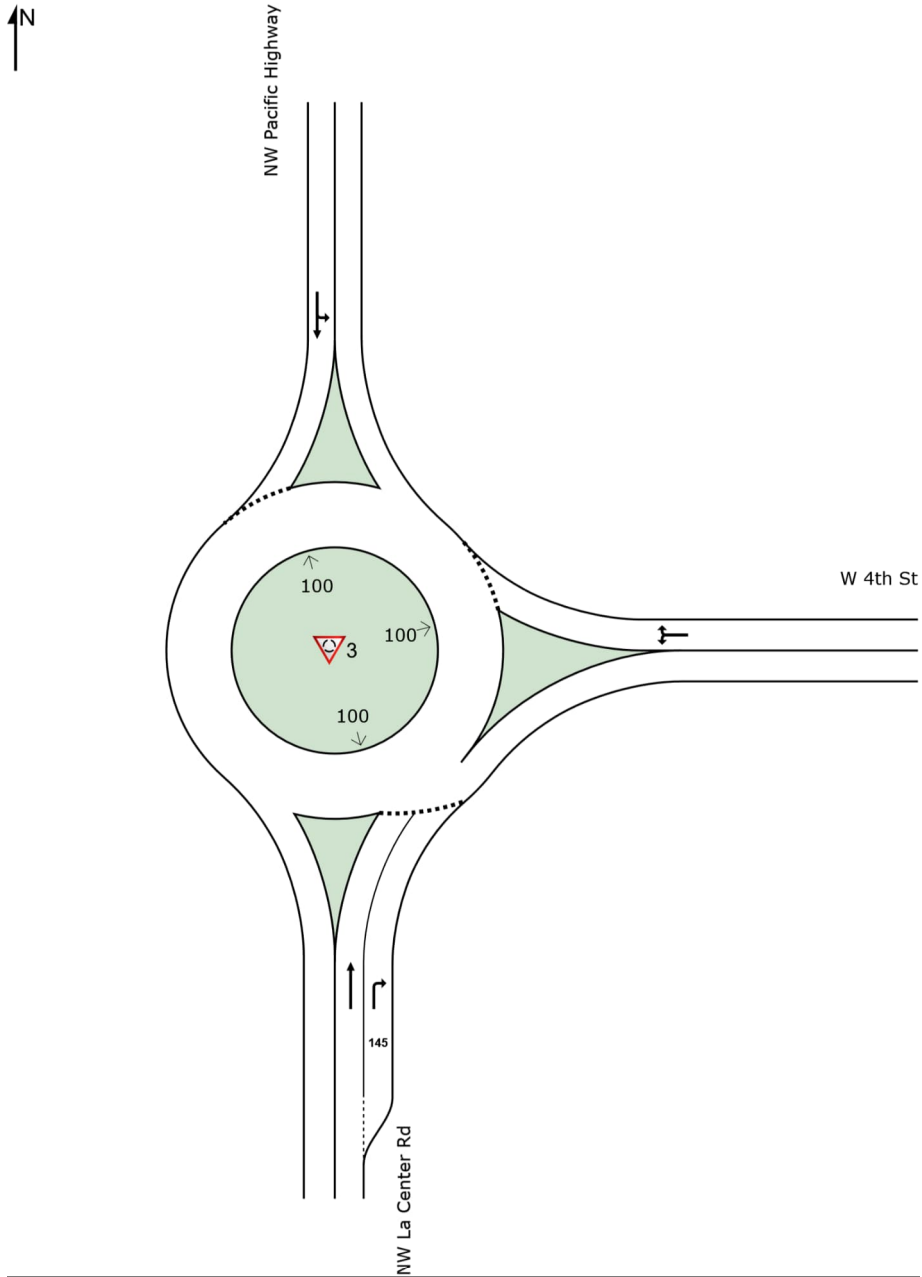
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR	
Capacity (veh/h)	912	-	-	107	96	575	-	-
HCM Lane V/C Ratio	0.018	-	-	0.26	0.116	0.01	-	-
HCM Control Delay (s)	9	0	-	50.1	47.3	11.3	-	-
HCM Lane LOS	A	A	-	F	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1	0.4	0	-	-

SITE LAYOUT

 **Site: 3 [NW La Center Rd_W 4th St_2045 No Action Alt (Site Folder: General)]**

Existing PM Peak
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 3 [NW La Center Rd_W 4th St_2045 No Action Alt (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Existing PM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]				
			veh/h	%	veh/h	%	v/c	sec			ft				mph
South: NW La Center Rd															
8	T1	All MCs	352	1.0	352	1.0	0.299	2.1	LOS A	2.0	50.7	0.25	0.27	0.25	23.2
18	R2	All MCs	898	1.0	898	1.0	0.593	5.8	LOS A	6.3	159.3	0.34	0.55	0.34	20.3
Approach			1250	1.0	1250	1.0	0.593	4.8	LOS A	6.3	159.3	0.31	0.47	0.31	21.1
East: W 4th St															
1	L2	All MCs	483	2.0	483	2.0	0.543	8.9	LOS A	4.0	100.9	0.65	0.68	0.68	20.1
16	R2	All MCs	57	2.0	57	2.0	0.543	8.2	LOS A	4.0	100.9	0.65	0.68	0.68	15.6
Approach			540	2.0	540	2.0	0.543	8.8	LOS A	4.0	100.9	0.65	0.68	0.68	19.8
North: NW Pacific Highway															
7	L2	All MCs	51	2.0	51	2.0	0.330	9.2	LOS A	2.2	55.7	0.71	0.61	0.71	8.8
4	T1	All MCs	222	2.0	222	2.0	0.330	5.1	LOS A	2.2	55.7	0.71	0.61	0.71	21.1
Approach			273	2.0	273	2.0	0.330	5.9	LOS A	2.2	55.7	0.71	0.61	0.71	18.7
All Vehicles			2063	1.4	2063	1.4	0.593	6.0	LOS A	6.3	159.3	0.45	0.54	0.46	20.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: R:\USVAN100\Project2023\31000652_La Center\Planning\Task 5 - EIS and PAO\Draft EIS\Background Information\Transportation\02 Synchrono\SIDRA\La Center Rd Site 3 RBT Modified.sip9

HCM 6th TWSC
4: NW Pacific Hwy & W 5th St

02/10/2025

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	5	5	20	5	15	5	340	15	15	215	5
Future Vol, veh/h	5	5	5	20	5	15	5	340	15	15	215	5
Conflicting Peds, #/hr	1	0	1	1	0	0	1	0	1	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	6	6	6	25	6	19	6	425	19	19	269	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	771	768	274	765	762	437	276	0	0	445	0	0
Stage 1	311	311	-	448	448	-	-	-	-	-	-	-
Stage 2	460	457	-	317	314	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	320	334	770	323	337	624	1293	-	-	1121	-	-
Stage 1	704	662	-	594	576	-	-	-	-	-	-	-
Stage 2	585	571	-	698	660	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	299	325	769	309	328	623	1292	-	-	1120	-	-
Mov Cap-2 Maneuver	299	325	-	309	328	-	-	-	-	-	-	-
Stage 1	699	648	-	590	572	-	-	-	-	-	-	-
Stage 2	557	567	-	671	646	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.7		15.8		0.1		0.5	
HCM LOS	B		C					





Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1292	-	-	389	384	1120	-
HCM Lane V/C Ratio	0.005	-	-	0.048	0.13	0.017	-
HCM Control Delay (s)	7.8	0	-	14.7	15.8	8.3	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0.1	-

HCM 6th TWSC
5: NW Pacific Hwy & W 10th St

02/10/2025

Intersection

Int Delay, s/veh 1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	20	310	20	20	175
Future Vol, veh/h	30	20	310	20	20	175
Conflicting Peds, #/hr	1	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	36	24	369	24	24	208

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	639	383	0
Stage 1	382	-	-
Stage 2	257	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	443	669	-
Stage 1	694	-	-
Stage 2	791	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	432	668	-
Mov Cap-2 Maneuver	432	-	-
Stage 1	693	-	-
Stage 2	772	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	432	668
HCM Lane V/C Ratio	-	-	0.083	0.036
HCM Control Delay (s)	-	-	14.1	10.6
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	185	5	5	295	30	20	5	5	5	5	5
Future Vol, veh/h	5	185	5	5	295	30	20	5	5	5	5	5
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	6	213	6	6	339	34	23	6	6	6	6	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	374	0	0	220	0	0	604	615	218	604	601	358
Stage 1	-	-	-	-	-	-	229	229	-	369	369	-
Stage 2	-	-	-	-	-	-	375	386	-	235	232	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1190	-	-	1355	-	-	413	409	827	413	417	691
Stage 1	-	-	-	-	-	-	778	718	-	655	624	-
Stage 2	-	-	-	-	-	-	650	614	-	773	716	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1189	-	-	1354	-	-	401	403	825	401	411	690
Mov Cap-2 Maneuver	-	-	-	-	-	-	401	403	-	401	411	-
Stage 1	-	-	-	-	-	-	773	713	-	650	620	-
Stage 2	-	-	-	-	-	-	634	610	-	756	711	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			13.9			12.9		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	439	1189	-	-	1354	-	-	471				
HCM Lane V/C Ratio	0.079	0.005	-	-	0.004	-	-	0.037				
HCM Control Delay (s)	13.9	8	0	-	7.7	0	-	12.9				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1				






Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	5	5	5	50	5	5	15	220	70	5	135	5
Future Vol, veh/h	5	5	5	50	5	5	15	220	70	5	135	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	5	5	54	5	5	16	237	75	5	145	5
Major/Minor	Minor2		Minor1		Major1				Major2			
Conflicting Flow All	470	502	148	470	467	275	150	0	0	312	0	0
Stage 1	158	158	-	307	307	-	-	-	-	-	-	-
Stage 2	312	344	-	163	160	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	507	474	904	505	495	766	1437	-	-	1254	-	-
Stage 1	849	771	-	705	663	-	-	-	-	-	-	-
Stage 2	703	640	-	841	767	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	492	465	904	491	486	766	1437	-	-	1254	-	-
Mov Cap-2 Maneuver	492	465	-	491	486	-	-	-	-	-	-	-
Stage 1	837	768	-	695	654	-	-	-	-	-	-	-
Stage 2	683	631	-	827	764	-	-	-	-	-	-	-
Approach	EB		WB		NB				SB			
HCM Control Delay, s	11.5		13.2		0.4				0.3			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1437	-	-	567	506	1254	-	-				
HCM Lane V/C Ratio	0.011	-	-	0.028	0.128	0.004	-	-				
HCM Control Delay (s)	7.5	0	-	11.5	13.2	7.9	-	-				
HCM Lane LOS	A	A	-	B	B	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0	-	-				

HCM 6th TWSC
8: NW Pacific Hwy & W 15th St

02/10/2025

Intersection

Int Delay, s/veh 3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	50	85	145	95	15
Future Vol, veh/h	5	50	85	145	95	15
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	6	57	97	165	108	17






Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	480	121	127
Stage 1	119	-	-
Stage 2	361	-	-
Critical Hdwy	6.4	6.2	4.12
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.218
Pot Cap-1 Maneuver	548	936	1459
Stage 1	911	-	-
Stage 2	710	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	509	932	1456
Mov Cap-2 Maneuver	509	-	-
Stage 1	848	-	-
Stage 2	709	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	2.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1456	-	867	-	-
HCM Lane V/C Ratio	0.066	-	0.072	-	-
HCM Control Delay (s)	7.6	-	9.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	245	590	375	30	30	100
Future Vol, veh/h	245	590	375	30	30	100
Conflicting Peds, #/hr	7	0	0	14	14	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	263	634	403	32	32	108




Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	449	0	0 1607 440
Stage 1	-	-	- 433 -
Stage 2	-	-	- 1174 -
Critical Hdwy	4.11	-	- 6.41 6.21
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.209	-	- 3.509 3.309
Pot Cap-1 Maneuver	1117	-	- 116 619
Stage 1	-	-	- 656 -
Stage 2	-	-	- 295 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1102	-	- 86 607
Mov Cap-2 Maneuver	-	-	- 86 -
Stage 1	-	-	- 493 -
Stage 2	-	-	- 291 -

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	25.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1102	-	-	-	86	607
HCM Lane V/C Ratio	0.239	-	-	-	0.375	0.177
HCM Control Delay (s)	9.3	-	-	-	70.1	12.2
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.9	-	-	-	1.5	0.6

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	570	350	5	35	35
Future Vol, veh/h	50	570	350	5	35	35
Conflicting Peds, #/hr	12	0	0	9	9	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	53	606	372	5	37	37









Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	389	0	0 1108 399
Stage 1	-	-	- 387 -
Stage 2	-	-	- 721 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1181	-	- 234 655
Stage 1	-	-	- 691 -
Stage 2	-	-	- 485 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1168	-	- 213 640
Mov Cap-2 Maneuver	-	-	- 213 -
Stage 1	-	-	- 637 -
Stage 2	-	-	- 480 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	19.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1168	-	-	-	320
HCM Lane V/C Ratio	0.046	-	-	-	0.233
HCM Control Delay (s)	8.2	0	-	-	19.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9

Intersection

Int Delay, s/veh 3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	175	420	5	5	260	5	5	5	5	5	5	95
Future Vol, veh/h	175	420	5	5	260	5	5	5	5	5	5	95
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	125	-	-	65	-	-	65	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	192	462	5	5	286	5	5	5	5	5	5	104

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	291	0	0	472	0	0	1212	1155	475	1158	1155	294
Stage 1	-	-	-	-	-	-	854	854	-	299	299	-
Stage 2	-	-	-	-	-	-	358	301	-	859	856	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1276	-	-	1095	-	-	160	199	594	175	199	750
Stage 1	-	-	-	-	-	-	356	378	-	714	670	-
Stage 2	-	-	-	-	-	-	664	669	-	354	377	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1276	-	-	1090	-	-	117	168	588	148	168	746
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	168	-	148	168	-
Stage 1	-	-	-	-	-	-	301	320	-	607	667	-
Stage 2	-	-	-	-	-	-	561	666	-	291	319	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.4			0.2			25.4			12.7		
HCM LOS							D			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	117	261	1276	-	-	1090	-	-	148	637
HCM Lane V/C Ratio	0.047	0.042	0.151	-	-	0.005	-	-	0.037	0.173
HCM Control Delay (s)	37.3	19.4	8.3	-	-	8.3	-	-	30.3	11.8
HCM Lane LOS	E	C	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.1	0.1	0.5	-	-	0	-	-	0.1	0.6




Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	310	100	20	195	5	70	5	30	5	5	5
Future Vol, veh/h	5	310	100	20	195	5	70	5	30	5	5	5
Conflicting Peds, #/hr	0	0	12	12	0	0	12	0	12	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	6	378	122	24	238	6	85	6	37	6	6	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	244	0	0	512	0	0	770	755	463	774	813	253
Stage 1	-	-	-	-	-	-	463	463	-	289	289	-
Stage 2	-	-	-	-	-	-	307	292	-	485	524	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1328	-	-	1058	-	-	320	340	603	318	315	791
Stage 1	-	-	-	-	-	-	583	568	-	723	677	-
Stage 2	-	-	-	-	-	-	707	675	-	567	533	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1328	-	-	1046	-	-	298	325	589	283	301	782
Mov Cap-2 Maneuver	-	-	-	-	-	-	298	325	-	283	301	-
Stage 1	-	-	-	-	-	-	573	558	-	719	659	-
Stage 2	-	-	-	-	-	-	669	657	-	517	524	-
Approach	EB		WB				NB			SB		
HCM Control Delay, s	0.1		0.8				21.2			15.3		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	349	1328	-	-	1046	-	-	369				
HCM Lane V/C Ratio	0.367	0.005	-	-	0.023	-	-	0.05				
HCM Control Delay (s)	21.2	7.7	0	-	8.5	0	-	15.3				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.6	0	-	-	0.1	-	-	0.2				

HCM 6th TWSC
13: NE Lockwood Creek Rd & E Spruce Ave

02/10/2025

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	310	180	5	5	35
Future Vol, veh/h	30	310	180	5	5	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	0	0
Mvmt Flow	17	344	200	6	6	39

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	206	0	0 581 203
Stage 1	-	-	- 203 -
Stage 2	-	-	- 378 -
Critical Hdwy	4.11	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.209	-	- 3.5 3.3
Pot Cap-1 Maneuver	1371	-	- 479 843
Stage 1	-	-	- 836 -
Stage 2	-	-	- 697 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1371	-	- 472 843
Mov Cap-2 Maneuver	-	-	- 472 -
Stage 1	-	-	- 823 -
Stage 2	-	-	- 697 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10
HCM LOS			B




Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1371	-	-	-	768
HCM Lane V/C Ratio	0.012	-	-	-	0.058
HCM Control Delay (s)	7.7	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
14: Aspen Ave & E 5th St

02/10/2025

Intersection

Int Delay, s/veh 1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	15	245	30	15	115
Future Vol, veh/h	30	15	245	30	15	115
Conflicting Peds, #/hr	4	1	0	4	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	1	1	0	0
Mvmt Flow	31	16	255	31	16	120

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	431	276	0
Stage 1	275	-	-
Stage 2	156	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	579	760	-
Stage 1	769	-	-
Stage 2	870	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	567	756	-
Mov Cap-2 Maneuver	567	-	-
Stage 1	766	-	-
Stage 2	855	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	0.9
HCM LOS	B		




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	619	1278
HCM Lane V/C Ratio	-	-	0.076	0.012
HCM Control Delay (s)	-	-	11.3	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 6th TWSC
15: Aspen Ave & W 5th St

02/10/2025

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	5	15	260	125	20
Future Vol, veh/h	15	5	15	260	125	20
Conflicting Peds, #/hr	4	5	5	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	16	5	16	277	133	21




Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	462	154	159
Stage 1	149	-	-
Stage 2	313	-	-
Critical Hdwy	6.4	6.2	4.11
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.209
Pot Cap-1 Maneuver	562	897	1427
Stage 1	884	-	-
Stage 2	746	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	549	888	1420
Mov Cap-2 Maneuver	549	-	-
Stage 1	868	-	-
Stage 2	742	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1420	-	607	-	-
HCM Lane V/C Ratio	0.011	-	0.035	-	-
HCM Control Delay (s)	7.6	0	11.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection





Int Delay, s/veh 3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	80	30	5	145	80	5
Future Vol, veh/h	80	30	5	145	80	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	111	42	7	201	111	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	153
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1434
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1434
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	660	-	-	1434	-
HCM Lane V/C Ratio	0.179	-	-	0.005	-
HCM Control Delay (s)	11.6	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	180	5	5	295	5	5	5	5	5	5	5
Future Vol, veh/h	5	180	5	5	295	5	5	5	5	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	196	5	5	321	5	5	5	5	5	5	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	326	0	0	201	0	0	548	545	199	548	545	324
Stage 1	-	-	-	-	-	-	209	209	-	334	334	-
Stage 2	-	-	-	-	-	-	339	336	-	214	211	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1234	-	-	1371	-	-	447	446	842	447	446	717
Stage 1	-	-	-	-	-	-	793	729	-	680	643	-
Stage 2	-	-	-	-	-	-	676	642	-	788	728	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1234	-	-	1371	-	-	436	442	842	437	442	717
Mov Cap-2 Maneuver	-	-	-	-	-	-	436	442	-	437	442	-
Stage 1	-	-	-	-	-	-	789	725	-	677	640	-
Stage 2	-	-	-	-	-	-	663	639	-	773	724	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			12.1			12.4		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	522	1234	-	-	1371	-	-	505				
HCM Lane V/C Ratio	0.031	0.004	-	-	0.004	-	-	0.032				
HCM Control Delay (s)	12.1	7.9	0	-	7.6	0	-	12.4				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

HCM 6th TWSC
18: W Golden Eagle Avenue & NW Pacific Hwy

02/10/2025

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	180	5	5	295	20	5	5	15	5	5	5
Future Vol, veh/h	5	180	5	5	295	20	5	5	15	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	196	5	5	321	22	5	5	16	5	5	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	343	0	0	201	0	0	556	562	199	561	553	332
Stage 1	-	-	-	-	-	-	209	209	-	342	342	-
Stage 2	-	-	-	-	-	-	347	353	-	219	211	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1216	-	-	1371	-	-	442	436	842	438	441	710
Stage 1	-	-	-	-	-	-	793	729	-	673	638	-
Stage 2	-	-	-	-	-	-	669	631	-	783	728	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1216	-	-	1371	-	-	431	432	842	422	437	710
Mov Cap-2 Maneuver	-	-	-	-	-	-	431	432	-	422	437	-
Stage 1	-	-	-	-	-	-	789	725	-	670	635	-
Stage 2	-	-	-	-	-	-	655	628	-	758	724	-
Approach	EB		WB				NB			SB		
HCM Control Delay, s	0.2		0.1				11.2			12.5		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	610	1216	-	-	1371	-	-	495				
HCM Lane V/C Ratio	0.045	0.004	-	-	0.004	-	-	0.033				
HCM Control Delay (s)	11.2	8	0	-	7.6	0	-	12.5				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

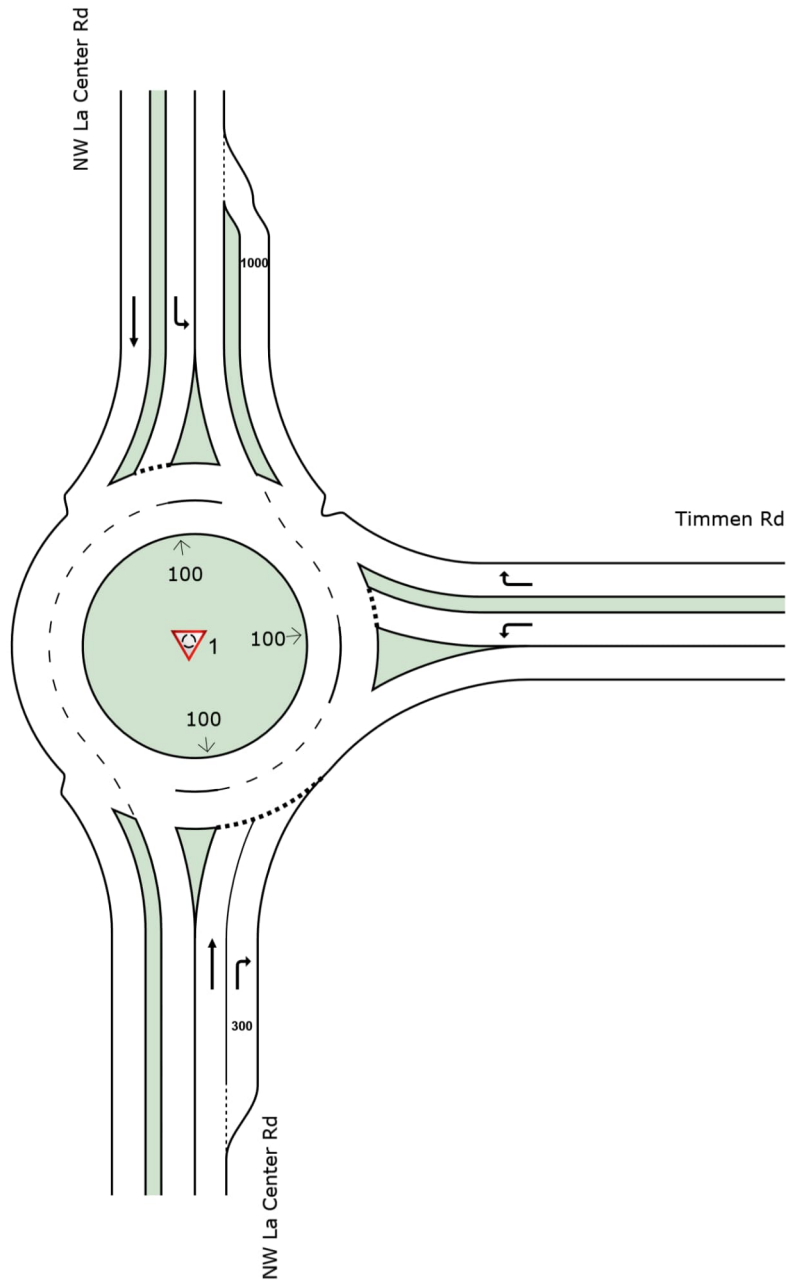
APPENDIX G: FUTURE CONDITIONS PROJECT ALTERNATIVE SYNCHRO AND SIDRA REPORTS

SITE LAYOUT

 **Site: 1 [2-Lane_NW La Center Rd_Timmen Rd_2045 Project Alt
(Site Folder: General)]**

Existing PM Peak
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 1 [2-Lane_NW La Center Rd_Timmen Rd_2045 Project Alt (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Existing PM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: NW La Center Rd															
8	T1	All MCs	1364	1.0	1364	1.0	1.273	133.2	LOS F	109.1	2749.7	1.00	4.52	6.06	9.9
18	R2	All MCs	205	1.0	205	1.0	0.317	10.0	LOS A	1.5	38.4	0.54	0.70	0.54	20.3
Approach			1568	1.0	1568	1.0	1.273	117.1	LOS F	109.1	2749.7	0.94	4.02	5.34	10.2
East: Timmen Rd															
1	L2	All MCs	199	2.0	199	2.0	0.676	26.4	LOS C	5.6	141.7	1.00	1.10	1.39	15.9
16	R2	All MCs	392	2.0	392	2.0	0.239	5.2	LOS A	0.0	0.0	0.00	0.62	0.00	22.7
Approach			591	2.0	591	2.0	0.676	12.3	LOS B	5.6	141.7	0.34	0.79	0.47	20.5
North: NW La Center Rd															
7	L2	All MCs	318	2.0	318	2.0	0.395	7.7	LOS A	2.5	63.2	0.53	0.60	0.53	22.3
4	T1	All MCs	903	2.0	903	2.0	0.466	2.1	LOS A	0.0	0.0	0.00	0.23	0.00	24.3
Approach			1222	2.0	1222	2.0	0.466	3.5	LOS A	2.5	63.2	0.14	0.33	0.14	23.8
All Vehicles			3381	1.5	3381	1.5	1.273	57.7	LOS E	109.1	2749.7	0.54	2.12	2.61	14.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if $v/c > 1$ irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.







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Project: R:\USVAN100\Project2023\31000652_La Center\Planning\Task 5 - EIS and PAO\Draft EIS\Background Information\Transportation\02 Synchro\SIDRA\La Center Rd Site 1_TwoLane RBT.sip9

HCM 6th TWSC
2: NW La Center Rd & W 3rd St

03/12/2025

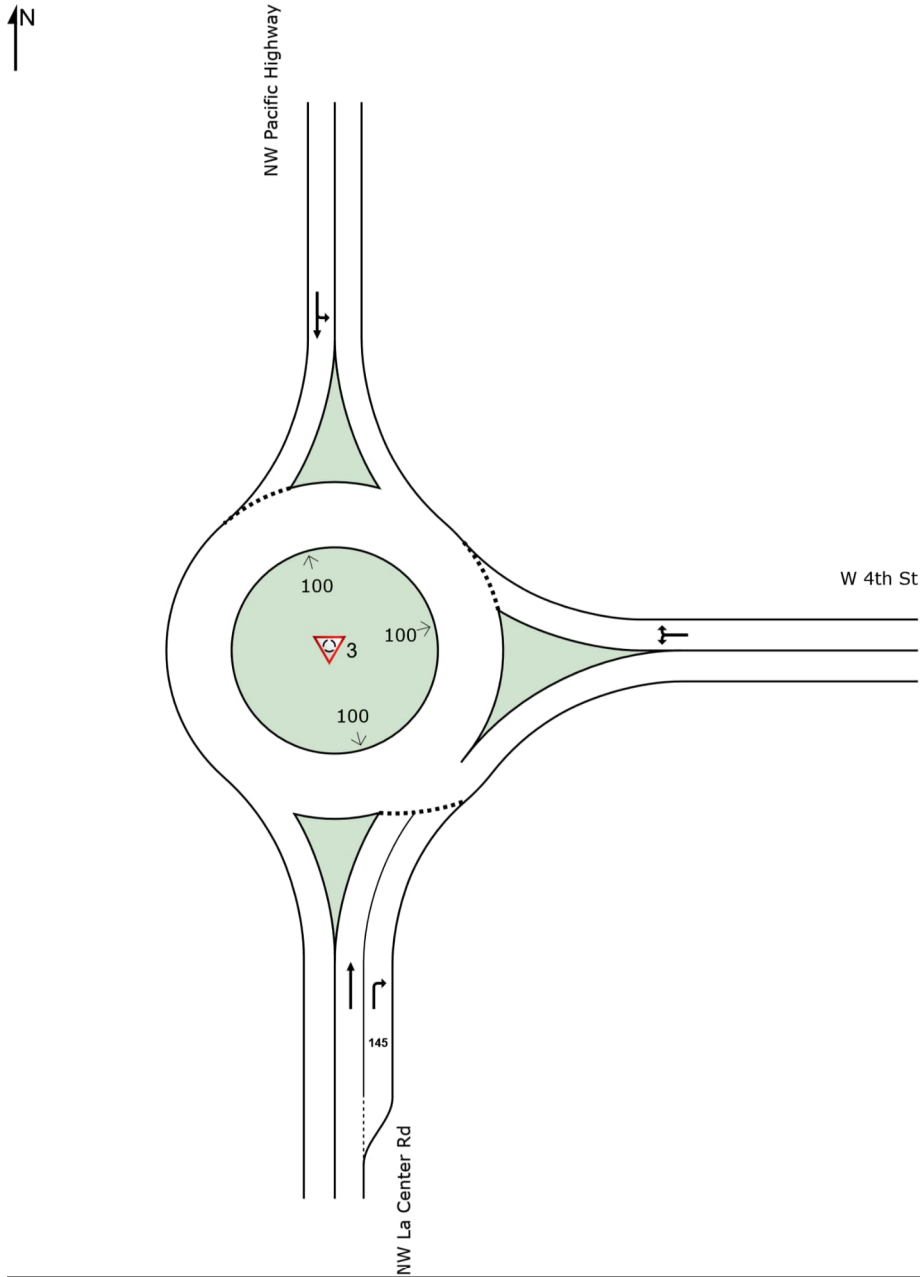
Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	15	60	10	15	15	70	1465	10	15	1005	35
Future Vol, veh/h	30	15	60	10	15	15	70	1465	10	15	1005	35
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	33	17	67	11	17	17	78	1628	11	17	1117	39
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2980	2968	1139	3005	2982	1636	1157	0	0	1640	0	0
Stage 1	1172	1172	-	1791	1791	-	-	-	-	-	-	-
Stage 2	1808	1796	-	1214	1191	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	~ 9	~ 15	247	~ 8	~ 14	126	607	-	-	397	-	-
Stage 1	237	269	-	104	134	-	-	-	-	-	-	-
Stage 2	102	134	-	224	263	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	247	-	0	126	606	-	-	397	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-
Stage 1	237	257	-	104	0	-	-	-	-	-	-	-
Stage 2	-	0	-	146	251	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s			43.5		0.5		0.2					
HCM LOS	-		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	606	-	-	-	126	397	-	-				
HCM Lane V/C Ratio	0.128	-	-	-	0.265	0.042	-	-				
HCM Control Delay (s)	11.8	0	-	-	43.5	14.5	-	-				
HCM Lane LOS	B	A	-	-	E	B	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	-	1	0.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

SITE LAYOUT

 **Site: 3 [NW La Center Rd_W 4th St_2045 Project Alt (Site Folder: General)]**

Existing PM Peak
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 3 [NW La Center Rd_W 4th St_2045 Project Alt (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Existing PM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]				
			veh/h	%	veh/h	%	v/c	sec			ft				mph
South: NW La Center Rd															
8	T1	All MCs	551	1.0	551	1.0	0.495	2.9	LOS A	4.2	106.4	0.52	0.38	0.52	22.3
18	R2	All MCs	1165	1.0	1165	1.0	0.837	7.0	LOS A	13.9	350.2	0.86	0.59	0.86	19.6
Approach			1716	1.0	1716	1.0	0.837	5.7	LOS A	13.9	350.2	0.75	0.52	0.75	20.4
East: W 4th St															
1	L2	All MCs	773	2.0	773	2.0	1.123	78.3	LOS F	50.5	1282.1	1.00	3.08	4.49	8.4
16	R2	All MCs	142	2.0	142	2.0	1.123	77.6	LOS F	50.5	1282.1	1.00	3.08	4.49	4.6
Approach			915	2.0	915	2.0	1.123	78.2	LOS E	50.5	1282.1	1.00	3.08	4.49	7.9
North: NW Pacific Highway															
7	L2	All MCs	136	2.0	136	2.0	0.958	39.3	LOS D	20.2	512.1	1.00	1.74	2.35	5.4
4	T1	All MCs	426	2.0	426	2.0	0.958	35.2	LOS D	20.2	512.1	1.00	1.74	2.35	12.6
Approach			563	2.0	563	2.0	0.958	36.2	LOS D	20.2	512.1	1.00	1.74	2.35	10.8
All Vehicles			3193	1.5	3193	1.5	1.123	31.8	LOS C	50.5	1282.1	0.87	1.47	2.11	12.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if $v/c > 1$ irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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HCM 6th TWSC
4: NW Pacific Hwy & W 5th St

03/12/2025

Intersection												
Int Delay, s/veh	72.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	35	25	65	80	30	40	65	470	75	40	350	35
Future Vol, veh/h	35	25	65	80	30	40	65	470	75	40	350	35
Conflicting Peds, #/hr	1	0	1	1	0	0	1	0	1	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	44	31	81	100	38	50	81	588	94	50	438	44
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1403	1406	462	1415	1381	637	483	0	0	683	0	0
Stage 1	561	561	-	798	798	-	-	-	-	-	-	-
Stage 2	842	845	-	617	583	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	118	140	604	116	145	481	1085	-	-	915	-	-
Stage 1	516	513	-	382	401	-	-	-	-	-	-	-
Stage 2	362	382	-	481	502	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	69	114	603	~ 68	118	480	1084	-	-	914	-	-
Mov Cap-2 Maneuver	69	114	-	~ 68	118	-	-	-	-	-	-	-
Stage 1	453	474	-	335	352	-	-	-	-	-	-	-
Stage 2	254	335	-	359	464	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	144.9		\$ 509.8		0.9		0.9					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1084	-	-	150	99	914	-	-				
HCM Lane V/C Ratio	0.075	-	-	1.042	1.894	0.055	-	-				
HCM Control Delay (s)	8.6	0	-	144.9	\$ 509.8	9.2	0	-				
HCM Lane LOS	A	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	0.2	-	-	8.1	15.6	0.2	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Intersection





Int Delay, s/veh 1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	20	490	20	20	365
Future Vol, veh/h	30	20	490	20	20	365
Conflicting Peds, #/hr	1	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	36	24	583	24	24	435

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1080	597	0	0	608
Stage 1	596	-	-	-	-
Stage 2	484	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.11
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209
Pot Cap-1 Maneuver	244	507	-	-	975
Stage 1	554	-	-	-	-
Stage 2	624	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	236	506	-	-	974
Mov Cap-2 Maneuver	236	-	-	-	-
Stage 1	553	-	-	-	-
Stage 2	603	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 236 506	974	-
HCM Lane V/C Ratio	-	- 0.151 0.047	0.024	-
HCM Control Delay (s)	-	- 23 12.5	8.8	0
HCM Lane LOS	-	- C B	A	A
HCM 95th %tile Q(veh)	-	- 0.5 0.1	0.1	-






Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	375	5	5	475	30	20	5	5	5	5	5
Future Vol, veh/h	5	375	5	5	475	30	20	5	5	5	5	5
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	6	431	6	6	546	34	23	6	6	6	6	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	581	0	0	438	0	0	1029	1040	436	1029	1026	565
Stage 1	-	-	-	-	-	-	447	447	-	576	576	-
Stage 2	-	-	-	-	-	-	582	593	-	453	450	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	998	-	-	1127	-	-	214	232	625	214	237	528
Stage 1	-	-	-	-	-	-	595	577	-	506	505	-
Stage 2	-	-	-	-	-	-	502	497	-	590	575	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	997	-	-	1126	-	-	205	228	624	205	233	527
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	228	-	205	233	-
Stage 1	-	-	-	-	-	-	590	572	-	501	500	-
Stage 2	-	-	-	-	-	-	486	493	-	574	570	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			22.9			19.2		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	235	997	-	-	1126	-	-	271				
HCM Lane V/C Ratio	0.147	0.006	-	-	0.005	-	-	0.064				
HCM Control Delay (s)	22.9	8.6	0	-	8.2	0	-	19.2				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.2				






Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	5	5	5	50	5	5	15	400	70	5	320	5
Future Vol, veh/h	5	5	5	50	5	5	15	400	70	5	320	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	5	5	54	5	5	16	430	75	5	344	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	862	894	347	862	859	468	349	0	0	505	0	0
Stage 1	357	357	-	500	500	-	-	-	-	-	-	-
Stage 2	505	537	-	362	359	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	277	283	701	276	295	597	1215	-	-	1065	-	-
Stage 1	665	632	-	555	545	-	-	-	-	-	-	-
Stage 2	553	526	-	659	629	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	266	276	701	265	288	597	1215	-	-	1065	-	-
Mov Cap-2 Maneuver	266	276	-	265	288	-	-	-	-	-	-	-
Stage 1	652	629	-	544	535	-	-	-	-	-	-	-
Stage 2	532	516	-	645	626	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	16.1		21.7		0.2		0.1	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1215	-	-	341	280	1065	-
HCM Lane V/C Ratio	0.013	-	-	0.047	0.23	0.005	-
HCM Control Delay (s)	8	0	-	16.1	21.7	8.4	-
HCM Lane LOS	A	A	-	C	C	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.9	0	-

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	50	85	325	280	15
Future Vol, veh/h	5	50	85	325	280	15
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	6	57	97	369	318	17
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	894	331	337	0	-	0
Stage 1	329	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	314	715	1222	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	288	712	1220	-	-	-
Mov Cap-2 Maneuver	288	-	-	-	-	-
Stage 1	674	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.4	1.7		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1220	-	628	-	-	
HCM Lane V/C Ratio	0.079	-	0.1	-	-	
HCM Control Delay (s)	8.2	-	11.4	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	0.3	-	-	

Intersection						
Int Delay, s/veh	22.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	270	875	690	50	50	115
Future Vol, veh/h	270	875	690	50	50	115
Conflicting Peds, #/hr	7	0	0	14	14	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	290	941	742	54	54	124
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	810	0	-	0	2318	790
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	1535	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	820	-	-	-	~ 42	392
Stage 1	-	-	-	-	452	-
Stage 2	-	-	-	-	197	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	809	-	-	-	~ 26	384
Mov Cap-2 Maneuver	-	-	-	-	~ 26	-
Stage 1	-	-	-	-	287	-
Stage 2	-	-	-	-	194	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.8	0		260.3		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	809	-	-	-	26	384
HCM Lane V/C Ratio	0.359	-	-	-	2.068	0.322
HCM Control Delay (s)	11.9	-	-	-	\$ 815.7	18.8
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	1.6	-	-	-	6.5	1.4
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection

Int Delay, s/veh 19.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
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Lane Configurations						
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Traffic Vol, veh/h	120	780	585	30	60	115
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Future Vol, veh/h	120	780	585	30	60	115
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Conflicting Peds, #/hr	12	0	0	9	9	12
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Sign Control	Free	Free	Free	Free	Stop	Stop
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RT Channelized	-	None	-	None	-	None
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Storage Length	-	-	-	-	0	-
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Veh in Median Storage, #	-	0	0	-	0	-
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Grade, %	-	0	0	-	0	-
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Peak Hour Factor	94	94	94	94	94	94
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Heavy Vehicles, %	0	0	1	1	0	0
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Mvmt Flow	128	830	622	32	64	122
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Major/Minor	Major1	Major2	Minor2
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Conflicting Flow All	666	0	0	1745	662
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Stage 1	-	-	-	650	-
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Stage 2	-	-	-	1095	-
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Critical Hdwy	4.1	-	-	6.4	6.2
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Critical Hdwy Stg 1	-	-	-	5.4	-
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Critical Hdwy Stg 2	-	-	-	5.4	-
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Follow-up Hdwy	2.2	-	-	3.5	3.3
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Pot Cap-1 Maneuver	933	-	-	96	465
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Stage 1	-	-	-	523	-
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Stage 2	-	-	-	323	-
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Platoon blocked, %	-	-	-	-	-
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Mov Cap-1 Maneuver	922	-	-	70	454
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Mov Cap-2 Maneuver	-	-	-	70	-
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Stage 1	-	-	-	384	-
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Stage 2	-	-	-	319	-
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Approach	EB	WB	SB
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HCM Control Delay, s	1.3	0	184.9
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HCM LOS			F
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Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
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Capacity (veh/h)	922	-	-	-	158
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HCM Lane V/C Ratio	0.138	-	-	-	1.178
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HCM Control Delay (s)	9.5	0	-	-	184.9
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HCM Lane LOS	A	A	-	-	F
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HCM 95th %tile Q(veh)	0.5	-	-	-	10.3
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Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	175	655	5	5	515	5	5	5	5	5	5	95
Future Vol, veh/h	175	655	5	5	515	5	5	5	5	5	5	95
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	125	-	-	65	-	-	65	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	192	720	5	5	566	5	5	5	5	5	5	104

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	571	0	0	730	0	0	1750	1693	733	1696	1693	574
Stage 1	-	-	-	-	-	-	1112	1112	-	579	579	-
Stage 2	-	-	-	-	-	-	638	581	-	1117	1114	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1007	-	-	879	-	-	68	94	424	74	94	522
Stage 1	-	-	-	-	-	-	256	287	-	504	504	-
Stage 2	-	-	-	-	-	-	468	503	-	254	286	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1007	-	-	875	-	-	43	75	420	58	75	520
Mov Cap-2 Maneuver	-	-	-	-	-	-	43	75	-	58	75	-
Stage 1	-	-	-	-	-	-	206	231	-	408	501	-
Stage 2	-	-	-	-	-	-	366	500	-	197	230	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2			0.1			57.5			20		
HCM LOS							F			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	43	127	1007	-	-	875	-	-	58	401
HCM Lane V/C Ratio	0.128	0.087	0.191	-	-	0.006	-	-	0.095	0.274
HCM Control Delay (s)	100.6	36	9.4	-	-	9.1	-	-	73.5	17.3
HCM Lane LOS	F	E	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	0.4	0.3	0.7	-	-	0	-	-	0.3	1.1

Intersection												
Int Delay, s/veh	9.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<div>↕</div>			<div>↕</div>			<div>↕</div>			<div>↕</div>	
Traffic Vol, veh/h	5	545	100	20	450	5	70	5	30	5	5	5
Future Vol, veh/h	5	545	100	20	450	5	70	5	30	5	5	5
Conflicting Peds, #/hr	0	0	12	12	0	0	12	0	12	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	6	665	122	24	549	6	85	6	37	6	6	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	555	0	0	799	0	0	1368	1353	750	1372	1411	564
Stage 1	-	-	-	-	-	-	750	750	-	600	600	-
Stage 2	-	-	-	-	-	-	618	603	-	772	811	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1020	-	-	828	-	-	125	151	415	124	140	529
Stage 1	-	-	-	-	-	-	407	422	-	491	493	-
Stage 2	-	-	-	-	-	-	480	492	-	395	396	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1020	-	-	819	-	-	112	141	406	104	131	523
Mov Cap-2 Maneuver	-	-	-	-	-	-	112	141	-	104	131	-
Stage 1	-	-	-	-	-	-	398	413	-	486	472	-
Stage 2	-	-	-	-	-	-	443	471	-	346	387	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.4			110.1			30.9		
HCM LOS							F			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	143	1020	-	-	819	-	-	157				
HCM Lane V/C Ratio	0.895	0.006	-	-	0.03	-	-	0.117				
HCM Control Delay (s)	110.1	8.6	0	-	9.5	0	-	30.9				
HCM Lane LOS	F	A	A	-	A	A	-	D				
HCM 95th %tile Q(veh)	6.1	0	-	-	0.1	-	-	0.4				

HCM 6th TWSC
13: NE Lockwood Creek Rd & E Spruce Ave

03/12/2025

Intersection

Int Delay, s/veh 0.8

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 30 525 435 5 5 35

Future Vol, veh/h 30 525 435 5 5 35

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 90 90 90 90 90 90

Heavy Vehicles, % 1 1 1 1 0 0

Mvmt Flow 33 583 483 6 6 39

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 489 0 - 0 1135 486

Stage 1 - - - - 486 -

Stage 2 - - - - 649 -

Critical Hdwy 4.11 - - - 6.4 6.2

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy 2.209 - - - 3.5 3.3

Pot Cap-1 Maneuver 1079 - - - 226 585

Stage 1 - - - - 623 -

Stage 2 - - - - 524 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1079 - - - 216 585

Mov Cap-2 Maneuver - - - - 216 -

Stage 1 - - - - 595 -

Stage 2 - - - - 524 -

Approach EB WB SB

HCM Control Delay, s 0.5 0 13.2

HCM LOS B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1




Capacity (veh/h) 1079 - - - 482

HCM Lane V/C Ratio 0.031 - - - 0.092

HCM Control Delay (s) 8.4 0 - - 13.2

HCM Lane LOS A A - - B

HCM 95th %tile Q(veh) 0.1 - - - 0.3

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	20	290	40	20	165
Future Vol, veh/h	40	20	290	40	20	165
Conflicting Peds, #/hr	4	1	0	4	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	1	1	0	0
Mvmt Flow	42	21	302	42	21	172
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	545	328	0	0	348	0
Stage 1	327	-	-	-	-	-
Stage 2	218	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.1	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.2	-
Pot Cap-1 Maneuver	498	711	-	-	1222	-
Stage 1	728	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	485	708	-	-	1217	-
Mov Cap-2 Maneuver	485	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.5	0		0.9		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		542	1217	
HCM Lane V/C Ratio	-	-		0.115	0.017	
HCM Control Delay (s)	-	-		12.5	8	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		0.4	0.1	

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
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Traffic Vol, veh/h	40	55	60	290	145	60
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Future Vol, veh/h	40	55	60	290	145	60
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Conflicting Peds, #/hr	4	5	5	0	0	4
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	-	-	-	-
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Veh in Median Storage, #	0	-	-	0	0	-
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Grade, %	0	-	-	0	0	-
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Peak Hour Factor	94	94	94	94	94	94
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Heavy Vehicles, %	0	0	1	1	1	1
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Mvmt Flow	43	59	64	309	154	64
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Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	632	196	223
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Stage 1	191	-	-
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Stage 2	441	-	-
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Critical Hdwy	6.4	6.2	4.11
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Critical Hdwy Stg 1	5.4	-	-
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Critical Hdwy Stg 2	5.4	-	-
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Follow-up Hdwy	3.5	3.3	2.209
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Pot Cap-1 Maneuver	448	850	1352
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Stage 1	846	-	-
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Stage 2	653	-	-
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Platoon blocked, %			
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Mov Cap-1 Maneuver	418	842	1346
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Mov Cap-2 Maneuver	418	-	-
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Stage 1	794	-	-
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Stage 2	650	-	-
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Approach	EB	NB	SB
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HCM Control Delay, s	12.4	1.3	0
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HCM LOS	B		
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Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
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Capacity (veh/h)	1346	-	590	-	-
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HCM Lane V/C Ratio	0.047	-	0.171	-	-
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HCM Control Delay (s)	7.8	0	12.4	-	-
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HCM Lane LOS	A	A	B	-	-
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HCM 95th %tile Q(veh)	0.1	-	0.6	-	-
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Intersection

Int Delay, s/veh 3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	50	5	185	100	5
Future Vol, veh/h	115	50	5	185	100	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	160	69	7	257	139	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	229
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1345
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1345
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-





Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	563	-	-	1345	-
HCM Lane V/C Ratio	0.259	-	-	0.005	-
HCM Control Delay (s)	13.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0	-

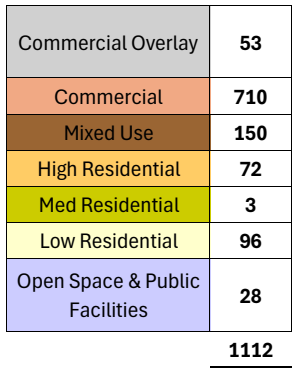
Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	365	5	5	475	5	5	5	5	5	5	5
Future Vol, veh/h	5	365	5	5	475	5	5	5	5	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	397	5	5	516	5	5	5	5	5	5	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	521	0	0	402	0	0	944	941	400	944	941	519
Stage 1	-	-	-	-	-	-	410	410	-	529	529	-
Stage 2	-	-	-	-	-	-	534	531	-	415	412	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1045	-	-	1157	-	-	242	263	650	242	263	557
Stage 1	-	-	-	-	-	-	619	595	-	533	527	-
Stage 2	-	-	-	-	-	-	530	526	-	615	594	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1045	-	-	1157	-	-	234	260	650	234	260	557
Mov Cap-2 Maneuver	-	-	-	-	-	-	234	260	-	234	260	-
Stage 1	-	-	-	-	-	-	615	591	-	530	524	-
Stage 2	-	-	-	-	-	-	516	523	-	601	590	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			17.2			17.6		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	311	1045	-	-	1157	-	-	303				
HCM Lane V/C Ratio	0.052	0.005	-	-	0.005	-	-	0.054				
HCM Control Delay (s)	17.2	8.5	0	-	8.1	0	-	17.6				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2				

HCM 6th TWSC
18: W Golden Eagle Avenue & NW Pacific Hwy

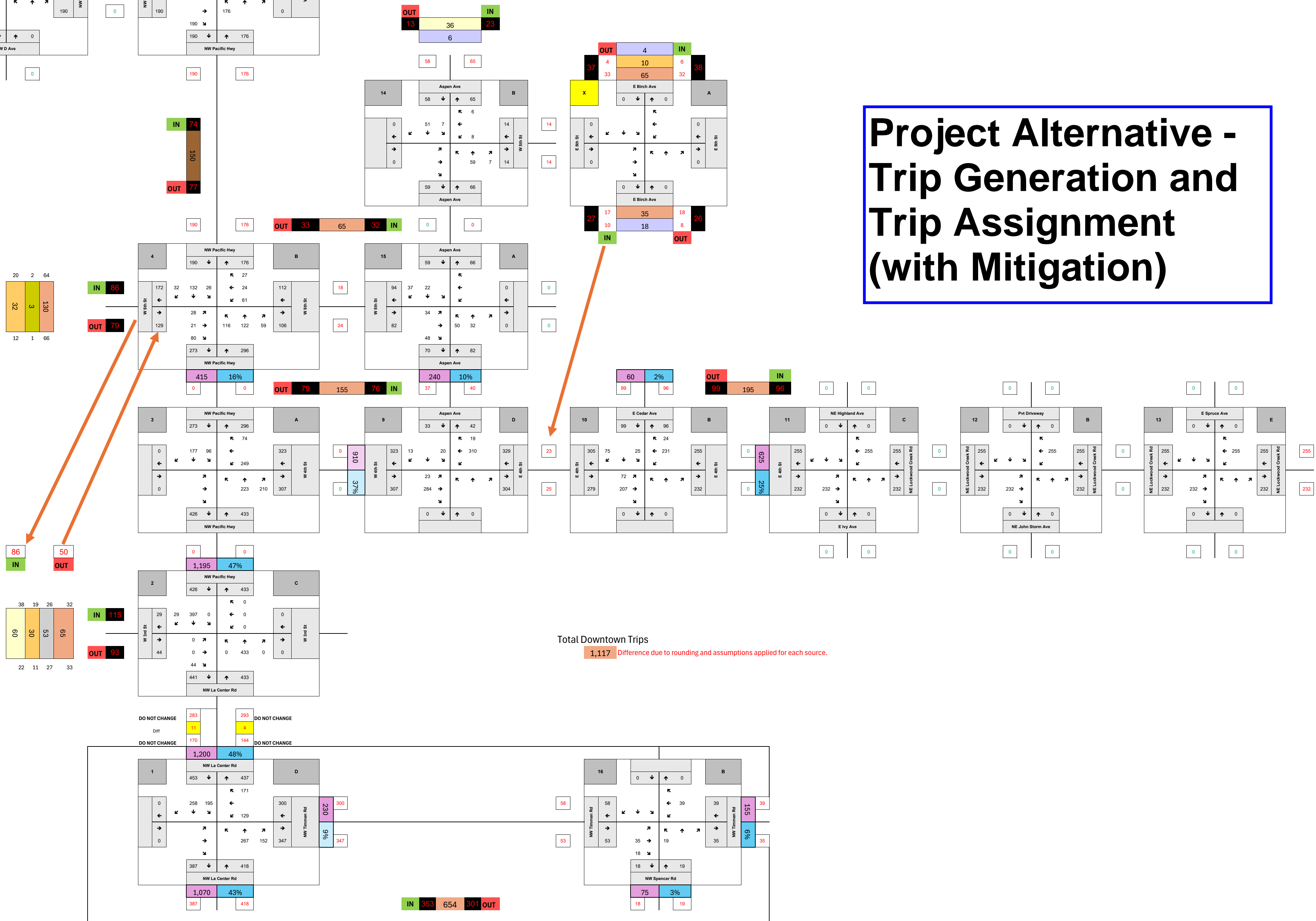
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Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	365	5	5	475	20	5	5	15	5	5	5
Future Vol, veh/h	5	365	5	5	475	20	5	5	15	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	397	5	5	516	22	5	5	16	5	5	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	538	0	0	402	0	0	952	958	400	957	949	527
Stage 1	-	-	-	-	-	-	410	410	-	537	537	-
Stage 2	-	-	-	-	-	-	542	548	-	420	412	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1030	-	-	1157	-	-	239	257	650	237	260	551
Stage 1	-	-	-	-	-	-	619	595	-	528	523	-
Stage 2	-	-	-	-	-	-	525	517	-	611	594	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1030	-	-	1157	-	-	231	254	650	225	257	551
Mov Cap-2 Maneuver	-	-	-	-	-	-	231	254	-	225	257	-
Stage 1	-	-	-	-	-	-	615	591	-	525	520	-
Stage 2	-	-	-	-	-	-	511	514	-	587	590	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			15			17.9		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	388	1030	-	-	1157	-	-	296				
HCM Lane V/C Ratio	0.07	0.005	-	-	0.005	-	-	0.055				
HCM Control Delay (s)	15	8.5	0	-	8.1	0	-	17.9				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2				

APPENDIX H: MITIGATION ASSESSMENT TRIP GENERATION AND TRIP ASSIGNMENT



Commercial Overlay	53
Commercial	710
Mixed Use	150
High Residential	72
Med Residential	3
Low Residential	96
Open Space & Public Facilities	28
	1112



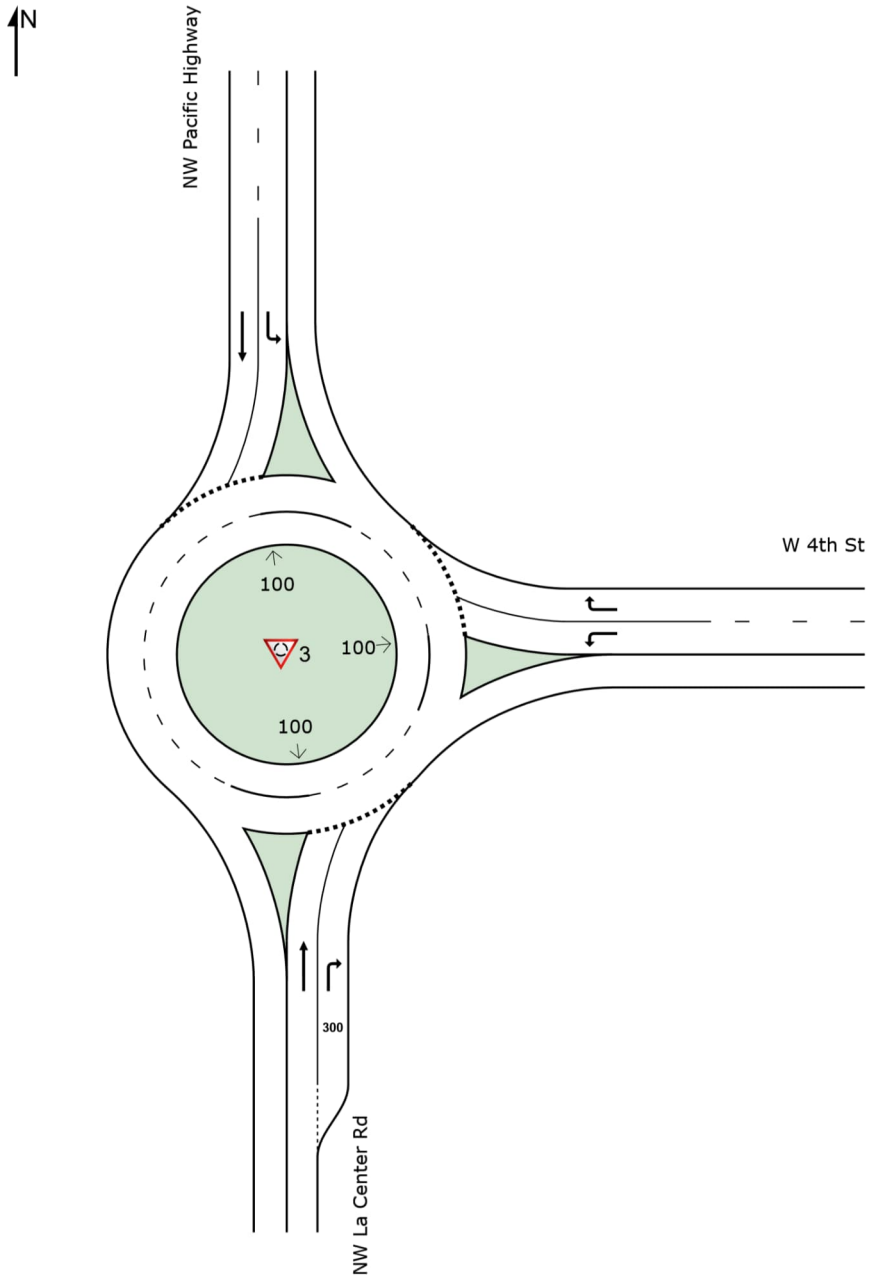
APPENDIX I: MITIGATION ASSESSMENT SYNCHRO AND SIDRA REPORTS

SITE LAYOUT

 **Site: 3 [NW La Center Rd_W 4th St_2045 Project Alt - Mitigation
(Site Folder: General)]**

Existing PM Peak
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 3 [NW La Center Rd_W 4th St_2045 Project Alt - Mitigation (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Existing PM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: NW La Center Rd															
8	T1	All MCs	608	1.0	608	1.0	0.606	3.1	LOS A	4.9	123.7	0.57	0.42	0.57	23.3
18	R2	All MCs	1136	1.0	1136	1.0	0.962	14.7	LOS B	28.5	718.7	1.00	0.93	1.26	19.8
Approach			1744	1.0	1744	1.0	0.962	10.7	LOS B	28.5	718.7	0.85	0.75	1.02	20.9
East: W 4th St															
1	L2	All MCs	773	2.0	773	2.0	0.914	22.1	LOS C	16.6	422.7	1.00	1.41	1.89	18.7
16	R2	All MCs	142	2.0	142	2.0	0.283	10.0	LOS B	1.3	33.1	0.65	0.79	0.65	13.5
Approach			915	2.0	915	2.0	0.914	20.2	LOS C	16.6	422.7	0.95	1.32	1.70	18.4
North: NW Pacific Highway															
7	L2	All MCs	159	2.0	159	2.0	0.380	13.0	LOS B	2.4	61.5	0.86	0.85	0.91	14.7
4	T1	All MCs	409	2.0	409	2.0	0.698	12.9	LOS B	7.5	190.1	1.00	1.04	1.36	20.8
Approach			568	2.0	568	2.0	0.698	12.9	LOS B	7.5	190.1	0.96	0.99	1.23	19.9
All Vehicles			3227	1.5	3227	1.5	0.962	13.8	LOS B	28.5	718.7	0.90	0.95	1.25	20.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA HCM.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: R:\USVAN100\Project2023\31000652_La Center\Planning\Task 5 - EIS and PAO\Draft EIS\Background Information\Transportation\02 Synchrono\SIDRA\La Center Rd Site 3 RBT Modified.sip9

HCM Signalized Intersection Capacity Analysis

4: NW Pacific Hwy & W 5th St

















03/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	35	25	85	80	30	40	120	465	75	40	335	35
Future Volume (vph)	35	25	85	80	30	40	120	465	75	40	335	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.92			0.96			0.98			0.99	
Flt Protected		0.99			0.97			0.99			1.00	
Satd. Flow (prot)		1715			1784			1831			1847	
Flt Permitted		0.90			0.70			0.83			0.88	
Satd. Flow (perm)		1558			1287			1530			1642	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	44	31	106	100	38	50	150	581	94	50	419	44
RTOR Reduction (vph)	0	56	0	0	15	0	0	6	0	0	4	0
Lane Group Flow (vph)	0	125	0	0	173	0	0	819	0	0	509	0
Confl. Peds. (#/hr)	1		1	1			1		1			1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		14.6			14.6			43.1			43.1	
Effective Green, g (s)		14.6			14.6			43.1			43.1	
Actuated g/C Ratio		0.22			0.22			0.65			0.65	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		341			281			988			1061	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.13			c0.54			0.31	
v/c Ratio		0.37			0.62			0.83			0.48	
Uniform Delay, d1		22.1			23.5			9.0			6.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			4.0			5.9			0.3	
Delay (s)		22.8			27.5			14.9			6.4	
Level of Service		C			C			B			A	
Approach Delay (s)		22.8			27.5			14.9			6.4	
Approach LOS		C			C			B			A	
Intersection Summary												
HCM 2000 Control Delay		14.5			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		66.7			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		81.9%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

4: NW Pacific Hwy & W 5th St

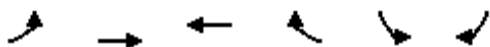
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	25	85	80	30	40	120	465	75	40	335	35
Future Volume (veh/h)	35	25	85	80	30	40	120	465	75	40	335	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	44	31	106	100	38	50	150	581	94	50	419	44
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	0	0	0	0	0	0	1	1	1	1	1	1
Cap, veh/h	153	67	164	259	71	73	239	763	116	147	954	95
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	297	408	997	795	433	445	224	1220	186	88	1524	151
Grp Volume(v), veh/h	181	0	0	188	0	0	825	0	0	513	0	0
Grp Sat Flow(s),veh/h/ln	1703	0	0	1673	0	0	1629	0	0	1763	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	9.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.0	0.0	0.0	4.1	0.0	0.0	15.5	0.0	0.0	6.1	0.0	0.0
Prop In Lane	0.24		0.59	0.53		0.27	0.18		0.11	0.10		0.09
Lane Grp Cap(c), veh/h	384	0	0	403	0	0	1119	0	0	1196	0	0
V/C Ratio(X)	0.47	0.00	0.00	0.47	0.00	0.00	0.74	0.00	0.00	0.43	0.00	0.00
Avail Cap(c_a), veh/h	840	0	0	824	0	0	2385	0	0	2515	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.7	0.0	0.0	16.7	0.0	0.0	5.7	0.0	0.0	4.1	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.8	0.0	0.0	1.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	1.6	0.0	0.0	3.0	0.0	0.0	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	0.0	0.0	17.5	0.0	0.0	6.6	0.0	0.0	4.4	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		181			188			825			513	
Approach Delay, s/veh		17.6			17.5			6.6			4.4	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.3		11.5		31.3		11.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		61.5		19.5		61.5		19.5				
Max Q Clear Time (g_c+I1), s		17.5		6.0		8.1		6.1				
Green Ext Time (p_c), s		9.3		0.9		4.5		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				8.3								
HCM 6th LOS				A								
Notes												
User approved changes to right turn type.												

HCM Signalized Intersection Capacity Analysis

10: E 4th St & E Cedar Ave

03/12/2025

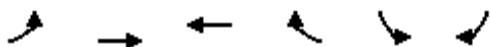


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	120	775	590	30	60	110
Future Volume (vph)	120	775	590	30	60	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.97	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.99		0.91	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		1885	1865		1650	
Flt Permitted		0.78	1.00		0.98	
Satd. Flow (perm)		1482	1865		1650	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	128	824	628	32	64	117
RTOR Reduction (vph)	0	0	2	0	75	0
Lane Group Flow (vph)	0	952	658	0	106	0
Confl. Peds. (#/hr)	12			9	9	12
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		64.3	64.3		16.7	
Effective Green, g (s)		64.3	64.3		16.7	
Actuated g/C Ratio		0.71	0.71		0.19	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1058	1332		306	
v/s Ratio Prot			0.35		c0.06	
v/s Ratio Perm		c0.64				
v/c Ratio		0.90	0.49		0.35	
Uniform Delay, d1		10.3	5.7		31.9	
Progression Factor		1.00	0.20		1.00	
Incremental Delay, d2		10.3	0.3		3.1	
Delay (s)		20.5	1.4		35.0	
Level of Service		C	A		C	
Approach Delay (s)		20.5	1.4		35.0	
Approach LOS		C	A		C	
Intersection Summary						
HCM 2000 Control Delay			15.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			106.6%		ICU Level of Service	G
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

10: E 4th St & E Cedar Ave

03/12/2025












Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	775	590	30	60	110
Future Volume (veh/h)	120	775	590	30	60	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1885	1900	1900
Adj Flow Rate, veh/h	128	824	628	32	64	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	1	1	0	0
Cap, veh/h	154	875	1211	62	127	232
Arrive On Green	0.68	0.68	0.68	0.68	0.22	0.22
Sat Flow, veh/h	160	1284	1778	91	579	1058
Grp Volume(v), veh/h	952	0	0	660	182	0
Grp Sat Flow(s),veh/h/ln	1444	0	0	1868	1645	0
Q Serve(g_s), s	41.2	0.0	0.0	15.7	8.7	0.0
Cycle Q Clear(g_c), s	56.9	0.0	0.0	15.7	8.7	0.0
Prop In Lane	0.13			0.05	0.35	0.64
Lane Grp Cap(c), veh/h	1029	0	0	1272	360	0
V/C Ratio(X)	0.93	0.00	0.00	0.52	0.51	0.00
Avail Cap(c_a), veh/h	1050	0	0	1297	360	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.2	0.0	0.0	7.1	30.9	0.0
Incr Delay (d2), s/veh	13.3	0.0	0.0	0.3	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.2	0.0	0.0	5.6	3.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.5	0.0	0.0	7.4	35.9	0.0
LnGrp LOS	C	A	A	A	D	A
Approach Vol, veh/h		952	660		182	
Approach Delay, s/veh		28.5	7.4		35.9	
Approach LOS		C	A		D	
Timer - Assigned Phs				4	6	8
Phs Duration (G+Y+Rc), s				65.8	24.2	65.8
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				62.5	18.5	62.5
Max Q Clear Time (g_c+I1), s				58.9	10.7	17.7
Green Ext Time (p_c), s				2.4	0.3	5.8
Intersection Summary						
HCM 6th Ctrl Delay			21.5			
HCM 6th LOS			C			
Notes						
User approved volume balancing among the lanes for turning movement.						

HCM Signalized Intersection Capacity Analysis

11: E Ivy Ln/NE Highland Ave & E 4th St/NE Lockwood Creek Rd





















03/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	650	5	5	520	5	5	5	5	5	5	95
Future Volume (vph)	175	650	5	5	520	5	5	5	5	5	5	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.93		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1879		1787	1879		1786	1729		1805	1628	
Flt Permitted	0.30	1.00		0.20	1.00		0.69	1.00		0.75	1.00	
Satd. Flow (perm)	573	1879		376	1879		1291	1729		1427	1628	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	192	714	5	5	571	5	5	5	5	5	5	104
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	66	0
Lane Group Flow (vph)	192	719	0	5	576	0	5	7	0	5	43	0
Confl. Peds. (#/hr)			5	5			5		5			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	47.9	47.9		47.9	47.9		33.1	33.1		33.1	33.1	
Effective Green, g (s)	47.9	47.9		47.9	47.9		33.1	33.1		33.1	33.1	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.37	0.37		0.37	0.37	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	304	1000		200	1000		474	635		524	598	
v/s Ratio Prot		c0.38			0.31			0.00			c0.03	
v/s Ratio Perm	0.34			0.01			0.00			0.00		
v/c Ratio	0.63	0.72		0.03	0.58		0.01	0.01		0.01	0.07	
Uniform Delay, d1	14.8	15.9		10.0	14.2		18.1	18.1		18.1	18.5	
Progression Factor	0.48	0.52		0.97	1.05		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	1.3		0.0	0.7		0.0	0.0		0.0	0.2	
Delay (s)	9.4	9.7		9.7	15.7		18.1	18.1		18.1	18.7	
Level of Service	A	A		A	B		B	B		B	B	
Approach Delay (s)		9.6			15.6			18.1			18.7	
Approach LOS		A			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			12.5			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			64.9%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

11: E Ivy Ln/NE Highland Ave & E 4th St/NE Lockwood Creek Rd


03/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	650	5	5	520	5	5	5	5	5	5	95
Future Volume (veh/h)	175	650	5	5	520	5	5	5	5	5	5	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	192	714	5	5	571	5	5	5	5	5	5	104
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	336	966	7	241	964	8	522	333	333	619	29	593
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	844	1870	13	739	1866	16	1305	868	868	1418	74	1547
Grp Volume(v), veh/h	192	0	719	5	0	576	5	0	10	5	0	109
Grp Sat Flow(s),veh/h/ln	844	0	1883	739	0	1882	1305	0	1737	1418	0	1622
Q Serve(g_s), s	18.5	0.0	26.9	0.5	0.0	19.2	0.2	0.0	0.3	0.2	0.0	4.0
Cycle Q Clear(g_c), s	37.7	0.0	26.9	27.4	0.0	19.2	4.2	0.0	0.3	0.5	0.0	4.0
Prop In Lane	1.00		0.01	1.00		0.01	1.00		0.50	1.00		0.95
Lane Grp Cap(c), veh/h	336	0	973	241	0	972	522	0	666	619	0	622
V/C Ratio(X)	0.57	0.00	0.74	0.02	0.00	0.59	0.01	0.00	0.02	0.01	0.00	0.18
Avail Cap(c_a), veh/h	467	0	1266	356	0	1265	522	0	666	619	0	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.3	0.0	17.0	27.7	0.0	15.2	19.7	0.0	17.2	17.4	0.0	18.3
Incr Delay (d2), s/veh	1.5	0.0	1.7	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	11.4	0.1	0.0	8.0	0.1	0.0	0.1	0.1	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	0.0	18.7	27.7	0.0	15.7	19.8	0.0	17.3	17.4	0.0	19.0
LnGrp LOS	C	A	B	C	A	B	B	A	B	B	A	B
Approach Vol, veh/h	911			581			15			114		
Approach Delay, s/veh	21.0			15.8			18.1			18.9		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	39.0			51.0			39.0			51.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	20.5			60.5			20.5			60.5		
Max Q Clear Time (g_c+I1), s	6.2			39.7			6.0			29.4		
Green Ext Time (p_c), s	0.0			6.8			0.5			4.6		
Intersection Summary												
HCM 6th Ctrl Delay	19.0											
HCM 6th LOS	B											

HCM Signalized Intersection Capacity Analysis

12: NE John Storm Ave/Private Access & NE Lockwood Creek Rd

















03/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	5	540	100	20	455	5	70	5	30	5	5	5
Future Volume (vph)	5	540	100	20	455	5	70	5	30	5	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			0.98			1.00	
Frt		0.98			1.00			0.96			0.95	
Flt Protected		1.00			1.00			0.97			0.98	
Satd. Flow (prot)		1827			1874			1708			1785	
Flt Permitted		1.00			0.96			0.81			0.94	
Satd. Flow (perm)		1821			1798			1428			1702	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	6	659	122	24	555	6	85	6	37	6	6	6
RTOR Reduction (vph)	0	10	0	0	0	0	0	14	0	0	4	0
Lane Group Flow (vph)	0	777	0	0	585	0	0	114	0	0	14	0
Confl. Peds. (#/hr)			12	12			12		12			
Confl. Bikes (#/hr)								1				
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		52.3			52.3			28.7			28.7	
Effective Green, g (s)		52.3			52.3			28.7			28.7	
Actuated g/C Ratio		0.58			0.58			0.32			0.32	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1058			1044			455			542	
v/s Ratio Prot												
v/s Ratio Perm		c0.43			0.33			c0.08			0.01	
v/c Ratio		0.73			0.56			0.25			0.03	
Uniform Delay, d1		13.8			11.7			22.7			21.0	
Progression Factor		0.11			1.00			1.00			1.00	
Incremental Delay, d2		2.3			0.7			1.3			0.1	
Delay (s)		3.8			12.4			24.0			21.1	
Level of Service		A			B			C			C	
Approach Delay (s)		3.8			12.4			24.0			21.1	
Approach LOS		A			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			9.0				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		9.0			
Intersection Capacity Utilization			60.1%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

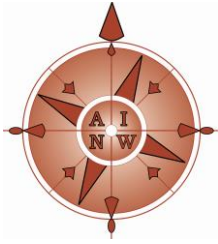
HCM 6th Signalized Intersection Summary

12: NE John Storm Ave/Private Access & NE Lockwood Creek Rd

03/12/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	540	100	20	455	5	70	5	30	5	5	5
Future Volume (veh/h)	5	540	100	20	455	5	70	5	30	5	5	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.96	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	6	659	122	24	555	6	85	6	37	6	6	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	42	748	138	59	849	9	461	42	178	251	251	224
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	4	1539	283	36	1745	18	954	102	429	478	606	542
Grp Volume(v), veh/h	787	0	0	585	0	0	128	0	0	18	0	0
Grp Sat Flow(s),veh/h/ln	1825	0	0	1800	0	0	1486	0	0	1625	0	0
Q Serve(g_s), s	3.2	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	34.9	0.0	0.0	20.9	0.0	0.0	4.8	0.0	0.0	0.5	0.0	0.0
Prop In Lane	0.01		0.16	0.04		0.01	0.66		0.29	0.33		0.33
Lane Grp Cap(c), veh/h	928	0	0	917	0	0	681	0	0	726	0	0
V/C Ratio(X)	0.85	0.00	0.00	0.64	0.00	0.00	0.19	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	1285	0	0	1263	0	0	681	0	0	726	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.8	0.0	0.0	17.2	0.0	0.0	16.8	0.0	0.0	15.6	0.0	0.0
Incr Delay (d2), s/veh	4.0	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.1	0.0	0.0	8.8	0.0	0.0	1.8	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	0.0	0.0	18.0	0.0	0.0	17.4	0.0	0.0	15.7	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		787			585			128			18	
Approach Delay, s/veh		24.9			18.0			17.4			15.7	
Approach LOS		C			B			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		41.7		48.3		41.7		48.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		19.5		61.5		19.5		61.5				
Max Q Clear Time (g_c+I1), s		6.8		36.9		2.5		22.9				
Green Ext Time (p_c), s		0.5		6.8		0.0		5.0				
Intersection Summary												
HCM 6th Ctrl Delay				21.5								
HCM 6th LOS				C								

APPENDIX E. ARCHAEOLOGICAL AND HISTORIC RESOURCES REPORT



Archaeological Investigations Northwest, Inc.

3510 N.E. 122nd Ave. • Portland, Oregon 97230
Phone (503) 761-6605 • Fax (503) 761-6620

Vancouver Phone (360) 696-7473
E-mail: ainw@ainw.com
Web: www.ainw.com

MEMO

Date: February 27, 2024

To: Scott Keillor, AICP, Senior Vice President, Planning, WSP USA

From: Nicholas Smits, M.A., R.P.A., Senior Archaeologist
Andrea Blaser, M.S., Senior Architectural Historian/Historian
Julia Flauaus, B.A./B.S., Architectural Historian
Tara Seaver, M.S., Architectural Historian/Staff Archaeologist

Re: Timmen Landing and Downtown Planned Action Areas Project,
La Center, Clark County, Washington
Review of Existing Conditions for Archaeological and Historic Resources
AINW Report No. 5074 (Redacted to Remove Sensitive Archaeological Information)

INTRODUCTION

The City of La Center (City) is developing subarea plans for Timmen Landing and downtown La Center. The two subareas are separated by a bridge over the East Fork Lewis River. The two subarea plans will be combined into a single planned action ordinance under the Washington State Environmental Policy Act (SEPA), with the objective of encouraging economic development in the subareas. Timmen Landing is currently characterized by low-density residential development and low-intensity agricultural uses, while downtown La Center is characterized by a mixture of commercial, civic, and residential development.

Archaeological Investigations Northwest, Inc. (AINW), is assisting the City and WSP USA with planning for future development in the subareas by providing information regarding existing conditions and professional recommendations for archaeological and historic resources. Future development in the two subareas will likely be subject to compliance review for cultural resources under La Center's municipal code and other laws and regulations that may be applicable.

- Under La Center's municipal code (Chapter 18.360), the City provides procedures and standards for identifying, documenting, and preserving cultural resources that include archaeological and historic resources.
- If future development projects within the Timmen Landing and Downtown subareas involve federal funding or federal permitting, those developments may be subject to review for cultural resources under Section 106 of the National Historic Preservation Act (NHPA). Federally funded transportation projects are also subject to review under Section 4(f) of the U.S. Department of Transportation Act.

Scott Keillor, WSP USA

Timmen Landing and Downtown Planned Action Areas

Review of Existing Conditions for Archaeological and Historic Resources

AINW Report No. 5074 (Redacted to Remove Sensitive Archaeological Information)

- If future development projects within the Timmen Landing and Downtown subareas involve state capital funding, those developments may be subject to review for cultural resources under Governor's Executive Order (GEO) 21-02.
- Washington state laws regarding archaeological sites and permitting through the Washington State Department of Archaeology and Historic Preservation (DAHP) (Chapter 27.53 RCW) may be applicable for locations where archaeological sites are identified. Washington state laws also protect Indian graves and records (Chapter 27.44 RCW) and abandoned and historic cemeteries and historic graves (Chapter 68.60 RCW).

This report summarizes the results of background research and a field reconnaissance done to review existing conditions and identify documented and potential cultural resources within the two subareas. Recommendations are provided for additional cultural resource investigations that may be needed prior to development in the subareas. Information in this report is intended to be included in an Environmental Impact Statement (EIS) for the project under SEPA.

METHODOLOGY

AINW conducted a review of records available in DAHP's online database, known as the Washington Information System for Architectural and Archaeological Records Data (WISAARD). Existing cultural resources documentation from WISAARD is summarized below and supplemented with data collected during field reconnaissance of the subareas performed on August 4 and 5, 2023, by Senior Architectural Historian/Historian Andrea Blaser, M.S., and Senior Archaeologist Nicholas Smits, M.A., R.P.A., and on February 20, 2024, by Architectural Historian/Staff Archaeologist Tara Seaver, M.S., and Architectural Historian Julia Flauaus, B.A./B.S. The work was directed and performed by AINW staff who meet the Secretary of the Interior's Professional Qualifications Standards for Archaeology, History, and Architectural History. For archaeology, the purpose of the field reconnaissance was to verify areas where previous archaeological work has been completed and to assess the archaeological potential in the two subareas. For historic resources, the purpose of the field reconnaissance was to identify buildings and structures constructed in or before 1978 that may be eligible for listing in the National Register of Historic Places (NRHP).

CULTURAL RESOURCES

Archaeological Resources

The two subareas are on ancestral lands of Native Americans who have lived in this area since time immemorial. Pre-contact (Native American) archaeological sites are common in the La Center area near the East Fork Lewis River as it approaches its confluence with the mainstem Lewis River and the Columbia River approximately 0.8 kilometer (0.5 mile) to the west. Historic-period archaeological sites are also common, particularly along transportation corridors and historically developed areas.

Timmen Landing

The Timmen Landing subarea encompasses terrace and hillside landforms that slope down to the northeast toward the bottomlands along the East Fork Lewis River. Washington's statewide archaeological predictive model (available on WISAARD) indicates that most of the Timmen Landing subarea falls within the category labeled "Archaeological Survey Highly Advised: Very High Risk" for archaeological resources. The northwestern portion of the Timmen Landing subarea, where the terrain is steeper in the vicinity of NW La Center Road and NW 319th Street, falls within categories labeled "Survey Recommended: Moderate Risk" to "Survey Contingent Upon Project Parameters: Low Risk" for archaeological resources.

Most of the Timmen Landing subarea has not been previously studied for archaeological resources. The few archaeological studies previously completed in the subarea consist mainly of limited survey or predetermination-level investigations done for installation of buried utilities that include a fiber optic line (Cooper 2001), water lines (Cowan and Tisdale 2016; Freed 2011; Taber and Roulette 2022), and a natural gas meter station (Lorain and Trost 2021). No archaeological resources were identified as a result of these previous investigations, which were all located on or near major roads in the subarea.

There is one recorded archaeological site within the Timmen Landing subarea. The site consists of pre-contact lithic artifacts and historic-period artifacts identified on a terrace landform adjacent to the East Fork Lewis River.

Also within the Timmen Landing subarea is John Pollock's Grave located at 32324 NW Pollock Road (Photo 1). The grave site is listed in the Washington Heritage Register, but it has not been evaluated for eligibility to be listed in the NRHP (Woolridge n.d.). The site includes a modern vinyl fence, assumed to enclose the location of John Pollock's remains, and a granite marker. The fence and marker were installed in 2009 (Woolridge n.d.). Pollock was reportedly buried at this location in 1868.

At the northern end of the subarea, timber pilings are visible in the water along both banks of the East Fork Lewis River (Photo 2). The pilings are remnants of previous structures, including a previous bridge over the river as well as docks and other structures, that were present in the vicinity of Timmen Landing and downtown La Center in the late nineteenth and early twentieth centuries. The pilings meet the definition of an archaeological site; however, they have not yet been documented or recorded or evaluated for NRHP eligibility. In addition, there may be submerged archaeological resources in the river. Several steamboats are known to have sunk in this vicinity (La Center Historical Museum 2023).

Downtown

The Downtown subarea encompasses terrace and hillside landforms that slope down to the south and west toward the East Fork Lewis River. Brezee Creek and an unnamed drainage flow southward through the subarea toward their confluence with the East Fork Lewis River. Washington's statewide archaeological predictive model indicates that most of the Downtown subarea falls within the category labeled "Archaeological Survey Highly Advised: Very High Risk" for archaeological resources. Steeper

terrain in the vicinity of Brezee Creek falls within categories labeled “Survey Highly Advised: High Risk” to “Survey Recommended: Moderate Risk” for archaeological resources.

Most of the Downtown subarea has not been previously studied for archaeological resources. Previously completed studies that overlap the subarea consist of survey-level or predetermination-level investigations in support of floodplain restoration and habitat mitigation projects along the East Fork Lewis River (Gall and Smith 2011; Solimano et al. 2015), construction of a roundabout on 4th Street (Mastrangelo and Holschuh 2014), upgrades to the City’s wastewater treatment plant (Freed 2007), installation of a fiber optic line along NW La Center Road (Cooper 2001), widening of E 4th Street and replacing a culvert on Brezee Creek (Williams-Larson et al. 2020), construction of the Kays Subdivision (Easton 2007), installation of a stormwater outfall from the Kays Subdivision to the East Fork Lewis River (Holschuh 2015), a four-plex housing project on Parcel 63663620000 (Cogley and Gall 2021), and an archaeological predetermination for what is now Sternwheeler Park (Mills 2002a).

Though no pre-contact archaeological sites have been recorded within the subarea, there are three pre-contact archaeological sites and one isolated artifact that have been identified and recorded within about 220 meters (725 feet) of the subarea. An isolated flaked cobble is recorded to the north of the subarea. Two archaeological sites are to the east of the subarea near the course of Brezee Creek, and one site is southeast of the subarea on the southeast side of the East Fork Lewis River Levee.

There is one recorded historic-period archaeological site within the Downtown subarea (Mills 2002). As it was recorded, the site consisted of a scatter of historic-period artifacts and architectural debris, including fragments of brick, glass, ceramics, bone, metal, and concrete. Temporally diagnostic artifacts indicated that the items were manufactured between circa 1890 and 1930, and the deposit was interpreted to be the remnants of two buildings that were destroyed by fire in the 1930s and subsequently pushed over the edge of the terrace (Mills 2002b). The boundary of the site has not been delineated, and the site has not been evaluated for NRHP eligibility.

Timber piles are visible along both banks of the East Fork Lewis River, which forms the southern and western boundary of the Downtown subarea (Photo 2). The pilings are remnants of previous structures, including a previous bridge over the river as well as docks and other structures, that were present in the vicinity of Timmen Landing and downtown La Center in the late nineteenth and early twentieth centuries. The pilings meet the definition of an archaeological site; however, they have not yet been documented or recorded or evaluated for NRHP eligibility. In addition, there may be submerged archaeological resources in the river. Other historic-period archaeological sites are likely present in the historically developed parts of La Center.

Historic Resources

Timmen Landing

Reconnaissance of the Timmen Landing area indicates there is a section of the former Pacific Highway that was paved in 1921 and now operates as NW Pollock Road (Fortin and Smits 2016). Historic-period bollards, gutters, and curbing were observed in the area between NW Pollock Road’s intersection with

NW 4th Court to the road's terminus at the John Pollock Water Trail Park to the northeast (Photo 3). This section of the former highway is likely to meet minimum eligibility requirements for listing in the NRHP.

The Timmen Landing area is characterized by semi-rural residential development. Most buildings within the area appear to have been constructed within the last 50 years and are set back from adjacent roadways. Private drives limited the extent to which the Timmen Landing area could be observed for the presence of historic resources with potential to be eligible for listing in the NRHP. It is unlikely that a historic district is present in this subarea, unless the section of the Pacific Highway along NW Pollock Road is found to be part of an overarching linear historic district relating to the Pacific Highway.

Downtown

Within the Downtown Subarea, there are three historic buildings and one structure that have been previously documented.

- In 1994, Giovanni's Pizza Granita & Espresso was documented as having been constructed circa 1925 at 320 NW Pacific Highway (Garris 1994a). At the time of documentation, the building was noted as having poor integrity. The building has since been modified and is unlikely to have the aspects of integrity required to support eligibility for listing in the NRHP (Photo 4).
- The building at 318 Pacific Highway NW was constructed circa 1915 and was documented in 1994 as having moderate integrity (Garris 1994b). The building has since been extensively altered and is unlikely to be eligible for listing in the NRHP (Photo 4).
- The East Fork Lewis River Levee is located south of Sternwheeler Park and east of the East Fork Lewis River. Constructed circa 1941, the levee was determined to be not eligible for listing in the NRHP by the Bonneville Power Administration in 2015 (Goodwin 2015).
- The La Center Grange at 328 W 5th Street was previously documented in 1978, at which time it was theorized as having been constructed as early as 1875 (Pundt 1978). However, local students later reported that the building was constructed in 1900 (Davis et al. 2000). The building is currently unevaluated but likely to meet minimum eligibility requirements for listing in the NRHP due to its adequate historical integrity and association with the social history of La Center near the turn of the twentieth century.

Reconnaissance of the Downtown area revealed a mixture of historic-period residences and commercial buildings with civic buildings, parks, recreation facilities, and residences constructed within the last 50 years. Due to the mixture of building uses and dates of construction, the potential for a historic district to be present in the Downtown area and meet minimum eligibility requirements for listing in the NRHP is limited. However, there are two clusters of historic-period buildings that likely merit further investigation of potential eligibility for listing in the NRHP, both individually and collectively.

- Five commercial buildings along E 4th Street (103-127) are clustered between Aspen Avenue to the west and E Birch Avenue to the east (Photo 5). The buildings appear to date to the early to mid-twentieth century.
- Four houses along Aspen Avenue (530-630) are clustered on the west side of the street between E 5th Street to the south and E 7th Street to the north (Photo 6). Three of the four appear to have been constructed near the turn of the twentieth century, with the fourth house appearing to have been constructed circa 1940.

Individual buildings were also identified as having potential to be eligible for listing in the NRHP under Criterion C, as they exhibit distinctive characteristics of their type and period of construction and appear to retain adequate historical integrity. Additional research would be needed to discern potential associations with significant events (Criterion A) or people (Criterion B) of the past, in addition to assessing potential for each building to be a principal source of important information about the past (Criterion D).

- A house at 420 E Birch Avenue that appears to have been constructed circa 1900
- A bank building at 214 E 4th Street that appears to have been constructed circa 1976
- A house at 510 W 5th Street that was constructed circa 1944
- The Barnhart farm at 555 W 5th Street. Clark County records document the house as having been constructed circa 1912; a barn and shed were constructed circa 1924.
- A small building, likely a residence at 105 W 6th Street, that was constructed circa 1920

KEY CONSIDERATIONS FOR SUBAREA PLANS

Timmen Landing

Archaeological predetermination-level or survey-level studies (depending on compliance requirements) are recommended for areas that have not yet been investigated and where future developments are proposed. Avoidance of the one recorded archaeological site and John Pollock's Grave site is recommended. Timber pilings observed in the East Fork Lewis River are considered an archaeological site and should be documented and recorded. If an archaeological site is identified that cannot be avoided by future development, additional archaeological investigations may be needed, and a permit from DAHP may also be needed.

For historic resources, a primary concern is the potential for projects within the Timmen Landing area to affect the former Pacific Highway alignment (present-day NW Pollock Road). The section of roadway between NW 4th Court and the John Pollock Water Trail Park is likely eligible for listing in the NRHP and has not yet been documented in DAHP's WISAARD database. The section of road is notable for its retention of historical integrity and original design features, and it contributes to the historical feeling of the John Pollock Grave and John Pollock Water Trail Park area.

Downtown

Archaeological predetermination-level or survey-level studies (depending on compliance requirements) are recommended for areas that have not yet been investigated and where future developments are proposed. Avoidance of the one recorded archaeological site is recommended. Timber pilings observed in the East Fork Lewis River are considered an archaeological site and should be documented and recorded. If an archaeological site is identified that cannot be avoided by future development, additional archaeological investigations may be needed, and a permit from DAHP may also be needed.

There is limited potential for a historic district to be present within the Downtown area that would meet minimum eligibility requirements for listing in the NRHP. There are two notable clusters of historic buildings, one consisting of commercial buildings along E 4th Street and another of residences along Aspen Avenue, that merit further study of their individual and collective potential to be eligible for listing in the NRHP. However, these clusters are limited to no more than five buildings. There is a greater likelihood that most buildings within each cluster would be determined eligible for listing in the NRHP on an individual basis rather than as part of an overarching district resource.

Outside of the clusters of commercial buildings on E 4th Street and houses of Aspen Avenue, there are five individual buildings and one farm grouping that may also be eligible for listing in the NRHP. The most notable of these buildings is the La Center Grange at 328 W 5th Street, which is associated with the social history of La Center at the turn of the twentieth century. Previously documented buildings along NW Pacific Highway are unlikely to be eligible for listing in the NRHP. The East Fork Lewis River Levee has been determined not eligible for listing in the NRHP.

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Timmen Landing and Downtown Planned Action Areas

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APPENDIX F. UTILITY ASSESSMENT



MEMO

TO: City of La Center, WA

FROM: Tom Hickmann, P.E.

SUBJECT: Utility Assessment of Timmen Landing and Downtown Subarea Plans

DATE: April 30, 2025

INTRODUCTION & PURPOSE

The purpose of this memorandum is to provide a high-level assessment of the needs for water, sewer, and stormwater utilities to be capable of serving the proposed expansion and densification of development and redevelopment areas of the Timmen Landing and Downtown subarea plans in the City of La Center (City). This memorandum has been created based on verbal input from the City Engineer and from review of the subarea plans existing conditions analysis and other City utility planning documents.

In the review of the applicable documents, this memorandum considers three things. First, is the plan for any public utilities adequate to serve or develop infrastructure to serve the expansion areas? Second, is the plan for any public utilities lacking critical information for a sufficient analysis? And third, are there any recommendations for additional analysis to determine adequacy of each public utility? This memorandum along with the other planning documents should help the City determine costs and timing of needed improvements, if any, to serve the expanded areas. With this information the City can enter into development-related discussions with an understanding about costs and how they will be allocated in order to approve any individual development.



WATER SOURCE AND DISTRIBUTION

The drinking water in the City and the subarea plans is provided by the Clark Public Utilities (CPU), which is a non-profit, locally owned water and electric utility. They are governed by a three member, locally elected board that oversees and guides the utility maintenance, operations, planning, and investments. CPU is completely independent of the City but work cooperatively with the City's public utility planning efforts.

CPU plans, maintains, and operates all aspects of the water system from source to customer, including; wells, pumps, reservoirs, conveyance, distribution, water quality, and billing.

Based on conversations with the City Engineer, CPU has been made aware of the Timmen Landing and Downtown planning efforts. It is City staff's understanding that CPU is undertaking an update to its master planning efforts, which will include additional analysis for the ability to serve these areas in the planned timeline. This includes any needed acquisition of future water rights and water supply to meet these needs, along with any needed infrastructure to meet these demands.

The current system is primarily fed by wells to the north of the City and also from the west of the city. There is a single 12-inch pipe feed across the East Fork Lewis River. Based on maps of the CPU water system, water flow can be provided on either side of the river. This is critical in the event this line across the river were to fail.

A hydraulic analysis of the ability to serve each area independently without this connection should be performed. As part of the hydraulic analysis, a detailed fire flow analysis should also be performed showing that the required fire flows (both flow and duration) can be met during peak day demand with reservoirs at half full, and/or with the largest source taken out of service. This analysis would demonstrate the ability to adequately meet the fire flow requirements, or what improvements may be required to do so. This will be important information for any commercial or industrial planned areas to know what level of investment, if any, may be required as part of their planning efforts. In addition, it would also allow any proposed modifications in the existing system to be considered when improvements for other projects are being undertaken. In essence, if there is a road improvement project, knowing what modifications may be needed for the water system would allow costs to be shared and avoiding having to redo work on a newly paved road when a proposed development comes. It also allows consideration of how those costs can be recovered by future development.

The CPU water master plan should cover key topics of water rights and water supply, timing, and need for acquiring new supply along with potential challenges to this acquisition. Western water law and state water laws can be difficult to work through and can take significant time, up to several years. This should be considered in developing future water supplies that may be needed as a result of the two subarea plans.

The water master plan should have as its foundation the use of a calibrated hydraulic model to analyze the conveyance and distribution system under average day and peak day demands. This analysis should include a proposed timeline for needed improvements to meet future demands or address critical points in the system that may be single points of failure. This same model should be used to analyze the fire flow demands under the strained conditions mentioned above. All this information will allow the City to be able to better inform any proposed development within the two sub areas of needed infrastructure improvements and consider how these costs will be covered.

In reviewing the La Center Municipal Code (LCMC), there is no ready information regarding City standards for the water system. In many cases, a City can set its own standards for water systems within its jurisdiction even if it is provided by an outside authority. This is especially true for fire flow requirements. Even if the City supports all of the CPU requirements, those should be adopted as part of the codes and point to CPU requirements. In review of the CPU website, there was no information regarding required specifications. The City should have code for what the required fire flows are for each planned zone, the methodology requirements for fire flow analysis, required, or allowed, pipe materials, or any other specification the City explicitly wants as part of development. This also makes it clear to developers that this analysis is required. Adopting code can help protect other utilities and City assets. As an example, adopting requirements for pipe bedding, backfill, and compaction can protect transportation infrastructure to prevent settling.

It is important to include the methodology for determining fire flows. This can be controversial if not well coordinated with CPU. The highest standard is using a verified calibrated hydraulic model that considers if fire flows can be met with critical elements out of service. This is subjective and completely up to the City on how protective it wants to be when it comes to fires. Most cities require this analysis be analyzed on the maximum day demand with reservoirs at half full. A more restrictive/conservative approach is to also run the fire flow analysis with the largest source offline. This type of analysis would be the most protective of structures in a fire event but could require significant investment to meet these higher requirements. Regardless, the City should adopt the specific conditions for the analysis.

We recommend the City establish periodic meetings with the Board of CPU. These check-in meetings can help both City and CPU staff work through any potential challenges that may arise and give CPU a heads up on new water demands that may be coming. Establishing a working relationship now avoids problems when time becomes limited, and information exchange is needed rapidly to get approval for development.

SUMMARY RECOMMENDATIONS FOR WATER DISTRIBUTION:

- An independent review of the CPU water master plan by the City when it is complete
 - Verify demand estimates are in line with City Planning
 - Verify the use of a calibrated hydraulic model



- Ensure the Downtown and Timmen subarea plans peak day demands can be met independently from the 12-inch river crossing
- Perform a fire flow analysis meeting the required fire flows for each zone with the largest source off line and reservoirs half full. Below is some suggested fire flow requirements, but these can vary greatly depending on size of structures and types of businesses.
 - Minimum Residential 1,000 gallons per minute (gpm) for 2 hours
 - Minimum Commercial 2,500 gpm for 2 hours
 - Minimum Industrial 3,500 gpm for 4 hours.
- City Council should consider adopting a formal policy of at least annual meetings with the CPU Board for coordination
- Consider adopting independent fire flow requirements and methodologies that development must complete for approval

SEWER COLLECTION, CONVEYANCE, AND TREATMENT

The City owns, maintains, and operates the sewer system including the collection piping, pumping, and treatment. The City is currently in the process of updating its master plans for its collections and treatment and has a 2023 draft of this plan under review. For purposes of this document, we did not spend significant time reviewing the planning efforts or conditions of the existing treatment plant other than to find these documents more than adequate to plan for the two planning areas. The plan has clearly addressed the flows of the subarea plans along with the proposed loadings.

The existing treatment plant is a membrane bioreactor (MBR) flat panel treatment system that can treat up to 3 MGD. The inflow has preliminary anaerobic and aerobic treatment prior to the MBR's and have plans to add a grit chamber in the future. These pretreatment processes while standard, also extend the life of the MBR. MBR's provide a high level of treatment and are relatively easy to expand when additional treatment capacity is needed. The current 2023 planning documents have accounted for the additional flow from the two planning areas and has done an excellent job positioning the City to meet these future loads. The City has already planned for an expansion to 6 MGD when it is needed. As a result of the City's planning efforts, the wastewater treatment plant is well positioned to handle any additional flows or loading coming from the land use plan expansions of these two areas.

The collection system has also planned for the subarea plans and is more than adequate for purposes of planning as long as the City formally adopts the planning document. The Downtown subarea plan is primarily gravity flow directly to the treatment plant while the Timmen Landing subarea plan is pumped on La Center Road to the high point of Timmen Road at which point it goes to gravity flow across the East Fork Lewis River.

There are two force mains coming from the McCormick Creek pump station on La Center Road. One of these force mains is 8-inch and is not in use. The other force main is 6-inch and is in use but due to low flows it currently requires flushing cycles. Between these two force mains there is significant



future capacity to serve the Timmen Landing subarea plan. In addition, the redundancy of the mains across the river ensure that flows can be conveyed to the treatment plant even if one is taken offline for maintenance.

While there are some septic systems already existing in the Timmen Landing subarea plan, they do not serve constrained neighborhoods. The additional load that will result from these existing septic systems being connected to the sewer collection system will not significantly impact available capacity.

The biggest consideration for the collection system is policy rather than any physically-based constraint. There is at least one already approved connection to the existing 6-inch force main coming from the McCormick pump station. Allowing connections to force mains becomes problematic in the future as more are allowed to connect. The hydraulic analysis to determine available capacity becomes far more complex and requires a full system analysis for each additional connection rather than a more local analysis to determine if capacity exists. The City should consider policy that centralizes and minimizes pumping of wastewater. This keeps pump stations from competing for capacity against each other. A policy that discourages or limits connectivity to force mains gives the City the greatest flexibility in the future.

SUMMARY RECOMMENDATIONS FOR SEWER COLLECTION AND TREATMENT SYSTEMS:

- Formally adopt the 2023 sewer collection and treatment master plan.
- Consider policies that may limit or prohibit connections to force mains and requires gravity flow to existing wet wells of existing pump stations.

STORMWATER

The City owns and operates the majority of the stormwater system and is allowed to operate without an NPDES discharge permit. The City has code that requires development to contain stormwater drainage within the development minimizing any new point source discharges to the river.

The current system has, for the most part, been mapped and verified. According to the City Engineer there is likely missing pieces of information regarding existing piping and/or detention facilities, and it is sufficient to note that the existing system can effectively serve the Downtown subarea. Increased density, which typically reduces infiltration and increases runoff, will need to be analyzed for each proposed development to ensure it complies with existing code as is required. The increased density may prove to be challenging to comply with existing code to contain drainage on site. This may require allowing of smaller design storms being conveyed to the existing system. This should be analyzed for the Downtown subarea plan.



The City has adopted code for stormwater design criteria (LCMC Chapter 18.320) and this should be reviewed as part of the system master plan to ensure the criteria is still adequate. This would include consideration of the design storm frequency.

The Downtown subarea plan documents do not show any new stormwater detention. Without a more formal stormwater master plan and detailed mapping of the drainage and detention, it is difficult to assess if the change in zoning densification will have a negative impact on the existing system Downtown system. Consideration, at minimum, to create a stormwater detention pond somewhere in the downtown area should be analyzed to see if it is needed and if it is feasible. In addition, when looking at lot sizes, ensure there is sufficient impermeable area to allow for onsite retention as the City code requires.

The Timmen Landing subarea plan would fall under the City's storm drainage development design requirements. There is no existing storm facilities in this area, and as a result all new development will need to comply with the storm drainage code. Since the entire area will be newly developed, they will not have the restrictions that may be found in the Downtown area. The planning document shows a stormwater detention pond to the east of the Timmen Landing area. A general review of the topography shows that the majority of the proposed planning area can gravity flow to this detention pond. Avoidance of pumping stormwater to this facility keeps future operations and maintenance costs low.

In general, the City has a very good stormwater code. The City is planning on a formal stormwater master plan and will be adopting this plan in 2027 This plan should satisfy the requirements of being able to serve the proposed plans. The plan should use GIS mapping to show all existing stormwater piping and detention facilities. In addition, the plan should identify what is required for the City to maintain its current NPDES discharge exemption. If the City were to ever lose this exemption it could prove to be costly. A stormwater master plan should identify what are the requirements for the continuation of this exemption and the ability to enforce the requirements.

In addition, the City has a stormwater fee and uses this fee to maintain its existing system and enforce its code.

SUMMARY OF STORMWATER RECOMMENDATIONS:

- The City should complete and adopt a formal stormwater master plan
 - Plan should include mapping of existing system
- Separate from the stormwater master plan, the City should make sure it is adequately able to enforce site retention and maintenance on storm facilities the City does not own and operate.

APPENDIX G. GHG EMISSIONS WORKSHEETS



Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO ₂ e)			Lifespan Emissions (MTCO₂e)
			Embodied	Energy	Transportation	
Single-Family Home.....	183		98	672	792	285817
Multi-Family Unit in Large Building	0		33	357	766	0
Multi-Family Unit in Small Building	234		54	681	766	351041
Mobile Home.....	0		41	475	709	0
Education		0.0	39	646	361	0
Food Sales		14.0	39	1,541	282	26071
Food Service		57.0	39	1,994	561	147847
Health Care Inpatient		0.0	39	1,938	582	0
Health Care Outpatient		28.0	39	737	571	37703
Lodging		14.0	39	777	117	13064
Retail (Other Than Mall).....		71.0	39	577	247	61256
Office		57.0	39	723	588	76913
Public Assembly		0.0	39	733	150	0
Public Order and Safety		147.0	39	899	374	192752
Religious Worship		0.0	39	339	129	0
Service		43.0	39	599	266	38875
Warehouse and Storage		0.0	39	352	181	0
Other		0.0	39	1,278	257	0
Vacant		0.0	39	162	47	0

Section II: Pavement.....

Pavement.....		871.00				43550
---------------	--	--------	--	--	--	-------

Total Project Emissions:

1274888

Data entry fields



Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO ₂ e)			Lifespan Emissions (MTCO₂e)
			Embodied	Energy	Transportation	
Single-Family Home.....	316		98	672	792	493541
Multi-Family Unit in Large Building	410		33	357	766	473835
Multi-Family Unit in Small Building	141		54	681	766	211525
Mobile Home.....	0		41	475	709	0
Education		0.0	39	646	361	0
Food Sales		20.0	39	1,541	282	37244
Food Service		98.0	39	1,994	561	254193
Health Care Inpatient		0.0	39	1,938	582	0
Health Care Outpatient		20.0	39	737	571	26931
Lodging		20.0	39	777	117	18663
Retail (Other Than Mall).....		118.0	39	577	247	101805
Office		40.0	39	723	588	53974
Public Assembly		0.0	39	733	150	0
Public Order and Safety		147.0	39	899	374	192752
Religious Worship		0.0	39	339	129	0
Service		78.0	39	599	266	70517
Warehouse and Storage		0.0	39	352	181	0
Other		0.0	39	1,278	257	0
Vacant		0.0	39	162	47	0

Section II: Pavement.....

Pavement.....		871.00				43550
---------------	--	--------	--	--	--	-------

Total Project Emissions:

1978530

Data entry fields



Definition of Building Types

Type (Residential) or Principal Activity (Commercial)	Description
Single-Family Home.....	Unless otherwise specified, this includes both attached and detached buildings
Multi-Family Unit in Large Building	Apartments in buildings with more than 5 units
Multi-Family Unit in Small Building	Apartments in building with 2-4 units
Mobile Home.....	
Education	Buildings used for academic or technical classroom instruction, such as elementary, middle, or high schools, and classroom buildings on college or university campuses. Buildings on education campuses for which the main use is not classroom are included in the category relating to their use. For example, administration buildings are part of "Office," dormitories are "Lodging," and libraries are "Public Assembly."
Food Sales	Buildings used for retail or wholesale of food.
Food Service	Buildings used for preparation and sale of food and beverages for consumption.
Health Care Inpatient	Buildings used as diagnostic and treatment facilities for inpatient care.
Health Care Outpatient	Buildings used as diagnostic and treatment facilities for outpatient care. Doctor's or dentist's office are included here if they use any type of diagnostic medical equipment (if they do not, they are categorized as an office building).
Lodging	Buildings used to offer multiple accommodations for short-term or long-term residents, including skilled nursing and other residential care buildings.
Retail (Other Than Mall).....	Buildings used for the sale and display of goods other than food.
Office	Buildings used for general office space, professional office, or administrative offices. Doctor's or dentist's office are included here if they do not use any type of diagnostic medical equipment (if they do, they are categorized as an outpatient health care building).
Public Assembly	Buildings in which people gather for social or recreational activities, whether in private or non-private meeting halls.
Public Order and Safety	Buildings used for the preservation of law and order or public safety.
Religious Worship	Buildings in which people gather for religious activities, (such as chapels, churches, mosques, synagogues, and temples).
Service	Buildings in which some type of service is provided, other than food service or retail sales of goods
Warehouse and Storage	Buildings used to store goods, manufactured products, merchandise, raw materials, or personal belongings (such as self-storage).
Other	Buildings that are industrial or agricultural with some retail space; buildings having several different commercial activities that, together, comprise 50 percent or more of the floorspace, but whose largest single activity is agricultural, industrial/ manufacturing, or residential; and all other miscellaneous buildings that do not fit into any other category.
Vacant	Buildings in which more floorspace was vacant than was used for any single commercial activity at the time of interview. Therefore, a vacant building may have some occupied floorspace.

Sources:

Residential 2001 Residential Energy Consumption Survey
Square footage measurements and comparisons
<http://www.eia.doe.gov/emeu/recs/sqft-measure.html>

Commercial Commercial Buildings Energy Consumption Survey (CBECS),
Description of CBECS Building Types
<http://www.eia.doe.gov/emeu/cbeecs/pba99/bldgtypes.html>



Embodied Emissions Worksheet

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Single-Family Home.....	2.53	98	39
Multi-Family Unit in Large Building	0.85	33	39
Multi-Family Unit in Small Building	1.39	54	39
Mobile Home.....	1.06	41	39
Education	25.6	991	39
Food Sales	5.6	217	39
Food Service	5.6	217	39
Health Care Inpatient	241.4	9,346	39
Health Care Outpatient	10.4	403	39
Lodging	35.8	1,386	39
Retail (Other Than Mall).....	9.7	376	39
Office	14.8	573	39
Public Assembly	14.2	550	39
Public Order and Safety	15.5	600	39
Religious Worship	10.1	391	39
Service	6.5	252	39
Warehouse and Storage	16.9	654	39
Other	21.9	848	39
Vacant	14.1	546	39

Section II: Pavement.....

All Types of Pavement.....			50
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	Columns and Beams	Intermediate Floors	Exterior Walls	Windows	Interior Walls	Roofs		
Average GWP (lbs CO2e/sq ft): Vancouver, Low Rise Building	5.3	7.8	19.1	51.2	5.7	21.3		
Average Materials in a 2,272-square foot single family home	0.0	2269.0	3206.0	285.0	6050.0	3103.0	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	0.0	8.0	27.8	6.6	15.6	30.0	88.0	38.7

Sources

All data in black text

King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

Residential floorspace per unit

2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
<http://www.eia.doe.gov/emeu/recs/sqft-measure.html>

Floorspace per building

EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Average GWP (lbs CO2e/sq ft): Vancouver, Low Rise Building

Athena EcoCalculator
Athena Assembly Evaluation Tool v2.3- Vancouver Low Rise Building
Assembly Average GWP (kg) per square meter
<http://www.athenasmi.ca/tools/ecocalculator/index.html>
Lbs per kg 2.20
Square feet per square meter 10.76

Average Materials in a 2,272-square foot single family home

Buildings Energy Data Book: 7.3 Typical/Average Household
Materials Used in the Construction of a 2,272-Square-Foot Single-Family Home, 2000
http://buildingsdatabook.eren.doe.gov/?id=view_book_table&TableID=2036&t=xls
See also: NAHB, 2004 Housing Facts, Figures and Trends, Feb. 2004, p. 7.

Average window size

Energy Information Administration/Housing Characteristics 1993
Appendix B, Quality of the Data. Pg. 5.
<ftp://ftp.eia.doe.gov/pub/consumption/residential/rx93hcf.pdf>

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35030 SE Douglas Street, Suite 210
Snoqualmie, WA 98065-9266

March 2019

206-296-6600
TTY Relay: 711
www.kingcounty.gov



Pavement Emissions Factors
MTCO₂e/thousand square feet of asphalt
or concrete pavement

50 (see below)

Embodied GHG Emissions.....Worksheet Background Information

Buildings

Embodied GHG emissions are emissions that are created through the extraction, processing, transportation, construction and disposal of building materials as well as emissions created through landscape disturbance (by both soil disturbance and changes in above ground biomass).

Estimating embodied GHG emissions is new field of analysis; the estimates are rapidly improving and becoming more inclusive of all elements of construction and development.

The estimate included in this worksheet is calculated using average values for the main construction materials that are used to create a typical family home. In 2004, the National Association of Home Builders calculated the average materials that are used in a typical 2,272 square foot single-family household. The quantity of materials used is then multiplied by the average GHG emissions associated with the life-cycle GHG emissions for each material.

This estimate is a rough and conservative estimate; the actual embodied emissions for a project are likely to be higher. For example, at this stage, due to a lack of comprehensive data, the estimate does not include important factors such as landscape disturbance or the emissions associated with the interior components of a building (such as furniture).

King County realizes that the calculations for embodied emissions in this worksheet are rough. For example, the emissions associated with building 1,000 square feet of a residential building will not be the same as 1,000 square feet of a commercial building. However, discussions with the construction community indicate that while there are significant differences between the different types of structures, this method of estimation is reasonable; it will be improved as more data become available.

Additionally, if more specific information about the project is known, King County recommends two online embodied emissions calculators that can be used to obtain a more tailored estimate for embodied emissions: www.buildcarbonneutral.org and www.athenasmi.ca/tools/ecoCalculator/.

Pavement

Four recent life cycle assessments of the environmental impacts of roads form the basis for the per unit embodied emissions of pavement. Each study is constructed in slightly different ways; however, the aggregate results of the reports represent a reasonable estimate of the GHG emissions that are created from the manufacture of paving materials, construction related emissions, and maintenance of the pavement over its expected life cycle. For specifics, see the worksheet.

Special Section: Estimating the Embodied Emissions for Pavement

Four recent life cycle assessments of the environmental impacts of roads form the basis for the per unit embodied emissions of pavement. Each study is constructed in slightly different ways; however, the aggregate results of the reports represent a reasonable estimate of the GHG emissions that are created from the manufacture of paving materials, construction related emissions, and maintenance of the pavement over its expected life cycle.

The results of the studies are presented in different units and measures; considerable effort was undertaken to be able to compare the results of the studies in a reasonable way. For more details about the below methodology, contact matt.kuharic@kingcounty.gov.

The four studies, Meil (2001), Park (2003), Stripple (2001) and Treolar (2001) produced total GHG emissions of 4-34 MTCO₂e per thousand square feet of finished paving (for similar asphalt and concrete based pavements). This estimate does not including downstream maintenance and repair of the highway. The average (for all concrete and asphalt pavements in the studies, assuming each study gets one data point) is ~17 MTCO₂e/thousand square feet.

Three of the studies attempted to thoroughly account for the emissions associated with long term maintenance (40 years) of the roads. Stripple (2001), Park et al. (2003) and Treolar (2001) report 17, 81, and 68 MTCO₂e/thousand square feet, respectively, after accounting for maintenance of the roads.

Based on the above discussion, King County makes the conservative estimate that 50 MTCO₂e/thousand square feet of pavement (over the development's life cycle) will be used as the embodied emission factor for pavement until better estimates can be obtained. This is roughly equivalent to 3,500 MTCO₂e per lane mile of road (assuming the lane is 13 feet wide).

It is important to note that these studies estimate the embodied emissions for roads. Paving that does not need to stand up to the rigors of heavy use (such as parking lots or driveways) would likely use less materials and hence have lower embodied emissions.

Sources:

Meil, J. A Life Cycle Perspective on Concrete and Asphalt Roadways: Embodied Primary Energy and Global Warming Potential. 2006. Available:

[http://www.cement.ca/cement.nsf/eee9ec7bbd630126852566c40052107b/6ec79dc8ae03a782852572b90061b914/\\$FILE/ATTK0WE3/athena%20report%20Feb.%202%202007.pdf](http://www.cement.ca/cement.nsf/eee9ec7bbd630126852566c40052107b/6ec79dc8ae03a782852572b90061b914/$FILE/ATTK0WE3/athena%20report%20Feb.%202%202007.pdf)

Park, K, Hwang, Y., Seo, S., M.ASCE, and Seo, H. , "Quantitative Assessment of Environmental Impacts on Life Cycle of Highways," Journal of Construction Engineering and Management , Vol 129, January/February 2003, pp 25-31, (DOI: 10.1061/(ASCE)0733-9364(2003)129:1(25)).

Stripple, H. Life Cycle Assessment of Road. A Pilot Study for Inventory Analysis. Second Revised Edition. IVL Swedish Environmental Research Institute Ltd. 2001. Available: <http://www.ivl.se/rapporter/pdf/B1210E.pdf>

Treloar, G., Love, P.E.D., and Crawford, R.H. Hybrid Life-Cycle Inventory for Road Construction and Use. Journal of Construction Engineering and Management. P. 43-49. January/February 2004.



Energy Emissions Worksheet

Type (Residential) or Principal Activity (Commercial)	Energy consumption per building per year (million Btu)	Carbon Coefficient for Buildings	MTCO2e per building per year	Floorspace per Building (thousand square feet)	MTCE per thousand square feet per year	MTCO2e per thousand square feet per year	Average Building Life Span	Lifespan Energy Related MTCO2e emissions per unit	Lifespan Energy Related MTCO2e emissions per thousand square feet
Single-Family Home.....	107.3	0.108	11.61	2.53	4.6	16.8	57.9	672	266
Multi-Family Unit in Large Building	41.0	0.108	4.44	0.85	5.2	19.2	80.5	357	422
Multi-Family Unit in Small Building	78.1	0.108	8.45	1.39	6.1	22.2	80.5	681	489
Mobile Home.....	75.9	0.108	8.21	1.06	7.7	28.4	57.9	475	448
Education	2,125.0	0.124	264.2	25.6	10.3	37.8	62.5	16,526	646
Food Sales	1,110.0	0.124	138.0	5.6	24.6	90.4	62.5	8,632	1,541
Food Service	1,436.0	0.124	178.5	5.6	31.9	116.9	62.5	11,168	1,994
Health Care Inpatient	60,152.0	0.124	7,479.1	241.4	31.0	113.6	62.5	467,794	1,938
Health Care Outpatient	985.0	0.124	122.5	10.4	11.8	43.2	62.5	7,660	737
Lodging	3,578.0	0.124	444.9	35.8	12.4	45.6	62.5	27,826	777
Retail (Other Than Mall).....	720.0	0.124	89.5	9.7	9.2	33.8	62.5	5,599	577
Office	1,376.0	0.124	171.1	14.8	11.6	42.4	62.5	10,701	723
Public Assembly	1,338.0	0.124	166.4	14.2	11.7	43.0	62.5	10,405	733
Public Order and Safety	1,791.0	0.124	222.7	15.5	14.4	52.7	62.5	13,928	899
Religious Worship	440.0	0.124	54.7	10.1	5.4	19.9	62.5	3,422	339
Service	501.0	0.124	62.3	6.5	9.6	35.1	62.5	3,896	599
Warehouse and Storage	764.0	0.124	95.0	16.9	5.6	20.6	62.5	5,942	352
Other	3,600.0	0.124	447.6	21.9	20.4	74.9	62.5	27,997	1,278
Vacant	294.0	0.124	36.6	14.1	2.6	9.5	62.5	2,286	162

Sources

All data in black text

King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

Energy consumption for residential buildings

2007 Buildings Energy Data Book: 6.1 Quad Definitions and Comparisons (National Average, 2001)
 Table 6.1.4: Average Annual Carbon Dioxide Emissions for Various Functions
<http://buildingsdatabook.eren.doe.gov/>
 Data also at: http://www.eia.doe.gov/emeu/recs/recs2001_ce/ce1-4c_housingunits2001.html

Energy consumption for commercial buildings and Floorspace per building

EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
 Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Note: Data in plum color is found in both of the above sources (buildings energy data book and commercial buildings energy consumption survey).

Carbon Coefficient for Buildings

Buildings Energy Data Book (National average, 2005)
 Table 3.1.7. 2005 Carbon Dioxide Emission Coefficients for Buildings (MMTCE per Quadrillion Btu)
http://buildingsdatabook.eere.energy.gov/?id=view_book_table&TableID=2057
 Note: Carbon coefficient in the Energy Data book is in MTCE per Quadrillion Btu.

To convert to MTCO2e per million Btu, this factor was divided by 1000 and multiplied by 44/12.

Residential floorspace per unit

2001 Residential Energy Consumption Survey (National Average, 2001)
 Square footage measurements and comparisons
<http://www.eia.doe.gov/emeu/recs/sqft-measure.html>



average life span of buildings,
estimated by replacement time method

	Single Family Homes	Multi-Family Units in Large and Small Buildings	All Residential Buildings
New Housing Construction, 2001	1,273,000	329,000	1,602,000
Existing Housing Stock, 2001	73,700,000	26,500,000	100,200,000
Replacement time:	57.9	80.5	62.5

(national average, 2001)

Note: Single family homes calculation is used for mobile homes as a best estimate life span.

Note: At this time, KC staff could find no reliable data for the average life span of commercial buildings.

Therefore, the average life span of residential buildings is being used until a better approximation can be ascertained.

Sources:

New Housing Construction,

2001 Quarterly Starts and Completions by Purpose and Design - US and Regions (Excel)

http://www.census.gov/const/quarterly_starts_completions_cust.xls

See also: <http://www.census.gov/const/www/newresconstindex.html>

Existing Housing Stock,

2001 Residential Energy Consumption Survey (RECS) 2001

Tables HC1:Housing Unit Characteristics, Million U.S. Households 2001

Table HC1-4a. Housing Unit Characteristics by Type of Housing Unit, Million U.S. Households, 2001

http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/housunits/hc1-4a_housingunits2001.pdf



Transportation Emissions Worksheet

Type (Residential) or Principal Activity (Commercial)	# people/ unit or building	# thousand sq feet/ unit or building	# people or employees/ thousand square feet	vehicle related GHG emissions (metric tonnes CO2e per person per year)	MTCO2e/ year/ unit	MTCO2e/ year/ thousand square feet	Average Building Life Span	Life span transportation related GHG emissions (MTCO2e/ per unit)	Life span transportation related GHG emissions (MTCO2e/ thousand sq feet)
Single-Family Home.....	2.8	2.53	1.1	4.9	13.7	5.4	57.9	792	313
Multi-Family Unit in Large Building	1.9	0.85	2.3	4.9	9.5	11.2	80.5	766	904
Multi-Family Unit in Small Building	1.9	1.39	1.4	4.9	9.5	6.8	80.5	766	550
Mobile Home.....	2.5	1.06	2.3	4.9	12.2	11.5	57.9	709	668
Education	30.0	25.6	1.2	4.9	147.8	5.8	62.5	9247	361
Food Sales	5.1	5.6	0.9	4.9	25.2	4.5	62.5	1579	282
Food Service	10.2	5.6	1.8	4.9	50.2	9.0	62.5	3141	561
Health Care Inpatient	455.5	241.4	1.9	4.9	2246.4	9.3	62.5	140506	582
Health Care Outpatient	19.3	10.4	1.9	4.9	95.0	9.1	62.5	5941	571
Lodging	13.6	35.8	0.4	4.9	67.1	1.9	62.5	4194	117
Retail (Other Than Mall).....	7.8	9.7	0.8	4.9	38.3	3.9	62.5	2394	247
Office	28.2	14.8	1.9	4.9	139.0	9.4	62.5	8696	588
Public Assembly	6.9	14.2	0.5	4.9	34.2	2.4	62.5	2137	150
Public Order and Safety	18.8	15.5	1.2	4.9	92.7	6.0	62.5	5796	374
Religious Worship	4.2	10.1	0.4	4.9	20.8	2.1	62.5	1298	129
Service	5.6	6.5	0.9	4.9	27.6	4.3	62.5	1729	266
Warehouse and Storage	9.9	16.9	0.6	4.9	49.0	2.9	62.5	3067	181
Other	18.3	21.9	0.8	4.9	90.0	4.1	62.5	5630	257
Vacant	2.1	14.1	0.2	4.9	10.5	0.7	62.5	657	47

Sources

All data in black text

King County, DNR. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

people/ unit

Estimating Household Size for Use in Population Estimates (WA state, 2000 average)

Washington State Office of Financial Management

Kimpel, T. and Lowe, T. Research Brief No. 47. August 2007; <http://www.ofm.wa.gov/researchbriefs/brief047.pdf>

Note: This analysis combines Multi Unit Structures in both large and small units into one category; the average is used in this case although there is likely a difference

Residential floorspace per unit

2001 Residential Energy Consumption Survey (National Average, 2001)

Square footage measurements and comparisons; <http://www.eia.doe.gov/emeu/recs/sqft-measure.html>

employees/thousand square feet

Commercial Buildings Energy Consumption Survey commercial energy uses and costs (National Median, 2003)

Table B2 Totals and Medians of Floorspace, Number of Workers, and Hours of Operation for Non-Mall Buildings, 2003

http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set1/2003excel/b2.xls

Note: Data for # employees/thousand square feet is presented by CBECS as square feet/employee.

In this analysis employees/thousand square feet is calculated by taking the inverse of the CBECS number and multiplying by 1000.



Vehicle related GHG emissions

Estimate calculated as follows (Washington state, 2006)_

56,531,930,000 2006 Annual WA State Vehicle Miles Traveled

Data was daily VMT. Annual VMT was 365*daily VMT.

<http://www.wsdot.wa.gov/mapsdata/tto/annualmileage.htm>

6,395,798 2006 WA state population

<http://quickfacts.census.gov/qfd/states/53000.html>

8839 vehicle miles per person per year

0.0506 gallon gasoline/mile

This is the weighted national average fuel efficiency for all cars and 2 axle, 4 wheel light trucks in 2005. This includes pickup trucks, vans and SUVs. The 0.051 gallons/mile used here is the inverse of the more commonly known term "miles/per gallon" (which is 19.75 for these cars and light trucks).

Transportation Energy Data Book. 26th Edition. 2006. Chapter 4: Light Vehicles and Characteristics. Calculations based on weighted average MPG efficiency of cars and light trucks.

http://cta.ornl.gov/data/tebd26/Edition26_Chapter04.pdf

Note: This report states that in 2005, 92.3% of all highway VMT were driven by the above described vehicles.

http://cta.ornl.gov/data/tebd26/Spreadsheets/Table3_04.xls

24.3 lbs CO₂e/gallon gasoline

The CO₂ emissions estimates for gasoline and diesel include the extraction, transport, and refinement of petroleum as well as their combustion.

Life-Cycle CO₂ Emissions for Various New Vehicles. RENew Northfield.

Available: <http://renewnorthfield.org/wpcontent/uploads/2006/04/CO2%20emissions.pdf>

Note: This is a conservative estimate of emissions by fuel consumption because diesel fuel, with a emissions factor of 26.55 lbs CO₂e/gallon was not estimated.

2205

4.93 lbs/metric tonne

vehicle related GHG emissions (metric tonnes CO₂e per person per year)

average life span of buildings, estimated
by replacement time method

See Energy Emissions Worksheet for Calculations

Commercial floorspace per unit

EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)

Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003

http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Transportation.....Worksheet Background Information

This section helps estimate the emissions associated with transportation of building occupants. At this time, it is based on average vehicle miles traveled by the average Washington State citizen.