Kent Taylor Civic Hall
Council Chambers
200 NE Second Street
McMinnville, OR 97128

Joint Work Session of City Council & Urban Renewal Agency (URA)
Tuesday, June 10, 2025
6:00 PM

Welcome! The public is strongly encouraged to participate remotely but there is seating at Civic Hall for those who are not able to participate remotely. However, if you are not feeling well, please stay home and take care of yourself.

JOINT WORK SESSION:
You may join online via Zoom Webinar Meeting:
https://mcminnvilleoregon.zoom.us/j/84046214128?pwd=2McRwQ4aJXq4YBUQVdmuD5oNVIADI1.1
Or you can call in and listen via Zoom: 1-253- 215- 8782
Webinar ID: 840 4621 4128

6:00 PM –JOINT WORK SESSION MEETING – VIA ZOOM AND SEATING AT CIVIC HALL

1. MAYOR MORRIS CALLS JOINT MEETING TO ORDER

2. THIRD STREET IMPROVEMENT PROJECT

3. MAYOR MORRIS ADJOURNMENT OF JOINT MEETING

Meeting Accessibility Services and Americans with Disabilities Act (ADA) Notice: Kent Taylor Civic Hall is accessible to persons with disabilities. A request for an interpreter for the hearing impaired or for other accommodations for persons with disabilities should be made a least 48 hours before the meeting to the City Recorder (503) 435-5702 or CityRecorderTeam@mcminnvilleoregon.gov.

STAFF Report

DATE: June 10, 2025
TO: Mayor and City Councilors
McMinnville Urban Renewal Board Members
FROM: Jeff Gooden, Engineering Project Manager
Jody Christensen, Special Projects Manager
SUBJECT: Work Session: Third Street Improvement Project

Report in Brief:
This is a work session to present the Third Street Improvement project 30% design/construction documents as recommended by the Project Advisory Committee, city staff, and consultant team. This is the final work session for the Phase D 30% - Design and Engineering milestone of the Third Street Improvement Project.

Background: As stated in the Draft Streetscape Report, "The Third Street Improvement Project is a re-imagining of McMinnville's historic Main Street, a fifty-year investment to rebuild critical infrastructure and reaffirm Third Street as the community's core gathering place. Running from Adams Street to Johnson Street, the new Third Street will feature a curbless design that will provide pedestrian comfort while maximizing flexibility for a wide range of community functions and events. The new Third Street will have widened sidewalks, larger curb extensions, smaller travel lanes, and an urban forest canopy that arches across the street. Its beautiful paving, furnishings, and fixtures will complement Downtown's historic architecture, and its plantings, twinkle lights, and quirky art will remind locals and visitors alike of what a unique place McMinnville really is. All of this will be underpinned by a new roadbed above upgraded water, sanitary, stormwater, and power infrastructure that will help future-proof the street for decades to come."

Project Phases:
COMPLETED
Phase **A**: Vision, Goals, Design Principles (2018/19)
Phase **B**: Initial Concept Design (2021/22)
Phase **C**: Refined Concept Design (2022)

TO BE COMPLETED by June 30, 2025
Phase **D**: Design & Engineering 30% Documents (August 2023 – June 2025)

Phase **E**: Engineering 100% Construction Documents
Phase **F**: Procurement and Construction

Discussion:
Jason White, Principal of BKF Engineers and Matt Arnold of Toole Design, the project consultants, will present the completion of Phase D (30% Design and Engineering). Since August 2023, the Project Advisory Committee (PAC), Technical Advisory Committee (TAC), Design Team, and Project Management Team have been working to complete 30% Design for the Third Street Improvement Project. This phase of the project was funded by City ARPA, Urban Renewal, McMinnville Water and Light, and City of McMinnville Wastewater funds. The presentation will highlight the following key points in the project.

- Streetscape
- Curbless Design
- Improvements to the public infrastructure
- Additional Considerations (Business Resiliency, Art, Gateways, etc.)
- 30% cost estimate

Next Steps: 30% is a key milestone in roadway projects – it's a turning point where the basis of design (which includes a more refined cost estimate) has progressed enough to make key decisions. The next steps are to proceed with Phase E - 100% construction documents, and funding for the construction of the project.

In the FY24 Appropriations Bill, Congresswoman Salinas was able to secure $850,000 for the City to fund for Phase E of the project. Since these are federal funds, they have been allocated to the Oregon Department of Transportation (ODOT) to manage this phase of the project in collaboration with the City. To proceed with utilizing these funds the City will need to enter into an Intergovernmental Agreement (IGA) with ODOT, which is currently being drafted, and city staff expect to present the IGA for consideration at a regular City Council meeting in late summer / early fall.

The next phase of design, Phase E (30-100%), and is expected to include the following deliverables:

- Construction Plans
- Above Ground Urban Design Elements Infrastructure review
- Construction Cost Estimate
- National Environmental Policy Act (NEPA) clearance or approval
- Construction Specifications
- ODOT Design Acceptance Package (DAP)
- ODOT Plan, Specifications, and Estimate Checklist, (PS&E)

- Wayfinding and Gateways
- Business Resiliency Package
    - Alley Improvements
    - Temporary business access installations (i.e. ramps)
    - Wayfinding signage during construction
    - Business Resiliency Cost Estimate
- Public and Decision-Making Body Engagement Memo
- Construction Marketing, Branding, and Messaging for the community, impacted businesses and consumers
- Bid Items Table
- Construction Contract

There are additional areas that should be addressed outside the ODOT contract:
- Business Resiliency programs to help support local businesses during the disruption of construction such as grants and incentive shopping campaigns.
- Art procurement policies and programs

Due to the estimated costs of the project, the City will need to start identifying state and federal sources. It is typical to submit for state and federal funding of the construction for a project of this magnitude at the next phase (30-100% construction design and documentation.) Typically, projects with more progressed designs have greater odds for successfully securing outside funding. The City is planning to apply for a federal BUILD (Better Utilizing Investments to Leverage Development) grant to pay for a large portion of the construction.

Staff Recommendation: Staff recommend that the City Council (Urban Renewal Board members) confirms the 30% Design and Engineering, Streetscape Report, and Preliminary Cost Estimate aligns with project goals and provide direction to move the project into the next phase (E) by directing staff to work with ODOT to finalize the IGA for Construction Documents. Staff would bring the Finalized IGA back to Council once complete.

ATTACHMENTS:

Attachment A – Streetscape Plan Report Draft

Attachment B – Streetscape Plan Appendices

Attachment C – Third Street 30% Cost Estimate

ATTACHMENT A

DRAFT

The Third Street Improvement Project

McMINNVILLE, OREGON

VOLUME I: STREETSCAPE PLAN REPORT

29 MAY 2025 (DRAFT)

City of McMinnville

PROJECT ACKNOWLEDGMENTS

McMinnville City Council
Kim Morris, Mayor
Sal Peralta, Council President
Chris Chenoweth
Dan Tucholsky
Zack Geary*
Jessica Payne
Scott Cunningham*

McMinnville Urban Renewal Advisory Committee
Peter Kircher, Chair*
Mike Morris, Vice-Chair*
Walt Gowell, PAC Chair*
Dan Gibson*
Abigail Neilan*
Lisa Pool*
Diana Riggs*
Dave Rucklos*
Tim Wade*
John Dietz, McMinnville Water & Light (MWL)*^

Project Advisory Committee
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Heather Miller, MDA
Marilyn Kosel, MDA
Carson Benner
Ken Diener
Sylla McClellan

** also a member of the Project Advisory Committee*
^ also a member of the Technical Advisory Committee

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Technical Advisory Committee
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Sutapa Banerjee, Kittelson & Associates
Dan Bowers, Kittelson & Associates
Steve Goetz, The Pacific Resources Group
Micah Hintz, Haley & Aldrich
Colby Hunt, Haley & Aldrich

The City also would like to acknowledge and thank the many former committee members, staff members, elected officials, community members, and consultants who have contributed to this project over the previous seven years.

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This is a preliminary document. All results, recommendations, cost opinions, and commentary contained herein are based on limited available data at the time of preparation. Further engineering analysis and design are necessary prior to implementing any of the recommendations contained herein. This document is an instrument of professional service. Reuse or alteration is at the user's sole risk.


McMinnville
Ashley Hope 2011

A Designing McMinnville's Living Room

A NEW VISION FOR THIRD STREET

ABOUT THE THIRD STREET IMPROVEMENT PROJECT

The Third Street Improvement Project is a re-imagining of McMinnville's historic Main Street, a fifty-year investment to rebuild critical infrastructure, improve safety and accessibility, and reaffirm Third Street as the community's core gathering place. Running from Adams Street to Johnson Street, the new Third Street will feature a flush design that will provide pedestrian comfort while maximizing flexibility for a wide range of community functions and events. The new Third Street will have widened sidewalks, larger curb extensions, smaller travel lanes, and an urban forest canopy that arches across the street. Its beautiful paving, furnishings, and fixtures will complement Downtown's historic architecture, and its plantings, twinkle lights, and quirky art will remind locals and visitors alike of what a unique place McMinnville really is. All of this will be underpinned by a new roadbed above upgraded water, sanitary, stormwater, and power infrastructure that will help future-proof the street for decades to come.

Although inspired by previous efforts, the formal process for the Third Street Improvement Project began in 2018. It has included the robust participation of a Project Advisory Committee (PAC) comprised of local business and property owners, community members, and representatives from the McMinnville Downtown Association, the McMinnville Urban Renewal Advisory Committee (MURAC), and McMinnville's City Council. Design and engineering concepts have been reviewed with the public through a series of community forums (both in-person and online) and various outreach meetings. And the project has been reviewed in joint sessions of MURAC and City Council on numerous occasions.

To date, there have been four major project phases:

Phase A: Vision, Goals, and Design Principles (2018-19)

The City initiated the streetscape discussion by convening a Project Advisory Committee (PAC) in 2018. Over the course of several meetings that extended into 2019, the PAC discussed issues and needs for Third Street, considered opportunities and constraints, and reviewed relevant case studies from around the region and the Western United States. Phase A concluded with the drafting of project Vision, Goals, and set of Design Principles (which can be found in the next section of this report). Although these statements have been slightly modified in subsequent years, they remain largely intact and continue to guide the project to this day.

Phase B: Initial Concept Design (2021-22)

Building from the 2018-19 visioning work, the City launched an initial design phase in 2021, engaging the PAC and the broader community in an iterative process to consider the overall look, feel, and function of Third Street. Through that process, the City decided to widen the sidewalks (to enhance pedestrian activities) while simultaneously reducing the travel lanes (to slow through traffic). There were also discussions of the street's urban design – centered around street tree concepts and pedestrian amenities.

Phase C: Refined Concept Design (2022)

Through a series of PAC meetings and Community Forums, the City refined the Third Street streetscape concept. Recognizing the aging (and, in some cases, failing) condition of the roadway and its below-grade systems, the City broadened the project's scope to also include full street reconstruction and infrastructure improvements.

Phase D: Preliminary Engineering (2023-25)

In 2023, the City began the engineering process for the project in earnest, working through various technical studies (geotechnical, traffic, utilities audit, existing tree health) and preparing a 30% Design Package. In an effort to make Third Street as flexible as possible—for community events, outdoor commerce, pop-ups, etc.—the PAC and the community also decided to make the street curbless and to feature more programmable hardscape.

Phase E: Final Design / Construction Documentation (TBD)

Following the successful completion of both this report and its complement, the 30% Design Package, the City intends to begin the final stage of design and the preparation of bid-ready Construction Documents (CDs) for the Third Street Improvement Project. The intention is to move into construction once a full funding package can be secured.

During the Preliminary Engineering work (Phase D), the City introduced another important component to the project – a Business Resilience effort to help Downtown businesses prepare for, operate during, and recover after project construction. While this effort has initially focused on business operations and storefront improvements, it is also expected to include events, promotions, and potential improvements to the alleyways businesses may use for access during construction.

Community Forum (2022).

Early street tree concept sketch (2022).

Third Street walking tour (2019).

A New Vision for Third Street

Third Street is McMinnville's signature People Place and year-round "living room"—a comfortable space for daily living and social cohesion—as well as its "central stage" for extraordinary events that bring everyone together. **It is the welcoming feature and "heartbeat" of the community—the place where locals mingle with visitors to enjoy the authentic ambiance and lively atmosphere of this rural Downtown.** Leafy green and shaded in summer, magically illuminated in the evenings and during the winter, Third Street is intimate, artistically creative, and beautifully enchanting.

Third Street is both quirky and classy, proudly reflecting the cultural richness of the city and the surrounding region while forging an identity all its own. **Featuring historic architectural gems, curated art and furnishings, and adaptive infrastructure, Third Street's organic flexibility makes it both timeless and future-proof.** It maintains a diverse, thriving, and independent business community. Local ownership and an overarching commitment to authenticity ensure an interesting and rewarding experience unique to McMinnville.

PROJECT GOALS & OBJECTIVES

The following Goals & Objectives were prepared during 2018-19 with the Project Advisory Committee and, with minor modifications, have guided the Third Street Improvement Project ever since:

- Reinforce and celebrate McMinnville's **unique** and **welcoming identity**
- Strengthen the **prosperity** of **local businesses**
- Ensure **safety** for all users and **connectivity** throughout Downtown
- Foster a range of **events** and **activities** for citizens and visitors alike
- Modernize aging and non-functional **infrastructure**
- Choose **durable, long-lasting** solutions that allow for **efficient construction** and **effective maintenance**
- Facilitate a robust **public engagement** process that engages the entire community
- Where feasible, preserve Third Street's **existing street trees**

THIRD STREET DESIGN PRINCIPLES

To supplement the Project Goals & Objectives, the following Design Principles were also developed with the Project Advisory Committee in 2018-19 and vetted with the community:

- Third Street is of the **people**, for the people, and created by the people
- Third Street is **safe, inclusive**, and **accessible** to all
- Third Street is Downtown's premier **public space**
- Third Street is an **integral part of Downtown**
- Third Street is the **vibrant commercial heart** of Downtown McMinnville
- Third Street's success relies on **public-private partnerships**
- Third Street is an **ever-evolving** street that **embraces change**
- Third Street is actively geared towards **early implementation-oriented improvements**
- Third Street contributes to a more **sustainable** environment
- Third Street is **quirky** and **unique**


MACK
THE MACK IS BACK!
THEMACKTHEATER.COM
310
THIRD
502

B

A Beloved Main Street in Need of a Rebuild

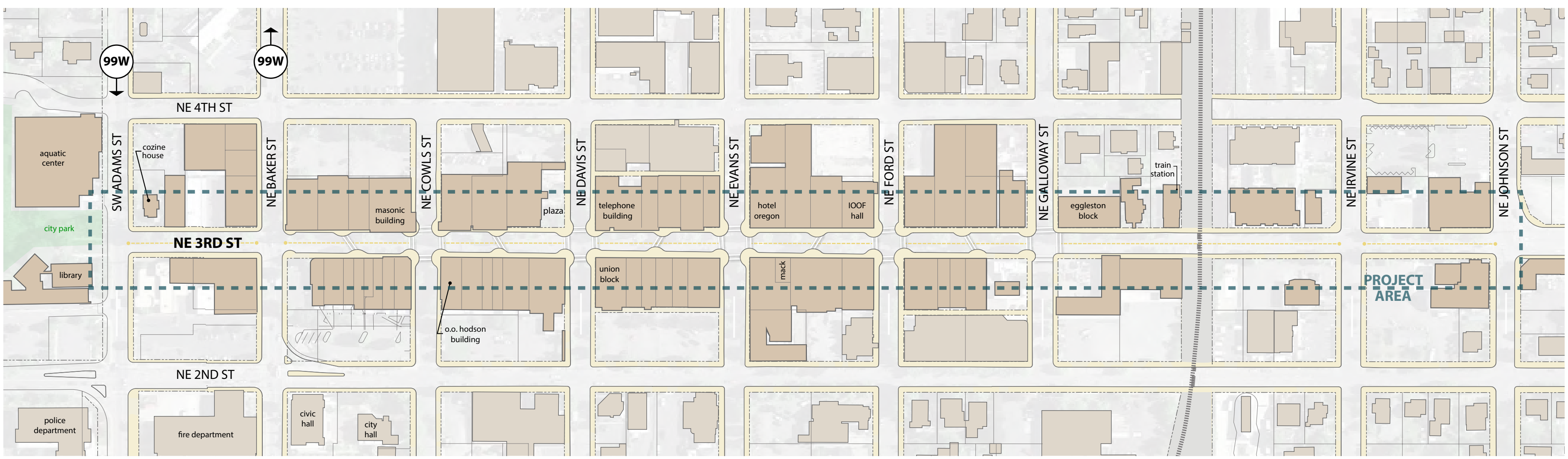
EXISTING CONDITIONS ALONG THIRD STREET

PROJECT AREA

McMinnville is the Yamhill County Seat, and its Downtown has for more than a century been a central focal point not only for the city itself, but for the smaller communities, farms, and vineyards that surround it. Downtown McMinnville is a designated National Historic District, featuring 64 historic properties. The tree-lined NE Third Street is the core of the Downtown and features the highest concentration of historic properties.

The nine-block **Third Street Improvement Project** runs the length of Downtown from a T-intersection with NW Adams Street at the west to the intersection with NE Johnson Street at the east. The street includes an at-grade rail crossing at Hembree and is intersected by the Highway 99 couplet (at Adams and Baker). Currently, Third Street is classified as a 'major collector' in the City's Transportation System Plan (TSP). The City plans to reclassify Third Street to a 'local street' with the TSP Update, scheduled for completion in ~2027.

Initially paved in 1912, Third Street's last major reconstruction came in 1976, when its first street trees were planted and its mid-block curb extensions were introduced. While the City has performed occasional spot improvements (road resurfacing, tree replacement) as necessary, the streetscape design today is largely the one envisioned in the early 1970s. While the vibrancy of Third Street remains intact—due largely to the bustling restaurant and retail scene and the popularity of local events—the public realm is showing its age. There is visible stormwater ponding during the rainy season, many sidewalk sections are lifted and/or cracked from street tree roots, many trees are in compromised health, and the furnishings are in various states of disrepair.

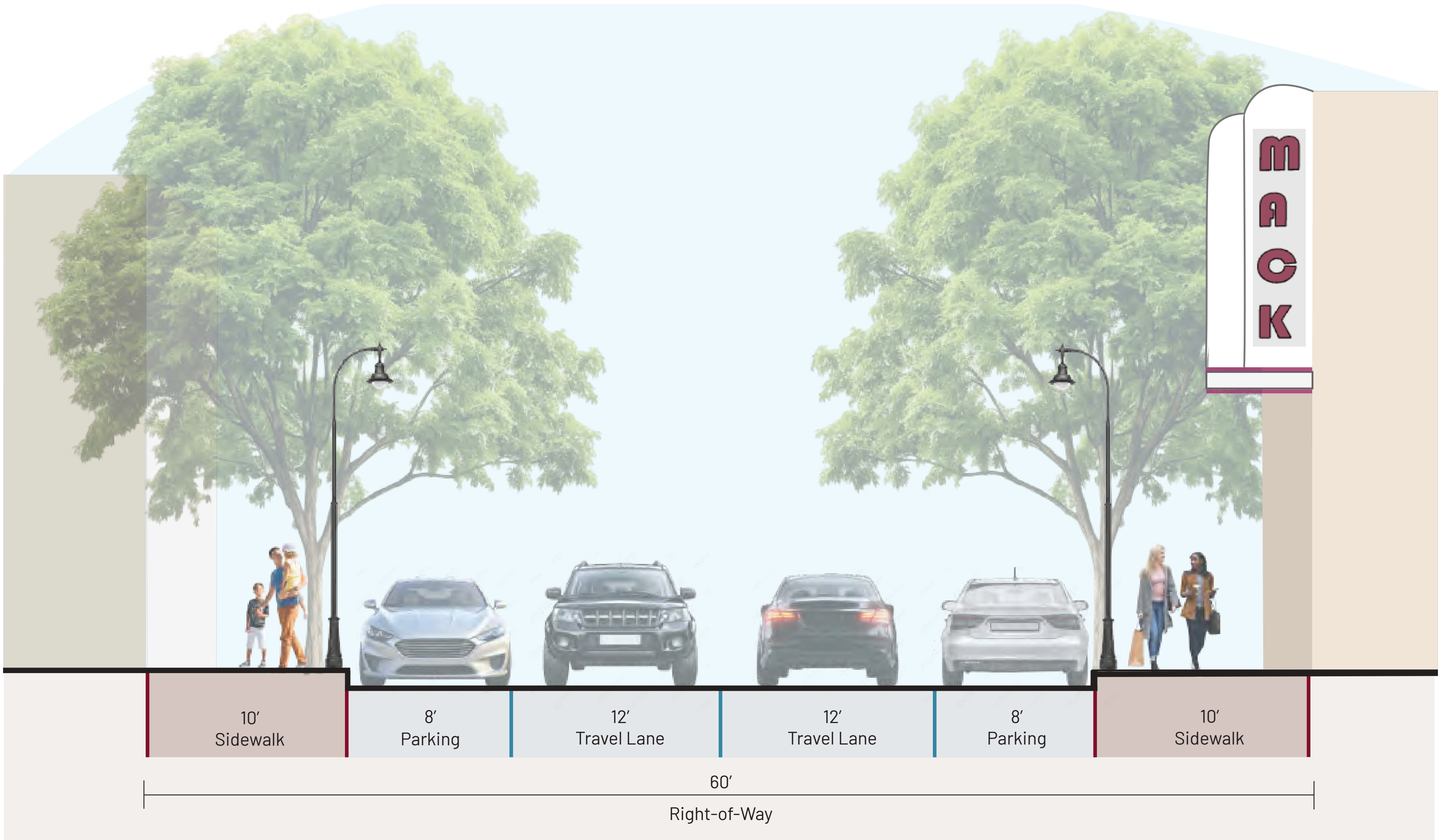


The Third Street Improvement Project covers nine blocks of NE Third - from SW Adams Street to NE Johnson Street.

RIGHT-OF-WAY AND CROSS-SECTION

NE Third Street's existing right-of-way averages 60' wide (generally from building face to building face) with 10' sidewalks and an 8' parking strip on either side as well as two 12' travel lanes in the middle.

As has been noted by community members, 67% of the current roadway is dedicated to vehicles and 33% to pedestrians and amenities.



SIDEWALKS

Third Street's sidewalks are in various states of disrepair, with cracks, spalling, and ponding occurring in some spots. While the sidewalks generally follow a standard 2′ x 2′ concrete scoring pattern found throughout Downtown, there are a range of scoring patterns along Third Street—as well as areas where tiles or pavers of various colors, materials, and/or shapes have been installed. Street trees have caused significant sidewalk and curb damage—including lifting and cracking—in some areas.

Third Street's sidewalks exhibit a range of materials, patterns, and conditions.

Many of the sidewalks along Third Street have been damaged by tree roots.

STREET TREES

Third Street's trees (primarily Armstrong red maples) are a signature piece of Downtown McMinnville, providing needed shade, fall color, and an 'arch' or 'tunnel' effect over the roadway. It is a stated project goal to "where feasible, preserve Third Street's existing street trees." Recognizing the difficulty of preserving trees through a full roadway reconstruction, the project Design Team worked closely with the PAC to develop a set of Street Tree Preservation Criteria and an associated 'Decision Matrix' by which to determine the trees intended for preservation. These criteria are as follows:

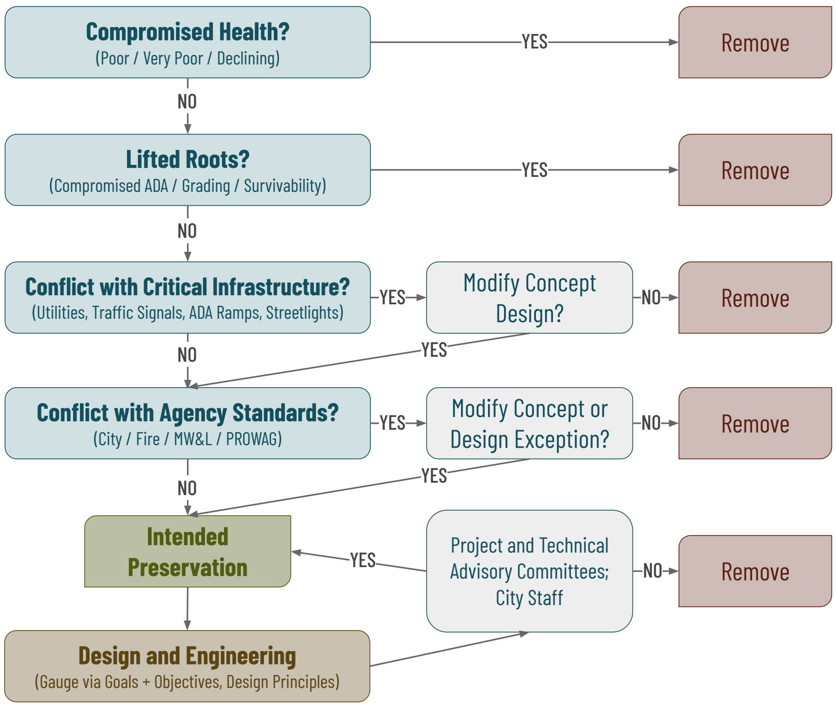
Compromised Health: *Is the existing tree in Poor or Very Poor health or is the existing tree's health demonstrably declining (as determined by the project's Consulting Arborist)?* Based on above-ground observations, trees that are in "Poor" or "Very Poor" health are those that have visible wounds, exposed decay, and/or deadwood; poor annual twig growth; asymmetric crowns or imbalanced structure; sunscald; and/or some amount of dead stems.

Lifted Roots: *Are the existing tree's roots lifting the sidewalks? Would the roots need to be significantly trimmed / removed in order to rebuild the new sidewalk to meet ADA standards and building entrances? Would the existing tree survive if its roots were shaved / cut / trimmed back?* The older existing trees are lifting the sidewalks and creating ADA accessibility issues (for which both the City and the adjacent property owner may be liable). The proposed improvements will need to restore proper ADA-compliant grading while also maintaining access to existing buildings and businesses. This means that, were existing trees with lifted roots to remain, their above-grade roots would need to be shaved / trimmed / cut / removed, actions that would greatly compromise their health.

Conflict with Critical Infrastructure: *Will the existing tree conflict with critical infrastructure / improvements (either above or below ground)?* The existing street trees on NE Third Street were sited and planted to match both a previous streetscape design and an

Third Street's existing tree canopy.

At ground-level, one can see how constrained the root systems are for the existing trees - and the damage they have caused to sidewalks and curbs.

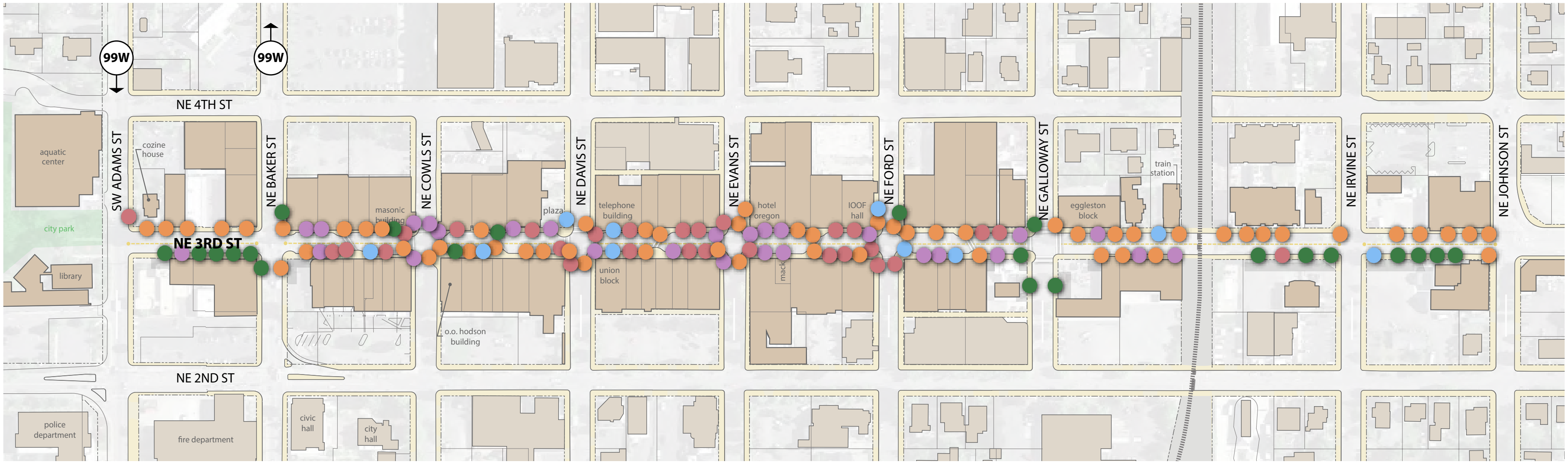


The 'Decision Matrix' above describes the evaluation process to determine whether an existing street tree on Third Street is scheduled for removal or intended for preservation.

earlier set of local standards. Some of the existing trees today conflict with important infrastructure such as traffic signals and streetlights—and diminish the effectiveness of that infrastructure. Such conflicts should be avoided with the new Third Street improvements—including with ADA ramps, utilities, etc.

Conflict with Agency Standards: *Will preserving the existing tree cause conflicts with standards set by the City of McMinnville, McMinnville Water & Light, or the United States Access Board's Public Right-of-Way Accessibility Guidelines (PROWAG)? And can exceptions be made in order to preserve existing trees?* Currently, there are several municipal code sections, agency standards, or PROWAG guidelines that affect where street trees can be placed, including those that specify distances from fire hydrants, utility poles, sanitary sewer, storm sewer, water lines, street lights, driveways, intersections, or railroads.

STREET TREES continued...



Pacific Resources Group (the project's Consulting Arborist) conducted a complete survey of Third Street's existing street trees in 2019 and again in the Spring of 2024, noting the condition of each. Trees were considered to have 'compromised health' if they exhibited: visible wounds, exposed decay, and/or deadwood; poor annual twig growth; asymmetric crowns or imbalanced structure, sunscald, or a concerning amount of dead stems.

Of the 145 trees within the project area in 2024, 28 were found to have compromised health and another 58 had lifted roots which would prevent them from being preserved within the future project. When compared with the proposed design for Third Street, the project Design Team found that 27 additional existing trees would conflict with the project's critical infrastructure and another 10 would conflict with existing agency standards regarding the distance trees could be planted relative to new infrastructure. At present, 24 of Third Street's existing street trees have been tagged in the design for preservation; the rest will be replaced. (Note: the 24 trees set for preservation include several on side streets at the intersection with Third Street.)

- Intended for Preservation
- Removed due to Compromised Health
- Removed due to Lifted Roots
- Removed due to Conflict with Critical Infrastructure
- Removed due to Conflict with Agency Standards

On-street parking lines the majority of Third Street.

The historic Southern Pacific Railroad station sits at the corner of Third Street and Hembree.

OTHER ROADWAY CONDITIONS

Pavement / Road Quality

Third Street's existing roadway is generally asphalt concrete (AC) over Portland cement concrete (PCC) with a stabilization layer made of a gravelly/cobbley mix. The existing pavement is in relatively good condition overall but due to the extents of the underground utility trenching and flush design, the entire Third Street roadway surface within the project limits is planned for replacement.

Driveways

Within the project area, there are currently 12 driveways that provide direct access to/from Third Street and another six on the cross streets. Each driveway represents a potential conflict point between vehicles and pedestrians. The Preferred Design (described in the next section of this report) maintains all existing driveways and seeks to minimize conflicts to the degree possible. There may be opportunities for driveway closure (e.g., with redevelopment or a change in business operation) and these will be explored in future project phases.

On-Street Parking

On-street parking is currently available on eight of the nine project blocks. There are generally five or six parking spaces per block face, although existing driveways reduce this number in some locations. The block between Hembree and Irvine has less parking because of both existing driveways and the lane split that occurs in the approach to Irvine Street. The block between Irvine and Johnson, which has two travel lanes and a center turn lane, has no on-street parking.

Rail Crossing

Hembree Street through Downtown is currently an active Union Pacific railroad right-of-way with two sets of tracks that cross Third Street—one perpendicular main line, the other an angled spur. The spur is not in current use and there is some potential to remove it concurrent with the improvements to Third Street.

STREET FURNISHINGS

Lighting

The existing public streetlights are an historic-style black metal and come in two varieties: acorn or crook-arm. These are complemented by cobrahead fixtures at most of the signalized intersections. The streetlights are periodically adorned with banners celebrating certain events or institutions. "Twinkle lights," coordinated by the McMinnville Downtown Association, are often hung in or around the street trees. The project's Business Resilience consultant noted that private business and property owners should add more light to their storefronts, entrances, and/or building facades, thereby creating a more welcoming evening environment while also celebrating Downtown's historic architecture.

The glow of Third Street's businesses and twinkle lights make it an attractive evening destination.

The City's standard light fixture is an historic black crook-arm to which banners can be affixed. There is also an acorn version.

One of the existing mid-block kiosks, complete with bench.

A few of the pieces of public art currently found along Third Street.

STREET FURNISHINGS continued...

Kiosks

The mid-block curb-extensions on Third between Baker and Galloway feature kiosks with benches—although these are in various states of disrepair (and, as of this writing, two of them are missing their roofs).

Seating

The few public benches are supplemented with benches and chairs of various styles put out by local businesses. Depending on the season, there are also numerous tables and chairs set up for outdoor dining at many of Third Street's restaurants.

Public Art

The wooden bench at the corner of Davis has a statue of Ben Franklin lounging on it—one of the more photographed pieces of public art in Downtown. Two pieces of art—including a "Welcome to Historic McMinnville" piece—were installed with the redevelopment of the south side of Third between Adams and Baker. There is an historic "Cline Chevrolet" mural along Third just east of Galloway (and there are significant murals on intersecting side streets and in the parallel alleys). And temporary pavement art appears along Third periodically. In addition to these pieces, there are significant pieces of public art nearby - on intersecting side streets and adjacent alleyways. There is significant interest in bringing more art to Third Street and Downtown generally (as discussed in Section C of this report).

STREET FURNISHINGS continued...

Waste Receptacles

The existing waste receptacles are black metal, round with vertical banding fluted at the top. Most have a rain guard.

Bike Racks

There are few bike racks on Third today, and those that exist are usually found at corners and/or mid-block curb extensions. The existing racks are a post style with a bicycle icon ring to which bikes can be locked.

Planters

There are plants and flowers up/down Third Street—primarily in stand-alone pots or barrels, although some businesses also have window boxes and/or hanging baskets. Some of the pots—including those designed by George Stastny—are officially part of the public streetscape, but most have been put out by businesses, property owners, or the McMinnville Downtown Association.

Commemorative and/or Memorial Plaques

A sometimes subtle but meaningful feature of Third Street are the plaques commemorating events and/or people that, over the years, have been affixed to pots, light poles, or other streetscape features. Some date back to the 1976 streetscape improvements, some represent more recent contributions individuals or organizations have made to the street. Many but not all of these plaques have been managed/placed by the McMinnville Downtown Association.

There are numerous furnishings and fixtures throughout Third Street, including waste receptacles (top left), bicycle racks (top right), and planters (middle left and bottom left). Some of these features are adorned with commemorative or memorial plaques (middle right and bottom).

Third Street's today experiences significant ponding on rainy days. The storm sewer, like much of the street's existing infrastructure, is in need of replacement.

UTILITY INFRASTRUCTURE

The existing utilities have been evaluated for replacement based on age, condition, location, and planned future improvements noted by the City and/or utility purveyors.

Water

Per direction from McMinnville Water & Light, all existing cast iron water mains within the Third Street project area are to be replaced with new ductile iron pipe. This includes the replacement of the existing 14" cast iron main between Adams Street and Ford Street. East of Ford Street, the existing 8" cast iron main will be abandoned, while the parallel 16" ductile iron main will remain in service. Cast iron mains on cross streets—including Baker, Davis, Evans, Ford, and Irvine—will also be replaced, with new ductile iron mains extending 10 to 20 feet beyond the limits of surface improvements. All domestic water laterals connected to replaced mains will be replaced and tied into the new mains, and laterals previously served by the abandoned 8" main will be reconnected to the remaining 16" main. New laterals will be installed perpendicular to the main, maintaining 18" of separation between connections and 10 feet of horizontal clearance from street trees; tracer wire is recommended on the private side due to the number of existing bends. (Note: If there are instances where the clearance requirements are unable to be met, design exceptions will be pursued in future design phases.) Existing water meters will either be protected in place and raised to finished grade or replaced and relocated, depending on site conditions. Meters will be placed outside pedestrian paths of travel wherever feasible and will feature ADA-compliant nonslip lids. Fire hydrants will be relocated based on Fire Department standards and preferences, typically placed near intersection bulb-outs for improved access and, where possible, within curbed landscape areas to reduce vehicle conflicts.

Sanitary Sewer

All existing sanitary sewer mains within the project limits between Adams Street and Irvine street are to be replaced; the existing sanitary sewer system is generally in poor condition due to the age and

UTILITY INFRASTRUCTURE continued...

material of the existing clay tile pipes, as well as suboptimal alignment beneath sidewalks and curbs. Most of Third Street between Adams and Johnson Streets does not currently contain mainlines, as lateral service connections run through alleys behind buildings. Where mains do exist—particularly between Evans and Ford Streets and from Ford to Irvine Street—they are scheduled for full replacement. This includes consolidating dual mains into a single main and relocating new pipe alignments into the roadway for improved access and maintenance. Cross streets such as Cowls, Evans, and Galloway will also see full main replacements from manhole to manhole due to similar age and condition concerns. All associated sanitary laterals within the right-of-way will be replaced if they are not air-tight or are connected to mains marked for replacement. While the City's Sanitary Sewer Conveyance System Master Plan does not provide detailed downstream information for this area, no existing backup issues have been identified. Replacement work will follow City standards for pipe material selection based on cover depth, with 8" mains recommended throughout the project corridor.

Storm Sewer

All storm sewer infrastructure within the Third Street project limits is proposed for full replacement due to age, condition, and suboptimal location—much of the existing system is deteriorated or misaligned under sidewalks and curbs. New mains will be relocated within the roadway to improve future maintenance access. Storm inlets will be placed at low points along the valley gutters, consistent with existing drainage patterns and not exceeding ODOT's maximum spacing requirements. The City has indicated a preference for catch basins over trench drains due to maintenance concerns, though trench drains may be considered in specific locations during future design phases. Inlet leads will connect to the new storm mains via blind connections or manholes, with configurations determined per City markup and in accordance with City standards for spacing and layout. Pipe materials will be selected based on cover depth, and the system has been designed using the City's Storm Drainage Design and Construction Standards and the ODOT Hydraulics Manual. The new system will accommodate both 10-year and 50-year storm events, with hydraulic grade line analysis used to prevent surface flooding due to known downstream capacity issues. Pipe sizing will include 18" mains from Adams Street to the railroad and 24" mains from the railroad east to Johnson. Storm mains in adjacent streets—Cowls, Davis, and Ford—are also proposed for replacement due to structural failures. While no downstream pipes are currently included in the project scope, it is recommended that the City further evaluate downstream deficiencies identified in the Storm Drainage Master Plan to determine whether those segments should be concurrently upgraded with this project.

Natural Gas

Natural gas in the area is provided by NW Natural. Per initial coordination, NW Natural has informed the design team that they will not be proactively installing any additional gas mains within the project area; however, if existing gas mains are in conflict, then theses mains would need to be relocated with the possibility of extending the gas mains at that time. At this time, no gas mains are proposed for replacement/relocation. Based on the 30% design, it appears there will be some conflicts that will need to be resolved and the design team will continue to coordinate with NW Natural in future design phases to determine which mains to be relocated.

Electrical and Telecommunication

It is anticipated that new electrical lines will be required for the proposed street lights and potentially for the upgraded traffic signals; however, specific improvements to the existing electrical system have not yet been determined as the layout of these lights are still in flux. Similar to gas, if existing electrical or telecommunication lines are in conflict with the proposed design, then theses lines will need to be relocated. The design team will continue to evaluate these utilities as the design progresses.

C Flexible, Classy, and Quirky

THE PREFERRED DESIGN FOR THIRD STREET

PREFERRED DESIGN

The Preferred Streetscape Design recognizes the importance of Third Street as the city's 'living room' and signature 'people place.' Its quirky and classy design will celebrate McMinnville's unique and welcoming identity, amplifying its long-cherished position as a vibrant destination for McMinnville and Yamhill County residents as well as for visitors from across the region.

The design also responds to the community's expressed desire for flexibility and accessibility. With clearly delineated sidewalks, parking areas, and travel lanes, the new Third Street will function when needed as a conventional street, serving residents and customers as it does today. But the street will be flush for its entire length, allowing part or all of the street to be flexed in order to accommodate market events, parades, outdoor dining, festivals, pop-ups, parklet, and uses the community has not even dreamed up yet. The flush street will also allow for make these events more navigable by those with mobility impairments.

With wider sidewalks than exist today, the Preferred Design emphasizes programmable hardscape throughout the project. Curb extensions will be broad and well-appointed with key amenities and trees will be planted in wells with grates to maximize usable surfaces. The Preferred Design considers on-street parking areas as 'flex zones' that could be permitted to accommodate outdoor dining, bike corrals, pop-up retail, parklets, etc. (Note: The City still needs to determine an evaluation, approval, and permitting process for these 'flex zones.')

While the rebuilt Third Street will be absolutely unique within McMinnville (and the region), the streetscape will be adorned with furnishings, fixtures, and paving materials that both tie into the existing fabric of Downtown and complement the district's historic architecture. To maintain downtown McMinnville's beloved, "quirky" sense of place, many of the furnishings could be custom designed, functional public art installations. All of these elements will be set against a backdrop of carefully laid-out street trees and plantings that carry forth the beauty of Third Street's arching canopy and introduce additional species and color.

The broad intent of the Third Street Improvement Project is to apply a consistent design across all nine blocks of NE Third Street within McMinnville's Downtown. While there may be a need to modify the design to accommodate functional needs (e.g., truck turning) and there may be key opportunities to amplify the design (e.g., gateways), the aim is to have all blocks, properties, and businesses—and ultimately the community—benefit equitably from this investment. A further goal is that the improvements on Third Street help connect McMinnville's civic assets (e.g., the Library, Aquatic Center, and City Park) to Downtown.

Underpinning the streetscape will be a new roadbed, stormwater system, and below-grade utilities that will replace aging systems with infrastructure designed to last decades. Third Street's organic flexibility, rendered with durable, long-lasting fixtures and infrastructure will make the street both timeless and future-proof.

KEY FEATURES

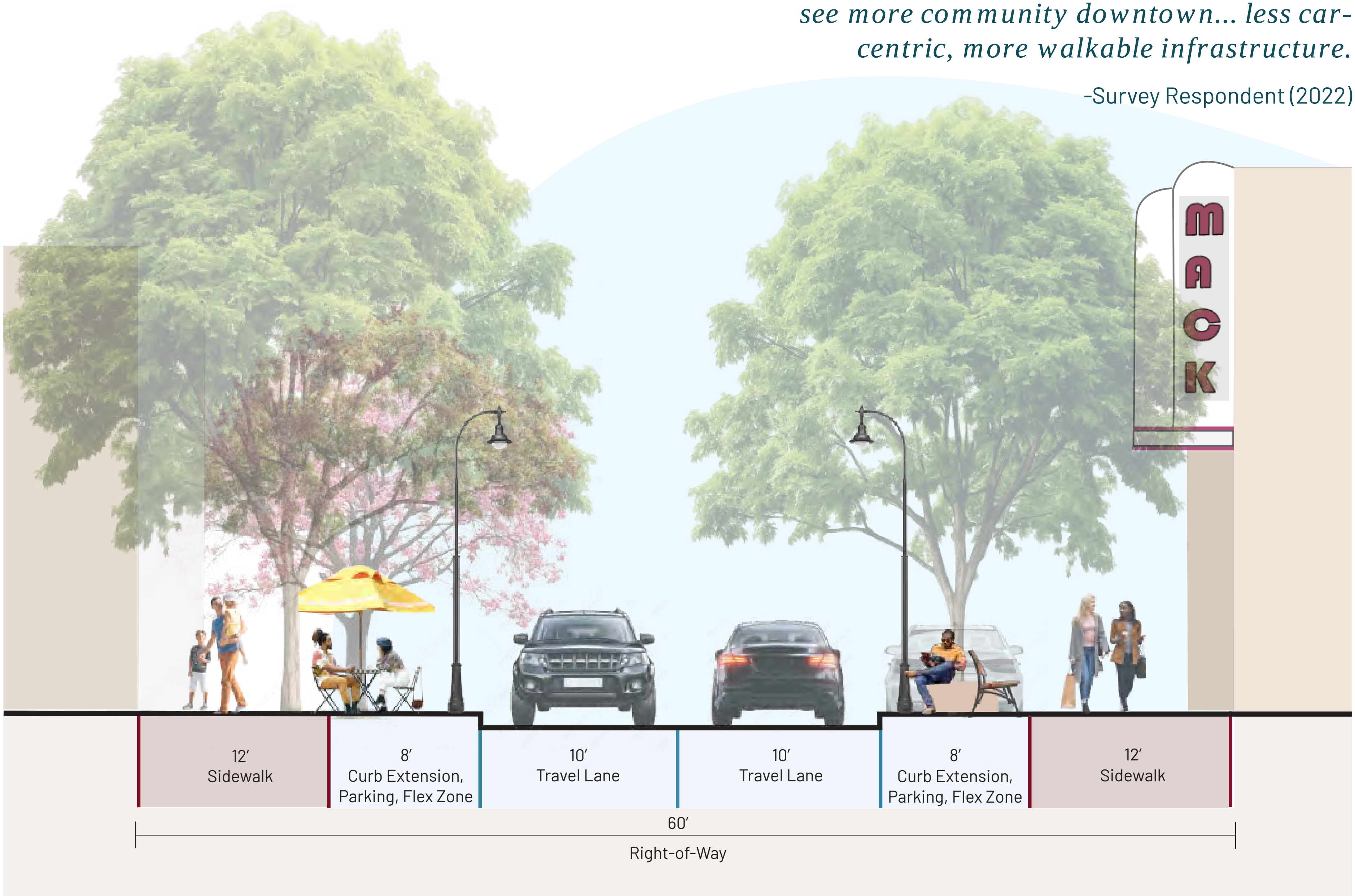
Flush Street Design Throughout
Hardscape for Flexible Programming
On-Street Parking as 'Flex Zones'
Large, Mid-Block Curb Extensions
Historic Furnishings & Fixtures
Diversified Tree Canopy
Planters & Hanging Flower Baskets
Unique Public Art
Renewed Infrastructure

The beauty and color of 3rd Street is in the historic buildings, their windows, the trees and plants that create a beautiful oasis.

-Survey Respondent (2022)

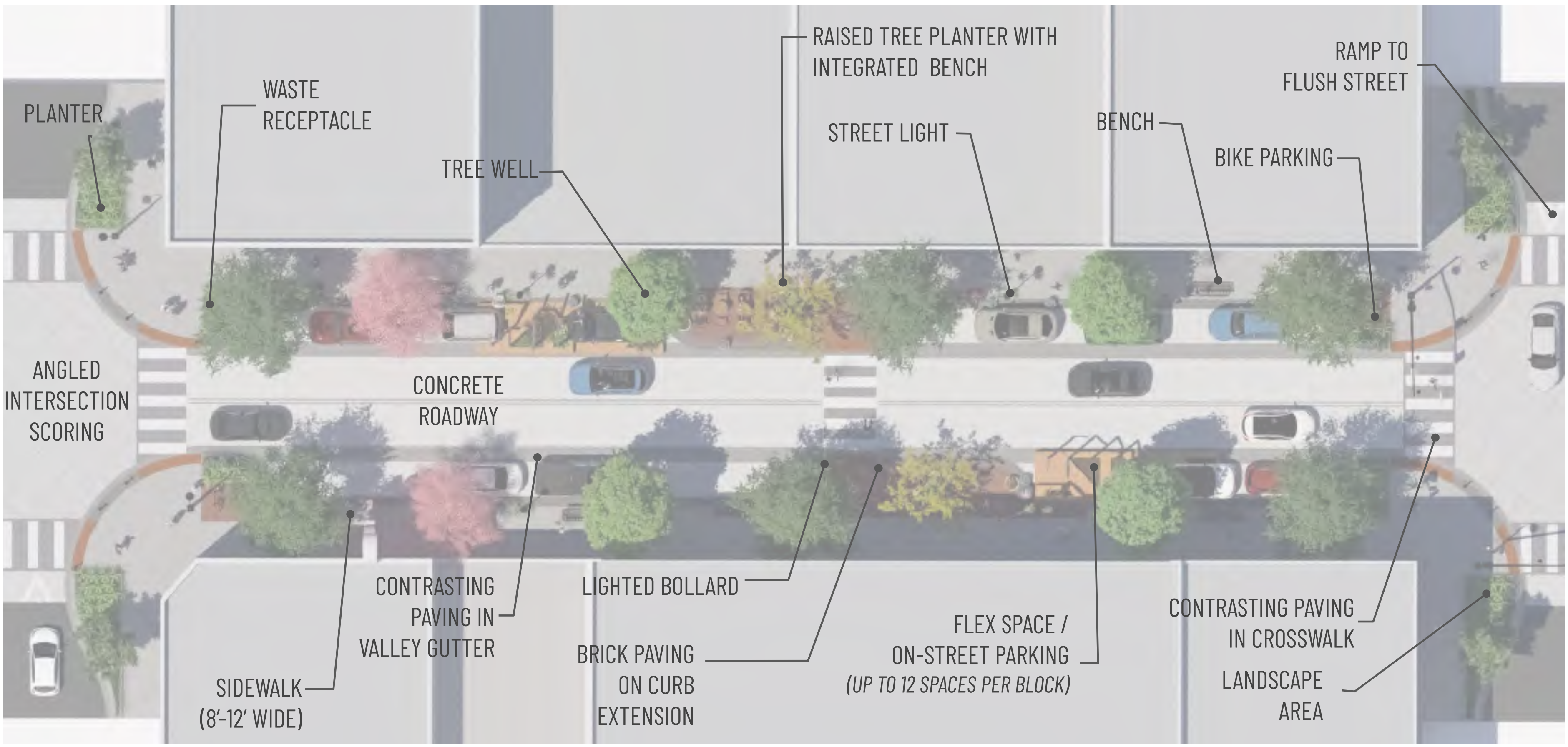
I like designs that add to the culture, safety, utility, and welfare of everyone. I want to see more community downtown... less car-centric, more walkable infrastructure.

-Survey Respondent (2022)



CROSS-SECTION & TYPICAL BLOCK

Third Street's new cross-section has been designed to enhance the pedestrian experience while still allowing vehicular access. In particular, the street will be given a 'road diet,' wherein the two travel lanes (one in each direction) will be reduced from 12' to 10' wide while the sidewalks on either side of the street will be increased from 10' to 12' wide. Meanwhile, the curb extensions at the intersections and at the mid-blocks—which today provide safety benefits by shortening crossing distances and improving visibility of/for pedestrians—will be lengthened significantly to provide additional space for seating, plantings, commerce, and programmable hardscape. Taken together, these changes will calm traffic and improve pedestrian comfort.



While each block along Third Street has its own unique conditions, the above shows a typical layout of the streetscape's various features.

***TYPICAL**: Third Street will be open to vehicular traffic—although some of the on-street parking spaces may be 'flexed' for outdoor dining, etc.*

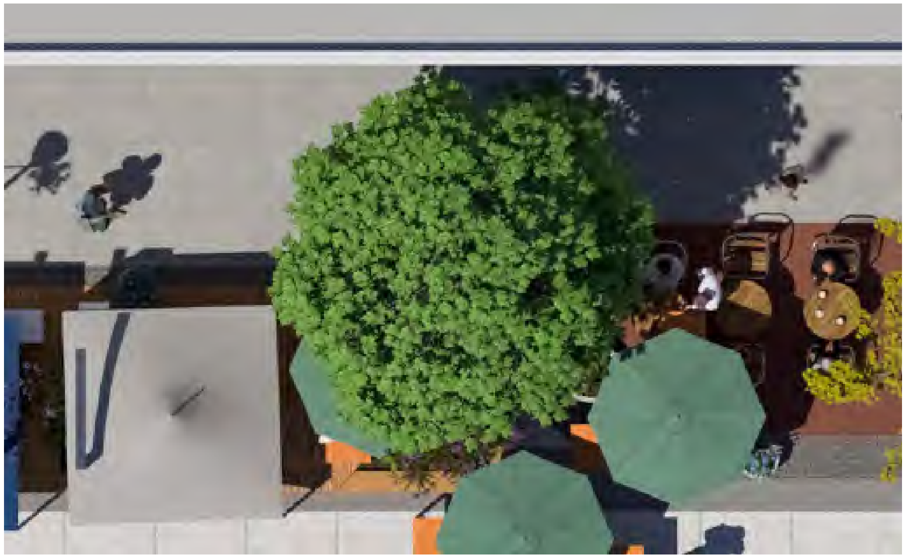
Visually, pedestrians should look at the whole street and want to walk down it, and people in cars should sit in a car and think, "this is for pedestrians, I should drive down another street."

-Survey Respondent (2022)

TRANSFORMED: *The curbless environment will enable Third Street to be converted into a plaza for festivals, markets, parades, or other special events.*

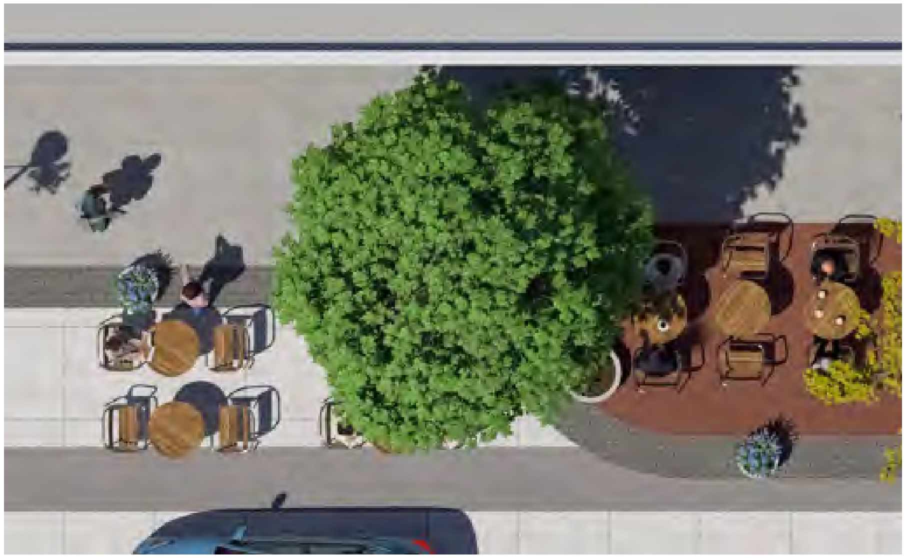
DESIGNED FOR FLEXIBILITY

Conventional use: on-street parking during 'non-programmed' times.

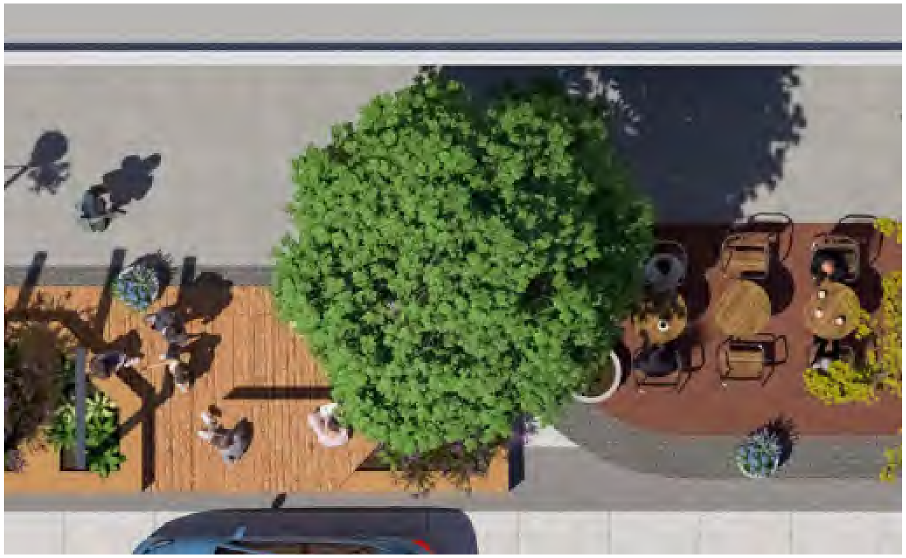


Pop-up booths and tents will appear during festivals and outdoor markets.

DESIGNED FOR FLEXIBILITY continued...



With proper permitting, outdoor dining could take over a parking / flex zone.

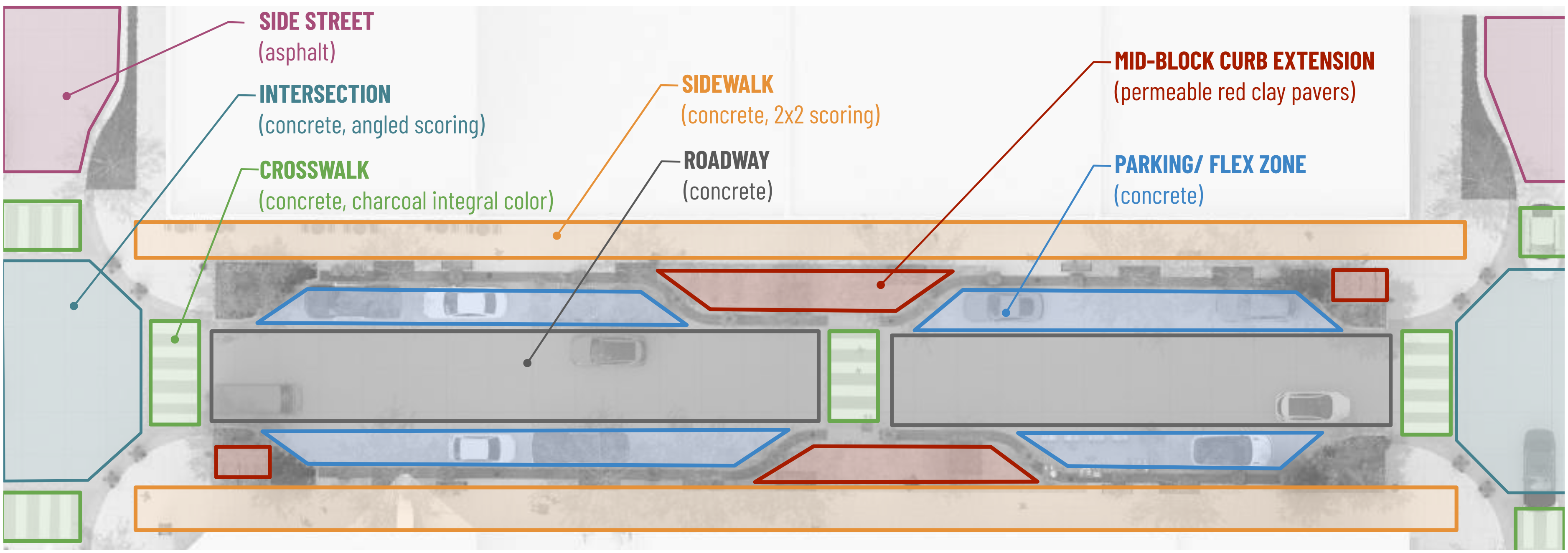


'Parklets' could be used to create temporary public space.

PAVING MATERIALS

The new Third Street hardscape will be concrete. Gray concrete sidewalks will continue the 2′ x 2′ scoring pattern standard throughout Downtown McMinnville. The gray concrete roadway will have significantly broader, ~8.5′ scoring, with the intersections distinguished by scoring that is off-set by 45-degrees. Rendered in a dark, charcoal gray via integral color concrete, a valley gutter will handle stormwater like a typical curb while also clearly delineating travel lanes from parking areas. This same dark, charcoal gray will be used for the crosswalks and for the driveways that access Third; it also should be considered for the gateway intersections at Adams, Baker, and Johnson.

Mid-block curb extensions will be built with permeable, red clay brick pavers that reference the Third Street's historic buildings. These pavers will be a uniform size but of variable colors arranged 'organically' without a defined pattern. These same pavers will be used near some street corners to accommodate bike racks and/or other amenities. (Note: Given the clay soil conditions beneath most of the project area, permeable pavers are to be installed only in areas with soil cell that allow for percolation. See "Street Trees" section below.)

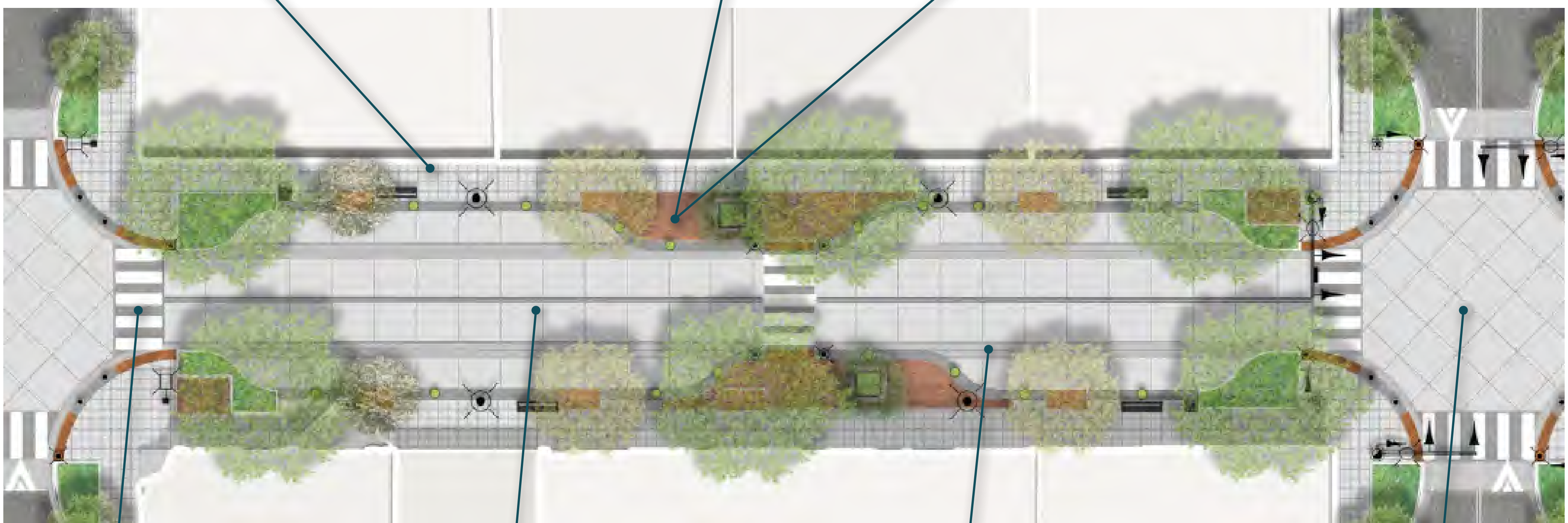


The various paving 'zones' along Third Street are considered in terms of material, color, and scoring.

PAVING MATERIALS continued...

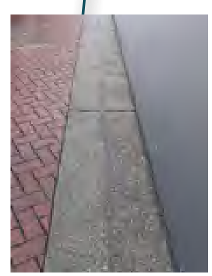
Concrete sidewalks with 2'x2' scoring

Mid-block curb extensions with permeable red clay brick pavers



Dark, charcoal gray crosswalks

Gray concrete roadway with orthogonal scoring



Differentiated valley gutter

Concrete intersections with angled scoring

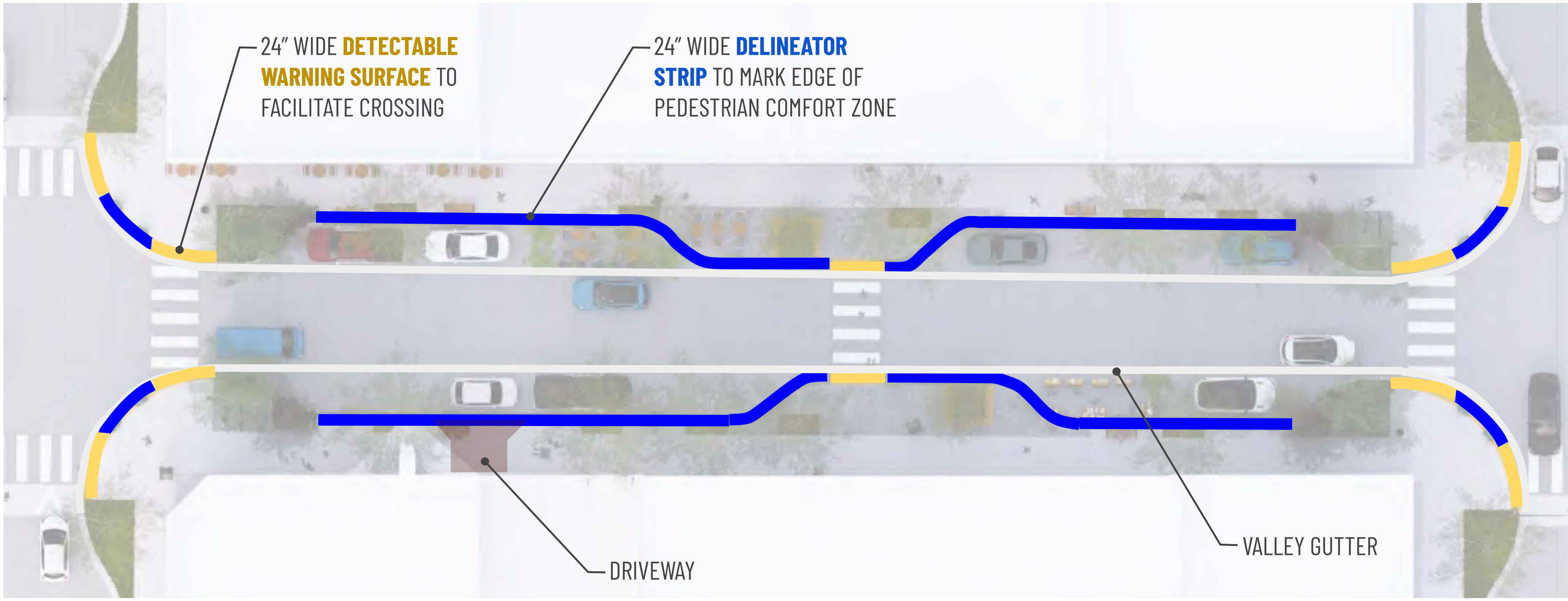
LEFT: Third Street's detectable warning surfaces (found at all crosswalks) will be uncoated cast iron.

RIGHT: Delineator strips of rough-faced basalt will distinguish the separation between pedestrian and vehicular areas.

ACCESSIBILITY FEATURES

There will be a 24" band of rough-faced basalt placed as a 'delineator strip' between the pedestrian areas and the parking / roadway. The texture of this basalt will enable vision-impaired visitors to cane-detect the edge of sidewalk and/or curb extension, while the basalt's color will stand in stark contrast to the adjacent concrete and/or red brick pavers. (Note: basalt was selected for this purpose as a locally relevant and source-able material.)

Detectable warning surfaces are required at all designated crosswalks. For Third Street, these 'truncated domes' will be uncoated cast iron, lending a patina to the streetscape's historic finishes.

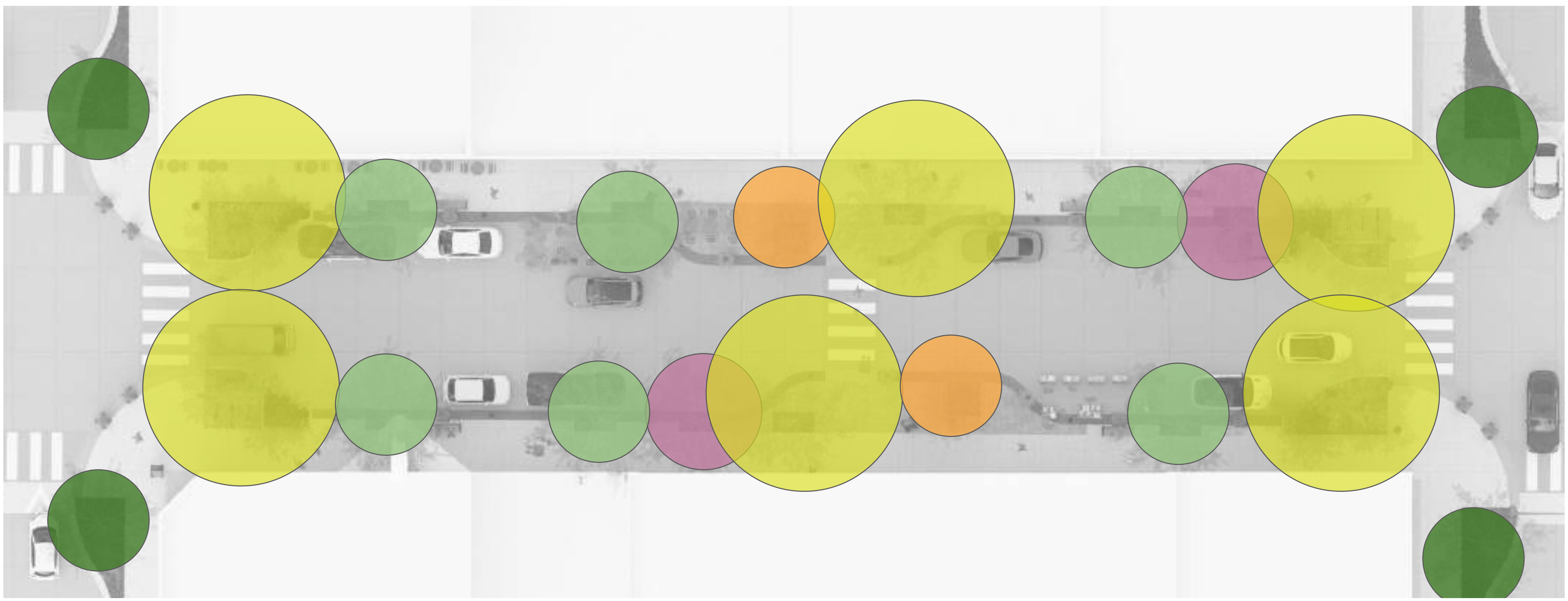


The various paving 'zones' along Third Street are considered in terms of material, color, and scoring.

STREET TREES

With their arching tunnel effect, flower accents, and variegated fall color, the street trees will be a defining feature of the new Third Street. To enhance diversity and resilience, the Preferred Streetscape design will use an informal mix of five tree types, and, in some cases, varying species for each type. (It should be noted that the current intention is to preserve 24 of the existing trees in the project area.)

- Columnar Tree (~15' wide)
- Narrow-Canopied Tree (~20' wide)
- Small Tree in Planter (~15' wide)
- Medium-Canopied Tree (~20' wide)
- Showy, Accent Tree (~20' wide)



There are five general tree types that will be used on Third Street. The above shows the arrangement of these tree types on a 'typical' bock.

STREET TREES continued...


Persian Ironwood


Persian Spire Parrotia


Armstrong Maple


Armstrong Maple (autumn)


Fernleaf Full Moon Maple


Vine Maple


Trident Maple

Columnar Tree (~15′ wide)

These trees will mark the entrances to Third Street from the intersecting side streets. Where no overhead wires exist, the intent is to plant Persian Ironwood (*Parrotia persica 'Vanessa'*). Where overhead wires do exist, and shorter columnar trees will be necessary, the intent is to plant a related variant—Persian Spire Parrotia (*Parrotia persica 'JL Columnar'*). Both trees are on McMinnville's Street Tree List.

Narrow-Canopied Tree (~20′ wide)

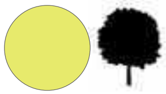
These narrower trees will provide shade and visibility to storefronts while allowing pockets of sunlight through. The intent is to replant Armstrong Maple (*Acer rubrum 'Armstrong'*), a tree that flourishes on Third Street today and which provides brilliant fall color. This tree is on McMinnville's Street Tree List.

Small Tree in Planter (~10 to ~20′ wide)

These smaller trees will be placed in large planters that appear on the mid-block curb extensions. Generally, these trees will be either Vine Maple (*Acer circinatum*) or Trident Maple (*Acer buergerianum*), the latter of which appears on the City's Street Tree List. In cases where a larger tree overhangs the planter, the intent will be to utilize a smaller Fernleaf Full Moon Maple (*Acer japonicum 'Aconitifolium'*).

STREET TREES continued...

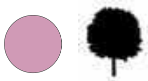
Medium-Canopied Tree (~35' wide)



In keeping with the community's desire to carry forth the current 'tunnel effect' of trees that arch over Third Street, medium-canopied trees will be planted at the beginning, middle, and end of each block. The intent is to replant American Hornbeam (*Carpinus caroliniana*) for this purpose, noting that these trees exist on Third Street today and are approved on McMinnville's Street Tree List.

American Hornbeam

Showy Accent Trees (~20' wide).

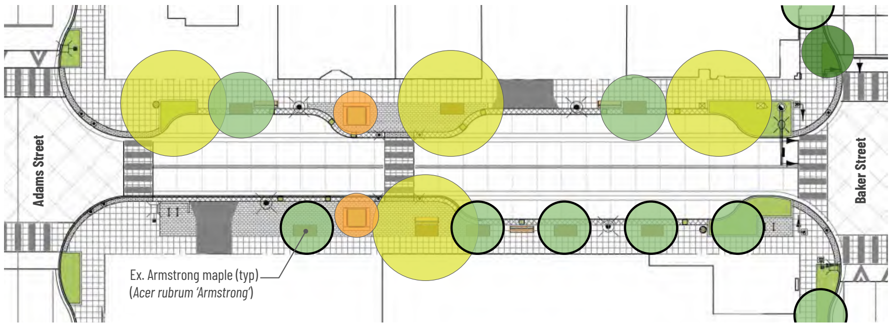


These trees, planted sparingly and for effect along most of Third Street's blocks, will provide seasonal interest. The intent is to utilize Venus Dogwood (Cornus (*kousa x nuttallii) x kousa 'KN 30-8'*) or Okame Flowering Cherry (*Prunus 'Okame'*), both of which appear on the City's Street Tree List.

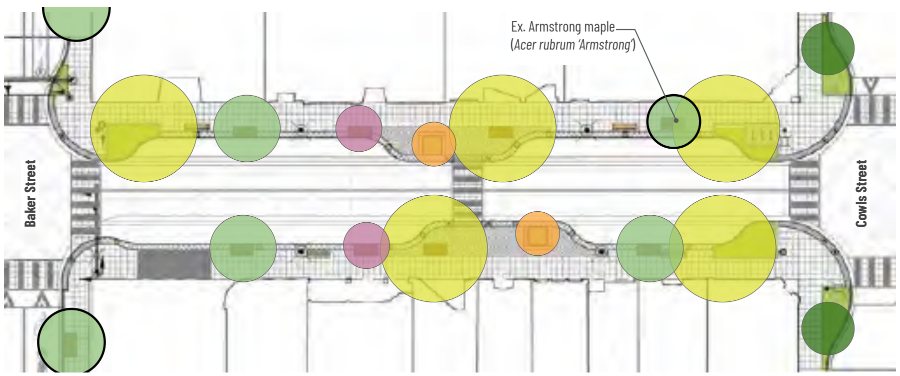
Okame Flowering Cherry

Venus Dogwood

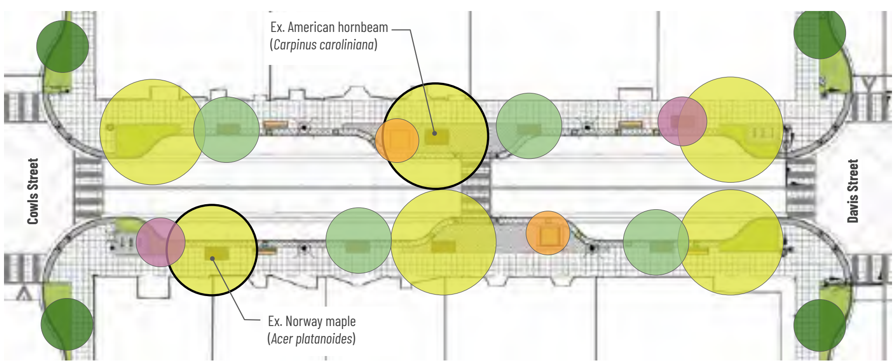
STREET TREES continued...



Street Trees: Adams to Baker



Street Trees: Baker to Cowls



Street Trees: Cowls to Davis

The Street Tree diagrams on this and the following page show how the five different tree types will be arrayed on each block, as well as how existing street trees will be incorporated into the overall design. It should be noted that these diagrams represent the trees at the potential mature canopy. It should also be noted that existing driveways and (on the eastern-most blocks) lane configurations necessarily alter the 'typical' pattern. Final street tree placement will be coordinated with critical infrastructure and agency standards and will preserve sightlines for intersections and the railroad crossing.

Columnar Tree (~15' wide)

Narrow-Canopied Tree (~20' wide)

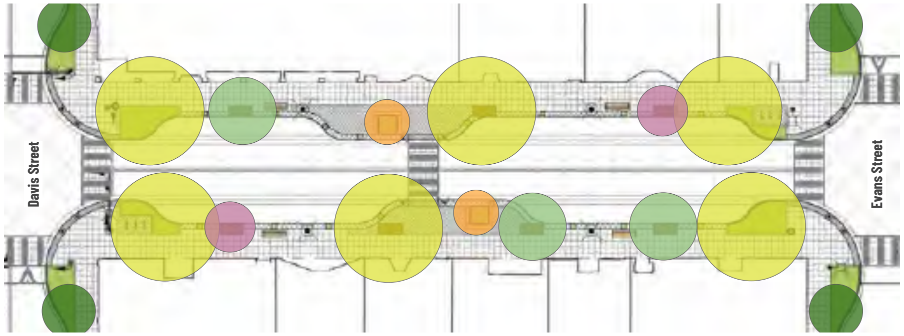
Small Tree in Planter (~15' wide)

Medium-Canopied Tree (~20' wide)

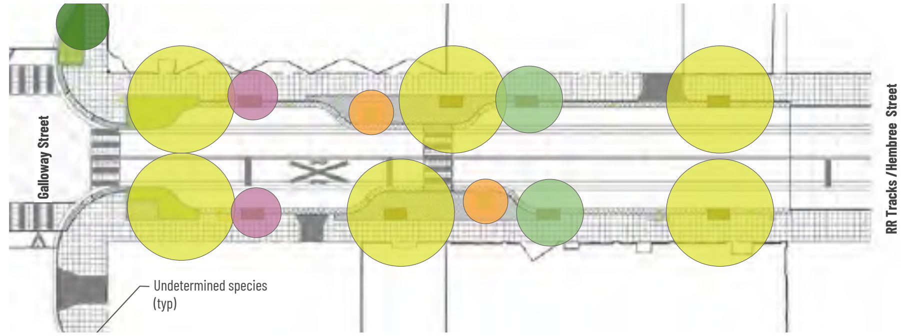
Showy, Accent Tree (~20' wide)

Existing Tree to remain

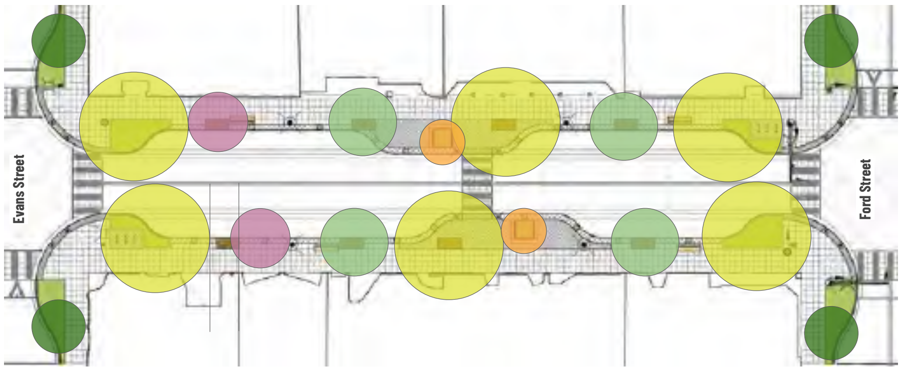
STREET TREES continued...



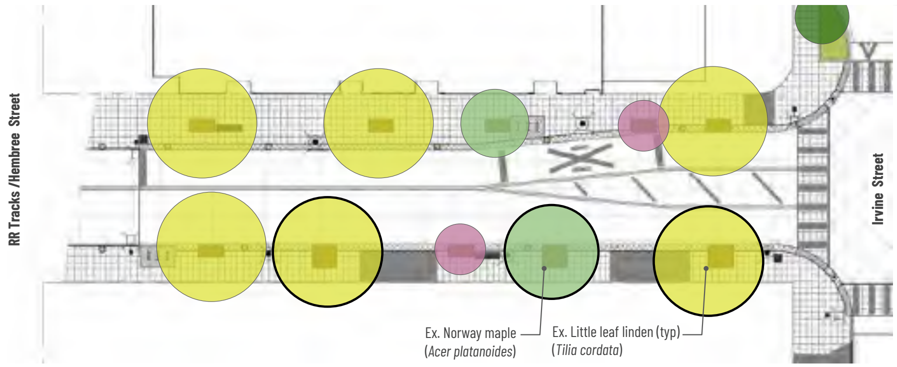
Street Trees: Davis to Evans



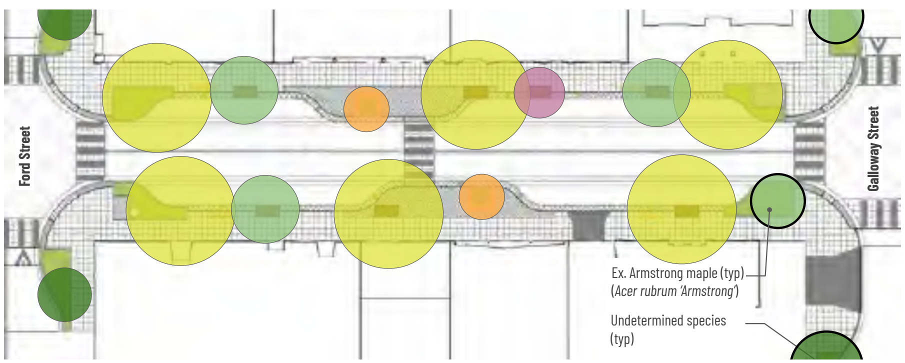
Street Trees: Galloway to Hembree (RR)



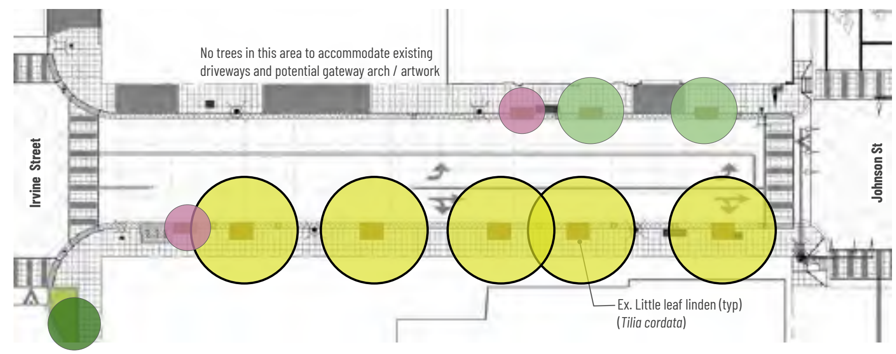
Street Trees: Evans to Ford



Street Trees: Hembree (RR) to Irvine



Street Trees: Ford to Galloway



Street Trees: Irvine to Johnson

STREET TREES continued...

Steel tree grates come in a wide variety of standard designs, but can also be customized for Third Street. The key is to ensure that the selected grate can be cut out from the center to accommodate tree growth.

Tree Grates

Save for the small trees in the mid-block planters and those placed in the at-grade corner planters, it is recommended that tree wells be covered with attractive and distinctive tree grates made from weathered steel. While the specific design has yet to be determined, it should be noted that grates can either be custom or 'off-the-shelf.' These grates must be maintained as the trees grow—to both protect the tree and prevent pedestrian tripping hazards. If / when root flares emerge such that grates are no longer feasible, the tree well can be mulched, planted, or filled with decomposed granite or other permeable material.

STREET TREES continued...

Soil Cells

Typical urban tree wells (4' wide, 6' long, and 2' deep) provide 48 cubic feet of uncompacted soil for street trees. However, the recommended soil volume to maximize tree health is 1,000' cubic feet—and this is why many urban street trees struggle. To provide adequate soil volume for Third Street's trees, it is recommended that a soil cell system be used. Soil cells are modular, load-bearing structures that support urban sidewalks while providing high-quality, uncompacted soil volumes for tree roots. Such systems tend to promote faster tree growth than standard street tree wells. Soil cells can also be integrated into a stormwater management system, whereby stormwater can be directed into the soil cells (via pipe or infiltration) for uptake by the trees.

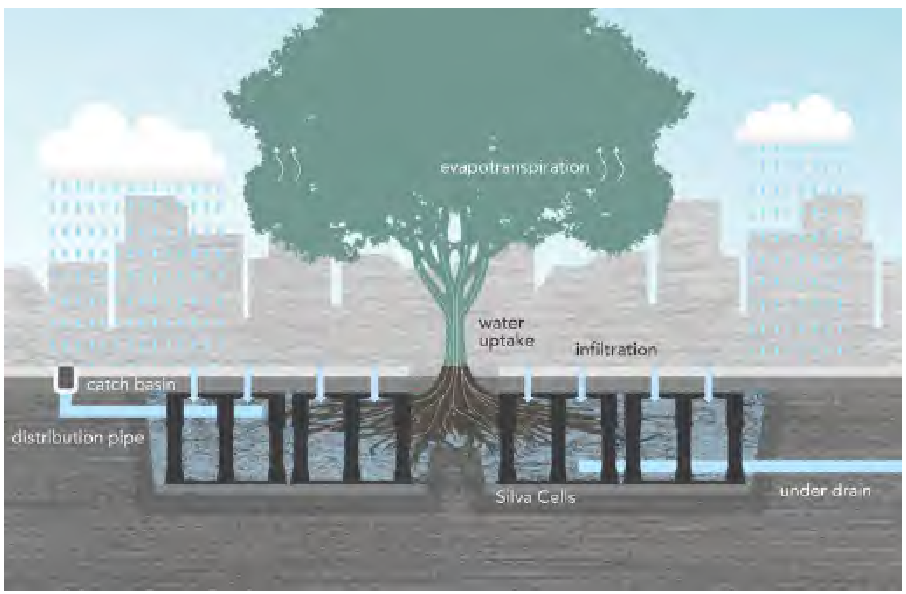


Diagram showing how soil cells (e.g., Silva Cells) function. The structural soil cells hold up the sidewalk, allowing tree roots to grow in uncompacted soil. Stormwater can also flow through the cells. (Credit: DeepRoot)

These two photos show the Denver's curbless 16th Street Mall under construction (April 2025). Soil cells are being used for all of the street's trees.

If there is a way to make it almost exactly how it is now, with the tunnel of tree canopy lining both sides and the trees looking beautiful... that would be ideal. It wouldn't feel like Third Street without that.

-Survey Respondent (2022)

While most of this report's renderings show the street trees at mid-growth (to allow readers to see the other streetscape details), the image above and the one that precedes it illustrate the 'tunnel effect' when the trees reach full maturity.

LANDSCAPING / PLANTERS continued...

At-Grade Planters

Most intersections will feature irrigated, at-grade landscaped areas to anchor the corners with greenery. It is recommended that evergreen species be planted for year-round interest, with a few perennials included as well. This vegetations is to be kept low (less than 24") in order to preserve sightlines. These planters will have a curb border to prevent intrusion by vehicles and/or pedestrians.

Large Bench Planters

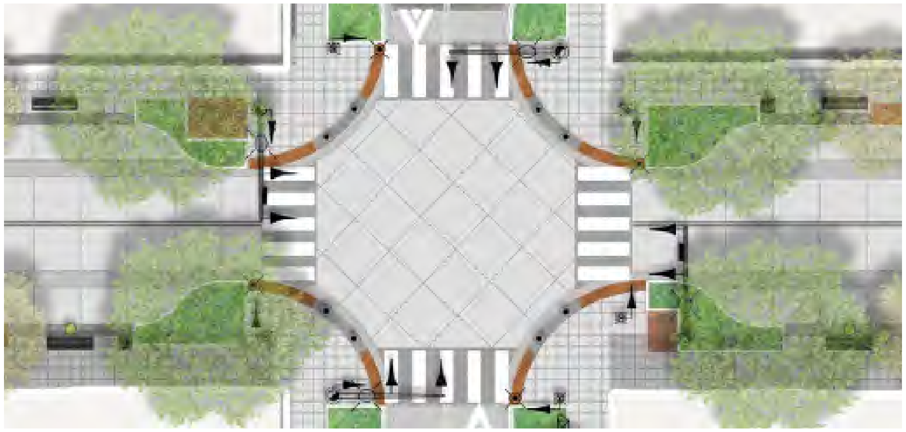
A signature piece of the mid-block curb extensions will be large, above-grade planters that feature a small tree and groundcover plantings with perennials. (It is recommended that these planters be irrigated.) Benches will wrap all four sides, allowing visitors, customers, and parade watchers to take in the full panorama of Third Street. These wood slat benches will be joined at the corners and will feature periodic armrests.

Stand-Alone Planters

The project's standard planter will be a simple, round design - rendered in concrete (reinforced with glass fiber for durability). It is recommended that a mix of sizes and colors (e.g., natural, gray, and charcoal) be clustered in some locations - to emulate the loose, organic feel of the planters that exist today on Third. It is also recommended that some or all of the existing 'Stastny' planters be retained if feasible to retain some of the street's cultural heritage. (Note: Self-watering irrigation systems should be considered for stand-alone planters if feasible.)

Hanging Baskets

It is recommended that the street light poles be able to accommodate hanging flower baskets (with irrigation) to add additional color and small-town charm to the streetscape.



Curbed, at-grade planters will be constructed at the intersections.

Large bench planters with small trees and plantings will be a key project feature.

It is recommended that the historic 'Stastny' planters (LEFT) be retained to complement the standard round planters (RIGHT).

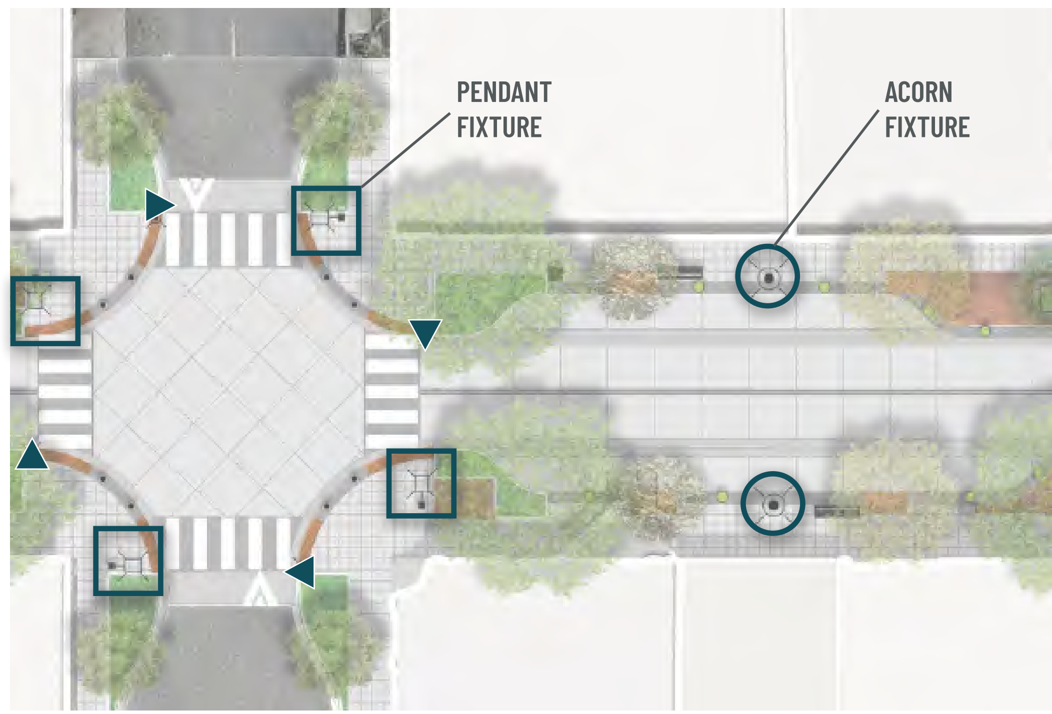
LIGHTING

The acorn light fixture (LEFT) will be for mid-blocks and the pendant (RIGHT) for intersections.

Where applicable, the historic pendant light fixtures will be affixed to signal poles with decorative bases (RIGHT). The LEFT image above shows a recently-installed example at NE 5th and Evans Streets in Downtown McMinnville.

Street Lights

Each block face will have four (4) pedestrian-scaled street lights. These black metal, historic-looking fixtures will be the same as those found elsewhere in Downtown and the community. Lights at the corners will be pendant-style fixtures and will help illuminate the crosswalks, while those along the mid-block will be acorn-style fixtures. At signalized intersections, the pendant-style fixtures (and their decorative bases) will be integrated into the signal pole configuration. It is recommended that the light fixtures include convenience outlets and be able to accommodate banners, flags, and hanging flower baskets (the latter ideally with irrigation).

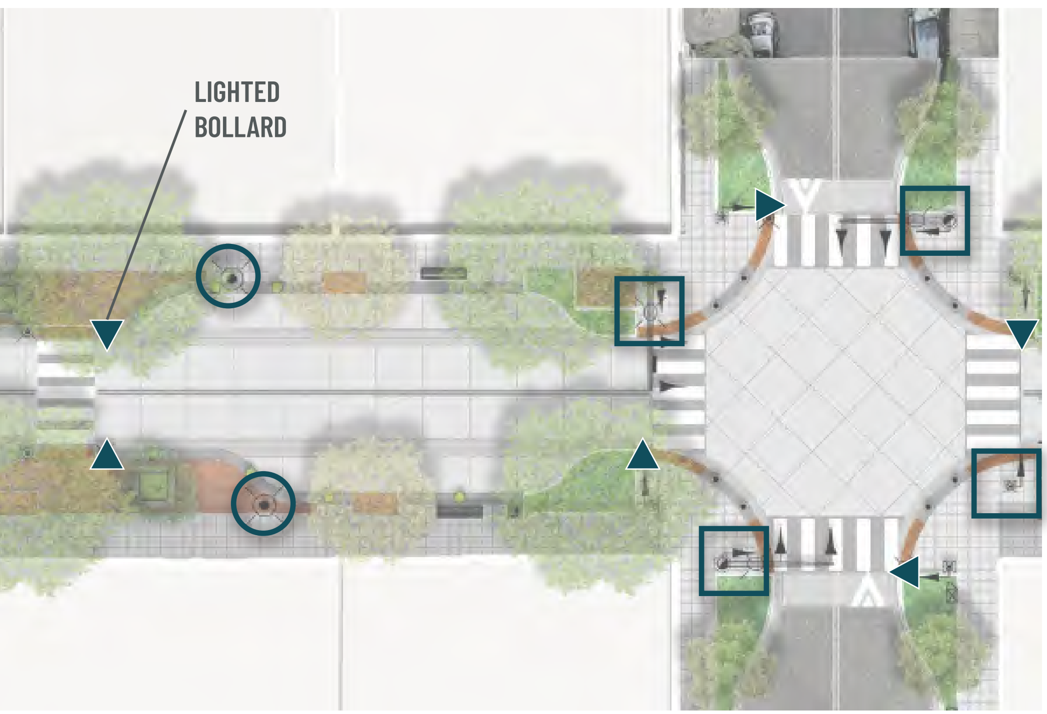


The above diagram shows the locations of the three standard light fixtures on a typical block.

LIGHTING continued...

Lighted Bollards

Black metal lighted bollards, chosen to emulate the historic light fixtures, will be used to further illuminate each crosswalk. At the well-lit intersection crosswalks, one lighted bollard will be installed per crosswalk—one opposite each pendant light fixture. For the mid-block crossings, where the tree canopy will create more shadow, four lighted bollards will be installed per crosswalk—two on either end. The standard bollard will match the unlit "corner guide" bollards. One option to be considered in final design is whether or not to use 'artistic' lighted bollards in select locations; such bollards could be designed by local artisans, reference McMinnville's historic past, and/or add quirk and whimsy to the streetscape.



The preferred lighted bollard (LEFT) and a more decorative alternative (RIGHT).

The preferred lighted bollard as seen in Carlton, OR.

Artistic lighted bollards may also be an option to consider at select locations.

Decorative lighting has always been a part of Third Street, as shown in the TOP images from the 1930s and the contemporary ones BELOW.

Decorative lighting as a placemaking feature. Clockwise from TOP LEFT: Larimer Square (Denver, CO); Tulsa, OK; Church Street (Burlington, VT); Naperville, IL.

LIGHTING continued...

Decorative Lighting

Third Street has long benefited from decorative 'twinkle lights' that appear seasonally or to mark special events. These decorative lights have generally been the purview of the McMinnville Downtown Association, and it is the recommendation of this plan that a decorative lighting program—whether around or between trees, above the street, outlining façades, etc.—be continued when the new streetscape is implemented. Such a program could be particularly advantageous in creating visual interest in the first few years following construction, when the newly-planted street trees will be smaller. (Note: External outlets to accommodate decorative lighting should be located and designed so as to discourage vandalism and attractive nuisances.)

Building Lighting

Lighting provided by private property and business owners can contribute greatly to the evening ambiance of individual storefronts and Third Street as a whole. Owners are strongly encouraged to ensure that entrances are well (and warmly) lit, display windows emanate a 'glow' onto the sidewalk, and historic façade features are highlighted.

Lighting façade details can celebrate historic architecture while creating a welcoming feeling in Downtown.

OTHER FURNISHINGS + FIXTURES

Corner Guides
Because the new Third Street will be a curbless environment, it is paramount that pedestrians and drivers alike understand where the roadway ends and where the sidewalk begins. To facilitate this distinction, each intersection corner will feature a delineator strip (a dark band of rough-edged basalt), cast-iron detectable warning surfaces at the crosswalks, and corner guide bollards at the corner apex. These metal bollards will be post-mounted for durability and will be of a similar design to the lighted bollards—made to emulate the historic light standards.

The preferred corner guide (LEFT) and a more decorative alternative (RIGHT).

Waste Receptacles
The new Third Street will feature 'cart garage' waste receptacles that help facilitate the efficient removal of collected waste. The cart garage is a lockable fixture into which a roll cart can be inserted. The roll carts, owned and maintained by the waste hauler, work with the hauler's automated side-loaded trucks. The cart garage itself can be covered with replaceable artistic wraps that can be designed by local artisans to celebrate the community, McMinnville's history, etc. This plan specifies a 60-gallon cart, but it should be noted that 35-gallon and 90-gallon carts (and their associated 'garage') are also available.

The preferred 'cart garage' waste receptacle balances function with custom art.

Benches
To complement the other historic-style fixtures along Third and throughout Downtown, Third Street's stand-alone benches will be a classic black metal with vertical steel straps and cast-iron arms on the end-frame. There can also be a mix of back and backless benches depending on final location and the need for flexibility. (While not always as comfortable, backless benches would allow visitors to face either the storefronts or the parades / events going on when the street is closed to traffic.)

The black metal benches can come in either back or backless versions depending on placement and the need for flexibility.

OTHER FURNISHINGS + FIXTURES continued...

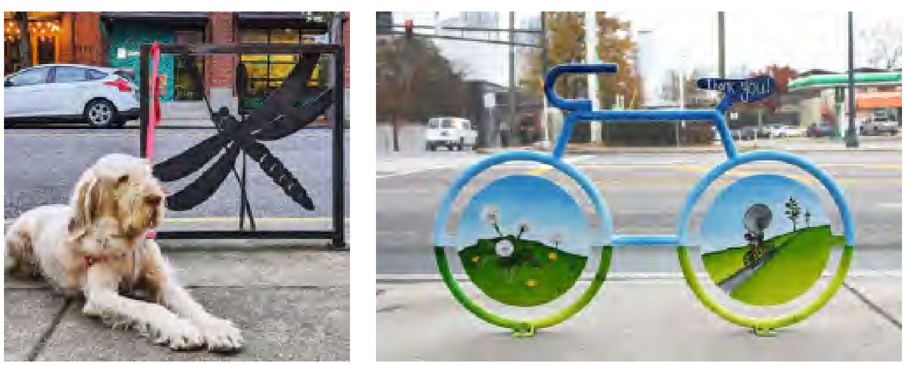
The preferred standard bike rack is a black, square-tubed, flat-top staple rack with a lean-bar (LEFT). There is also an option to put McMinnville-specific branding and/or artwork on the lean-bar.

Bicycle Racks

Third Street's standard bike rack will be a black, flat-top staple rack with square tubing and a lean-bar to facilitate locking bicycles of different sizes and configurations. Optionally, the lean bars could be utilized for applied graphics or laser-cut artwork to make them unique to Downtown McMinnville. These standard bike racks could also be complemented by the occasional custom 'art rack.' Bike racks will generally be located at the corners, although depending on demand or business need, additional racks could be added along some block faces, in mid-block curb extensions, or in an on-street 'bike corral.'

Drinking Fountains

Drinking fountains will be black metal and with a design that complements the other historic-style fixtures on the street. They will feature a pair of polished brass drinking bowls—one vertical and one accessible—as well as a pet bowl at the base.



There may also be opportunities throughout the project to add custom 'art racks' to the streetscape. These occasional pieces would be both quirky, functional, and unique to McMinnville.

Preferred drinking fountain... for everyone!

PUBLIC ART

In the case of McMinnville's Third Street, where "quirky" is embedded in the Vision Statement, public art is a must. While the community design process has not yet focused specifically on art, a few ideas have emerged and are recorded here for future consideration

Stand-Out Pieces

Vertical public art—whether colorful and striking or monumental and serious—can add distinctive character to any streetscape or Downtown. The Preferred Design puts forth the potential for a substantial piece at the NE Baker / Third intersection and the potential for another at the NE Johnson / Third gateway (see 'Gateways' below). There is the potential for additional vertical art as well, and the 30% Design Package (on which this Plan is based) includes an allowance for standard pedestals and footings to accommodate a few significant pieces. (And it should be noted that the project intends to retain the beloved Ben Franklin statue!)

Subtle, 'Discoverable' Works

There are opportunities to embed artwork with the streetscape—even within the street or sidewalk itself—to reward the sharp-eyed visitor and bring additional richness to Third Street. This could include mosaics, historic seals, or playful pieces.

Temporary Installations

Third Street today enjoys occasional sidewalk murals and chalk drawings that bring some color pop to intersections, etc.—and this kind of ongoing effort should be encouraged. The community should also consider having larger pieces 'rotate' through the City to bring fresh interest on a regular basis.

Functional Art

As has been noted in previous sections, there are opportunities—with the waste receptacles and bicycle racks in particular—to strategically include functional art within the streetscape design.

Stand-out vertical art from Cedar Falls, IA; McMinnville, OR; and Camas, WA.

Discoverable pieces of embedded history from Portland and Milwaukie, OR.

Temporary pieces in Redwood City, CA and Portland, OR.

An example gateway arch from Sunnyvale, CA.

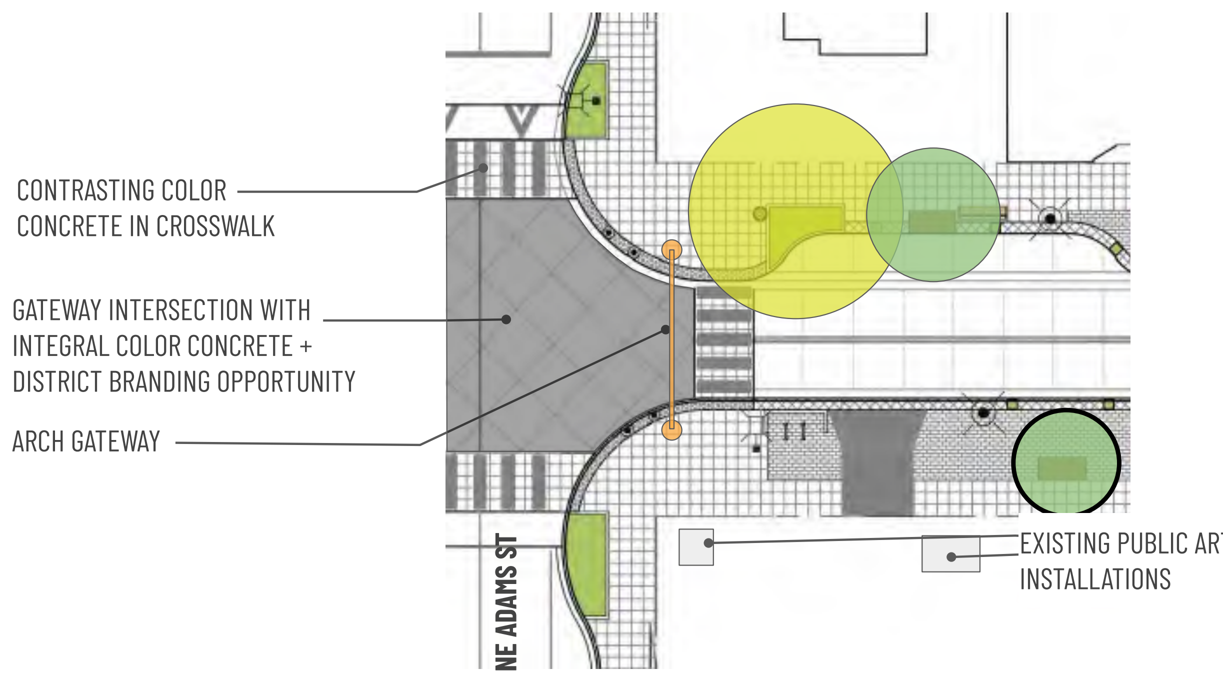
GATEWAYS

SW Adams + Third

The intersection of SW Adams and Third will feature gateway elements to welcome visitors traveling south on Highway 99W into Downtown McMinnville. The signature element here will be a gateway arch spanning Third Street east of SW Adams, which will also create a strong community statement when viewed from the Library and City Park on the west side of SW Adams. This arch will be complemented by the existing welcome sculptures installed on the south side of Third. It is also recommended that the raised concrete intersection be colored the same dark gray as the crosswalks—and potentially branded—to further signify the gateway.

Existing sculptural welcome sign (McMinnville, OR)

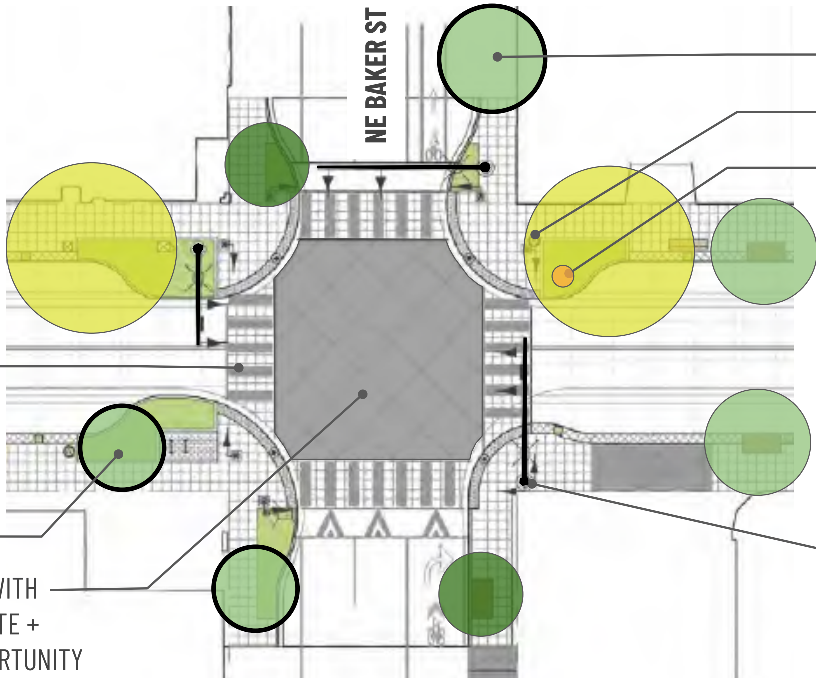
Branded intersection (Plainfield, IL).



GATEWAYS continued...

NE Baker + Third
The intersection of NE Baker and Third is also a gateway from Highway 99W—for those travelers heading north into Downtown. At this constrained location, it is recommended that a column or vertical piece of art (perhaps emulating the proposed arch at SW Adams) be installed in the planting area on the northeast corner of the intersection. It is also recommended that the concrete intersection be colored the same dark gray as that at SW Adams—and potentially branded as well.

Monumental art from Arlington County, VA (LEFT) and Seattle, WA (RIGHT).



A piece from Emeryville, CA.

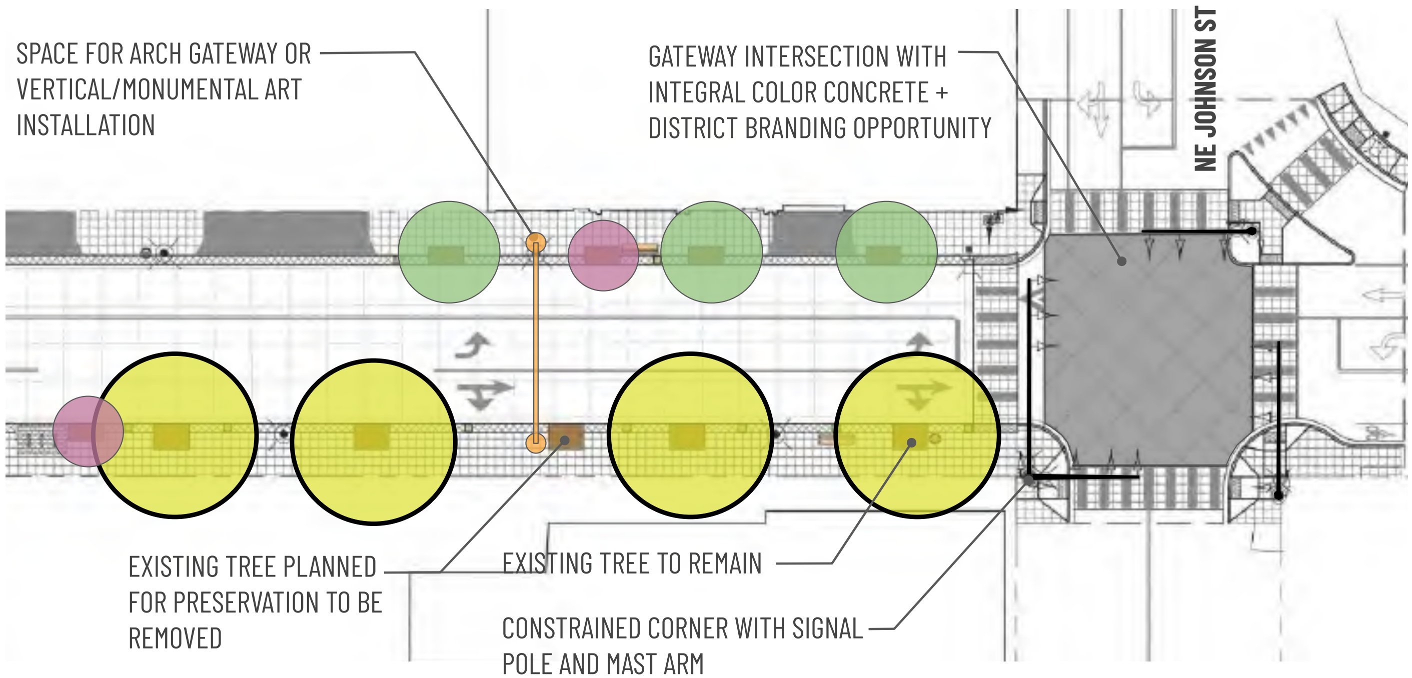
GATEWAYS continued...

An example gateway arch from Old Hilliard, OH.

Branded intersection (Plainfield, IL).

NE Johnson + Third

The intersection of NE Johnson and Third is a gateway into Downtown for travelers and visitors heading northwest on Three Mile Lane or southwest on NE Lafayette / Johnson. While this concrete intersection should be colored and potentially branded in the same way as the SW Adams and NE Baker intersections, it will be difficult to place an arch or significant artwork directly at the intersection given the existing development and roadway lane configurations. It is therefore recommended that a second arch (or vertical column / artwork) be placed instead ~mid-block between NE Irvine and Johnson.



PREFERRED (30%) DESIGN: Adams to Baker

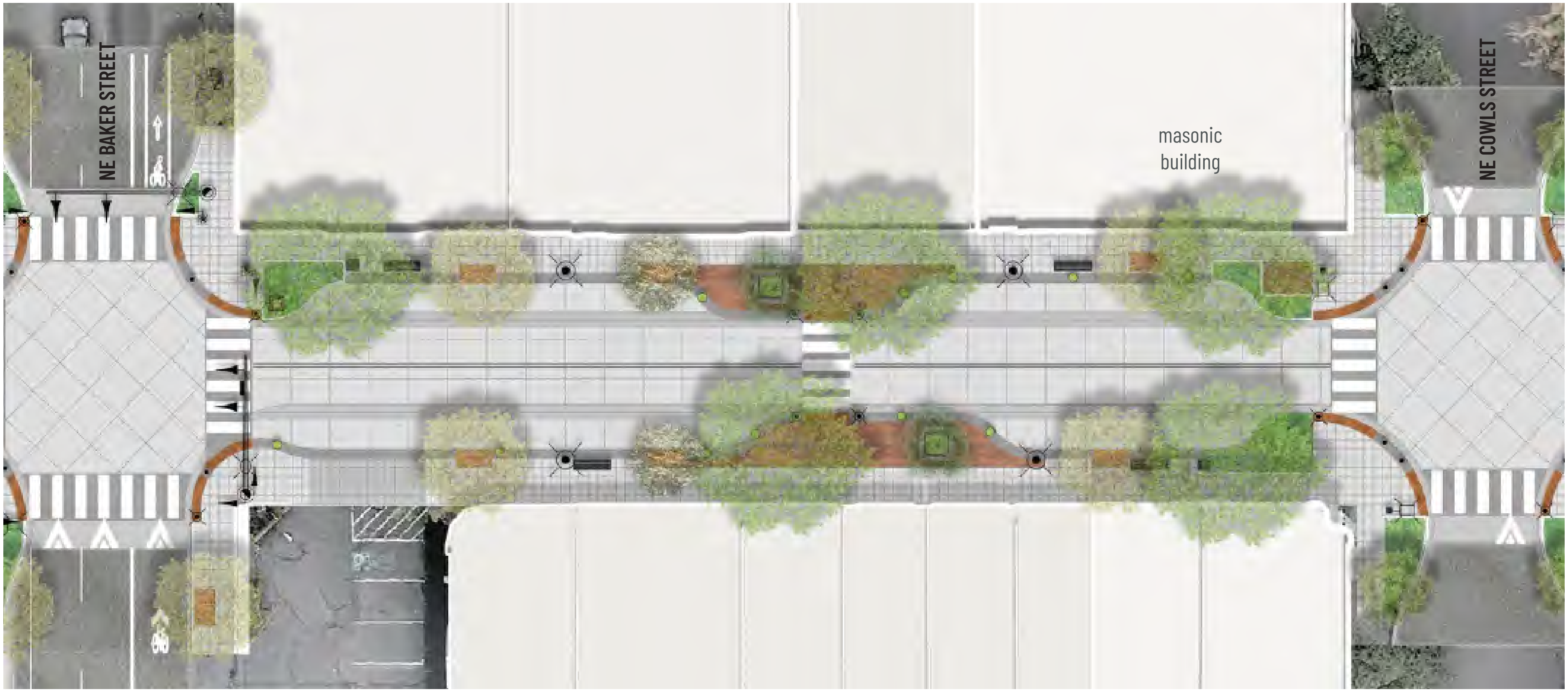
Preliminary – Not for Construction

LEGEND

- Tree Grate / Tree Opening
- Raised Planter with Bench Seating
- Existing or Proposed Tree
- Landscape Area
- Asphalt Roadway
- Concrete Roadway
- Concrete Intersection
- Concrete Sidewalk
- Waste Receptacle
- Bike Rack
- Bench & Standard Planter
- Permeable Brick Pavers
- Detectable Warning Surface
- Delineator Strip
- Valley Gutter
- Acorn Light
- Pendant Light
- Lit Bollard
- Unlit Bollard
- Traffic Signal
- Gateway Monument
- Gateway Arch
- Roadway Ramp

PREFERRED (30%) DESIGN: Baker to Cowls

Preliminary – Not for Construction



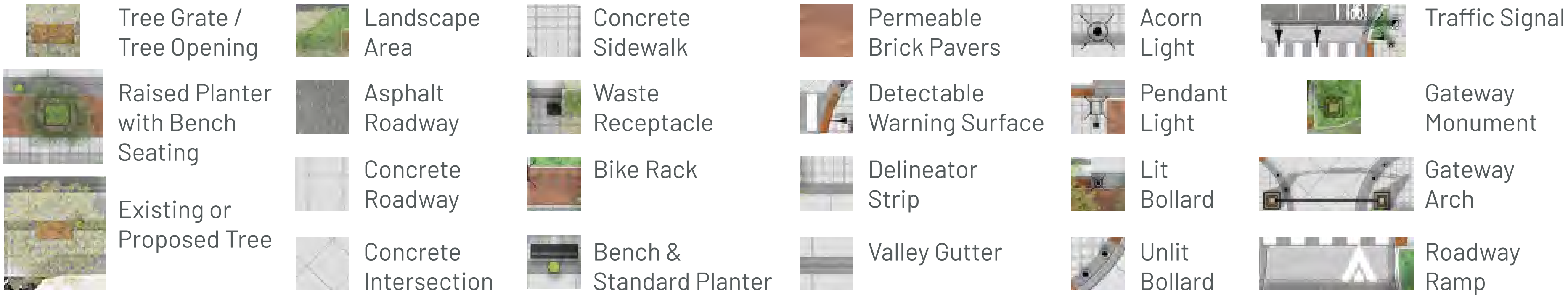
LEGEND

- Tree Grate / Tree Opening
- Raised Planter with Bench Seating
- Existing or Proposed Tree
- Landscape Area
- Asphalt Roadway
- Concrete Roadway
- Concrete Intersection
- Concrete Sidewalk
- Waste Receptacle
- Bike Rack
- Bench & Standard Planter
- Permeable Brick Pavers
- Detectable Warning Surface
- Delineator Strip
- Valley Gutter
- Acorn Light
- Pendant Light
- Lit Bollard
- Unlit Bollard
- Traffic Signal
- Gateway Monument
- Gateway Arch
- Roadway Ramp

PREFERRED (30%) DESIGN: Cowls to Davis

Preliminary – Not for Construction

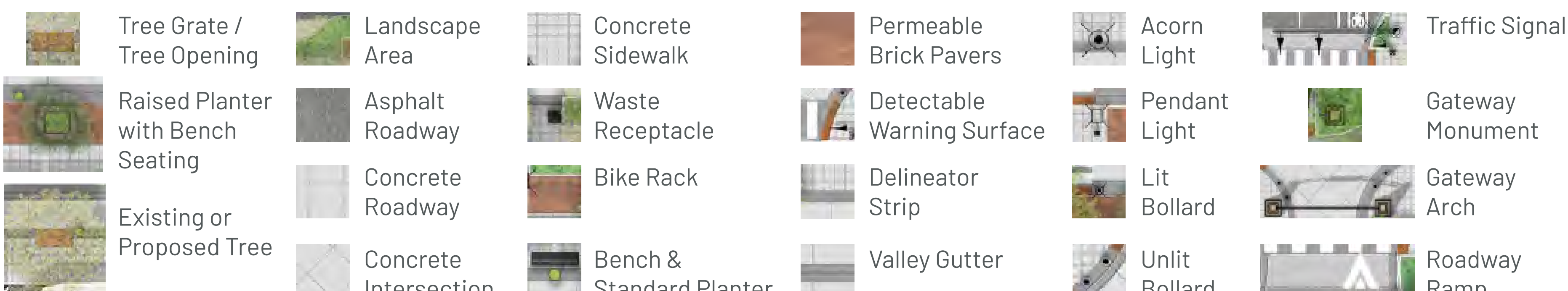
LEGEND



PREFERRED (30%) DESIGN: Davis to Evans

Preliminary – Not for Construction

LEGEND



PREFERRED (30%) DESIGN: Evans to Ford

Preliminary – Not for Construction

LEGEND

Tree Grate / Tree Opening	Landscape Area	Concrete Sidewalk	Permeable Brick Pavers	Acorn Light	Traffic Signal
Raised Planter with Bench Seating	Asphalt Roadway	Waste Receptacle	Detectable Warning Surface	Pendant Light	Gateway Monument
Existing or Proposed Tree	Concrete Roadway	Bike Rack	Delineator Strip	Lit Bollard	Gateway Arch
	Concrete Intersection	Bench & Standard Planter	Valley Gutter	Unlit Bollard	Roadway Ramp

PREFERRED (30%) DESIGN: Ford to Galloway

Preliminary – Not for Construction

LEGEND

- Tree Grate / Tree Opening
- Raised Planter with Bench Seating
- Existing or Proposed Tree
- Landscape Area
- Asphalt Roadway
- Concrete Roadway
- Concrete Intersection
- Concrete Sidewalk
- Waste Receptacle
- Bike Rack
- Bench & Standard Planter
- Permeable Brick Pavers
- Detectable Warning Surface
- Delineator Strip
- Valley Gutter
- Acorn Light
- Pendant Light
- Lit Bollard
- Unlit Bollard
- Traffic Signal
- Gateway Monument
- Gateway Arch
- Roadway Ramp

PREFERRED (30%) DESIGN: Galloway to Hembree (RR)

Preliminary – Not for Construction

LEGEND

- Tree Grate / Tree Opening
- Raised Planter with Bench Seating
- Existing or Proposed Tree
- Landscape Area
- Asphalt Roadway
- Concrete Roadway
- Concrete Intersection
- Concrete Sidewalk
- Waste Receptacle
- Bike Rack
- Bench & Standard Planter
- Permeable Brick Pavers
- Detectable Warning Surface
- Delineator Strip
- Valley Gutter
- Acorn Light
- Pendant Light
- Lit Bollard
- Unlit Bollard
- Traffic Signal
- Gateway Monument
- Gateway Arch
- Roadway Ramp

PREFERRED (30%) DESIGN: Hembree (RR) to Irvine

Preliminary – Not for Construction

LEGEND

- Tree Grate / Tree Opening
- Raised Planter with Bench Seating
- Existing or Proposed Tree
- Landscape Area
- Asphalt Roadway
- Concrete Roadway
- Concrete Intersection
- Concrete Sidewalk
- Waste Receptacle
- Bike Rack
- Bench & Standard Planter
- Permeable Brick Pavers
- Detectable Warning Surface
- Delineator Strip
- Valley Gutter
- Acorn Light
- Pendant Light
- Lit Bollard
- Unlit Bollard
- Traffic Signal
- Gateway Monument
- Gateway Arch
- Roadway Ramp

PREFERRED (30%) DESIGN: Irvine to Johnson

Preliminary – Not for Construction

LEGEND

- Tree Grate / Tree Opening
- Landscape Area
- Concrete Sidewalk
- Permeable Brick Pavers
- Acorn Light
- Traffic Signal
- Raised Planter with Bench Seating
- Asphalt Roadway
- Waste Receptacle
- Detectable Warning Surface
- Pendant Light
- Gateway Monument
- Existing or Proposed Tree
- Concrete Roadway
- Bike Rack
- Delineator Strip
- Lit Bollard
- Gateway Arch
- Concrete Intersection
- Bench & Standard Planter
- Valley Gutter
- Unlit Bollard
- Roadway Ramp


STREET
CLOSED

D

The Road Ahead

NEXT STEPS TOWARDS IMPLEMENTATION

NEXT STEPS FOR THIRD STREET

Advancing to Final Design

With 30% design for the Third Street streetscape now complete, it is recommended that the project advance to Final Design, including preparation of Plans, Specifications, and Estimates (PS&Es). This next phase will refine design details, incorporate remaining technical input, and position the project for construction funding and implementation. Coordination with ODOT, McMinnville Water & Light, the McMinnville Downtown Association, and franchise utilities will be essential during this phase to ensure alignment on infrastructure improvements and to minimize future conflicts. As part of this work, the project team should also update the cost estimate at the 60% design milestone to reflect evolving market conditions and to support funding strategies. Advancing to Final Design will help maintain momentum and sustain public and stakeholder confidence in the project's delivery.

Contractors' Round Table

As the project enters Final Design, it is recommended that the City convene a Contractors' Round Table to gather early input on construction approaches that minimize disruption to Downtown businesses. Bringing experienced contractors into the conversation early will help identify practical strategies for phasing, access management, material staging, and other logistics that can reduce construction impacts. This input will be especially valuable in shaping the Plans, Specifications, and Estimates (PS&Es), ensuring that the final design supports a smooth, efficient build-out with minimal interference to daily Downtown activity.

Business Resilience

Given the project's anticipated impact, it is recommended that the City continue to invest in a robust Business Resilience program to support Downtown businesses and property owners before, during, and after Third Street's reconstruction. Building on initial efforts, this work should include tailored strategies for business preparation, access planning, and recovery—delivered in collaboration with MURAC, the McMinnville Downtown Association (MDA), and other local and

NEXT STEPS continued...

regional partners. Recommended Business Resilience components include enhanced alley access and signage, intentional wayfinding, timely business access updates, coordinated marketing campaigns, special events, and construction-phase materials designed to generate awareness, excitement, and community support. The program should provide practical tools and resources (checklists, business training sessions, communications guidance, and direct outreach) to help businesses stay visible, accessible, and informed throughout the project timeline. A Downtown Dollars program could be considered as a way to incentivize local spending and reinforce community support during construction. To support these efforts, the City should explore offering a limited, small grant program to assist with marketing, access enhancements, and/or business adaptation needs. In addition, the City should establish clear metrics for engagement, outreach effectiveness, and business support outcomes to track progress and inform ongoing programs and communication.

On-Street Parking as 'Flex Zones'

As part of implementing the future streetscape, it is recommended that the City explore a permitting and management strategy for flexible use of on-street parking spaces along Third Street. These spaces could serve as "flex zones" to support outdoor dining, display areas for existing businesses, parklets, pop-up retail, bike corrals, temporary art installations, or other community-oriented uses that enhance Downtown activity. The program should consider opportunities for seasonal programming and include a clear framework for reviewing, approving, and maintaining installations, along with guidance on fee structures, use durations, and responsibilities. A well-defined process will help activate the corridor, support local businesses, and ensure consistent, equitable management over time.

NEXT STEPS continued...

Selecting and Siting Public Art

It is recommended that any permanent public art for Third Street's streetscape be selected through a process that includes active engagement from the Third Street Improvement Project's Technical and Project Advisory Committees, the MDA Committee for Public Art, the design team, and the broader community. The process could begin with identifying potential locations and/or establishing thematic direction to guide artist selection. (During the Concept and 30% Design Phases, PAC and community members made many suggestions regarding public art themes, including recognizing the area's Native American heritage, the contribution of Chinese immigrants to the City's development, the role of McMinnville as "Walnut City," and the general history of, and historic figures from, the area. However, no formal process has yet been initiated on themes or art selection.)

Public art could take any number of forms, such as statuary, sculptures, imprints in the hardscape, street furnishings, or the gateway pieces. Some pieces or locations could be considered for an 'outdoor art gallery' program, by which the Third Street Improvement Project could construct permanent pedestals upon which rotating, curated art could be mounted. There is also the potential for some of the street furnishings (e.g., benches, bicycle racks) to be custom designed and locally constructed as functional art. Doing so would result in moments of whimsy or flare in the streetscape that highlights local artisans or fabricators.

The siting of the various art pieces will need to consider traffic operations (e.g., vision clearance, clear zones) and accessibility. Final artworks should be integrated into the streetscape design in coordination with the broader project schedule.

While the public art budget has yet to be determined, a percent-for-art requirement is likely to be included in the overall project funding. Ongoing maintenance responsibilities for the artwork will also need to be determined in coordination with City partners and key stakeholders.

NEXT STEPS continued...

(It should also be noted that, pending final maintenance agreements, 'functional art' could possibly be maintained with separate funds from those used for other furnishings.) Importantly, the public art process will help sustain public interest and enthusiasm for the overall streetscape effort during the final engineering phase, when much of the work will shift behind the scenes.

Gateway Refinement
Related to the public art effort, it is recommended that the City continue to refine the gateway design concepts as part of the next phase of the Third Street Improvement Project, with particular focus on the arches and/or vertical art components. This process should include coordination with MURAC, the MDA Committee for Public Art, the Project and Technical Advisory Committees, and the design team to ensure that the gateways reflect the character, scale, and identity of Downtown. Concepts should be evaluated for visual impact, constructibility, long-term maintenance, and integration with adjacent streetscape elements. Community feedback should be sought during this phase to ensure the gateways are welcoming, context-sensitive, and aligned with the overall vision for Third Street.

Relocating Memorial and Commemorative Plaques
Affixed to planters, light poles, and other streetscape elements, these plaques reflect layers of Downtown McMinnville's cultural history—some dating back to the 1976 streetscape improvements, others added more recently to honor individual or organizational contributions. While many of these have been managed by the McMinnville Downtown Association, others have been added informally over the years. As the streetscape is re-imagined, these plaques should be thoughtfully preserved—either by reintegrating them into the new design or relocating them to a prominent place elsewhere in Downtown or the broader community. One option worth exploring is the creation of a dedicated "plaque walk" or interpretive display that brings them together in a cohesive and accessible format. It is recommended that the City work with the Downtown Association and local stakeholders to catalog existing plaques, assess their condition, and explore preservation and interpretation strategies as part of the next phase of project planning.

Downtown Wayfinding
It is recommended that the City of McMinnville work with City staff, the Technical Advisory Committee, Project Advisory Committee, and community members to develop a comprehensive wayfinding package for Downtown. This process should build on the 2018 package prepared by SEA Reach, using it as a foundation to inform concept development, preferred design direction, and the creation of a Wayfinding Plan & Design Guidance. The updated package should reflect current Downtown destinations, community identity, and mobility patterns. It should also complement the historic character of Downtown McMinnville and align with the furnishings and fixtures established through the new Third Street streetscape design.

Maintenance
It is recommended that the City establish a dedicated and consistent funding strategy to support the long-term maintenance and operation of the Third Street streetscape. As a high-visibility public space, the corridor will require daily and seasonal care, including sweeping, blowing, litter and tag removal, weeding, watering, pruning, irrigation repair, event setup and takedown, and routine repair or resetting of pavers and furnishings. In addition to ongoing operations, the City should plan for future asset renewal to ensure the streetscape remains safe, functional, and attractive over time. The McMinnville Urban Renewal Advisory Committee (MURAC) may serve as an important partner in identifying and funding future capital renewal investments. To maximize effective community stewardship, the City should also explore partnership opportunities with the MDA, Downtown businesses and property owners, civic organizations, and volunteers to support various aspects of maintenance, programming, and public space care. Staffing, equipment, and resource needs should be clearly defined as part of implementation planning to ensure long-term success and sustainability.

E SUPPORTING DOCUMENTATION

LIST OF APPENDICES TO BE FOUND IN VOLUME II


LOVE
Where You
LIVE
McMINNVILLE
OR

LIST OF APPENDICES

Basis of Design Report (30% Design)
The Basis of Design Report presents an overall technical summary for the project, including: jurisdictions and standards; key features of the proposed improvements; the utility infrastructure; street lighting; and stormwater management. (BKF Engineers, 5/1/25)

Streetscape Amenity Documentation
This exhibit catalogs the existing amenities along NE Third Street. (BKF Engineers, 3/17/25)

Street Lighting Assessment Memorandum
This memo defines the Third Street Improvement Project's intended outcomes for lighting within the public right-of-way, presents a preliminary design concept and options to be coordinated, and summarizes related considerations that should be tracked as plans are refined. (Kittelson & Associates, 4/24/25)

Permanent Parking Impacts & Opportunities Assessment
This technical memorandum summarizes the anticipated impacts to on-street parallel parking supply resulting from the Third Street Improvement Project, as well as opportunities for increasing supply and utilization of existing parking in Downtown. (Kittelson & Associates, 3/14/25)

Traffic Analysis Memorandum
This memo summarizes the transportation analysis of capacity and safety needs in the project area as well as recommendations to be carried forward as the project is developed. (Kittelson & Associates, 3/13/25)

30% CD Stormwater Report
The 30% Stormwater Report details the existing conditions of Third Street's stormwater system and proposes and approach for its replacement within the context of the overall project. (BKF Engineers, 4/28/25)

DRAFT

The Third Street Improvement Project

VOLUME I: STREETSCAPE PLAN REPORT

29 MAY 2025 (DRAFT)

City of McMinnville

ATTACHMENT B

DRAFT

The Third Street Improvement Project

McMINNVILLE, OREGON

VOLUME II: STREETSCAPE PLAN APPENDICES

29 MAY 2025 (DRAFT)

City of McMinnville

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BASIS OF DESIGN REPORT
(30% DESIGN)

FOR

THIRD STREET IMPROVEMENT PROJECT

NE ADAMS STREET TO NE JOHNSON STREET

CITY OF MCMINNVILLE

OREGON

Report prepared for:

City of McMinnville

May 1, 2025

Prepared by:
Emily Lehmann, PE
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1125 NW Couch St, Suite 440
Portland, OR 97210

BKF Job No: 20221310

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PROJECT OVERVIEW AND PURPOSE

The proposed Third Street Improvement project consists of rehabilitating nine blocks of the City of McMinnville's downtown area from the NE Adams Street intersection through the NE Johnson Street intersection, with surface and utility improvements throughout.

The purpose of this Basis of Design Report is to provide a summary of the basic assumptions, constraints, and design decisions made for the Third Street Improvement project. The consultant design team has been working closely with City of McMinnville (City) staff, the Technical Advisory Committee (TAC), and the Project Advisory Committee (PAC), as well as gathering input from the community. The project is currently at the 30% Construction Document (CD) level of design so although it's still in the relatively early stages of design, this report is intended to document the decisions and reasonings behind those decisions made to date.

JURISDICTIONS & STANDARDS

The project is located completely within the City of McMinnville with portions of the project within Oregon Department of Transportation (ODOT) right-of-way and Union Pacific right-of-way. Adams Street and Baker Street are ODOT right-of-way and existing railroad crossings located between Galloway Street and Irvine Street are Union Pacific right-of-way. It is expected the project will be federally funded and thus be held to additional design and construction standards.

The project is subject to comply with standards from the following jurisdictions and utility purveyors:

- City of McMinnville
- ODOT
- Federal Highway Administration (FHWA)
- Union Pacific
- McMinnville Water and Light
- McMinnville Fire
- NW Natural
- Access Board (Public Right-of-Way Accessibility Guidelines (PROWAG))
- Oregon Health Authority

The 30% design is the preferred approach based on the input from the City, TAC, PAC, and community. It is expected that some design exceptions will be required; those will be reviewed closer and pursued as the design is progressed through 60%, 90%, and final 100% CDs. ODOT and Union Pacific have also not yet reviewed the current design and coordination with these jurisdictions is intended to begin at the beginning of the 60% design phase.

STREETSCAPE DESIGN

The consultant design team was directed by the City to move forward with the assumption that Third Street will be re-classified as a local street with the goal of maintaining the appropriate pedestrian safety, traffic safety, and ambiance/mood of Third Street.

Typical Cross Section

The Third Street design includes wider sidewalks, on-street parallel parking spaces, intersection corner bulb-outs, mid-block extensions, and narrower travel lanes. Third Street has a consistent 60' right-of-way throughout and the typical section consists of a 12' wide sidewalk, 8' wide parallel parking (or mid-block extension), two 10′ wide travel lanes, 8′ wide parallel parking (or mid-block extension), and 12′ wide sidewalk. The typical section does not apply east of the railroad tracks due to the requirement of a left turn lane when approaching Johnson Street from the west; however, a 12′ minimum sidewalk width is maintained.

Tree wells for new and existing trees and site furnishings are proposed within the 12′ wide sidewalk area but an 8′ wide clear pedestrian through-zone is maintained in most locations along Third Street. Where benches are located, there is a 7′ wide clear pedestrian through-zone. Due to the location of some existing trees intended for preservation, the clear pedestrian through-zone is narrowed but maintains a minimum 4′ width to comply with PROWAG standards.

At cross streets, typical cross sections match existing conditions after the corner bulb outs. Minimum 4′ wide pedestrian paths are maintained throughout.

Curbless Design

Curbless design was determine by the City as a potential option in July of 2024 as a way to increase the flexibility of Third Street and be more pedestrian friendly. Third Street is blocked off from vehicular traffic multiple times throughout the year and a curbless design allows the space to be used in more ways without a vertical curb creating a barrier and potential tripping hazard.

The consultant design team reviewed the curbless approach and presented the benefits and potential drawbacks of this approach to both the PAC and TAC in September 2024. Both the PAC and the TAC were in favor of moving forward with a curbless design and the City recommended the use of curbless streets along Third Street.

Per direction from the City, all nine blocks of Third Street and all intersections from Adams through Irvine Street have been designed to be curbless with raised roadways as this is the City's preference to provide continuity through the corridor. The raised and curbless condition ramps down and conforms to the cross streets (roadway grades and curb heights) after the pedestrian crossings in each cross street; the one exception is at the Johnson Street intersection where the raised roadway will ramp down to conform to existing within Third Street, prior to the intersection. Although the Adams and Baker Street intersections are proposed to be raised, it is unclear at this time if ODOT will allow this configuration within their right-of-way. This design will be presented to ODOT as the preferred approach during the 60% design phase for review.

Pedestrian safety is a concern with a curbless street and requires additional measures to protect pedestrians from vehicles. Bollards and other physical obstructions are proposed along Third Street and within the intersections to provide a barrier between the vehicular and pedestrian zones. 24-inch wide detectable warning surfaces are provided at all pedestrian crossing locations to meet PROWAG requirements. 24-inch wide delineator strips are provided at all other flush locations to delineate between vehicular and pedestrian zones. Delineator strips will be a different texture and color than both the adjacent pedestrian and vehicular zones to give a warning to pedestrians that they are leaving the pedestrian zone and to give drivers a visual cue for the limits of the vehicular zone.

Grading and Drainage

The consultant design team reviewed two main grading configurations for the curbless design of Third Street: crowned vs inverted crown. These options were presented to the TAC in meeting #10 to get initial feedback and the design team followed up with a recommendation to move forward with the crowned street section for the following reasons:

- Easier for maintenance- one travel lane at a time can be shut down and still allow vehicles to travel through
- Better for transitioning to side streets since the side streets are also crowned
- If ponding occurs in roadway, vehicles are able to move to the center of the roadway to get around the water instead of being forced to drive through
- Easier for directing stormwater to treatment placed under the parking/sidewalk
- Crowned roadways are more common so it will feel better/more familiar for people driving

The City agreed with the recommendation to move forward with a crowned street. The centerline of the roadway will be crowned with travel lanes sloping away from the centerline. Sidewalks and parking lanes will slope away from the buildings, towards the roadway. A concrete valley gutter is proposed at the roadway/parking limits to direct stormwater towards inlets for collection.

A minimum cross slope of 1% was held for the sidewalk grades per the City's Municipal Code section 12.04.100 and a maximum cross slope of 1.5% was held to meet accessibility requires, while allowing for construction tolerance.

Roadway grading was designed using a desired minimum cross slope of 1% and maximum cross slope of 5%, with an ideal maximum cross slope of 4% in mind. However, in order to stay under this 5% maximum cross slope, it was determined the roadway would not be able to maintain the crowned centerline approach in all locations. At the direction of the City, keeping a continuous crowned section throughout was preferred and the design team was directed to limit the roadway cross slopes as much as feasible to stay within the desired slope range and areas not conforming to the standards would be reviewed in more detail during future design phases. Between Adams and Baker and between Davis and Evans, there are locations where roadway cross slopes are between 5% and 7%; these areas will be evaluated further as the design progresses.

Existing back of sidewalk grades were maintained in most locations; however, in some instances, where adjusting the back of sidewalk grades helped maintain the 5% maximum roadway cross slopes, the back of sidewalk grades were adjusted. Grades were only adjusted if it was determined to not negatively impact the building thresholds. Back of sidewalk grades and building thresholds will be reviewed in more detail as the design progresses to confirm feasibility and provide increased accessibility where possible.

Parking Spaces

Parallel parking will be maintained along Third Street with all spaces being 8-feet in width. The Manual of Uniform Traffic Control Devices (MUTCD) provides a figure of "examples of on-street parking space markings" that indicates 22'-26' long parking dimensions but no dimension is given in the text on the MUTCD as a standard. Per direction given by the City during a meeting on 6/4/25, parking spaces along Third Street are to be 20-feet in length.

No accessible parking spaces have been located at this stage of design. With the curbless roadway section, there will be more opportunities to incorporate accessible parking along Third Street and side streets will also be used to accommodate accessible parking. Preferred locations for accessible parking will be determined in future design phases.

The MUTCD Chapter 3B.27 specifies parking be set back 20' from marked or unmarked pedestrian crossings at intersections. The FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations also recommends a 20-ft parking setback. This is a commonly used distance for ensuring clear sightlines at uncontrolled crossings. The current layout does not maintain 20' between parking spaces and pedestrian crossing at all locations; this will be reviewed and rectified in the next phase of design to ensure requirements are met.

Vehicular Pavement Surface

The existing roadway pavement is in relatively good condition overall but due to the extents of the underground utility trenching and curbless design, the entire Third Street roadway surface within the project limits is planned for replacement.

Preliminary exploration by the Geotechnical Engineer Haley & Aldrich found an average 8" section of AC over PCC. They noted that the existing stabilization layer is a gravelly/cobbley mix which varies 3-6-inches. The City provided additional insight, noting that it is likely that much of Third Street has a minimum of 3-inches of concrete under the existing asphalt pavement, with little to no base rock. The City was unable to locate old construction drawings to confirm; this knowledge is anecdotal from various repair efforts along the corridor over the years. The City was not able to confirm if this is the case for the entirety of the project limits or just certain areas.

Asphalt pavement and vehicular concrete pavement options were reviewed for use as the new roadway pavement surface. At the direction of City staff and TAC members, concrete roadways are proposed at all curbless locations (Third Street up to Johnson Street intersection). Asphalt pavement is proposed at cross streets to tie into those existing asphalt roadways; this occurs after the crosswalks once the raised roadway ramps down.

Based on the preliminary conclusions of the Geotechnical Report, BKF recommends option six (6) from their report: 8" PCC over 6" aggregate base. This recommendation exceeds the City Municipal Code section 12.04.0909 which requires concrete pavement be not less than 7" in thickness. Haley & Aldrich also recommends the subgrade to be protected from moisture and that paving and subgrade stabilization are performed during dry weather and the use of a geotextile fabric is included below the aggregate base.

Pavement Markings

<u>Lane Delineation</u>
MUTCD Section 3B.02 has a threshold of 4,000 vehicle average daily traffic (ADT) and "collector or arterial" classification for warranting a continuous centerline. The existing traffic volumes are around 3,000 vehicles ADT, and Third Street is planned to be a "local" street classification. Although the MUTCD threshold is not met to require centerline striping, the manual does leave it open to state "Center line markings should also be placed on other traveled ways where an engineering study indicates such a need". ODOT's Traffic Line Manual Section 210 has a 3,000 vehicle ADT threshold, which is right where Third Street is at with existing volumes.

Although the City of McMinnville does not require centerline stripping on Third Street due to the local street classification, the Transportation Engineer team from Kittelson & Associates (Kittelson) recommends centerline striping at least 50-ft in advance of any signalized intersection approach (Baker, Davis, Ford), and in the blocks from Galloway to Johnson where the railroad crossing markings are located and where the lane configuration goes to three lanes for the turn lane at Johnson Street.

Given the narrow cross-section of the street, Kittelson expects that vehicles will tend to "shy" away from parked cars and the mid-block extension and may encroach into the oncoming lanes if a centerline is not provided.

It is recommended to include a continuous centerline from Adams to Johnson Street for project continuity and as a traffic calming measure due to the following reasonings:

- The project is right at ODOT's volume threshold for requiring a centerline
- In order to avoid a series of short segments of centerlines with small gaps in between
- In order to keep vehicles aligned in their lanes

30% design plans include centerline striping per Kittelson recommendations but this will be reviewed in future design phases to determine which pavement markings will ultimately be included in construction.

Parking Space Markings

It is not a requirement to provide pavement markings for parking spaced. Pavement markings indicating parking spaces along Third Street are included in the 30% design for reference but ultimately may not be marked in the field. This will be reviewed further in future design phases.

Railroad Crossing

Railroad crossing markings are required and included to replace the existing pavement markings. Railroad crossing markings are shown per ODOT and MUTCD standards.

Crosswalks

Nine-foot-wide crosswalks per ODOT and MUTCD standards are provided throughout the project. All intersection and midblock crosswalks will be marked with staggered continental crosswalk 2' white bar striping.

Existing Driveways

There are eighteen existing driveways located within the project limits either off of Third Street or the cross streets. The consultant design team evaluated all of these driveways based on the following criteria:

- Traffic patterns/current utilization
- Alternative access available
- Distance to intersection

Based on the above criteria, seven driveways are recommended to be reviewed further to determine feasibility of permanent closure, one driveway will be reviewed for relocation, and ten are suggested to remain.

No driveways are indicated for closure at this time but closures will be reviewed in more detail in future design phases and the City will work with property owners prior to any driveways being noted for permanent closure.

Pedestrian Crossings

A major aspect of this project is pedestrian safety and mobility. In order to create safer passage for pedestrians along Third Street, clear and accessible crossings are important. The following countermeasures were studied for the unsignalized and mid-block crossings and have been incorporated into the design:

- High-visibility crosswalks
- Parking restrictions on crosswalk approaches
- Adequate nighttime lighting
- Curb extensions (bulb-outs)
- Alignment of crosswalks in relation to vehicular traffic

Pedestrian crossings have been included at all intersections from Adams though Johnson Street and at mid-block locations between Adams Street and the Railroad crossing. All pedestrian crossings will be perpendicular to the travel lanes, be nine feet wide and include continental striping as indicated in the Pavement Marking section of this report, as well as include 24-inch wide detectable warning surfaces prior to entering the roadway as indicated in the Curbless section of this report. Push buttons will be installed at intersection crosswalks when street light replacement is proposed.

With the exception of Johnson Street, all crosswalks will be located in the raised roadway due to the curbless design so no curb ramps are required at those locations. New curb ramps will be included at the Johnson Street intersection where required and will be designed to comply with City, ODOT, and PROWAG standards.

The southern pedestrian crosswalk at the Adams Street intersection is included at this stage of design but re-opening this crosswalk will require a formal request to the ODOT State Traffic-Roadway Engineer. In the future design phase, the project team will need to engage with ODOT Region 2 Traffic staff to explore re-opening the crosswalk and then prepare a request/study for approval.

Mid-Block Extensions

Mid-block extensions are included in the design to increase the pedestrian zones, allow for placement of additional trees and amenities, and provide increased visibility for pedestrians at mid-block crossings. Narrowing the vehicular zone is also intended to slow traffic.

The size of mid-block extensions impacts the amount of flexible pedestrian space as well and the amount of available parking spaces along Third Street. Two main size options were considered: the smaller 66' mid-block extensions and the larger 85' mid-block extensions. When compared to the larger option, the smaller mid-block extension has less permanent pedestrian space but increases the amount of parking by an average of two spaces per block. These additional two parking spaces per block may give the City increased flexibility as these possible "flex zones" could be an opportunity to allow the local businesses to use them in a semi-permanent manner with additional permits.

The PAC voted to recommend the smaller 66' mid-block extensions instead of the larger 85' mid-block extensions to City Council; PAC members preferred the smaller mid-block curb extension option due to flexibility of design.

Mid-block extensions on the same block were placed slightly offset from one another to better distribute the parking spaces along each block and allow for more uniform tree and light spacing, while still allowing pedestrian crosswalks to be perpendicular to the vehicular lanes.

Sidewalks

Sidewalks are designed to conform to PROWAG requirements at a minimum. Along Third Street, minimum 12' wide sidewalks are proposed. Tree wells for new and existing trees and site furnishings are proposed within the 12' wide sidewalk area but an 8' wide clear pedestrian through-zone is maintained in most locations along Third Street. Where benches are located, there is a 7' wide clear pedestrian through-zone. Due to the location of some existing trees intended for preservation, the clear pedestrian through-zone is narrowed but maintains a minimum 4' width to comply with PROWAG standards. Along cross streets, a minimum of 4' wide pedestrian paths are maintained throughout.

A minimum cross slope of 1% was held for the sidewalk grades per the City's Municipal Code section 12.04.100 and a maximum cross slope of 1.5% was held to meet accessibility requires, while allowing for construction tolerance.

Pedestrian Surfaces

Different pavement surface options have been evaluated to consider factors such as durability, aesthetics, cost, and sustainability. The suitability of various materials, including concrete, permeable pavers, standard pavers, and other potential surface treatments has been assessed. Based on feedback from the City, TAC, and PAC, the consultant design team is proposing concrete for the sidewalks to match the aesthetics of the surrounding downtown area while still being cognizant of costs and not creating too busy of an aesthetic. Red pavers are proposed within the mid-block extensions and at bike rack locations to add more character but still match the historic feel of the area. Where feasible, permeable pavers will be utilized in the mid-block curb extensions, refer to the Stormwater Treatment section of this report for additional information.

Signage:

MUTCD does not require the use of pedestrian warning signs at crosswalks and Kittelson recommends omitting these to avoid sign clutter. No pedestrian warning signs at crosswalks are included in the design.

Other project signage requirements will be reviewed as the design progresses and included in future design phases.

Trees

Existing Trees

Existing trees have been evaluated for removal or preservation using the 2024 Arborist Report and the current design configuration. With input from the City, the PAC, and the TAC, tree preservation criteria and a decision tree matrix were created with the following goal in mind: where feasible, preserve Third Street's existing street trees. The following criteria has been considered, and will continue to be considered, when evaluating whether or not Third Street's existing trees can be preserved:

- Compromised Health
- Lifted Roots
- Conflict with Critical Infrastructure
- Conflict with Agency Standards

Existing street trees intended for preservation will continue to be evaluated as the design progresses and the chances of trees surviving disturbances during construction will also be reviewed with the project arborist based on the final design. All trees will be studied for their proximity to the future improvements. It is critical that the root systems of each tree be as minimally impacted as possible in order to justify the stability for the tree after the project is constructed. Any trees that will have excavation under their canopy, particularly close to the trunk, will be studied to see what adjustments could be made to preserve the tree while maintaining the overall goal of the project. Where critical excavation cannot be avoided, these trees will be evaluated with input from the project arborist.

New Trees

Prior to the curbless re-design, trees were placed in groves within the mid-block extensions and towards the intersections. This configuration was determined not to be ideal as it created pedestrian visibly concerns at mid-block crossings, conflicts with the lighting design, conflicts with utility services, and limited the flexibly of the mid-block extensions.

The current tree layout still includes a couple trees within each mid-block extension and towards the intersections, but moves some trees to be located in tree wells in the sidewalk adjacent to parking areas. This design spaces the trees out more evenly throughout the project and allows tree placements to be adjusted to avoid pedestrian visibly concerns, conflicts with the lighting design, and conflicts with utility services. Tree grates are proposed for tree wells located in the sidewalk as this is preferred from a maintenance perspective, reduces tripping hazards, and allows for greater flexibility near trees.

When determining tree placement related to clearance from below grade utilities, street lights, utility poles, and driveways and alleys, the City Municipal Code section 17.58.090 was followed as much as feasible; there are some instances where the clearance requirements are unable to be met and design exceptions will be pursued in future design phases.

Proposed tree species were determined based on feedback from the City, PAC, and TAC. New trees proposed under existing overhead wires along the cross streets have been selected from the City's street tree list for trees that are located under/near wires.

The proposed design utilizes five tree species per block with potential for some variety block-to-block and includes the use of medium-canopied trees to achieve a similar tunnel effect created by the existing trees along Third Street.

Refer to the Streetscape Plan Report for additional information on the new proposed trees.

UTILITY INFRASTRUCTURE

The existing utilities have been evaluated for replacement based on age, condition, location, and planned future improvements noted by the City and/or utility purveyors. Each utility is broken out into its own section and discussed below. Utility design, including separation requirements, will follow City and utility purveyor standards and comply with Oregon Health Authority requirements for water lines.

Per the City Municipal Code, all public utilities are to be designed to maintain 10' of clearance from trees; there are some instances where the clearance requirements are unable to be met and design exceptions will be pursued in future design phases.

Sanitary Sewer

All existing sanitary sewer mains within the project limits between Adams and Irvine Streets are to be replaced due to age, condition, and/or location. Based on the City Sanitary Master Plan, 8" mainlines are recommended. The City recommends existing sanitary lines to be replaced are removed, rather than abandoned in place. For pipes with greater than 2.5' of cover, 3034 PVC is to be used. For pipes with cover from 2.5' to 2', C900 PVC is to be used. For pipes with less than 2' of cover, Ductile Iron is to be used.

<u>Third Street Mains</u>
The majority of Third Street between Adams Street and Johnson Street does not contain sanitary sewer mains as most lateral connections are located within the alleys behind the buildings. The two parallel sanitary sewer mains within Third Street between Evans Street and Ford will be replaced with one new sanitary sewer main due to the condition and age of the existing (clay tile) pipes. The sanitary sewer main within Third Street between Ford Street and the railroad tracks and between the railroad tracks and Irvine Street are proposed for replacement due to location per City direction; the new mains will be located within the roadway and no longer be located under sidewalks or curb alignments for ease of future maintenance.

<u>Cross Street Mains</u>
Existing (clay tile) sanitary sewer mains within Cowls Street and Evans Street will be replaced due to age

and condition from Third Street towards both Second Street to the south and Fourth Street to the north. At a minimum, these pipes will be replaced from manhole to manhole along Cowls Street and Evans Street. The sanitary sewer main within Galloway Street adjacent to the new improvements is proposed for replacement due to location per City direction; the new main will be shifted east to no longer be located under sidewalks for ease of future maintenance.

Laterals

All existing sanitary laterals are noted for replacement where sanitary sewer mains are to be replaced. All existing sanitary laterals within the right of way that are not air tight will be replaced.

Downstream Conveyance

The City of McMinnville Sanitary Sewer Conveyance System Master Plan was reviewed and no information concerning the system within the project limits or downstream appears to be mentioned. Per conversations with the City, there are no known sanitary sewer backup issues within this portion of the public system either.

Storm Sewer

All storm sewer infrastructure within project limits is proposed for replacement due to age, condition, and/or location. The City recommends existing storm sewer lines to be replaced are removed, rather than abandoned in place. For pipes with greater than 2.5′ of cover, 3034 PVC is to be used. For pipes with cover from 2.5′ to 2′, C900 PVC is to be used. For pipes with less than 2′ of cover, Ductile Iron is to be used.

The City of McMinnville Storm Drainage Design and Construction Standards (SDDCS) and ODOT Hydraulics Manual (Chapter 7) were used to design the proposed stormwater conveyance systems. The proposed conveyance system is sized to handle both the 10-year (City requirement) and 50-year (ODOT requirement) storm events using the rational method.

Per the City of McMinnville stormwater standards, the proposed project is classified as a "small and moderate pipe system" within the public right-of-way that serves an upstream watershed no more than 320 aces and is therefore required to accommodate the 10-year storm event. A portion of the system also contains sag curves within the ODOT right-of-way, and therefore a 50-year design event would be applied in those areas. Per the City's Storm Drainage Master Plan, existing downstream storm main deficiencies have been identified. To mitigate for potential downstream deficiencies, a hydraulic grade line (HGL) analysis was performed and applied to the conveyance design to ensure pipes would adequately convey the 50-year storm event, without backing up into any portions of the proposed surface improvements.

Based on this analysis, it was determined that all proposed storm mains from Adams Street to the railroad will need to be 18" in diameter in order to convey the required amount of runoff for the proposed development in the Third Street right-of-way, without backing up into the street for the selected storm event. From the railroad east to the connection point in Johnson Street, the storm mains will need to be 24" in diameter.

Refer to the Stormwater Report for additional information on storm sewer design, including all assumptions, calculations, and exhibits.

Third Street Mains

All existing storm sewer mains within project limits are proposed for replaced due to age, condition, and/or location. New storm drain pipes will be re-configured to be within the roadway and no longer be located under sidewalks or curb alignments.

Cross Street Mains
Existing storm sewer mains within Cowls Street, Davis Street, and Ford Street (between 3rd Street and 4th Street) have been identified by the City to be in very poor condition, with portions of the pipes broken or missing, and are proposed to be replaced based on direction from the City.

Downstream Conveyance
Stormwater along Third Street between Adams Street and Johnson Street is routed to three separate discharge locations. All three stormwater conveyance routes have been reviewed using the City of McMinnville Storm Drainage Master Plan to determine if any known deficiencies exist downstream of the project site prior to these discharge locations. Two of the routes have known issues. Per Section 7a of the Master Plan, it is noted that downstream sections of existing storm line to the north of the project site within Fourth Street are undersized/deficient between Adams Street and Cowls Street as well as sections west of Adams Street near the discharge point. It is also noted that downstream sections of existing storm line to the south of the project site within First Street are undersized/deficient between Davis Street and Adams Street as well as a section within Adams Street south of First Street prior to the discharge.

No downstream pipes (aside from those noted above in the "cross streets" section) are currently proposed for replacement as part of this project but it is recommended the City evaluate this further to determine if the project scope should expand to include upgrades to these systems.

Inlets
Storm inlets will be located at low points along the valley gutters, not exceeding ODOT's maximum inlet spacing requirements. Stormwater routing will generally continue to follow the existing drainage patterns. The City has voiced a preference for catch basins rather that trench drains due to maintenance concerns but is open to considering for specific instances if design warrants their use. At this time, no trench drains have not been specified but this will be revisited in future design phases.

Inlet leads connect to the main at either blind connections or with a manhole and determination for each was provided on a plan markup from the City. Where blind connections occur, 3' between blind connections is used per City standards.

Water

Third Street Mains
Per McMinnville Water & Light direction, all existing cast iron water mains within the project area are to be replaced with new ductile iron pipe. The existing 14" cast iron water main from Adams Street to Ford Street will be replaced with a new ductile iron main. Between Ford Street and the railroad tracks, there are two existing parallel water mains: an 8" cast iron main and a 16" ductile iron main. The existing 8" cast iron main between Ford Street and the railroad tracks will be abandoned.

Cross Street Mains
Per McMinnville Water & Light direction, the existing cast iron mains at all cross streets are also to be replaced with new ductile iron pipe. Pipe replacements will occur within the intersections and extend 10'-20' past the project surface improvement limits to the north and south. Baker Street, Davis Street, Evans Street, Ford Street, and Irvine Street all have water mains shown for replacement.

Domestic Water Laterals
All existing water service laterals are to be replaced where water mains will be replaced and connected

to the new mains. All existing services off the parallel main that is the be abandoned will be replaced and connected to the existing 16″ ductile iron main that is to remain.

Water laterals are to be installed perpendicular to the water main and maintain a minimum of 18″ separation between connections to the water main. The public portion of the new water laterals between the main connection and the meter are to be perpendicular to the main and maintain 10′ clearance from trees, but the private side after meter can be jogged and be closer to trees if required. Due to many of the laterals containing bends, it is recommended to install tracer wire on the private portion of the laterals.

Domestic Water Meters

All existing meter boxes will either be protected in place and be raised to finished grade or replaced and relocated depending on the specific configuration shown in the plans. Meters are placed outside of the path of travel wherever feasible but will be equipped with ADA compliant nonslip lids.

Fire Hydrants

Existing fire hydrants are being relocated based on the Fire Department standards and preferences. Fire hydrants will remain located near intersection corner bulb outs as it allows fire department greater accessibility. Where feasible, fire hydrants will be shifted to be located within curbed landscaping to provide protection from vehicles. A general rule of thumb is to allow 36″ clear zone around fire hydrants for access.

Natural Gas

Natural gas in the area is provided by NW Natural. Per initial coordination, NW Natural has informed the design team that they will not be proactively installing any additional gas mains within the project area; however, if existing gas mains are in conflict, then theses mains would need to be relocated with the possibility of extending the gas mains at that time.

At this time, no gas mains are proposed for replacement/relocation. Based on the 30% design, it appears there will be some conflicts that will need to be resolved and the design team will continue to coordinate with NW Natural in future design phases to determine which mains to be relocated.

Electrical and Telecommunication

It is anticipated that new electrical lines will be required for the proposed street lights and potentially for the upgraded traffic signals; however, specific improvements to the existing electrical system have not yet been determined as the layout of these lights are still in flux. Similar to gas, if existing electrical or telecommunication lines are in conflict with the proposed design, then theses lines will need to be relocated. The design team will continue to evaluate these utilities as the design progresses.

STREET LIGHTING

New street lighting is required throughout the project limits. The McMinnville Water & Light Street Lighting Design Guide from July 2015 was reviewed as a reference. Although the lighting design approach is generally in line with the guidance in the Design Guide document, this Design Guide was not followed. This Design Guide gives recommendations for street lighting levels on Arterials and Collectors, but not Local Streets. It also defaults to a "medium" pedestrian conflict area classification. The Design Guide does however reference IES RP-8 lighting guidelines, which was used to set target lighting levels for the project. The lighting design also did use the light loss depreciation factor specified in the Design Guide.

Based on guidance received from the City, the consultant design team has designed the lighting to a "high" pedestrian conflict classification, and used the target lighting levels guidelines for local streets and intersections from IES RP-8. The City does not have a “dark sky” requirement and it’s the project team’s understanding that adequate light levels on Third Street are a community priority, therefor it was determined that the minimum pole layout outlined in the McMinnville Water & Light Design Guide would not be adequate for Third Street.

Based on feedback from the City, TAC, and PAC, existing pendant and acorn style poles and luminaries will be used in locations without spacing constraints. Lighted bollards will be used as supplemental corner lighting at intersections as well as at mid-block crossing locations to prevent conflict with tree canopies and preserve as many street trees as possible.

Refer to the Lighting Memo for additional information on street lighting.

STORMWATER MANAGEMENT

Stormwater Treatment

Stormwater treatment is required and proposed due to federal funding and portions of the project being within the ODOT right-of-way. Due to contaminated soils and possible high groundwater found during the geotechnical investigation, infiltration has been deemed infeasible.

The project team reviewed the various non-infiltration stormwater treatment options (soil cells, streetside planters, modular wetlands, and other proprietary filter treatment systems) with the City, TAC, and PAC. Streetside planters were not recommended as this would either reduce sidewalk areas and/or the amount of parking and limit the locations new trees could be planted. The City also prefers to avoid using proprietary options so soil cells were selected as the preferred option.

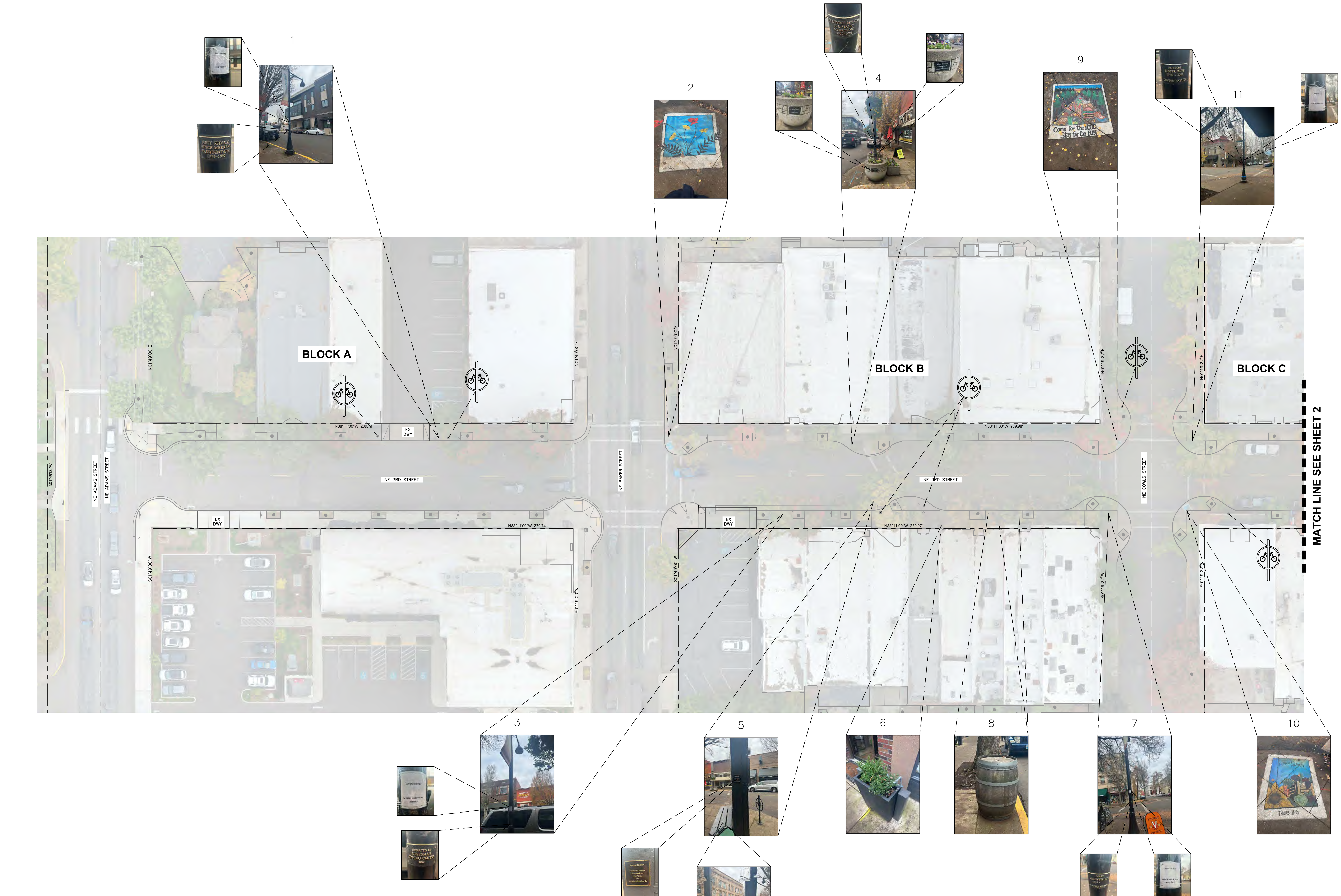
For the 30% construction documents, proprietary soil cell water quality treatment technology is proposed. The soil cells have been proposed in an effort to provide as much growing medium for large trees in the right-of-way as possible. Large trees are proposed throughout the proposed Third Street Improvements – soil cells provide room for large root systems to grow while also providing low impact storm water quality treatment. As infiltration is not recommended, the soil cell systems will be lined and include underdrains, allowing the stormwater to enter the outlet pipes once treated.

Where feasible, stormwater will enter the soil cell systems for treatment after being captured by inlets in the roadway or through permeable pavers in the mid-block extensions, located above the soil cell systems. Although the proposed project will be designed to treat all stormwater runoff before it enters the downstream public storm system, there are some locations where soil cells are not feasible and the specifics for treatment in those areas are still to be determined. This will be studied further in later stages of the design.

The City of McMinnville’s Storm Drainage Design and Construction Standards were used to design the proposed stormwater treatment facilities. For sizing the water quality treatment footprints, a 6% simplified sizing factor was used. The simplified sizing factor is being used for the preliminary water quality sizing only. Soil cells have been designated by the Washington Department of Ecology as being functionally equivalent to a bioretention facility.

Stormwater Detention

Per the City of McMinnville Storm Drainage Design and Construction Standards Appendix E, this project is not subject to stormwater detention requirements.



LEGEND:

PROPERTY LINE

CENTER LINE

BIKE INFRASTRUCTURE

NOTES

ON SITE BIKE INFRASTRUCTURE MARKING APPEARS AS:

20 0 20 40
scale 1" = 20' feet

BKF ENGINEERS
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SUITE 420
PORTLAND, OR 97209
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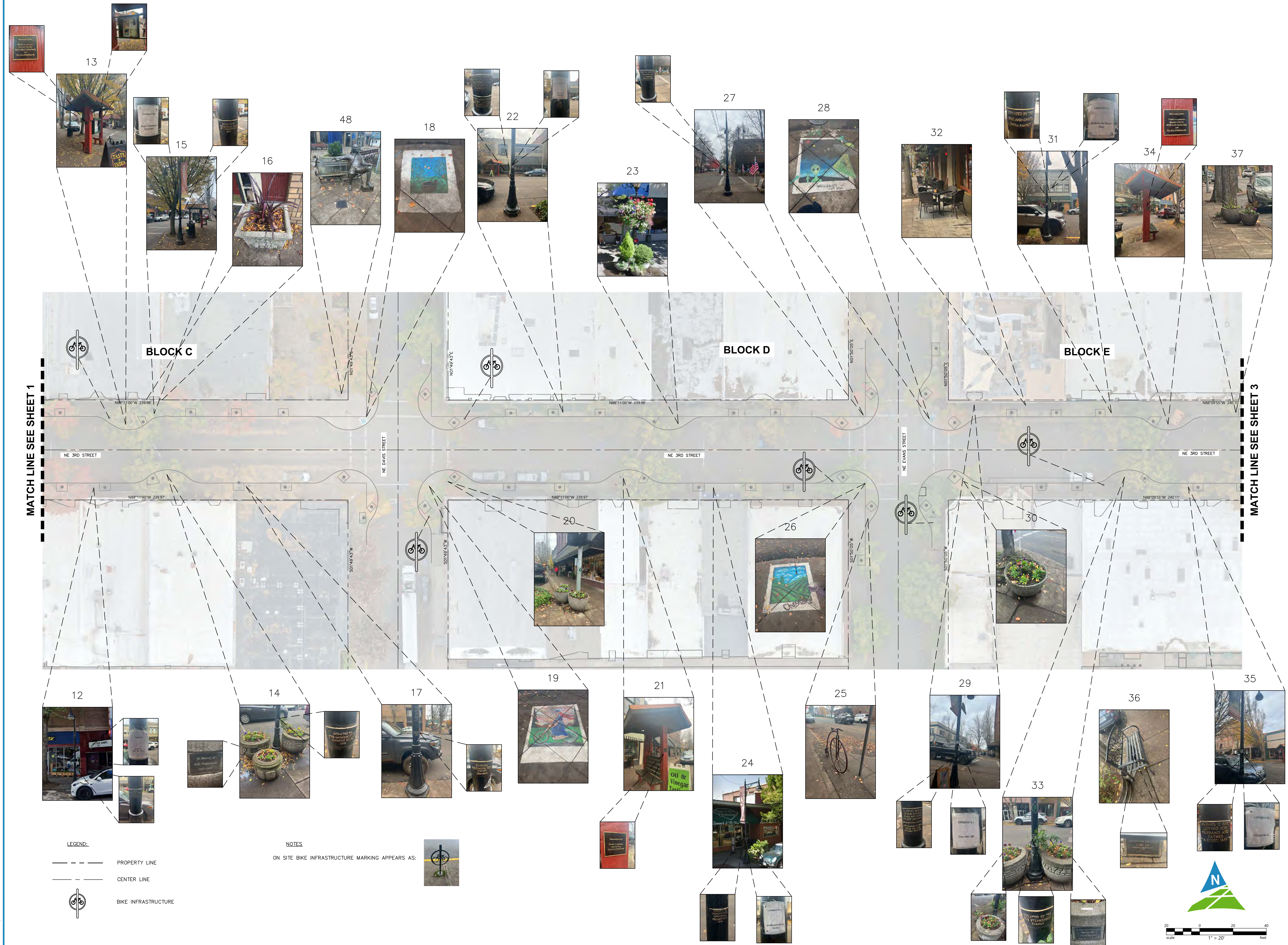
THIRD STREET IMPROVEMENT PROJECT

NE THIRD STREET (ADAMS STREET TO JOHNSON STREET), MCMINNVILLE, OREGON 97128
YAMHILL COUNTY

STREETSCAPE AMENITY DOCUMENTATION

DATE 03/17/25	SCALE 1" = 20'
CLIENT CITY OF MCMINNVILLE	
EXHIBIT NO. 20221310-000	
SHEET 1 OF 4	

Streetscape Amenities Layout.dwg



LEGEND:

PROPERTY LINE

CENTER LINE

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YAMHILL COUNTY

STREETSCAPE AMENITY DOCUMENTATION

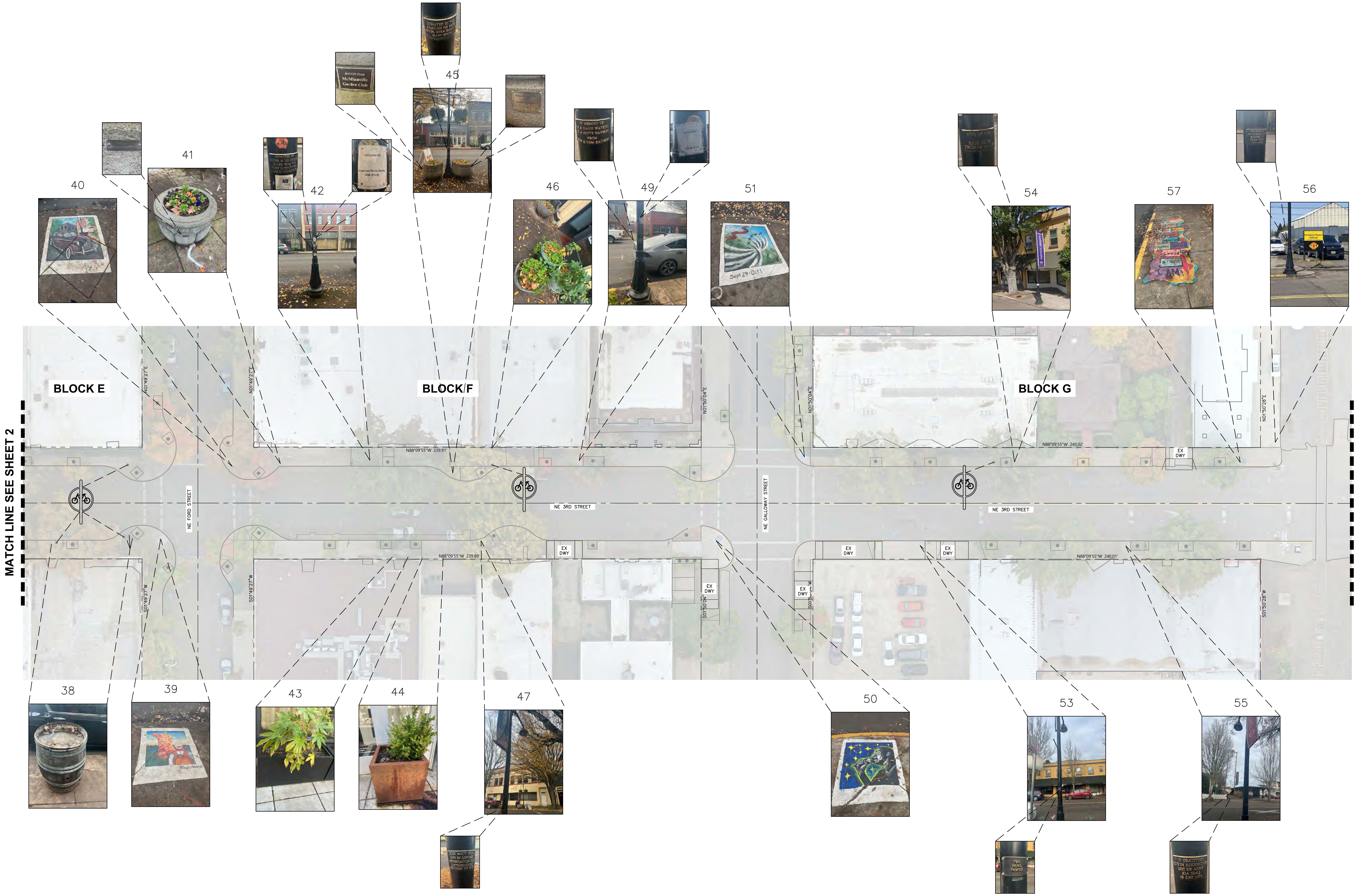
DATE	SCALE
3/17/25	1" = 20'

CLIENT: CITY OF MCMINNVILLE

EXHIBIT NO. 20221310-000

SHEET 2 OF 4

Streetscape Amenities Layout.dwg



LEGEND:

PROPERTY LINE

CENTER LINE

BIKE INFRASTRUCTURE

NOTES

ON SITE BIKE INFRASTRUCTURE MARKING APPEARS AS:

scale 1" = 20' feet

THIRD STREET IMPROVEMENT PROJECT

NE THIRD STREET (ADAMS STREET TO JOHNSON STREET), MCMINNVILLE, OREGON 97128
YAMHILL COUNTY

STREETSCAPE AMENITY DOCUMENTATION

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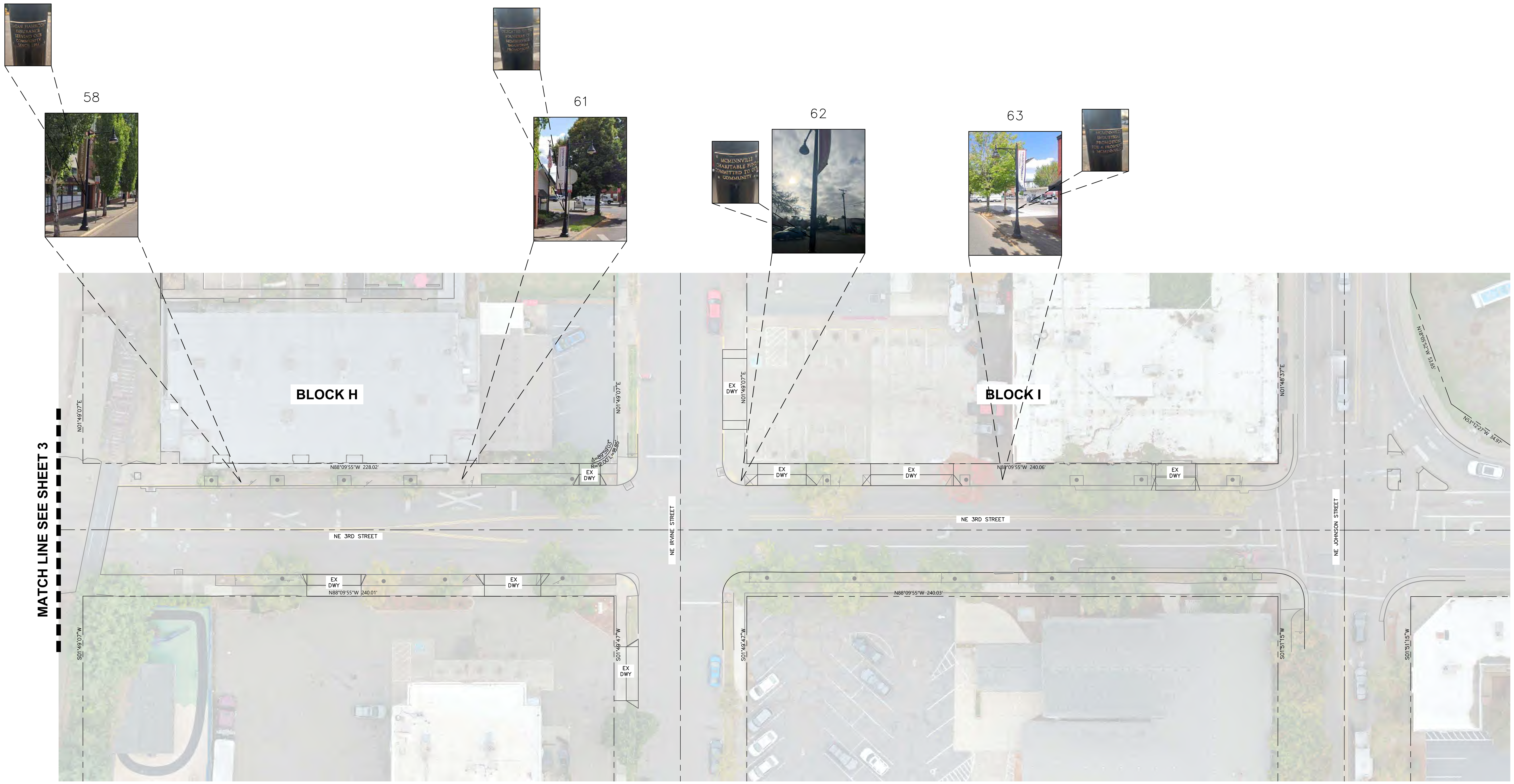
DATE 3/17/25	SCALE 1" = 20'
CLIENT CITY OF MCMINNVILLE	
EXHIBIT NO. 20221310-000	
SHEET 3 OF 4	

Streetscape Amenities Layout.dwg



LEGEND:

PROPERTY LINE

CENTER LINE

BIKE INFRASTRUCTURE

NOTES

ON SITE BIKE INFRASTRUCTURE MARKING APPEARS AS:

1" = 20'

feet

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THIRD STREET IMPROVEMENT PROJECT

NE THIRD STREET (ADAMS STREET TO JOHNSON STREET), MCMINNVILLE, OREGON 97128
YAMHILL COUNTY

STREETSCAPE AMENITY DOCUMENTATION

DATE 3/17/25	SCALE 1" = 20'
CLIENT CITY OF MCMINNVILLE	
EXHIBIT NO. 20221310-000	
SHEET 4 OF 4	

Streetscape Amenities Layout.dwg

Image Number	Block Located	North/South	Amenity Type
1	A	North	Lightpost
			Plaque on post
2	B	North	Art
3	B	South	Lightpost
			Plaque on post
4	B	North	Lightpost
			3 plants
			2 Plaques on 2 plants
5	B	South	Bench
			Plaque on bench
6	B	South	Plant
7	B	South	Lightpost
			Plaque on post
8	B	South	Other
9	B	North	Art
10	C	South	Art
11	C	North	Lightpost
			Plaque on post
12	C	South	Lightpost
			Plaque on post
13	C	North	Bench
			Poster display
			Plaque on bench
14	C	South	Lightpost
			Plaque on post
			Plaque on plant
15	C	North	Lightpost
			Plaque on post
16	C	North	Plant
17	C	South	Lightpost
			Plaque on post
18	C	North	Art
19	D	South	Art
20	D	South	Plant
21	D	South	Bench
			Plaque on bench

22	D	North	Lightpost
			Plaque on post
23	D	North	Lightpost
24	D	South	Lightpost
			Plaque on post
25	D	South	Bike Inf.
26	D	South	Art
27	D	North	Lightpost
			Plaque on post
28	E	North	Art
29	E	South	Lightpost
			Plaque on post
30	E	South	Plant
31	E	North	Lightpost
			Plaque on post
32	E	North	Other
33	E	South	Lightpost
			2 plants
			Plaques on plant
34	E	North	Bench
			Plaque on bench
35	E	South	Lightpost
			Plaque on post
36	E	South	Bench
			Plaque on ground
37	E	North	Plant
38	E	South	Other
39	E	South	Art
40	F	North	Art
41	F	North	Plant
			Plaque on plant
42	F	North	Lightpost
			Plaque on post
43	F	South	Plant
44	F	South	Plant

45	F	North	Lightpost
			2 plants
			2 plaques on 2 plants
			Plaque on post
46	F	North	Plant
47	F	South	Lightpost
			Plaque on post
48	C	North	Benjamin Franklin Bench
49	F	North	Lightpost
			Plaque on post
50	F	South	Art
51	G	North	Art
53	G	South	Lightpost
			Plaque on post
54	G	North	Lightpost
			Plaque on post
55	G	South	Lightpost
			Plaque on post
56	G	North	Lightpost
			Plaque on post
57	G	North	Art
58	H	North	Lightpost
			Plaque on post
59	H	North	Lightpost
60	H	South	Lightpost
61	H	North	Lightpost
			Plaque on post
62	H	North	Lightpost
			Plaque on post
63	H	North	Lightpost
			Plaque on post
0000			Bike Inf.
Note: Total 15 bike racks			

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TECHNICAL MEMORANDUM

April 24, 2025 Project# 29019

To: Jason White, BKF Engineers
From: Joey Bansen, P.E.
RE: McMinnville Third Street Improvement Project

Street Lighting Assessment Memorandum

This technical memorandum summarizes the street lighting assessment completed during the 30% design phase of the *Third Street Improvement Project*. The intent of the assessment is to:

- Define the project's intended outcomes for lighting within the public right-of-way;
- Develop a preliminary design concept and options to be coordinated with the overall streetscape improvements; and
- Summarize other considerations that should be tracked as the project moves forward in the design development process.

INTRODUCTION

Project Background

The *Third Street Improvement Project* is a nine-block street improvement and urban revitalization project on NE 3rd Street, McMinnville's downtown "main street", from NE Adams Street to NE Johnson Street. The project includes street and sidewalk reconstruction, underground utility and infrastructure improvements, above-ground street furnishings, and landscaping. The City of McMinnville has been planning for this project from as early as 2000, and has been working on the vision, goals, objectives, and a concept block design for the past several years in a comprehensive public process.

The concept design phase completed in 2022 set a preferred vision and functional design that keeps the existing two-lane street (single lane in each direction) and creates a "Person-Centered Main Street" by:

- Installing large curb extensions that create flexible areas for seating, art, planting, and dining spaces;
- Installing larger sidewalks providing more room for pedestrians and commerce;
- Implementing a balanced design equally serving both sides of the street; and
- Implementing narrower lanes, curb extensions, and on-street parking to calm traffic speeds.

Following the 15% design phase, the design was updated to incorporate a "festival street" concept with flush curbs delineating the roadway and sidewalk/pedestrian areas. The 30% design includes Portland

Cement concrete (PCC) for the vehicle lanes and parking areas, and a mix of PCC and pavers for the sidewalk and curb extension areas.

Scope of Lighting Assessment

The scope of the street lighting assessment for the *Third Street Improvement Project* includes the NE 3rd Street corridor between NE Adams Street and NE Johnson St. This technical memorandum includes the following:

- Summary of existing and proposed street lighting poles and luminaires.
- Options for Dark Sky compliant luminaires for City consideration.
- Target lighting levels for street segments, intersections, sidewalks, and pedestrian crossings.
- Preliminary lighting layout and analysis to meet lighting levels and streetscape design objectives.
- Options for alternative lighting layouts to reduce number of poles or address other project constraints.
- Recommendations for project lighting and other considerations for implementation during the project design development.

STREET LIGHTING POLES AND LUMINAIRES

Street lights in McMinnville are generally powered and maintained by McMinnville Water & Light (MWL), which is a municipal utility responsible for providing water and electric service for the City of McMinnville. MWL maintains the existing street light poles and luminaires on NE 3rd Street and the surrounding Downtown area. MWL maintains a *Street Lighting Design Guide*, last updated in July 2015, serving as the basis for design of lighting for streets within the MWL service district.

Existing Poles and Luminaires

There are two types of existing decorative poles and luminaires on NE 3rd Street within the project area and within the broader Downtown McMinnville, referred to in this memo as "*pendant style*" and "*post-top acorn style*". The existing installations generally include pendant style lights at intersections and some mid-block locations, while the post-top acorn style lights are generally installed only at the mid-block crosswalk locations along NE 3rd Street. The signal poles at NE Baker Street, NE Davis Street, and NE Ford Street include roadway luminaires over NE 3rd Street. The existing light pole layout and spacing is not consistent along the NE 3rd Street corridor, with poles generally in a "staggered" pattern, alternating sides of the street along the blocks. There are generally 4-6 existing street lights per block.

Existing poles generally include double banner arms on the sidewalk side of the poles as well as ground fault circuit interrupter (GFI) power outlets. The GFI outlets are used by the McMinnville Downtown Association for powering string lights hung from the street trees as well as for supplying power for special events along NE 3rd Street.

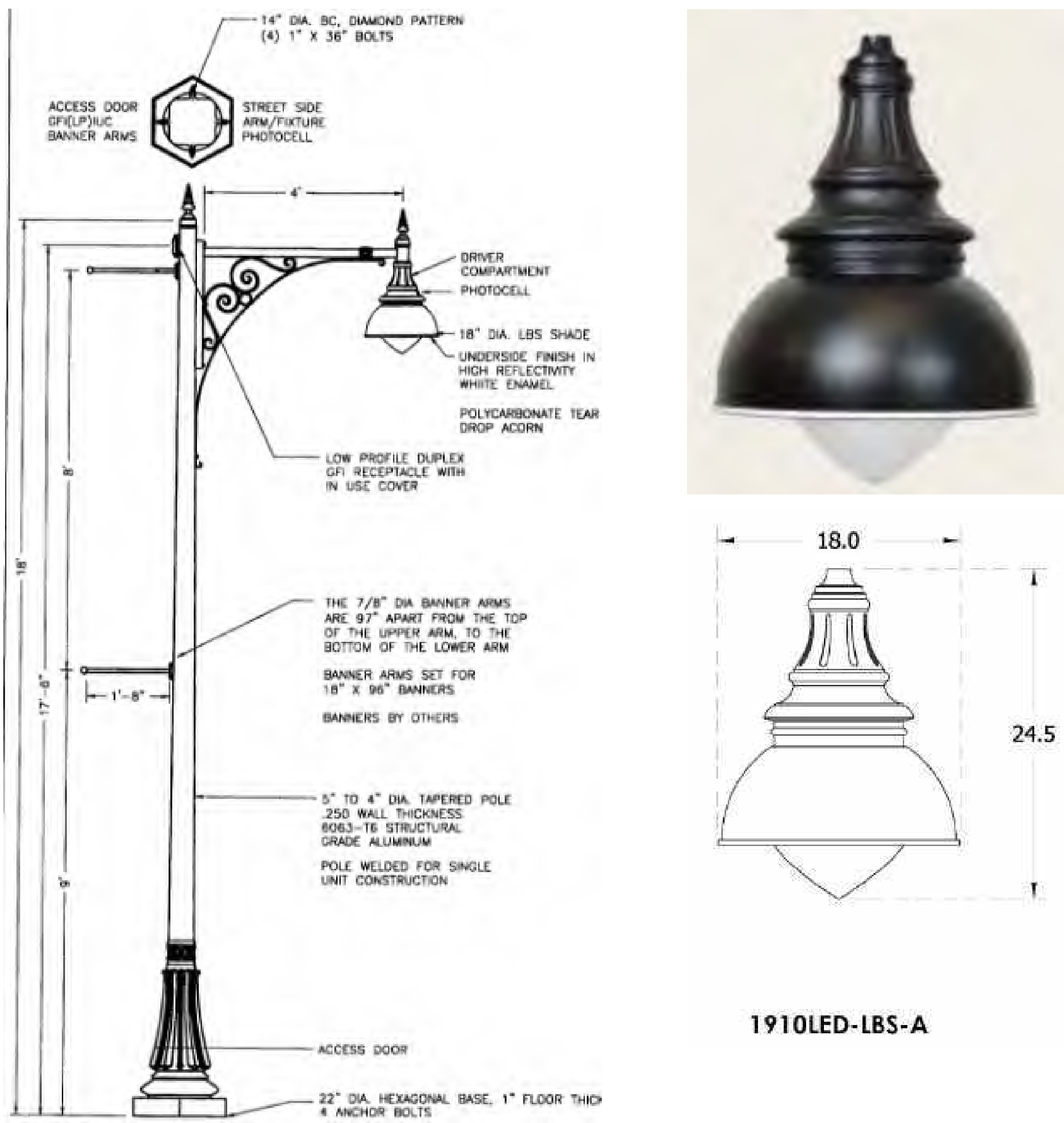
PENDANT STYLE

The “pendant style” lights consist of 18-ft tall aluminum poles with decorative bases and 4-ft decorative arms. The existing pendant luminaire is a decorative LED light with round shade and teardrop lens. The existing poles and luminaires are supplied by Sternberg as the following models:

- Pole: Sternberg 5400 “Hamilton Series” Roadway Pole
- Decorative Arm: Sternberg 1910 “Lake Bluff Series” Model SMA
- Luminaire: Sternberg “Lake Bluff Series” Model 1910LED-LBS

The height of the pole and mounting position of the luminaire results in an approximate 16-ft mounting height above the roadway and sidewalk. The existing pendant style pole and luminaire are shown in Figure 1 below.

Figure 1 Existing Pendant Style Light



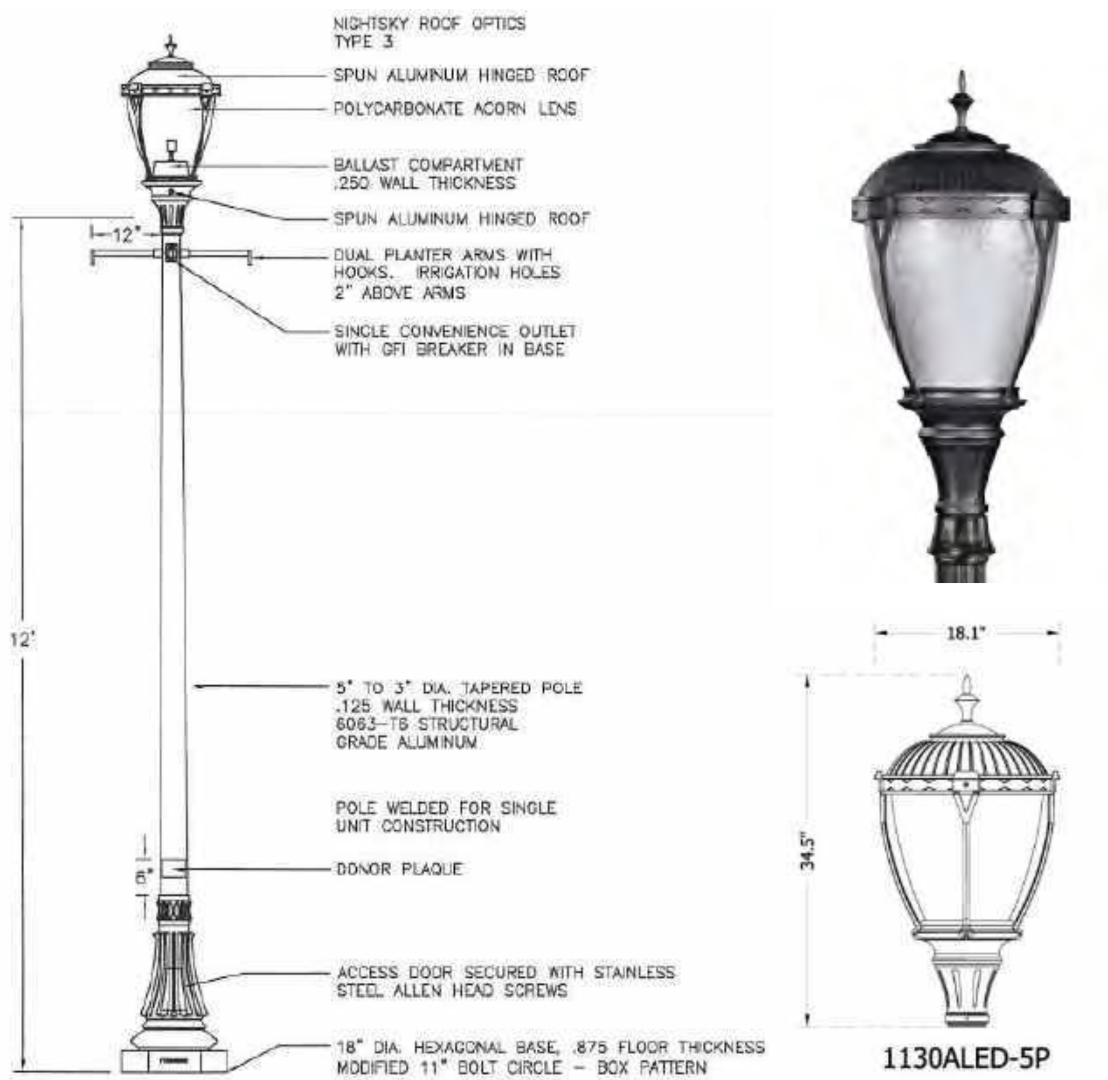
POST-TOP ACORN STYLE

The "post-top acorn style" lights consist of 12-ft tall aluminum poles with decorative bases. The luminaires consist of decorative LED post-top mounted "acorn" lights. The existing poles and luminaires are supplied by Sternberg as the following models:

- Pole: Sternberg 3400 "Georgetown Series" Ornamental Pole
- Luminaire: Sternberg "Ripon Series" Model 1130ALED

The height of the pole and mounting position of the luminaire results in an approximate 13-ft mounting height above the roadway and sidewalk. The existing post-top acorn style pole and luminaire are shown in Figure 2 below.

Figure 2 Existing Post-Top Acorn Style Light



Product cut sheets for the existing poles and luminaires are included in Appendix "A".

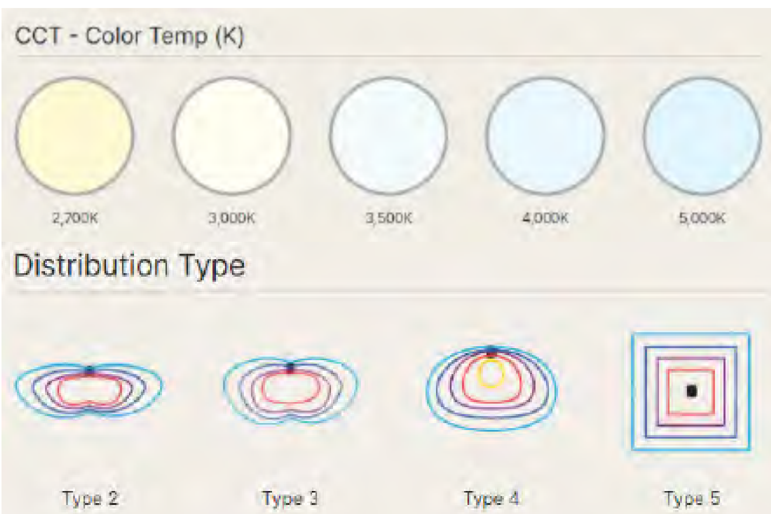
Proposed Poles and Luminaires

The concept design phase completed in 2022 set the stage for the current preliminary design phase of the Third Street Improvement Project. The concept design identified the preferred design theme as “historic”, with a desire to keep a similar look and feel to the existing street furnishings and street lights.

Coordination with the City of McMinnville during the 15%-30% design phase indicated the desire to continue using the same poles and luminaires as existing, in order to maintain consistency with the rest of downtown and other projects. The recently constructed Three Mile Lane bridge replacement installed the same pendant style poles and luminaires on the bridge in anticipation that the design theme would be continued onto NE 3rd Street with the *Third Street Improvement Project*.

Photometric information for the proposed luminaires was obtained from the manufacturer. Luminaires with 3000K or less color temperature are proposed for the project in order to maintain a “softer” lighting temperature closer to historic high-pressure sodium (HPS) or other traditional lighting sources. A Type 3 lighting distribution pattern was selected for the luminaires based on what is currently used; however, other patterns can be evaluated as the design and light pole layout is optimized. The range of color temperatures and lighting distribution patterns available for most luminaires are shown in Figure 3.

Figure 3 Luminaire Color Temperature and Lighting Distribution Options



Source: https://www.sternberglighting.com/

PENDANT STYLE

This street lighting assessment used the existing pendant style poles and luminaires presented above and shown in Figure 1 for the initial lighting layout and photometric analysis. The luminaire is as follows:

- Sternberg 1910LED-LBS-1L-30-T3
  - 3,000K color temperature
  - Type 3 lighting distribution pattern
  - Wattage:
    - 36-watt, 4,025 initial lumen output (railroad crossing intersection) – dimmed to 75% output

- 69-watt, 7,285 initial lumen output (unsignalized intersections) – dimmed to 75% output

POST-TOP ACORN STYLE

The street lighting assessment used the existing post-top acorn style poles and luminaires presented above and shown in Figure 2 for the initial lighting layout and photometric analysis. The luminaire is as follows:

- Sternberg 1130ALED-5P-12L-30-T3-MDL014
  - 3,000K color temperature
  - Type 3 lighting distribution pattern
  - Wattage: 47-watt, 3,730 initial lumen output – dimmed to 70% output

TRAFFIC SIGNAL POLES

The 30% design concept includes the expectation that the intersections of NE 3rd Street with NE Baker Street, NE Davis Street, and NE Ford Street will remain signalized, and the signal poles and equipment would be rebuilt and modernized with the *Third Street Improvement Project*. Signal mast arm poles would be supplied with decorative bases and decorative luminaire arms to provide a look similar to the pendant style lights. The assumed mounting height of the luminaire is 25-ft with a 6-ft decorative arm. An example of the style of pole is the recently installed signal at NE 5th Street & NE Evans Street, shown in Figure 4 below. The luminaire is as follows:

- Sternberg 1910LED-LBS-1L-30-T3-MDL16-A
  - 3,000K color temperature
  - Type 3 lighting distribution pattern
  - Wattage: 93-watt, 9,210 initial lumen output – dimming varies depending on target light levels

Figure 4 Example Decorative Traffic Signal Pole and Pendant Luminaire

LIGHTED BOLLARDS

Options for including metal bollards with integrated LED lighting was evaluated. The purpose of the bollards are to provide low-level lighting targeted at the pedestrian crossings and mid-block curb extension areas where the taller pendant style or post-top acorn style lights may not be feasible or desirable due to tree spacing or other urban design constraints. The lighted bollards would allow the project to meet the lighting requirements at the midblock pedestrian crossings without installing additional taller light poles. Several options for lighted bollards are provided in Table 1 below as examples; however, there are many others that can be considered as the design moved forward.

The bollard used in the lighting assessment due to the photometric performance is as follows:

- Holophane Wadsworth LED Series – WDBOLED-CA-P40-30K-NI05
  - 3,000K color temperature
  - Type 5 lighting distribution pattern
  - Wattage: 29-watt, 2,147 initial lumen output

Manufacturer specification sheets for the lighted bollards are included in Appendix "B".

Table 1 Lighted Bollard Options

Manufacturer/Model	Image (note: all to be painted black)	Considerations
Sternberg 3401LED Georgetown Series		– Same manufacturer and look as the other proposed Sternberg light poles. Consistent urban design aesthetic. – Lower lumen output than required (590 lumens max output). Would require 4 bollards per midblock crossing. – May not achieve desired target light levels for midblock crossings and sidewalks. – Note: Sternberg has indicated that bollards may be modified to increase light output, up to approximately 2,500 lumens. Photometry information was not available at the 30% milestone.

Manufacturer/Model	Image (note: all to be painted black)	Considerations
Sternberg 4555LED Parkside Series		– Same manufacturer as the other proposed Sternberg light poles. – The Project's Public Advisory Committee (PAC) indicated a desire for more "simple" bollards similar to those used on Main Street in Carlton. – Lower lumen output than required (590 lumens max output). Would require 4 bollards per midblock crossing. – May not achieve desired target light levels for midblock crossings and sidewalks. – Note: Sternberg has indicated that bollards may be modified to increase light output, up to approximately 2,500 lumens. Photometry information was not available at the 30% milestone.
Holophane WDBOLED Wadsworth LED Series		– Similar look to the Sternberg family of poles, with slight differences. – Higher lumen outputs available (up to 2,147 lumens). Would allow for 2 bollards per midblock crossing. – More easily achieve desired target light levels for midblock crossings and sidewalks.
Visco Lighted Bollard BO-44L		– More contemporary look than the other bollard options. – Photometric performance still needs to be assessed.

Dark Sky Compliant Options

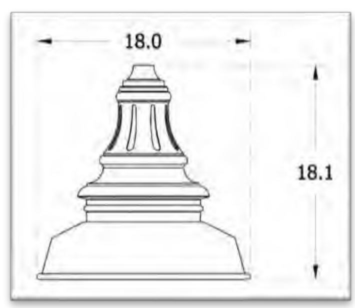
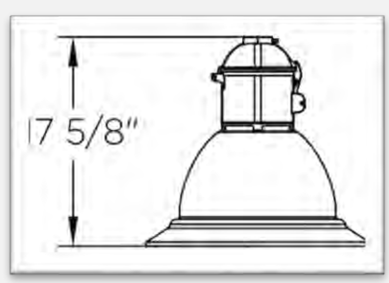
The concept design phase of the project identified the desire to include Dark Sky compliant luminaires in the project. Dark Sky compliant luminaires are those that do not project any light upward into the night sky (i.e. full cutoff or zero uplight), have reduced glare characteristics, and fall into the lower color temperature ranges. The existing/proposed luminaires presented above are not Dark Sky compliant because the shape of the shades and lenses diffuse light out and up from the luminaire.

Further coordination with the City during the 15% and 30% design stage indicated that no specific City policy exists requiring Dark Sky compliant luminaires for public works projects. The surrounding areas in downtown and adjacent Three Mile Lane Bridge have recently implemented the proposed luminaires presented above. The lighting assessment and preliminary layout is based on using the existing poles and luminaires, with the intent that these will be implemented with the Project. However, several Dark Sky compliant options are presented in

Table 2.

The Dark Sky compliant luminaires would need to be further evaluated for photometric performance to confirm their compatibility with the proposed light pole layout and the determine the specific lumen outputs needed to meet target lighting levels.

Table 2 Dark Sky Compliant Luminaire Options

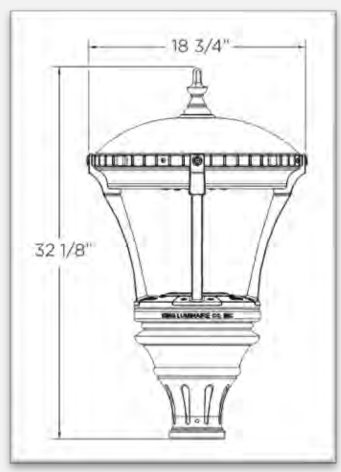
Manufacturer/Model	Image
Pendant Style Luminaires	
Sternberg 1910LED-RLM18-FL	 
King K729 Aurora Jr. LED	 

Hadco Westbrooke CXF14

Post-Top Acorn Luminaires

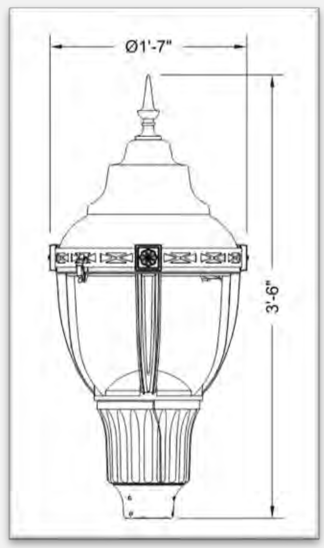
Sternberg Euro E350LED

King K595 Aristocrat LED



King K137 Yarmouth LED

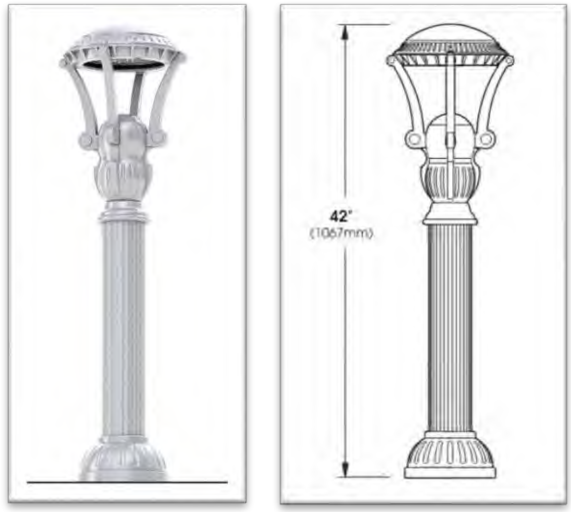
Holophane WFCL3 Utility Washington Series



Lighted Bollards

Sternberg E250LED Euro Series Bollard

Sun Valley Lighting Mozart Bollard



Manufacturer specification sheets for the Dark Sky Compliant luminaires and bollards are included in Appendix "C".

LIGHTING ANALYSIS AND CONCEPT LAYOUT

Target Lighting Levels

The target lighting levels for the project were developed using guidance from the MWL *Street Lighting Design Guide* and the Illuminating Engineering Society (IES) *Recommended Practice: Lighting Roadway and Parking Facilities* (*ANSI/IES RP-8-22*). The project area was broken into analysis areas that have different functions and safety considerations, and thus different lighting level considerations.

The target values for lighting are generally determined based on the street classifications, the expected nighttime pedestrian activity or conflict levels, and the pavement type. While NE 3rd Street is currently classified as a "*Major Collector*" street, the City has indicated that it will likely be downgraded to a "*Local*" classification with their upcoming Transportation System Plan (TSP) update. The TSP street classifications used in the lighting assessment are as follows:

- NE 3rd Street: Local
- NE Adams Street: Major Arterial
- NE Baker Street: Major Arterial
- NE Cowls Street: Local
- NE Davis Street: Minor Collector
- NE Evans Street: Minor Collector
- NE Ford Street: Local
- NE Galloway Street: Local
- NE Irvine Street: Local
- NE Johnson Street: Minor Arterial (Major Street)

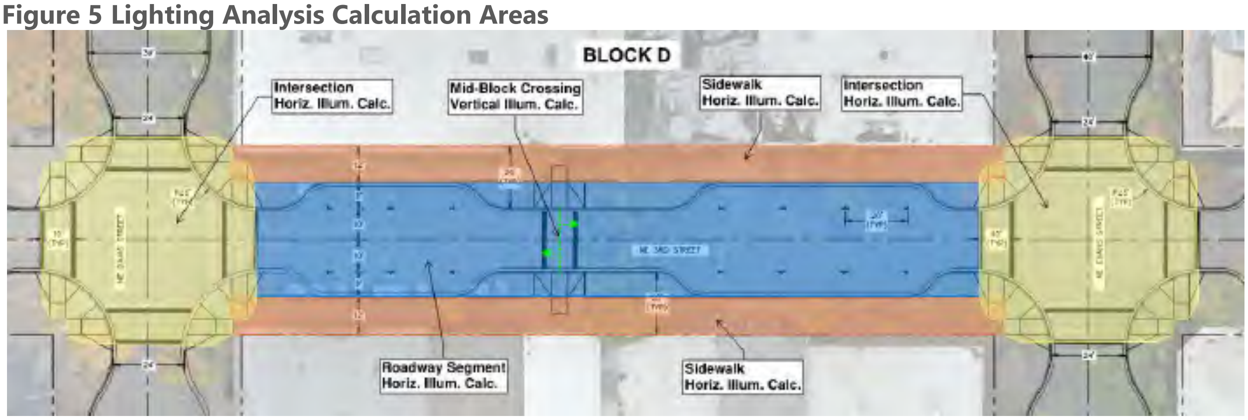
One objective of the project is to maintain and enhance the "downtown main street" environment on NE 3rd Street by improving the pedestrian realm. The existing traffic counts indicate a high level of pedestrian activity during the afternoon peak hour, with activity expected to extend into hours of darkness throughout the year. The City and the McMinnville Downtown Association also expressed a desire to significantly improve lighting levels from the existing levels. Thus, a pedestrian activity/conflict classification of "high" was used in setting the target light levels for the lighting assessment.

The *illuminance method* of roadway lighting design was used for this assessment. Illuminance determines the amount of light from the roadway lighting system that is incident on the roadway surface or on vertical surfaces. Because the amount of light seen by the driver is the portion that reflects from the pavement toward the driver, and because different pavements exhibit varied reflectance characteristics, different illuminance levels are needed for each type of standard roadway surface. The current design assumes that NE 3rd Street travel lanes and parking areas will be constructed using PCC and the sidewalks will also be constructed with PCC for the purposes of determining target light levels.

"Average horizontal illuminance" is the measure used for calculating light levels on the street segments, intersections, and sidewalks, while "average vertical illuminance" is used for calculating light levels at the mid-block pedestrian crossings. The ratio of the average-to-minimum illuminance levels is used as a measure to determine the "uniformity" of light within a given analysis area. Uniformity is used as a design measure to ensure the drivers eyes are not constantly adjusting to drastically different light levels as they travel along a roadway.

The lighting analysis calculation areas for a typical block are shown in Figure 5 and summarized below. Note that the MWL *Street Lighting Design Guide* does not have specific design or photometric requirements for sidewalk or crosswalk areas, and provides no set illuminance targets for "local" street classification. The MWL guide specifies that a light-loss depreciation factor of 0.78 shall be used for all LED systems, which was incorporated into the evaluation.

Figure 5 Lighting Analysis Calculation Areas



STREET SEGMENTS

Chapter 11 of *ANSI/IES RP-8-22* provides the lighting design criteria for streets based on street classification and pedestrian activity level classification. Based on a "local" street classification and a "high" pedestrian activity classification on a PCC street surface, the target average horizontal illuminance level for NE 3rd Street segments is 0.6 foot-candles with a 6:1 average-to-minimum uniformity ratio.

The street segment calculations are defined by the curb-to-curb width from intersection to intersection, including the travel lanes and parallel parking areas. The recommended light levels and uniformity levels for the street segments are summarized in Table 3 below.

INTERSECTIONS

Chapter 12 (Table 12-1) of *ANSI/IES RP-8-22* outlines the average horizontal illuminance levels for intersections based on the street classifications of the two intersecting streets as well as the pedestrian activity level classification, assuming a PCC roadway surface. Intersections are illuminated to a higher level than street segments because more vehicle-to-vehicle and vehicle-to-pedestrian conflict points exist at intersections. The recommended light levels and uniformity levels for the project intersections are summarized in Table 4 below.

The intersection calculation areas are defined by the outer limits of the pedestrian crossings on each leg and include the pedestrian ramp and landing areas in the sidewalks.

SIDEWALKS

Chapter 11 (Table 11-2) of *ANSI/IES RP-8-22* outlines the recommended lighting values for sidewalk areas. In order to provide flexibility in the design, we recommend that a range for the average horizontal illuminance between 0.5 – 0.9 foot-candles is used. This range represents a “medium” to “high” pedestrian activity area classification and is intended to allow flexibility in the design while avoiding over-lighting the street and intersection areas. We expect that additional light will reach the sidewalk areas from holiday/string lights in the trees and building façade lighting that is not modeled in our photometric evaluation. The recommended light levels and uniformity levels for the sidewalk areas are summarized in Table 5 below.

The sidewalk calculation areas are defined by the front of sidewalk to the back of sidewalk (right-of-way line) for each block face.

Note that *ANSI/IES RP-8-22* recommends an average/minimum uniformity of 5:1 or better; however, most sidewalk segments exceed the target, but are at 7:1 or better. Factors contributing to the substandard uniformity in the sidewalk areas include:

- Required spacing between street trees and street light poles.
- Lower target illuminance level for vehicle and parking lanes for PCC surface, resulting in lower wattage luminaires used. Light does not spread into the sidewalk areas as effectively.

PEDESTRIAN CROSSINGS

The vertical illuminance levels at the mid-block pedestrian crossings are evaluated to ensure enough light is cast onto the vertical surface of a pedestrian crossing the street at non-intersection locations, allowing adequate visibility to an approaching driver. The vertical illuminance calculations are performed through the center of the crosswalk facing each approaching direction of traffic at a height of 5-ft above the roadway. The horizontal illuminance at the mid-block crosswalks is calculated as part of the street segment lighting.

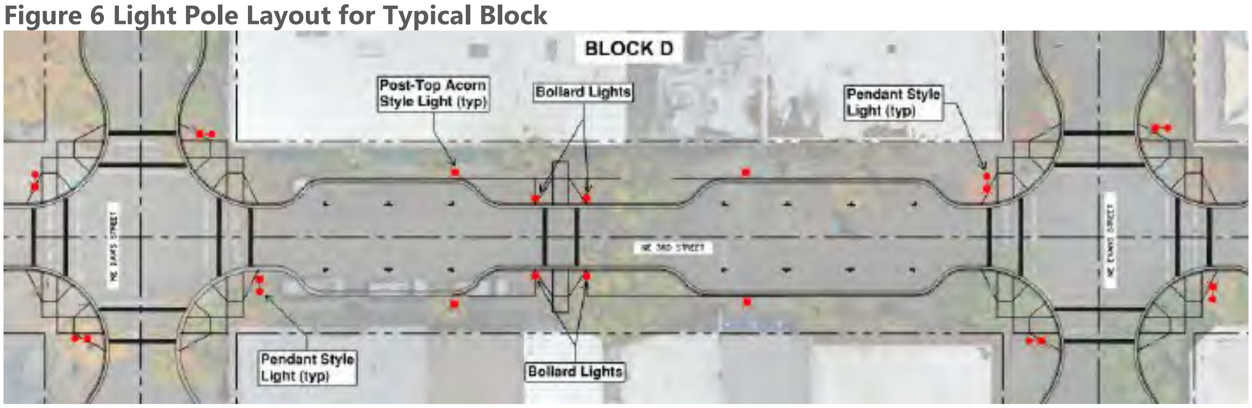
Chapter 12 of *ANSI/IES RP-8-22* recommends that the maintained average vertical illuminance levels meet or exceed the maintained average horizontal design levels for the intersection or segment, and that "*research shows that maintained average vertical illuminance in crosswalks of 20 to 40 lux [1.8 to 3.7 foot-candles] will benefit visibility of the pedestrian*". We recommend that the mid-block crosswalks be illuminated to an average vertical illuminance level of at least 0.6 foot-candles matching the horizontal illuminance on the segment, with higher levels provided wherever possible.

The recommended light levels and uniformity levels for the mid-block crosswalks are summarized in Table 6 below. Note that the 30% design concept does not include mid-block curb extension areas or pedestrian crossings in the two blocks between the Portland & Western Railroad and NE Johnson Street (Blocks "H" and "I") due to the 3-lane cross-section in Block "I" and associated lane tapers in Block "H".

Preliminary Lighting Layout

A preferred light pole layout was determined through coordination with the City and project team, and informed by initial photometric analysis for a typical block using the proposed pendant style, post-top acorn style, and lighted bollards discussed above. The light pole layout for a typical block is shown in Figure 6.

Figure 6 Light Pole Layout for Typical Block



The lighting layout generally used for each block includes:

- **Four (4) pendant style lights at each intersection** – one pole oriented over each of the pedestrian crossings on the departure side of the intersection.
  - The pole placement allows for adequate lighting of the intersection and crosswalks. Poles will be in positions consistent with the typical signal pole locations at signalized intersections.
- **Four (4) post-top acorn style lights on each mid-block segment** – two pairs positioned opposite each other spaced evenly mid-block.
  - Positioning poles opposite each other facilitates lighting both the street and sidewalks adequately due to low mounting height of poles.
  - City staff and design team expressed the preference to have lights oriented opposite each other for a more uniform urban design aesthetic.
- **Four (4) lighted bollards at each midblock pedestrian crossing** – one on each corner of the crossings.

- The bollards are necessary to achieve the vertical illuminance levels without having additional taller poles directly adjacent to the crosswalks.
- Bollards more easily fit within the landscape/tree planting concept to provide low-level lighting that does not conflict with tree placement.

Some pole placements in the 30% design vary slightly from the "typical" due to existing driveway or underground utility locations. Further adjustments may be needed as the design progresses. The mid-block pole layout in Block "I" from NE Irvine Street to NE Johnson Street uses a "staggered" layout due to constraints with existing driveway locations. The pole layout includes one (1) pendant style pole to improve lighting for the existing crosswalk in the westbound right-turn lane at NE Johnson Street & NE 3rd Street.

Photometric Analysis Results

A computerized photometric analysis was performed for the NE 3rd Street corridor using *AGi32* analysis software. The design lighting levels resulting from the preliminary layout using the proposed poles and luminaires are summarized in Table 3 through Table 6 below. Note that the photometric analysis should be updated throughout the remaining final design process as pole locations and street geometry changes to ensure the lighting objectives continue to be met. Photometric analysis output exhibits are included in Appendix "D".

Table 3 Street Segment Light Level Summary

Street Segment on NE 3rd St	Street Class	Pedestrian Conflict Area Class		Average Horizontal Illuminance (foot-candles)	Uniformity (Avg : Min)
NE Adams St to NE Baker St	Local	High	Recommended	≥ 0.6	≤ 6:1
			Design	**1.2**	**6:1**
NE Baker St to NE Cowls St			Recommended	≥ 0.6	≤ 6:1
			Design	**1.0**	**3:1**
NE Cowls St to NE Davis St			Recommended	≥ 0.6	≤ 6:1
			Design	**1.0**	**3:1**
NE Davis St to NE Evans St			Recommended	≥ 0.6	≤ 6:1
			Design	**1.1**	**6:1**
NE Evans St to NE Ford St			Recommended	≥ 0.6	≤ 6:1
			Design	**1.0**	**3:1**
NE Ford St to NE Galloway St			Recommended	≥ 0.6	≤ 6:1
			Design	**1.1**	**6:1**
NE Galloway St to Railroad			Recommended	≥ 0.6	≤ 6:1
			Design	**1.1**	**4:1**
Railroad to NE Irvine St			Recommended	≥ 0.6	≤ 6:1
			Design	**1.2**	**3:1**
NE Irvine St to NE Johnson St			Recommended	≥ 0.6	≤ 6:1
			Design	**1.1**	**6:1**

Table 4 Intersection Light Level Summary

Intersection	Street Class	Pedestrian Conflict Area Class		Average Horizontal Illuminance (foot-candles)	Uniformity (Avg : Min)
NE Adams St at NE 3rd St	Local / Major	High	Recommended	≥ 1.8	≤ 3:1
			Design	**2.2**	**4:1**
NE Baker St at NE 3rd St	Local / Major		Recommended	≥ 1.8	≤ 3:1
			Design	**2.1**	**2:1**
NE Cowls St at NE 3rd St	Local / Local		Recommended	≥ 1.2	≤ 6:1
			Design	**1.7**	**4:1**
NE Davis St at NE 3rd St	Local / Collector		Recommended	≥ 1.4	≤ 4:1
			Design	**1.9**	**2:1**
NE Evans St at NE 3rd St	Local / Collector		Recommended	≥ 1.4	≤ 4:1
			Design	**1.8**	**4:1**
NE Ford St at NE 3rd St	Local / Local		Recommended	≥ 1.2	≤ 6:1
			Design	**1.8**	**2:1**
NE Galloway St at NE 3rd St	Local / Local		Recommended	≥ 1.2	≤ 6:1
			Design	**1.9**	**3:1**
NE Irvine St at NE 3rd St	Local / Local		Recommended	≥ 1.2	≤ 6:1
			Design	**1.6**	**5:1**
NE Johnson St at NE 3rd St	Local / Major		Recommended	≥ 1.8	≤ 3:1
			Design	**2.5**	**2:1**

Table 5 Sidewalk Light Level Summary

Street Segment on NE 3rd St	Side of Street	Pedestrian Conflict Area Class	Average Horizontal Illuminance (foot-candles)	Uniformity (Avg : Min)
Recommended Lighting Levels				
All	Both	Medium - High	≥ 0.5 - 0.9	≤ 5 : 1
Concept Design Lighting Level Results				
NE Adams St to NE Baker St	North	Medium - High	0.7	7:1
	South		0.7	7:1
NE Baker St to NE Cowls St	North		0.7	7:1
	South		0.7	7:1
NE Cowls St to NE Davis St	North		0.6	6:1
	South		0.7	7:1
NE Davis St to NE Evans St	North		0.7	7:1
	South		0.6	6:1
NE Evans St to NE Ford St	North		0.6	6:1
	South		0.7	7:1
NE Ford St to NE Galloway St	North		0.7	7:1
	South		0.7	7:1
NE Galloway St to Railroad	North		0.6	6:1
	South		0.7	7:1
Railroad to NE Irvine St	North		0.7	7:1
	South		0.8	4:1
NE Irvine St to NE Johnson St	North		0.8	4:1
	South		1.0	10:1

Table 6 Mid-Block Pedestrian Crossing Light Level Summary

Street Segment for Mid-Block Crossing	Approaching Traffic Direction	Average Vertical Illuminance (foot-candles)	Uniformity (Avg : Min)
Recommended Lighting Levels			
All	Both	≥ 0.6	≤ 6 : 1
Concept Design Lighting Level Results			
NE Adams St to NE Baker St	Eastbound	1.6	1:1
	Westbound	1.5	2:1
NE Baker St to NE Cowls St	Eastbound	1.6	1:1
	Westbound	1.7	1:1
NE Cowls St to NE Davis St	Eastbound	1.5	1:1
	Westbound	1.7	1:1
NE Davis St to NE Evans St	Eastbound	1.8	1:1
	Westbound	1.6	1:1
NE Evans St to NE Ford St	Eastbound	1.5	1:1
	Westbound	1.9	1:1
NE Ford St to NE Galloway St	Eastbound	1.8	1:1
	Westbound	1.6	1:1
NE Galloway St to Railroad	Eastbound	1.6	1:1
	Westbound	1.6	1:1
NE Johnson St – WB Right Turn Lane	Westbound	3.0	4:1
NE Adams St – North Leg Crosswalk	Southbound	2.6	3:1

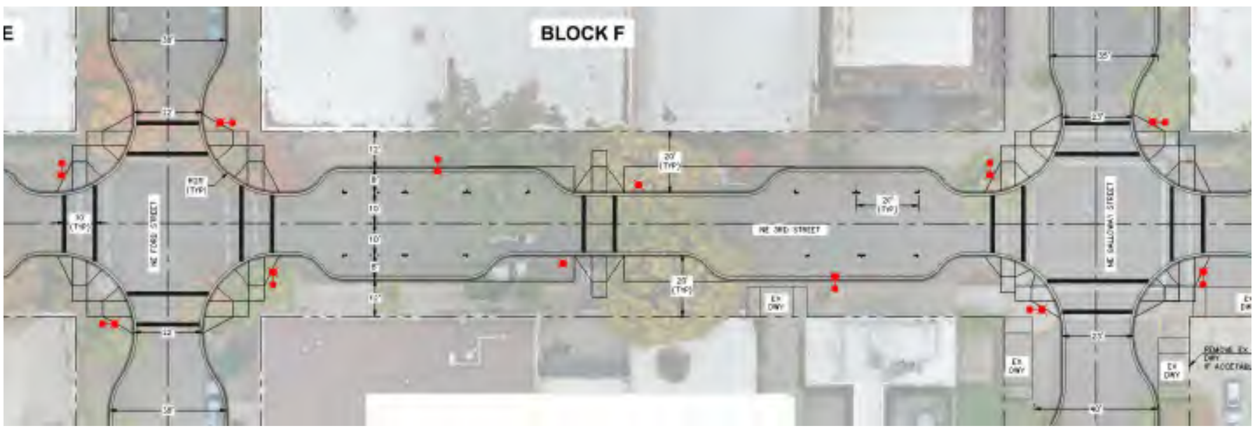
Alternative Pole Layouts

Alternative lighting layouts were explored to determine if fewer poles could feasibly be used while still meeting the lighting objectives. Options are constrained by the following:

- **Relatively low pole heights** – Limits the spread of light outward from the pole, requiring tighter pole spacing.
- **Mid-block crosswalks** – Vertical illuminance targets require having lights directly adjacent to the crossings. Limits the ability to have a more uniform "staggered" pattern along the block.
- **Mid-block "grove" landscape concept** – Spacing between street light poles and street trees would limit the locations available for street tress in the mid-block curb extensions.

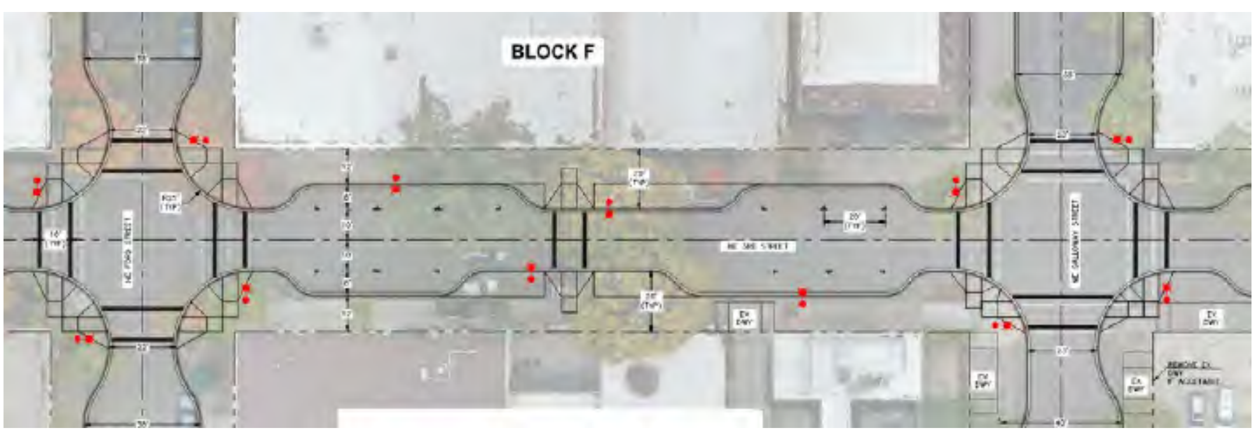
The layout shown in Figure 7 includes both pendant style poles and post-top acorn style poles in a "staggered" pattern midblock. The layout requires 4 midblock poles but allows for the removal of the lighted bollards from the design. The post-top acorn poles would be adjacent to the pedestrian crossings. In order to meet the light level requirements, the pendant poles would need to be at least 18′-20′ mounting height, whereas the existing poles are 16′ mounting height. This layout would limit the placement of street trees in the mid-block grove areas.

Figure 7 Mixed Pendant and Post-Top Acorn Midblock Pole Layout



Similar to the option shown above, the alternative layout shown in Figure 8 includes a "staggered" midblock pole layout but uses only pendant style poles which would need to be at least 18′-20′ mounting height. This layout also limits the landscape design flexibility in the mid-block curb extensions but has better coverage and uniformity of lighting in the sidewalk areas because of the consistent pole heights.

Figure 8 Pendant Style Poles Only



CONCLUSIONS AND RECOMMENDATIONS

We conclude the following based on the street lighting assessment summarized above:

- **Target Lighting Levels** – Lighting of street segments, intersections, sidewalks, and mid-block pedestrian crossings should follow guidance from the Illuminating Engineering Society (IES) *Recommended Practice: Lighting Roadway and Parking Facilities* (*ANSI/IES RP-8-22*) and the MWL *Street Lighting Design Guide*, where applicable.
    - Specific lighting values are summarized in Table 3 through Table 6 above.
    - Assume "high" pedestrian activity level classification.
    - Assume "local" street classification for NE 3rd Street. Other street classifications to be per McMinnville TSP, summarized above.
    - Assume PCC surface for vehicle lanes, parking lanes, and sidewalk areas.
- **Lighting Poles and Luminaires** – Use of the existing Sternberg decorative poles and luminaires, along with lighted bollards at mid-block pedestrian crossings, can meet the target lighting levels. These luminaires include dimming features which can be utilized to achieve the targets.
- **Pendant Style Lights**: Use the pole and luminaire style shown in Figure 1, or approved equal, at intersections.
    - Pole: Sternberg 5400 Hamilton Roadway Pole – 18' tall with 4' arm
    - Luminaire: Sternberg 1910LED-LBS-1L-30-T3
        - 3,000K color temperature
        - Type 3 lighting distribution pattern
        - Wattage: 36-watt & 69-watt versions
- **Post-Top Acorn Style Lights**: Use the pole and luminaire style shown in Figure 2, or approved equal, at mid-block locations.
    - Pole: Sternberg 3400 Georgetown Ornamental Pole – 12' tall
    - Luminaire: Sternberg 1130ALED-5P-12L-30-T3-MDL014
        - 3,000K color temperature
        - Type 3 lighting distribution pattern
        - Wattage: 47-watt, 3,730 initial lumen output
- **Lighted Bollards:** Use lighted bollards at mid-block crosswalk locations, similar to those shown in Table 1 that match the architectural aesthetic and "historic" theme for the project.
    - Note: Feedback from the City, design team, and stakeholders is needed to inform the specific bollard light to be included. The Project's PAC indicated a desire for a more "simple" bollard rather than a decorative one.
- **Lights on Signal Poles**: The lighting layout and 30% design assumes the use of the pendant style luminaires (93-watt version) mounted on 6' decorative arms on signal poles at the following intersections:
    - NE Baker Street & NE 3rd Street
    - NE Davis Street & NE 3rd Street
    - NE Ford Street & NE 3rd Street
- **Street Light Layout:** The lighting layout shown in Figure 6 and summarized below will meet the light level targets and other design objectives of the project.
    - **Four (4) pendant style lights at each intersection** – one pole oriented over each of the pedestrian crossings on the departure side of the intersection.

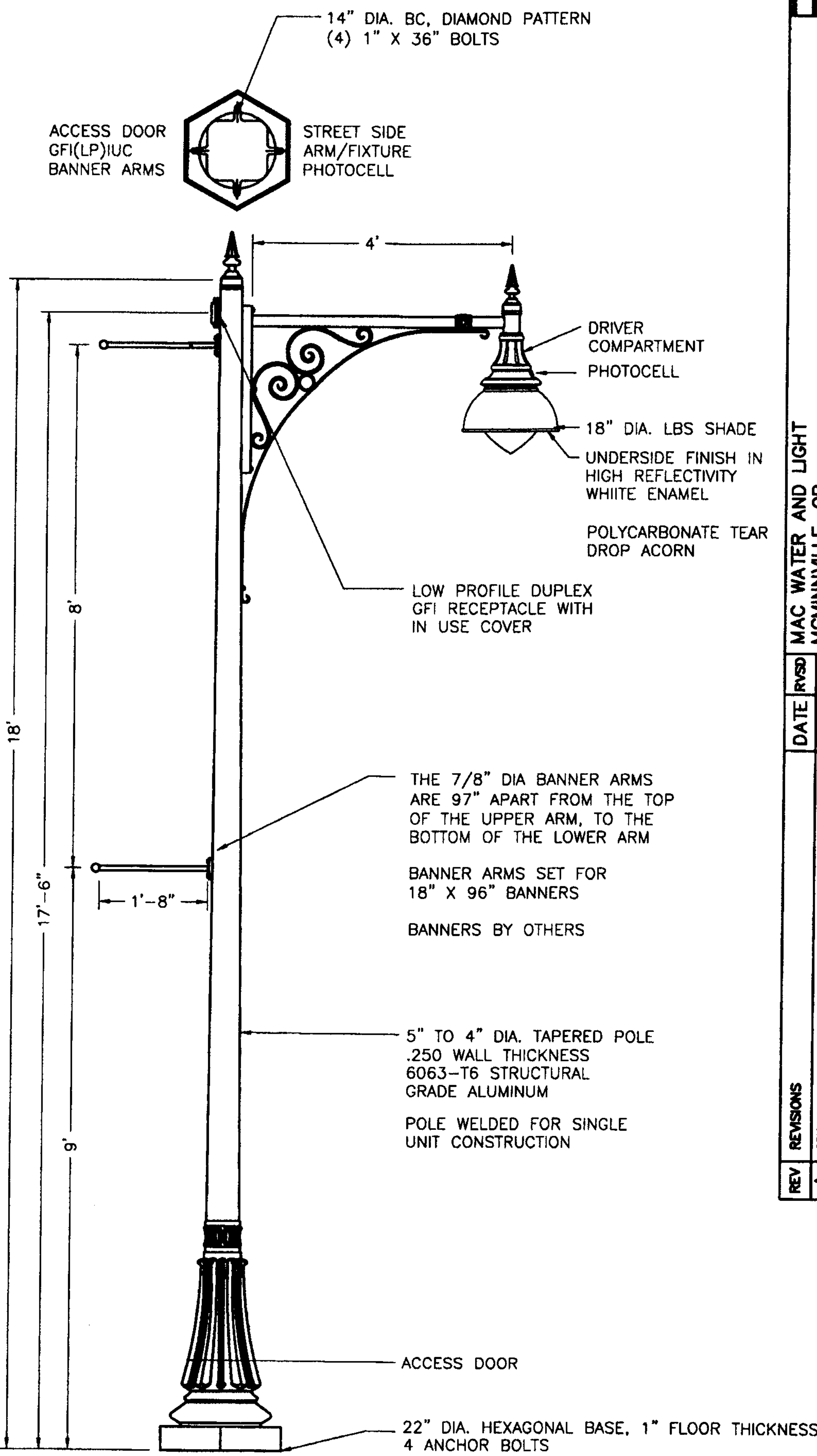
    - The 30% design layout includes **26** pendant style poles.
  - **Four (4) post-top acorn style lights on each mid-block segment** – two pairs positioned opposite each other spaced evenly mid-block.
    - The 30% design layout includes **36** post-top acorn style poles.
  - **Four (4) lighted bollards at each midblock pedestrian crossing** – one on each corner of the crossing.
    - The 30% design layout includes **28** lighted bollards.

Below are several additional considerations for design and implementation, some of which have come up in discussions with the Technical Advisory Committee (TAC) and Project Advisory Committee (PAC) during the 15%-30% design phases:

- **Dark Sky Compliant Luminaires**: Per discussion following 15% design, the decision was made to move forward using the existing luminaires for consistency with MWL approved equipment and existing installations downtown.
- **Lighted Bollards:** Concerns were raised following the 15% design regarding maintenance and cost of lighted bollards. City staff have concerns about the vulnerability of bollards close to the roadway, and MWL staff raised the issue that these are not currently in the MWL rate schedule and no agreements exist for powering or maintaining a light of this type.
  - The decision was made to keep the lighted bollards in the design at 30%, but additional discussions and decisions will be required between the City and MWL to move them forward in the final design.
  - Opportunities for additional lighted bollards at the intersection corners were discussed during the 30% design phase, but no decision was reached. The bollard lights are not needed to achieve illuminance objectives but could supplement the urban design aesthetic and provide additional guidance at corners.
- **ODOT Approvals:** The lighting layout from NE Adams Street to NE Baker Street will likely require ODOT Region 2 technical approval. The inclusion of decorative arms and luminaires on the new signal poles at NE Baker Street & NE 3rd Street will also require approval.
- **Pole Appurtenances:** Poles and foundations should be able to accommodate the following:
  - **Banner Arms** – on pendant style pole similar to existing poles.
    - McMinnville Water & Light (MWL) noted that banner arms on the shorter poles tend to be vandalized/broken quite often and the balls at the end of the arms removed.
  - **Flower Basket Hangers and Irrigation** – on post-top acorn poles similar to existing poles. The City also would like to explore the possibility for incorporating drip irrigation systems integral to the poles.
  - **GFI outlets** – on all poles similar to existing poles
    - TAC and PAC discussion indicated that existing outlets feeding string lights trip often, possibly due to moisture intrusion in outlets. Consider alternate receptable box configurations.
    - Ensure adequate wire sizing and amperage in power supply to accommodate expected usage. Determine the amperage needs for each outlet in coordination with MWL, TAC and PAC.

- **Lighting Power Supply:** MWL suggested possibly going to a City-owned and maintained metered service type for lighting and GFI receptacles on NE 3rd Street. Determine the preferred approach as design progresses.
  - Per discussions following the 15% design review, the City's preferred approach is to continue with MWL supplying power and maintaining the lighting system.
- **Re-Use of Existing Poles:** The City may consider re-using existing pendant style (29 existing) and/or post-top acorn style (5 existing) poles if that style is selected to move forward into the final design.
  - Existing poles can be evaluated during final design for condition and expected life span. Poles can be cleaned and repainted, and luminaires replaced.
  - Re-use of existing poles could represent a significant overall cost saving to the project.
- **Existing Donor Plaques on Poles:** Some existing post-top acorn lights have donor plaques on the poles. The plaques should be salvaged and re-installed on new poles if existing poles are not re-used.
- **Alternative Light Pole Layouts:** The alternative layout presented in Figure 7 and Figure 8 above could eliminate the need for lighted bollards at the mid-block crosswalks, but would require taller (non-standard) poles to achieve light level and uniformity targets. Number and spacing of street trees would also need to be re-evaluated.

Appendix A:
Existing Light Poles and Luminaires



REV	REVISIONS	DATE	RVSD
A	ORIGINAL	4/10/15	
B	CHANGE POLE TAPPER FROM 5-3 TO 5-4	4/16/15	MD
C	CHANGED THE DISTANCE OF THE DBA	4/16/15	MD
D	UPDATED DRAWING, INFO, ADDED ANCHOR BOLT DETAIL	5/5/17	JG

MAC WATER AND LIGHT
MCMINNVILLE, OR

1A-1910LEDLBS-5P-4ARC35T3-MDL03-P-PEC-FHD-HS(MOD)/SMA4/
5418T5-4/SSCC/1-DBA/1-GFI-LPIUC/BK

DB

SternbergLighting
ESTABLISHED 1923 / EMPLOYEE OWNED

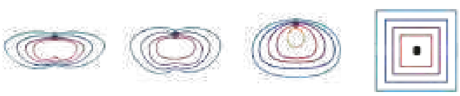
POLE HEIGHTS HAVE A TOLERANCE OF + OR - 2"

DRAWING NUMBER
SC23505

Project Name ______________________________ Qty __________

Type __________ Catalog / Part Number ______________________________

Distribution Type



Type 2 Type 3 Type 4 Type 5

CCT - Color Temp (K)

2,700K 3,000K 3,500K 4,000K 5,000K

7 Year Warranty

IP Rating

IP 66

Certifications

c UL us LISTED

Description

The 1910LED series is a medium scale decorative pendant luminaire which consists of a decorative cast aluminum fitter, and optional heavy gauge spun aluminum shade with integral lens frame. The optical enclosure is sealed against moisture and dust penetration.

Features

Mounting Configuration	**1W:** Wall Mount	**1A:** 1 Arm Mount
	2A: 2 Arm Mount @ 180°	**2A90:** 2 Arm Mount @ 90°
	3A: 3 Arms @ 120°	**3A90:** 3 Arms @ 90°
	4A: 4 Arms @ 90°	**1AM:** 1 Arm Mid-Mount
	2AM: 2 Arm Mid-Mount @180°	**SH44:** Stem Hung
	CH44: Chain Hung	**CAT:** Catenary
Optional Control Receptacle	**R7:** 7-Pin control receptacle only	
Optional Control	**PE:** Twist-Lock Photocontrol (120V-277V)	
	PE4: Twist-Lock Photocontrol (347V-480V)	
	SC: Shorting Cap	
	PEC: Electronic Button Photocontrol (120V-277V)	
	PEC4: Electronic Button Photocontrol (480V)	
Optional Fuse	**FHD:** Double Fuse and Holder	
Optional Hangstraight	**HSHS:** Standard Horizontal Hangstraight, Spike Finial	
	HSHN: Standard Horizontal Hangstraight, No Finial	
	HSHB: Standard Horizontal Hangstraight, Ball Finial	
	EZ: Vertical Hangstraight, Large, "EZ" Mount	
Optional House Side Shield	**HSS:** 120° House Side Shield	
Optional Fixed Dimming Resistor Board	**FDRB:** Fixed Dimming Resistor Board	

Physical

Fixture	**1910LED:** Acorn, Medium

Shade	**LBS:** Short Shade, Reno **LB:** Medium Shade, Lake Bluff **LBL:** Large Shade, Lake Bluff **RLM18:** 18" RLM Shade, Park Ridge **RLM24:** 24" RLM Shade, Park Ridge **RLM32:** 32" RLM Shade, Park Ridge
Lens	**A:** Acrylic Clear Teardrop **P:** Poly Clear Teardrop **FL:** Flat Lens
Finish	**BKT:** Black Textured **WHT:** White Textured **PGT:** Park Green Textured **ABZT:** Architectural Medium Bronze Textured **DBT:** Dark Bronze Textured **CM:** Custom Match **OI:** Old Iron **RT:** Rust **WBR:** Weathered Brown **CD:** Cedar **WBK:** Weathered Black **TT:** Two Tone **VG:** Verde Green **SI:** Swedish Iron **OWGT:** Old World Gray Textured

Light Source

LED	**1L:** 1 LED	
CCT - Color Temp (K)	**27:** 2,700K **35:** 3,500K **50:** 5,000K	**30:** 3,000K **40:** 4,000K
Distribution Type	**T2:** Type 2 **T4:** Type 4	**T3:** Type 3 **T5:** Type 5

Electrical and control

Driver	**MDL03:** 120V-277V, 300mA **MDL06:** 120V-277V, 600mA **MDL09:** 120V-277V, 900mA **MDL12:** 120V-277V, 1200mA **MDL16:** 120V-277V, 1600mA	**MDH03:** 347V-480V, 300mA **MDH06:** 347V-480V, 600mA **MDH09:** 347V-480V, 900mA **MDH12:** 347V-480V, 1200mA **MDH16:** 347V-480V, 1600mA

Specifications

Housing	Cast Aluminum housing with an anodized aluminum heat sink.
Hang-Straight	A hang-straight transition is required for most hanging mounting configurations. The Standard **(HSHx)** is a cast aluminum ball and swivel horizontal hang-straight. Available with a spike **(S)**, a ball **(B)**, or no finial **(N)**. The hang-straight slips a **4" long by 2-3/8" OD** horizontal tenon. The **(EZ)** is a cast stainless steel ball and swivel vertical hang-straight. The special 2-part design allows for easy installation. It is factory installed under an arm and on the fixture.
Catenary Mount	The Catenary mount option includes a cast aluminum span wire clamp, which accommodates cables **1/4"-5/8"** in diameter. Below the clamp is a decorative cast aluminum wire box and cover which transitions to the **EZ** vertical Hangstraight for fixture attachment. **Aircraft Cable by others.**

Lens	Clear textured acorn offered in impact resistant DR acrylic or UV stabilized polycarbonate material. An injection molding process adds a textured surface for glare mitigation.
Shades	Optional heavy gauge spun aluminum shades in a variety of styles adds decorative elements and helps control up light. Existing shades on site CANNOT be reused, a NEW shade must be ordered.
Hardware	Includes Stainless steel hardware. Most finishes will include hardware with a Black Oxide conversion coating. Light finishes will get non-color coated hardware **(Whites and Silvers)**
UL Listing	UL listed per UL1598 and CSA 22.2 No. 250.0 for the United States and Canada. Suitable for Wet Locations.
Electronic Driver	The LED driver is UL recognized and will be securely mounted inside the fixture, for optimized performance and longevity. It will be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections for fixture installation and maintenance. It will have DC voltage output and be a constant current design. It runs at 50/60HZ and will have overload, overheat, and short circuit protection. It will be supplied with a supplemental line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines. It will be a high efficiency driver with a THD less than 20% and a high-power factor greater than .9. It will be dimming capable using a 0-10V signal, consult factory for more information.
IP Rating	IP66 rated
Finish	Our 6 Stage Polyester Powder coat paint system offers a beautiful high-end finish that holds up to even the most extreme environments. Each part is inspected for quality and consistency before being released for shipment. Our system exceeds AAMA 2604, AAMA 2605, ASTM D523 and ASTM D4214 requirements.
Traditional Finish	Traditional paint finishes are available in Sternberg Lighting's Traditional product line. A range of colors help accent the decorative elements on the product. Finishes are available in textured or smooth. Available finishes include: **Black, White, Park Green, Architectural Medium Bronze and Dark Bronze**
Sternberg Select Finish	The Sternberg Select antique-inspired palette adds a touch of vintage elegance to modern applications. **Old World Gray Textured** is a 1 part powder coat with metallic flakes. **Verde Green and Swedish Iron** is a 2 part finish that includes a powder coat base coat with a hand applied antique top coat. The top coat is unique to each application and changes over time.
Custom Finish	Custom finishes are offered to adapt to any application. **Rust, Weathered Brown and Cedar** are special 1 part powder coat finishes with a distinctive look. **Old Iron and Weathered Black** are 2 part finishes that includes a powder coat base coat with a hand applied antique top coat. The top coat is unique to each application and changes over time. **Two-Tone and Custom Match** options are available to blend sternberg product with the site, consult factory for more information.
Warranty	7-year limited warranty. See Website for Terms and Conditions.
LEDs	The luminaire shall use high output, high brightness LED's, consisting of a two piece assembly complete with Chip on Board (COB) LED component and COB holder frame. The LEDs shall be 100% recyclable; not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. Lumen maintenance shall be determined in accordance with IESNA TM-21, based on LED manufacturer LM-80 test data of no less than 6,000 hours and in-situ testing of the luminaire by an NVLAP accredited Energy Efficient Lighting Products lab. The high-performance white LEDs will have a predicted lumen depreciation of approximately 100,000 hours with greater than 70% of initial output at 25°C. The High Brightness, High Output LED's shall be 4000K (2700K, 3000K, 3500K or 5000K option) correlated color temperature (CCT) with a 70 (minimum) color rendering index (CRI). Consult factory for custom color CCT. The luminaire shall have a minimum ______ (see table) delivered initial lumen rating when operated at steady state with an average ambient temperature of 25°C (77°F). **CCT Lumen Derate Values from 4,000K** 2,700K (80+ CRI)=**.89** 3,000K (70+ CRI)=**.97** 3,500K (80+ CRI)=**.93** 5,000K (70+ CRI)=**1.01**
Optics	The luminaire shall be provided with individual, refractor type optics applied to each LED. The luminaire shall provide Type ___ (2, 3, 4 or 5) light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79.

Backlight Optical Control	**Internal House Side Shield (HSS):** An optional **INTERNAL** 120° House Side Shield helps control backlight. Spun aluminum panel painted to match fixture.
Fixed Dimming Resistor Board (FDRB)	Optional numbered 10-step selector switch allows for fine adjustment of the light levels in the field, repeatable from location to location. Offers dimming from 25% to 100% of the original output. Enclosure is composite material, sealed to protect components for the life of the product.
Photocontrols	**Button Photocell:** The photocontrol will be mounted on the fixture and pre-wired to driver. The electronic button type photocontrol is instant on and will turn on at 1.5 footcandles and will turn off at 2-3 footcandles. See pole spec sheet for pole mounted version. **Twist-Lock Style (Hangstraight Mount):** The photocontrol shall be mounted externally on the hangstraight and pre-wired to driver. The twist lock type photocontrol is instant on with a 3-6 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles. If an **R7** is specified alongside a **BALL** or **SPIKE** style finial on hang-straight, a decorative cap (with window) is included to cover a **STANDARD** photocell. Use the **NO FINIAL** hangstraight option if the **R7** is for use with a **WIRELESS CONTROLLER** .

EPA & Weight Chart

Fixture	1910LED-A	1910LEDRLM18-A	1910LEDRLM24-A	1910LEDRLM32-A
EPA (FT^2)	0.64	0.71	0.79	0.77
Weight (LBS)	23.34	27.52	30.39	33.72

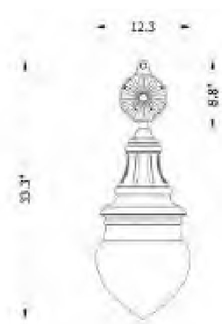
Fixture	1910LEDRLM18-FL	1910LEDRLM24-FL	1910LEDLBS-A	1910LEDLB-A
EPA (FT^2)	0.54	0.62	0.75	0.81
Weight (LBS)	27.61	30.49	28.59	29.88

Fixture	1910LEDLBL-A			
EPA (FT^2)	0.96			
Weight (LBS)	31.72			

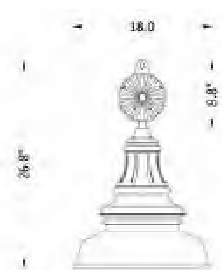
Dimensions

Stem Hung/Chain Hung
(SH44/CH44)
1910LED-A

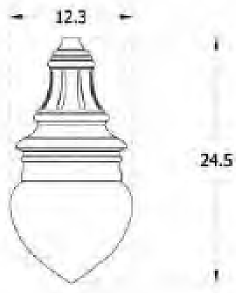
Stem Hung/Chain Hung
(SH44/CH44)
1910LED-RLM18-FL



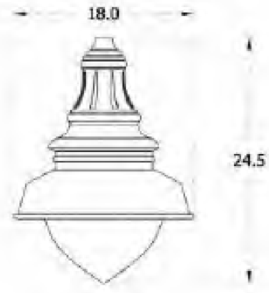
Catenary Mount **(CAT)**
1910LED-A



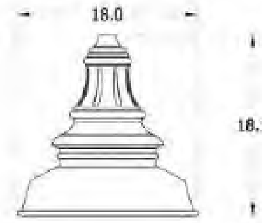
Catenary Mount **(CAT)**
1910LED-RLM18-FL



1910LED-A



1910LED-RLM18-A



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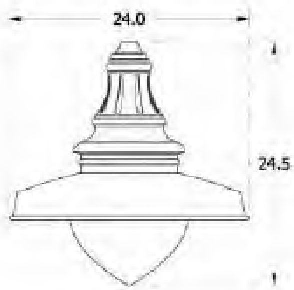
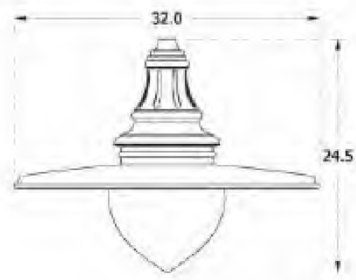


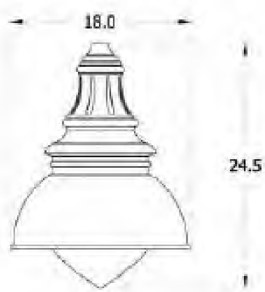
1910LED-RLM24-A

1910LED-RLM24-FL

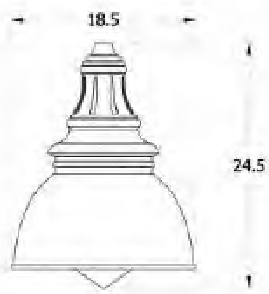


1910LED-RLM32-A

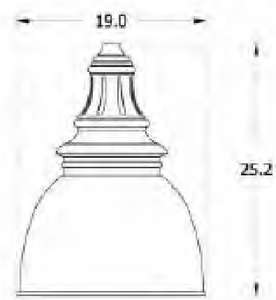
Existing



1910LED-LBS-A



1910LED-LB-A



1910LED-LBL-A

Hangstraight

Horizontal Hang-straights slip fit 4” long by 2-3/8” OD on horizontal tenon

Standard Horizontal Hangstraight, Spike Finial **(HSHS)**

Standard Horizontal Hangstraight, Ball Finial **(HSHB)**

Standard Horizontal Hangstraight, No Finial **(HSHN)**

"EZ" Vertical hangstraight **(EZ)**

Options

NEMA Twist-Lock Photocell **(PE or PE4)**

Fixed Dimming Resistor Board **(FDRB)**

Button Photocell **(PEC)**

7-Pin NEMA Twist-Lock Receptacle **(R7)**

Double Fuse Holder & (2) 3A Fuses **(FHD)**

House Side Shield **(HSS)**

Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	11060	B3U4G3	118.9	11115	B3U4G3	119.5	11095	B2U4G3	119.3	11615	B3U4G3	124.9	93
1L30T_-MDL16	10780	B3U4G3	115.9	10830	B3U4G3	116.5	10810	B2U4G3	116.2	11320	B3U4G3	121.7	93
1L27T_-MDL16	9790	B3U4G3	105.3	9840	B3U4G3	105.8	9825	B2U4G3	105.6	10285	B3U4G3	110.6	93
1L40T_-MDL12	8795	B2U4G2	127.5	8775	B2U4G3	127.2	8750	B2U4G3	126.8	9115	B3U4G2	132.1	69
1L30T_-MDL12	8570	B2U4G2	124.2	8550	B2U4G3	123.9	8525	B2U4G3	123.6	8885	B3U4G2	128.8	69
1L27T_-MDL12	7785	B2U4G2	112.8	7770	B2U4G3	112.6	7745	B2U4G3	112.2	8070	B3U4G2	117.0	69
1L40T_-MDL09	7140	B2U4G2	132.2	7115	B2U4G2	131.8	7110	B1U4G2	131.7	7390	B3U4G2	136.9	54
1L30T_-MDL09	6960	B2U4G2	128.9	6935	B2U4G2	128.4	6930	B1U4G2	128.3	7200	B3U4G2	133.3	54
1L27T_-MDL09	6320	B2U4G2	117.0	6300	B2U4G2	116.7	6295	B1U4G2	116.6	6545	B3U4G2	121.2	54
1L40T_-MDL06	4870	B1U3G2	135.3	4835	B2U3G2	134.3	4840	B1U3G2	134.4	5035	B2U3G2	139.9	36
1L30T_-MDL06	4745	B1U3G2	131.8	4710	B2U3G2	130.8	4715	B1U3G2	131.0	4905	B2U3G2	136.3	36
1L27T_-MDL06	4310	B1U3G2	119.7	4280	B2U3G2	118.9	4285	B1U3G2	119.0	4460	B2U3G2	123.9	36
1L40T_-MDL03	2390	B1U3G1	140.6	2395	B1U3G1	140.9	2390	B1U3G1	140.6	2485	B1U3G1	146.2	17
1L30T_-MDL03	2330	B1U3G1	137.1	2335	B1U3G1	137.4	2330	B1U3G1	137.1	2420	B1U3G1	142.4	17
1L27T_-MDL03	2115	B1U3G1	124.4	2120	B1U3G1	124.7	2115	B1U3G1	124.4	2200	B1U3G1	129.4	17

No Shade, Teardrop Lens **(1910LED-A)**

Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	10575	B3U3G3	113.7	10685	B3U3G3	114.9	10585	B2U3G2	113.8	11060	B3U3G2	118.9	93
1L30T_-MDL16	10305	B3U3G3	110.8	10415	B3U3G3	112.0	10315	B2U3G2	110.9	10780	B3U3G2	115.9	93
1L27T_-MDL16	9365	B3U3G3	100.7	9460	B3U3G3	101.7	9370	B2U3G2	100.8	9790	B3U3G2	105.3	93
1L40T_-MDL12	8370	B2U3G2	121.3	8375	B2U3G2	121.4	8310	B2U3G2	120.4	8680	B3U3G2	125.8	69
1L30T_-MDL12	8155	B2U3G2	118.2	8160	B2U3G2	118.3	8100	B2U3G2	117.4	8460	B3U3G2	122.6	69
1L27T_-MDL12	7410	B2U3G2	107.4	7415	B2U3G2	107.5	7355	B2U3G2	106.6	7685	B3U3G2	111.4	69
1L40T_-MDL09	6815	B2U3G2	126.2	6830	B2U3G2	126.5	6765	B1U3G2	125.3	7075	B3U3G1	131.0	54
1L30T_-MDL09	6640	B2U3G2	123.0	6655	B2U3G2	123.2	6595	B1U3G2	122.1	6895	B3U3G1	127.7	54
1L27T_-MDL09	6035	B2U3G2	111.8	6045	B2U3G2	111.9	5990	B1U3G2	110.9	6265	B3U3G1	116.0	54
1L40T_-MDL06	4625	B1U2G1	128.5	4640	B2U2G2	128.9	4600	B1U2G1	127.8	4810	B2U3G1	133.6	36
1L30T_-MDL06	4505	B1U2G1	125.1	4520	B2U2G2	125.6	4485	B1U2G1	124.6	4685	B2U3G1	130.1	36
1L27T_-MDL06	4095	B1U2G1	113.8	4110	B2U2G2	114.2	4075	B1U2G1	113.2	4260	B2U3G1	118.3	36
1L40T_-MDL03	2280	B1U2G1	134.1	2285	B1U2G1	134.4	2255	B1U2G1	132.6	2385	B1U2G1	140.3	17
1L30T_-MDL03	2220	B1U2G1	130.6	2225	B1U2G1	130.9	2200	B1U2G1	129.4	2325	B1U2G1	136.8	17
1L27T_-MDL03	2020	B1U2G1	118.8	2025	B1U2G1	119.1	1995	B1U2G1	117.4	2110	B1U2G1	124.1	17

RLM Shade, Teardrop Lens **(1910LED-RLM18-A)**

Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	10895	B2U0G2	117.2	10770	B3U0G3	115.8	10850	B2U0G2	116.7	11395	B3U0G2	122.5	93
1L30T_-MDL16	10615	B2U0G2	114.1	10495	B3U0G3	112.8	10575	B2U0G2	113.7	11105	B3U0G2	119.4	93
1L27T_-MDL16	9645	B2U0G2	103.7	9535	B3U0G3	102.5	9605	B2U0G2	103.3	10090	B3U0G2	108.5	93
1L40T_-MDL12	8590	B2U0G2	124.5	8480	B2U0G2	122.9	8625	B2U0G1	125.0	8945	B3U0G1	129.6	69
1L30T_-MDL12	8370	B2U0G2	121.3	8265	B2U0G2	119.8	8405	B2U0G1	121.8	8715	B3U0G1	126.3	69
1L27T_-MDL12	7605	B2U0G2	110.2	7510	B2U0G2	108.8	7635	B2U0G1	110.7	7920	B3U0G1	114.8	69
1L40T_-MDL09	6985	B2U0G2	129.4	6915	B2U0G2	128.1	7015	B2U0G1	129.9	7305	B3U0G1	135.3	54
1L30T_-MDL09	6805	B2U0G2	126.0	6740	B2U0G2	124.8	6835	B2U0G1	126.6	7120	B3U0G1	131.9	54
1L27T_-MDL09	6185	B2U0G2	114.5	6120	B2U0G2	113.3	6210	B2U0G1	115.0	6465	B3U0G1	119.7	54
1L40T_-MDL06	4755	B1U0G1	132.1	4700	B1U0G1	130.6	4780	B1U0G1	132.8	4975	B2U0G1	138.2	36
1L30T_-MDL06	4635	B1U0G1	128.8	4580	B1U0G1	127.2	4660	B1U0G1	129.4	4850	B2U0G1	134.7	36
1L27T_-MDL06	4210	B1U0G1	116.9	4160	B1U0G1	115.6	4230	B1U0G1	117.5	4405	B2U0G1	122.4	36
1L40T_-MDL03	2350	B1U0G1	138.2	2355	B1U0G1	138.5	2350	B1U0G1	138.2	2475	B1U0G1	145.6	17
1L30T_-MDL03	2290	B1U0G1	134.7	2295	B1U0G1	135.0	2290	B1U0G1	134.7	2410	B1U0G1	141.8	17
1L27T_-MDL03	2080	B1U0G1	122.4	2085	B1U0G1	122.6	2080	B1U0G1	122.4	2190	B1U0G1	128.8	17

RLM Shade, Flat Lens **(1910LED-RLM18-FL)**

Existing

Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	9810	B2U2G2	103.3	9450	B2U2G2	101.6	9815	B2U2G2	105.5	9600	B3U2G1	103.2	93
1L30T_-MDL16	9365	B2U2G2	100.7	9210	B2U2G2	99.0	9565	B2U2G2	102.8	9355	B3U2G1	100.6	93
1L27T_-MDL16	8510	B2U2G2	91.5	8365	B2U2G2	89.9	8890	B2U2G2	93.4	8500	B3U2G1	91.4	93
1L40T_-MDL12	7555	B2U2G1	109.5	7475	B2U2G1	108.3	7700	B2U2G1	111.6	7590	B2U2G1	110.0	69
1L30T_-MDL12	7365	B2U2G1	106.7	7285	B2U2G1	105.6	7505	B2U2G1	108.8	7395	B2U2G1	107.2	69
1L27T_-MDL12	6690	B2U2G1	97.0	6620	B2U2G1	95.9	6815	B2U2G1	98.8	6720	B2U2G1	97.4	69
1L40T_-MDL09	6145	B2U2G1	113.8	6085	B2U2G1	112.7	6260	B2U2G1	115.9	6165	B2U2G1	114.2	54
1L30T_-MDL09	5990	B2U2G1	110.9	5930	B2U2G1	109.8	6100	B2U2G1	113.0	6010	B2U2G1	111.3	54
1L27T_-MDL09	5440	B2U2G1	100.7	5385	B2U2G1	99.7	5540	B2U2G1	102.6	5460	B2U2G1	101.1	54
1L40T_-MDL06	4180	B1U2G1	116.1	4130	B1U2G1	114.7	4240	B1U1G1	117.8	4150	B2U1G1	115.3	36
1L30T_-MDL06	4075	B1U2G1	113.2	4025	B1U2G1	111.8	4130	B1U1G1	114.7	4045	B2U1G1	112.4	36
1L27T_-MDL06	3700	B1U2G1	102.8	3655	B1U2G1	101.5	3755	B1U1G1	104.3	3675	B2U1G1	102.1	36
1L40T_-MDL03	2055	B1U1G1	120.9	2025	B1U1G1	119.1	2075	B1U1G1	122.1	2060	B1U1G1	121.2	17
1L30T_-MDL03	2005	B1U1G1	117.9	1975	B1U1G1	116.2	2020	B1U1G1	118.8	2010	B1U1G1	118.2	17
1L27T_-MDL03	1820	B1U1G1	107.1	1795	B1U1G1	105.6	1835	B1U1G1	107.9	1825	B1U1G1	107.4	17

Short Shade, Teardrop Lens **(1910LED-LBS-A)**

Model #	LB SHADE T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	LBL SHADE T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	8955	B3U1G1	96.3	8010	B3U0G1	86.1	93
1L30T_-MDL16	8725	B3U1G1	93.8	7805	B3U0G1	83.9	93
1L27T_-MDL16	7930	B3U1G1	85.3	7090	B3U0G1	76.2	93
1L40T_-MDL12	7065	B2U1G1	100.9	6325	B2U0G1	90.4	70
1L30T_-MDL12	6885	B2U1G1	98.4	6165	B2U0G1	88.1	70
1L27T_-MDL12	6255	B2U1G1	89.4	5600	B2U0G1	80.0	70
1L40T_-MDL09	5710	B2U1G1	105.7	5165	B2U0G1	95.6	54
1L30T_-MDL09	5565	B2U1G1	103.1	5035	B2U0G1	93.2	54
1L27T_-MDL09	5055	B2U1G1	93.6	4575	B2U0G1	84.7	54
1L40T_-MDL06	3880	B2U1G1	107.8	3510	B2U0G1	97.5	36
1L30T_-MDL06	3780	B2U1G1	105.0	3420	B2U0G1	95.0	36
1L27T_-MDL06	3435	B2U1G1	95.4	3110	B2U0G1	86.4	36
1L40T_-MDL03	1910	B1U1G0	112.4	1725	B1U0G0	101.5	17
1L30T_-MDL03	1860	B1U1G0	109.4	1680	B1U0G0	98.8	17
1L27T_-MDL03	1690	B1U1G0	99.4	1525	B1U0G0	89.7	17

Medium and Large Shade, Teardrop Lens
(1910LED-LB-A) & (1910LED-LBL-A)

How to Order

1A		1910LED	LBS	1L	30	T3	MDL06-MDL09	A

Mounting Configuration	Overall Drop Length (In Inches) (2) (3)	Fixture	Shade (4)	LED	CCT - Color Temp (K)	Distribution Type	Driver	Lens
1W Wall Mount **1A** 1 Arm Mount **2A** 2 Arm Mount @ 180° **2A90** 2 Arm Mount @ 90° **3A** 3 Arms @ 120° **3A90** 3 Arms @ 90° **4A** 4 Arms @ 90° **1AM** 1 Arm Mid-Mount **2AM** 2 Arm Mid-Mount @180° **SH44** Stem Hung **CH44** Chain Hung **CAT** Catenary (1)		**1910LED** Acorn, Medium	**LBS** Short Shade, Reno **LB** Medium Shade, Lake Bluff (5) **LBL** Large Shade, Lake Bluff (5) **RLM18** 18" RLM Shade, Park Ridge **RLM24** 24" RLM Shade, Park Ridge **RLM32** 32" RLM Shade, Park Ridge	**1L** 1 LED	**27** 2,700K **30** 3,000K **35** 3,500K **40** 4,000K **50** 5,000K	**T2** Type 2 **T3** Type 3 **T4** Type 4 **T5** Type 5	**MDL03** 120V-277V, 300mA **MDH03** 347V-480V, 300mA **MDL06** 120V-277V, 600mA **MDH06** 347V-480V, 600mA **MDL09** 120V-277V, 900mA **MDH09** 347V-480V, 900mA **MDL12** 120V-277V, 1200mA **MDH12** 347V-480V, 1200mA **MDL16** 120V-277V, 1600mA **MDH16** 347V-480V, 1600mA	**A** Acrylic Clear Teardrop **P** Poly Clear Teardrop **FL** Flat Lens (6)

Notes:

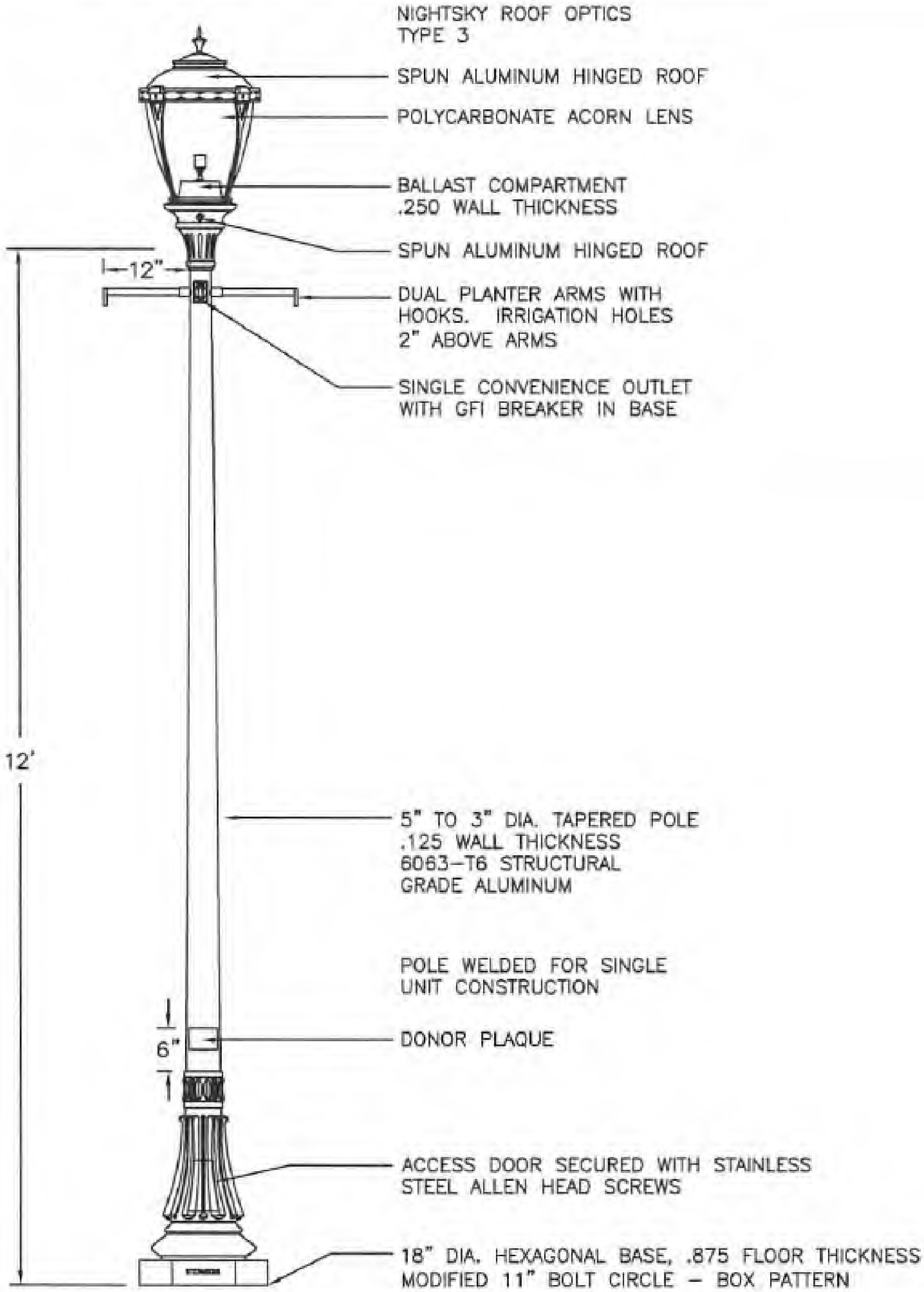
1. Requires EZ hang-straight.
2. Required field for Stem or Chain Mounting Configuration.
3. Minimum 32" Overall Drop Length ("A" Lens). Minimum 25" Overall Drop Length ("FL" Lens).
4. Shade is optional
5. For use with T5 optic only
6. Available with RLM18 and RLM24 only.

How to Order

	PEC	FHD	HSHS			BKT
Optional Control Receptacle (7) (8) (9)	**Optional Control**	**Optional Fuse (12)**	**Optional Hangstraight**	**Optional House Side Shield (13)**	**Optional Fixed Dimming Resistor Board (11)**	**Finish**
R7 7-Pin control receptacle only	**PE** Twist-Lock Photocontrol (120V-277V) (10) **PE4** Twist-Lock Photocontrol (347V-480V) (10) **SC** Shorting Cap (10) **PEC** Electronic Button Photocontrol (120V-277V) (11) **PEC4** Electronic Button Photocontrol (480V) (11)	**FHD** Double Fuse and Holder	**HSHS** Standard Horizontal Hangstraight, Spike Finial **HSHN** Standard Horizontal Hangstraight, No Finial **HSHB** Standard Horizontal Hangstraight, Ball Finial **EZ** Vertical Hangstraight, Large, “EZ” Mount (11)	**HSS** 120° House Side Shield	**FDRB** Fixed Dimming Resistor Board	**BKT** Black Textured (14) **WHT** White Textured (14) **PGT** Park Green Textured (14) **ABZT** Architectural Medium Bronze Textured (14) **DBT** Dark Bronze Textured (14) **CM** Custom Match (15) **OI** Old Iron (15) **RT** Rust (15) **WBR** Weathered Brown (15) **CD** Cedar (15) **WBK** Weathered Black (15) **TT** Two Tone (15) **VG** Verde Green **SI** Swedish Iron **OWGT** Old World Gray Textured

Notes:

7. Not for use with FDRB.
8. Only available with HORIZONTAL hangstraight.
9. Not for use with STEM, CHAIN, CAT, or EZ mounting style.
10. Requires control receptacle.
11. Not for use with R7.
12. Ships loose for installation in base.
13. Not for use with T5 optic.
14. Smooth finishes are available upon request.
15. Custom colors require upcharge.



PART#	EA	ASSEM. ID	MATERIAL	PART#	EA	ASSEM. ID	MATERIAL
113409	1		FIXTURE, 150W HPS ACORN TOP				
212607	1		POLE, 12' DECORATIVE, 11" CIRCLE				

McMinnville Water & Light

DATE	REVISION	APPROVED
7/13/2012	REVISED TO UPDATE CURRENT STANDARDS	JCD

DECORATIVE AERIAL STREETLIGHT

DATE 12/18/06	STERNBERG PART NO. 1130A5P3412T5	
DRAWN JJS	APPROVED JCD	SPEC NO. LD2

Existing

1130ALED / 1130BLED RIPON SERIES

LED

EPA
1.28 (ft^2)
WEIGHT
42 LBS

7 YEAR WARRANTY

LUMEN RANGE
8,160 to 10,225

LIFE SPAN
L70
MINIMUM
100,000
HOURS

UL LISTED

CLICK FOR FAQ's

RATED IP65

JOB NAME

FIXTURE TYPE

MEMO

BUILD A PART NUMBER

ORDERING EXAMPLE: 2A-1130ALED-5P-24L40T5-MDL014-A-PEC-FHD/80PM/4212FP4/SCC/BKT

Mounting Config.	Fixture	Fitter	LED	CCT	Type	Driver	Lens	Option Control Receptacle	Option Control	Option Fuse	Option GFI	Option Term. Block	Option House Side Shield	Arm See Arm Spec Sheets	Pole See Pole Spec Sheets	Finish
PT	1130ALED	5P	12L	30	T3	MDL008	A			FHD	GFI	TB				BK

Mounting Configuration

(Click here to link to mounting configuration specification page)

- 1W
- PT
- 1A
- 1APT
- 2A
- 2A90
- 2APT
- 3A
- 3A90
- 3APT
- 4A
- 4APT
- 1AM
- 2AM
- 450PB

W = Wall Mount **PT** = Post Top **A** = Arm Mount **AM** = Arm Mid-Mount **PB** = Pier Base

Fixture

- 1130ALED
- 1130BLED

Fitter

- 5P
- 990
- 991
- 992
- 993
- 994
- 995
- BD4
- BD5
- BD7
- OL3
- OL4
- C2097

LED

- 24L
- 16L
- 12L

CCT - Color Temperature (K)

- 27(00)
- 30(00)
- 35(00)
- 40(00)
- 50(00)

Type

- T2
- T3
- T4
- T5

Driver

- **MDL018**[1] (120V-277V, 180mA)
- **MDH018**[1] (347V-480V, 180mA)
- **MDL014** (120V-277V, 140mA)
- **MDH014** (347V-480V, 140mA)
- **MDL008**[2] (120V-277V, 80mA)
- **MDH008**[2] (347V-480V, 80mA)

[1] 24L system only.
[2] 12L system only.

Lens

- **A** (Acrylic)
- **P** (Polycarbonate)

Options (Click here to view accessories sheet)

- **R7**[3] 7-Pin control receptacle only
- **PE**[4] Twist-Lock Photocontrol (120V-277V)
- **PE4**[4] Twist-Lock Photocontrol (347V-480V)
- **SC**[2] Shorting Cap
- **PEC** Electronic Button Photocontrol (120V-277V)
- **PEC4** Electronic Button Photocontrol (480V)
- **FHD**[5] Double Fuse and Holder
- **GFI** 15A Duplex GFI for Utility Fitter
- **TB**[3] Terminal Block
- **HSS** House Side Shield
- **BLOC** Back Light Optical Control

[3] For 900 series utility fitter only.
[4] Requires control receptacle.
[5] Ships loose for installation in base.

Arm (Click here to link to arm specification page)

See Arms & Wall Brackets specification sheets.

- 50
- 478
- 70
- 80
- 480
- 55
- 6236
- 579
- TA
- TASCR
- BA

Pole (Click here to link to pole specification page)

See Pole specification sheets.

Finish (Click here to view paint finish sheet)

Standard Finishes[6]

- **BKT** Black Textured
- **WHT** White Textured
- **PGT** Park Green Textured
- **ABZT** Architectural Medium Bronze Textured
- **DBT** Dark Bronze Textured

[6] Smooth finishes are available upon request

Custom Finishes[7]

- **CM** Custom Match
- **OI** Old Iron
- **RT** Rust
- **WBR** Weathered Brown
- **CD** Cedar
- **WBK** Weathered Black
- **TT** Two Tone

[7] Custom colors require upcharge.

Sternberg Select Finishes

- **VG** Verde Green
- **SI** Swedish Iron
- **OWGT** Old World Gray Textured

Specifications

Fixture

The luminaire shall feature a fully cast aluminum decorative cage surrounding the acorn. The cage shall consist of 16 Victorian panels on the ring and 4 slender "Y" shaped supports. The luminaire shall be appointed with a cast aluminum decorative torch finial. The luminaire shall be U.L. listed in U.S. and Canada.

Fitter – Standard

The fitter shall be heavy wall cast aluminum, 356 alloy for high tensile strength. It shall have an 8-1/2" inside diameter opening to attach to the 8" neck of the acorn globe. When ordered with a Sternberg aluminum pole, the fitter shall be welded to the pole top or tenon for safety and to ensure the fixture will be plumb, secure and level over the life of the installation. The fitter shall have a one-piece ring bug gasket to resist insect penetration into lamp assembly.

900 Series Utility Fitter Option

The fitter shall be heavy wall cast aluminum, 360 die cast alloy for high tensile strength. It shall have a 9-1/4" inside diameter opening to attach to the 8" neck of the acorn globe. It shall have a hinged, tool-less entry door that provides open access to all of the components. The 900 series shall have an optional terminal block for ease of wiring, an optional Twist-Lock Photocontrol receptacle, an optional single GFCI outlet for auxiliary power needs. The top mounted driver mounting plate shall be cast aluminum and provide tool-less removal from the housing using 2 finger latches. The fitter shall have a one-piece ring gasket to resist insect penetration into globe assembly. When supplied with GFCI receptacle a hole will be provided for cord and plug installation with the access door closed. When cord and plug is not in use a filler plug will be provided and shall be tethered to the fitter for easy recovery and installation.

LED's

The luminaire shall use high output, high brightness LED's. They shall be mounted in arrays, on printed circuit boards designed to maximize heat transfer to the heat sink surface. The arrays shall be roof mounted to minimize up-light. The LED's and printed circuit boards shall be 100% recyclable; they shall

See next page

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1130ALED / 1130BLED RIPON SERIES

LED

also be protected from moisture and corrosion by a conformal coating of 1 to 3 mils. They shall not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. The LED life rating data shall be determined in accordance with IESNA LM-80. The High Performance white LED's will have a life expectancy of approximately 100,000 hours with not less than 70% of original brightness (lumen maintenance), rated at 25°C. The High Brightness, High Output LED's shall be 5000K (4500K, 3000K, 3500K or 2700K option) color temperature with a minimum CRI of 70. Consult factory for custom color CCT. The luminaire shall have a minimum ______ (see table) delivered initial lumen rating when operated at steady state with an average ambient temperature of 25°C (77°F).

Optics

The luminaire shall be provided with individual, acrylic, refractor type optics applied to each LED. The luminaire shall provide Type ______ (2, 3, 4 & 5) light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79.

BLOC Optic: An optional "Back Light Optical Control" shield can be provided at the factory. This is an internal optic level "House Side Shield" offering significantly reduced backlight and glare while maintaining the original design aesthetics of the luminaire.

Electronic Drivers

The LED driver shall be U.L. Recognized. It shall be securely mounted inside the fixture, for optimized performance and longevity. It shall be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections and fixture installation. It shall have overload as well as short circuit protection, and have a DC voltage output, constant current design, 50/60HZ. It shall be supplied with line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines. It shall be dimmable using a 0-10v signal.

For sources over 50w: The driver shall have a minimum efficiency of 90%. The driver shall be rated at full load with THD<20% and a power factor of greater than 0.90. The driver shall contain over-heat protection.

For sources under 50w: The driver shall have a minimum efficiency of 88%.

Photocontrols

Button Style: On a single assembly the photocontrol shall be mounted on the fixture and pre-wired to driver. On multiple head assembly's the photocontrol shall be mounted in the pole shaft on an access plate. The electronic button type photocontrol is instant on with a 5-10 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles. Photocontrol is 120-277 volt and warranted for 6 years.

Twist-Lock Style: The photocontrol shall be mounted in the utility fitter and pre-wired to driver. The twist lock type photocontrol is instant on with a 3-6 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles. Photocontrol is 120-277 volt and warranted for 6 years.

Warranty

Seven-year limited warranty. See product and finish warranty guide for details.

Finish

Refer to website for details.

Performance

MODEL #	T2 DELIVERED LUMENS	EFFICACY (LPW)	T3 DELIVERED LUMENS	EFFICACY (LPW)	T4 DELIVERED LUMENS	EFFICACY (LPW)	T5 DELIVERED LUMENS	EFFICACY (LPW)	WATTAGE
24L40T_-MDL018	9470	78.9	9465	78.9	9750	81.3	10225	85.2	120
24L30T_-MDL018	9030	75.3	9025	75.2	9295	77.5	9750	81.3	120
24L27T_-MDL018	8165	68.0	8160	68.0	8405	70.0	8815	73.5	120
24L40T_-MDL014	7720	85.8	7720	85.8	8025	89.2	8425	93.6	90
24L30T_-MDL014	7360	81.8	7360	81.8	7650	85.0	8035	89.3	90
24L27T_-MDL014	6655	73.9	6655	73.9	6920	76.9	7265	80.7	90
16L40T_-MDL014	5220	85.6	5145	84.3	5450	89.3	5675	93.0	61
16L30T_-MDL014	4975	81.6	4905	80.4	5195	85.2	5410	88.7	61
16L27T_-MDL014	4500	73.8	4435	72.7	4700	77.0	4890	80.2	61
12L40T_-MDL014	3930	83.6	3910	83.2	4085	86.9	4270	90.9	47
12L30T_-MDL014	3745	79.7	3730	79.4	3895	82.9	4070	86.6	47
12L27T_-MDL014	3390	72.1	3370	71.7	3520	74.9	3680	78.3	47
12L40T_-MDL008	2415	89.4	2400	88.9	2510	93.0	2635	97.6	27
12L30T_-MDL008	2305	85.4	2290	84.8	2395	88.7	2510	93.0	27
12L27T_-MDL008	2080	77.0	2070	76.7	2165	80.2	2270	84.1	27

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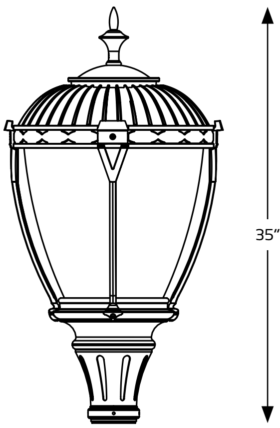
1130ALED / 1130BLED RIPON SERIES

LED

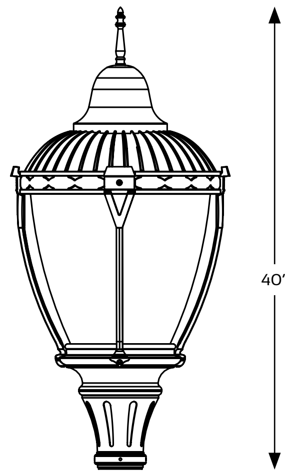
Fixtures

18" W



1130ALED-5P

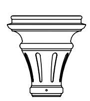
18" W



1130BLED-5P

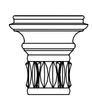
Fitters

10-1/8" W
10-3/8" H



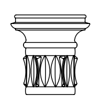
5P
Fits 3" OD
x 3" tall
tenon/pole

10-1/8" W
10-1/8" H



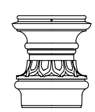
BD4
Fits 4" OD
x 5" tall
tenon/pole

10-1/8" W
10-1/4" H



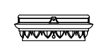
BD5
Fits 5" OD
x 6" tall
tenon/pole

10-1/8" W
11-3/4" H



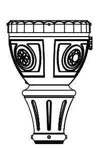
BD7
Fits 7" OD
x 1" tall
tenon/pole

10" W
3-1/4" H



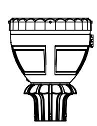
C2097
Fits 7" OD
x 1" tall
tenon/pole

10-1/2" W
15-3/4" H



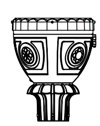
990
Fits 3" OD
x 3" tall
tenon/pole
994
Fits 4" OD
x 3" tall
tenon/pole

10-1/2" W
13-1/8" H



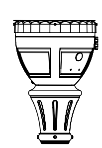
991
Fits 3" OD
x 3" tall
tenon/pole

10-1/2" W
13-1/8" H



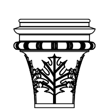
992
Fits 3" OD
x 3" tall
tenon/pole

10-1/2" W
15-3/4" H



993
Fits 3" OD
x 3" tall
tenon/pole
995
Fits 4" OD
x 3" tall
tenon/pole

10-1/2" W
11-3/8" H



OL3
Fits 3" OD
x 3" tall
tenon/pole
OL4
Fits 4" OD
x 3" tall
tenon/pole

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Appendix B:
Lighted Bollard Specification Sheets

3401LED GEORGETOWN SERIES

LED BOLLARDS

DIMENSIONS	7 YEAR WARRANTY	LUMEN RANGE	LIFE SPAN	UL LISTED	CLICK FOR FAQ's
17-3/4" Ø 44" to 96" TALL	7	520-590	L70 MINIMUM 100,000 HOURS	UL	FAQ

JOB NAME

FIXTURE TYPE

MEMO

BUILD A PART NUMBER

ORDERING EXAMPLE: 3401LED-48"-1L40TS-MDL07-CL2/BKT

Model	Overall Height	LED	CCT	Type	Driver	Option Chain Loop	Option Fuse	Option Photocell	Option Receptacle	Finish

Model
• 3401LED • 3401LED-QR

Overall Height (In Inches)
• __" (Available from 44" to 96")

LED
• 1L

CCT - Color Temperature (K)
• 27(00) • 30(00) • 35(00) • 40(00) • 50(00)

Type
• **TS** (Symmetric)

Driver
• **MDL07** (120V-277V, 700mA)
• **MDH07** (347V-480V, 700mA)

Options (Click here to view accessories sheet)
• **CL1** Single Chain Loop
• **CL2** Double Chain Loops at 180°
• **FHD**[1] Double Fuse and Holder
• **PCD**[2] Electronic Button Photocontrol, mounted on an access door (120V-277V)
• **PCD4**[2] Electronic Button Photocontrol, mounted on an access door (480V)
• **GFI LPIUC**[2] 15 Amp duplex GFCI receptacles with a low-profile in-use cover
• **GFI IUC**[2] 15 Amp duplex GFCI receptacles with a standard in-use cover
• **USB LPIUC**[2] 15 Amp duplex USB/Receptacle combo with a low-profile in-use cover (NON-GFI)
• **USB IUC**[2] 15 Amp duplex USB/Receptacle combo with a standard in-use cover (NON-GFI)
• **GFI IB**[3] 15 Amp duplex GFCI receptacle in pole base, includes mouse hole on door for wire access.
• **USB IB**[3] 15 Amp duplex USB/Receptacle combo in pole base, includes mouse hole on door for wire access (NON-GFI)

[1] Ships loose for installation in base.
[2] Accessory requires 60" minimum height.
[3] Cannot be used with QR (Quick-Release) option.

Finish
Standard Finishes[4] (Click here to view paint finish sheet)
• **BKT** Black Textured
• **WHT** White Textured
• **PGT** Park Green Textured
• **ABZT** Architectural Medium Bronze Textured
• **DBT** Dark Bronze Textured

[4] Smooth finishes are available upon request.

Sternberg Select Finishes
• **VG** Verde Green
• **SI** Swedish Iron
• **OWGT** Old World Gray Textured

Custom Finishes[5]
• **CM** Custom Match
• **OI** Old Iron
• **RT** Rust
• **WBR** Weathered Brown
• **CD** Cedar
• **WBK** Weathered Black
• **TT** Two Tone

[5] Custom colors require upcharge.

Specifications

General
Traditional ornamental cast aluminum bollard with removable cap. The bollard includes 12 vertical slots and an internal white acrylic lens which creates uniform illumination with a high level of visual comfort. The bollard shall be UL listed in US and Canada .

Construction
The bollard is made of heavy wall 356 alloy cast aluminum with a 3/4" thick floor cast as an integral part of the bollard. The high tensile aluminum shaft shall be double circumferentially welded internally and externally to the bollard for added strength. The removable bollard cap is cast aluminum.

Quick-Release Mounting (Optional)
The bollard can include an optional quick release mount in lieu of anchor bolts, which allows for tool-less removal of the bollard for convenience or emergency access. The burial portion shall be installed in ground flush with grade, it shall be made of aluminum extrusion and shall have a wiring compartment, keyway and flexible aircraft cable connection system for securing the bollard to the ground. The removable bollard portion shall have a mated extension and anti-rotation key, along with a slot in the base for a lock to externally attach to the aircraft cable loop (LOCK BY OTHERS). The system comes with a quick release power connection for safety.

LED's
The luminaire shall use high output, high brightness LED's, consisting of a two piece assembly complete with Chip on Board (COB) LED component and COB holder frame. The LED's and printed circuit boards shall be 100% recyclable; they shall also be protected from moisture and corrosion by a conformal coating of 1 to 3 mils. They shall not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. The LED life rating data shall be determined in accordance with IESNA LM-80. The High Performance white LED's will have a life expectancy of approximately 100,000 hours with not less than 70%

See next page

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of original brightness (lumen maintenance), rated at 25°C. The High Brightness, High Output LED's shall be 4000K (2700K, 3000K, 3500K or 5000K option) color temperature with a minimum of 70 CRI. Consult factory for custom color CCT. The luminaire shall have a minimum ______ (see table) delivered initial lumen rating when operated at steady state with an average ambient temperature of 25°C (77°F)

Optics

The luminaire shall be provided with an individual collimating type acrylic optic applied to the COB (Chip On Board) LED assembly. The luminaire shall provide a symmetric distribution with near perfect surface brightness and uniformity.

Electronic Driver

The LED driver shall be U.L. Recognized. It shall be securely mounted inside the bollard, for optimized performance and longevity. It shall be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections and fixture installation. It shall have overload, overheat and short circuit protection, and have a DC voltage output, constant current design, 50/60HZ. It shall be supplied with line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines. It shall be a high efficiency driver with a THD less than 20% and a high power factor greater than .9. It shall be dimming capable using a 0-10v signal, consult factory for more information.

Installation

Four 1/2" diameter, hot-dipped galvanized "L" type anchor bolts shall be provided with the bollard for anchorage, they shall be mounted in a 12" bolt circle. A door shall be provided for wiring and anchor bolt access. It shall be secured with tamper proof stainless steel hardware. Post will be provided with a grounding stud mounted on the base floor opposite the access door.

Photocell

The photocontrol shall be mounted on the bollard. The electronic button type photocontrol is instant on with a 5-10 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles. Photocontrol is 120-277 volt and warranted for 6 years.

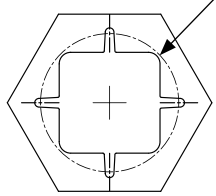
Warranty

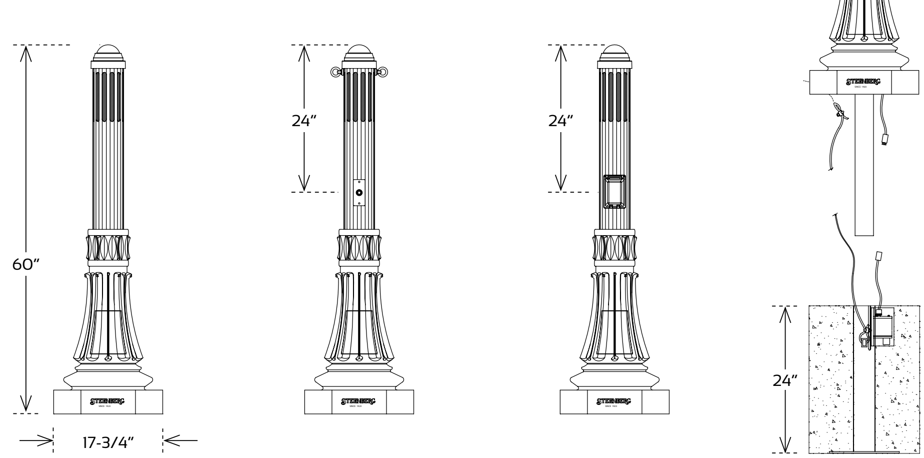
Seven-year limited warranty. See product and finish warranty guide for details.

Finish

Refer to website for details.

Bollards





3401LED-60"

PCD & CL2
Optional Photocell & Double Chain Loops

GFI LPIUC
Optional Duplex GFCI

QR
Optional Quick Release Mount

Performance

LIGHT SOURCE	TS DELIVERED LUMENS	EFFICACY (LPW)	WATTAGE
1L40TS-MDL07	590	19.7	30
1L30TS-MDL07	575	19.2	30
1L27TS-MDL07	520	17.3	30

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4555LED PARKSIDE SERIES

LED BOLLARDS

DIMENSIONS	7 YEAR WARRANTY	LUMEN RANGE	LIFE SPAN	UL LISTED	CLICK FOR FAQ's
9" Ø 24" to 96" TALL	7	520-590	L70 MINIMUM 100,000 HOURS		

JOB NAME

FIXTURE TYPE

MEMO

BUILD A PART NUMBER

ORDERING EXAMPLE: 4555LED-42"-1L40TS-MDL07-CL2/BKT

Model	Overall Height	LED	CCT	Type	Driver	Option Chain Loop	Option Fuse	Option Photocell	Option Receptacle	Finish

Model
• 4555LED

Overall Height (In Inches)
• __" (Available from 24" to 96")

LED
• 1L

CCT - Color Temperature (K)
• 27(00) • 30(00) • 35(00) • 40(00) • 50(00)

Type
• **TS** (Symmetric)

Driver
• **MDL07** (120V-277V, 700mA)
• **MDH07** (347V-480V, 700mA)

Options (Click here to view accessories sheet)
• **CL1** Single Chain Loop
• **CL2** Double Chain Loops at 180°
• **FHD**[1] Double Fuse and Holder
• **PCD**[2] Electronic Button Photocontrol, mounted on an access door (120V-277V)
• **PCD4**[2] Electronic Button Photocontrol, mounted on an access door (480V)
• **GFI LPIUC**[2] 15 Amp duplex GFCI receptacles with a low-profile in-use cover
• **GFI IUC**[2] 15 Amp duplex GFCI receptacles with a standard in-use cover
• **USB LPIUC**[2] 15 Amp duplex USB/Receptacle combo with a low-profile in-use cover
• **USB IUC**[2] 15 Amp duplex USB/Receptacle combo with a standard in-use cover

[1] Ships loose for installation in base.
[2] Accessory requires 30" minimum height.

Finish
Standard Finishes[3] (Click here to view paint finish sheet)
• **BKT** Black Textured
• **WHT** White Textured
• **PGT** Park Green Textured
• **ABZT** Architectural Medium Bronze Textured
• **DBT** Dark Bronze Textured

[3] Smooth finishes are available upon request.

Sternberg Select Finishes
• **VG** Verde Green
• **SI** Swedish Iron
• **OWGT** Old World Gray Textured

Custom Finishes[4]
• **CM** Custom Match
• **OI** Old Iron
• **RT** Rust
• **WBR** Weathered Brown
• **CD** Cedar
• **WBK** Weathered Black
• **TT** Two Tone

[4] Custom colors require upcharge.

Specifications

General
Traditional ornamental cast aluminum bollard with removable cap. The bollard includes 12 vertical slots and an internal white acrylic lens which creates uniform illumination with a high level of visual comfort. The bollard shall be UL listed in US and Canada.

Construction
The bollard is made of heavy wall 356 alloy cast aluminum with a 3/4" thick floor cast as an integral part of the bollard. The high tensile 5" aluminum shaft shall be double circumferentially welded internally and externally to the bollard for added strength. The removable bollard cap is cast aluminum.

LED's
The luminaire shall use high output, high brightness LED's, consisting of a two piece assembly complete with Chip on Board (COB) LED component and COB holder frame. The LED's and printed circuit boards shall be 100% recyclable; they shall also be protected from moisture and corrosion by a conformal coating of 1 to 3 mils. They shall not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. The LED life rating data shall be determined in accordance with IESNA LM-80. The High Performance white LED's will have a life expectancy of approximately 100,000 hours with not less than 70% of original brightness (lumen maintenance), rated at 25°C. The High Brightness, High Output LED's shall be 4000K (2700K, 3000K, 3500K or 5000K option) color temperature with a minimum of 70 CRI. Consult factory for custom color CCT. The luminaire shall have a minimum ______ (see table) delivered initial lumen rating when operated at steady state with an average ambient temperature of 25°C (77°F)

Optics
The luminaire shall be provided with an individual collimating type acrylic optic applied to the COB (Chip On Board) LED assembly. The luminaire shall provide a symmetric distribution with near perfect surface brightness and uniformity.

Electronic Driver
The LED driver shall be U.L. Recognized. It shall be securely mounted inside the bollard, for optimized performance and longevity. It shall be supplied with a quick-disconnect electrical connector on the power supply, providing

See next page

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4555LED PARKSIDE SERIES

LED BOLLARDS

easy power connections and fixture installation. It shall have overload, overheat and short circuit protection, and have a DC voltage output, constant current design, 50/60HZ. It shall be supplied with line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines. It shall be a high efficiency driver with a THD less than 20% and a high power factor greater than .9. It shall be dimming capable using a 0-10v signal, consult factory for more information.

Installation

Four 1/2" diameter, hot-dipped galvanized "L" type anchor bolts shall be provided with the bollard for anchorage, they shall be mounted in a 7" bolt circle. The bollard will be provided with a slipping base cover which shall be secured with tamper proof stainless steel hardware, the baseplate includes a grounding stud.

Photocell

The photocontrol shall be mounted on the bollard. The electronic button type photocontrol is instant on with a 5-10 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles. Photocontrol is 120-277 volt and warranted for 6 years.

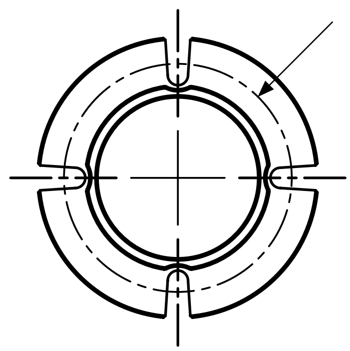
Warranty

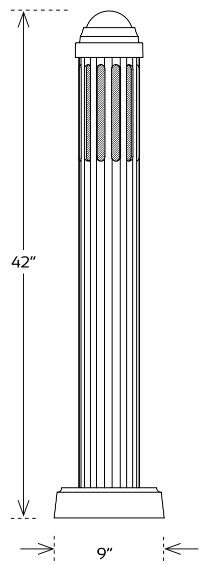
Seven-year limited warranty. See product and finish warranty guide for details.

Finish

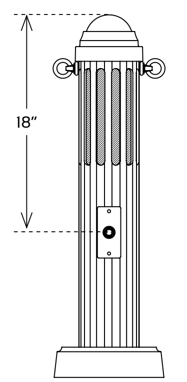
Refer to website for details.

Bollards

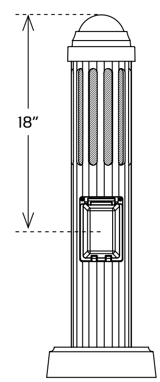




4555LED-42"



PCD & CL2
Optional Photocell & Double Chain Loops



GFI LPIUC
Optional Duplex GFCI

Performance

LIGHT SOURCE	TS DELIVERED LUMENS	EFFICACY (LPW)	WATTAGE
1L40TS-MDL07	590	19.7	30
1L30TS-MDL07	575	19.2	30
1L27TS-MDL07	520	17.3	30

SternbergLighting
ESTABLISHED 1923 / EMPLOYEE OWNED

800-621-3376
555 Lawrence Ave., Roselle, IL 60172
info@sternberglighting.com
www.sternberglighting.com

Catalog Number	
Notes	Type

WDBOLED

Wadsworth LED Series:
Cast Aluminum Bollard

General Description
The Wadsworth is a decorative bollard which provides a fully integrated LED solution to complement the full line of decorative posts by transitioning flawlessly from the street to pedestrian walkway.

While maintaining the period style, the electronics are engineered to provide energy-efficient lighting and minimize maintenance components. Our bollards offer superior finish through the application of a polyester powder coat finish.

Intended use: Bollard for city streetscapes, public areas and parks, higher education campuses, paths and walkways.

Mechanical Specifications
The luminaire housing shall:
- Be heavy grade A356.1 cast aluminum (aluminum with <1% copper)
- Wet locations listed
- One-piece casting with a removable top
- Optical assembly is secured inside the shaft
- All welding shall be per ANSI/AWS D1.2-90
- All welders shall be certified per Section 5 of ANSI/AWS D1.2-90
- (4) ¾" diameter by 18" long, hot dip galvanized L-type anchors bolts are provided and are to be installed on a 10.5" bolt circle
- Access door opening for anchor bolts and wiring access is 3" x 5" x 4.5"
- Optional Field or Factory installed hot-dip galvanized direct burial base for mounting without a concrete footing

The finish shall:
- Utilize a polyester powder coat paint to ensure maximum durability.
- Rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117) on standard and RAL finish options.
- RAL (RALxxxxSDCR) paint colors are Super Durable Corrosion Resistant, 80% gloss.

Electrical Specifications
The driver shall meet the following requirements:
- Certified by UL or CSA for wet locations
- A factory programmable electronic driver with 0-10V dimming
- LEDs shall have a minimum of 70 CRI and available in 2700K, 3000K and 4000K CCT
- The electrical system shall be designed to meet ANSI/IEEE C62.41.2 and shall offer a 10kV/5kA surge protection, fail off, as standard with an optional 20kV/10kA surge protection, fail off with indicator light, option
- Optional GFI receptacle with wet-location cover, not CSA listed

Optical Specificationss
- IP65 light engine
- Type 5 distribution with a translucent smooth white acrylic outer lens

Control Options
The control options shall include, but not limited to, the following:
- Field adjustable output to adjust output to luminaire - AO
- Button style photocontrol

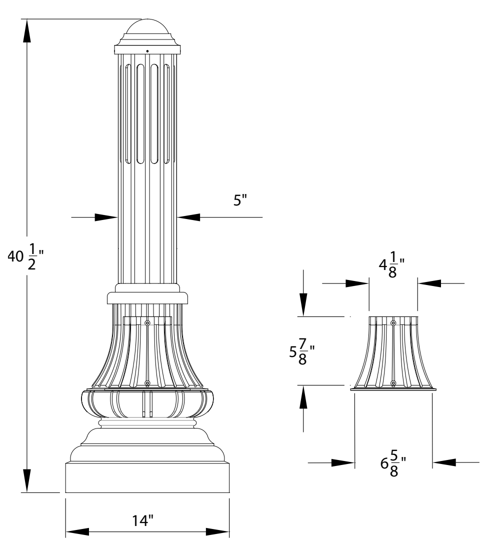
Certification and Standards
- UL 1598 - Wet Locations Safety Listing
- Suitable for ambient temperatures -40°C to 40°C

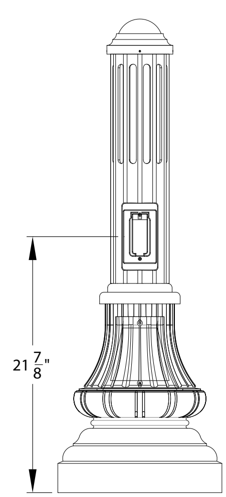
Warranty
5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

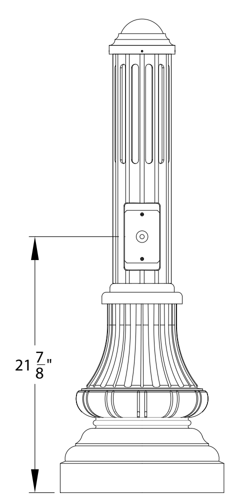
Important Installation Notes:
- Factory-supplied templates must be used when setting anchor bolts. Acuity Brands Lighting will not accept claim for incorrect anchorage placement due to failure to use factory template.
- Acuity Brands Lighting is not responsible for the foundation design.

DIMENSIONAL DATA

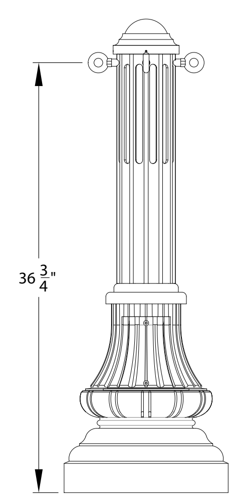




Receptacle Option



Photocell Option



Eyebolt Option

(more than 1 can be specified)

Maximum standard weight - 43 lbs.
Maximum weight with Direct Burial Base Option - 43 lbs.

ORDERING INFORMATION

Example: WDBOLED CA P40 30K MVOLT NIO5 AWS BK EB36B EB36D

Series	Material	LED Performance Package	Color Temperature	Voltage	Optics
WDBOLED	CA Cast Aluminum	P10 12 watts	27K 2700K	MVOLT Auto-sensing voltage (120 thru 277) 50/60 HZ	NIO5 No internal reflector, Type 5
		P20 19 watts	30K 3000K	HVOLT Auto-sensing voltage (347-480) 50/60 HZ	
		P30 25 watts	40K 4000K	120V 120V 50/60 HZ	
		P40 32 watts		277V 208-277V 50/60 HZ	
				347V 347V 50/60 HZ	

Lens	Color	Options / Controls
AWS Acrylic White Smooth translucent outer lens	BK Black	AO Field adjustable output device
	BZ Bronze	EB36A Eyebolt (for chain by others) at 36" and 0° counterclockwise from door
	GH Graphite	EB36B Eyebolt (for chain by others) at 36" and 90° counterclockwise from door
	GN Green	EB36C Eyebolt (for chain by others) at 36" and 180° counterclockwise from door
	GR Grey	EB36D Eyebolt (for chain by others) at 36" and 270° counterclockwise from door
	PP Primer Paint	PEC1 Button style photocontrol (120V)
	WH White	PEC2 Button style photocontrol (208V-277V)
	CMC Custom Match Color	PEC3 Button style photocontrol (347V)
	RALxxxxSDCR RAL Super Durable Corrision Resistant, 80% Gloss Paint, replace xxxx with RAL number.	DBB Factory Installed direct burial base for mounting without a concrete footing
	XX Standard Finish, TBD	FGE GFI receptacle externally mounted with wet-location cover (120V)
		PIHEX Security Screws - Pin in hex exterior fasteners
		TB 3 position terminal block
		20KV Extreme surge protection 20kV/10kA, fail off with indicator light

Accessories: *Order as separate catalog number.*	
ADBB2R3	Bolt on 24" long, 3.5" Schedule 40 hot-dip galvanized steel pipe with 2" x 8" wireway opening: attachment hardware included
AB-31-4	Anchor bolt set
TMP-78	Anchor bolt template

OPTIONS MATRIX

Mounting		Performance Package				Voltage					Optic	Lens	Options												
		P10	P20	P30	P40	MVOLT	HVOLT	120V	277V	347V	NI05	AWS	AO	DBB	EB36A	EB36B	EB36C	EB36D	FGE	PEC1	PEC2	PEC3	PIHEX	TB	20KV
Performance Package	P10		N	N	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P20	N		N	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P30	N	N		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P40	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Voltage	MVOLT	Y	Y	Y	Y		N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y
	HVOLT	N	N	Y	Y	N		N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y
	120V	Y	Y	Y	Y	N	N		N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y
	277V	Y	Y	Y	Y	N	N	N		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y
	347V	N	N	Y	Y	N	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y
Optic	NI05	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lens	AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Options	AO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
	DBB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	EB36A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	EB36B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y
	EB36C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y
	EB36D	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y
	FGE	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y
	PEC1	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N	Y	Y	Y
	PEC2	Y	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		N	Y	Y	Y
	PEC3	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N		Y	Y	Y
	PIHEX	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
	TB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y
	20KV	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

LUMEN AMBIENT TEMPERATURE (LAT) MULTIPLIERS

Use the factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient Temp		Lumen Multiplier
°C	°F	P10 - P40
0	32	1.04
5	41	1.03
10	50	1.02
15	59	1.02
20	68	1.01
25	77	1.00
30	86	0.99
35	94	0.98
40	104	0.97

PROJECTED LED LUMEN MAINTENANCE

Data references the extrapolated performance projections for the platforms noted in 25C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11). To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Lumen Maintenance - LLD (Same for all LED packages)									L70 Hrs
P10 - P40	Hours	0	25,000	36,000	50,000	60,000	75,000	100,000	
	Factor	1	0.97	0.96	0.95	0.94	0.93	0.91	> 60,000

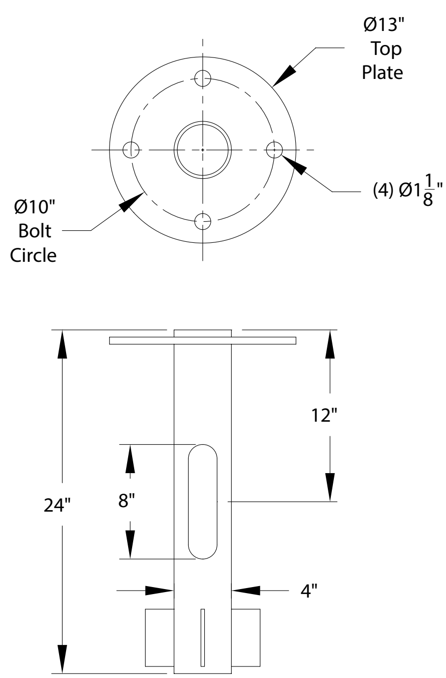
PERFORMANCE DATA

Performance Package	Distribution	Input Watts	27K (2700K CCT, 70 CRI)					30K (3000K CCT, 70 CRI)					40K (4000K CCT, 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P10	NIO5 AWS	11	859	78	0	3	1	870	79	0	3	1	916	83	0	3	1
P20	NIO5 AWS	19	1,338	70	1	4	1	1,356	71	1	4	1	1,427	75	1	4	1
P30	NIO5 AWS	24	1,738	72	1	4	2	1,761	73	1	4	2	1,853	77	1	4	2
P40	NIO5 AWS	29	2,119	73	1	4	2	2,147	74	1	4	2	2,259	78	1	4	2

COMPONENTS & OPTIONS DATA

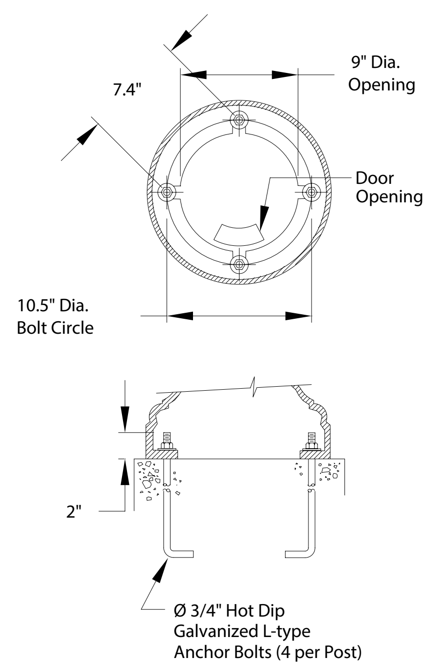
AO
Manual field adjustable output dimming device

20KV
Safeguard your investment from extreme voltage spikes with our new Extreme 20kV/10kA SPD



DBB
Direct Burial Base

Weight - 30 lbs.



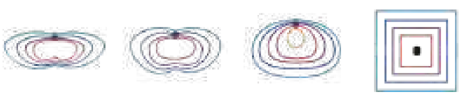
Base Detail

Appendix C:
Dark Sky Compliant Luminaire Options

Project Name ______________________ **Qty** ________

Type ________ **Catalog / Part Number** ______________________

Distribution Type



Type 2 | Type 3 | Type 4 | Type 5

CCT - Color Temp (K)

2,700K | 3,000K | 3,500K | 4,000K | 5,000K

7 Year Warranty

IP Rating

IP 66

Certifications

c UL us LISTED

Description

The 1910LED series is a medium scale decorative pendant luminaire which consists of a decorative cast aluminum fitter, and optional heavy gauge spun aluminum shade with integral lens frame. The optical enclosure is sealed against moisture and dust penetration.

Features

Mounting Configuration	**1W:** Wall Mount	**1A:** 1 Arm Mount
	2A: 2 Arm Mount @ 180°	**2A90:** 2 Arm Mount @ 90°
	3A: 3 Arms @ 120°	**3A90:** 3 Arms @ 90°
	4A: 4 Arms @ 90°	**1AM:** 1 Arm Mid-Mount
	2AM: 2 Arm Mid-Mount @180°	**SH44:** Stem Hung
	CH44: Chain Hung	**CAT:** Catenary
Optional Control Receptacle	**R7:** 7-Pin control receptacle only	
Optional Control	**PE:** Twist-Lock Photocontrol (120V-277V) **PE4:** Twist-Lock Photocontrol (347V-480V) **SC:** Shorting Cap **PEC:** Electronic Button Photocontrol (120V-277V) **PEC4:** Electronic Button Photocontrol (480V)	
Optional Fuse	**FHD:** Double Fuse and Holder	
Optional Hangstraight	**HSHS:** Standard Horizontal Hangstraight, Spike Finial **HSHN:** Standard Horizontal Hangstraight, No Finial **HSHB:** Standard Horizontal Hangstraight, Ball Finial **EZ:** Vertical Hangstraight, Large, “EZ” Mount	
Optional House Side Shield	**HSS:** 120° House Side Shield	
Optional Fixed Dimming Resistor Board	**FDRB:** Fixed Dimming Resistor Board	

Physical

Fixture	**1910LED:** Acorn, Medium

Shade	**LBS:** Short Shade, Reno **LB:** Medium Shade, Lake Bluff **LBL:** Large Shade, Lake Bluff **RLM18:** 18" RLM Shade, Park Ridge **RLM24:** 24" RLM Shade, Park Ridge **RLM32:** 32" RLM Shade, Park Ridge
Lens	**A:** Acrylic Clear Teardrop **P:** Poly Clear Teardrop **FL:** Flat Lens
Finish	**BKT:** Black Textured **WHT:** White Textured **PGT:** Park Green Textured **ABZT:** Architectural Medium Bronze Textured **DBT:** Dark Bronze Textured **CM:** Custom Match **OI:** Old Iron **RT:** Rust **WBR:** Weathered Brown **CD:** Cedar **WBK:** Weathered Black **TT:** Two Tone **VG:** Verde Green **SI:** Swedish Iron **OWGT:** Old World Gray Textured

Light Source

LED	**1L:** 1 LED	
CCT - Color Temp (K)	**27:** 2,700K **35:** 3,500K **50:** 5,000K	**30:** 3,000K **40:** 4,000K
Distribution Type	**T2:** Type 2 **T4:** Type 4	**T3:** Type 3 **T5:** Type 5

Electrical and control

Driver	**MDL03:** 120V-277V, 300mA **MDL06:** 120V-277V, 600mA **MDL09:** 120V-277V, 900mA **MDL12:** 120V-277V, 1200mA **MDL16:** 120V-277V, 1600mA	**MDH03:** 347V-480V, 300mA **MDH06:** 347V-480V, 600mA **MDH09:** 347V-480V, 900mA **MDH12:** 347V-480V, 1200mA **MDH16:** 347V-480V, 1600mA

Specifications

Housing

Cast Aluminum housing with an anodized aluminum heat sink.

Hang-Straight

A hang-straight transition is required for most hanging mounting configurations.

The Standard **(HSHx)** is a cast aluminum ball and swivel horizontal hang-straight. Available with a spike **(S)**, a ball **(B)**, or no finial **(N)**. The hang-straight slips a **4” long by 2-3/8” OD** horizontal tenon.

The **(EZ)** is a cast stainless steel ball and swivel vertical hang-straight. The special 2-part design allows for easy installation. It is factory installed under an arm and on the fixture.

Catenary Mount

The Catenary mount option includes a cast aluminum span wire clamp, which accommodates cables **1/4"-5/8"** in diameter. Below the clamp is a decorative cast aluminum wire box and cover which transitions to the **EZ** vertical Hangstraight for fixture attachment.
Aircraft Cable by others.

Lens	Clear textured acorn offered in impact resistant DR acrylic or UV stabilized polycarbonate material. An injection molding process adds a textured surface for glare mitigation.
Shades	Optional heavy gauge spun aluminum shades in a variety of styles adds decorative elements and helps control up light. Existing shades on site CANNOT be reused, a NEW shade must be ordered.
Hardware	Includes Stainless steel hardware. Most finishes will include hardware with a Black Oxide conversion coating. Light finishes will get non-color coated hardware **(Whites and Silvers)**
UL Listing	UL listed per UL1598 and CSA 22.2 No. 250.0 for the United States and Canada. Suitable for Wet Locations.
Electronic Driver	The LED driver is UL recognized and will be securely mounted inside the fixture, for optimized performance and longevity. It will be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections for fixture installation and maintenance. It will have DC voltage output and be a constant current design. It runs at 50/60HZ and will have overload, overheat, and short circuit protection. It will be supplied with a supplemental line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines. It will be a high efficiency driver with a THD less than 20% and a high-power factor greater than .9. It will be dimming capable using a 0-10V signal, consult factory for more information.
IP Rating	IP66 rated
Finish	Our 6 Stage Polyester Powder coat paint system offers a beautiful high-end finish that holds up to even the most extreme environments. Each part is inspected for quality and consistency before being released for shipment. Our system exceeds AAMA 2604, AAMA 2605, ASTM D523 and ASTM D4214 requirements.
Traditional Finish	Traditional paint finishes are available in Sternberg Lighting's Traditional product line. A range of colors help accent the decorative elements on the product. Finishes are available in textured or smooth. Available finishes include: **Black, White, Park Green, Architectural Medium Bronze and Dark Bronze**
Sternberg Select Finish	The Sternberg Select antique-inspired palette adds a touch of vintage elegance to modern applications. **Old World Gray Textured** is a 1 part powder coat with metallic flakes. **Verde Green and Swedish Iron** is a 2 part finish that includes a powder coat base coat with a hand applied antique top coat. The top coat is unique to each application and changes over time.
Custom Finish	Custom finishes are offered to adapt to any application. **Rust, Weathered Brown and Cedar** are special 1 part powder coat finishes with a distinctive look. **Old Iron and Weathered Black** are 2 part finishes that includes a powder coat base coat with a hand applied antique top coat. The top coat is unique to each application and changes over time. **Two-Tone and Custom Match** options are available to blend sternberg product with the site, consult factory for more information.
Warranty	7-year limited warranty. See Website for Terms and Conditions.
LEDs	The luminaire shall use high output, high brightness LED's, consisting of a two piece assembly complete with Chip on Board (COB) LED component and COB holder frame. The LEDs shall be 100% recyclable; not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. Lumen maintenance shall be determined in accordance with IESNA TM-21, based on LED manufacturer LM-80 test data of no less than 6,000 hours and in-situ testing of the luminaire by an NVLAP accredited Energy Efficient Lighting Products lab. The high-performance white LEDs will have a predicted lumen depreciation of approximately 100,000 hours with greater than 70% of initial output at 25°C. The High Brightness, High Output LED's shall be 4000K (2700K, 3000K, 3500K or 5000K option) correlated color temperature (CCT) with a 70 (minimum) color rendering index (CRI). Consult factory for custom color CCT. The luminaire shall have a minimum ______ (see table) delivered initial lumen rating when operated at steady state with an average ambient temperature of 25°C (77°F). **CCT Lumen Derate Values from 4,000K** 2,700K (80+ CRI)=**.89** 3,000K (70+ CRI)=**.97** 3,500K (80+ CRI)=**.93** 5,000K (70+ CRI)=**1.01**
Optics	The luminaire shall be provided with individual, refractor type optics applied to each LED. The luminaire shall provide Type ___ (2, 3, 4 or 5) light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79.

Backlight Optical Control	**Internal House Side Shield (HSS):** An optional **INTERNAL** 120° House Side Shield helps control backlight. Spun aluminum panel painted to match fixture.
Fixed Dimming Resistor Board (FDRB)	Optional numbered 10-step selector switch allows for fine adjustment of the light levels in the field, repeatable from location to location. Offers dimming from 25% to 100% of the original output. Enclosure is composite material, sealed to protect components for the life of the product.
Photocontrols	**Button Photocell:** The photocontrol will be mounted on the fixture and pre-wired to driver. The electronic button type photocontrol is instant on and will turn on at 1.5 footcandles and will turn off at 2-3 footcandles. See pole spec sheet for pole mounted version. **Twist-Lock Style (Hangstraight Mount):** The photocontrol shall be mounted externally on the hangstraight and pre-wired to driver. The twist lock type photocontrol is instant on with a 3-6 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles. If an **R7** is specified alongside a **BALL** or **SPIKE** style finial on hang-straight, a decorative cap (with window) is included to cover a **STANDARD** photocell. Use the **NO FINIAL** hangstraight option if the **R7** is for use with a **WIRELESS CONTROLLER** .

EPA & Weight Chart

Fixture	1910LED-A	1910LEDRLM18-A	1910LEDRLM24-A	1910LEDRLM32-A
EPA (FT^2)	0.64	0.71	0.79	0.77
Weight (LBS)	23.34	27.52	30.39	33.72

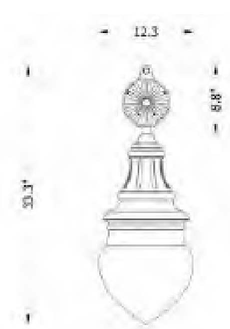
Fixture	1910LEDRLM18-FL	1910LEDRLM24-FL	1910LEDLBS-A	1910LEDLB-A
EPA (FT^2)	0.54	0.62	0.75	0.81
Weight (LBS)	27.61	30.49	28.59	29.88

Fixture	1910LEDLBL-A			
EPA (FT^2)	0.96			
Weight (LBS)	31.72			

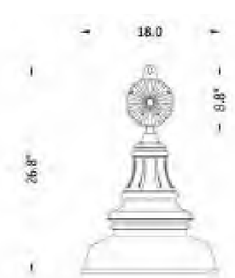
Dimensions

Stem Hung/Chain Hung
(SH44/CH44)
1910LED-A

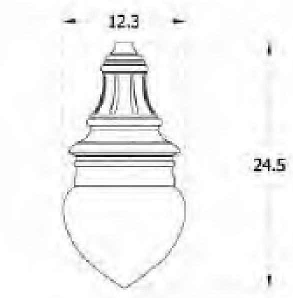
Stem Hung/Chain Hung
(SH44/CH44)
1910LED-RLM18-FL



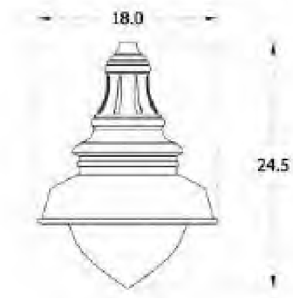
Catenary Mount **(CAT)**
1910LED-A



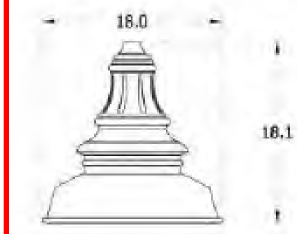
Catenary Mount **(CAT)**
1910LED-RLM18-FL



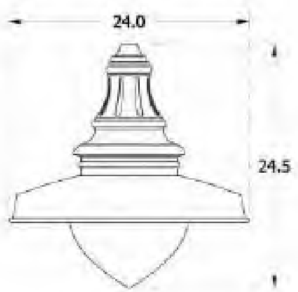
1910LED-A



1910LED-RLM18-A

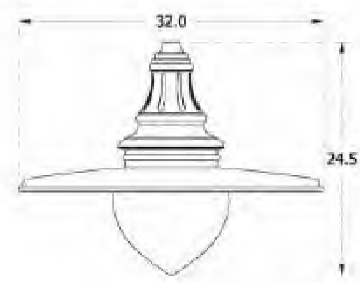


1910LED-RLM18-FL



1910LED-RLM24-A

1910LED-RLM24-FL



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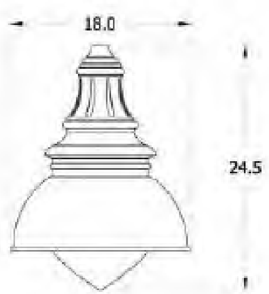
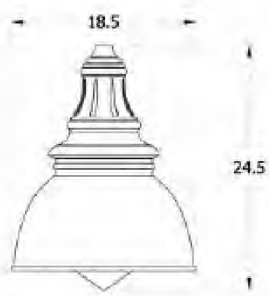
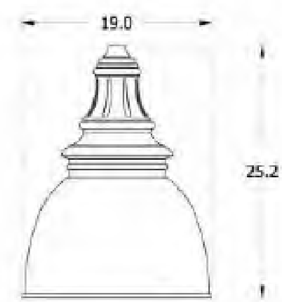


1910LED-LBS-A



1910LED-LB-A



1910LED-LBL-A

Hangstraight

Horizontal Hang-straights slip fit 4” long by 2-3/8” OD on horizontal tenon

Standard Horizontal Hangstraight, Spike Finial **(HSHS)**

Standard Horizontal Hangstraight, Ball Finial **(HSHB)**

Standard Horizontal Hangstraight, No Finial **(HSHN)**

"EZ" Vertical hangstraight **(EZ)**

Options

NEMA Twist-Lock Photocell **(PE or PE4)**

Fixed Dimming Resistor Board **(FDRB)**

Button Photocell **(PEC)**

7-Pin NEMA Twist-Lock Receptacle **(R7)**

Double Fuse Holder & (2) 3A Fuses **(FHD)**

House Side Shield **(HSS)**

Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	11060	B3U4G3	118.9	11115	B3U4G3	119.5	11095	B2U4G3	119.3	11615	B3U4G3	124.9	93
1L30T_-MDL16	10780	B3U4G3	115.9	10830	B3U4G3	116.5	10810	B2U4G3	116.2	11320	B3U4G3	121.7	93
1L27T_-MDL16	9790	B3U4G3	105.3	9840	B3U4G3	105.8	9825	B2U4G3	105.6	10285	B3U4G3	110.6	93
1L40T_-MDL12	8795	B2U4G2	127.5	8775	B2U4G3	127.2	8750	B2U4G3	126.8	9115	B3U4G2	132.1	69
1L30T_-MDL12	8570	B2U4G2	124.2	8550	B2U4G3	123.9	8525	B2U4G3	123.6	8885	B3U4G2	128.8	69
1L27T_-MDL12	7785	B2U4G2	112.8	7770	B2U4G3	112.6	7745	B2U4G3	112.2	8070	B3U4G2	117.0	69
1L40T_-MDL09	7140	B2U4G2	132.2	7115	B2U4G2	131.8	7110	B1U4G2	131.7	7390	B3U4G2	136.9	54
1L30T_-MDL09	6960	B2U4G2	128.9	6935	B2U4G2	128.4	6930	B1U4G2	128.3	7200	B3U4G2	133.3	54
1L27T_-MDL09	6320	B2U4G2	117.0	6300	B2U4G2	116.7	6295	B1U4G2	116.6	6545	B3U4G2	121.2	54
1L40T_-MDL06	4870	B1U3G2	135.3	4835	B2U3G2	134.3	4840	B1U3G2	134.4	5035	B2U3G2	139.9	36
1L30T_-MDL06	4745	B1U3G2	131.8	4710	B2U3G2	130.8	4715	B1U3G2	131.0	4905	B2U3G2	136.3	36
1L27T_-MDL06	4310	B1U3G2	119.7	4280	B2U3G2	118.9	4285	B1U3G2	119.0	4460	B2U3G2	123.9	36
1L40T_-MDL03	2390	B1U3G1	140.6	2395	B1U3G1	140.9	2390	B1U3G1	140.6	2485	B1U3G1	146.2	17
1L30T_-MDL03	2330	B1U3G1	137.1	2335	B1U3G1	137.4	2330	B1U3G1	137.1	2420	B1U3G1	142.4	17
1L27T_-MDL03	2115	B1U3G1	124.4	2120	B1U3G1	124.7	2115	B1U3G1	124.4	2200	B1U3G1	129.4	17

No Shade, Teardrop Lens **(1910LED-A)**

Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	10575	B3U3G3	113.7	10685	B3U3G3	114.9	10585	B2U3G2	113.8	11060	B3U3G2	118.9	93
1L30T_-MDL16	10305	B3U3G3	110.8	10415	B3U3G3	112.0	10315	B2U3G2	110.9	10780	B3U3G2	115.9	93
1L27T_-MDL16	9365	B3U3G3	100.7	9460	B3U3G3	101.7	9370	B2U3G2	100.8	9790	B3U3G2	105.3	93
1L40T_-MDL12	8370	B2U3G2	121.3	8375	B2U3G2	121.4	8310	B2U3G2	120.4	8680	B3U3G2	125.8	69
1L30T_-MDL12	8155	B2U3G2	118.2	8160	B2U3G2	118.3	8100	B2U3G2	117.4	8460	B3U3G2	122.6	69
1L27T_-MDL12	7410	B2U3G2	107.4	7415	B2U3G2	107.5	7355	B2U3G2	106.6	7685	B3U3G2	111.4	69
1L40T_-MDL09	6815	B2U3G2	126.2	6830	B2U3G2	126.5	6765	B1U3G2	125.3	7075	B3U3G1	131.0	54
1L30T_-MDL09	6640	B2U3G2	123.0	6655	B2U3G2	123.2	6595	B1U3G2	122.1	6895	B3U3G1	127.7	54
1L27T_-MDL09	6035	B2U3G2	111.8	6045	B2U3G2	111.9	5990	B1U3G2	110.9	6265	B3U3G1	116.0	54
1L40T_-MDL06	4625	B1U2G1	128.5	4640	B2U2G2	128.9	4600	B1U2G1	127.8	4810	B2U3G1	133.6	36
1L30T_-MDL06	4505	B1U2G1	125.1	4520	B2U2G2	125.6	4485	B1U2G1	124.6	4685	B2U3G1	130.1	36
1L27T_-MDL06	4095	B1U2G1	113.8	4110	B2U2G2	114.2	4075	B1U2G1	113.2	4260	B2U3G1	118.3	36
1L40T_-MDL03	2280	B1U2G1	134.1	2285	B1U2G1	134.4	2255	B1U2G1	132.6	2385	B1U2G1	140.3	17
1L30T_-MDL03	2220	B1U2G1	130.6	2225	B1U2G1	130.9	2200	B1U2G1	129.4	2325	B1U2G1	136.8	17
1L27T_-MDL03	2020	B1U2G1	118.8	2025	B1U2G1	119.1	1995	B1U2G1	117.4	2110	B1U2G1	124.1	17

RLM Shade, Teardrop Lens **(1910LED-RLM18-A)**

Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	10895	B2U0G2	117.2	10770	B3U0G3	115.8	10850	B2U0G2	116.7	11395	B3U0G2	122.5	93
1L30T_-MDL16	10615	B2U0G2	114.1	10495	B3U0G3	112.8	10575	B2U0G2	113.7	11105	B3U0G2	119.4	93
1L27T_-MDL16	9645	B2U0G2	103.7	9535	B3U0G3	102.5	9605	B2U0G2	103.3	10090	B3U0G2	108.5	93
1L40T_-MDL12	8590	B2U0G2	124.5	8480	B2U0G2	122.9	8625	B2U0G1	125.0	8945	B3U0G1	129.6	69
1L30T_-MDL12	8370	B2U0G2	121.3	8265	B2U0G2	119.8	8405	B2U0G1	121.8	8715	B3U0G1	126.3	69
1L27T_-MDL12	7605	B2U0G2	110.2	7510	B2U0G2	108.8	7635	B2U0G1	110.7	7920	B3U0G1	114.8	69
1L40T_-MDL09	6985	B2U0G2	129.4	6915	B2U0G2	128.1	7015	B2U0G1	129.9	7305	B3U0G1	135.3	54
1L30T_-MDL09	6805	B2U0G2	126.0	6740	B2U0G2	124.8	6835	B2U0G1	126.6	7120	B3U0G1	131.9	54
1L27T_-MDL09	6185	B2U0G2	114.5	6120	B2U0G2	113.3	6210	B2U0G1	115.0	6465	B3U0G1	119.7	54
1L40T_-MDL06	4755	B1U0G1	132.1	4700	B1U0G1	130.6	4780	B1U0G1	132.8	4975	B2U0G1	138.2	36
1L30T_-MDL06	4635	B1U0G1	128.8	4580	B1U0G1	127.2	4660	B1U0G1	129.4	4850	B2U0G1	134.7	36
1L27T_-MDL06	4210	B1U0G1	116.9	4160	B1U0G1	115.6	4230	B1U0G1	117.5	4405	B2U0G1	122.4	36
1L40T_-MDL03	2350	B1U0G1	138.2	2355	B1U0G1	138.5	2350	B1U0G1	138.2	2475	B1U0G1	145.6	17
1L30T_-MDL03	2290	B1U0G1	134.7	2295	B1U0G1	135.0	2290	B1U0G1	134.7	2410	B1U0G1	141.8	17
1L27T_-MDL03	2080	B1U0G1	122.4	2085	B1U0G1	122.6	2080	B1U0G1	122.4	2190	B1U0G1	128.8	17

RLM Shade, Flat Lens **(1910LED-RLM18-FL)**

Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	9610	B2U2G2	103.3	9450	B2U2G2	101.6	9815	B2U2G2	105.5	9600	B3U2G1	103.2	93
1L30T_-MDL16	9365	B2U2G2	100.7	9210	B2U2G2	99.0	9565	B2U2G2	102.8	9355	B3U2G1	100.6	93
1L27T_-MDL16	8510	B2U2G2	91.5	8365	B2U2G2	89.9	8690	B2U2G2	93.4	8500	B3U2G1	91.4	93
1L40T_-MDL12	7555	B2U2G1	109.5	7475	B2U2G1	108.3	7700	B2U2G1	111.6	7590	B2U2G1	110.0	69
1L30T_-MDL12	7365	B2U2G1	106.7	7285	B2U2G1	105.6	7505	B2U2G1	108.8	7395	B2U2G1	107.2	69
1L27T_-MDL12	6690	B2U2G1	97.0	6620	B2U2G1	95.9	6815	B2U2G1	98.8	6720	B2U2G1	97.4	69
1L40T_-MDL09	6145	B2U2G1	113.8	6085	B2U2G1	112.7	6260	B2U2G1	115.9	6165	B2U2G1	114.2	54
1L30T_-MDL09	5990	B2U2G1	110.9	5930	B2U2G1	109.8	6100	B2U2G1	113.0	6010	B2U2G1	111.3	54
1L27T_-MDL09	5440	B2U2G1	100.7	5385	B2U2G1	99.7	5540	B2U2G1	102.6	5460	B2U2G1	101.1	54
1L40T_-MDL06	4180	B1U2G1	116.1	4130	B1U2G1	114.7	4240	B1U1G1	117.8	4150	B2U1G1	115.3	36
1L30T_-MDL06	4075	B1U2G1	113.2	4025	B1U2G1	111.8	4130	B1U1G1	114.7	4045	B2U1G1	112.4	36
1L27T_-MDL06	3700	B1U2G1	102.8	3655	B1U2G1	101.5	3755	B1U1G1	104.3	3675	B2U1G1	102.1	36
1L40T_-MDL03	2055	B1U1G1	120.9	2025	B1U1G1	119.1	2075	B1U1G1	122.1	2060	B1U1G1	121.2	17
1L30T_-MDL03	2005	B1U1G1	117.9	1975	B1U1G1	116.2	2020	B1U1G1	118.8	2010	B1U1G1	118.2	17
1L27T_-MDL03	1820	B1U1G1	107.1	1795	B1U1G1	105.6	1835	B1U1G1	107.9	1825	B1U1G1	107.4	17

Short Shade, Teardrop Lens **(1910LED-LBS-A)**

Model #	LB SHADE T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	LBL SHADE T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
1L40T_-MDL16	8955	B3U1G1	96.3	8010	B3U0G1	86.1	93
1L30T_-MDL16	8725	B3U1G1	93.8	7805	B3U0G1	83.9	93
1L27T_-MDL16	7930	B3U1G1	85.3	7090	B3U0G1	76.2	93
1L40T_-MDL12	7065	B2U1G1	100.9	6325	B2U0G1	90.4	70
1L30T_-MDL12	6885	B2U1G1	98.4	6165	B2U0G1	88.1	70
1L27T_-MDL12	6255	B2U1G1	89.4	5600	B2U0G1	80.0	70
1L40T_-MDL09	5710	B2U1G1	105.7	5165	B2U0G1	95.6	54
1L30T_-MDL09	5565	B2U1G1	103.1	5035	B2U0G1	93.2	54
1L27T_-MDL09	5055	B2U1G1	93.6	4575	B2U0G1	84.7	54
1L40T_-MDL06	3880	B2U1G1	107.8	3510	B2U0G1	97.5	36
1L30T_-MDL06	3780	B2U1G1	105.0	3420	B2U0G1	95.0	36
1L27T_-MDL06	3435	B2U1G1	95.4	3110	B2U0G1	86.4	36
1L40T_-MDL03	1910	B1U1G0	112.4	1725	B1U0G0	101.5	17
1L30T_-MDL03	1860	B1U1G0	109.4	1680	B1U0G0	98.8	17
1L27T_-MDL03	1690	B1U1G0	99.4	1525	B1U0G0	89.7	17

Medium and Large Shade, Teardrop Lens
(1910LED-LB-A) & (1910LED-LBL-A)

How to Order

Mounting Configuration	Overall Drop Length (In Inches) (2) (3)	Fixture	Shade (4)	LED	CCT - Color Temp (K)	Distribution Type	Driver	Lens
1W Wall Mount **1A** 1 Arm Mount **2A** 2 Arm Mount @ 180° **2A90** 2 Arm Mount @ 90° **3A** 3 Arms @ 120° **3A90** 3 Arms @ 90° **4A** 4 Arms @ 90° **1AM** 1 Arm Mid-Mount **2AM** 2 Arm Mid-Mount @180° **SH44** Stem Hung **CH44** Chain Hung **CAT** Catenary (1)		**1910LED** Acorn, Medium	**LBS** Short Shade, Reno **LB** Medium Shade, Lake Bluff (5) **LBL** Large Shade, Lake Bluff (5) **RLM18** 18" RLM Shade, Park Ridge **RLM24** 24" RLM Shade, Park Ridge **RLM32** 32" RLM Shade, Park Ridge	**1L** 1 LED	**27** 2,700K **30** 3,000K **35** 3,500K **40** 4,000K **50** 5,000K	**T2** Type 2 **T3** Type 3 **T4** Type 4 **T5** Type 5	**MDL03** 120V-277V, 300mA **MDH03** 347V-480V, 300mA **MDL06** 120V-277V, 600mA **MDH06** 347V-480V, 600mA **MDL09** 120V-277V, 900mA **MDH09** 347V-480V, 900mA **MDL12** 120V-277V, 1200mA **MDH12** 347V-480V, 1200mA **MDL16** 120V-277V, 1600mA **MDH16** 347V-480V, 1600mA	**A** Acrylic Clear Teardrop **P** Poly Clear Teardrop **FL** Flat Lens (6)

Notes:

1. Requires EZ hang-straight.
2. Required field for Stem or Chain Mounting Configuration.
3. Minimum 32" Overall Drop Length ("A" Lens). Minimum 25" Overall Drop Length ("FL" Lens).
4. Shade is optional
5. For use with T5 optic only
6. Available with RLM18 and RLM24 only.

How to Order

Optional Control Receptacle (7) (8) (9)	Optional Control	Optional Fuse (12)	Optional Hangstraight	Optional House Side Shield (13)	Optional Fixed Dimming Resistor Board (11)	Finish
R7 7-Pin control receptacle only	**PE** Twist-Lock Photocontrol (120V-277V) (10) **PE4** Twist-Lock Photocontrol (347V-480V) (10) **SC** Shorting Cap (10) **PEC** Electronic Button Photocontrol (120V-277V) (11) **PEC4** Electronic Button Photocontrol (480V) (11)	**FHD** Double Fuse and Holder	**HSHS** Standard Horizontal Hangstraight, Spike Finial **HSHN** Standard Horizontal Hangstraight, No Finial **HSHB** Standard Horizontal Hangstraight, Ball Finial **EZ** Vertical Hangstraight, Large, “EZ” Mount (11)	**HSS** 120° House Side Shield	**FDRB** Fixed Dimming Resistor Board	**BKT** Black Textured (14) **WHT** White Textured (14) **PGT** Park Green Textured (14) **ABZT** Architectural Medium Bronze Textured (14) **DBT** Dark Bronze Textured (14) **CM** Custom Match (15) **OI** Old Iron (15) **RT** Rust (15) **WBR** Weathered Brown (15) **CD** Cedar (15) **WBK** Weathered Black (15) **TT** Two Tone (15) **VG** Verde Green **SI** Swedish Iron **OWGT** Old World Gray Textured

Notes:

7. Not for use with FDRB.
8. Only available with HORIZONTAL hangstraight.
9. Not for use with STEM, CHAIN, CAT, or EZ mounting style.
10. Requires control receptacle.
11. Not for use with R7.
12. Ships loose for installation in base.
13. Not for use with T5 optic.
14. Smooth finishes are available upon request.
15. Custom colors require upcharge.

K729 AURORA JR. - LED

A 3/4 scaled version of the K829, the K729 Aurora Jr. provides a gently curved fixture designed to be used on its own in a street or area lighting system, or in combination with its matching K800 luminaire. This allows both roadway and pedestrian concerns to be individually met without any compromise.

King Luminaire

PRODUCT SPECIFICATIONS

LED ENGINE
Light engine shall include an array of 30 solid state Cree X-Series high power LEDs (light emitting diodes). The emitters shall be mounted to a metal core circuit board using SMT technology. The LEDs and circuit boards shall then be mounted to a high performance heat sink which is vented to the outside ambient air to provide dynamic airflow for cooling the system.

OPTICS
External light control shall consist of high precision refractive lenses mounted above the LED emitter arrays in such a way to achieve optimum uplight control. The lenses shall also control horizontal light distribution so that Type II, III, IV or V IESNA distribution patterns are achieved.

LENS
The K729 Aurora Jr. pendant is available with or without a lens. Lens options include; sag glass lens; shallow glass lens; rippled acrylic shallow lens; or rippled acrylic deep dish lens. The glass lens shall be made of #9000 clear borosilicate glass (fully annealed). It shall maintain a minimum thickness of 0.16". The acrylic lens shall be moulded of rippled acrylic Acrylite Plus Acrylic Polymer, or equivalent, having a minimum thickness of 0.15". The lens is secured by means of a cast A319 aluminum holding ring that is sealed to provide an IP66 Ingress rating. Additionally, a continuous circular gasket rated for 270°F must hold the lens into place within the cast ring assembly and assist in sealing the fixture.

LUMINAIRE CONSTRUCTION
The luminaire shall consist of a heavy cast aluminum housing that acts as the enclosure for the engine and is of adequate thickness to give structural rigidity. The engine must be affixed to the inside of the housing with stainless steel screws.

PLUMBIZER
The K729 Aurora Jr. comes with multiple mounting options including the KPL10, KPL11, KPL20, KPL21, KPL30, KPL31 and KPL40. Please contact King Luminaire for more details and specifications.

DRIVER
The LED universal dimmable driver will be class 2 and capable of 120 - 277V or 347 - 480V input voltage, greater than 0.9 power factor, less than 20% total harmonic distortion. The case temperature of the driver can range from -40°C up to 70°C. Each LED system comes with a standard surge protection designed to withstand up to 20kV/10kA of transient line surge as per IEEE C62.41.2 C High. An in-line ferrite choke is utilized to provide protection against EFT's. The driver assembly will be mounted on a fabricated aluminum bracket to allow complete tool-less maintenance. Dimming capable using 1-10vdc (10% to 100%), 10v PWM, or resistance.

PHOTOMETRICS
Fixtures are tested to IESNA LM79 specifications. These reports are available upon request.

CHROMATICITY
High output LEDs come standard at 3000K & 4000K (+/- 300K) with a minimum nominal 70 CRI. Additional CCT emitters are available upon request.

LUMEN MAINTENANCE
Reported (TM21) and Calculated (L70) reports are available upon request with a minimum calculated value of 100,000 hrs.

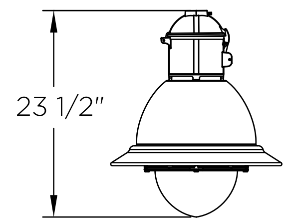
WIRING
All internal wiring and connections shall be completed so that it will be necessary only to attach the incoming supply connectors to Mate-N-Lok connectors or to a terminal block. Mate-N-Lok shall be certified for 600V operation. Internal wire connectors shall be crimp connector only and rated at 1000V and 150°C. All wiring to be CSA certified and/or UL listed, type SFF-2, SEWF-2, or SEW-2 No. 14 gauge, 150°C, 600V, and color coded for the required voltage.

THERMALS
Fixtures tested to DOE sanctioned standards to determine the maximum in-situ solder-point or junction-point temperatures of the LED emitters. This report is available upon request.

FINISH
Housing is finished with a 13 step KingCoat™ SuperDurable polyester TGIC powder coat. Standard colors include strobe white, brown metal, marina blue, gate gray, Chicago bronze, standard gold, standard black, federal green and rain forest. Please see our website for a complete list of colors. RAL and custom color matches are available.

MISCELLANEOUS
All exterior hardware and fasteners, wholly or partly exposed, shall be stainless steel alloy. All internal fasteners are stainless steel or zinc coated steel. All remaining internal hardware is stainless steel, aluminum alloy, or zinc coated steel.

WARRANTY
The K729 Aurora Jr. LED luminaire comes with a 7 year limited warranty.



CERTIFICATION:
CSA US Listed
Suitable for wet locations
ISO 9001
IP66
ARRA Compliant
LM79 / LM80 Compliant

DRIVER INFO:
>0.9 Power Factor
<20% Total Harmonic Distortion
120 - 277V & 347 - 480V
-40°C Min. Case Temperature
70°C Max. Case Temperature
Surge Protection: ANSI C136.2 extreme level 20kV/10kA
Dimming Capable: 1-10vdc

EPA:

Flat:	0.63 sq. ft.
Sag Lens:	0.66 sq. ft.
Shallow Lens:	0.74 sq. ft.
Deep Dish Lens:	0.84 sq. ft.

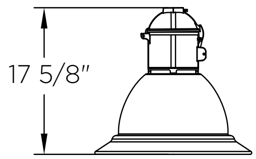
FIXTURE WEIGHT:

Flat:	19 lbs
Sag Lens:	22 lbs
Shallow Lens:	23 lbs
Deep Dish Lens:	23 lbs

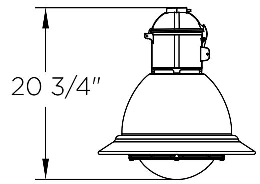
Not all product variations listed on this page are DLC qualified.
Visit www.designlights.org/search to confirm qualification.
08-11-2021

FIXTURE OPTIONS

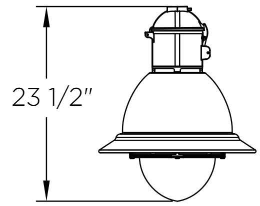
Lens Options



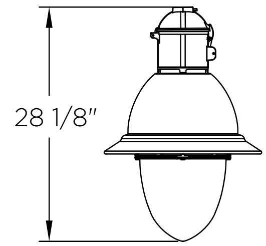
Flat (no lens)



Sag

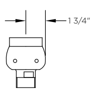


Shallow

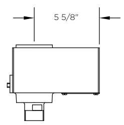


Deep Dish

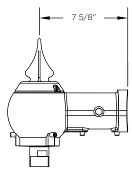
Plumbizer/Mounting Options



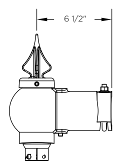
KPL10



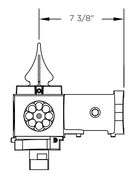
KPL11*



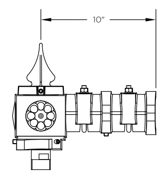
KPL20**



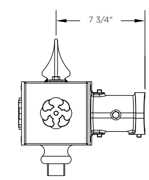
KPL21**



KPL30**



KPL31**



KPL40

*Available with PR7
**Available with PR7 or finial

HOW TO ORDER

K729 - [ ] - [ ] - [ ] **(SSL)** **7030** - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

LUMINAIRE STYLE
K729 - Aurora Jr.

OPTICAL OPTIONS
P4FL - P4 Flat (no lens)
P4SA - P4 Sag Glass Lens
P4SH - P4 Shallow Glass Lens
P4RAS - P4 Shallow Acrylic Lens
P4RAD - P4 Deep Dish Acrylic Lens

IES LIGHTING CLASSIFICATION
II - Type 2
III - Type 3
IV - Type 4
V - Type 5

WATTAGE
25, 40, 60, 75, 100

SOURCE
SSL - Solid State

SERIES
7030 (25 - 100W)

LINE VOLTAGE
120V (120-277V)
480V (347-480V)*

*Select wattages available within this range, contact King Luminaire. 120V will be provided if blank.

PLUMBIZER
KPL10, KPL11, KPL20, KPL21, KPL30, KPL31, KPL40

*leave blank if not required

PHOTO CONTROL OPTIONS
PR - Photo Receptacle, available with KPL11, KPL20, KPL21, KPL30, KPL31

PE - Photo Receptacle and Photo Eye. Available with KPL11, KPL20, KPL21, KPL30, KPL31

PEBC - Photo Electric Buttoncell

* leave blank if not required

CCT
3K - 3000K
4K - 4000K

PAINT COLOR
GN - Federal Green
BE - Blue
GY - Gray
BN - Brown
BK - Black
BZ - Bronze

*Additional options available on website. BK will be provided if blank.

WATTAGE SELECTOR
WS - Wattage Selector

* leave blank if not required

HADCO by Signify

Urban

Westbrooke

CXF14/CXF15 Pendant

Project:

Location:

Cat.No:

Type:

Lamps: Qty:

Notes:

Hadco Westbrooke pendant luminaires offer a simple and modern look but still traditional, providing style and performance to work in several urban applications including residential streets, city streets, campuses, parking lots and retail centers. These pendants are now available with comfort optics, providing a low glare solution for pedestrian applications.

Ordering guide

Example: CXF14-32-G3-A-2-730-A-3-N-SP1-N

Model	LEDs	Generation	Mount	Finish	Distribution	Color Temp.	Voltage	Drive current
		G3	T					
CXF14 Westbrooke **CXF15** Westbrooke Receptacle 7 pin is available for this luminaire but must be selected with the arm bracket. It is not part of the luminaire code. See bracket ordering guide for coding.	**32**[1] 32 LEDs **48** 48 LEDs **64** 64 LEDs **80** 80 LEDs	**G3** Gen 3	**T** Top	**A** Black **B** White **G** Verde Green **H** Bronze **I** Silver Gray **J** Dark Green	**2** Type 2 **2H** Type 2 w/HSS **3** Type 3 **3H** Type 3 w/HSS **3W** Type 3 Wide **3WH** Type 3 Wide w/HSS **4** Type 4 **5** Type 5	**730** Warm 3000K **740** Neutral 4000K	**A** 120-277 VAC **B**[1,2] 347-480 VAC	**3** 350mA **5** 530mA **7** 700mA

Ordering guide (continued)

Driver Options	Surge Suppression	Spinning
DA 4 Hrs 25% Reduction **DB** 4 Hrs 50% Reduction **DC** 4 Hrs 75% Reduction **DD** 6 Hrs 25% Reduction **DE** 6 Hrs 50% Reduction **DF** 6 Hrs 75% Reduction **DG** 8 Hrs 25% Reduction **DH** 8 Hrs 50% Reduction **DJ** 8 Hrs 75% Reduction **DALI** Compatible with DALI **S** FAWS Filed adjustable wattage slector **SRD**[2] Sensor ready driver, standard configuration **SRD1**[2] Sensor ready driver, alternate configuration **N** No dimming	**SP1** Parallel 10kV standard **SP2** Parallel 20kV	**F** Fluted spinning **N** No options

Footnotes

1. 32LED at 350mA and 530mA are not compatible with 347-480V.
2. 347-480V not compatible with optional dimming or optional programming.

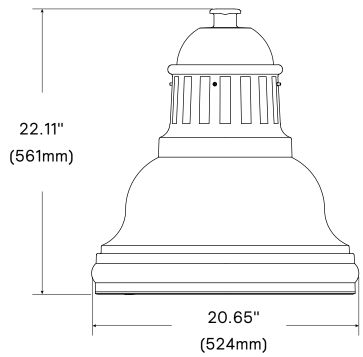
CXF14/CXF15 Westbrooke

Pendant

Dimensions

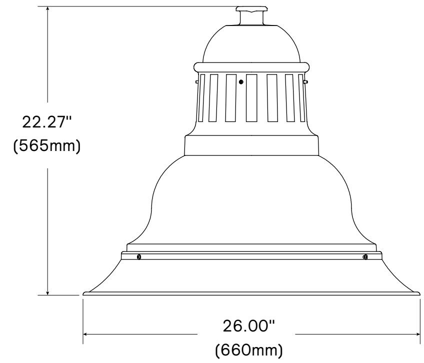
CXF14

Width	21" diameter
Height	22-5/16"
EPA	1.6 sq. ft
Weight (maximum)	38 lbs (17.24 kg)



CXF15

Width	26" diameter
Height	22-5/16"
EPA	1.6 sq. ft
Weight (maximum)	38 lbs (17.24 kg)



Note: Figures are shown with optional fluted spinning

Predicted Lumen Depreciation Data

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L_{70} hours limited to 6 times actual LED test hours.

Ambient Temperature °C	Driver mA	Calculated L_{70} Hours	L_{70} per TM-21	Lumen Maintenance % at 60,000 hrs
25°C	2100 mA	>100,000 hours	>60,000 hours	>87%

Field Adjustable Wattage (FAWS) Multiplier Chart

FAWS Position	Typical Delivered Lumens Multiplier	Typical System Wattage
1	0.31	0.28
2	0.53	0.50
3	0.62	0.58
4	0.70	0.67
5	0.78	0.75
6	0.83	0.81
7	0.89	0.87
8	0.92	0.91
9	0.96	0.95
10	1.00	1.00

Note: Typical value accuracy +/- 5%

CXF14/CXF15 Westbrooke

Pendant

LED Wattage and Lumen Values: Westbrooke CXF14/CXF15

Flat Glass Lens 3000K 32 LEDs					Type 2			Type 3			Type 3W		
Ordering Code	LED qty	LED Current (mA)	Average System Watts	Color Temp.	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)
CXF32-G3-x-730-3	32	350	3000	35	4715	B1-U0-G1	134	4601	B1-U0-G1	131	4521	B1-U0-G1	128
CXF32-G3-x-730-5	32	530	3000	51	6750	B2-U0-G1	132	6587	B1-U0-G1	129	6473	B1-U0-G2	126
CXF32-G3-x-730-7	32	700	3000	71	8405	B2-U0-G1	119	8203	B2-U0-G2	116	8061	B2-U0-G2	114

Flat Glass Lens 3000K 32 LEDs (continued)					Type 4			Type 5		
CXF32-G3-x-730-3	32	350	3000	35	4650	B1-U0-G1	132	4516	B3-U0-G1	128
CXF32-G3-x-730-5	32	530	3000	51	6657	B1-U0-G2	130	6465	B3-U0-G1	126
CXF32-G3-x-730-7	32	700	3000	71	8290	B2-U0-G2	118	8051	B3-U0-G2	114

Flat Glass Lens 3000K 48 LEDs					Type 2			Type 3			Type 3W		
Ordering Code	LED qty	LED Current (mA)	Average System Watts	Color Temp.	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)
CXF48-G3-x-730-3	48	350	3000	54	6870	B2-U0-G1	127	6705	B1-U0-G1	124	6589	B1-U0-G2	122
CXF48-G3-x-730-5	48	530	3000	80	9836	B2-U0-G2	123	9599	B2-U0-G2	120	9433	B2-U0-G2	118
CXF48-G3-x-730-7	48	700	3000	105	12249	B3-U0-G2	117	11954	B2-U0-G2	114	11747	B2-U0-G2	112

Flat Glass Lens 3000K 48 LEDs (continued)					Type 4			Type 5		
CXF48-G3-x-730-3	48	350	3000	54	6776	B1-U0-G2	125	6580	B3-U0-G1	122
CXF48-G3-x-730-5	48	530	3000	80	9701	B2-U0-G2	121	9421	B3-U0-G2	118
CXF48-G3-x-730-7	48	700	3000	105	12081	B2-U0-G2	115	11732	B4-U0-G2	112

Flat Glass Lens 3000K 64 LEDs					Type 2			Type 3			Type 3W		
Ordering Code	LED qty	LED Current (mA)	Average System Watts	Color Temp.	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)
CXF64-G3-x-730-3	64	350	3000	68	7602	B2-U0-G1	112	7418	B2-U0-G1	109	7290	B1-U0-G2	107
CXF64-G3-x-730-5	64	530	3000	99	10882	B2-U0-G2	110	10620	B2-U0-G2	107	10437	B2-U0-G2	105
CXF64-G3-x-730-7	64	700	3000	114	13552	B3-U0-G2	119	13226	B2-U0-G2	116	12997	B2-U0-G2	114

Flat Glass Lens 3000K 64 LEDs (continued)					Type 4			Type 5		
CXF64-G3-x-730-3	64	350	3000	68	7497	B2-U0-G2	110	7281	B3-U0-G2	107
CXF64-G3-x-730-5	64	530	3000	99	10733	B2-U0-G2	108	10423	B4-U0-G2	105
CXF64-G3-x-730-7	64	700	3000	114	13367	B2-U0-G2	117	12980	B4-U0-G2	114

Flat Glass Lens 3000K 80 LEDs					Type 2			Type 3			Type 3W		
Ordering Code	LED qty	LED Current (mA)	Average System Watts	Color Temp.	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)
CXF80-G3-x-730-3	80	350	3000	87	10695	B2-U0-G2	123	10438	B2-U0-G2	120	10257	B2-U0-G2	118
CXF80-G3-x-730-5	80	530	3000	126	15312	B3-U0-G2	121	14943	B3-U0-G2	118	14684	B2-U0-G2	116
CXF80-G3-x-730-7	80	700	3000	168	19068	B3-U0-G2	113	18609	B3-U0-G2	111	18287	B3-U0-G3	109

Flat Glass Lens 3000K 80 LEDs (continued)					Type 4			Type 5		
CXF80-G3-x-730-3	80	350	3000	87	10549	B2-U0-G2	121	10244	B4-U0-G2	118
CXF80-G3-x-730-5	80	530	3000	126	15102	B3-U0-G2	120	14665	B4-U0-G2	116
CXF80-G3-x-730-7	80	700	3000	168	18807	B3-U0-G3	112	18263	B4-U0-G2	109

Actual performance may vary due to installation variables including optics, mounting/ceiling height, dirt depreciation, light loss factor, etc.; highly recommended to confirm performance with a layout.
Note: Some data may be scaled based on tests of similar but not identical luminaires.

CXF14/CXF15 Westbrooke

Pendant

LED Wattage and Lumen Values: Westbrooke CXF14/CXF15

Flat Glass Lens 4000K 32 LEDs					Type 2			Type 3			Type 3W		
Ordering Code	LED qty	LED Current (mA)	Average System Watts	Color Temp.	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)
CXF32-G3-x-740-3	32	350	4000	35	4950	B1-U0-G1	141	4831	B1-U0-G1	131	4747	B1-U0-G1	135
CXF32-G3-x-740-5	32	530	4000	51	7087	B2-U0-G1	138	6916	B1-U0-G1	129	6797	B1-U0-G2	133
CXF32-G3-x-740-7	32	700	4000	71	8826	B2-U0-G1	125	8613	B2-U0-G2	116	8464	B2-U0-G2	120
Flat Glass Lens 4000K 32 LEDs (continued)					Type 4			Type 5					
CXF32-G3-x-740-3	32	350	4000	35	4882	B1-U0-G1	139	4741	B3-U0-G1	135			
CXF32-G3-x-740-5	32	530	4000	51	6990	B1-U0-G2	137	6788	B3-U0-G1	133			
CXF32-G3-x-740-7	32	700	4000	71	8705	B2-U0-G2	123	8453	B3-U0-G2	120			

Flat Glass Lens 4000K 48 LEDs					Type 2			Type 3			Type 3W		
Ordering Code	LED qty	LED Current (mA)	Average System Watts	Color Temp.	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)
CXF48-G3-x-740-3	48	350	4000	54	7214	B2-U0-G1	134	7040	B2-U0-G1	130	6918	B1-U0-G2	128
CXF48-G3-x-740-5	48	530	4000	80	10328	B2-U0-G2	129	10079	B2-U0-G2	126	9904	B2-U0-G2	124
CXF48-G3-x-740-7	48	700	4000	105	12861	B3-U0-G2	122	12552	B2-U0-G2	120	12334	B2-U0-G2	117
Flat Glass Lens 4000K 48 LEDs (continued)					Type 4			Type 5					
CXF48-G3-x-740-3	48	350	4000	54	7115	B1-U0-G2	132	6910	B3-U0-G1	128			
CXF48-G3-x-740-5	48	530	4000	80	10186	B2-U0-G2	127	9892	B4-U0-G2	124			
CXF48-G3-x-740-7	48	700	4000	105	12685	B2-U0-G2	121	12319	B4-U0-G2	117			

Flat Glass Lens 4000K 64 LEDs					Type 2			Type 3			Type 3W		
Ordering Code	LED qty	LED Current (mA)	Average System Watts	Color Temp.	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)
CXF64-G3-x-740-3	64	350	4000	68	7982	B2-U0-G1	117	7789	B2-U0-G2	114	7655	B1-U0-G2	112
CXF64-G3-x-740-5	64	530	4000	99	11427	B3-U0-G2	115	11151	B2-U0-G2	112	10958	B2-U0-G2	111
CXF64-G3-x-740-7	64	700	4000	114	14230	B3-U0-G2	125	13887	B3-U0-G2	122	13647	B2-U0-G2	120
Flat Glass Lens 4000K 64 LEDs (continued)					Type 4			Type 5					
CXF64-G3-x-740-3	64	350	4000	68	7872	B2-U0-G2	116	7645	B3-U0-G2	112			
CXF64-G3-x-740-5	64	530	4000	99	11270	B2-U0-G2	114	10944	B4-U0-G2	110			
CXF64-G3-x-740-7	64	700	4000	114	14035	B2-U0-G2	123	13629	B4-U0-G2	120			

Flat Glass Lens 4000K 80 LEDs					Type 2			Type 3			Type 3W		
Ordering Code	LED qty	LED Current (mA)	Average System Watts	Color Temp.	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)	Lumens output (LM)	BUG Rating	Efficacy (LM/W)
CXF80-G3-x-740-3	80	350	4000	87	11230	B3-U0-G2	129	10960	B2-U0-G2	126	10770	B2-U0-G2	124
CXF80-G3-x-740-5	80	530	4000	126	16077	B3-U0-G2	127	15690	B3-U0-G2	124	15418	B2-U0-G2	122
CXF80-G3-x-740-7	80	700	4000	168	20022	B3-U0-G2	119	19539	B3-U0-G2	116	19201	B3-U0-G3	114
Flat Glass Lens 4000K 80 LEDs (continued)					Type 4			Type 5					
CXF80-G3-x-740-3	80	350	4000	87	11076	B2-U0-G2	127	10756	B4-U0-G2	123			
CXF80-G3-x-740-5	80	530	4000	126	15857	B3-U0-G2	126	15399	B4-U0-G2	122			
CXF80-G3-x-740-7	80	700	4000	168	19747	B3-U0-G3	117	19177	B4-U0-G2	114			

Actual performance may vary due to installation variables including optics, mounting/ceiling height, dirt depreciation, light loss factor, etc.; highly recommended to confirm performance with a layout.
Note: Some data may be scaled based on tests of similar but not identical luminaires.

CXF14/CXF15 Westbrooke

Pendant

Specifications

Housing

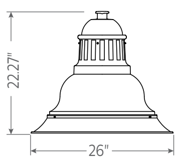
In a round shape, this housing is constructed of low copper die-cast aluminum and 0.090" thick spun aluminum. All non-ferrous fasteners prevent corrosion and ensure longer life.

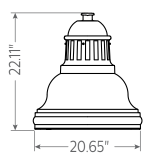
Access-mechanism

The hinged lens frame is cast aluminum with a stainless steel spring latch for tool-less access

Mounting

T: Top arm mount





Light engine

LEDgine is composed of five main components: Heat Sink, Lens, LED lamp, Optical System, and Driver. Electrical components are RoHS compliant.

LED module

LED type LUXEON T.Composed of high-performance white LEDs. Color temperature as per ANSI/NEMA bin Neutral White, 4000 Kelvin nominal (3985K +/- 275K or 3710K to 4260K) or Warm White, 3000 Kelvin nominal (3045K +/- 175K or 2870K to 3220K), CRI 70 Min. 75 Typical.

Heat sink

Made of cast aluminum optimizing the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device).

Finish

Color in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils / 24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard. The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

Optical system

Composed of high performance UV stabilized optical grade polymer refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Type 2, 3, 3W, 4 and Type 5 Street side indicated. House side shield optional (can be field installed) 2H: Type 2 with House Side Shield, 3H: Type 3 short with house side shield, 3WH: Type 3 Wide with House side shield.

Driver

Driver comes standard with dimming compatible 0-10V. High power factor of 95%. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max. Maximum ambient operating temperature from 40°F (4°C) to 130°F (55°C). Certified in compliance to UL1310 cULus requirement (dry and damp location). Assembled on a unitized removable tray with Tyco quick disconnect plug resisting to 221°F (105°C). The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

DA: 4 Hrs 25% Reduction
DB: 4 Hrs 50% Reduction
DC: 4 Hrs 75% Reduction
DD: 6 Hrs 25% Reduction
DE: 6 Hrs 50% Reduction
DF: 6 Hrs 75% Reduction
DG: 8 Hrs 25% Reduction
DH: 8 Hrs 50% Reduction
DJ: 8 Hrs 75% Reduction
DALI: Pre-set driver compatible with the DALI logarithmic control system.

FAWS: Field Adjustable Wattage Selector, pre-set to the highest position, can be easily switched in the field to the required position. This reduces total luminaire wattage consumption and reduces the light level - see the FAWS multiplier chart for more details. **Note:** It is not recommended to use FAWS with other dimming or controls; if you do, set the switch to position 10 (maximum output) to enable the other dimming or controls. Switching FAWS to any position other than 10 will disable the other dimming or controls.

SRD: Sensor Ready Driver including SR communication (used for dimming and other functionalities), 24V auxiliary supply and a logical signal input (LSI) connected to the top NEMA twist lock receptacle.

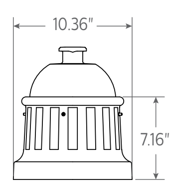
SRD1: Sensor Ready Driver including SR communication (used for dimming and other functionalities) but with 24V auxiliary supply and a logical signal input (LSI) not connected to the top NEMA twist lock.

Surge protection

Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line Ground, Line Neutral and Neutral Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

Luminaire options

F: Fluted spinning



N: None

Wiring

Gauge 18 wires. Top mount option come with quick disconnects. Arm mount options provide a 6" Minimum exceeding from luminaire.

CXF14/CXF15 Westbrooke

Pendant

Specifications (cont.)

Hardware

All non-ferrous fasteners prevent corrosion and ensure longer life.

Luminaire useful life

Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, using LM-80 data from LED manufacturers and engineering prediction methods, the luminaire useful life is expected to reach 100,000+ hours with >L70 lumen maintenance @ 25°C. (48 LED and 64 LED@700mA is 82,000) Luminaire useful life accounts for LED lumen maintenance and additional factors, including LED life, driver life, PCB substrate, solder joints on/off cycles and burning hours for nominal applications.

LED products manufacturing standard

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340 5 1 and ANSI/ ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Quality control

The manufacturer must provide a written confirmation of its ISO 9001 2008 and ISO 14001 2004 International Quality Standards Certification.

Certifications and Compliance

cETL listed to Canadian safety standards for wet locations. Manufactured to ISO 9001:2008 Standards. UL8750 and UL1598 compliant. ETL listed to U.S. safety standards for wet locations. cETL listed to Canadian safety standards for wet locations. LM80 & LM79 tested. IP Rating: The LED optics chamber is IP66 rated. The LED driver is IP66 rated. Westbrooke LED luminaires are DesignLights Consortium qualified.

Warranty

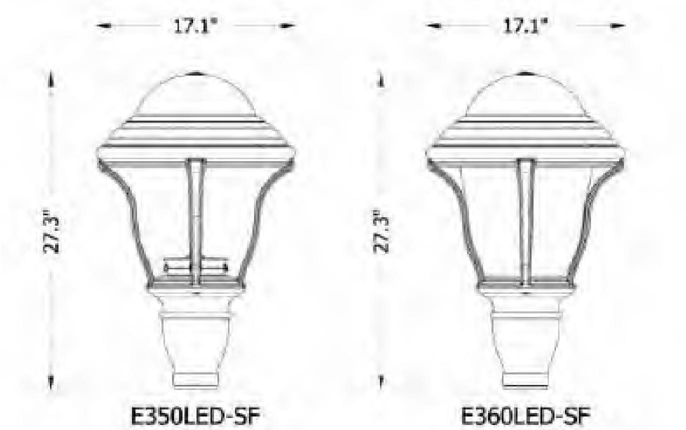
5 year extended warranty.

Signify North America Corporation
400 Crossing Blvd, Suite 600
Bridgewater, NJ 08807
Telephone: 855-486-2216

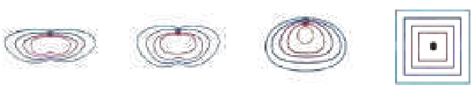
Signify Canada Ltd.
281 Hillmount Road,
Markham, ON, Canada L6C 2S3
Telephone: 800-668-9008

Project Name ______________________________ **Qty** ________

Type __________ **Catalog / Part Number** ______________________________



Distribution Type



Type 2 | Type 3 | Type 4 | Type 5

CCT - Color Temp (K)

2,700K | 3,000K | 3,500K | 4,000K | 5,000K

7 Year Warranty

IP Rating

IP 65

Certifications

c UL us LISTED

DARKSKY APPROVED

Description

The E350LED and E360LED Euro is a medium scale fixture that includes a permanent mold cast aluminum roof, fitter and (4) sweeping support legs. This unique family adapts classic design elements in a more contemporary package.

E350LED - EPA: .9 (ft²) | WEIGHT: 42 LBS
E360LED - EPA: 1.0 (ft²) | WEIGHT: 42 LBS

Features

Mounting Configuration	**1W:** Wall Mount	**PT:** Post Top
	1A: 1 Arm Mount	**1APT:** 1 Arm & Post Top
	2A: 2 Arm Mount @ 180°	**2A90:** 2 Arm Mount @ 90°
	2APT: 2 Arm @ 180° & Post Top	**3A:** 3 Arms @ 120°
		3A90: 3 Arms @ 90°
	3APT: 3 Arm @ 120° & Post Top	**4A:** 4 Arms @ 90°
		4APT: 4 Arm @ 90° & Post Top
	1AM: 1 Arm Mid-Mount	**2AM:** 2 Arm Mid-Mount @180°
	450PB: Pier Base	
Optional Control Receptacle	**R7:** 7-Pin control receptacle only	
Optional Control	**PE:** Twist-Lock Photocontrol (120V-277V) **PE4:** Twist-Lock Photocontrol (347V-480V) **SC:** Shorting Cap **PEC:** Electronic Button Photocontrol (120V-277V) **PEC4:** Electronic Button Photocontrol (480V)	
Optional Fuse	**FHD:** Double Fuse and Holder	
Optional House Side Shield	**BLOC:** Back Light Optical Control	
Optional Fixed Dimming Resistor Board	**FDRB:** Fixed Dimming Resistor Board	

Physical

Fixture	**E350LED:** Open Body, Medium Euro **E360LED:** Full Body Lens, Medium Euro

Fitter	**SF:** Standard Fitter **UF:** Utility Fitter	
Lens	**CA:** Clear Acrylic **FA:** Frosted Acrylic **FL:** Flat Lens **SG:** Sag Glass **FSG:** Frosted Sag Glass **SV1:** Flat Soft Vue Light Diffused Acrylic **SV2:** Flat Soft Vue Moderate Diffused Acrylic	
Finish	**BKT:** Black Textured **WHT:** White Textured **PGT:** Park Green Textured **ABZT:** Architectural Medium Bronze Textured **DBT:** Dark Bronze Textured **CM:** Custom Match **OI:** Old Iron **RT:** Rust **WBR:** Weathered Brown **CD:** Cedar **WBK:** Weathered Black **TT:** Two Tone **VG:** Verde Green **SI:** Swedish Iron **OWGT:** Old World Gray Textured	

Light Source

LED	**12L:** 12 LEDs	**16L:** 16 LEDs
CCT - Color Temp (K)	**27:** 2,700K **35:** 3,500K **50:** 5,000K	**30:** 3,000K **40:** 4,000K
Distribution Type	**T2:** Type 2 **T4:** Type 4	**T3:** Type 3 **T5:** Type 5

Electrical and control

Driver	**MDL006:** 120V-277V, 60mA **MDL010:** 120V-277V, 100mA **MDL014:** 120V-277V, 140mA **MDL018:** 120V-277V, 180mA	**MDH006:** 347V-480V, 60mA **MDH010:** 347V-480V, 100mA **MDH014:** 347V-480V, 140mA **MDH018:** 347V-480V, 180mA

Specifications

Fitter	The fitter shall be heavy wall cast aluminum for high tensile strength. It includes 4 stainless steel Allen-head set screws for attachment and slip-fits a 3"OD 3" tall tenon/pole. Offered with a standard fitter **(SF)** or an optional Utility Fitter **(UF)** which includes (2) access doors at 180 degrees providing ingress to all of the internal components.
Lens	Optional SoftVue™ lens provides optimal visual comfort. **Open Body "50"**: Uses a .125" thick acrylic lens. Offered in clear **(FL)**, Soft Vue Medium Diffused Acrylic **(SV1)** or Soft Vue Heavy Diffused Acrylic **(SV2)**. Also available with .188" thick glass lens. Sag Glass **(SG)** or Frosted Sag Glass **(FSG)** **Full Body Lens "60"**: Uses a .125" thick impact modified acrylic full body formed lens. Offered in clear **(CA)** or fully frosted **(FA)**.
Serviceability	Tool-less access to the driver compartment allows for trouble free servicing of the LED Driver and Surge Suppressor.

UL Listing	UL listed per UL1598 and CSA 22.2 No. 250.0 for the United States and Canada. Suitable for Wet Locations.
Electronic Driver	The LED driver is UL recognized and will be securely mounted inside the fixture, for optimized performance and longevity. It will be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections for fixture installation and maintenance. It will have DC voltage output and be a constant current design. It runs at 50/60HZ and will have overload, overheat, and short circuit protection. It will be supplied with a supplemental line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines. It will be a high efficiency driver with a THD less than 20% and a high-power factor greater than .9. It will be dimming capable using a 0-10V signal, consult factory for more information.
Darksky Certified	Variants of this product is certified through the DarkSky Approval Program **(Darksky.org)**
NightSky® Friendly	Dark sky compliant optics with a U0 BUG rating for specific configurations.
Finish	Our 6 Stage Polyester Powder coat paint system offers a beautiful high-end finish that holds up to even the most extreme environments. Each part is inspected for quality and consistency before being released for shipment. Our system exceeds AAMA 2604, AAMA 2605, ASTM D523 and ASTM D4214 requirements.
Traditional Finish	Traditional paint finishes are available in Sternberg Lighting's Traditional product line. A range of colors help accent the decorative elements on the product. Finishes are available in textured or smooth. Available finishes include: **Black, White, Park Green, Architectural Medium Bronze and Dark Bronze**
Sternberg Select Finish	The Sternberg Select antique-inspired palette adds a touch of vintage elegance to modern applications. **Old World Gray Textured** is a 1 part powder coat with metallic flakes. **Verde Green and Swedish Iron** is a 2 part finish that includes a powder coat base coat with a hand applied antique top coat. The top coat is unique to each application and changes over time.
Warranty	7-year limited warranty. See Website for Terms and Conditions.
LEDs	The LED's in this system will be fully shielded in a direct downward position to maximize efficiency. The LEDs are mounted to maximize thermal transfer to the heat sink surface. The LEDs shall be 100% recyclable; not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. Lumen maintenance shall be determined in accordance with IESNA TM-21, based on LED manufacturer LM-80 test data of no less than 6,000 hours and in-situ testing of the luminaire by an NVLAP accredited Energy Efficient Lighting Products lab. The high-performance white LEDs will have a predicted lumen depreciation of approximately 100,000 hours with greater than 70% of initial output at 25°C. The high brightness, high-output white LEDs shall be 4000K nominal (2700K, 3000K, 3500K or 5000K optional) correlated color temperature (CCT) with a 70 (minimum) color rendering index (CRI). Consult factory for custom CCT or CRI. The luminaire shall have a minimum ______ (see table) delivered initial lumens when operated at steady state with an average ambient temperature of 25°C (77°F). **CCT Lumen Derate Values from 4,000K** 2,700K (70+ CRI)=**.92** 3,000K (70+ CRI)=**.95** 3,500K (70+ CRI)=**1.03** 5,000K (70+ CRI)=**1.00**
Optics	The luminaire shall be provided with individual, refractor type optics applied to each LED. The luminaire shall provide Type ___ (2, 3, 4 or 5) light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79.
Backlight Optical Control	**BLOC Optic (BLOC):** An optional "Back Light Optical Control" shield can be provided at the factory. This is an internal optic level "House Side Shield" offering significantly reduced backlight and glare while maintaining the original design aesthetics of the luminaire.
Fixed Dimming Resistor Board (FDRB)	Optional numbered 10-step selector switch allows for fine adjustment of the light levels in the field, repeatable from location to location. Offers dimming from 25% to 100% of the original output. Enclosure is composite material, sealed to protect components for the life of the product.

Photocontrols	**All Photocells Require Utility Fitter** **Twist-Lock Style:** The photocontrol shall be mounted in the utility fitter and prewired to driver. Utility fitter includes acrylic window to read ambient light levels. The twist lock type photocontrol is instant on with a 3-6 second turn off, and shall turn on at 1.5 footcandles with a turnoff at 2-3 footcandles. Photocontrol is 120-277 volt and warranted for 6 years. For use with standard photocells only, not for use with a wireless network controller. **Button Photocell:** The photocontrol shall be mounted in the utility fitter and prewired to driver. Utility fitter includes acrylic window to read ambient light levels. The electronic button type photocontrol is instant on with a 5-10 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles. See pole spec sheet for pole mounted version.
IP Rating	IP65 rated when the STANDARD FITTER **(SF)** is used.
DarkSky Certified	**DarkSky Approved Versions** E350LED Fixture (Open Body) 2,700K or 3,000K CCT FL, SG, SV1 or SV2 Lenses

Lumen Chart(s)

Tested with CLEAR lens

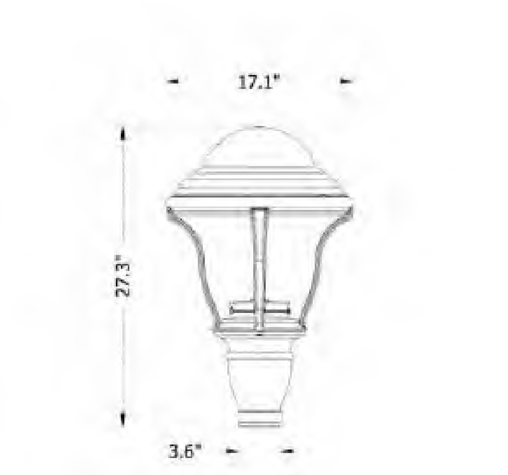
Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
16L40T_-MDL018	6885	B1U0G1	89.4	6295	B1U0G1	81.8	6810	B1U0G2	88.4	7270	B3U0G1	94.4	77
16L30T_-MDL018	6565	B1U0G1	85.3	6000	B1U0G1	77.9	6495	B1U0G2	84.4	6930	B3U0G1	90.0	77
16L27T_-MDL018	6350	B1U0G1	82.5	5805	B1U0G1	75.4	6280	B1U0G2	81.6	6705	B3U0G1	87.1	77
16L40T_-MDL014	5540	B1U0G1	93.9	5160	B1U0G1	87.5	5620	B1U0G1	95.3	5935	B2U0G1	100.6	59
16L30T_-MDL014	5280	B1U0G1	89.5	4920	B1U0G1	83.4	5360	B1U0G1	90.8	5660	B2U0G1	95.9	59
16L27T_-MDL014	5110	B1U0G1	86.6	4760	B1U0G1	80.7	5185	B1U0G1	87.9	5475	B2U0G1	92.8	59
16L40T_-MDL010	4170	B1U0G1	99.3	3885	B1U0G1	92.5	4225	B1U0G1	100.6	4480	B2U0G1	106.7	42
16L30T_-MDL010	3975	B1U0G1	94.6	3705	B1U0G1	88.2	4030	B1U0G1	96.0	4270	B2U0G1	101.7	42
16L27T_-MDL010	3845	B1U0G1	91.5	3585	B1U0G1	85.4	3895	B1U0G1	92.7	4130	B2U0G1	98.3	42
12L40T_-MDL010	3270	B1U0G1	99.1	2930	B1U0G1	88.8	3170	B1U0G1	96.1	3455	B2U0G0	104.7	33
12L30T_-MDL010	3120	B1U0G1	94.5	2795	B1U0G1	84.7	3020	B1U0G1	91.5	3295	B2U0G0	99.8	33
12L27T_-MDL010	3015	B1U0G1	91.4	2705	B1U0G1	82.0	2925	B1U0G1	88.6	3185	B2U0G0	96.5	33
12L40T_-MDL006	2015	B1U0G1	100.8	1865	B1U0G1	93.3	2030	B1U0G1	101.5	2175	B1U0G0	108.8	20
12L30T_-MDL006	1920	B1U0G1	96.0	1780	B1U0G1	89.0	1935	B1U0G1	96.8	2075	B1U0G0	103.8	20
12L27T_-MDL006	1860	B1U0G1	93.0	1720	B1U0G1	86.0	1875	B1U0G1	93.8	2005	B1U0G0	100.3	20

E350LED - Open Body

Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
16L40T_-MDL018	7050	B2U2G2	91.6	6895	B2U3G2	89.5	7320	B2U3G2	95.1	7780	B3U2G1	101.0	77
16L30T_-MDL018	6720	B2U2G2	87.3	6575	B2U3G2	85.4	6980	B2U3G2	90.6	7420	B3U2G1	96.4	77
16L27T_-MDL018	6080	B2U2G2	79.0	5945	B2U3G2	77.2	6310	B2U3G2	81.9	6705	B3U2G1	87.1	77
16L40T_-MDL014	5865	B2U2G2	99.4	5545	B2U3G2	94.0	5905	B2U2G2	100.1	6270	B3U2G1	106.3	59
16L30T_-MDL014	5590	B2U2G2	94.7	5285	B2U3G2	89.6	5630	B2U2G2	95.4	5980	B3U2G1	101.4	59
16L27T_-MDL014	5055	B2U2G2	85.7	4780	B2U3G2	81.0	5090	B2U2G2	86.3	5405	B3U2G1	91.6	59
16L40T_-MDL010	4400	B1U2G1	104.8	4155	B1U2G1	98.9	4435	B1U2G1	105.6	4675	B2U2G1	111.3	42
16L30T_-MDL010	4195	B1U2G1	99.9	3960	B1U2G1	94.3	4230	B1U2G1	100.7	4455	B2U2G1	106.1	42
16L27T_-MDL010	3795	B1U2G1	90.4	3580	B1U2G1	85.2	3825	B1U2G1	91.1	4030	B2U2G1	96.0	42
12L40T_-MDL010	3340	B1U2G1	101.2	3155	B1U2G1	95.6	3395	B1U2G1	102.9	3655	B2U2G1	110.8	33
12L30T_-MDL010	3185	B1U2G1	96.5	3010	B1U2G1	91.2	3235	B1U2G1	98.0	3485	B2U2G1	105.6	33
12L27T_-MDL010	2880	B1U2G1	87.3	2720	B1U2G1	82.4	2925	B1U2G1	88.6	3150	B2U2G1	95.5	33
12L40T_-MDL006	2090	B1U1G1	104.5	2005	B1U2G1	100.3	2130	B1U2G1	106.5	2280	B1U2G1	114.0	20
12L30T_-MDL006	1995	B1U1G1	99.8	1910	B1U2G1	95.5	2030	B1U2G1	101.5	2175	B1U2G1	108.8	20
12L27T_-MDL006	1800	B1U1G1	90.0	1730	B1U2G1	86.5	1835	B1U2G1	91.8	1965	B1U2G1	98.3	20

E360LED - Full Body Lens

Dimensions

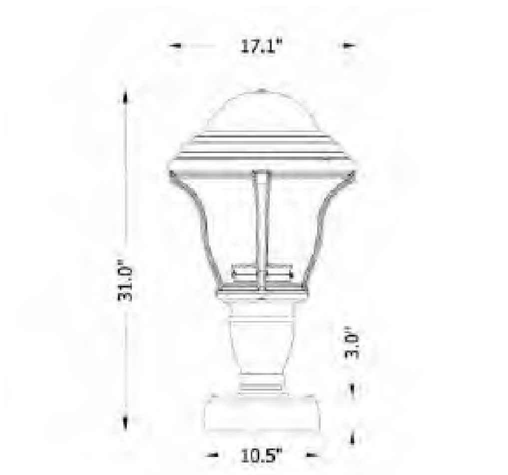


Open Body, Standard Fitter **(E350LED-SF)**

Full Body Lens, Standard Fitter **(E360LED-SF)**

Open Body, Utility Fitter **(E350LED-UF)**

Full Body Lens, Utility Fitter **(E360LED-UF)**



Pier Base **(450PB)**

Options

Fixed Dimming Resistor Board **(FDRB)**

Double Fuse Holder & (2) 3A Fuses **(FHD)**

House Side Shield **(HSS)**

How to Order

Mounting Configuration	Fixture	Fitter	LED	CCT - Color Temp (K)	Distribution Type	Driver	Lens
1W Wall Mount **PT** Post Top **1A** 1 Arm Mount **1APT** 1 Arm & Post Top **2A** 2 Arm Mount @ 180° **2A90** 2 Arm Mount @ 90° **2APT** 2 Arm @ 180° & Post Top **3A** 3 Arms @ 120° [1] **3A90** 3 Arms @ 90° **3APT** 3 Arm @ 120° & Post Top [1] **4A** 4 Arms @ 90° **4APT** 4 Arm @ 90° & Post Top **1AM** 1 Arm Mid-Mount **2AM** 2 Arm Mid-Mount @180° **450PB** Pier Base	**E350LED** Open Body, Medium Euro **E360LED** Full Body Lens, Medium Euro	**SF** Standard Fitter **UF** Utility Fitter	**12L** 12 LEDs **16L** 16 LEDs	**27** 2,700K **30** 3,000K **35** 3,500K **40** 4,000K **50** 5,000K	**T2** Type 2 **T3** Type 3 **T4** Type 4 **T5** Type 5	**MDL006** 120V-277V, 60mA [2] **MDH006** 347V-480V, 60mA [2] **MDL010** 120V-277V, 100mA **MDH010** 347V-480V, 100mA **MDL014** 120V-277V, 140mA [3] **MDH014** 347V-480V, 140mA [3] **MDL018** 120V-277V, 180mA [3] **MDH018** 347V-480V, 180mA [3]	**CA** Clear Acrylic [4] **FA** Frosted Acrylic [4] **FL** Flat Lens [5] **SG** Sag Glass [5] **FSG** Frosted Sag Glass [5] **SV1** Flat Soft Vue Light Diffused Acrylic [5] **SV2** Flat Soft Vue Moderate Diffused Acrylic [5]

Notes:

1. Only available with a round profile pole.
2. 12L system only.
3. 16L system only.
4. For Full Body Lens "60" model only.
5. For Open Body "50" model only.

How to Order

Optional Control Receptacle [6] [7] [8]	Optional Control [6]	Optional Fuse [10]	Optional House Side Shield [11]	Optional Fixed Dimming Resistor Board [12]	Finish
R7 7-Pin control receptacle only	**PE** Twist-Lock Photocontrol (120V-277V) [9] **PE4** Twist-Lock Photocontrol (347V-480V) [9] **SC** Shorting Cap [9] **PEC** Electronic Button Photocontrol (120V-277V) **PEC4** Electronic Button Photocontrol (480V)	**FHD** Double Fuse and Holder	**BLOC** Back Light Optical Control	**FDRB** Fixed Dimming Resistor Board	**BKT** Black Textured [13] **WHT** White Textured [13] **PGT** Park Green Textured [13] **ABZT** Architectural Medium Bronze Textured [13] **DBT** Dark Bronze Textured [13] **CM** Custom Match [14] **OI** Old Iron [14] **RT** Rust [14] **WBR** Weathered Brown [14] **CD** Cedar [14] **WBK** Weathered Black [14] **TT** Two Tone [14] **VG** Verde Green **SI** Swedish Iron **OWGT** Old World Gray Textured

Notes:

6. For use with "UF" utility fitter only.
7. Not for use with FDRB.
8. For use with standard 3-Pin photocells only, not for use with a wireless network controller.
9. Requires control receptacle.
10. Ships loose for installation in base.
11. Not for use with T5 optic.
12. Not for use with R7.
13. Smooth finishes are available upon request.
14. Custom colors require upcharge.

K595 ARISTOCRAT - LED

The King Luminaire K595 Aristocrat is a versatile luminaire suitable for contemporary or traditional settings. Featuring our high performance P4 LED engine and zero uplight, it is a perfect solution for city streets, parks, schools and commercial areas.

King Luminaire

PRODUCT SPECIFICATIONS

LED ENGINE
Light engine shall include an array of Cree X-Series high power LEDs (light emitting diodes). The emitters shall be mounted to a metal core circuit board using SMT technology. The LEDs and circuit boards shall then be mounted to a high performance heat sink.

OPTICS
External light control shall consist of high precision refractive lenses mounted above the LED emitter arrays in such a way to achieve optimum uplight control. The lenses shall also control horizontal light distribution so that Type II, III, IV or V IESNA distribution patterns are achieved.

LENS
The K595 Aristocrat is available with or without a lens. Lens options include a clear sag glass and clear shallow glass made of #9000 clear borosilicate glass (fully annealed). It shall maintain a minimum thickness of 0.16". The lens is secured by means of a cast aluminum holding ring. Additionally, a continuous circular gasket rated for 270°F will assist in sealing the lens and provide an IP66 ingress rating.

LUMINAIRE CONSTRUCTION
All K595 Aristocrat cast components shall consist of a heavy cast aluminum. The spun aluminum canopy assembly acts as an enclosure for the driver assembly and is of adequate thickness to give sufficient structural rigidity.

The four cast aluminum struts are mechanically attached by stainless steel screws to both the capital (bottom) and the spun aluminum canopy.

The capital shall have an opening at the base tenon body to allow the luminaire to be mounted to a tenon of 3-1/2" maximum diameter. The luminaire shall be locked in place by means of heavy duty, stainless steel set-screws.

DRIVER
The LED universal dimmable driver will be class 2 and capable of 120 - 277V or 347 - 480V input voltage, greater than 0.9 power factor, and less than 20% total harmonic distortion. The case temperature of the driver can range from -40°C to 70°C. Each LED system comes with a standard surge protection designed to withstand up to 20kV/10kA of transient line surge as per IEEE C62.41.2 C High. An in-line ferrite choke is utilized to provide protection against EFT's. The driver assembly will be mounted on a heavy duty fabricated galvanized steel bracket to allow complete tool-less maintenance. Dimming capable using 1-10vdc (10% to 100%), 10v PWM, or resistance.

PHOTOMETRICS
Fixtures are tested to IESNA LM79 specifications. These reports are available upon request.

CHROMATICITY
High output LEDs come standard at 3000K & 4000K (+/- 300K) with a minimum nominal 70 CRI. Additional CCT emitters are available upon request.

LUMEN MAINTENANCE
Reported (TM21) and Calculated (L70) reports are available upon request with a minimum calculated value of 100,000 hrs.

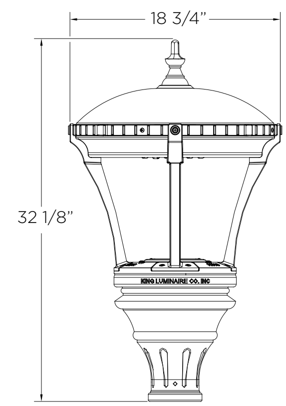
WIRING
All internal wiring and connections shall be completed so that it will be necessary only to attach the incoming supply connectors to Mate-N-Lok connectors or to a terminal block. Mate-N-Lok shall be certified for 600V operation. Internal wire connectors shall be crimp connector only and rated at 1000V and 150°C. All wiring to be CSA certified and/or UL listed, type SFF-2, SEWF-2, or SEW-2 No. 14 gauge, 150°C, 600V, and color coded for the required voltage.

THERMALS
Fixtures tested by a DOE sanctioned test facility to determine the maximum in-situ solder-point or junction-point temperatures of the LED emitters. This report is available upon request.

FINISH
Housing is finished with a 13 step KingCoat™ SuperDurable polyester TGIC powder coat. Standard colors include strobe white, brown metal, marina blue, gate gray, Chicago bronze, standard gold, standard black, federal green and rain forest. Please see our website for a complete list of colors. RAL and custom color matches are available.

MISCELLANEOUS
All exterior hardware and fasteners, wholly or partly exposed, shall be stainless steel alloy. All internal fasteners are stainless steel or zinc coated steel. All remaining internal hardware is stainless steel, aluminum alloy, or zinc coated steel.

WARRANTY
The K595 Aristocrat LED luminaire comes with a 7 year limited warranty.



SHOWN WITH K30 CAPITAL

CERTIFICATION:
CSA US Listed
Suitable for wet locations
ISO 9001
IP66
ARRA Compliant
LM79 / LM80 Compliant
IDA Certified*

DRIVER INFO:
>0.9 Power Factor
<20% Total Harmonic Distortion
120 - 277V & 347 - 480V
-40°C Min. Case Temperature
70°C Max. Case Temperature
Surge Protection: ANSI C136.2 extreme level 20kV/10kA
Dimming Capable: 1-10vdc

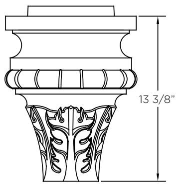
EPA:
With K30 Capital: 0.81 sq. ft.

FIXTURE WEIGHT:
With K30 Capital: 36 lbs

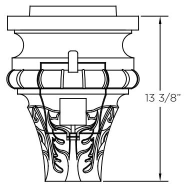
*IDA Certification applicable for maximum 3000K CCT. Glass lenses do not apply.
12-16-2022

FIXTURE OPTIONS

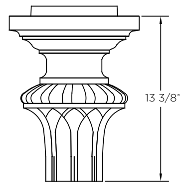
Capital Options



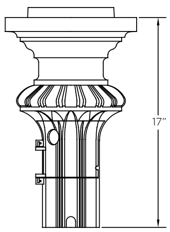
K13



K14 C/W PR



K16



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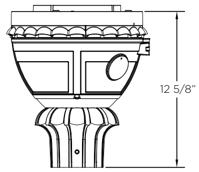

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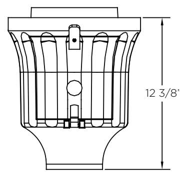
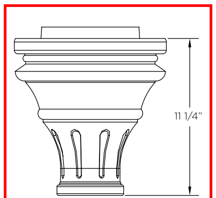
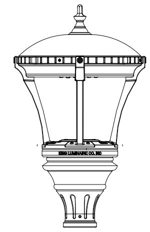


K24 C/W PR

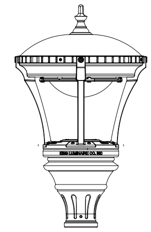


K30

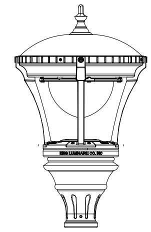
Lens Options



NO LENS

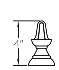


SAG LENS



SHALLOW LENS

Finial Options



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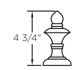

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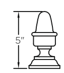


#3

HOW TO ORDER

K595 - [ ] - [ ] - [ ] (SSL) 7030 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

LUMINAIRE STYLE
K595 - Aristocrat

OPTICAL OPTIONS
P4NL - P4 Optic No Lens
P4SA - P4 Sag Glass Lens
P4SH - P4 Shallow Glass Lens

IES LIGHTING CLASSIFICATION
II - Type 2
III - Type 3
IV - Type 4
V - Type 5

WATTAGE
25, 40, 60, 75, 100

SOURCE
SSL - Solid State

SERIES
7030 (25 - 100W)

LINE VOLTAGE
120V (120-277)
480V (347-480)*

*Select wattages available within this range, contact King Luminaire. 120V will be provided if blank.

PHOTO CONTROL OPTION
PR - Photo Receptacle

PE - Photo Receptacle and Photo Eye

PEBC - Photo Electric Buttoncell

*leave blank if not required

CAPITAL
K13, K14, K16, K18, K26, K24, K30

*Additional options available on website

CCT
3K - 3000K
4K - 4000K

CONNECTION
Quick Disconnect is standard. If terminal block is required, please specify TB

PAINT COLOR
GN - Federal Green
BE - Blue
GY - Gray
BN - Brown
BK - Black
BZ - Bronze

*Additional options available on website. BK will be provided if blank.

FINIAL OPTIONS
#1, #2, #3

*Additional options available on website

WATTAGE SELECTOR
WS - Wattage Selector

*leave blank if not required

K137 YARMOUTH (NO GLOBE) - LED

King Luminaire

With its simple, yet classic design, the K137 Yarmouth is an excellent fit in architectural locations that are contemporary, historical, or somewhere in between. Teamed with King Luminaire's high performance P4 LED engine it makes for a perfect solution for city streets, parks, schools and commercial areas.

PRODUCT SPECIFICATIONS

LED ENGINE
Light engine shall include an array of Cree X-Series high power LEDs (light emitting diodes). The emitters shall be mounted to a metal core circuit board using SMT technology. The LEDs and circuit boards shall then be mounted to a high performance heat sink.

OPTICS
External light control shall consist of high precision refractive lenses mounted above the LED emitter arrays in such a way to achieve optimum uplight control. The lenses shall also control horizontal light distribution so that Type II, III, IV or V IESNA distribution patterns are achieved.

LUMINAIRE CONSTRUCTION
All K137 Yarmouth cast components shall consist of a heavy cast aluminum. The main body, or capital, acts as an enclosure for the driver assembly and is of adequate thickness to give sufficient structural rigidity.

The four heavy grade A319 cast aluminum struts that connect the main body and the capital are of adequate thickness to provide structural rigidity.

The capital shall have an opening at the base tenon body to allow the luminaire to be mounted to a tenon of 3-1/2" maximum diameter. The luminaire shall be locked in place by means of heavy duty, stainless steel set-screws.

DRIVER
The LED universal dimmable driver will be class 2 and capable of 120 - 277V or 347 - 480V input voltage, greater than 0.9 power factor, less than 20% total harmonic distortion. The case temperature of the driver can range from -40°C up to 70°C. Each LED system comes with a standard surge protection designed to withstand up to 20kV/10kA of transient line surge as per IEEE C62.41.2 C High. An in-line ferrite choke is utilized to provide protection against EFT's. The driver assembly will be mounted on a heavy duty fabricated galvanized steel mounting bracket to allow complete tool-less maintenance. Dimming capable using 1-10vdc (10% to 100%), 10v PWM, or resistance.

PHOTOMETRICS
Fixtures are tested to IESNA LM79 specifications. These reports are available upon request.

CHROMATICITY
High output LEDs come standard at 3000K & 4000K (+/- 300K) with a minimum nominal 70 CRI. Additional CCT emitters are available upon request.

LUMEN MAINTENANCE
Reported (TM21) and Calculated (L70) reports are available upon request with a minimum calculated value of 100,000 hrs.

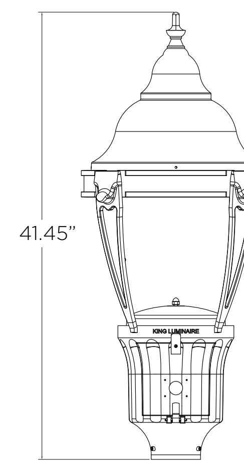
WIRING
All internal wiring and connections shall be completed so that it will be necessary only to attach the incoming supply connectors to Mate-N-Lok connectors or to a terminal block. Mate-N-Lok shall be certified for 600V operation. Internal wire connectors shall be crimp connector only and rated at 1000V and 150°C. All wiring to be CSA certified and/or UL listed, type SFF-2, SEWF-2, or SEW-2 No. 14 gauge, 150°C, 600V, and color coded for the required voltage.

THERMALS
Fixtures tested by a DOE sanctioned test facility to determine the maximum in-situ solder-point or junction-point temperatures of the LED emitters. This report is available upon request.

FINISH
Housing is finished with a 13 step KingCoat™ SuperDurable polyester TGIC powder coat. Standard colors include strobe white, brown metal, marina blue, gate gray, Chicago bronze, standard gold, standard black, federal green and rain forest. Please see our website for a complete list of colors. RAL and custom color matches are available.

MISCELLANEOUS
All exterior hardware and fasteners, wholly or partly exposed, shall be stainless steel alloy. All internal fasteners are stainless steel or zinc coated steel. All remaining internal hardware is stainless steel, aluminum alloy, or zinc coated steel.

WARRANTY
The K137 Yarmouth LED luminaire comes with a 7 year limited warranty.



SHOWN WITH K24 CAPITAL

CERTIFICATION:
CSA US Listed
Suitable for wet locations
ISO 9001
IP66
ARRA Compliant
LM79 / LM80 Compliant
IDA Certified*

DRIVER INFO:
>0.9 Power Factor
<20% Total Harmonic Distortion
120 - 277V & 347 - 480V
-40°C Min. Case Temperature
70°C Max. Case Temperature
Surge Protection: ANSI C136.2 extreme level 20kV/10kA
Dimming Capable: 1-10vdc

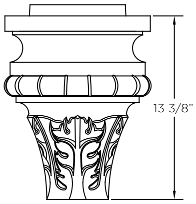
EPA:
1.55 sq. ft.

FIXTURE WEIGHT:
40 lbs

*IDA Certification applicable for maximum 3000K CCT.
Glass lenses do not apply.
Contact King Luminaire for product specifications that are exempt from CSA Certification
08-10-2021

FIXTURE OPTIONS

Capital Options



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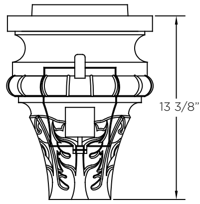
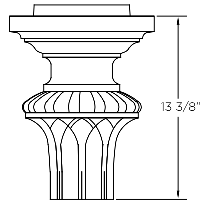
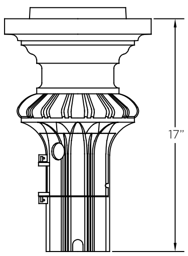


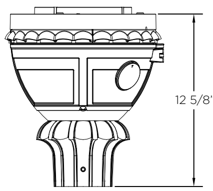
K14 C/W PR



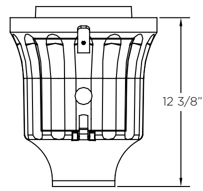
K16



K18 C/W PR

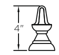


K26 C/W PR



K24 C/W PR

Finial Options



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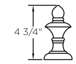

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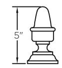


#3

HOW TO ORDER

K137 - P4NG - [ ] - [ ] (SSL) [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

LUMINAIRE STYLE
K137 - Yarmouth

OPTICAL OPTIONS
P4 - P4 Optic (Flat Array)

LENS OPTIONS
NG - No Globe*

*includes Ring and Struts (WRS)

IES LIGHTING CLASSIFICATION
- II - Type 2
- III - Type 3
- IV - Type 4
- V - Type 5

WATTAGE
25, 40, 60, 75, 100

SOURCE
SSL - Solid State

SERIES
7030 (25 - 100W P4)

LINE VOLTAGE
120V (120-277)
480V (347-480)*

*Select wattages available within this range, contact King Luminaire. 120V will be provided if blank.

CAPITAL
K13, K14, K16, K18, K26, K24

*Additional options available on website

PHOTO CONTROL OPTION
PR - Photo Receptacle Available with K14, K18, K26 & K24

PE - Photo Receptacle and Photo Eye Available with K14, K18, K26 & K24

PEBC - Photo Electric Buttoncell

*leave blank if not required

CCT
3K - 3000K
4K - 4000K

CONNECTION
Quick Disconnect is standard. If terminal block is required, please specify TB

PAINT COLOR
- GN - Federal Green
- BE - Blue
- GY - Gray
- BN - Brown
- BK - Black
- BZ - Bronze

*Additional options available on website. BK will be provided if blank.

FINIAL OPTIONS
#1, #2, #3

*Additional options available on website

WATTAGE SELECTOR
WS - Wattage Selector

* leave blank if not required

Catalog Number	
Notes	Type

WFCL3

Utility Washington Series Luminaire
Full Cutoff LED3

Mechanical

- Heavy grade A360 cast aluminum (<1% copper)
- Tool-less access with a spring-loaded latch
- Hidden hinge door allowing the door to swing open and remain open
- Optional internal or external NEMA twist lock photocontrol receptacle. Housing contains a tempered glass window to allow light to reach the cell for internal versions.
- Mount to slip-fitter that will accept 3" high by 2-7/8" to 3-1/8" O.D. pole tenon
- Decorative top cover contains stainless steel hinge which secures entry the LED optical chamber
- Polyester power coat paint to ensure maximum durability
- Rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5,000 hours exposure to salt fog chamber (operated per ASTM B117) on standard and RAL finish options.
- RAL (RALxxxxSDCR) paint colors are Super Durable Corrosion Resistant, 80% gloss.

Electrical

- Surge protection meets ANSI/IEEE C62.41.2 10kV/10kA.
- Standard SPD meets 20kV/10kA per ANSI C136.2-2015
- Quick disconnect connectors for ease of installation and maintenance.
- Three pole terminal block is standard, with optional prewired leads for ease of installation
- LED electronic 0-10v dimmable driver meets maximum total harmonic distortion (THD) of 20%, >0.90 Power Factor and is ROHS compliant.
- Minimum operating temperature is -40°C.
- Electronic driver has an estimated minimum life of 100,000 hours at 25°C.

Optical

- IP65 rated optical compartment
- LED circuit board located in the top cover
- Asymmetric or Symmetric zero uplight distributions
- 2700K, 3000K and 4000K CCT
- 70CRI Standard

Control Options

- Field Adjustable Output (AO) module - Onboard device that adjusts the light output and input wattage to meet site specific requirements. The AO module is preset at the factory to position number 8
- nLight Air rSBOR6 outdoor fixture-mounted motion and photo-sensor, features a dual radio to communicate wirelessly to other nLight Air devices for group response to motion, on/off control in response to daylight and by switch – RSBOR6
- Long life photocontrol, 20 years – PCLL, P34 and P48 with DTL
- 7 pin photocontrol receptacles internally (PR7) or externally (PR7E) mounted in place of the finial
- DTL DIN dedicated bracket with external mounted antenna -DINBRA

Manufacturing

- Manufactured in Crawfordsville, Indiana, ARRA compliant
- 100% electrical testing on all luminaires before shipment
- Ten (10) years minimum experience in manufacturing LED based products

Certification and Standards

- Luminaire shall be UL 1598 - Wet Location Safety Listing
- Suitable for operation in an ambient temperature -40°C (40°F) to 40°C (104°F) per UL certification for performance packages P05 thru P100 Type 2, 3 & 5 no glass, P05 thru P90 Type 2, 3, 4 & 5 clear glass and P05 thru P90 Type 3 & 5 frosted glass
- Suitable for operation in an ambient temperature -40°C (40°F) to 35°C (95°F) per UL certification for performance packages P100 Type 45 no glass, P100 Type 2, 3, 4 & 5 clear glass and P100 Type 3 & 5 frosted glass
- LM79 compliant
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Buy American Act

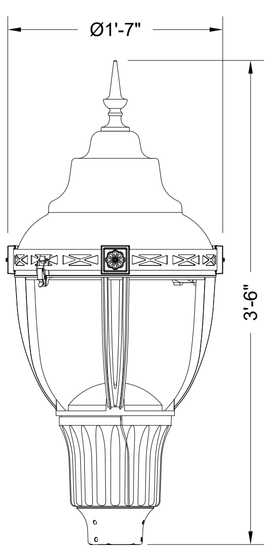
This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/resources/buy-american for additional information.

Warranty

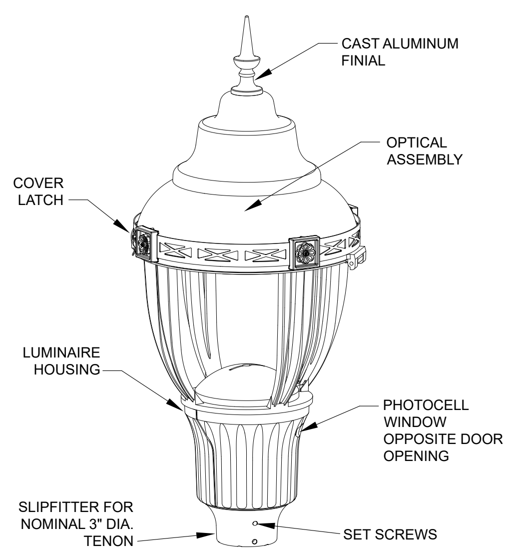
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

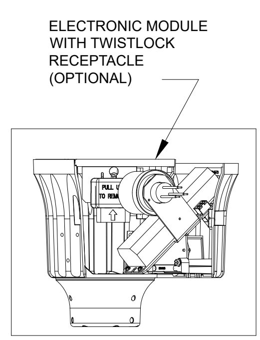
Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

DIMENSIONAL DATA



Maximum Weight - 53 lbs
Maximum Effective Projected Area - 1.72 sq. ft.





HINGED DOOR HOUSING

ORDERING INFORMATION (refer to page 3 for configurable options)

Example: WFCL3 P20 30K MVOLT FC3 BK NF PR7E

Series		Led performance package		LED Color temperature		Voltage		Optics		Housing Color		Finial	
WFCL3	Utility Washington LED FCO	P05	3,200 nominal lumens	27K	2700K CCT	MVOLT	Auto-sensing voltage (120 thru 277) 50/60 HZ	FC2	Type 2 distribution full cutoff	BK	Black	NF	None
		P10	4,500 nominal lumens	30K	3000K CCT	HVOLT	Auto-sensing voltage (347 thru 480) 50/60 HZ	FC3	Type 3 distribution full cutoff	GR	Gray	BL	Ball
		P20	5,600 nominal lumens	40K	4000K CCT	XVOLT	Auto-sensing voltage (277 thru 480V) with enhanced power quality protection	FC4	Type 4 distribution full cutoff	GH	Graphite	SK	Spike
		P30	7,000 nominal lumens					FC5	Type 5 distribution full cutoff	GN	Green		
		P40	8,100 nominal lumens							PP	Prime paint		
		P50	9,200 nominal lumens							WH	White		
		P60	10,200 nominal lumens							BZ	Bronze		
		P70	10,800 nominal lumens							RALxxxxSDCR	RAL Super Durable Corrosion Resistant, 80% Gloss Paint, replace xxxx with RAL number.		
		P80	11,700 nominal lumens							CMC	Custom color match		
		P90	12,700 nominal lumens										
		P100	13,600 nominal lumens										

Options: *Option Compatibility Matrix on page 3 of 4*

CONTROLS OPTIONS

AO	Field Adjustable Output
DINBRA	DTL DIN node bracket with external mounted antenna, DTL DIN node ordered and shipped separately
PR7	NEMA twistlock dimming photocontrol receptacle - 7 pin
PR7E	NEMA twistlock dimming photocontrol receptacle - 7 Pin (Must use NF Finial Option)
PCLL	Long Life DTL Twistlock Photocontrol for Solid State, MVOLT
P34	Long Life DTL Twistlock Photocontrol for Solid State, 347V
P48	Long Life DTL Twistlock Photocontrol for Solid State, 480V
SH	Shorting Cap
RSBOR6	nLight Motion Sensing Photocontrols

PREWIRED LEAD OPTIONS

L1H	1.5 ft prewired leads
L03	3 ft prewired leads
L10	10 ft prewired leads
L20	20 ft prewired leads
L25	25 ft prewired leads
L30	30 ft prewired leads

OPTIC OPTIONS

CLGL	Clear tempered glass lens
FRGL	10% Frosted tempered glass lens
HSS	Louvered house side shield

LEM REVEAL COLOR OPTIONS

MHC	LEM Reveal Plate Painted to match Housing Color

NEMA LABEL OPTIONS

NL1X1	1" X 1" ANSI Wattage Label
NL2X2	2" X 2" ANSI Wattage Label

Accessories: *Order as separate catalog number.*

HOUSE SIDE SHIELD

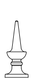
CLHSSNG25	No glass, Type 2 & Type 5 - Louvered house side shield
CLHSSNG34	No glass, Type 3 & Type 4 - Louvered house side shield
CLHSSGL25	Glass, Type 2 & Type 5 - Louvered house side shield
CLHSSGL34	Glass, Type 3 & Type 4 - Louvered house side shield

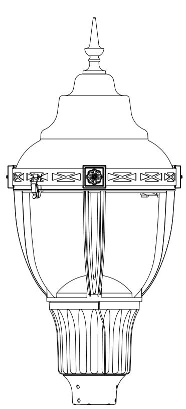
SURGE PROTECTION KITS

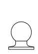
SPDPLUGIN	MVOLT-20KV	Replacement for 120-277V 20KV/ 10KA
SPDPLUGIN	HVOLT-20KV	Replacement for 347-480V 20KV/ 10KA

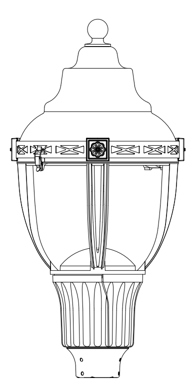
FINIAL INFORMATION

Mark Appropriate Box for Finial Options

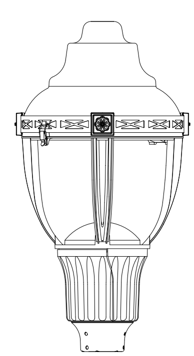

Spike (SK) ☐




Ball (BL) ☐



No Finial (NF) ☐



OPTIONS MATRIX

Option Matrix		LED Package											Voltage			Distribution				Finials			Options													
		P05	P10	P20	P30	P40	P50	P60	P70	P80	P90	P100	MVOLT	HVOLT	XVOLT	FC2	FC3	FC4	FC5	BL	NF	SK	AO	DALI	DINBRA	PR7	PR7E	PCLL	PC34	PC48	RSBOR6	SH	HSS	MHC	CLGL	FRGL
LED Package	P05		N	N	N	N	N	N	N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P10	N		N	N	N	N	N	N	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P20	N	N		N	N	N	N	N	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P30	N	N	N		N	N	N	N	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P40	N	N	N	N		N	N	N	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P50	N	N	N	N	N		N	N	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P60	N	N	N	N	N	N		N	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P70	N	N	N	N	N	N	N		N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P80	N	N	N	N	N	N	N	N		N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P90	N	N	N	N	N	N	N	N	N		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P100	N	N	N	N	N	N	N	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C
Voltage	MVOLT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y
	HVOLT	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y
	XVOLT	N	N	N	N	N	N	N	Y	Y	Y	Y	N	N		Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y
Distributions	FC2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N	N	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
	FC3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		N	N	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	FC4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N		N	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
	FC5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Finials	BL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N	Y	RFD	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
	NF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		N	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	SK	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N		Y	RFD	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Options	AO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N	Y	Y	N	N	N	N	Y	Y	Y	Y	Y
	DALI	RFD	RFD	RFD	RFD	RFD	RFD	RFD	RFD	RFD	RFD	RFD	RFD	N	N	RFD	RFD	RFD	RFD	RFD	RFD	RFD	N		RFD	N	N	N	N	N	N	N	RFD	RFD	RFD	RFD
	DINBRA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	RFD		N	N	N	N	N	N	Y	Y	Y	Y	Y
	PR7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N		N	Y	Y	Y	N	Y	Y	Y	Y	Y
	PR7E	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	N	N	N		Y	Y	Y	N	Y	Y	Y	Y	Y
	PCLL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y		N	N	N	Y	Y	Y	Y	Y
	PC34	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N		N	N	N	Y	Y	Y	Y
	PC48	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N	N		N	N	Y	Y	Y	Y
	RSBOR6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N		N	Y	Y	Y	Y
	SH	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	N		Y	Y	Y	Y
	HSS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
	MHC	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	N
	CLGL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		N
	FRGL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	RFD	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	

Y = Combination available / N = Combination not available / RFD = Additional information required, consult factory

LUMEN AMBIENT TEMPERATURE (LAT) MULTIPLIERS

Use the factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F)

Ambient Temp.		Lumen Maintenance - LLD (by Performance Package)										
°C	°F	P05	P10	P20	P30	P40	P50	P60	P70	P80	P90	P100
0	32	1.03	1.03	1.04	1.04	1.04	1.04	1.04	1.04	1.05	1.05	1.05
5	41	1.03	1.03	1.03	1.03	1.03	1.03	1.04	1.04	1.04	1.04	1.04
10	50	1.02	1.02	1.02	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.03
15	59	1.01	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
20	68	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
25	77	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	86	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
35	95	0.99	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
40	104	0.98	0.98	0.98	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97

PROJECTED LED LUMEN MAINTENANCE

Data references the extrapolated performance projections for the platforms noted in 25°C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).
To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Lumen Maintenance - LLD (by Performance Package)								
Hours	0	25,000	36,000	50,000	60,000	67,500	75,000	100,000
P05 - P70	1.00	0.94	0.92	0.89	0.87	0.86	0.84	0.79
P80 - P100	1.00	0.93	0.91	0.87	0.85	0.83	0.81	0.76

PERFORMANCE DATA

STANDARD OPTIONS: NO GLASS

LED Package	Glass/Optic	System Watts	27K (27000K, 70CRI)					30K (3000K, 70CRI)					40K (4000K, 70CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P05	FC2	30	3,054	102	1	0	1	3,105	104	1	0	1	3,317	111	1	0	1
	FC3		3,111	104	1	0	1	3,163	105	1	0	1	3,379	113	1	0	1
	FC4		3,068	102	1	0	1	3,119	104	1	0	1	3,332	111	1	0	1
	FC5		3,334	111	2	0	1	3,389	113	2	0	1	3,621	121	3	0	1
P10	FC2	39	4,294	110	1	0	2	4,365	112	1	0	2	4,663	120	1	0	2
	FC3		4,374	112	1	0	1	4,447	114	1	0	1	4,750	122	1	0	1
	FC4		4,314	111	1	0	2	4,385	112	1	0	2	4,685	120	1	0	2
	FC5		4,687	120	3	0	1	4,765	122	3	0	1	5,090	131	3	0	1
P20	FC2	48	5,284	110	1	0	2	5,372	112	1	0	2	5,738	120	2	0	2
	FC3		5,383	112	1	0	2	5,472	114	1	0	2	5,845	122	1	0	2
	FC4		5,309	111	1	0	2	5,397	112	1	0	2	5,765	120	1	0	2
	FC5		5,768	120	3	0	1	5,864	122	3	0	1	6,264	131	3	0	2
P30	FC2	59	6,750	114	2	0	2	6,862	116	2	0	2	7,330	124	2	0	2
	FC3		6,649	113	1	0	2	6,759	115	1	0	2	7,221	122	2	0	2
	FC4		6,413	109	2	0	2	6,520	111	2	0	2	6,965	118	2	0	2
	FC5		7,386	125	3	0	2	7,509	127	3	0	2	8,021	136	3	0	2
P40	FC2	69	7,911	115	2	0	2	8,042	117	2	0	2	8,591	125	2	0	3
	FC3		7,792	113	2	0	2	7,921	115	2	0	2	8,462	123	2	0	2
	FC4		7,319	106	2	0	2	7,440	108	2	0	2	7,948	115	2	0	2
	FC5		8,656	125	4	0	2	8,800	128	4	0	2	9,400	136	4	0	2
P50	FC2	81	8,924	110	2	0	3	9,072	112	2	0	3	9,692	120	2	0	3
	FC3		8,791	109	2	0	2	8,937	110	2	0	2	9,546	118	2	0	2
	FC4		8,378	103	2	0	2	8,517	105	2	0	2	9,098	112	2	0	2
	FC5		9,766	121	4	0	2	9,928	123	4	0	2	10,605	131	4	0	2
P60	FC2	91	9,944	109	2	0	3	10,109	111	2	0	3	10,799	119	3	0	3
	FC3		9,795	108	2	0	2	9,957	109	2	0	2	10,637	117	2	0	2
	FC4		9,125	100	2	0	2	9,276	102	2	0	2	9,909	109	2	0	3
	FC5		10,881	120	4	0	2	11,062	122	4	0	2	11,816	130	4	0	2
P70	FC2	98	10,475	107	2	0	3	10,649	109	3	0	3	11,375	116	3	0	3
	FC3		10,318	105	2	0	2	10,489	107	2	0	2	11,205	114	2	0	2
	FC4		9,667	99	2	0	3	9,827	100	2	0	3	10,498	107	2	0	3
	FC5		11,462	117	4	0	2	11,652	119	4	0	2	12,447	127	4	0	2
P80	FC2	107	11,437	107	3	0	3	11,627	109	3	0	3	12,421	116	3	0	3
	FC3		11,266	105	2	0	2	11,453	107	2	0	2	12,235	114	2	0	2
	FC4		10,408	97	2	0	3	10,580	99	2	0	3	11,302	106	2	0	3
	FC5		12,516	117	4	0	2	12,723	119	4	0	2	13,592	127	4	0	3
P90	FC2	117	12,338	105	3	0	3	12,543	107	3	0	3	13,399	115	3	0	3
	FC3		12,153	104	2	0	2	12,355	106	2	0	2	13,198	113	2	0	2
	FC4		11,319	97	2	0	3	11,507	98	2	0	3	12,293	105	2	0	3
	FC5		13,501	115	4	0	2	13,725	117	4	0	3	14,662	125	4	0	3
P100	FC2	130	13,177	101	3	0	3	13,396	103	3	0	3	14,310	110	3	0	3
	FC3		12,980	100	2	0	2	13,195	102	2	0	2	14,096	108	3	0	3
	FC4		12,110	93	2	0	3	12,311	95	2	0	3	13,152	101	3	0	3
	FC5		14,419	111	4	0	3	14,658	113	4	0	3	15,659	120	4	0	3

HOLOPHANE
LEADER IN LIGHTING SOLUTIONS

PERFORMANCE DATA

OPTIONAL: CLEAR GLASS

LED Package	Glass/Optic	System Watts	27K (27000K, 70CRI)					30K (3000K, 70CRI)					40K (4000K, 70CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P05	FC2	30	2,759	92	1	0	1	2,804	93	1	0	1	2,996	100	1	0	1
	FC3		2,803	93	1	0	1	2,850	95	1	0	1	3,044	101	1	0	1
	FC4		2,681	89	1	0	1	2,726	91	1	0	1	2,912	97	1	0	1
	FC5		2,975	99	2	0	1	3,025	101	2	0	1	3,231	108	2	0	1
P10	FC2	39	3,878	99	1	0	1	3,943	101	1	0	1	4,212	108	1	0	1
	FC3		3,941	101	1	0	1	4,006	103	1	0	1	4,280	110	1	0	1
	FC4		3,770	97	1	0	1	3,832	98	1	0	1	4,094	105	1	0	1
	FC5		4,183	107	3	0	1	4,252	109	3	0	1	4,543	116	3	0	1
P20	FC2	48	4,773	99	1	0	1	4,852	101	1	0	1	5,183	108	1	0	1
	FC3		4,850	101	1	0	1	4,930	103	1	0	1	5,267	110	1	0	1
	FC4		4,639	97	1	0	1	4,716	98	1	0	1	5,038	105	1	0	1
	FC5		5,148	107	3	0	1	5,233	109	3	0	1	5,590	116	3	0	1
P30	FC2	59	6,050	103	2	0	2	6,150	104	2	0	2	6,570	111	2	0	2
	FC3		6,052	103	1	0	1	6,152	104	1	0	1	6,572	111	1	0	2
	FC4		5,604	95	1	0	2	5,697	97	1	0	2	6,086	103	1	0	2
	FC5		6,444	109	3	0	1	6,551	111	3	0	1	6,998	119	3	0	1
P40	FC2	69	7,090	103	2	0	2	7,208	104	2	0	2	7,699	112	2	0	2
	FC3		7,092	103	2	0	2	7,210	104	2	0	2	7,702	112	2	0	2
	FC4		6,396	93	2	0	2	6,502	94	2	0	2	6,945	101	2	0	2
	FC5		7,551	109	3	0	2	7,677	111	3	0	2	8,201	119	3	0	2
P50	FC2	81	7,999	99	2	0	2	8,131	100	2	0	2	8,686	107	2	0	2
	FC3		8,001	99	2	0	2	8,134	100	2	0	2	8,689	107	2	0	2
	FC4		7,321	90	2	0	2	7,442	92	2	0	2	7,950	98	2	0	2
	FC5		8,519	105	3	0	2	8,660	107	3	0	2	9,251	114	3	0	2
P60	FC2	91	8,912	98	2	0	2	9,060	100	2	0	2	9,678	106	2	0	2
	FC3		8,915	98	2	0	2	9,063	100	2	0	2	9,682	106	2	0	2
	FC4		7,974	88	2	0	2	8,106	89	2	0	2	8,659	95	2	0	2
	FC5		9,492	104	3	0	2	9,650	106	3	0	2	10,308	113	4	0	2
P70	FC2	98	9,388	96	2	0	2	9,544	97	2	0	2	10,195	104	2	0	2
	FC3		9,391	96	2	0	2	9,547	97	2	0	2	10,199	104	2	0	2
	FC4		8,448	86	2	0	2	8,588	88	2	0	2	9,174	94	2	0	2
	FC5		9,999	102	3	0	2	10,165	104	3	0	2	10,859	111	4	0	2
P80	FC2	107	10,251	96	2	0	2	10,421	97	2	0	2	11,132	104	3	0	3
	FC3		10,254	96	2	0	2	10,425	97	2	0	2	11,136	104	2	0	2
	FC4		9,095	85	2	0	2	9,246	86	2	0	2	9,877	92	2	0	2
	FC5		10,918	102	4	0	2	11,099	104	4	0	2	11,857	111	4	0	2
P90	FC2	117	11,058	95	3	0	3	11,241	96	3	0	3	12,009	103	3	0	3
	FC3		11,062	95	2	0	2	11,245	96	2	0	2	12,013	103	2	0	2
	FC4		9,892	85	2	0	2	10,056	86	2	0	2	10,742	92	2	0	2
	FC5		11,778	101	4	0	2	11,973	102	4	0	2	12,790	109	4	0	2
P100	FC2	130	11,810	91	3	0	3	12,006	92	3	0	3	12,826	99	3	0	3
	FC3		11,814	91	2	0	2	12,010	92	2	0	2	12,830	99	2	0	2
	FC4		10,583	81	2	0	2	10,759	83	2	0	2	11,493	88	2	0	2
	FC5		12,579	97	4	0	2	12,787	98	4	0	2	13,660	105	4	0	2

PERFORMANCE DATA

OPTIONAL: FROSTED GLASS

LED Package	Glass/Optic	System Watts	27K (27000K, 70CRI)					30K (3000K, 70CRI)					40K (4000K, 70CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P05	**FC3**	30	1,962	65	1	0	1	1,994	66	1	0	1	2,130	71	1	0	1
	FC5		2,070	69	1	0	1	2,105	70	1	0	1	2,248	75	1	0	1
P10	**FC3**	39	2,758	71	1	0	1	2,804	72	1	0	1	2,995	77	1	0	1
	FC5		2,911	75	1	0	1	2,959	76	1	0	1	3,161	81	1	0	1
P20	**FC3**	48	3,394	71	2	0	1	3,450	72	2	0	1	3,686	77	2	0	1
	FC5		3,582	75	2	0	1	3,641	76	2	0	1	3,890	81	2	0	1
P30	**FC3**	59	4,162	71	2	0	1	4,231	72	2	0	1	4,520	77	2	0	1
	FC5		4,425	75	2	0	1	4,498	76	2	0	1	4,805	81	2	0	1
P40	**FC3**	69	4,878	71	2	0	2	4,959	72	2	0	2	5,297	77	2	0	2
	FC5		5,185	75	2	0	1	5,271	76	2	0	1	5,631	82	2	0	1
P50	**FC3**	81	5,503	68	2	0	2	5,594	69	2	0	2	5,976	74	2	0	2
	FC5		5,850	72	2	0	1	5,947	73	2	0	1	6,353	78	2	0	1
P60	**FC3**	91	6,131	67	2	0	2	6,233	68	2	0	2	6,659	73	2	0	2
	FC5		6,518	72	2	0	1	6,626	73	2	0	1	7,078	78	2	0	1
P70	**FC3**	98	6,459	66	2	0	2	6,566	67	2	0	2	7,014	72	2	0	2
	FC5		6,866	70	2	0	1	6,980	71	2	0	1	7,456	76	2	0	1
P80	**FC3**	107	7,052	66	2	0	2	7,169	67	2	0	2	7,659	72	2	0	2
	FC5		7,497	70	2	0	1	7,621	71	2	0	2	8,142	76	3	0	2
P90	**FC3**	117	7,608	65	2	0	2	7,734	66	2	0	2	8,262	71	2	0	2
	FC5		8,087	69	3	0	2	8,221	70	3	0	2	8,783	75	3	0	2
P100	**FC3**	130	8,125	63	2	0	2	8,260	64	2	0	2	8,824	68	2	0	2
	FC5		8,637	66	3	0	2	8,781	68	3	0	2	9,380	72	3	0	2

COMPONENTS & OPTIONS DATA

AO
Manual field adjustable output dimming device

HSS
Minimize backlight with a louvered house-side-shield. Available as a factory installed

Performance Package	FAO Position	% Lumen Output	% Wattage
P05-P20	8	100%	100%
	7	94%	95%
	6	82%	83%
	5	70%	72%
	4	57%	60%
	3	45%	48%
	2	32%	38%
	1	19%	25%

Performance Package	FAO Position	% Lumen Output	% Wattage
P30-P100	8	100%	100%
	7	94%	93%
	6	83%	81%
	5	71%	69%
	4	59%	56%
	3	46%	44%
	2	33%	32%
	1	19%	20%

ACCESSORIES OPTION DATA

CLHSS
Minimize backlight with a louvered house-side-shield, field accessory

The Rapid Ship Pole and Luminaire program provides quick solutions for urgent needs.

The most popular and readily available are available for those urgent projects. Select from the following options to get up to 20 units shipped in 20 working days or less!

ORDERING INFORMATION

Example: WFCL3 P20 30K MVOLT FC3 BK NF PR7E

Series	Lumen/Wattage Package	Color Temperature	Voltage	Optics	Housing Color	Finial
WFCL3 Utility Washington LED FCO	P05 3,200 nominal lumens P10 4,500 nominal lumens P20 5,600 nominal lumens P30 7,000 nominal lumens P40 8,100 nominal lumens P50 9,200 nominal lumens P60 10,200 nominal lumens P70 10,800 nominal lumens P80 11,700 nominal lumens P90 12,700 nominal lumens P100 13,600 nominal lumens	27K 2700 series CCT 30K 3000 series CCT 40K 4000 series CCT	MVOLT Auto-sensing voltage (120 thru 277) 50/60 HZ HVOLT Auto-sensing voltage (347 thru 480) 50/60 HZ	FC2 Type 2 distribution zero uplight FC3 Type 3 distribution zero uplight FC4 Type 4 distribution zero uplight FC5 Type 5 distribution zero uplight	BK Black GR Gray GH Graphite GN Green WH White BZ Bronze	NF None BL Ball SK Spike

Options: *Option Compatibility Matrix on page 3 of 4*

CONTROLS OPTIONS

AO	Field Adjustable Output
DINBRA	DTL DIN node bracket with external mounted antenna, DTL DIN node ordered and shipped separately
PR7	NEMA Twist Lock Dimming photocontrol receptacle - 7 PIN receptacle only.
PR7E	NEMA Twist Lock Photocontrol Receptacle - 7 PIN. Externally mounted, available with NF option
PCLL	DTL long life twistlock photocontrol for solid-state MVOLT
SH	Shorting cap

PREWIRED LEAD OPTIONS

L1H	1.5 ft. prewired leads
L03	3 ft. prewired leads
L10	10 ft. prewired leads
L20	20 ft. prewired leads

OPTIC OPTIONS

CLGL	Clear tempered glass lens
FRGL	10% Frosted tempered glass lens
HSS	House side shield

LEM REVEAL COLOR OPTIONS

MHC	LEM Reveal Plate Painted to match Housing Color

NEMA LABEL OPTIONS

NL1X1	NEMA Label 1" x 1"
NL2X2	NEMA Label 2" x 2"

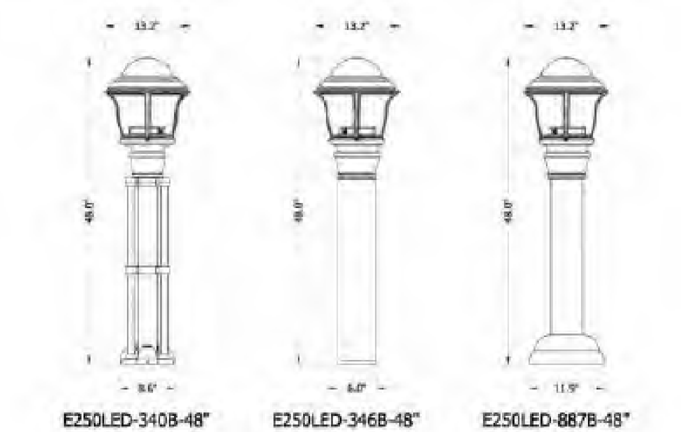
Accessories: *Order as separate catalog number, ships separately & field installed.*

HOUSE SIDE SHIELD

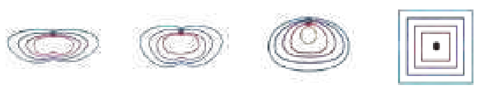
CLHSSNG25	No glass, Type 2 & Type 5 - Louvered house side shield
CLHSSNG34	No glass, Type 3 & Type 4 - Louvered house side shield
CLHSSGL25	Glass, Type 2 & Type 5 - Louvered house side shield
CLHSSGL34	Glass, Type 3 & Type 4 - Louvered house side shield

Project Name ______________________ **Qty** ________

Type ________ **Catalog / Part Number** ______________________



Distribution Type



Type 2 Type 3 Type 4 Type 5

CCT - Color Temp (K)

2,700K 3,000K 3,500K 4,000K 5,000K

7 Year Warranty

IP Rating

IP 65

Certifications

c UL us LISTED

Description

The E250LED and E260LED Euro bollard uses small scale fixtures that includes a die-cast aluminum roof, fitter and (4) sweeping support legs. The base portion is offered in a variety of styles from simple to ornate. This unique family adapts classic design elements in a more contemporary package.

Available in heights: 36", 42", 48", 54" and 60"

Physical

Model	**E250LED-340B:** Open Body, Multi-Tube Bollard **E260LED-340B:** Full Body Lens, Multi-Tube Bollard **E250LED-346B:** Open Body, Low-Profile Base Bollard **E260LED-346B:** Full Body Lens, Low-Profile Base Bollard **E250LED-887B:** Open Body, Decorative Base Bollard **E260LED-887B:** Full Body Lens, Decorative Base Bollard
Overall Height (In Inches)	36", 42", 48", 54", 60"
Lens	**CA:** Clear Acrylic **FA:** Frosted Acrylic **FL:** Flat Lens **SV1:** Flat Soft Vue Light Diffused Acrylic **SV2:** Flat Soft Vue Moderate Diffused Acrylic
Optional Chain Loop	**CL1:** Single Chain Loop **CL2:** Double Chain Loops at 180°
Optional Receptacle	**GFI LPIUC:** 120V, 15 Amp Duplex GFCI receptacles with a low-profile in-use cover **USB LPIUC:** 120V, 15 Amp Duplex USB/ Receptacle combo with a low-profile in-use cover (NON-GFCI)

Finish	**BKT:** Black Textured **WHT:** White Textured **PGT:** Park Green Textured **ABZT:** Architectural Medium Bronze Textured **DBT:** Dark Bronze Textured **CM:** Custom Match **OI:** Old Iron **RT:** Rust **WBR:** Weathered Brown **CD:** Cedar **WBK:** Weathered Black **TT:** Two Tone **VG:** Verde Green **SI:** Swedish Iron **OWGT:** Old World Gray Textured	

Light Source

LED	**04L:** 4 LEDs **12L:** 12 LEDs	**08L:** 8 LEDs **16L:** 16 LEDs
CCT - Color Temp (K)	**27:** 2,700K **35:** 3,500K **50:** 5,000K	**30:** 3,000K **40:** 4,000K
Distribution Type	**T2:** Type 2 **T4:** Type 4	**T3:** Type 3 **T5:** Type 5

Electrical and control

Driver	**MDL008:** 120V-277V, 80mA **MDL009:** 120V-277V, 90mA	**MDH008:** 347V-480V, 80mA **MDH009:** 347V-480V, 90mA
Optional Photocell	**PCD:** Electronic Button Photocontrol, mounted on an access door (120V-277V) **PCD4:** Electronic Button Photocontrol, mounted on an access door (480V)	

Features

Optional Fuse	**FHD:** Double Fuse and Holder
Optional House Side Shield	**BLOC:** Back Light Optical Control
Optional Fixed Dimming Resistor Board	**FDRB:** Fixed Dimming Resistor Board

Specifications

Installation

Hot-dipped galvanized "L" type anchor bolts shall be provided with the post for anchorage. It will include tamper resistant stainless steel hardware. The bollard will be provided with a grounding stud on the base.
(340B) - Requires Three 3/8" diameter anchor bolts in a 6.5" bolt circle. It will include a 2.74" conduit opening on base.
(346B) - Requires Four 3/8" diameter anchor bolts in a 3.25" bolt circle, diamond pattern. It will include a 2.25" conduit opening on base.
(887B) - Requires Four 3/4" diameter anchor bolts in a 8.25" bolt circle, diamond pattern. It will include a 4.8" conduit opening on base.

Construction	**(340B)** - Features a multi-tube shaft consisting of a 3" diameter 6061 extruded aluminum tube having a wall thickness of 1/8". It is surrounded by three 1" diameter 6061 extruded aluminum tubes having a wall thickness of 1/4" spaced at 120° and supported by two cast aluminum braces. The anchor base shall be 8" diameter and made of heavy cast aluminum having a floor thickness of 3/4". **(346B)** - Features a shaft consisting of 6" diameter 6063 extruded aluminum tubing having a wall thickness of 1⁄4". The anchor base shall be 6" diameter and made of heavy cast aluminum having a floor thickness of 5/8". **(887B)** - Features a shaft consisting of 5" diameter 6061 extruded aluminum tubing having a wall thickness of 1⁄4". The anchor base shall be 9.38" square and made of heavy cast aluminum having a floor thickness of 3/4". A 11.9" diameter x 4.63" tall decorative cover is included to cover the base.
Connection	The lower portion of the bollard includes an aluminum tenon for attachment.
Fitter	The fitter shall be heavy wall die cast aluminum for high tensile strength. It includes 4 stainless steel Allen-head set screws for attachment to a pole/tenon. **(340B)** - The luminaire features a fitter that slip fits a 4" OD x 2.5" tall tenon **(346B)** -The luminaire features a fitter that slip fits a 5" OD x 2.5" tall tenon **(887B)** -The luminaire features a fitter that slip fits the 5" OD bollard shaft
Lens	Optional SoftVue™ lens provides optimal visual comfort. **E250LED**: Uses a .125" thick flat acrylic lens. Offered in clear **(FL)**, Soft Vue Medium Diffused Acrylic **(SV1)** or Soft Vue Heavy Diffused Acrylic **(SV2)** **E260LED**: Uses a .125" thick impact modified acrylic full body formed lens. Offered in clear **(CA)** or fully frosted **(FA)**
UL Listing	UL listed per UL1598 and CSA 22.2 No. 250.0 for the United States and Canada. Suitable for Wet Locations.
Electronic Driver	The LED driver is UL recognized and will be securely mounted inside the fixture, for optimized performance and longevity. It will be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections for fixture installation and maintenance. It will have DC voltage output and be a constant current design. It runs at 50/60HZ and will have overload, overheat, and short circuit protection. It will be supplied with a supplemental line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines. It will be a high efficiency driver with a THD less than 20% and a high-power factor greater than .9. It will be dimming capable using a 0-10V signal, consult factory for more information.
NightSky® Friendly	Dark sky compliant optics with a U0 BUG rating for specific configurations.
IP Rating	IP65 rated
Finish	Our 6 Stage Polyester Powder coat paint system offers a beautiful high-end finish that holds up to even the most extreme environments. Each part is inspected for quality and consistency before being released for shipment. Our system exceeds AAMA 2604, AAMA 2605, ASTM D523 and ASTM D4214 requirements.
Traditional Finish	Traditional paint finishes are available in Sternberg Lighting's Traditional product line. A range of colors help accent the decorative elements on the product. Finishes are available in textured or smooth. Available finishes include: **Black, White, Park Green, Architectural Medium Bronze and Dark Bronze**
Sternberg Select Finish	The Sternberg Select antique-inspired palette adds a touch of vintage elegance to modern applications. **Old World Gray Textured** is a 1 part powder coat with metallic flakes. **Verde Green and Swedish Iron** is a 2 part finish that includes a powder coat base coat with a hand applied antique top coat. The top coat is unique to each application and changes over time.
Warranty	7-year limited warranty. See Website for Terms and Conditions.

LEDs	The LED's in this system will be fully shielded in a direct downward position to maximize efficiency. The LEDs are mounted to maximize thermal transfer to the heat sink surface. The LEDs shall be 100% recyclable; not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. Lumen maintenance shall be determined in accordance with IESNA TM-21, based on LED manufacturer LM-80 test data of no less than 6,000 hours and in-situ testing of the luminaire by an NVLAP accredited Energy Efficient Lighting Products lab. The high-performance white LEDs will have a predicted lumen depreciation of approximately 100,000 hours with greater than 70% of initial output at 25°C. The high brightness, high-output white LEDs shall be 4000K nominal (2700K, 3000K, 3500K or 5000K optional) correlated color temperature (CCT) with a 70 (minimum) color rendering index (CRI). Consult factory for custom CCT or CRI. The luminaire shall have a minimum ______ (see table) delivered initial lumens when operated at steady state with an average ambient temperature of 25°C (77°F). **CCT Lumen Derate Values from 4,000K** 2,700K (70+ CRI)=**.92** 3,000K (70+ CRI)=**.95** 3,500K (70+ CRI)=**1.03** 5,000K (70+ CRI)=**1.00**
Optics	The luminaire shall be provided with individual, refractor type optics applied to each LED. The luminaire shall provide Type ___ (2, 3, 4 or 5) light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79.
Backlight Optical Control	**BLOC Optic (BLOC):** An optional “Back Light Optical Control” shield can be provided at the factory. This is an internal optic level “House Side Shield” offering significantly reduced backlight and glare while maintaining the original design aesthetics of the luminaire.
Fixed Dimming Resistor Board (FDRB)	Optional numbered 10-step selector switch allows for fine adjustment of the light levels in the field, repeatable from location to location. Offers dimming from 25% to 100% of the original output. Enclosure is composite material, sealed to protect components for the life of the product.
Photocontrols	**Button Photocell (On Plate):** Optional photocontrol can be mounted on a plate and installed on the pole shaft. The electronic button type photocontrol is instant on with a 5-10 second turn off, and shall turn on at 1.5 footcandles with a turn-off at 2-3 footcandles.
Receptacle	Optional 120V duplex 15A GFI **(GFI LPIUC)** or NON-GFI/5A USB combo duplex receptacle **(USB LPIUC)** installed in proprietary "Low-Profile" box with a lockable In-Use cover **(lock not included)**.
Chain Loop	A single **(CL1)** or double **(CL2)** steel chain loop can be added to the bollard. The loop is painted to match the unit. Does not include chain. **Consult factory for painted chain**

Lumen Chart(s)

Tested with CLEAR lens

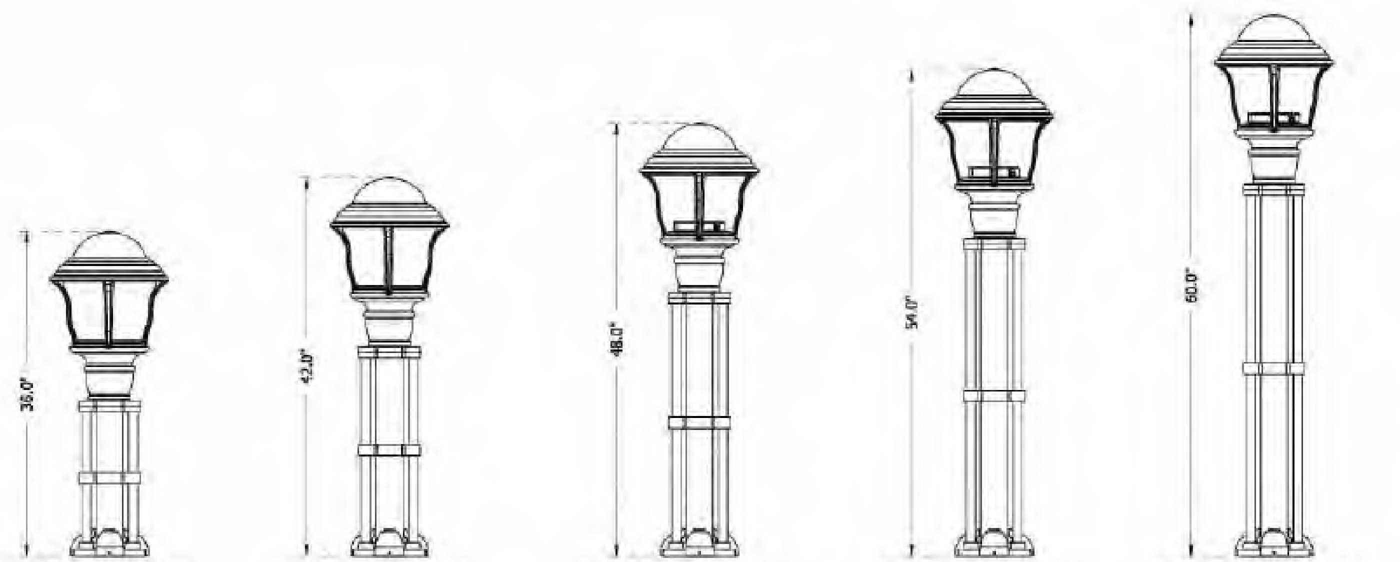
Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
16L40T_-MDL009	3590	B1U0G1	94.5	3445	B1U0G1	90.7	3715	B1U0G1	97.8	4130	B2U0G1	108.7	38
16L30T_-MDL009	3425	B1U0G1	90.1	3285	B1U0G1	86.4	3540	B1U0G1	93.2	3940	B2U0G1	103.7	38
16L27T_-MDL009	3310	B1U0G1	87.1	3180	B1U0G1	83.7	3425	B1U0G1	90.1	3810	B2U0G1	100.3	38
12L40T_-MDL008	2440	B1U0G1	90.4	2360	B1U0G1	87.4	2530	B1U0G1	93.7	2800	B1U0G0	103.7	27
12L30T_-MDL008	2325	B1U0G1	86.1	2250	B1U0G1	83.3	2410	B1U0G1	89.3	2670	B1U0G0	98.9	27
12L27T_-MDL008	2250	B1U0G1	83.3	2175	B1U0G1	80.6	2335	B1U0G1	86.5	2585	B1U0G0	95.7	27
8L40T_-MDL008	1745	B1U0G0	96.9	1625	B1U0G1	90.3	1740	B0U0G0	96.7	1910	B1U0G0	106.1	18
8L30T_-MDL008	1665	B1U0G0	92.5	1550	B1U0G1	86.1	1660	B0U0G0	92.2	1820	B1U0G0	101.1	18
8L27T_-MDL008	1610	B1U0G0	89.4	1500	B1U0G1	83.3	1605	B0U0G0	89.2	1760	B1U0G0	97.8	18
4L40T_-MDL008	875	B0U0G0	79.5	895	B0U0G1	81.4	965	B0U0G0	87.7	1080	B1U0G1	98.2	11
4L30T_-MDL008	835	B0U0G0	75.9	855	B0U0G1	77.7	920	B0U0G0	83.6	1030	B1U0G1	93.6	11
4L27T_-MDL008	805	B0U0G0	73.2	825	B0U0G1	75.0	890	B0U0G0	80.9	995	B1U0G1	90.5	11

E250LED - Open Body

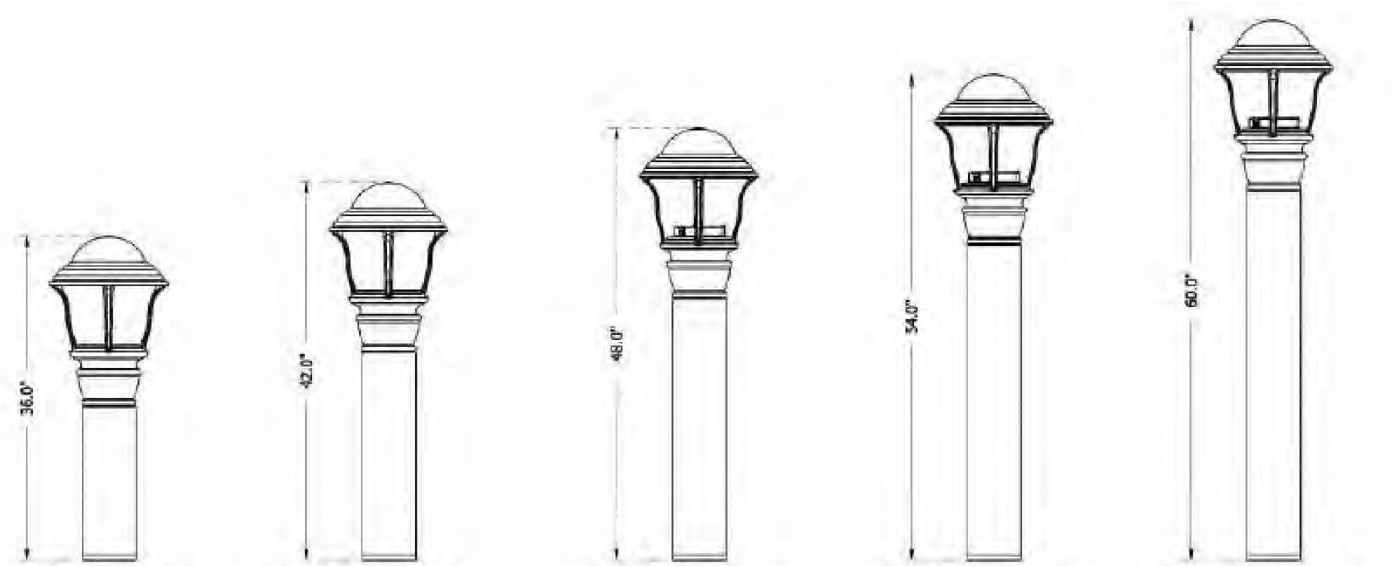
Model #	T2 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T3 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T4 DELIVERED LUMENS	BUG	EFFICACY (LPW)	T5 DELIVERED LUMENS	BUG	EFFICACY (LPW)	WATTAGE
16L40T_-MDL009	3770	B3U0G3	99.2	3990	B3U0G3	105.0	4170	B3U0G3	109.7	4395	B4U0G2	115.7	38
16L30T_-MDL009	3595	B3U0G3	94.6	3805	B3U0G3	100.1	3975	B3U0G3	104.6	4190	B4U0G2	110.3	38
16L27T_-MDL009	3480	B2U0G2	91.6	3680	B3U0G3	96.8	3845	B2U0G2	101.2	4055	B3U0G2	106.7	38
12L40T_-MDL008	2580	B2U0G2	95.6	2780	B3U0G3	103.0	2790	B2U0G2	103.3	3015	B3U0G2	111.7	27
12L30T_-MDL008	2460	B2U0G2	91.1	2650	B3U0G3	98.1	2660	B2U0G2	98.5	2875	B3U0G2	106.5	27
12L27T_-MDL008	2380	B2U0G2	88.1	2565	B3U0G3	95.0	2575	B2U0G2	95.4	2780	B3U0G2	103.0	27
8L40T_-MDL008	1880	B2U0G2	104.4	1960	B3U0G3	108.9	1965	B2U0G2	109.2	2100	B3U0G2	116.7	18
8L30T_-MDL008	1790	B2U0G2	99.4	1870	B3U0G3	103.9	1875	B2U0G2	104.2	2000	B3U0G2	111.1	18
8L27T_-MDL008	1735	B2U0G2	96.4	1810	B2U0G2	100.6	1815	B2U0G2	100.8	1935	B3U0G2	107.5	18
4L40T_-MDL008	875	B2U0G2	79.5	995	B2U0G2	90.5	1020	B2U0G2	92.7	1135	B3U0G2	103.2	11
4L30T_-MDL008	835	B2U0G2	75.9	950	B2U0G2	86.4	975	B2U0G2	88.6	1080	B3U0G2	98.2	11
4L27T_-MDL008	805	B2U0G2	73.2	920	B2U0G2	83.6	940	B2U0G2	85.5	1045	B3U0G2	95.0	11

E260LED - Full Body Lens

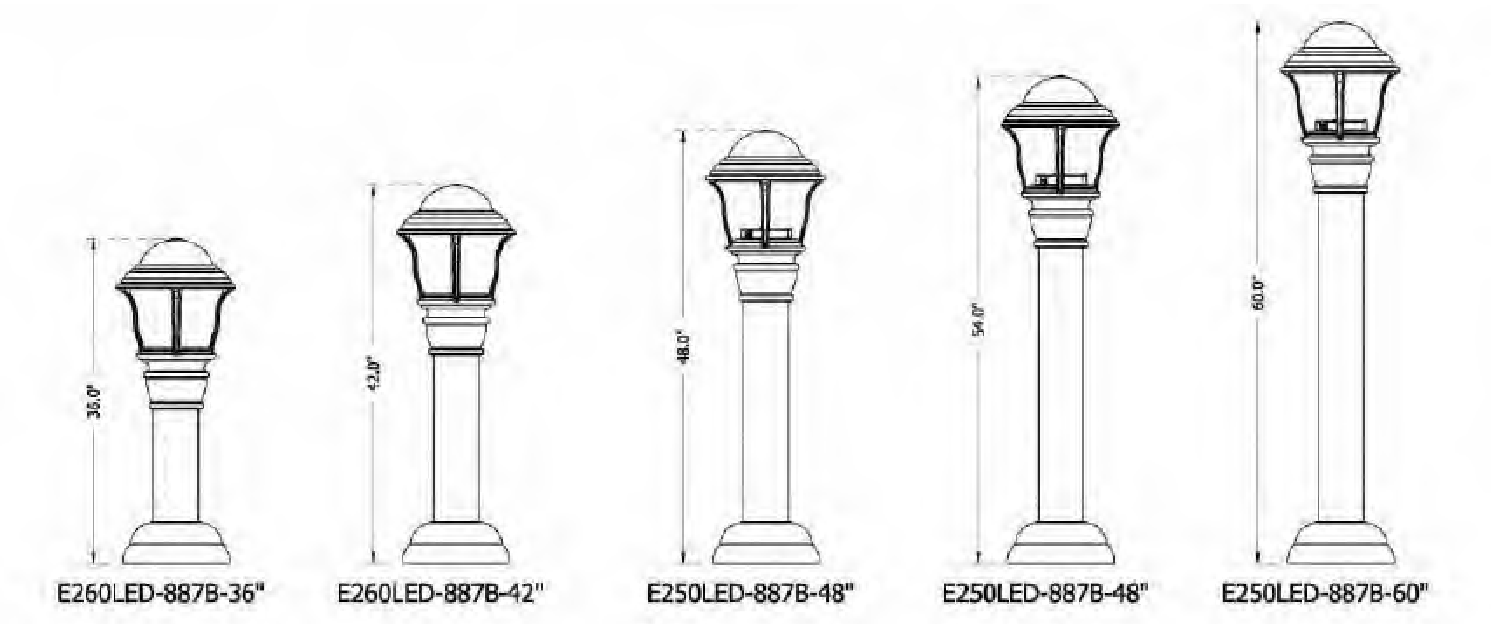
Dimensions



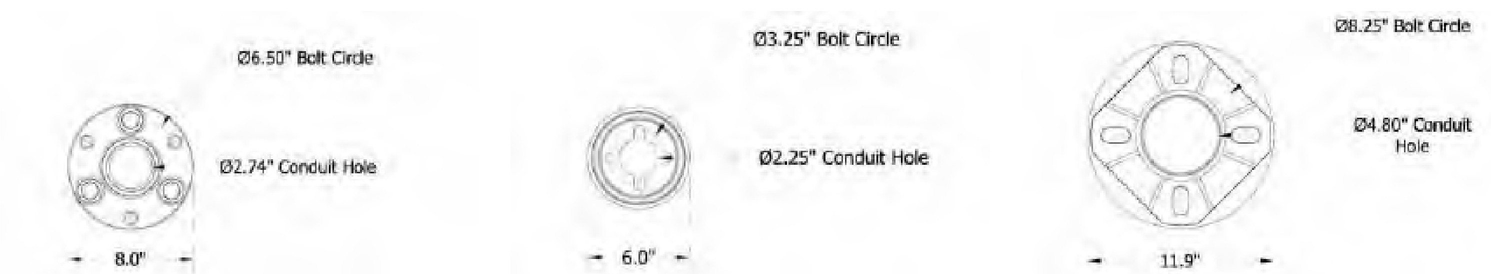
E260LED-340B-36" E250LED-340B-42" E250LED-340B-48" E250LED-340B-48" E250LED-340B-60"



E260LED-346B-36" E260LED-346B-42" E250LED-346B-48" E250LED-346B-48" E250LED-346B-60"



Anchor Base Detail



Multi-Tube Bollard **(340B)**
For use with 3/8" anchor bolts

Low-Profile Base Bollard **(346B)**
For use with 3/8" anchor bolts

Decorative Base Bollard **(887B)**
For use with 3/4" anchor bolts

Options

Low-Profile In-Use Cover
(GFI LPIUC/USB LPIUC)

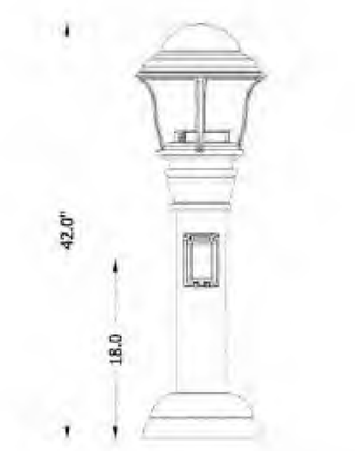
Button Photocell On Door **(PCD)**

Fixed Dimming Resistor Board **(FDRB)**

Double Fuse Holder & (2) 3A Fuses
(FHD)

Option Locations

Button Photocell On Door
(PCD/PCD4)



Low-Profile In-Use Cover
(GFI LPIUC/USB LPIUC)

Chain Loops
(CL1/CL2)

How to Order

Model	Overall Height (In Inches)	LED	CCT - Color Temp (K)	Distribution Type	Driver	Lens
E250LED-340B Open Body, Multi-Tube Bollard **E260LED-340B** Full Body Lens, Multi-Tube Bollard **E250LED-346B** Open Body, Low-Profile Base Bollard **E260LED-346B** Full Body Lens, Low-Profile Base Bollard **E250LED-887B** Open Body, Decorative Base Bollard **E260LED-887B** Full Body Lens, Decorative Base Bollard	**36IN** 36" **42IN** 42" **48IN** 48" **54IN** 54" **60IN** 60"	**04L** 4 LEDs **08L** 8 LEDs **12L** 12 LEDs **16L** 16 LEDs	**27** 2,700K **30** 3,000K **35** 3,500K **40** 4,000K **50** 5,000K	**T2** Type 2 **T3** Type 3 **T4** Type 4 **T5** Type 5	**MDL008** 120V-277V, 80mA (1) **MDH008** 347V-480V, 80mA (1) **MDL009** 120V-277V, 90mA (2) **MDH009** 347V-480V, 90mA (2)	**CA** Clear Acrylic (3) **FA** Frosted Acrylic (3) **FL** Flat Lens (4) **SV1** Flat Soft Vue Light Diffused Acrylic (4) **SV2** Flat Soft Vue Moderate Diffused Acrylic (4)

Notes:

1. 04L, 08L and 12L system only.
2. 16L system only.
3. For Full Body Lens "60" model only.
4. For Open Body "50" model only.

How to Order

Optional Chain Loop	Optional Fuse (5)	Optional Photocell (6)	Optional Receptacle (6) (7)	Optional House Side Shield (8)	Optional Fixed Dimming Resistor Board	Finish
CL1 Single Chain Loop **CL2** Double Chain Loops at 180°	**FHD** Double Fuse and Holder	**PCD** Electronic Button Photocontrol, mounted on an access door (120V-277V) **PCD4** Electronic Button Photocontrol, mounted on an access door (480V)	**GFI LPIUC** 120V, 15 Amp Duplex GFCI receptacles with a low-profile in-use cover **USB LPIUC** 120V, 15 Amp Duplex USB/ Receptacle combo with a low-profile in-use cover (NON-GFCI)	**BLOC** Back Light Optical Control	**FDRB** Fixed Dimming Resistor Board	**BKT** Black Textured (9) **WHT** White Textured (9) **PGT** Park Green Textured (9) **ABZT** Architectural Medium Bronze Textured (9) **DBT** Dark Bronze Textured (9) **CM** Custom Match (10) **OI** Old Iron (10) **RT** Rust (10) **WBR** Weathered Brown (10) **CD** Cedar (10) **WBK** Weathered Black (10) **TT** Two Tone (10) **VG** Verde Green **SI** Swedish Iron **OWGT** Old World Gray Textured

Notes:

5. Ships loose for installation in base.
6. Not available on (340B)
7. Requires 42" minimum bollard height.
8. Not for use with T5 optic.
9. Smooth finishes are available upon request.
10. Custom colors require upcharge.

PROJECT NAME:

FIXTURE TYPE:

SOLID STATE LIGHTING

MOZART BOLLARD-PLED

SPECIFICATIONS

FIXTURE HOUSING
Optical Crown, Arms and Hub are welded to create a one piece unitized Housing consisting of precise heavy wall cast low copper (A356 alloy; < 0.2%Cu) aluminum. Hood is fastened to the Housing with a stainless steel hinge and secured with a single stainless steel hex head cap screw 180° opposite the hinge. Hood and Optical Crown are sealed with an extruded closed cell silicone gasket. Driver/wiring accessed through top of Electrical Access Hub. All exposed hardware is stainless steel.

RISER AND BASE COVER
Riser is extruded aluminum shaft (6063-T6 Alloy) either smooth or fluted with a minimum wall thickness of .188". Riser is welded to a cast aluminum (A356 alloy;<0.2% Cu) base. Base cover is a 2-piece aluminum casting (A356 alloy;<0.2% Cu) that completely cover the anchors bolts and Riser anchor base.

PLED™ OPTICS
Emitters (LED's) are arrayed on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED refractor. In asymmetric distributions, a micro-reflector inside the refractor re-directs the house side emitter output towards the street side and functions as a house side shielding element. Refractors are injection molded H12 acrylic. Each LED refractor is sealed to the PCB over an emitter and all refractors are retained by an aluminum frame. LED refractors produce standard site/area distributions. Panels are field replaceable and field rotatable in 90° increments.

LED DRIVER(S)
Constant current electronic with a power factor of >.90 and a minimum operating temperature of -40°F. Driver(s) is/are UL and cUL recognized and mounted directly against the Electrical Housing to facilitate thermal transfer, held down by universal clamps to facilitate easy removal. In-line terminal blocks facilitate wiring between the driver and optical arrays. Drivers accept an input of 120-277V, 50/60Hz or 347V-480V, 50,60Hz. (0 - 10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection. Luminaire supplied with 20KV surge protector for field accessible installation.)

LED EMITTERS
High output LED's are utilized with drive currents ranging from 175mA to 350mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

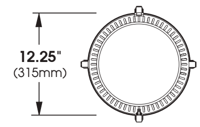
AMBER LED's
PCA (Phosphor Converted Amber) LED's utilize phosphors to create color output similar to LPS lamps and have a slight output in the blue spectral bandwidth. **TRA** (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

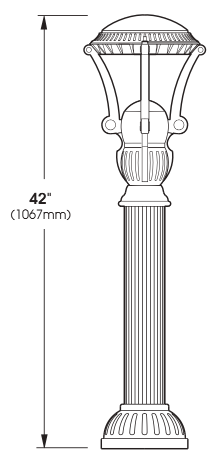
FINISH
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step media blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability.

MOZB *

*SHOWN WITH FLUTED RISER

PATENT PENDING





c UL us LISTED

MADE IN THE USA

2020125

Sun Valley Lighting

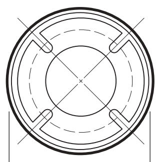
660 West Avenue O, Palmdale, CA 93551
Phone (661) 233-2000 Fax (661) 233-2001
www.usaltg.com

MOZART BOLLARD - PLED

SPECIFICATIONS

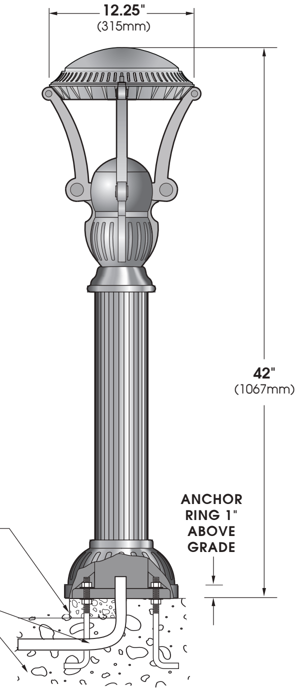
GROUND MOUNTING

6" DIA.BOLT CIRCLE



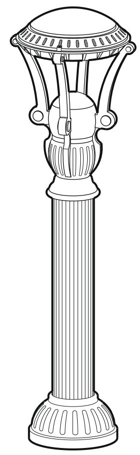
8.5" DIA.

ANCHOR BOLT(4) 3/8" X 10"

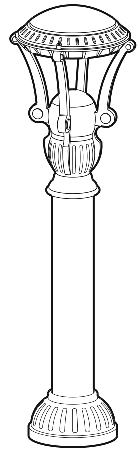


*When mounting in soil, anchor bolt fasteners and other hardware must be protected from soil by grouting.

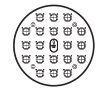
PLED® MODULES



MOZB-FL
(Fluted Riser)
Available in:
20LED Module



MOZB-SM
(Smooth Riser)
Available in:
20LED Module



20 LED MODULE

Spec/Order Example: MOZB-SM/PLED-III/20LED-350mA/NW/277/RAL-9003-S/HS-PLED

SPEC/ORDERING INFORMATION

BOLLARD	OPTICS	# of LED's	DRIVE CURRENT	COLOR	VOLTAGE	FINISH	OPTIONS

BOLLARD

- ☐ **MOZB-FL** (FLUTED RISER)
- ☐ **MOZB-SM** (SMOOTH RISER)

OPTICS

PLED® MODULES
IES DISTRIBUTION TYPE

- ☐ TYPE II **PLED-II** . . . .
- ☐ TYPE II FRONT ROW **PLED-II-FR** . . . . .
- ☐ TYPE III MED. **PLED-III M** . . . . .
- ☐ TYPE III WIDE **PLED-III W** . . . .
- ☐ TYPE IV **PLED-IV** . . . .
- ☐ TYPE IV **PLED-IV-FT** . . . . .
- ☐ TYPE V NARROW **PLED-V-SQ-N** . . .
- ☐ TYPE V MED. **PLED-V-SQ-M** . .
- ☐ TYPE V WIDE **PLED-V-SQ-W** . .

LED

# of LED's

- ☐ **20LED**

DRIVE CURRENT

- ☐ **175mA**
- ☐ **350mA**

COLOR TEMP-CCT

- ☐ **NW (4000K)** *STANDARD
- ☐ **CW (5000K)**
- ☐ **WW (3000K)**

OTHER LED COLORS AVAILABLE CONSULT FACTORY

VOLTAGE

- ☐ **120**
- ☐ **208**
- ☐ **240**
- ☐ **277**
- ☐ **347**
- ☐ **480**

FINISH

STANDARD TEXTURED FINISH

- ☐ BLACK **RAL-9005-T**
- ☐ WHITE **RAL-9003-T**
- ☐ GREY **RAL-7004-T**
- ☐ DARK BRONZE **RAL-8019-T**
- ☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9500-S)

SEE USALTG.COM FOR ADDITIONAL COLORS

OPTIONS

- ☐ HOUSE SIDE SHIELDS . . . . **HS-PLED**
- ☐ HIGH-LOW DIMMING FOR SWITCHING BY OTHERS/SELECT LEVELS 50/100 OR 25/100 (EXAMPLE: HLSW/25) **HLSW**
- ☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . **PC+V**
- ☐ SINGLE FUSE (120V, 277V, 347V) . **SF**
- ☐ DOUBLE FUSE (208V, 240V, 480V) . **DF**

CONTACT FACTORY FOR STEP DIM MOTION SENSOR (PROGRAMMED 50/100)

MOZART BOLLARD - PLED

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)-TM21	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
20	LED	20 **PLED**® Optical Module - 175mA	1,401 – 1,404	1,226 – 1,229	1,434 – 1,438	60,000+	-20°F	12	120 277	0.24 0.10
20	LED	20 **PLED**® Optical Module - 350mA	2,501 – 2,789	2,189 – 2,442	2,561 – 2,857	60,000+	-20°F	23	120 277	0.24 0.10

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components. For electronic driver and LED component protection, use 10KV – 20KV surge suppressors.
5. L70(10K) – TM-21 6x rule applied
   L70(10K) – Calculated = 244,000 @ 700mA

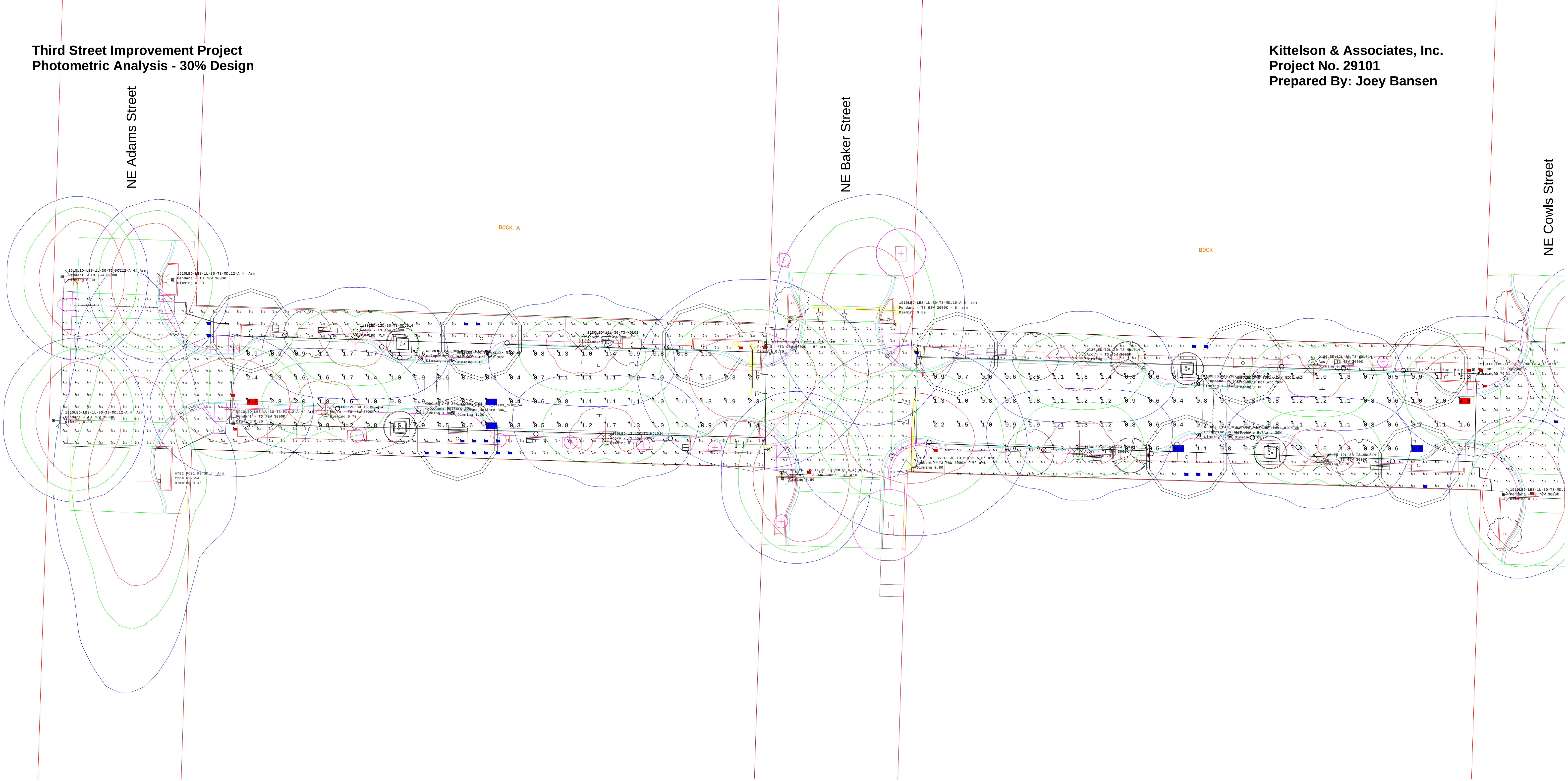
WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

660 West Avenue O, Palmdale, CA 93551
Phone (661) 233-2000 Fax (661) 233-2001
www.usaltg.com

Appendix D:
Photometric Analysis Output Sheets

Third Street Improvement Project
Photometric Analysis - 30% Design

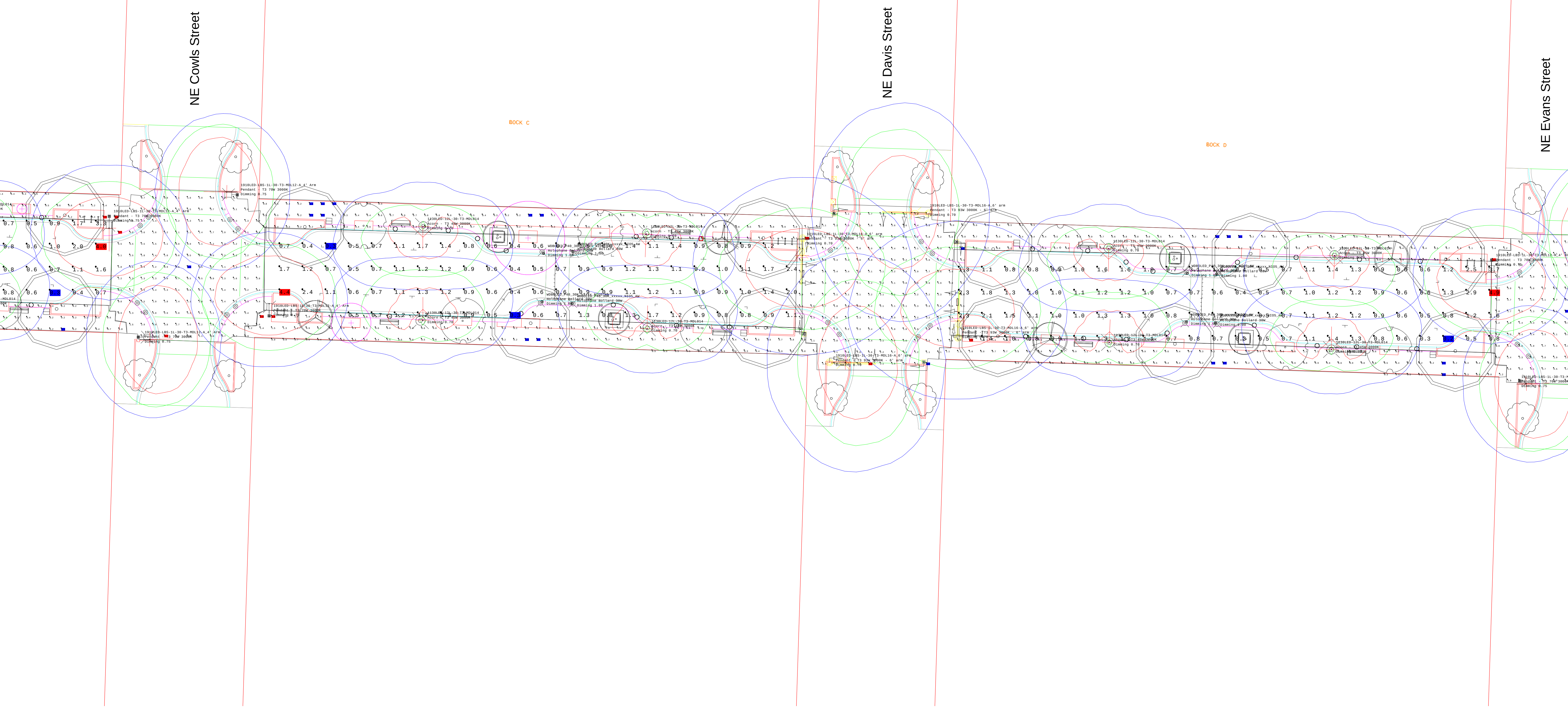
Kittelson & Associates, Inc.
Project No. 29101
Prepared By: Joey Bansen



Page 1 of 5
April 24, 2025

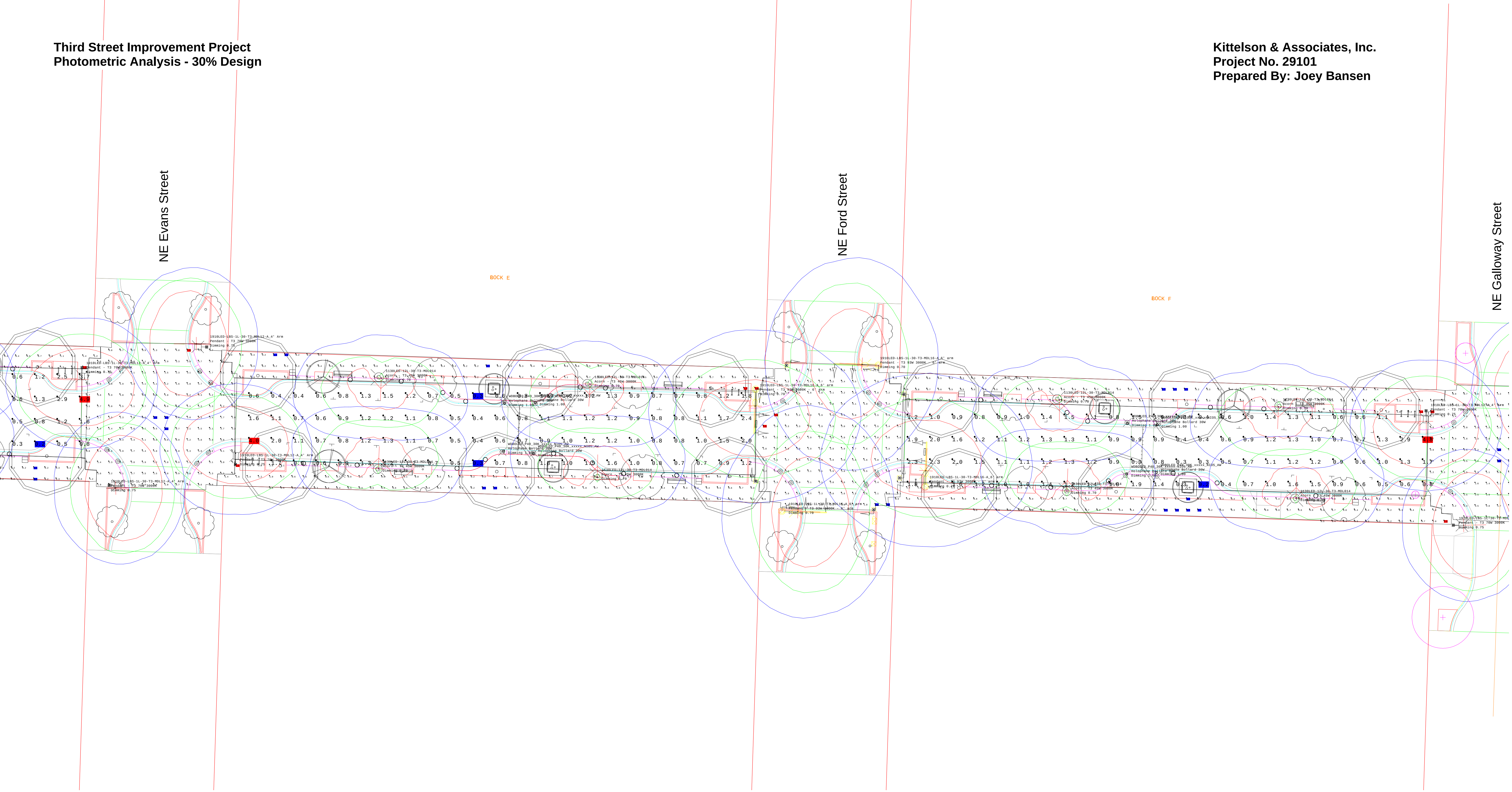
Third Street Improvement Project
Photometric Analysis - 30% Design

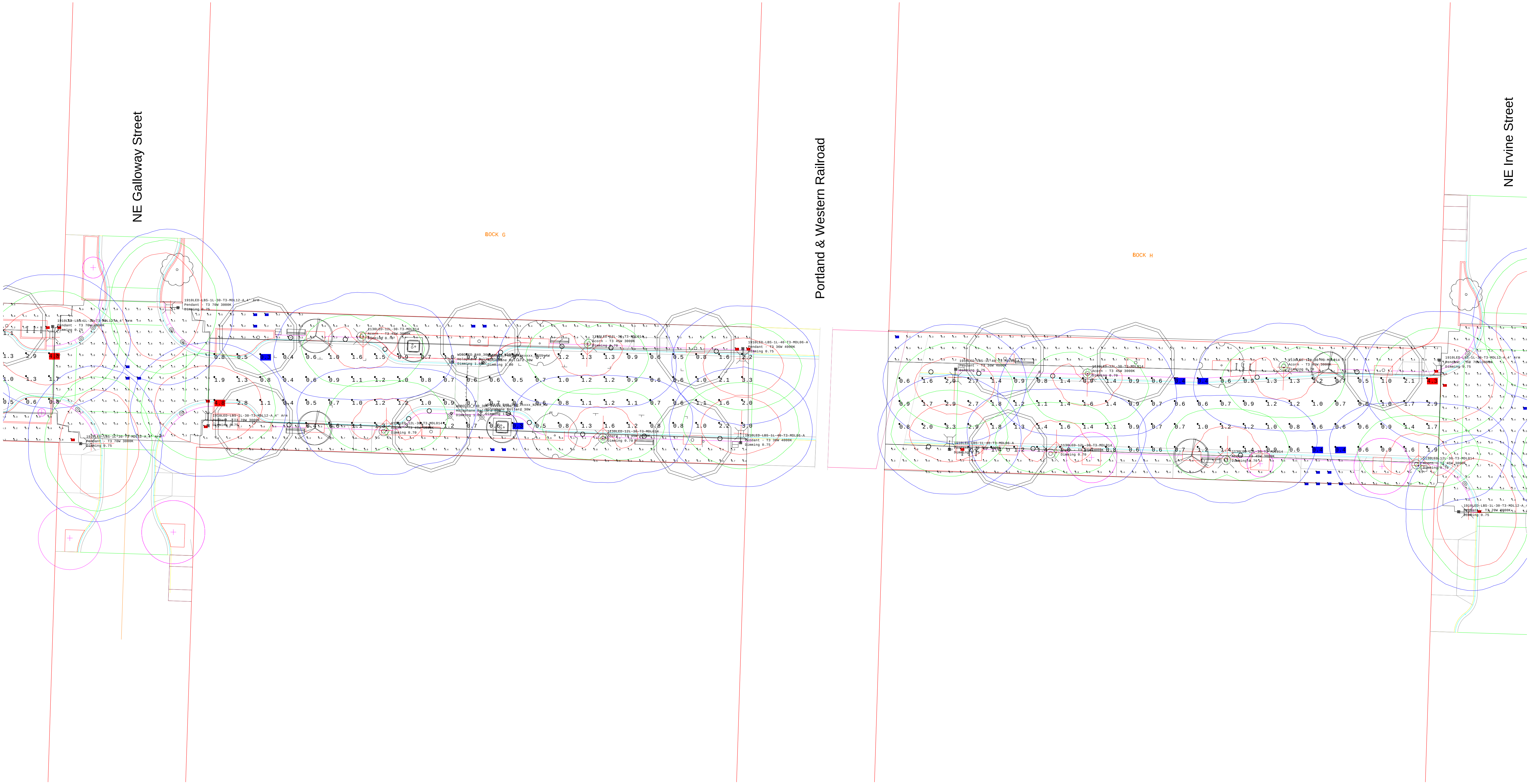
Kittelson & Associates, Inc.
Project No. 29101
Prepared By: Joey Bansen

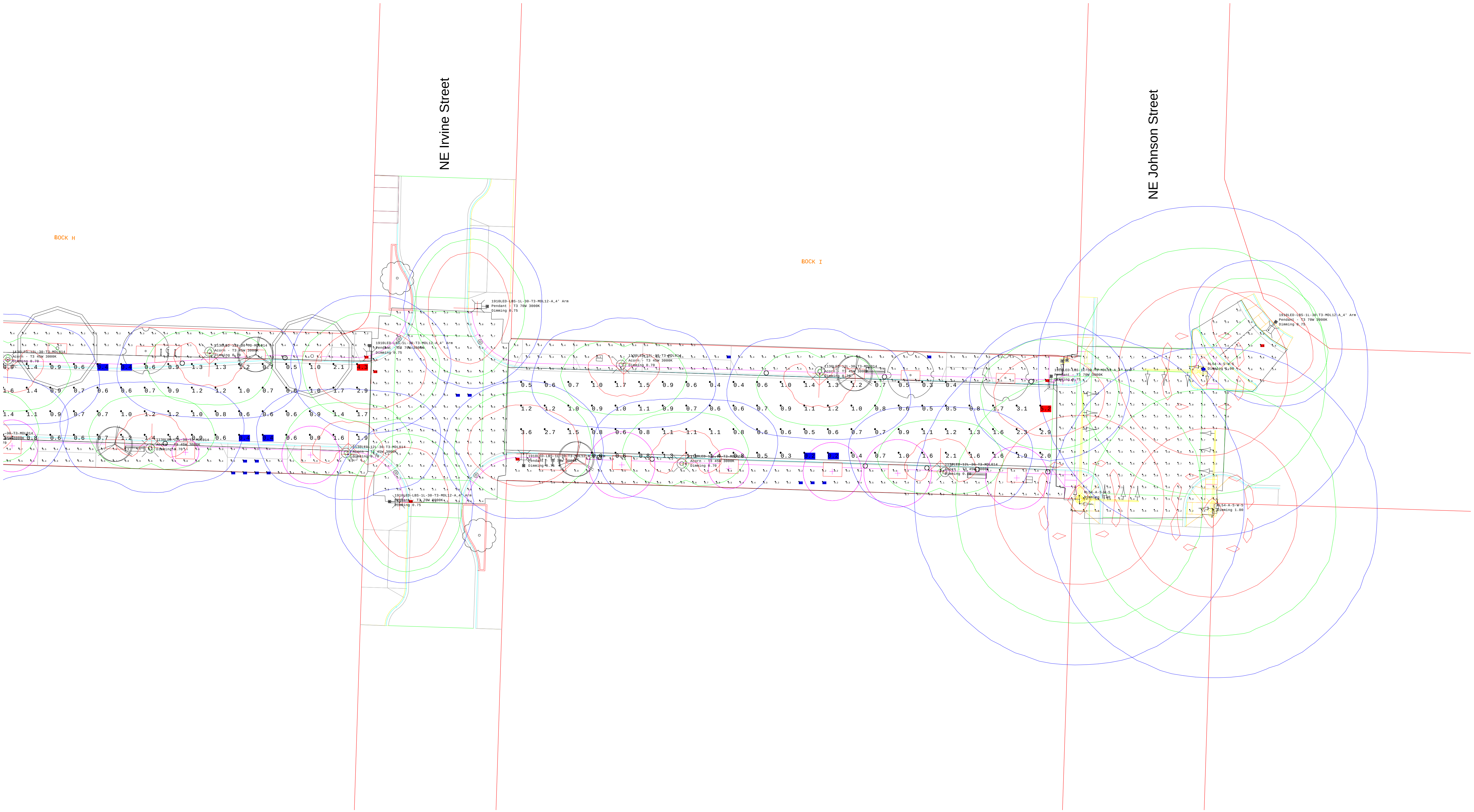


Page 2 of 5
April 24, 2025

Kittelson & Associates, Inc.
Project No. 29101
Prepared By: Joey Bansen




NE Galloway Street
BOCK G
Portland & Western Railroad
BOCK H
NE Irvine Street


NE Irvine Street
NE Johnson Street
BOCK H
BOCK I

KITTELSON & ASSOCIATES
851 SW 6th Avenue, Suite 600
Portland, OR 97204
P 503.228.5230

TECHNICAL MEMORANDUM

March 14, 2025 Project# 29019

To: Jason White, BKF Engineers

From: Joey Bansen, P.E.; Sutapa Banerjee

RE: Third Street Improvement Project

Permanent Parking Impacts & Opportunities Assessment

This technical memorandum summarizes the anticipated impacts to on-street parallel parking supply resulting from the *Third Street Improvement Project*, as well as opportunities for increasing supply and utilization of existing parking in Downtown. The project is at the 30% design stage, and additional opportunities and details will be developed as the project development moves forward.

INTRODUCTION

Background

The *Third Street Improvement Project* is a nine-block street improvement and urban revitalization project on NE 3rd Street, McMinnville's downtown "main street", from NE Adams Street to NE Johnson Street. The City of McMinnville has been planning for this project from as early as the year 2000, and has been working on the vision, goals, objectives, and a concept block design for the past several years in a comprehensive public process.

The concept design completed in 2022 set a preferred vision and functional design that keeps the existing two-lane street (single lane in each direction) and creates a "Person-Centered Main Street" by:

- Installing large curb extensions that create flexible areas for seating, art, planting, and dining spaces;
- Installing larger sidewalks providing more room for pedestrians and commerce;
- Implementing a balanced design equally serving both sides of the street; and
- Implementing narrower lanes, curb extensions, and on-street parking to calm traffic speeds.

Kittelson & Associates, Inc. (Kittelson) completed a high-level parking assessment study in March 2022 during the concept design phase, which identified existing parallel parking inefficiencies and planning-level strategies to increase parallel parking supply.

This memorandum builds on the previous work by expanding the study area and looking more specifically at parking supply opportunities on a block-by-block basis. The previous *Downtown McMinnville Parking Assessment* is provided as Appendix "A".

Rick Williams Consulting performed a *Downtown McMinnville Parking Study* in 2017, during which they inventoried all on- and off-street parking in the Downtown McMinnville area and performed a parking utilization study. This memorandum references some of the information summarized in that study.

Scope of Study

This memorandum addresses the following:

- Inventory of existing on-street parallel parking and expected impacts from *Third Street Improvement Project*;
- Summary of existing parking inefficiencies and opportunities strategies;
- Summary of specific opportunities for increasing on-street parking supply for each block in the study area; and
- Off-street parking lot wayfinding strategies.

The study area for this work is bounded by NE 2nd Street on the south, NE 4th Street on the north, NE Adams Street on west, and NE Johnson Street on the east side. The study area is shown in Figure 1.

EXISTING ON-STREET PARALLEL PARKING INVENTORY

The existing parallel parking inventory was summarized from the previous Kittelson *Downtown McMinnville Parking Assessment* completed in 2022, review of high-quality satellite imaginary, and an on-site field inventory and verification. Table 1 and Table 2 summarize the existing number of marked parallel parking stalls block-by-block within the study area. Note that some blocks within the study area allow parking but do not have marked stalls, and some blocks do not allow parking. The inventory recorded the following:

- **310** total marked on-street parallel parking stalls (including ADA parking)
- **15** marked on-street parallel ADA stalls
- Most stalls have 2-hour limits from 9 a.m. to 6 p.m. all days
    - NE 3rd Street and some adjacent side streets have "No Parking" from 3 a.m. to 6 a.m. Monday through Friday.
- Several stalls are marked for 15-minute hotel loading zones, or 10-minute passenger loading zones.
- Four (4) commercial loading zones exist in the study area
    - Two (2) of the zones are all days and all times
    - One (1) of the zones is 9 a.m. to 2 p.m. Monday through Friday
    - One (1) of the zones is 8 a.m. to 5 p.m. all days.

A map of existing downtown free parking is available on the City website here: [Downtown Parking Map | McMinnville Oregon] and is included in Appendix "B".

Figure 1 Parking Assessment Study Area and Inventory

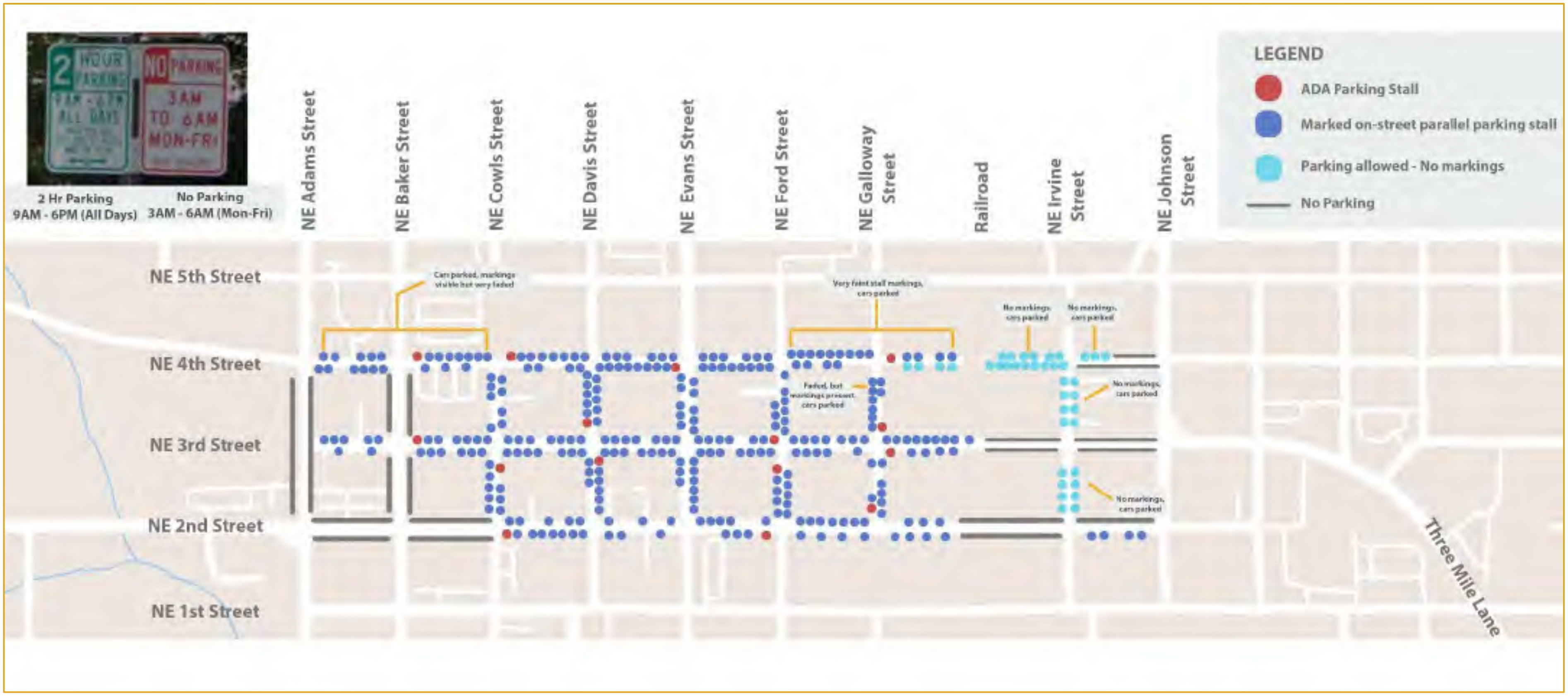


Table 1 Existing On-Street Marked Parallel Parking Inventory – East/West Streets

Street	Location	Adams to Baker	Baker to Cowls	Cowls to Davis	Davis to Evans	Evans to Ford	Ford to Galloway	Galloway to Rail	Rail to Irvine	Irvine to Johnson	Total Parking
NE 4th St	*North Side*	5 stalls	7 stalls 1 ADA	7 stalls 1 ADA	6 stalls	6 stalls	9 stalls	4 stalls 1 ADA	No markings, cars parked	No markings, cars parked	**77 stalls 4 ADA**
	South Side	6 stalls	3 stalls	4 stalls	8 stalls 1 ADA	8 stalls	4 stalls	No markings, cars parked	No markings, cars parked	-	
NE 3rd St	*North Side*	5 stalls	6 stalls 1 ADA	7 stalls	7 stalls	6 stalls 1 ADA	7 stalls	9 stalls	-	-	**85 stalls 3 ADA**
	South Side	2 stalls	6 stalls	7 stalls	7 stalls	7 stalls	5 stalls	4 stalls 1 ADA	-	-	
NE 2nd St	*North Side*	-	-	5 stalls	3 stalls	5 stalls	7 stalls	3 stalls	-	-	**48 stalls 2 ADA**
	South Side	-	-	7 stalls 1 ADA	3 stalls	3 stalls 1 ADA	4 stalls	4 stalls	-	4 stalls	

Table 2 Existing On-Street Marked Parallel Parking Inventory – North/South Streets

Street	Location	4th St to 3rd St	3rd St to 2nd St	Total Parking
NE Cowls St	*East Side*	4 stalls	3 stalls + commercial loading zone (all times) 1 ADA	**16 stalls 1 ADA**
	West Side	4 stalls + commercial loading zone (all times)	5 stalls	
NE Davis St	*East Side*	5 stalls	5 stalls 1ADA	**18 stalls 2 ADA**
	West Side	5 stalls 1 ADA	3 stalls	
NE Evans St	*East Side*	5 stalls (3 stalls 10-min passenger loading)	6 stalls	**19 stalls 0 ADA**
	West Side	5 stalls	3 stalls + commercial loading zone (8am-5pm all days)	
NE Ford St	*East Side*	5 stalls + 1 commercial loading stall (9am-2pm Mon-Fri)	5 stalls (1 10-min passenger loading) + 1 hotel loading	**17 stalls 1 ADA**
	West Side	3 stalls + 1 hotel loading	4 stalls 1 ADA	
NE Galloway St	*East Side*	2 stalls 1 ADA	5 stalls	**15 stalls 2 ADA**
	West Side	6 stalls	2 stalls 1 ADA	
NE Irvine St	*East Side*	No markings, cars parked	No markings, cars parked	**No Marked Spaces**
	West Side	No markings, cars parked	No markings, cars parked	

Third Street Improvement Project Impacts

The *Third Street Improvement Project* is in the 30% design stage and a preliminary street layout has been developed and refined for each block based on comments received on the 15% design stage and subsequent community outreach efforts. The design generally comprises a curbless "festival street" concept with flush curb extensions at each intersection corner, as well as expanded mid-block curb extensions to accommodate landscaping, street furniture, and other community uses. The earlier concept design stage recognized that the preferred design would have a trade-off in reducing the space available for on-street parallel parking on NE 3rd Street. Community outreach after the 15% design stage resulted in smaller mid-block curb extensions that decreased the reduction in the number of on-street parking stalls by two per block (one per block face).

The design layout includes delineation of 20-foot-long parallel parking spaces on NE 3rd Street, with approximately 12 spaces per block. The current direction from the City is that parking spaces on NE 3rd Street will **not** be marked. Based on the 20-foot stall dimension included in the design, the change in on-street parking supply on NE 3rd Street between NE Adams Street and NE Johnson Street is expected to be as follows:

- Existing: **88 spaces**
- Proposed: **75 spaces**
- Reduction with Project: **13 spaces (15% reduction)**

The preliminary design plans showing proposed parking spaces are provided in Appendix "C".

PARKING INVENTORY OPPORTUNITIES ASSESSMENT

Strategies from previous study

The *Downtown McMinnville Parking Assessment* completed by Kittelson in 2022 identified several existing inefficiencies as well as strategies for increasing on-street parallel parking supply. The strategies include:

- Striping consistent length of parallel parking stalls throughout downtown. The assessment recommended 25-foot stall lengths.
    - Based on recent discussions and input from the City, 20-foot end stall lengths and 22-foot interior stall lengths are being used for this assessment, consistent with guidance in the *Manual on Uniform Traffic Control Devices* (MUTCD). The shorter length reflects the denser urban context and expectation that drivers will accept maneuvering in tighter parking spaces in this context.
- Striping 30-foot yellow curb restrictions consistently at stop-sign and signal approaches
- Striping 20-foot yellow curb restrictions consistently from marked/unmarked crosswalks
- Remove existing yellow paint located between existing parallel parking stalls
- Establishing time of day "Commercial Loading Zone Only" restrictions consistently from 8 a.m. to 5 p.m. can increase supply of on-street parallel parking stalls during the evening hours.

Implementing angled parking on the side streets was not recommended, as it is not likely to result in an overall increase in number of parking stalls.

Field Assessment Summary

A field assessment was conducted by Kittelson staff in March 2024 to review and identify specific parking efficiencies based on the strategies outlined above. The field assessment reviewed each block face within the study area and identified the following opportunities for additional on-street parallel parking supply based on measurements and observations. The following specific opportunities were identified:

NE 4th Street

- Baker to Cowls – north side: **1 additional stall**
    - Existing: 7 stalls in 155-ft with 33-ft yellow curb at east end of block. Stalls are not marked.
    - Proposed: Maintain 20-ft yellow curb from unmarked crosswalk at east end of block , remove portion of yellow curb marking to allow for 8 stalls (two 20-foot end stalls and six 22-foot interior stalls).
- Cowls to Davis – south side: **2 additional stalls**
    - Existing: 2 stalls in 56-ft with 32-ft yellow curb east of Cowls.
    - Proposed: Maintain 20-ft yellow curb east of Cowls, remove portion of yellow curb marking to allow for 3 stalls (two 20-ft end stalls, one 22-ft interior stall).
    - Existing: 2 stalls in 43-ft with 34-ft yellow curb east of US Bank driveway.
    - Proposed: Maintain 15-ft yellow curb east of US Bank driveway, remove portion of yellow curb marking to allow for 3 stalls (two 20-ft end stalls, one 22-ft interior stall).

NE 2nd Street

- Davis to Evans – south side: **1 additional stall**
    - Existing: 2 stalls in 52-ft at west end of block.
    - Proposed: Extend parking further east in front of Poseyland Florist to allow for 3 stalls (two 20-ft end stalls, one 22-ft interior stall). *Note: the parking zone would extend into existing curb cut which does not appear to be used for driveway purposes.*
- Ford to Galloway – north side: **2 additional stalls**
    - Existing: 7 spaces in 192-ft, includes yellow painted curb buffers between stalls.
    - Proposed: Maintain 20-ft yellow curb at each end of block, remove painted curb buffers and revise parking zone to allow for 9 stalls (two 20-ft end stalls, seven 22-ft interior stalls).
- Ford to Galloway – south side: **1 additional stall**
    - Existing: 3 stalls between Ford and midblock driveway.
    - Proposed: Maintain 20-ft yellow curb at west end of block, revise parking zone to allow for 4 stalls (two 20-ft end stalls, two 22-ft interior stalls).
- Galloway to Rail Crossing – south side: **1 additional stall**
    - Existing: 4 stalls in 97-ft, constrained by driveways. Existing yellow markings adjacent to driveways.
    - Proposed: Extend zone by 9 feet and revise markings to allow for 5 stalls (two 20-ft end spaces, three 22-ft interior spaces). Would allow for at least 15-ft yellow curb on each end at driveways.

NE Cowls Street

- 4th St to 3rd St – west side: **2 additional stalls**
    - Existing: Commercial vehicle loading zone with no time restrictions.
    - Proposed: Consider establishing “Commercial Loading Zone Only” restrictions from 8 a.m. to 5 p.m. to allow for 2 stalls during evenings.
- 3rd St to 2nd St – east side: **2 additional stalls**

- Existing: Commercial vehicle loading zone with no time restrictions.
- Proposed: Consider establishing "Commercial Loading Zone Only" restrictions from 8 a.m. to 5 p.m. to allow for 2 stalls during evenings.

NE Evans Street

- 4th St to 3rd St – east side: **1 additional stall**
  - Existing: 1 stall at north end of block, with excess yellow striped curb south of 4th Street.
  - Proposed: Maintain at least 20-ft yellow curb at north end of block, extend parking zone north to allow for 2 20-ft stalls (both end stalls).
- 4th St to 3rd St – west side: **1 additional stall**
  - Existing: 2 stalls in 46-ft, with 38-ft yellow curb at north end of block.
  - Proposed: Maintain at least 20-ft yellow curb at north end of block, extend parking zone north to allow for 3 stalls (two 20-ft end stalls, one 22-ft interior stall).
- 3rd St to 2nd St – east side: **1 additional stall**
  - Existing: 6 stalls in 150-ft, includes yellow painted curb buffers between spaces.
  - Proposed: Remove yellow painted curb buffers, revise or restripe parking zone to allow for 7 stalls (two 20-ft end stalls, five 22-ft interior stalls).

The field assessment identified up to **fifteen (15) additional parking stalls** which could be added by utilizing the efficiency strategies, four (4) of which would time-restricted and shared with commercial loading zones. This represents regaining parking in excess of that expected to be lost on NE 3rd Street, or 17% of the total existing inventory on NE 3rd Street.

All other block faces were found to have constraints (existing driveways and alleys) such that re-organizing the parking with consistent stall lengths (20-ft end stalls, 22-ft interior stalls) would not result in a net increase in the number of stalls.

With the re-organization of parking on the block faces noted above, we recommend the City consider omitting markings for individual parking stalls. Instead, each end of the parking zone would be defined with yellow painted curb and/or parking signs defining the time limits. Omitting the stall markings may allow more flexibility within the zones for efficient use of the space given varying sizes of vehicles.

OFF-STREET PARKING LOT OPPORTUNITIES ASSESSMENT

The *Downtown McMinnville Parking Study* completed by Rick Williams Consulting in 2017 summarized both the on- and off-street parking supply in the downtown area. There are eight (8) existing surface parking lots and a two-story parking garage which currently provide free parking, as follows:

- Lot 27 – South side of NE 4th Ave between NE Baker St and NE Cowls St:
  - Surface lot with **26 stalls** – 2-hour limit
- Lot 28 – South side of NE 4th Ave between NE Baker St and NE Cowls St:
  - Surface lot with **30 stalls** – 2-hour limit
- Lot 47 – North side of NE 2nd Ave between NE Baker St and NE Cowls St:
  - Surface lot with **29 stalls** – 2-hour limit
- Lot 48 – North side of NE 2nd Ave between NE Cowls St and NE Davis St:

  - Surface lot with **17 stalls** – no time limit
- Lot 50 – North side of NE 2nd Ave between NE Davis St and NE Evans St:
  - Surface lot with **53 stalls** – 2-hour limit
- Lot 64 – North side of NE 1st St between NE Baker St and NE Cowls St:
  - Surface lot with **38 stalls** – no time limit
- Lot 65 – East side of NE Cowls St between NE 1st St and NE 2nd St:
  - Surface lot with **15 stalls** – no time limit
- Lot 70 – East side of NE Evans St between NE 1st St and NE 2nd St:
  - Surface lot with **49 stalls** – no time limit
- Lot 73 – Block bounded by NE 5th St, NE 6th St, NE Davis St, and NE Evans St:
  - 2-story parking garage with **222 stalls** – no time limit

Another strategy to mitigate the loss of parking on NE 3rd Street is to improve utilization of the existing off-street free parking lots. These lots offer a convenient alternative to on-street parking with a significant inventory (**479 total spaces**) within close vicinity of the downtown retail core. The study completed by Rick Williams Consulting in 2017 noted that off-street lots have parking availability on both weekday and weekend peak periods.

Appendix “D” includes the Inventory Memorandum from the Rick Williams Consulting study.

Existing Downtown Free Parking Signage

The downtown free off-street parking lots are currently signed with a consistent style of City-branded wayfinding and parking lot signage. Each parking lot has signage at the access point as shown in Figure 2. Additionally, there is wayfinding signage on NE 3rd Street at the NE Cowls Street, NE Davis Street, and NE Evans Street intersections as shown in Figure 3.

Figure 2 Existing Parking Lot Signage

Figure 3 Existing Parking Wayfinding Signage

Wayfinding Improvements Opportunities

We offer the following opportunities for improving wayfinding to existing off-street parking lots:

- **Make parking lot signage more conspicuous:**
  - The existing parking lot signs are small and set back from the street. Patrons may not easily see the signs while searching for parking opportunities.
  - Consider **larger signs placed closer to the street**, or **supplemental signs** nearby on the adjacent street that points toward the parking lot.
- **Make wayfinding signs on NE 3rd Street more conspicuous:**
  - The existing locations at NE Cowls Street, NE Davis Street, and NE Evans Street appear to be appropriate given the locations of the free off-street parking lots.
  - **Consider larger signs** placed in locations that are **more clearly visible** and less visually cluttered.
  - **Consider using standard parking guide signs** (sign code D4-1) from the MUTCD. The City of Portland uses this sign modified with local branding for the specific venue. An example is shown in Figure 4, which could be modified to include the City's "Downtown Free Parking" branding.

Figure 4 Parking Guide Sign Example

- **Install additional wayfinding signs on side streets**:
  - Consider additional signage directing drivers to the respective parking lots after turning off of NE 3rd Street. The standard MUTCD signs or the City-branded "Downtown Free Parking" signs (or a combination of the two) could be used.
  - Specific locations should be confirmed, but the following may be beneficial:
    - NE Evans Street and NE Davis Street – northbound direction at NE 4th Street and NE 5th Street directing to parking garage at NE 5th Street.
    - NE Cowls Street – northbound direction at NE 4th Street directing to parking lots to the west on NE 4th Street.
- **Improve visibility of signage at 5th Street parking garage:**
  - The parking garage does not stand out as an obvious public parking opportunity when approaching by vehicle from NE Davis Street or NE Evans Street. See Figure 5 below.
  - Consider more conspicuous "Public Parking" signing or painted logos matching the City-branded signage on or around the garage to indicate it is a publicly available garage.

Figure 5 5th Street Parking Garage Approaching from Davis St and Evans St

CONCLUSIONS AND RECOMMENDATIONS

We conclude the following based on the parking impacts and opportunities assessment summarized above:

- **Existing On-Street Parking Inventory:** The inventory of existing on-street marked parallel parking in the project vicinity is summarized in Table 1 and Table 2, and as follows:
  - **310** total marked on-street parallel parking spaces (including ADA parking)
  - **15** marked on-street parallel ADA spaces
  - Most spaces have 2-hour limits from 9 a.m. to 6 p.m. all days
  - Four (4) commercial loading zones exist in the study area
- ***Third Street Improvement Project* impact:** Based on the 30% design plans, the change in on-street parking supply on NE 3rd Street between NE Adams Street and NE Johnson Street is expected to be as follows:
  - Existing: **88 spaces**
  - Proposed: **75 spaces**
  - Reduction with Project: **13 spaces**
- **Parking Efficiency Strategies:**
  - Striping consistent length of parallel parking stalls throughout downtown. This assessment recommends 20-foot end stalls and 22-ft interior stall lengths.
  - Striping 30-foot yellow curb restrictions consistently at stop-sign and signal approaches.
  - Striping 20-foot yellow curb restrictions consistently from marked/unmarked crosswalks.
  - Remove yellow painted curb buffers located between existing parallel parking stalls.
  - Establish time of day “Commercial Loading Zone Only” restrictions consistently from 8 a.m. to 5 p.m. to increase supply of on-street parallel parking stalls during the evening hours.
- **Block-by-Block On-Street Parking Opportunities Summary:**
  - The field assessment and opportunities evaluation identified up to **fifteen (15) additional parking stalls** which could be added, four (4) of which would time-restricted and shared with commercial loading zones. See summary above for specific opportunities.

    - Most block faces have constraints (existing driveways and alleys) such that re-organizing the parking with consistent 20-foot stalls would not result in a net increase in the number of stalls.
    - Consider omitting individual on-street parallel parking stall markings on NE 3rd Street and/or the block faces where parking re-organization is recommended above. Delineating only the limits of the zone may provide more efficient use of the space given vehicles of differing sizes.
- **Off-Street Free Parking Inventory:** There are eight (8) existing surface parking lots and a two-story parking garage which currently provide approximately **480 total spaces** of free parking. The parking lots vary between 2-hour parking limits and unrestricted parking.
    - A utilization study conducted in 2017 indicated adequate availability in these parking lots during both the weekday and weekend peak hours.
- **Downtown Free Off-Street Parking Opportunities:**
    - **Make parking lot signage more conspicuous:** Consider larger signs placed closer to the street, or supplemental signs nearby on the adjacent street that points toward the parking lot.
    - **Make wayfinding signs on NE 3rd Street more conspicuous:** Consider larger signs placed in locations that are more clearly visible and less visually cluttered.
    - **Install additional wayfinding signs on side streets**: Consider additional signage directing drivers to the respective parking lots after turning off of NE 3rd Street.
    - **Improve visibility of signage at 5th Street parking garage:** Consider more conspicuous "Public Parking" signing or painted logos matching the City-branded signage on or around the garage.

Appendix A:
Downtown McMinnville Parking Assessment

KITTELSON & ASSOCIATES
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Portland, OR 97204
P 503.228.5230

Memorandum

March 9, 2022

Project# 27495

To: Heather Richards, PCED, Planning Director
City of McMinnville
231 NE Fifth Street McMinnville, OR 97128

From: Nicholas Gross & Marc Butorac, PE, PTOE, PMP

RE: Downtown McMinnville Parking Assessment Memorandum

DOWNTOWN MCMINNVILLE PARKING ASSESSMENT

The Downtown McMinnville Parking Assessment is a high-level concept study with the purpose of identifying existing parallel parking inefficiencies and planning-level strategies to increase parallel parking supply. The assessment also includes an evaluation of angled parking; determining if angled parking can physically and operationally fit on the side streets (Cowls Street to Ford Street) off Third Street between 2nd Street and 4th Street while maintain two-way traffic.

Executive Summary

The following key findings are based on site observations and the parallel parking inefficiencies and angled parking assessments:

- Approximately 141 existing parallel parking stalls, including eight (8) Americans with Disability Act (ADA) parking stalls were identified within the study area.
- Opportunities exist within the study area to increase parallel parking supply. Approximately 12 to 16 additional parallel spaces may be freed up, based on the following recommendations:
  - Striping 30-foot yellow curb restrictions consistency at stop-sign and signal approaches
  - Striping 20-foot yellow curb restrictions consistently from marked/unmarked crosswalks
  - Striping 25-foot parallel parking stalls consistently[1]
  - Removing existing yellow paint located between existing parallel parking stalls
- Three (3) "Commercial Loading Zone Only" stalls were identified within the study area, including two (2) with unrestricted time of day signage.
  - Establishing time of day "Commercial Loading Zone Only" restrictions consistently from 8AM to 5PM can increase between three (3) and six (6) on-street parallel parking stalls during the evening hours.
  - The City may choose to work collaboratively with local businesses to determine appropriate time management strategies of Commercial Loading Zone spaces.

[1] Opportunity for narrower parking stalls exists. MUTCD identifies 22-foot stalls as appropriate for internal stalls and 20-foot lengths for typical end spaces. 25-foot parallel parking stalls were used as a conservative planning level assumption as part of this concept study.

- Based on the angled parking assessment, angled parking can physically fit within a typical side street cross section but requires modifications to the street context including the removal of parallel parking on both sides of the street and repositioning travel lane alignment against one curb.
- Without modifications to existing curb extensions, the installation of angled parking *will not* result in a net positive increase of parking stalls along the side streets and is likely to reduce the total parking stalls volume. This reduction is primarily due to:
  - Removing all parallel parking on both sides of the street to convert to angled parking stalls, and
  - Developing proper setbacks from marked and unmarked crosswalks while transitioning travel lanes from curb tight to the center of the roadway – see Figure 2.
- With the removal of curb extensions on one side of the street, angled parking may result in a net neutral or potential loss in parking stalls (up to two [2] parking stalls per block) compared to existing conditions.

Parking Assessment Study Area

The study area for the Side Street Angled Parking Assessment examining the feasibility of potential parallel parking efficiencies strategies and/or implementing angled parking was performed on the side streets of Cowls Street, Davis Street, Evans Street, and Ford Street between 4th Street and 2nd Street in downtown McMinnville, Oregon. Parking inefficiencies were examined on Cowls Street, Davis Street, Evans Street, Ford Street, 4th Street, and 2nd Street to determine if additional parking could be provided based on modifications to parking geometrics, signing, and striping.

Existing Parallel Parking Inventory

Existing parallel parking inventory was collected based on a site visit and review of high-quality satellite imaginary. Table 1 and Table 2 summarize the existing number of parallel parking stalls block-by-block within the study area.

Table 1: Existing Parallel Parking Inventory (4th Street and 2nd Street)

Street	Location	Cowls to Davis	Davis to Evans	Evans to Ford	Total Parking
4th Street	*North Side*	7 parking stalls 1 ADA	6 parking stalls	6 parking stalls	39 parking stalls 2 ADA
	South Side	4 parking stalls	8 parking stalls 1 ADA	8 parking stalls	
2nd Street	*North Side*	5 parking stalls	4 parking stalls	5 parking stalls	28 parking stalls 2 ADA
	South Side	7 parking stalls 1 ADA	3 parking stalls	4 parking stalls 1 ADA	

Table 2: Existing Parallel Parking Inventory (Cowls, Davis, Evans, and Ford Street)

Street	Location	4th to 3rd	3rd to 2nd	Total Parking
Cowls Street	*East Side*	4 parking stalls	4 parking stalls 1 ADA	17 parking stalls 1 ADA
	West Side	4 parking stalls	5 parking stalls	
Davis Street	*East Side*	5 parking stalls	5 parking stalls 1 ADA	18 parking stalls 2 ADA
	West Side	4 parking stalls 1 ADA	4 parking stalls	
Evans Street	*East Side*	5 parking stalls	6 parking stalls	19 parking stalls
	West Side	5 parking stalls	3 parking stalls	
Ford Street	*East Side*	6 parking stalls	6 parking stalls	20 parking stalls 1 ADA
	West Side	5 parking stalls	3 parking stalls 1 ADA	

Based on the existing condition inventory recorded during the project team site visit, there are approximately 141 existing parallel parking stalls including 8 ADA parking stalls within the project study area[2].

[2] Commercial loading zones were not recorded as parking stalls; two (2) commercial loading zones were recorded

EXISTING PARALLEL PARKING INEFFICIENCIES

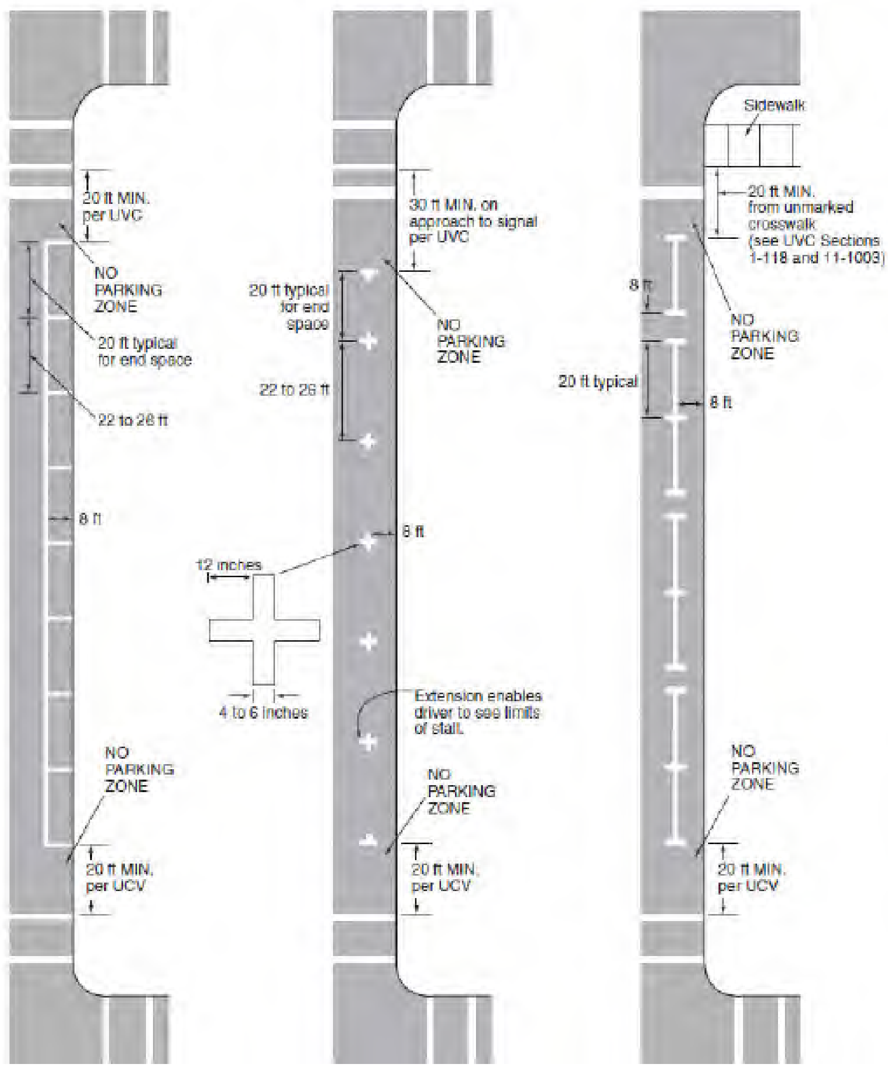
Opportunities to implement additional parallel parking without modifications to existing street geometry were explored based on the recommended guidance for parallel parking stall geometry identified in standard reference materials.

Reference Material and Analysis Assumptions

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

Federal regulations establish the MUTCD as "the national standard for all traffic control devices installed on any street, highway, or bicycle trail open to public travel" (23 USC 655.603). The MUTCD does not dictate requirements for parking zones but provides the standard that "Parking space markings shall be white." The MUTCD includes examples of parking space markings, shown below, which cite the Uniform Vehicle Code (UVC).

Figure 3B-21. Examples of Parking Space Markings



UNIFORM VEHICLE CODE (UVC)

The UVC was developed by the National Committee on Uniform Traffic Laws and Ordinance and last updated in 2000. It serves as a "comprehensive guide or standard for state motor vehicle and traffic laws" (Transportation Research Board) and was intended to promote uniformity in traffic regulation across states. It serves as the bases for traffic laws in many states. The sections from the UVC referenced in the MUTCD include the definition of a crosswalk and text prohibiting "stopping, standing, or parking" "within 20 feet of a crosswalk at an intersection" or "within 30 feet of any flashing signal, stop sign, yield sign or traffic—control signal located at the side of a roadway."

THE DIMENSIONS OF PARKING FIFTH EDITION

The Dimensions of Parking Fifth Edition is a standard reference for studying, planning, designing, implementing, and maintaining parking. Specifically, the Dimensions of Parking Fifth Edition provides details on parking geometrics based on varying street contexts including curb-to-curb width, type of parking, and angled of parking stall. Based on the Dimensions of Parking guidance, the 85th percentile vehicle in the United States is 17' 3".

- As part of the parallel parking inefficiencies assessment and based on the recommended parallel parking stall lengths identified in the Dimensions of Parking Fifth Edition, parking stall lengths of 25 feet were used to evaluate the potential for increased parallel parking stalls in the study area.

NATIONAL ASSOCIATION OF CITY TRANSPORTATION OFFICIALS (NACTO)

National Association of City Transportation Officials (NACTO) Urban Street Design Guide provides guidance on the design of streets and intersections, including intersection visibility and sight distance. Based on the NACTO's Urban Street Design Guide, daylighting intersections by removing parking within 20 feet of the intersection is recommended.

- As part of the parking inefficiencies assessment, removing parking within 20 feet of the was assumed when examining opportunities for additional parallel parking stalls.

Existing Parking Inefficiencies

Based on site visit documentation and review of high-quality satellite imagery, the primary elements resulting in inefficient use of parking include:

INCONSISTENT PARKING STALL DIMENSIONS

Based on project team site visit documentation, parallel parking stall lengths varied between 18 to 25 feet in the study area.

- Consistently striping 25-foot parking stalls is recommended and can increase the overall number of parking stalls within the study area when coupled with additional parking efficiency strategies.

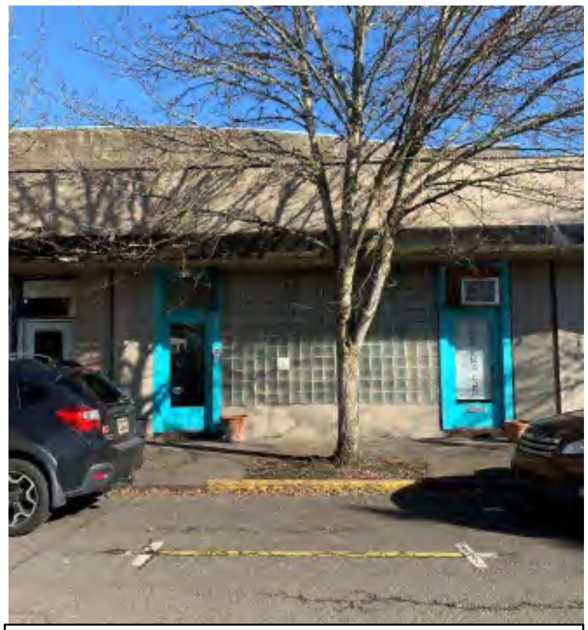
INCONSISTENT YELLOW CURB DISTANCES FROM INTERSECTION

Based on project team site visit documentation, yellow curbs (prohibited parking) offset from intersections varied between 20 and 35 feet.

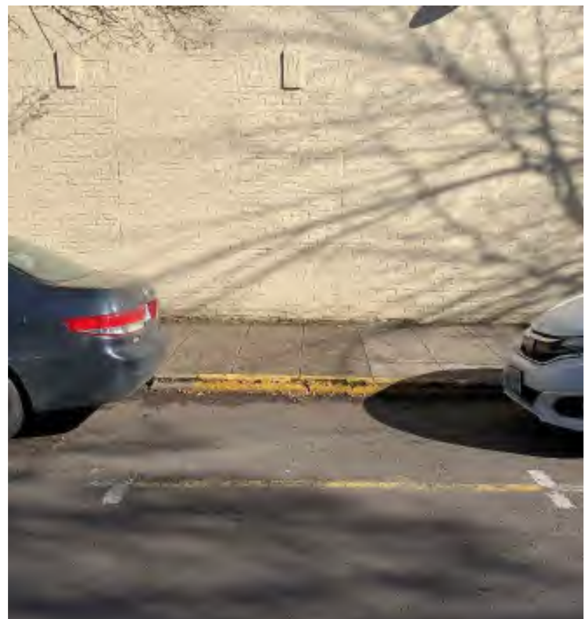
- Consistency striping a 30-foot offset from stop signs and signals and a 20-foot offset from marked/unmarked crosswalks is recommended and can increase the overall number of parking stalls within the study area when coupled with additional parking efficiency strategies.

USE OF YELLOW PAINT BETWEEN EXISTING PARKING STALLS

Based on project team site visit documentation, yellow paint is used between parallel parking stalls on side streets to fill excess or leftover space due to total block length in relation to parallel parking stall lengths and parking limitations (i.e., loading zones, driveway access points). Yellow paint was specifically used in front of street trees, likely intended to reduce the potential of car doors opening into the street trees. On several side streets, multiple yellow paint lines between parallel parking exists within the same block.



Example of yellow paint between parallel parking stalls on Evans Street



Example of yellow paint between parallel parking stalls on Cowls Street

- Removing yellow paint between parallel parking stalls in combinations with consistently striping parallel parking stall lengths is recommended and can increase the overall number of parking stalls within the study area when coupled with additional parking efficiency strategies.
- Particularly, combining the removal of yellow paint between multiple parallel parking stalls within the same block can increase the overall number of parking stalls within the study area.

COMMERCIAL LOADING ZONE ONLY PARKING STALLS LENGTHS

Three (3) "Commercial Loading Zone Only" stalls are located within the study area and include lengths ranging from 60 to 80 feet. The City may consider the opportunity for off-street commercial loading in adjacent surface parking lots, consolidating the length of "Commercial Loading Zone Only" stalls, or placing time of day restrictions for the loading areas (i.e., restrict loading between 8AM and 5PM)[3] to free up additional on-street parking during the evening hours. Based on implementation of these strategies, an additional three (3) to six (6) parking stalls may be added.

[3] Only one (1) of the Commercial Loading Zone Only stalls restricted use between 8AM and 5PM.

Side Street Angled Parking Assessment

The existing physical and operational characteristics of Cowls Street between 2nd Street and 4th Street were evaluated to determine if angled parking off Third Street could be implemented without losing a lane of traffic. Cowls Street was used for the analysis as it represents a typical side street in downtown McMinnville.

EXISTING PHYSICAL AND OPERATIONAL CHARACTERISTICS

Cowls Street has a curb-to-curb width of 40 feet and includes two (2) 12-foot travel lanes and parallel parking (8 feet) on both sides. No street center stripe is provided. Exhibit 1 illustrates a typical section of Cowls Street including curb extensions at the Cowls Street/Third Street intersection.

Exhibit 1: Cowls Street Typical Section

Cowls Street facing north between 3rd and 4th Street

Curb Extensions

Existing curb extensions are located at all Third Street intersection corners within the study area (Cowls, Davis, Evans, Ford) creating shorter crossing distances for pedestrians, tighter curve radii for vehicles, and increased visibility of pedestrians waiting to cross the street. The existing curb-to-curb width between the curb extensions is 24 feet. The width between curbs along the block is 40 feet.

Curb extensions pose a challenge for implementing angled parking due to vehicles needing to maneuver through the curb extension "pinch point" of 24 feet and then transition to one side of the street to be properly positioned to access the angled parking stall. The following section illustrates and further explains the required offset and transition zone needed to implement angled parking.

SIDE STREET PARKING COMPARISON

For the purposes of the side street angled parking assessment, unconstrained conditions were used for comparison purposes assuming no prohibited parking (yellow paint) and no driveway access requirements.

SCENARIO 1: EFFICIENT PARALLEL PARKING

Scenario 1 includes parallel parking on both sides of the street with a 30-foot setback from existing stop signs and 20-foot setbacks from existing marked/unmarked crosswalks. Due to the existing block length of 200 feet and considering the required setbacks, 25-foot parallel parking stalls were used to better accommodate the block length to parallel parking stall length ratio. Figure 1 illustrates the unconstrained parallel parking scenario.

Figure 1: Unconstrained Parallel Parking Scenario

As illustrated in Figure 1, up to 12 parallel parking spots could be accommodated on a one block segment of Cowls Street under the unconstrained scenario assuming consistent striping of 25-foot parallel parking stall lengths[4]. Table 3 summarizes the comparison of Scenario 1 to existing conditions.

Table 3: Comparison of Scenario 1 to Typical Side Street Existing Conditions

Cowls Street (3rd to 4th	Existing Parking Stalls	Scenario 1 Parking Stalls	Net Difference Implementing Scenario 1
East Side	~4 to 5	6	~+1
West Side	~4 to 5	6	~+1

As summarized in Table 3, implementing Scenario 1 has the potential to increase up to two (2) parallel parking stalls per typical side street block.

[4] Based on the project team site visit, the highest number of existing parallel parking stalls on a north-south street was recorded on the east side of Ford Street between 2nd and 3rd street which includes seven (7) parallel parking stalls.

SCENARIO 2: ANGLED PARKING MAINTAINING EXISTING CURBS

Scenario 2 includes angled parking on one side of the street. Angled parking is shown at 18-foot parking stall depths, 8.5 feet wide, and angled at 30° based on the guidance provided in the Dimensions of Parking, Fifth Edition for a street with a curb-to-curb width of 40 feet.

Due to the existing curb extensions at the 3rd Street/Cowls intersection, a painted taper is required to transition vehicles to the opposite side of the angled parking stalls. A 60-foot transition "taper" is recommended based on an assumed operating speed limit of 20 MPH. Parallel parking opposite the angled parking will need to be removed. Two (2) 11-foot travel lanes.

Figure 2 illustrates the angled parking maintaining existing curbs scenario.

Figure 2: Angled Parking Maintaining Existing Curbs

As illustrated in Figure 2, up to five (5) angled parking spots could be accommodated on a one block segment of Cowls Street. In this scenario only northbound vehicles would have a properly positioned to access angled parking. Table 4 summarizes the comparison of Scenario 2 to existing conditions.

Table 4: Comparison of Scenario 2 to Typical Side Street Existing Conditions

Cowls Street (3rd to 4th	Existing Parking Stalls	Scenario 1 Parking Stalls	Net Difference Implementing Scenario 1
East Side	~4 to 5	5	~0 to +1
West Side	~4 to 5	0	~-4 to -5

As summarized in Table 4, implementing Scenario 2 is likely to result in a loss of approximately 3 to 5 parking stalls per typical side street block.

SCENARIO 3: ANGLED PARKING CURB MODIFICATIONS

Scenario 3 includes angled parking on one side of the street, the removal of parallel parking, and modifications to the existing curb extensions at the 3rd Street/Cowls Street intersection. The curb extensions modifications allow for the removal of the required taper (Scenario 2), allowing through vehicles to travel on a north-south path along Cowls Street.

Similar to Scenario 2, angled parking is shown at 18-foot parking stall depths, 8.5 feet wide, and angled at 30° based on the guidance provided in the Dimensions of Parking, Fifth Edition for a street with a curb-to-curb width of 40 feet. Figure 3 illustrates the angled parking maintaining existing curbs scenario.

Figure 3: Angled Parking Curb Modifications

As illustrated in Figure 3, up to eight (8) angled parking spots could be accommodated on a one block segment of Cowls Street. In this scenario only northbound vehicles would have a properly positioned to access angled parking. Table 5 summarizes the comparison of Scenario 3 to existing conditions.

Table 5: Comparison of Scenario 3 to Typical Side Street Existing Conditions

Cowls Street (3rd to 4th	Existing Parking Stalls	Scenario 1 Parking Stalls	Net Difference Implementing Scenario 1
East Side	~4 to 5	8	~+3 to +4
West Side	~4 to 5	0	~-4 to -5

As summarized in Table 5, implementing Scenario 3 is likely to result in a neutral (0) to potential loss of up to two (2) parking stall per typical side street block.

If the City wanted to consider extending the angled parking beyond 2nd and 4th Streets or removing the bulb-outs to offset the travel lanes without transitions, the angle parking scenarios could warrant additional spaces beyond what is demonstrated above.

Recommendations

Based on the project team site visit, parking inefficiency assessment, and side street angled parking analysis, maintaining parallel parking on the side streets with improved efficiencies strategies aimed at increasing the overall number of parallel parking stalls is recommended. Parallel parking efficiency strategies include:

- Striping 30-foot yellow curb restrictions consistency at stop-sign and signal approaches
- Striping 20-foot yellow curb restrictions consistently from marked/unmarked crosswalks
- Remove existing yellow paint located between existing parallel parking stalls

Implementing the parallel parking efficiency strategies has the opportunity to increase up to 14 parallel parking stalls within the study area.

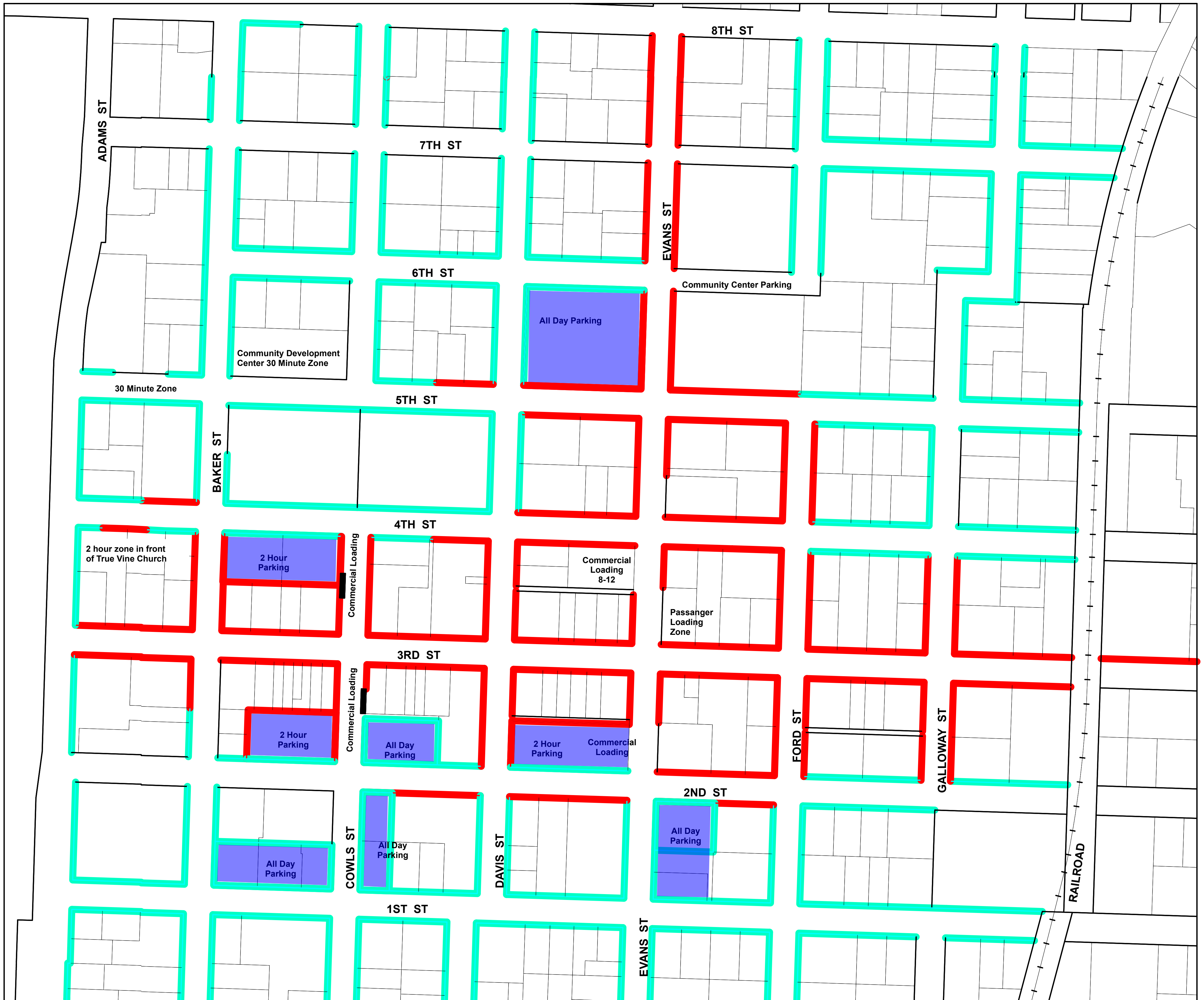
- Establishing time of day "Commercial Loading Zone Only" restrictions consistently from 8AM to 5PM can increase between three (3) and six (6) on-street parallel parking stalls during the evening hours.

Implementing angled parking on the side streets is not recommended and is not likely to result in an increase in overall parking stalls. Further, angled parking would only be accessible for one-way travel and would require the removal of curb extensions at Third Street intersections to be most effective.

Appendix B:
Downtown Free Parking Map

City of McMinnville

Free Downtown Parking



Legend

- Unrestricted Parking
- 2 Hr Parking Limit

N

0 112.5 225 450 Feet

March 2014

Appendix C:
15% Preliminary Design Plans

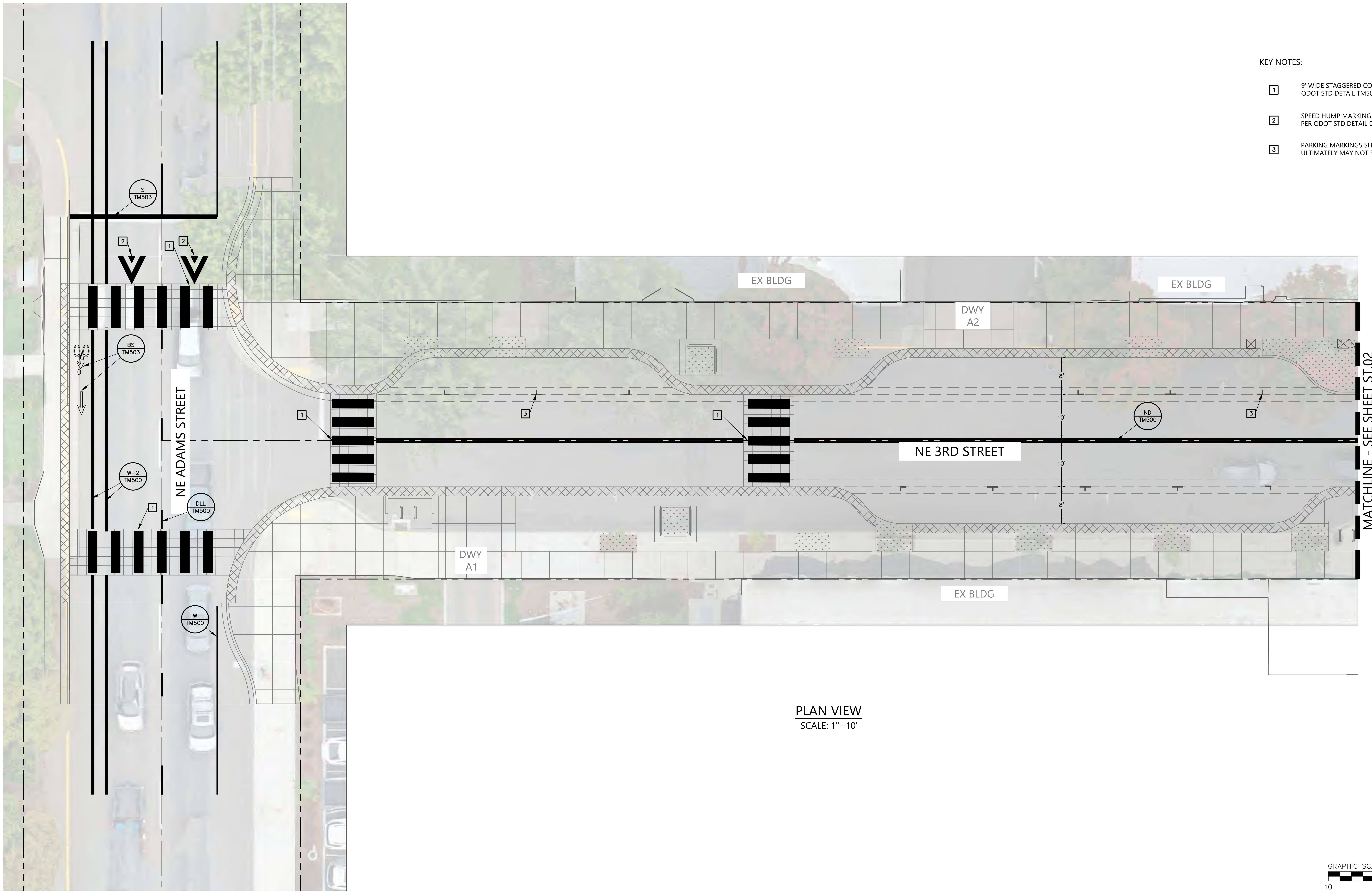
DRAFT 30% CD PROGRESS SET 3/17/25

STRIPING AND CURB MARKING LEGEND

ODOT DTL NO.	CURB AND STRIPING DETAIL PER ODOT STANDARD PLANS
DTL #	STREET SIGN PER MUTCD SIGNAGE STANDARD DETAIL
	PROPOSED STREET SIGN

KEY NOTES:

1. 9' WIDE STAGGERED CONTINENTAL CROSSWALK PER ODOT STD DETAIL TM503, SHEET CD.06 (TYP.)
2. SPEED HUMP MARKING WITH CROSSWALK LEADING EDGE PER ODOT STD DETAIL DET4560, SHEET CD.06 (TYP.)
3. PARKING MARKINGS SHOW FOR REFERENCE AND ULTIMATELY MAY NOT BE MARKED IN THE FIELD.



PLAN VIEW
SCALE: 1"=10'

GRAPHIC SCALE 1"=10'
10 0 10 20

NOT FOR CONSTRUCTION
EXPIRES: 6/30/2026

BKF ENGINEERS
1125 NW COUCH STREET
SUITE 440
PORTLAND, OR 97209
(503) 482-5734
www.bkf.com

THIRD STREET IMPROVEMENT PROJECT
SIGNAGE AND STRIPING PLAN – BLOCK A

CITY OF MCMINNVILLE
YAMHILL COUNTY
OREGON

Revisions
No.

Date 03/17/25
Scale AS SHOWN
Design EL
Drawn CS
Approved JW
Job No 221310

Drawing Number:
ST.01
70 of 105

30% CONSTRUCTION DOCUMENTS

DRAWING NAME: \\BKF-WC\vol4\2022\221310_McMinnville_NE_Third_Street\ENG\Sheets\ea_LAYOUTS\221310_ST.01 STRIPING PLAN.dwg
PLOT DATE: 03-14-25 PLOTTED BY: cschermesser

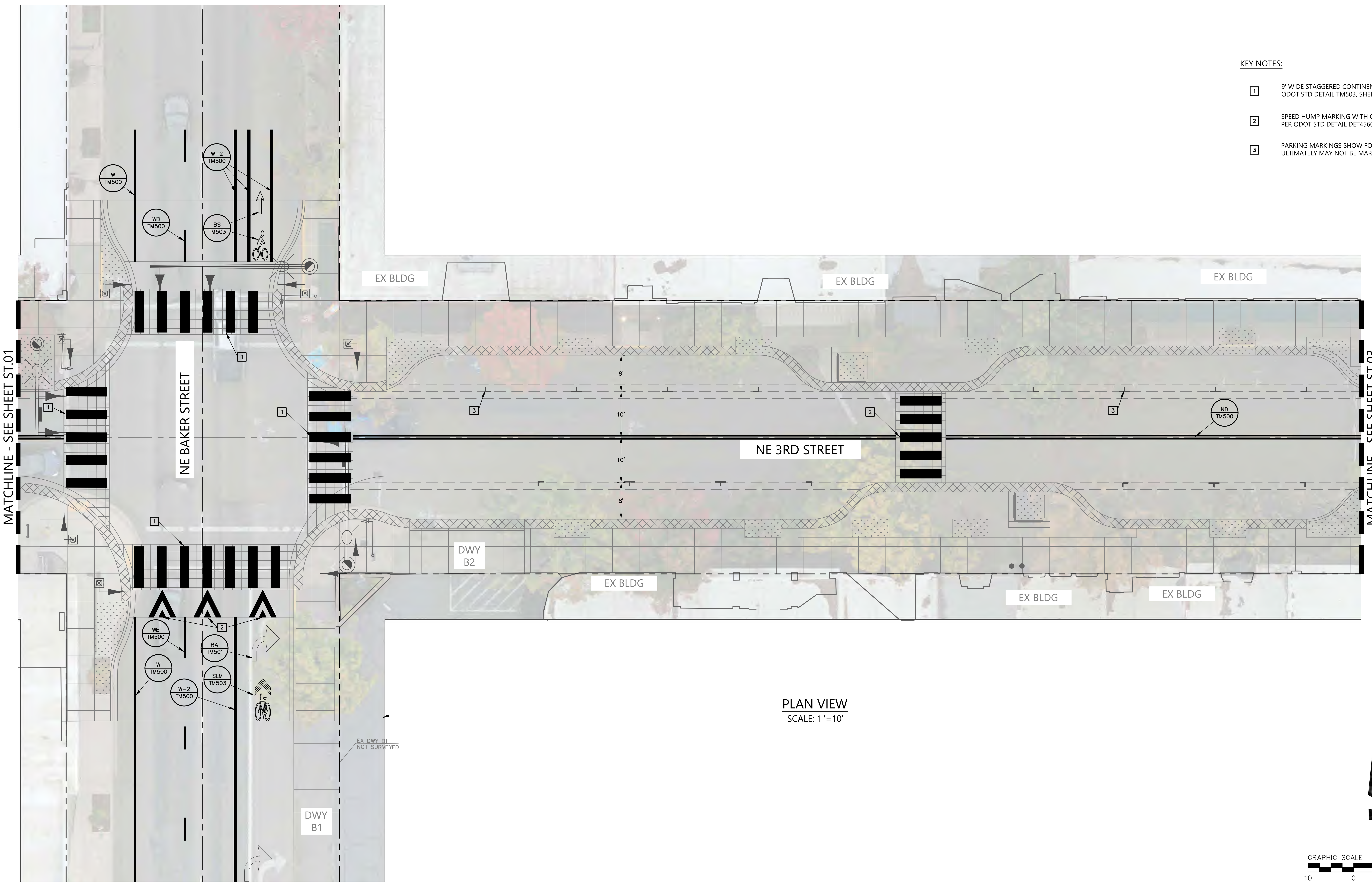
DRAFT 30% CD PROGRESS SET 3/17/25

STRIPING AND CURB MARKING LEGEND

ODOT / DTL NO.	CURB AND STRIPING DETAIL PER ODOT STANDARD PLANS
DTL #	STREET SIGN PER MUTCD SIGNAGE STANDARD DETAIL
	PROPOSED STREET SIGN

KEY NOTES:

1. 9' WIDE STAGGERED CONTINENTAL CROSSWALK PER ODOT STD DETAIL TM503, SHEET CD.06 (TYP.)
2. SPEED HUMP MARKING WITH CROSSWALK LEADING EDGE PER ODOT STD DETAIL DET4560, SHEET CD.06 (TYP.)
3. PARKING MARKINGS SHOW FOR REFERENCE AND ULTIMATELY MAY NOT BE MARKED IN THE FIELD.



PLAN VIEW

SCALE: 1"=10'

GRAPHIC SCALE 1"=10'

10 0 10 20

REGISTERED PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION
12, 2021
JON T. WHITE
EXPIRES: 6/30/2026

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THIRD STREET IMPROVEMENT PROJECT
SIGNAGE AND STRIPING PLAN - BLOCK B

CITY OF MCMINNVILLE YAMHILL COUNTY OREGON

No.	Revisions

Date 03/17/25
Scale AS SHOWN
Design EL
Drawn CS
Approved JW
Job No 221310

Drawing Number: ST.02

71 OF 105

30% CONSTRUCTION DOCUMENTS

DRAWING NAME: \\BKF-WC\vol4\2022\221310_McMinnville_NE_Third_Street\ENG\Sheets\ea_LAYOUTS\221310_ST.01 STRIPING PLAN.dwg
PLOT DATE: 03-14-25 PLOTTED BY: cschermesser

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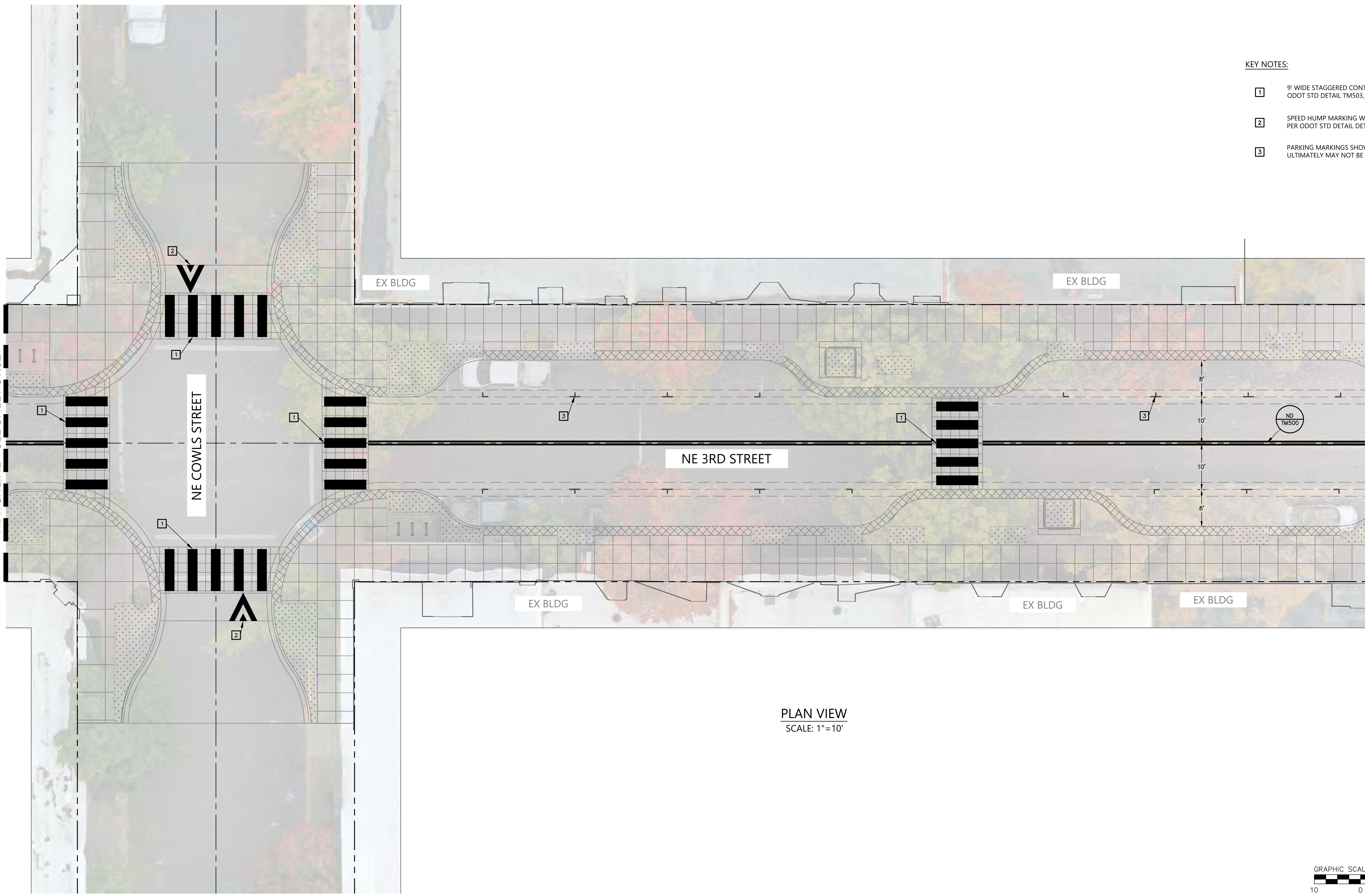
DRAFT 30% CD PROGRESS SET 3/17/25

STRIPING AND CURB MARKING LEGEND

- ODOT DTL NO. — CURB AND STRIPING DETAIL PER ODOT STANDARD PLANS
- DTL # — STREET SIGN PER MUTCD SIGNAGE STANDARD DETAIL
- PROPOSED STREET SIGN

KEY NOTES:

1. 9' WIDE STAGGERED CONTINENTAL CROSSWALK PER ODOT STD DETAIL TM503, SHEET CD.06 (TYP.)
2. SPEED HUMP MARKING WITH CROSSWALK LEADING EDGE PER ODOT STD DETAIL DET4560, SHEET CD.06 (TYP.)
3. PARKING MARKINGS SHOW FOR REFERENCE AND ULTIMATELY MAY NOT BE MARKED IN THE FIELD.



PLAN VIEW
SCALE: 1"=10'

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THIRD STREET IMPROVEMENT PROJECT
SIGNAGE AND STRIPING PLAN - BLOCK C

CITY OF MCMINNVILLE YAMHILL COUNTY OREGON

No.	Revisions
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Scale	AS SHOWN
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Drawn	CS
Approved	JW
Job No	221310

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72 of 105

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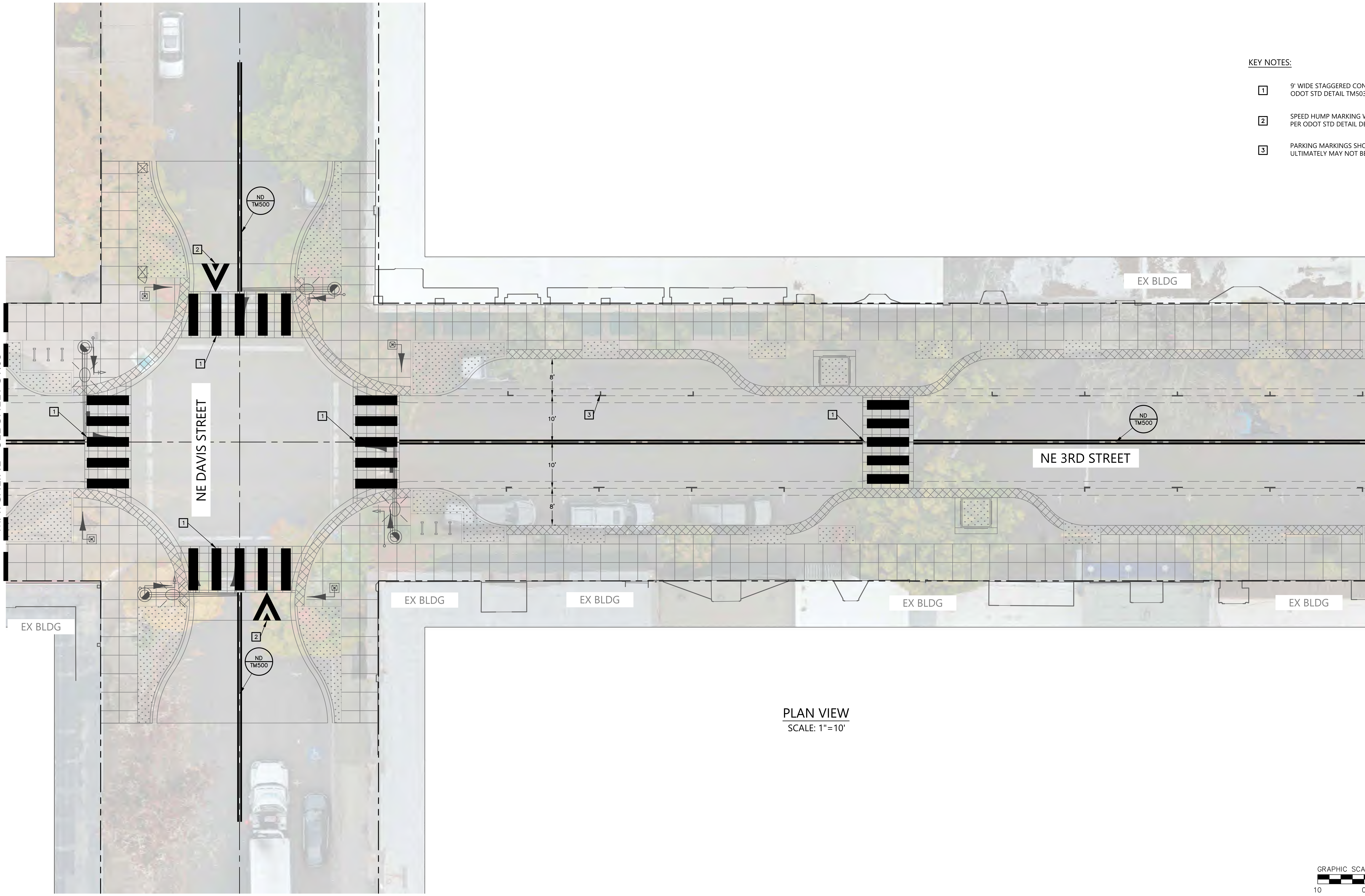
STRIPING AND CURB MARKING LEGEND

- ODOT DTL NO. — CURB AND STRIPING DETAIL PER ODOT STANDARD PLANS
- DTL # — STREET SIGN PER MUTCD SIGNAGE STANDARD DETAIL
- PROPOSED STREET SIGN

KEY NOTES:

1. 9' WIDE STAGGERED CONTINENTAL CROSSWALK PER ODOT STD DETAIL TM503, SHEET CD.06 (TYP.)
2. SPEED HUMP MARKING WITH CROSSWALK LEADING EDGE PER ODOT STD DETAIL DET4560, SHEET CD.06 (TYP.)
3. PARKING MARKINGS SHOW FOR REFERENCE AND ULTIMATELY MAY NOT BE MARKED IN THE FIELD.



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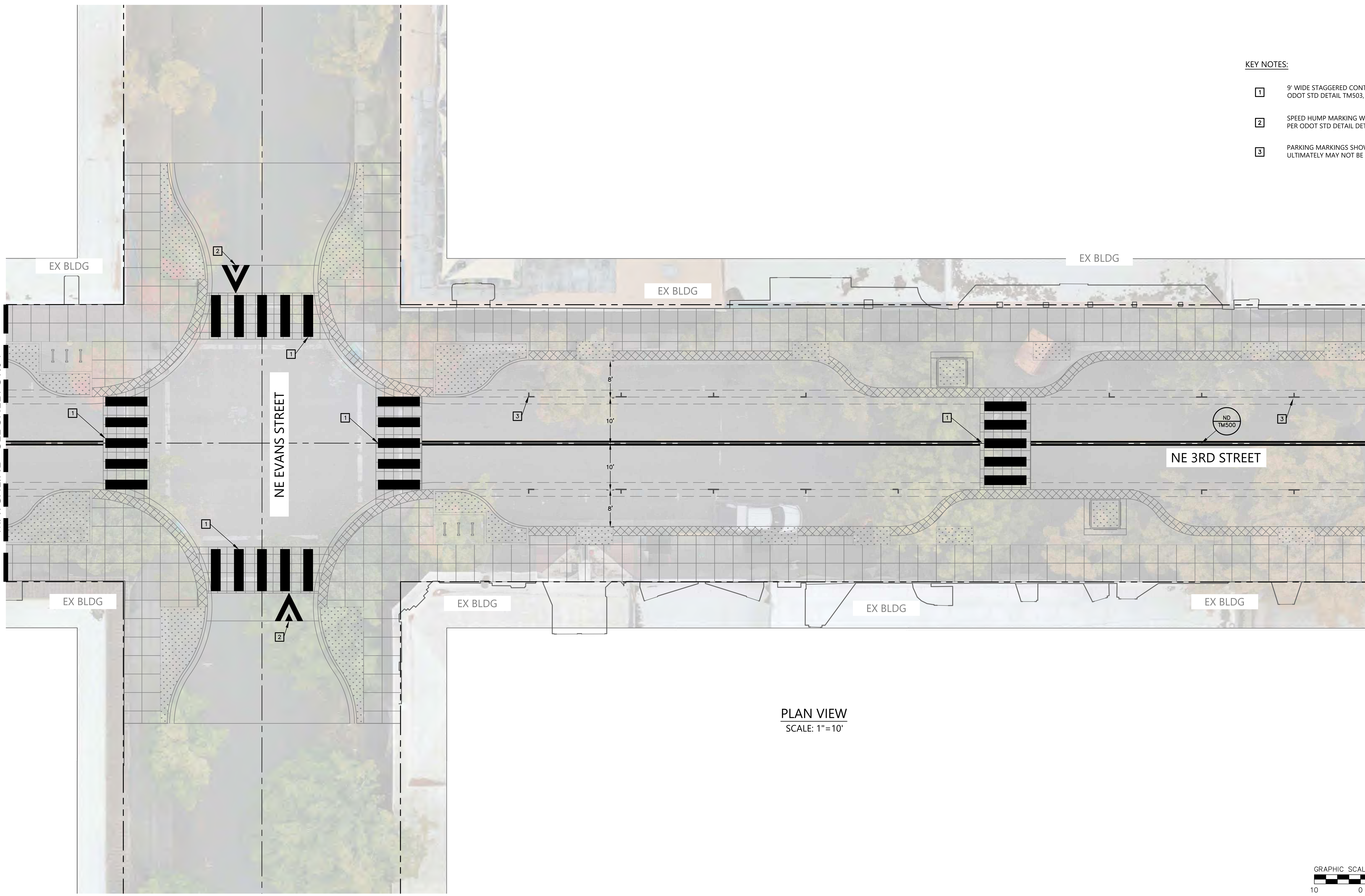

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STRIPING AND CURB MARKING LEGEND

- ODOT DTL NO. — CURB AND STRIPING DETAIL PER ODOT STANDARD PLANS
- DTL # — STREET SIGN PER MUTCD SIGNAGE STANDARD DETAIL
- PROPOSED STREET SIGN

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STRIPING AND CURB MARKING LEGEND

ODOT DTL NO. — CURB AND STRIPING DETAIL PER ODOT STANDARD PLANS

DTL # — STREET SIGN PER MUTCD SIGNAGE STANDARD DETAIL

PROPOSED STREET SIGN

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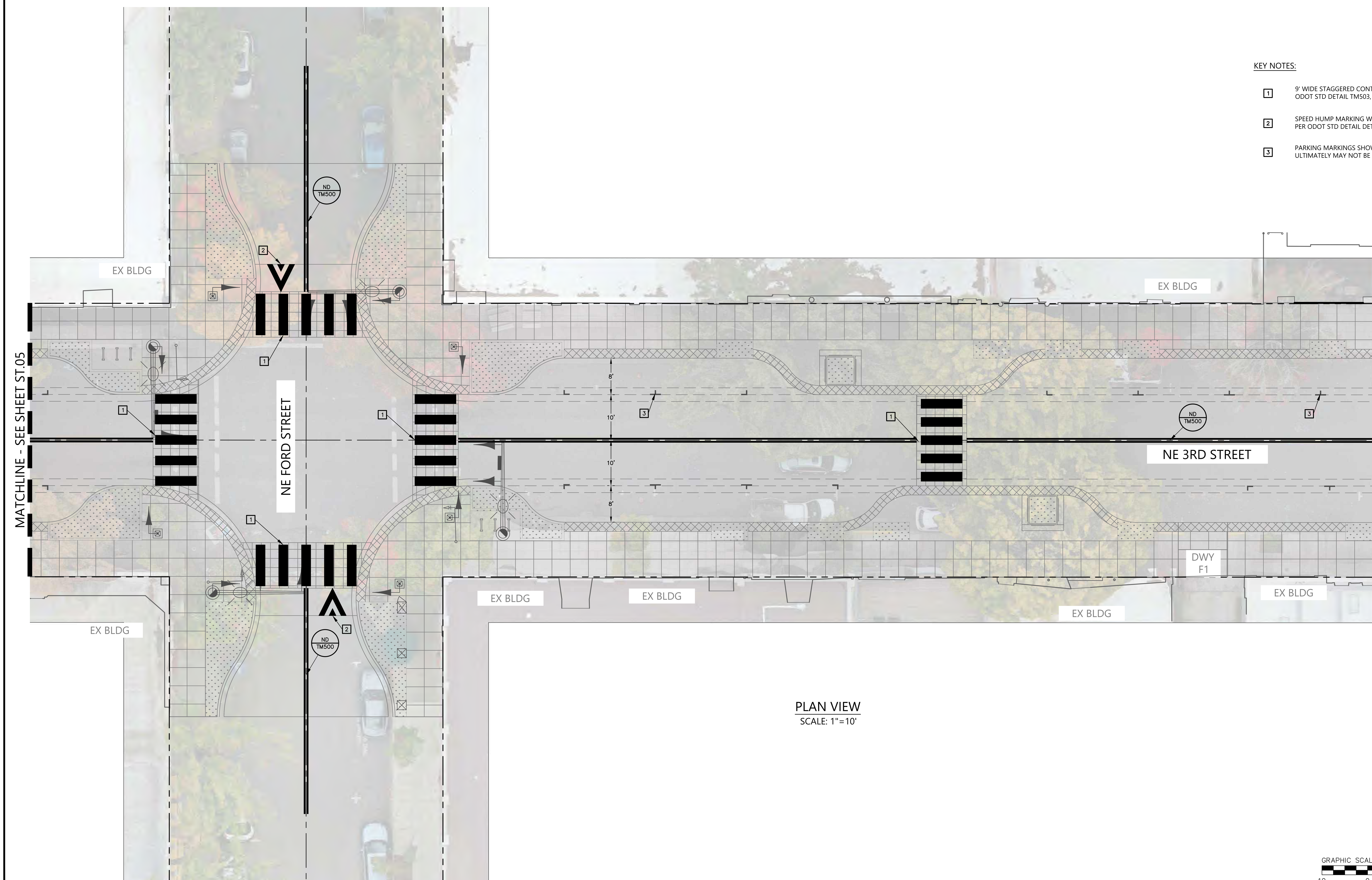

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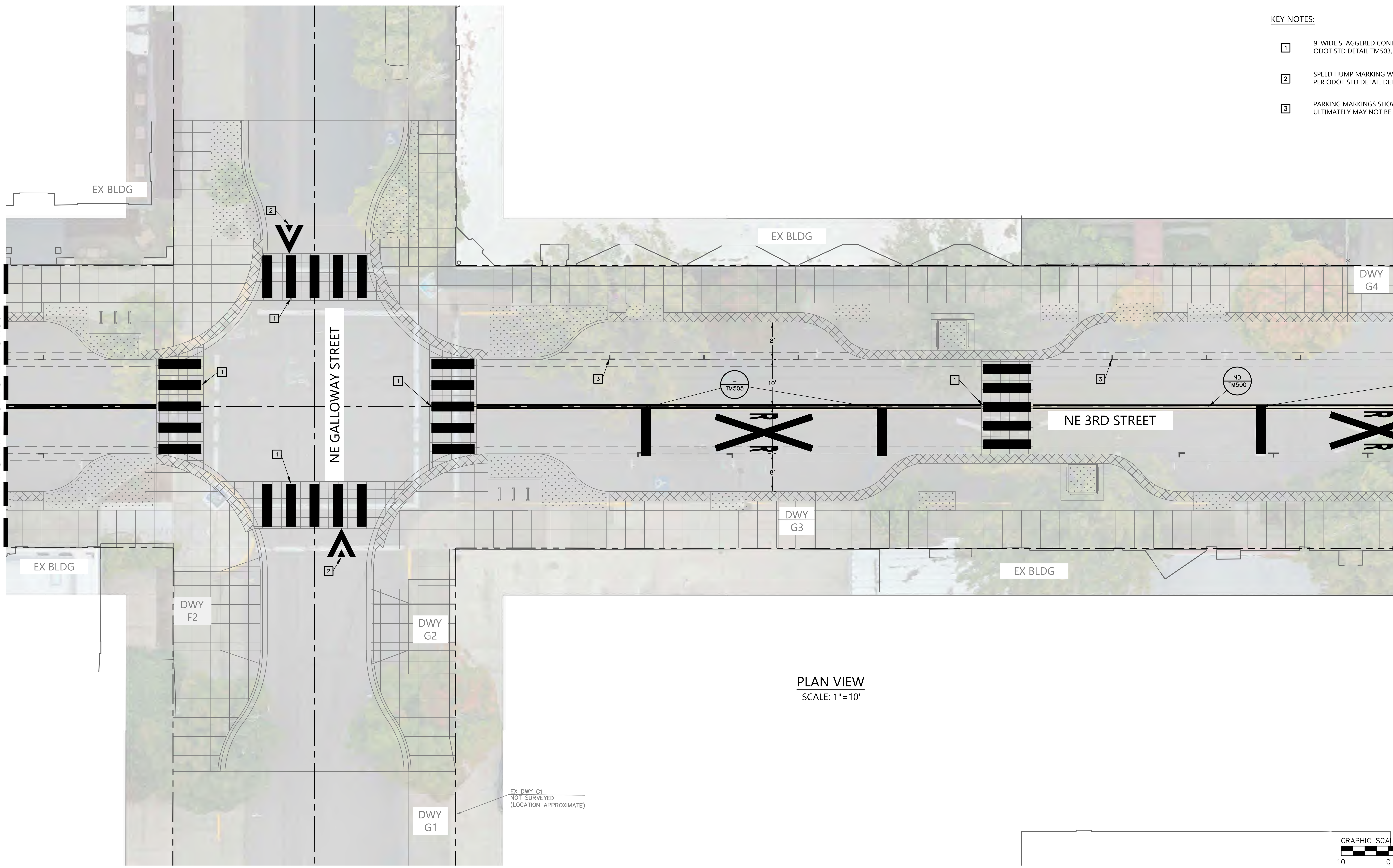

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STRIPING AND CURB MARKING LEGEND

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DTL #	STREET SIGN PER MUTCD SIGNAGE STANDARD DETAIL
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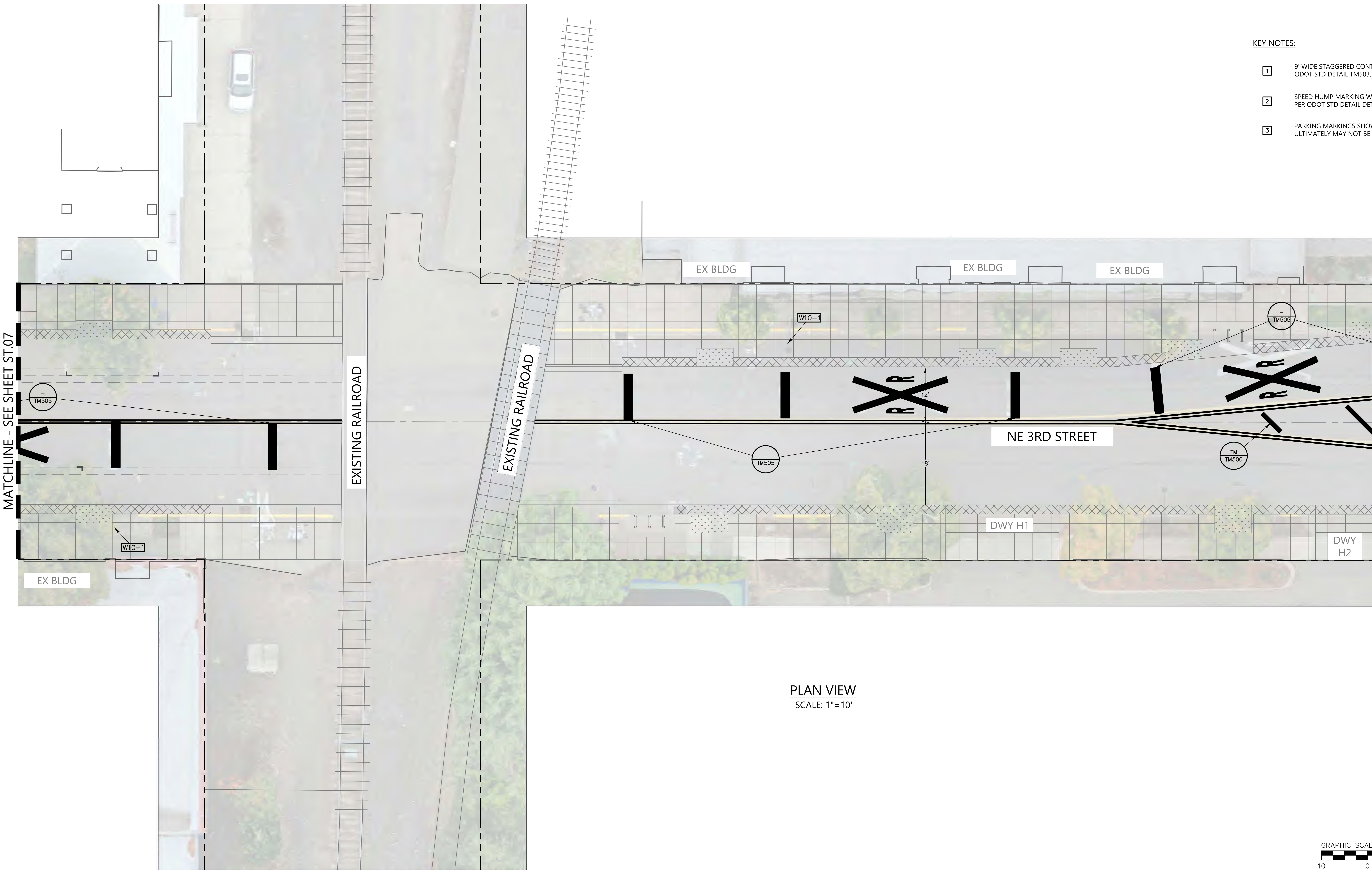

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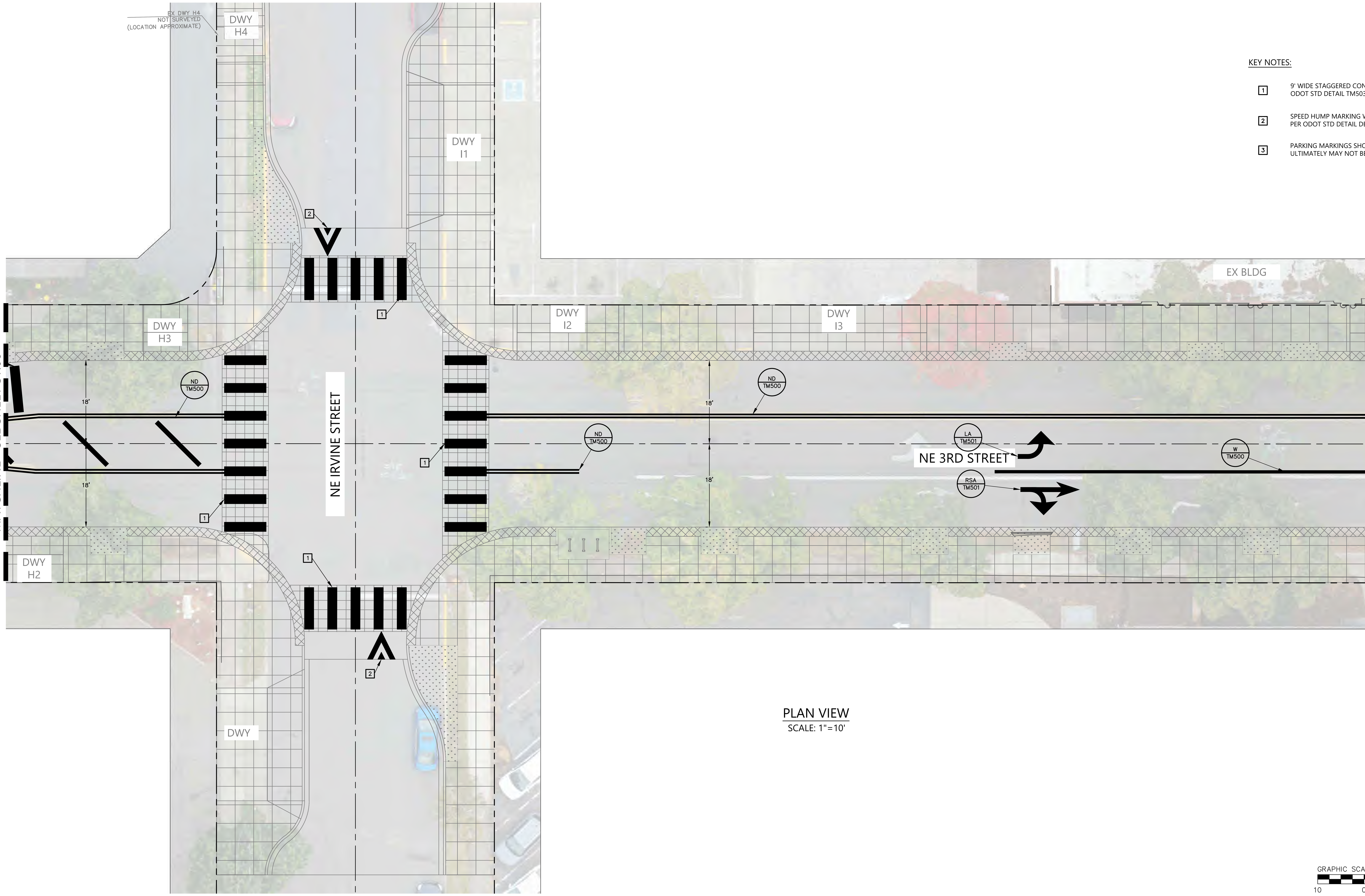

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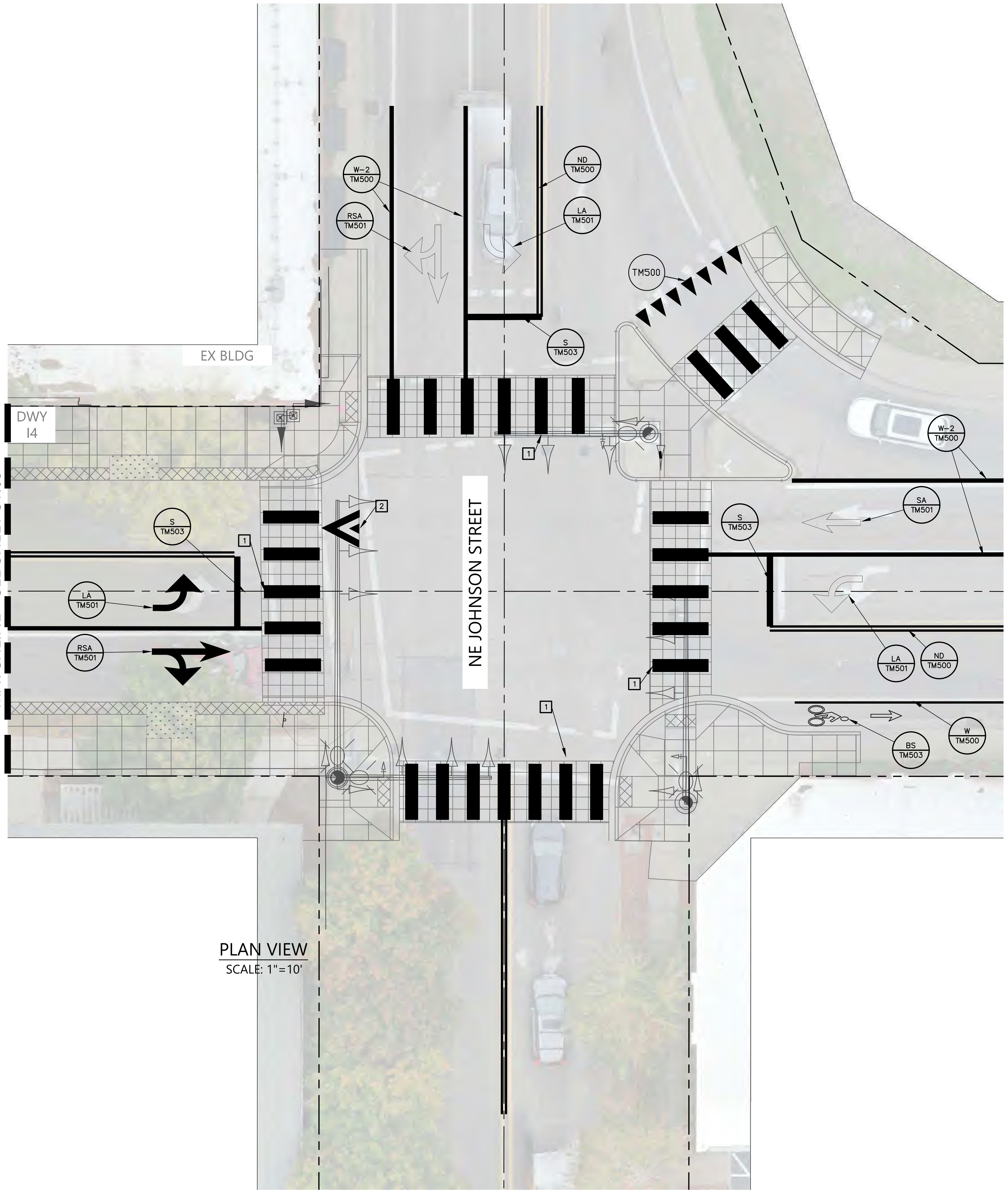

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Appendix D:
Rick Williams Consulting Parking Inventory Memorandum

RICK WILLIAMS CONSULTING
Parking & Transportation
PO Box 12546
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MEMORANDUM

To: Heather Richards, City of McMinnville
From: Rick Williams, Owen Ronchelli, and Pete Collins, RWC
Date: September 6, 2017
Project: Downtown McMinnville Parking Study
Subject: **Task 2: Technical Memorandum 1 – Inventory Summary**

This memorandum summarizes the project purpose as well as presents the inventory of the on- and off-street parking supply within the downtown McMinnville Parking Study Area. The purpose of the project is to provide an objective understanding of parking behavior in downtown using accurate data and to develop management strategies the City can implement to compliment an already thriving and growing Downtown McMinnville.

This technical memorandum sets out to accurately summarize the complete on and off-street parking supply within the study area boundary as provided for in Task 2 of the project work scope.

I. STUDY AREA

The City of McMinnville is interested in an objective assessment of the dynamics of use within the parking supply, both on-street and off-street (public and private) associated with the area north of 1st Street, south of 5th Street and extension, east of NW Adams Street/NW Birch/NW Alder and west of N Logan Street/SE Three Mile Lane. The study area was determined in conjunction with the project Stakeholder Advisory Committee and city staff.

The inventory provides a categorization (i.e., on and off-street, by time restriction, by lot or garage) of the parking supply that exist to support the business and commerce, and residences of the downtown. To this end, this study focuses on on-street parking stalls located within close proximity to the downtown core along NE 3rd Street as well as 75 off-street lots (both public and private) located throughout the study area. The inventory of off-street lots are evaluated as sites that currently, or could possibly, serve commercial uses in the downtown. **Figure A** (page 2) illustrates the Downtown McMinnville study area boundary.

Figure A: Parking Inventory Study Area

II. PARKING SUPPLY

The consultant team inventoried the on and off-street parking supply on the morning of Monday, May 8th, 2017. The inventory day was selected in consultation with McMinnville City staff as were specific streets and lots seen as reasonably serving downtown uses and/or showing potential for serving downtown activities.

The total supply of parking within the parking study includes 2,845 parking stalls, of which 798 (28%) are on-street stalls and 2,047 (72%) are off-street stalls located on 75 off-street sites. Four (4) off-street public parking lots are included as part of the comprehensive off-street inventory. Components used as the basis for the parking study assessment include:

On-Street

As all of on-street parking stalls are within close proximity to the Downtown core, 100% of the on-street stalls was inventoried and subsequently surveyed, amounting to 798 on-street stalls. Stalls were categorized by type (i.e. timestay, NL (No Limit) and ADA (American Disability Act – Handicapped) stalls).

Table 1 presents a breakout of the on- and off-street parking inventoried in Downtown McMinnville.

Table 1: 2017 Downtown McMinnville On-Street Inventory

Stalls by Type	Stalls	% of Total
10 Minutes (Signed)	1	< 1%
15 Minutes (Signed)	1	< 1%
2 Hours (Signed)	282	35.3%
ADA Accessible (Signed)	21	2.6%
No Limit	493	61.8%
On-Street Supply	*798*	*100%*
Off-Street Supply (75 sites)	2,047	100%
Off-Street Supply Surveyed (42 sites)	*1,666*	*81.4%*
Off-Street 2 Hour Parking Supply[1]	*138*	*6.7% (of off-street supply)*
Total Supply	**2,845**	**100%**
Total Supply Surveyed	***2,464***	***86.6%***

From **Table 1** the following on-street findings can be derived:

- 35% of the on-street supply is provided in the form of 2 Hour stalls.
- 62% of the supply is provided in the form of No Limit stalls, or stalls with no time restrictions.
- Nearly 3% of the on-street supply is devoted to ADA Accessible stalls.
- Only two stalls in the downtown study area are dedicated to quick trips (stalls of 30 minutes or less).

Off-Street

The entire public and private off-street parking supply has 2,047 stalls spread across 75 sites. The parking inventory captures all parking stalls within the study boundary including small parking areas in alleyway (if applicable), reserved stalls for specific user groups (e.g., emergency vehicles, ADA Accessible, etc.). As such, this represents the total available off-street parking supply for all users of the

[1] A sub-category of off-street stalls dedicated to short-term stays (stays of 2 hours or less).

Downtown. When it comes to the data collection effort, measuring parking utilization, only a portion of those stalls will be evaluated. This is done to make efficient use of survey resources; managing data collection costs while also delivering highly accurate findings. That sampling of off-street sites is noted in **Table 1** – *Off-Street Supply Surveyed (42 sites)*. Of the total supply, 1,666 stalls will be evaluated for occupancy which represents an 81% sample of the whole off-street system – a highly statistically valid and accurate sample of off-street parking behavior/utilization.

From **Table 1** the following off-street findings can be derived:

- The public and private off-street parking system has 2,047 parking stalls.
- The 2,047 stalls are distributed across 75 individual sites throughout the study area.
- 138 stalls (7% of the supply) are designated for short-term stays, 2 Hour parking.
- 81% of the total off-street supply will be sampled for parking utilization.

Table 2 illustrates the entire off-street parking inventory identified by Lot ID, site name, number of stalls, and the percentage of the off-street supply. Of the seventy-five off-street sites, forty-two (42) sites will be surveyed for parking utilization during the data collection process, including four (4) public off-street lots (Lot #s 27, 28, 47, 50). **Figure B** (page 7) displays the geographical distribution of all the off-street parking sites included in the inventory identified by Lot ID number.

Table 2: 2017 Downtown McMinnville Off-Street Inventory by Site

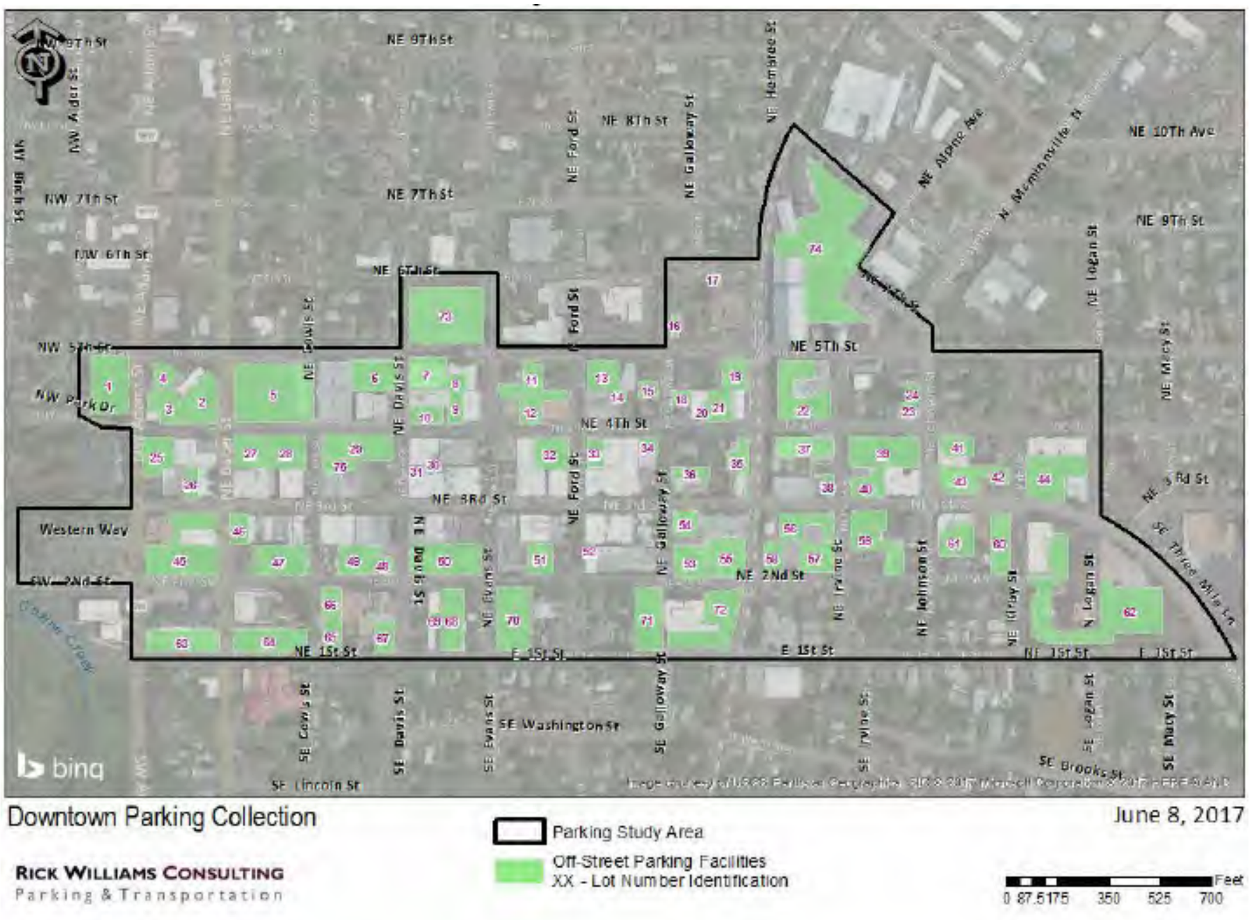
Lot ID	Off-Street Parking Sites[2]	Stalls	% of Total
1	McMinnville Chamber of Commerce	29	1.4%
2	Citizens Bank	31	1.5%
3	Ticor Title	11	0.5%
4	Dutch Bros	3	0.1%
5	Oregon Mutual Insurance	140	6.8%
6	Oregon Mutual Insurance – Rear	22	1.1%
7	Yamhill County Family + Youth Program	19	0.9%
8	Vacant Building	7	0.3%
9	The Springs Living	13	0.6%
10	Frontier	7	0.3%
11	Board of County Commissioners	19	0.9%
12	Dept. Planning + Dev	19	0.9%

[2] Sites highlighted in red will not be surveyed for parking utilization during the data collection phase of this study.

13	Yamhill Co Public Health	33	1.6%
14	Court Appointed Advocates	6	0.3%
15	Private Residence	5	0.2%
16	707 NE 5th St	4	0.2%
17	Galloway Place	2	0.1%
18	Cynthia Kaufman Noble LLC	5	0.2%
19	Utility Yard	6	0.3%
20	Boxer Boys	4	0.2%
21	Cellar Ridge Construction	7	0.3%
22	Elizabeth Chambers Winery	10	0.5%
23	Buchanan Cellars	5	0.2%
24	Carlyle Construction	8	0.4%
25	Cozine House/ First Federal	17	0.8%
26	Retail Parking	10	0.5%
27	**Retail – 2 Hour Parking**	**26**	1.3%
28	**Retail – 2 Hour Parking**	**30**	1.5%
29	US Bank	20	1.0%
30	Retail Parking	3	0.1%
31	Retail Parking	3	0.1%
32	News Register	37	1.8%
33	News Register	13	0.6%
34	McMinnville Glass Shop Entrance	5	0.2%
35	Portland & Western McMinnville Depot	20	1.0%
36	Lost in the 50s	10	0.5%
37	Village Outlier/ Yamhill County	54	2.6%
38	Third Street Animal Hospital	4	0.2%
39	Golden Valley	58	2.8%
40	Mini Super Hidalgo	19	0.9%
41	Acupro Oregon Computer Sales	14	0.7%
42	Northwest Spine & Sport	9	0.4%
43	Acupro Oregon Computer Sales	40	2.0%
44	HBF International	69	3.4%

45	First Federal	64	3.1%
46	Berkshire Hathaway	11	0.5%
47	**Public - 2 Hour Parking**	**29**	1.4%
48	Public – All Day Parking	17	0.8%
49	Key Bank	20	1.0%
50	**Public – 2 Hour Parking**	**53**	2.6%
51	Multi-Tenant Parking	15	0.7%
52	The Springs Living	5	0.2%
53	Rays Auto Service Back lot	27	1.3%
54	Rays Auto Service Front lot	0	0.0%
55	Unknown	27	1.3%
56	K Mini Mart	13	0.6%
57	Headstart of Yamhill County	15	0.7%
58	Headstart of Yamhill County – Bus Parking	10	0.5%
59	McMinnville Praise Assembly	40	2.0%
60	Mountain View – Dr. Marvin Johnson and Thomas Kolodge	24	1.2%
61	Farmers Insurance	23	1.1%
62	James Catholic Church/ School	128	6.3%
63	McMinnville Fire Department	34	1.7%
64	Public – All Day Parking/ Civic-City Hall	38	1.9%
65	Public – All Day Parking	15	0.7%
66	First Presbyterian Church	12	0.6%
67	First Presbyterian Church – Rear	15	0.7%
68	Macy & Son Memorial Chapel	25	1.2%
69	Poseyland Florist	7	0.3%
70	McMinnville Co-op/ Public – All Day Parking	49	2.4%
71	US Post Office	31	1.5%
72	Authorized Vehicles Only	69	3.4%
73	5th Avenue Garage	222	10.8%
74	The Granary	120	5.9%
75	McMinnville Grand Ballroom	13	0.6%
	Off-Street Supply (75 sites)	**2,046**	**100%**
	Off-Street Supply Surveyed (42 sites)	***1,665***	***81.4%***

Figure B: Off-Street Parking Inventory Sites



III. SUMMARY

Downtown McMinnville' on-street parking supply is healthy and well distributed throughout the study area. There are only a few block faces that prohibit on-street parking for safety purposes (e.g., adjacent to railroad tracks, near the transit center), consequently the supply is proximate and convenient to most downtown businesses. Most of the short-term parking stall (2 Hour) are appropriately located along 3rd Street, the retail 'main street', and intersecting perpendicular streets between 2nd and 4th Streets. Streets beyond this retail core have some mix of time restrictions depending on their location, but are predominantly made up of No Limit stalls. The off-street system is primarily private or accessory to specific adjacent uses, with a handful of lots in public control catering to shorter-term stays (for trips up to 2 hours), which encourages parking turnover and is supportive of neighboring retail businesses. The off-street system complements the on-street supply by allowing for longer-term stays for both employee and customer use.

McMinnville's parking system appears to be well structured and supportive of commerce activities in the downtown. The forthcoming data collection effort will provide helpful utilization information that will detail how these parking assets are being used and when.

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Technical Memorandum

March 13, 2025 Project# 29019

McMinnville Third Street Improvement Project

To: Jason White, BKF Engineers

From: Joey Bansen, PE; Sutapa Banerjee

Subject: Traffic Analysis Memorandum

Introduction

PROJECT BACKGROUND

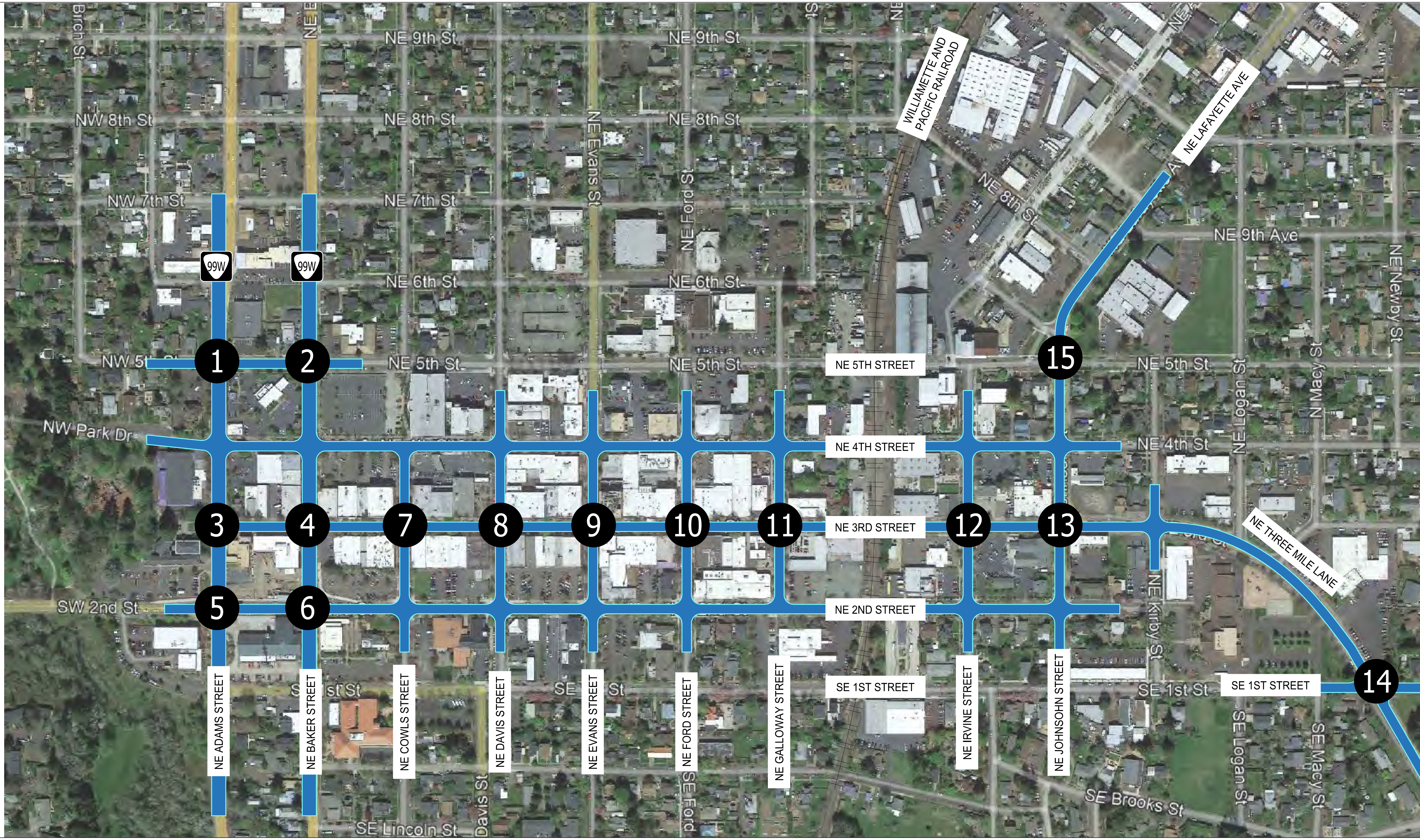
The *Third Street Improvement Project* is a nine-block street improvement project on McMinnville's downtown "main street". The project includes street and sidewalk reconstruction, underground utility infrastructure improvements, above-ground street furnishings and landscaping. The City has been planning for this project from as early as 2000, and has been working on the vision, goals, objectives, and a concept block design for the past four years in a comprehensive public process. The improvement of NE 3rd Street from NE Adams Street to NE Johnson Street is identified in the *City of McMinnville Transportation System Plan* (TSP)(Reference 1) as a planned roadway improvement project.

The concept design phase completed in 2022 set a preferred vision and functional design that keeps the existing two-lane street (single lane in each direction) and creates a "Person-Centered Main Street" by:

- Installing large curb extensions that create flexible areas for seating, art, planting, and dining spaces;
- Installing larger sidewalks providing more room for pedestrians and commerce;
- Implementing a balanced design equally serving both sides of the street; and
- Implementing narrower lanes, curb extensions, and on-street parking to calm traffic speeds.

Following the 15% design phase in 2024, the design concept was updated to incorporate a curbless "festival street" concept with flush curbs delineating the roadway and sidewalk areas to facilitate flexibility in the use of the public right-of-way in this unique strip of downtown.

Figure 1 illustrates the study area and specific study intersections for the project.



Site Plan and Study Intersections
McMinnville, OR

Figure 1

SCOPE OF THE TRANSPORTATION ANALYSIS

The scope of this project includes the NE 3rd Street corridor between NE Adams Street and NE Johnson St. The study intersections and overall study area for this project were selected based on a review of the local transportation system and direction provided by the City of McMinnville. Operational analyses were performed at the following study intersections:

1. NE Adams Street (OR99W) & NE 5th Street
2. NE Baker Street (OR99W) & NE 5th Street
3. NE Adams Street (OR99W) & NE 3rd Street
4. NE Baker Street (OR99W) & NE 3rd Street
5. NE Adams Street (OR99W) & NE 2nd Street
6. NE Baker Street (OR99W) & NE 2nd Street
7. NE Cowls Street & NE 3rd Street
8. NE Davis Street & NE 3rd Street
9. NE Evans Street & NE 3rd Street
10. NE Ford Street & NE 3rd Street
11. NE Galloway Street & NE 3rd Street
12. NE Irvine Street & NE 3rd Street
13. NE Johnson Street & NE 3rd Street
14. NE Three Mile Lane & SE 1st Street
15. NE Lafayette Avenue/NE Johnson Street & NE 5th Street

This transportation analysis addresses specific capacity and safety needs in the project area and provides recommendations to be carried forward in the development of corridor design alternatives. This technical memorandum includes the following:

- Existing traffic volumes, geometric conditions, traffic conditions, and crash history.
- Build Year 2027 and Future Year 2047 future traffic volumes based on Oregon Department of Transportation's (ODOT) travel demand model for the City of McMinnville.
- Evaluation of intersection and/or segment improvements based on the anticipated year 2047 volumes.
- Queuing analysis for the study intersections during weekday morning and afternoon peak hours.
- Identification of deficiencies and recommendations for intersection and corridor improvements to inform the design process.

The focus of the analysis and recommendations is on the intersections along NE 3rd Street from NE Adams Street to NE Johnson Street. However, several other intersections were included in the traffic volume development and analysis with the intent of assessing impacts of possible re-routing of traffic away from NE 3rd Street to adjacent streets resulting from the implementation of these streetscape improvements.

ANALYSIS METHODOLOGY

The intersection analyses described in this memorandum were performed in accordance with the procedures stated in the *Highway Capacity Manual 7th Edition (HCM)* (Reference 2).

The operational analyses were performed using Synchro *11* traffic analysis software. *Synchro* is a software package that analyzes individual signalized and unsignalized intersections; it also enables modeling and optimizing traffic signal timings along a corridor. Synchro implements the methods outlined in the *HCM*.

Mobility Standards

A number of performance measures are used to gauge the overall quality of the travel experience through an intersection or roadway segment as it is perceived by the traveler. A brief description of each performance measure is provided below:

- *Level of Service* (LOS) has been the most commonly used performance measure. LOS uses an "A" to "F" ranking based on the average control delay experienced by motorists. LOS "A" conditions have very low vehicle delay times (10 seconds or less), while LOS "F" conditions have high delay times (over 80 seconds per vehicle at a signalized intersection and over 50 seconds at an unsignalized intersection) that are considered unacceptable to most drivers.

- *Volume-to-Capacity Ratio* (V/C) compares the volume of traffic to the theoretical capacity of the facility to accommodate traffic. A V/C ratio of 1.0 indicates an intersection is operating at capacity. A V/C ratio over 1.0 indicates the intersection's capacity is exceeded, meaning that a vehicle may have to wait more than one signal cycle length at a signalized intersection before moving through the intersection.

While overall intersection performance is calculated for signalized intersections, performance measures are only calculated for the minor approaches and the major street left-turn movements at two-way stop-controlled intersections. No delay is assumed on the major street through movements; levels of service and volume-to-capacity ratios are only calculated for each minor street lane.

Several of the study intersections are located along OR99W under ODOT jurisdiction and the remaining are under City of McMinnville jurisdiction.

CITY OF MCMINNVILLE

Chapter 2 of City of McMinnville's TSP identifies performance measures based on the 1999 Oregon Highway Plan (OHP) (Reference 3). The TSP identifies the mobility target for City-owned streets and intersections at a V/C ratio of 0.90 or lower, and intersections on OR99W at a V/C ratio of 0.85 or lower.

OREGON DEPARTMENT OF TRANSPORTATION

The *2025 ODOT Highway Design Manual (HDM)* (Reference 4) establishes project development and design mobility targets for ODOT facilities. As a Regional Highway within an urban growth boundary and a posted speed limit of 30 mph, Table 1200-2 of the HDM sets the mobility target for the OR99W intersections at a V/C ratio of 0.75 or lower.

Table 1 summarizes the intersection mobility targets for the study intersections. The OHP mobility targets were used for ODOT intersections under existing and future no-build conditions and the

HDM mobility targets were used to evaluate the future build conditions. The HDM targets are stricter than OHP targets, reflecting the desire to provide excess capacity for future growth and flexibility when investing significant funding into a project.

Table 1 Mobility Targets for Study Intersections

Intersection	Jurisdiction	Mobility Targets (V/C Ratio)	
		Oregon Highway Plan (OHP)	ODOT Highway Design Manual (HDM)
1. NE Adams St (OR99W) & NE 5th St	ODOT	0.85	0.75
2. NE Baker St (OR99W) & NE 5th St	ODOT	0.85	0.75
3. NE Adams St (OR99W) & NE 3rd St	ODOT	0.85	0.75
4. NE Baker St (OR99W) & NE 3rd St	ODOT	0.85	0.75
5. NE Adams St (OR99W) & NE 2nd St	ODOT	0.85	0.75
6. NE Baker St (OR99W) & NE 2nd St	ODOT	0.85	0.75
7. NE Cowls St & NE 3rd St	City	0.90	N/A
8. NE Davis St & NE 3rd St	City	0.90	N/A
9. NE Evans St & NE 3rd St	City	0.90	N/A
10. NE Ford St & NE 3rd St	City	0.90	N/A
11. NE Galloway St & NE 3rd St	City	0.90	N/A
12. NE Irvine St & NE 3rd St	City	0.90	N/A
13. NE Johnson St & NE 3rd St	City	0.90	N/A
14. NE Three Mile Ln & SE 1st St	City	0.90	N/A
15. NE Lafayette Ave/NE Johnson St & NE 5th St	City	0.90	N/A

COORDINATION WITH OTHER PROJECTS

OR99W Active Transportation Concept Plan

The City of McMinnville and ODOT partnered on the *OR99W (Linfield to McDonald) Active Transportation Concept Plan* (Reference 5) to develop a plan and identify improvements within the corridor that will result in a safer, more comfortable, more attractive place to walk, bike, roll, and access transit. The plan makes the following recommendations for a preferred solution concept within the project study area:

- Install a buffered bike lane along the east side of NE Baker Street (OR99W northbound).
- Install a buffed bike lane along the west side of NE Adams Street (OR99W southbound).
- Install a pedestrian-actuated rectangular rapid flashing beacon (RRFB) at the existing striped crosswalk on the north leg of NE Adams Street & NE 3rd Street.

ODOT OR99W/OR18 Curb Ramps (McMinnville)

ODOT Region 2 is currently underway with the design phase of ADA curb ramp improvements along OR99W and OR18 in McMinnville. The ODOT Statewide Transportation Improvement Program (STIP) number is K22554. Construction is planned for 2025. The project is expected to implement the following within the study area:

- Rebuild curb ramps at:
  - NE Adams Street (OR99W southbound) & NE 3rd Street – west side only
  - NE Baker Street (OR99W northbound) & NE 3rd Street – includes curb extensions/bulb-outs on all corners
  - NE Adams Street (OR99W southbound) & NE 2nd Street – southwest island only.
  - NE Baker Street (OR99W northbound) & NE 2nd Street – northeast island only.
- Install RRFB and illumination at the existing marked crosswalk on the north leg of NE Adams Street & NE 3rd Street.
- Re-stripe OR99W southbound (NE Adams Street) to include a buffered bike lane along the west side of the street.
- Re-stripe OR99W northbound (NE Baker Street) to include a buffered bike lane along the east side of the street.

Existing Transportation Facilities

Most land uses along NE 3rd Street are commercial and retail in nature. The study area maintains a downtown "main street" nature throughout its extents with store fronts abutting the right-of-way along the street. The Willamette and Pacific Railroad passes north-south through the study area between the intersections of NE Galloway Street and NE Irvine Street.

ROADWAY FACILITIES

NE 3rd Street is a two-lane roadway in downtown McMinnville that runs east-west from NE Adams Street to NE Johnson Street and is classified as a "major collector". NE 3rd Street ends in a tee-intersection at NE Adams Street at the west end, with the McMinnville Aquatic Center, City Park, and Library on the west side of the intersection. NE 3rd Street transitions to NE Three Mile Lane approximately two blocks east of NE Johnson Street. The City of McMinnville has indicated that it will likely seek a classification change to NE 3rd Street to a "local street" classification in the upcoming TSP update.

Oregon Route 99W (OR99W), also known as Pacific Highway West, is an ODOT regional highway and major arterial that runs north-south as a couplet through downtown McMinnville. Within the project limits, the southbound direction is known as NE Adams Street, and the northbound direction is known as NE Baker Street.

Most of the intersections in the study area along NE 3rd Street are stop-controlled on the minor street approaches. The NE Baker Street, NE Davis Street, and NE Ford Street intersections are currently signalized. On-street parallel parking exists on both sides of NE 3rd Street for the majority of the corridor as well as on the side street approaches.

PEDESTRIAN AND BICYCLE FACILITIES

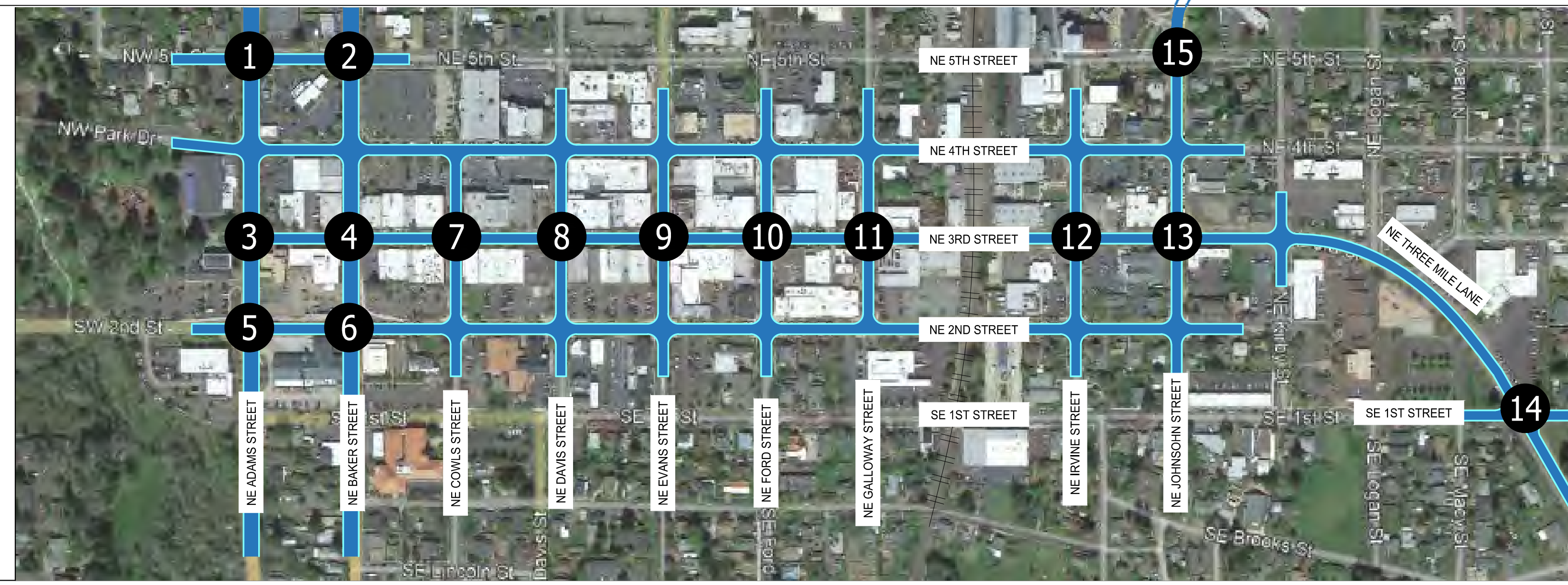
Sidewalks exist on both sides of all streets within the study area, with NE 3rd Street and most other streets having buffer strips with street trees, street lights and other street furnishings between the curb and sidewalk. No marked bicycle facilities are present along NE 3rd Street. Shared bicycle lane markings ("sharrows") exist on NE 2nd Street and NE 5th Street, while striped bicycle lanes exist on NE Three Mile Lane.

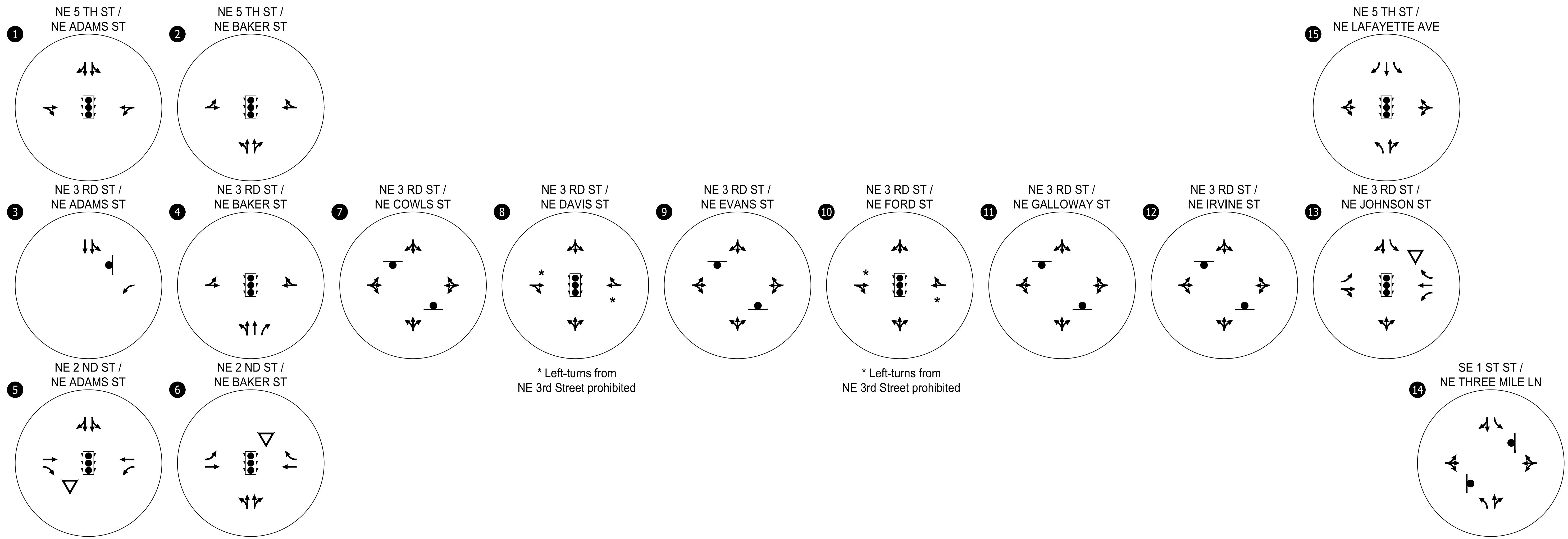
Marked crosswalks exist mid-block along the NE 3rd Street corridor on each block between NE Baker Street and NE Galloway Street.

Table 2 summarizes the street characteristics within the study area, and Figure 2 illustrates the existing lane configurations and traffic control devices at the study intersections. Note that the left-turn movements from NE 3rd Street at the signalized intersections of NE Davis Street and NE Ford Street are currently prohibited with overhead signage.

Table 2 Street Characteristics in Site Vicinity

Street	Classification	Vehicle Travel Lanes	Posted Speed (mph)	Sidewalks	Bicycle Lanes	On-Street Parking
NE 3rd St	**Major Collector**	**2**	**20**	**Both sides**	**None**	**Both sides**
NE 2nd St	Minor Collector	2	25	Both sides	Partial (Sharrows)	Both sides
NE 5th St	Minor Collector	2	25	Both sides	Partial (Sharrows)	Both sides
SE 1st St	Local Street	2	25	Both sides	Partial (Sharrows)	Both sides
NE Adams St (OR99W SB)	Major Arterial/ Regional Hwy	2	30	Both sides	None	Both sides (partial)
NE Baker St (OR99W NB)	Major Arterial/ Regional Hwy	2	30	Both sides	None	Both sides (partial)
NE Cowls St	Local Street	2	25	Both sides	None	Both sides
NE Davis St	Local Street	2	25	Both sides	None	Both sides
NE Evans St	Minor Collector	2	25	Both sides	None	Both sides
NE Ford St	Local Street	2	25	Both sides	None	Both sides
NE Galloway St	Local Street	2	25	Both sides	None	Both sides
NE Irvine St	Local Street	2	25	Both sides	None	Both sides
NE Johnson St	Local Street	2	25	Both sides	None	None
NE Three Mile Ln	Major Collector	3	35	Both sides	Both sides	None





LEGEND

- STOP SIGN
- YIELD SIGN
- TRAFFIC SIGNAL

Existing Lane Configurations and Traffic Control Devices
McMinnville, OR

Figure 2

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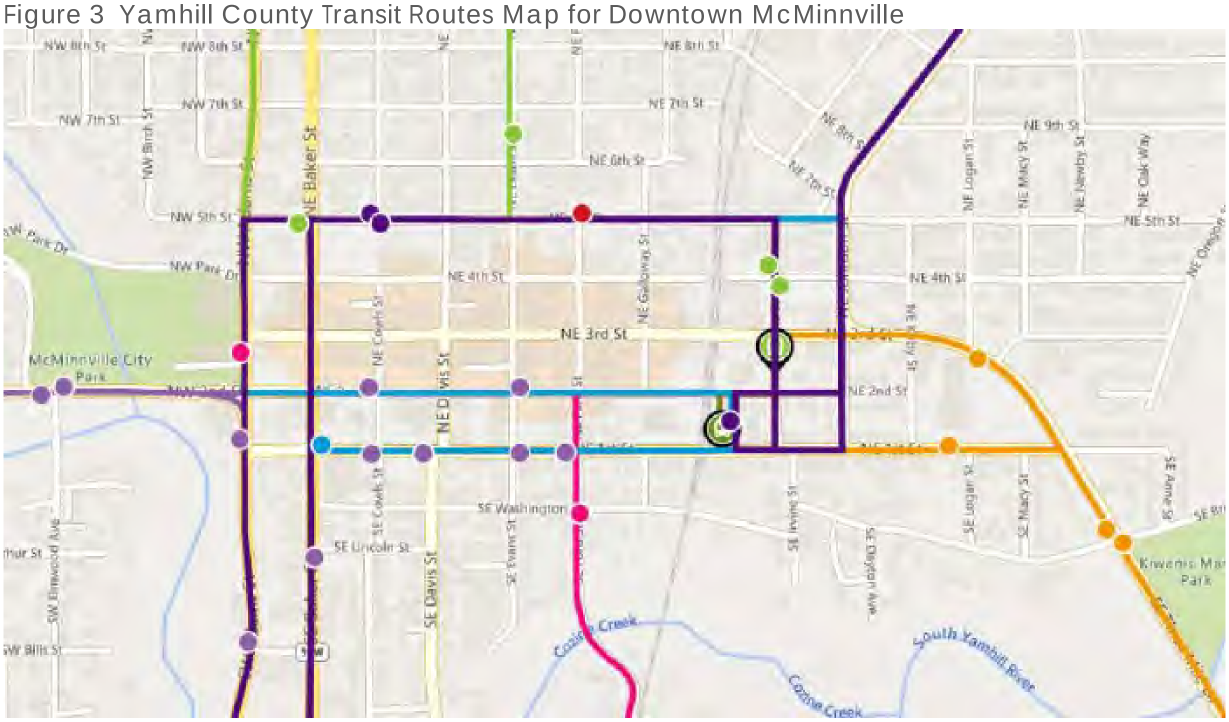
TRANSIT FACILITIES

The Yamhill County Transit Area (YCTA) provides multiple fixed route bus service lines within the project area. This includes both routes that run within the city as well as regional routes that connect various cities and towns within the county. All routes originate or end at the McMinnville Transit Center located at the NE 2nd Street & NE Irvine Street intersection near the Willamette and Pacific Railroad. The YCTA has stops along SE 1st Street, NE 2nd Street and NE 5th Street. While no stops exist on NE 3rd Street, Route #2 (orange route) accesses the Transit Center via NE 3rd Street at NE Irvine Street. Figure 3 illustrates the existing YCTA routes.

Figure 3 Yamhill County Transit Routes Map for Downtown McMinnville



Source: www.ycbus.org

Existing Traffic Conditions

TRAFFIC VOLUMES AND SPEEDS

Traffic counts were collected for a 24-hour period on the four approaches of the NE Evans Street & NE 3rd Street intersection for the purposes of conducting a signal warrant analysis for the intersection as well as to understand the daily traffic patterns, speeds, and distribution of types of vehicles. Table 3 summarizes the existing annual average daily traffic (AADT), heavy vehicle percentages, and 85th percentile speeds along NE 3rd Street and NE Evans Street. Note that pneumatic tube counts were utilized for two legs of the intersection, while the video counts were utilized for the others due to limitations in placement options for tubes on those other legs.

Attachment "A" contains the 24-hour traffic count, speed, and classification data.

Table 3 Study Area Traffic Volumes, Vehicle Class Distribution, and Speeds

Count Location	Direction	Average Annual Daily Traffic (AADT)[1]	Heavy Vehicle %	85th Percentile Speed (mph)	Source
NE Evans St – north of NE 3rd St	NB	700	7.9%	21	24-Hr Tube Count Oct. 3, 2023
	SB	1,086	8.7%	19	
NE 3rd St – east of NE Evans St	EB	1,280	10.0%	19	
	WB	1,784	10.0%	18	
NE Evans St – south of NE 3rd St	NB	458	n/a	n/a	24-Hr Video Count Oct. 3, 2023
	SB	766	n/a	n/a	
NE 3rd St – west of NE Evans St	EB	1,060	n/a	n/a	
	WB	1,698	n/a	n/a	

1. Seasonal adjustment applied to 24-hr counts

ODOT's TransGIS mapping application provides traffic data and characteristics – including functional classification, posted speed, Annual Average Daily Traffic (AADT) for current and future year, and truck percentages – for OR99W (Pacific Highway West, No. 091) within the study area. Table 4 summarizes the information that was available.

Table 4 State Highway Characteristics

Highway/ Location	Functional Class		Posted Speed (mph)	Annual Average Daily Traffic (AADT)		Truck %
	Federal Functional Class	Oregon Highway Plan		Year 2023	Year 2043	
OR99W Southbound (NE Adams St)	Urban Other Principal Arterial	Regional	30	13,810	14,500	18.3%
OR99W Northbound (NE Baker St)	Urban Other Principal Arterial	Regional	30	14,874	16,200	18.3%

INTERSECTION TRAFFIC VOLUMES

The traffic counts for this project were collected on a mid-week day when schools were in session and no special events were taking place downtown. Intersection turning movement counts were collected during the morning (7:00 a.m. to 9:00 a.m.) and afternoon (4:00 p.m. to 6:00 p.m.) peak time periods. Turning movement counts for the majority of the intersections were collected on October 3, 2023, while the counts at the intersection of NE 3rd Street & NE Cowls Street were re-collected on October 11, 2023 due to an equipment malfunction during the initial collection.

Table 5 below shows the systemwide morning and evening peak 60-minute time periods with the highest volumes during a typical weekday. The data from these hours were selected for the operational analysis.

Table 5 Weekday Morning and Afternoon System Peak Hours

Morning Peak Hour	Afternoon Peak Hour
7:30 a.m. to 8:30 a.m.	4:25 p.m. to 5:25 p.m.

Note that only the afternoon (p.m.) peak hour traffic counts were collected and analyzed at the intersections along NE 3rd Street between NE Cowls Street and NE Irvine Street, while both the morning and afternoon peaks were collected for all other intersections.

Attachment "B" contains the peak hour intersection turning movement count data.

Seasonal Adjustment

Traffic volumes often fluctuate throughout the year. In order to account for this fluctuation, Kittelson applied seasonal adjustment factors to the counted intersection volumes based on the methodology outlined in the most current version of the ODOT's *Analysis Procedures Manual (APM)* (Reference 6). The seasonal adjustment calculations used the Seasonal Trend Method described in section 5.5.4 of the APM as the project area lacks Automatic Traffic Recorder stations (ATR) and comparable available ATR sites from which to use the ATR Characteristic Table method. The calculation assumed a "commuter" seasonal trend for vehicular activity throughout the year. The analysis applied the calculated seasonal adjustment factor to the peak hour turning movement and pneumatic tube count data to represent the 30th highest traffic volumes for the weekday a.m. and p.m. peak hours, respectively.

A seasonal adjustment factor of 1.039 was applied to the counts collected on October 3, 2023, while a seasonal adjustment factor of 1.042 was applied to the turning movement counts for the NE 3rd Street & NE Cowls Street intersection collected on October 11, 2023.

Attachment "C" presents unbalanced seasonally-adjusted existing a.m. and p.m. peak hour volumes.

Rounding

The seasonally-adjusted existing a.m. and p.m. volumes were rounded to the nearest five vehicles per guidance in the ODOT APM, section 5.6.2. Volumes for movements with less than five vehicles per hour were rounded to the nearest whole number for the purposes of the analysis.

Network Balancing

The seasonally-adjusted and rounded existing a.m. and p.m. network volumes were reviewed and adjustments were made to balance traffic volumes between intersections per guidance in the ODOT APM, section 5.6.1. Existing a.m. peak volumes did not have a need for balancing, while some of the existing p.m. peak volumes along NE 3rd Street were adjusted to achieve reasonable differences in entering and exiting volumes, given the presence of side streets, driveways, or on-street parking between intersections.

EXISTING INTERSECTION OPERATIONS

Figure 4 and Figure 5 present the existing a.m. and p.m. peak hour traffic volumes and operations analysis results. The intersection traffic volumes shown have been seasonally adjusted, rounded, and balanced as described above.

All study intersections were found to operate within the applicable City of McMinnville and ODOT mobility targets for volume-to-capacity (V/C) ratio, with the following exceptions.

NE Adams Street & NE 2nd Street

- Exceeds both the HDM and OHP mobility targets during the p.m. peak hour.

NE Baker Street & NE 2nd Street

- Exceeds the HDM mobility target of 0.75 V/C ratio during the a.m. and p.m. peak hour, but operates within the OHP target of 0.85 V/C ratio.

Attachment "D" includes the Synchro operations analysis worksheets for the Existing Conditions analysis.

LEGEND

CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

Existing Year 2023 AM Peak Hour Traffic Operations
McMinnville, OR

Figure 4

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LEGEND

CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

Existing Year 2023 PM Peak Hour Traffic Operations
McMinnville, OR

Figure 5

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CRASH ASSESSMENT

Crash data was obtained from the ODOT crash data reporting database for the most recent available five-year period between January 1, 2017 and December 31, 2021. The data includes detailed information on crashes that occurred along the corridor for which a crash report was completed. According to Oregon law, crash reports are required when damages associated with the crash exceed $1,500.[1] The data indicates that a total of 35 crashes were reported on the corridor during this 5-year period, with 33 being intersection-related and two being on segments between intersections. Table 6 summarizes the crash data for the study intersections.

Table 6 Intersection Crash Data Summary (January 1, 2017 through December 31, 2021)

Intersection	Year					Total
	2017	2018	2019	2020	2021	
NE Adams St & NE 3rd St	0	2	2	4	2	10
NE Baker St & NE 3rd St	1	-	1	-	1	3
NE Cowls St & NE 3rd St	-	2	-	-	-	2
NE Davis St & NE 3rd St	-	-	-	-	-	0
NE Evans St & NE 3rd St	4	1	-	-	1	6
NE Ford St & NE 3rd St	-	2	-	-	1	3
NE Galloway St & NE 3rd St	-	-	-	-	-	0
NE Irvine St & NE 3rd St	1	-	1	-	-	2
NE Johnson St & NE 3rd St	3	-	2	-	2	7
Total	**10**	**7**	**6**	**5**	**7**	**33**

For purposes of network screening, the intersection crash rates were calculated and compared to statewide 90th percentile crash rates from Exhibit 4-1 in ODOT's Analysis Procedures Manual. As summarized in Table 7, the NE Adams Street/NE 3rd Street and the NE Evans Street/NE 3rd Street intersections have crash rates higher than the statewide 90th percentile crash rate for similar intersection types.

None of the intersections are in the top 10% of intersection reported in ODOT's Safety Priority Index System (SPIS) list.

1The reporting threshold increased from $1,500 to $2,500 on January 1, 2018. The crash data used in this report is based on both the $1,500 and $2,500 threshold. Source: https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf

Table 7 Intersection Crash Rates

Intersection / Segment	Total Crashes	Observed Crash Rate (Crashes/MEV)	ODOT Statewide 90th Percentile Intersection Rate	Observed Crash Rate > 90th Percentile Crash Rate?
NE Adams St & NE 3rd St	**10**	**0.383**	**0.293**	**Yes**
NE Baker St & NE 3rd St	3	0.122	0.509	No
NE Cowls St & NE 3rd St	2	0.378	0.408	No
NE Davis St & NE 3rd St	0	0.000	0.860	No
NE Evans St & NE 3rd St	**6**	**0.856**	**0.408**	**Yes**
NE Ford St & NE 3rd St	3	0.460	0.860	No
NE Galloway St & NE 3rd St	0	0.000	0.408	No
NE Irvine St & NE 3rd St	2	0.260	0.408	No
NE Johnson St & NE 3rd St	7	0.210	0.860	No
Total	**33**	-	-	-

Figure 6, Figure 7, and Figure 8 summarize crash trends across the study intersections on NE 3rd Street based on crash severity and crash type. The following summarizes the reported crash data:

- Angle/turning and rear-end crashes were the most common crash types and comprised 26 of the 33 total intersection crashes. Six angle/turning movement crashes were reported at the NE Johnson Street & NE 3rd Street intersection in the 5-year period.
- There were 3 pedestrian-related crashes reported, with no more than 1 at any given intersection in the 5-years of data.
- 15 of the crashes were property damage only (PDO), 9 were moderate injury, and 11 were minor injury.
- Six of the 10 crashes reported at NE Adams Street & NE 3rd Street were minor injury. There were no reported fatalities. Five of the 10 crashes were rear-end type crashes.
    - Note: An RRFB system is being installed at the existing marked pedestrian crossing with the ODOT OR99W/OR18 Curb Ramps project. The addition of the flashing beacons may help provide more warning to drivers and reduce the likelihood of rear-end crashes.
- While five of the six crashes at the NE Evans Street & NE 3rd Street intersection were angle type crashes, all were reported as PDO severity. Four of the crashes occurred in 2017, with less than one per year reported in 2018 through 2021.
- The majority of crashes (more than 50 percent) occurred between 12:00 PM and 6:00 PM.

- Nine of the 33 total reported intersection crashes occurred during wet/ rainy conditions. The rest of the crashes occurred during dry/ typical conditions.

No trends leading to specific mitigation recommendations were identified for crash type or severity at any of the study intersections. However, the goals of the project to reinforce a slow-speed, pedestrian-focused environment through curbless "festival street", more prominent sidewalk/curb extensions, and other design features will serve to further limit moderate and severe injury crash types.

Attachment "E" contains the ODOT crash data.

Figure 6 Crashes by Severity

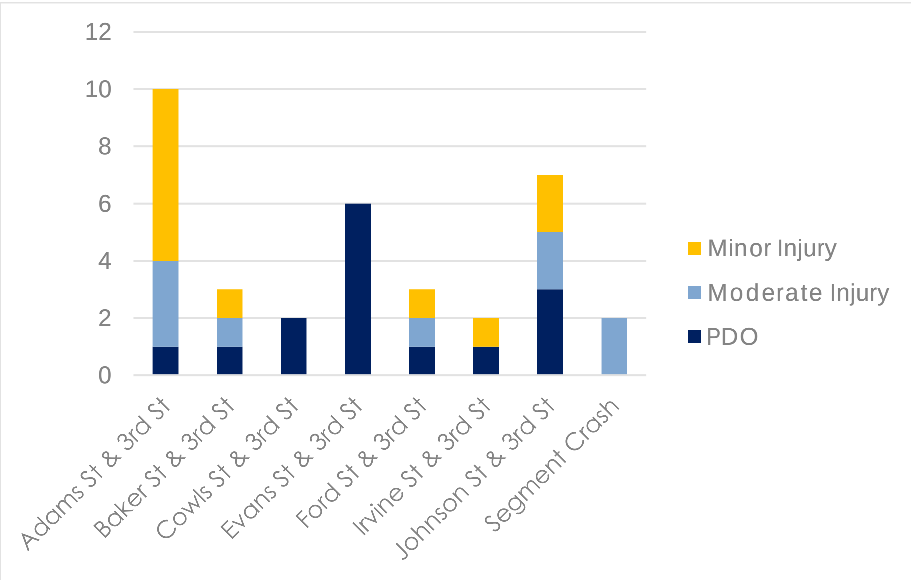


Figure 7 Crashes by Type

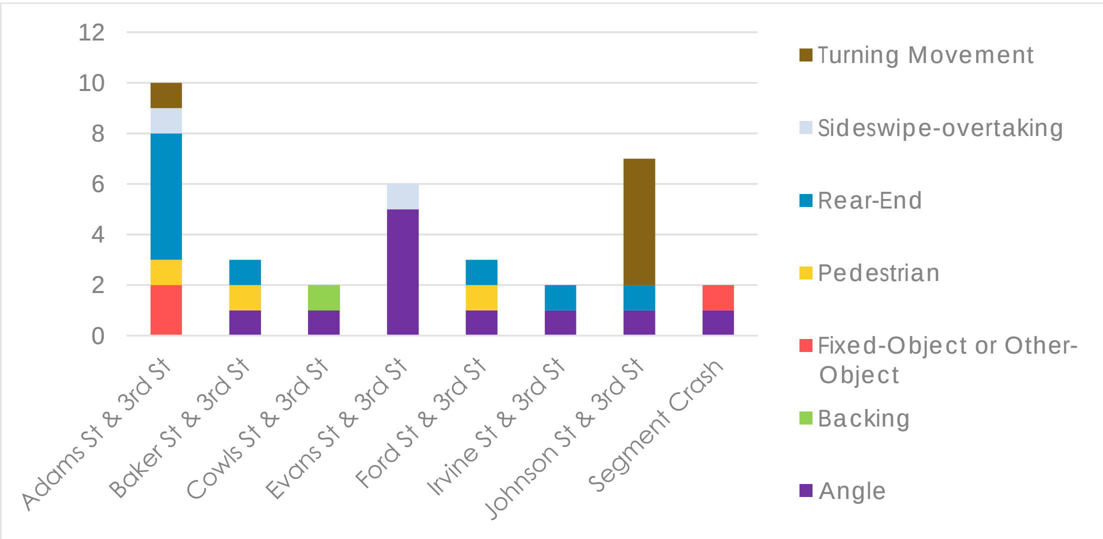
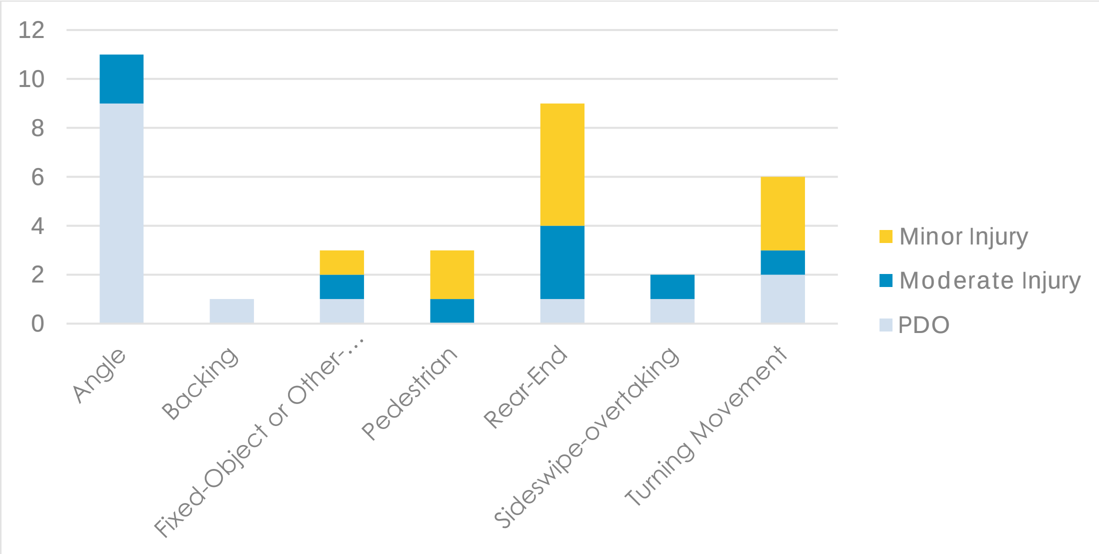


Figure 8 Crashes by Severity by Type - All Intersections Combined



Future Traffic Volumes and Peak Hour Operations

TRAFFIC VOLUME PROJECTIONS

The Third Street Improvement Project is anticipated to reach construction no earlier than 2027. Thus, the analysis includes scenarios representing traffic conditions for the estimated Opening Year 2027 and the Future Year 2047 (20-year forecast) traffic volumes during the weekday a.m. and p.m. peak hours. ODOT Transportation Planning and Analysis Unit (TPAU) provided weekday a.m. and p.m. peak hours travel demand model (TDM) forecast volumes for base year 2015 and future year 2041 conditions in downtown McMinnville. The model accounts for changes in land use and the transportation system connectivity (i.e. new roadway facility connections) based on the City's Comprehensive Plan and the Three Mile Lane Area Plan (Reference 7).

The travel demand model outputs are provided in Attachment "F".

Using the model output, Kittelson developed the forecast turning movement volumes for the Future Year 2047 by applying the TDM post-processing methodology presented in the National Cooperative Highway Research Program (NCHRP) *Report 765: Analytical Travel Forecasting Approaches for Project-Level Planning and Design* (Reference 8), the update to NCHRP *Report 255 Analytical Travel Forecasting Approaches for Project-Level Planning and Design*.

The travel demand model shows negative to no future growth between the 2015 base year and 2041 future year along parts of NE 5th Street, NE 2nd Street, and some of the north-south streets crossing NE 3rd Street. The growth rates for certain movements predicted to have negative growth were set to 0% in order to maintain a reasonable conservative estimate of future traffic volumes.

The Opening Year 2027 traffic volumes were developed by using the existing 2023 volumes and applying the estimated linear growth rates between the 2023 and 2047 volumes. All movements that the travel demand model showed to have negative growth were set to existing volumes (i.e. 0% growth) for the 2027 analysis, as the existing traffic patterns are not expected to significantly change between now and then.

The forecast Opening Year 2027 and Future Year 2047 traffic volumes were rounded and balanced similar to the existing traffic volumes, as described above. Figure 9 through Figure 12 present the Year 2027 and Year 2047 a.m. and p.m. traffic volumes used for the analysis.

Attachment "G" presents the growth rates for each movement used for the development of future traffic volumes, along with unbalanced year 2027 and 2047 volumes.

Volume Rerouting

At the request of the City, Kittelson performed an exercise to understand the potential for the re-routing of traffic away from NE 3rd Street to other parallel streets resulting from the construction and change in character of the Third Street Improvement Project. Kittelson worked with ODOT TPAU staff to understand the current travel demand model characteristics and assumptions, and the changes that may impact the re-routing of traffic.

NE 3rd Street is currently classified as a "major collector" with a speed of 20 mph in the travel demand model. ODOT TPAU staff performed an alternative scenario model run with NE 3rd Street classified as a "local" street. The travel demand model is only sensitive to volume rerouting when a street operates close to, or at, capacity. Because NE 3rd Street is projected to be close to capacity in the model in the future 2041 scenario, the alternative model run showed some minor trip rerouting to NE 5th Street and NE 2nd Street. However, the overall volume of rerouted traffic was insignificant (less than 10 vehicles per hour) and had very minor impacts on the nearby roads. Further, the planned construction on NE 3rd Street is not anticipated to change vehicle-carrying capacity or travel times in any appreciable way compared to the existing conditions.

The alternative scenario model run outputs are included in Attachment "F".

NO BUILD ANALYSIS SCENARIO

The operations of study area intersections were evaluated under the Opening Year 2027 and Future Year 2047 traffic volume scenarios with no changes to the existing lane configurations, traffic control devices, or traffic signal phasing operations. This "no build" analysis scenario was completed in order to understand the near-term and long-term impacts of traffic volumes growth in the study area and determine the need for changes to meet mobility standards.

Opening Year 2027 Intersection Operations – No Build Scenario

The traffic volumes and resulting intersection operations for the Opening Year 2027 a.m. and p.m. peak hours are summarized in Figure 9 and Figure 10, respectively. The following intersections are anticipated to operate in excess of the mobility targets during the Opening Year 2027 analysis scenario:

NE Adams Street & NE 2nd Street

- Exceeds the HDM and OHP mobility targets during the p.m. peak hour.

NE Baker Street & NE 2nd Street

- Exceeds the HDM mobility target of 0.75 V/C ratio during the a.m. and p.m. peak hour. Operates within the OHP target of 0.85 V/C ratio.

NE Three Mile Lane & SE 1st Street

- Exceeds the City's mobility target of 0.90 V/C during the p.m. peak hour.
- Anticipated to operate at LOS "F" due to delay for the eastbound movements from SE 1st Street onto NE Three Mile Lane.

Attachment "H" includes the Synchro operations analysis worksheets for the Opening Year 2027 No Build analysis.

Future Year 2047 Intersection Operations – No Build Scenario

The traffic volumes and resulting intersection operations for the Future Year 2047 a.m. and p.m. peak hours are summarized in Figure 11 and Figure 12, respectively. The following intersections are anticipated to operate in excess of the mobility targets during the Future Year 2047 analysis scenario:

NE Adams Street & NE 3rd Street

- Exceeds both the HDM and OHP mobility targets during the p.m. peak hour.
- Anticipated to operate at LOS "F" due to delay for the westbound left-turn movements from NE 3rd Street onto NE Adams Street.

NE Adams Street & NE 2nd Street

- Exceeds the HDM mobility target of 0.75 V/C ratio during both a.m. and p.m. peak hours. Exceeds the OHP target of 0.85 V/C ratio during the p.m. peak hour.

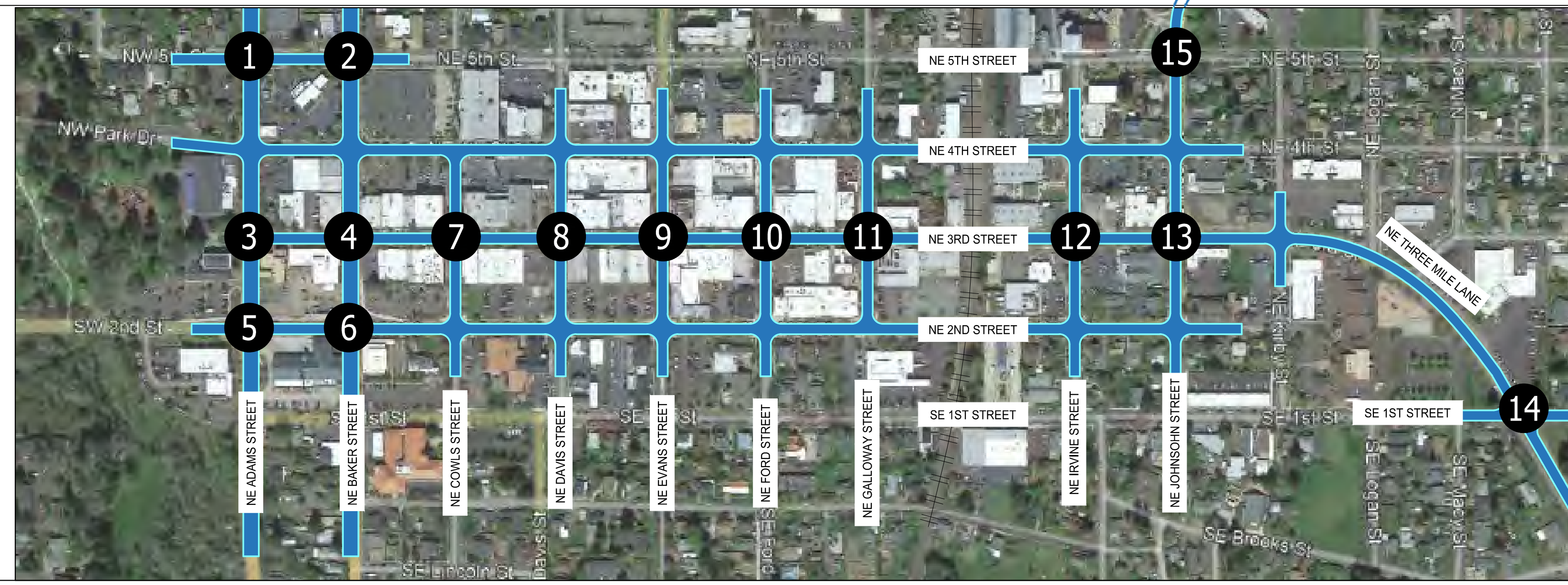
NE Baker Street & NE 2nd Street

- Exceeds the HDM and OHP mobility targets during both the a.m. and p.m. peak hours.

NE Three Mile Lane & SE 1st Street

- Exceeds the City's mobility target with a V/C greater than 1.0 during the p.m. peak hour.
- Anticipated to operate at LOS "F" due to delay for the eastbound movements from SE 1st Street onto NE Three Mile Lane.

Attachment "I" includes the Synchro operations analysis worksheets for the Future Year 2047 No Build analysis.



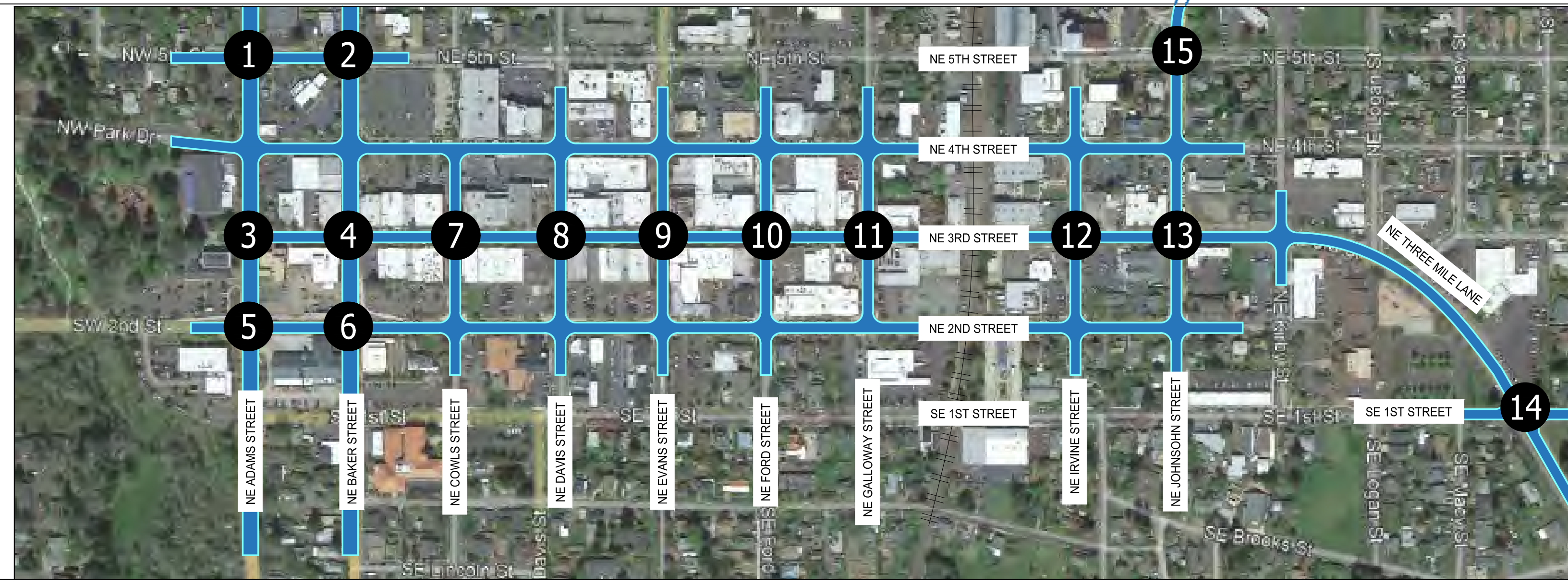
LEGEND

CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

Opening Year 2027 AM Peak Hour Traffic Operations
No Build Scenario | McMinnville, OR

Figure 9

KITTELSON & ASSOCIATES



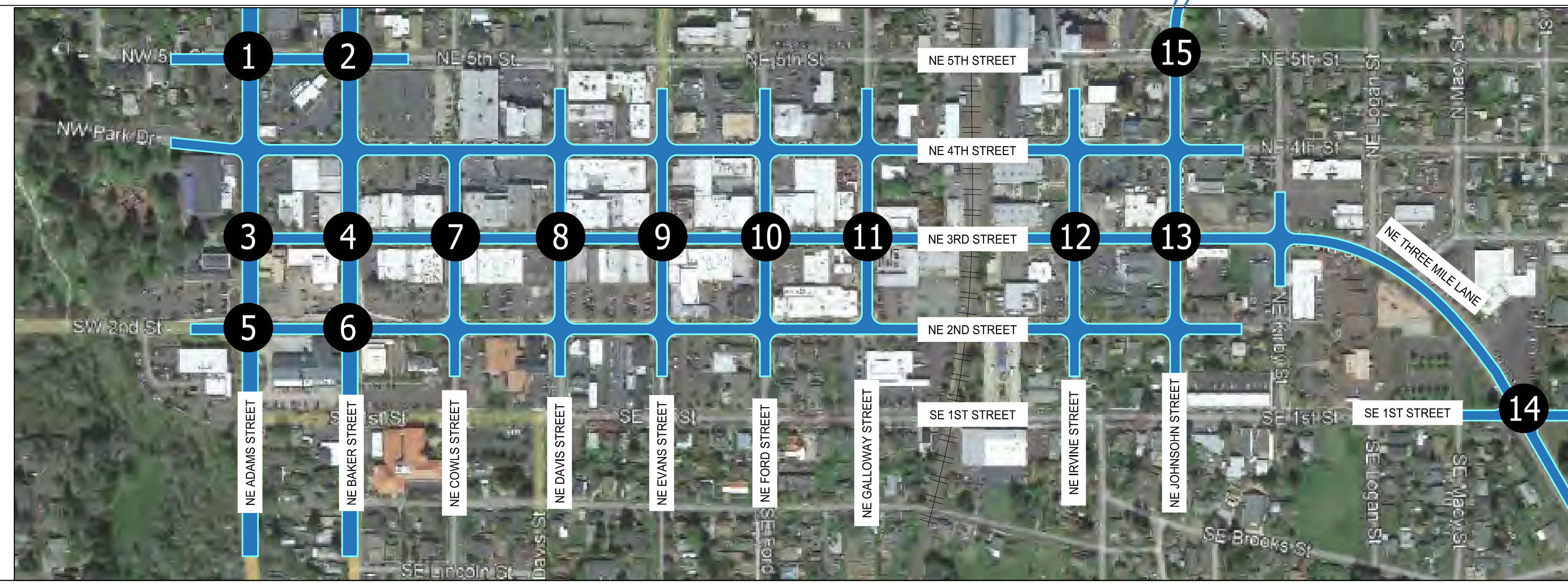
LEGEND

CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

Opening Year 2027 PM Peak Hour Traffic Operations
No Build Scenario | McMinnville, OR

Figure
10

KITTELSON & ASSOCIATES



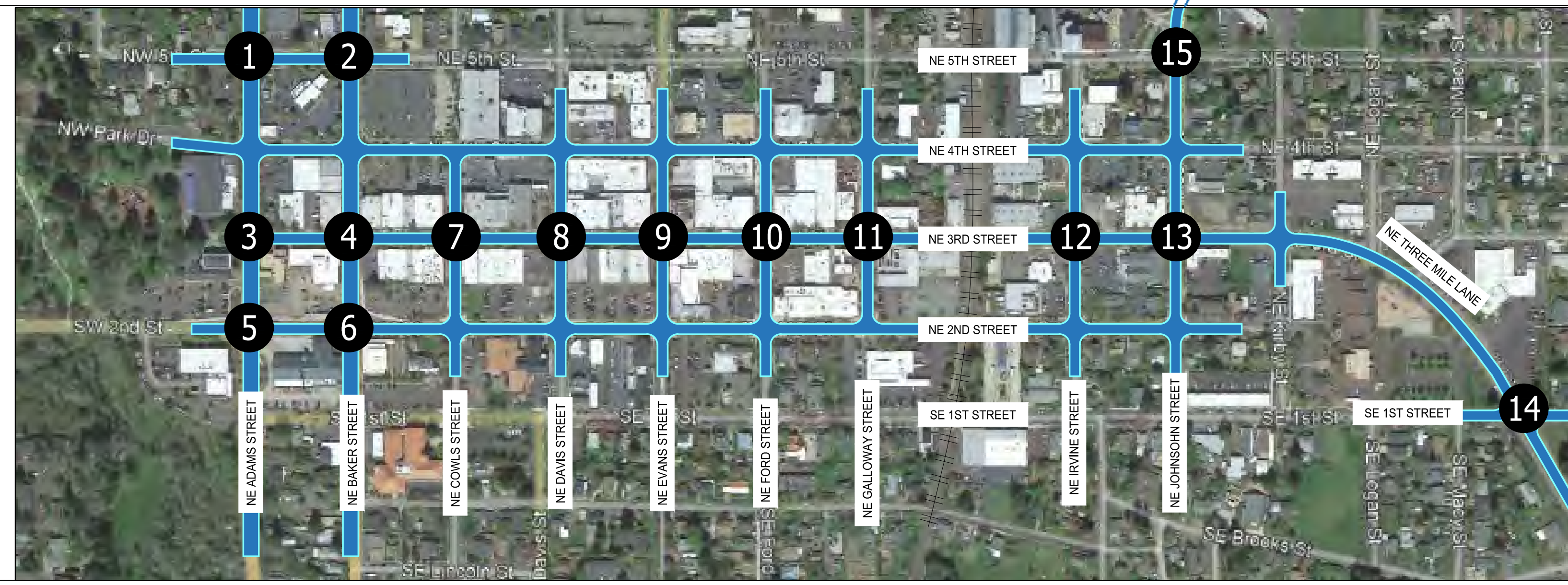
LEGEND

CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

Future Year 2047 AM Peak Hour Traffic Operations
No Build Scenario | McMinnville, OR

Figure
11

KITTELSON & ASSOCIATES



LEGEND

CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

Future Year 2047 PM Peak Hour Traffic Operations
No Build Scenario | McMinnville, OR

Figure
12

KITTELSON & ASSOCIATES

TRAFFIC SIGNAL WARRANT ASSESSMENT

Signal warrant analyses were conducted for the intersections along NE 3rd Street as well as any unsignalized intersections found to operate worse than the mobility targets in the No Build analysis. The *Manual on Uniform Traffic Control Devices (MUTCD)* (Reference 9) provides guidelines for justifying the installation of traffic signals based on traffic conditions, pedestrian characteristics, crash experience, and physical characteristics of the location. The MUTCD establishes the following nine traffic signal warrants:

- Warrant 1: Eight-Hour Volumes
- Warrant 2: Four-Hour Volumes
- Warrant 3: Peak Hour Volumes
- Warrant 4: Pedestrian Volume
- Warrant 5: School Crossing
- Warrant 6: Coordinated Signal System
- Warrant 7: Crash Experience
- Warrant 8: Roadway Network
- Warrant 9: Intersection Near a Grade Crossing

The signal warrant analysis for this study focused on the first three vehicular volume warrants, using the traffic volumes for existing year 2023, opening year 2027 and future year 2047. The projected p.m. peak hour volumes were used as the highest hour of the day and 24-hour volumes profiles were estimated for each intersection based on volume profiles for similar street classifications and context. The warrant analysis found the following:

NE 3rd Street & NE Adams Street

- Does not meet signal warrants for existing year 2023 or Opening Year 2027.
- Meets warrants #1, #2, and #3 with Future Year 2047 projected volumes.
- Warrant #1 is anticipated to be met by 2032 (5 years after opening year).
- Note that an RRFB system is planned for installation at the existing crosswalk on the north leg of the intersection with the ODOT OR99W/OR18 Curb Ramps project.
- Note that a traffic signal at this intersection is listed as an improvement in the 2010 McMinnville TSP.

NE Baker Street & NE 3rd Street

- This intersection is currently signalized but does not meet signal warrants with existing year 2023 or Opening Year 2027 traffic volumes.
- Meets warrants #1, #2, and #3 with Future Year 2047 projected volumes.
- Warrant #2 is anticipated to be met by 2032 (5 years after opening year).

NE Davis Street & NE 3rd Street

- This intersection is currently signalized. Does not meet the traffic volume criteria with existing year 2023, Opening Year 2027, or Future Year 2047 traffic volumes.
- Warrant #4 – Pedestrian Volume was checked and found that existing pedestrian crossing volumes do not meet the lower pedestrian threshold of the warrant regardless of vehicular volumes. The lower threshold is 107 pedestrians per hour (PPH) for the pedestrian 4-hour warrant, and 133 PPH for the pedestrian peak hour warrant. There were only 38 PPH total for both crossings of NE 3rd Street during the October 2023 counts.

NE Ford Street & NE 3rd Street

- This intersection is currently signalized. Does not meet traffic volume criteria with existing year 2023, Opening Year 2027, or Future Year 2047 traffic volumes.
- Warrant #4 – Pedestrian Volume was checked and found that existing pedestrian crossing volumes do not meet the lower pedestrian threshold of the warrant regardless of vehicular volumes. The lower threshold is 107 PPH for the pedestrian 4-hour warrant, and 133 PPH for the pedestrian peak hour warrant. There were only 21 PPH total for both crossings of NE 3rd Street during the October 2023 counts.

NE Johnson Street & NE 3rd Street

- This intersection is currently signalized and meets Warrants #1, #2, and #3 with existing 2023 traffic volumes.

NE Three Mile Lane & SE 1st Street

- Meets Warrants #1, #2, and #3 with existing 2023 traffic volumes.

Table 8 presents a summary of the signal warrant analysis. *Attachment "J" includes the Traffic Signal Warrant Assessment worksheets.*

Table 8: Signal Warrant Assessment

Intersection	Signal Warranted?		
	Existing 2023	**2027 Opening Year**	**2047 Future Year**
NE Adams St & NE 3rd St	No	No[1]	**Yes – Warrants #1, #2, #3**
NE Baker St & NE 3rd St	No	No[2]	**Yes – Warrants #1, #2, #3**
NE Cowls St & NE 3rd St	No	No	No
NE Davis St & NE 3rd St	No	No	No
NE Evans St & NE 3rd St	No	No	No
NE Ford St & NE 3rd St	No	No	No
NE Galloway St & NE 3rd St	No	No	No
NE Irvine St & NE 3rd St	No	No	No
NE Johnson St & NE 3rd St	**Yes – Warrants #1, #2, #3**	**Yes – Warrants #1, #2, #3**	**Yes – Warrants #1, #2, #3**
NE Three Mile Ln & SE 1st St	**Yes – Warrants #1, #2, #3**	**Yes – Warrants #1, #2, #3**	**Yes – Warrants #1, #2, #3**

1. Meets Warrant #1 with projected 2032 volumes (5 years after opening year)
2. Meets Warrant #2 with projected 2032 volumes (5 years after opening year)

As shown above, the existing signalized intersections of NE Davis Street/NE 3rd Street and NE Ford Street/NE 3rd Street do not meet the MUTCD volume criteria for signalization. However, the signals provide the ability for the City to manage vehicular speeds along the corridor through signal timing and coordination. Furthermore, the signals provide opportunities for controlled pedestrian crossings while maintaining traffic flows in both directions within the downtown area. For these reasons, the City may wish to maintain the signalized traffic control at these two intersections.

ALL-WAY STOP CONTROL WARRANT ASSESSMENT

Because the existing signalized intersections at NE Davis Street/NE 3rd Street and NE Ford Street/NE 3rd Street do not meet the MUTCD volume criteria for signalization, the intersections were evaluated under the all-way stop control warrant criteria from Chapter 2B of the MUTCD. The assessment was completed assuming the intersections would be two-way stop controlled on the NE Davis Street and NE Ford Street approaches if traffic signals were not in place. The five MUTCD warrants along with the applicability for the two intersections are summarized below.

Warrant A: Crash Experience

- Neither intersection were found to have five or more reported crashes in a 12-month period, or six or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control.

Warrant B: Sight Distance

- Neither intersection were found to have sight distance obstructions from building corners or other features within the right-of-way, based on Intersection Sight Distance (ISD) checks consistent with the American Association of State Highway and Transportation Officials (AASHTO) criteria. *Sight distance exhibits are provided in Attachment "K".*
- Adequate ISD sight triangles at the side streets of both intersections rely on vehicles to position themselves forward of the crosswalk lines, encroaching on the path of travel for pedestrians crossing along NE 3rd Street.
- All-way stop control would facilitate vehicles stopping and remaining upstream of the striped crosswalks on the side streets before proceeding through the intersection, allowing for reduced conflicts between vehicles and pedestrians.

Warrant C: Transition to Signal Control or Yield Control at a Circular Intersection

- This warrant does not apply because the intersections are already signalized.

Warrant D: 8-Hour Volume

- Neither intersection meets the traffic volume warrant for all-way stop control under the 2027 or 2047 traffic volume scenarios. The major street traffic volumes meet the 300 units (vehicles, pedestrians, bicycles) threshold for the warrant, but the side street traffic volumes are well below the 200 units per hour threshold.

Warrant E: Other Factors

- Other factors listed in the MUTCD include:
    - The need to control left-turn conflicts – the existing signalized intersections both prohibit left-turns from NE 3rd Street. Implementation of all-way stop control at these intersections would help to mitigate both vehicle-vehicle and vehicle-pedestrian left-turn conflicts compared to uncontrolled vehicular movements that would result with two-way stop control at the intersections.
    - Where pedestrian and/or bicyclist movements support the installation of all-way stop control – as mentioned above in the sight distance criteria, with two-way stop control vehicles must encroach into the marked crosswalks at these two intersections in order to obtain adequate sight distance in each direction. Implementing all-way stop control would allow for vehicles to stop and remain upstream of crosswalks before proceeding through the intersections. This would help to limit conflicts between vehicles waiting for a gap in traffic and pedestrians crossing parallel to NE 3rd Street. Further, the requirement for all

vehicles on NE 3rd Street to stop would help facilitate pedestrian movements across NE 3rd Street which are currently signalized.

Based on the assessment summarized above, the intersections of NE Davis Street/NE 3rd Street and NE Ford Street/NE 3rd Street can be all-way stop controlled if the City determines that traffic signals are not desirable for intersection traffic control. *The all-way stop control warrant worksheets and ISD exhibits are included in Attachment "K".*

FUTURE BUILD ANALYSIS SCENARIO

The Future Build analysis scenario identified and evaluated potential changes at the study intersections to address the deficiencies found in the No Build analysis. Changes to intersection traffic control related to the traffic signal warrant analysis were also evaluated. Adjustments to left-turn phasing operations at traffic signals were evaluated per the ODOT *Traffic Signal Policy and Guidelines* (Reference 10), where applicable. Traffic signal phasing split times were "optimized" in the Synchro analysis for the Future Build analysis scenarios.

The following summarizes the recommended geometric changes and/or traffic control assumptions for each study intersection under the Build scenario:

NE Adams Street & NE 3rd Street

- Keep the existing stop-control at the intersection for the Opening Year 2027 analysis. Traffic signal warrants are not met in the near-term.
  - Note: The intersection operations were checked with projected 2032 volumes (5 years after opening year) and the intersection was found to operate within ODOT mobility targets with the existing stop-control.
- Evaluate the signalization of the intersection with the Future Year 2047 traffic volumes. Signal warrants are met for this scenario.
- Signalization assumes a similar cycle length as the upstream and downstream signals on NE Adams Street at NE 5th Street and NE 2nd Street to allow for a coordinated system.
- Consider re-opening the crosswalk on the south leg of the intersection, which was closed through an ODOT approval process in 2018. Re-opening the crosswalk would improve the pedestrian connectivity east-west along NE 3rd Street, but would need to consider mitigations to ensure drivers turning left from NE 3rd Street onto one-way NE Adams Street are attentive to pedestrians in the crosswalk.
  - Re-opening the crosswalk would require additional study and approval by the ODOT State Traffic-Roadway Engineer.

NE Baker Street & NE 3rd Street

- Keep the intersection signalized with the existing lane configurations for the Opening Year 2027 and Future Year 2047 scenarios.
  - Although signal warrants are not met in the near-term, they are met within five years of the opening year of the project. Removal of the signal and then re-installing within five years is not recommended.

NE Adams Street & NE 2nd Street

- Optimize the signal phase split times at the intersection. This intersection and signal was recently rebuilt with the City of McMinnville *OR99W at 2nd Street Signal Replacement Project.*

NE Baker Street & NE 2nd Street

- Optimize the signal phase split times at the intersection. This intersection and signal was recently rebuilt with the City of McMinnville *OR99W at 2nd Street Signal Replacement Project.*

NE Davis Street & NE 3rd Street

- While traffic signal warrants are not met under any of the traffic volume scenarios, the existing signalized configuration was kept as the recommended intersection control for the Future Build analysis scenario. The traffic signal helps facilitate traffic circulation in the downtown street grid network, including north-south vehicular movement and signalized pedestrian crossing opportunities.
- Note that an alternative evaluation was completed as an all-way stop-controlled intersection with stop signs on all approaches per the warrant assessment above.
- The all-way stop-controlled configuration is shown in the Future Build scenario for comparison purposes to the No-Build signalized scenario.

NE Ford Street & NE 3rd Street

- While traffic signal warrants are not met under any of the traffic volume scenarios, the existing signalized configuration was kept as the recommended intersection control for the Future Build analysis scenario. The traffic signal helps facilitate traffic circulation in the downtown street grid network, including north-south vehicular movement and signalized pedestrian crossing opportunities.
- Note that an alternative evaluation was completed as an all-way stop-controlled intersection with stop signs on all approaches per the warrant assessment above.
- The all-way stop-controlled configuration is shown in the Future Build scenario for comparison purposes to the No-Build signalized scenario.

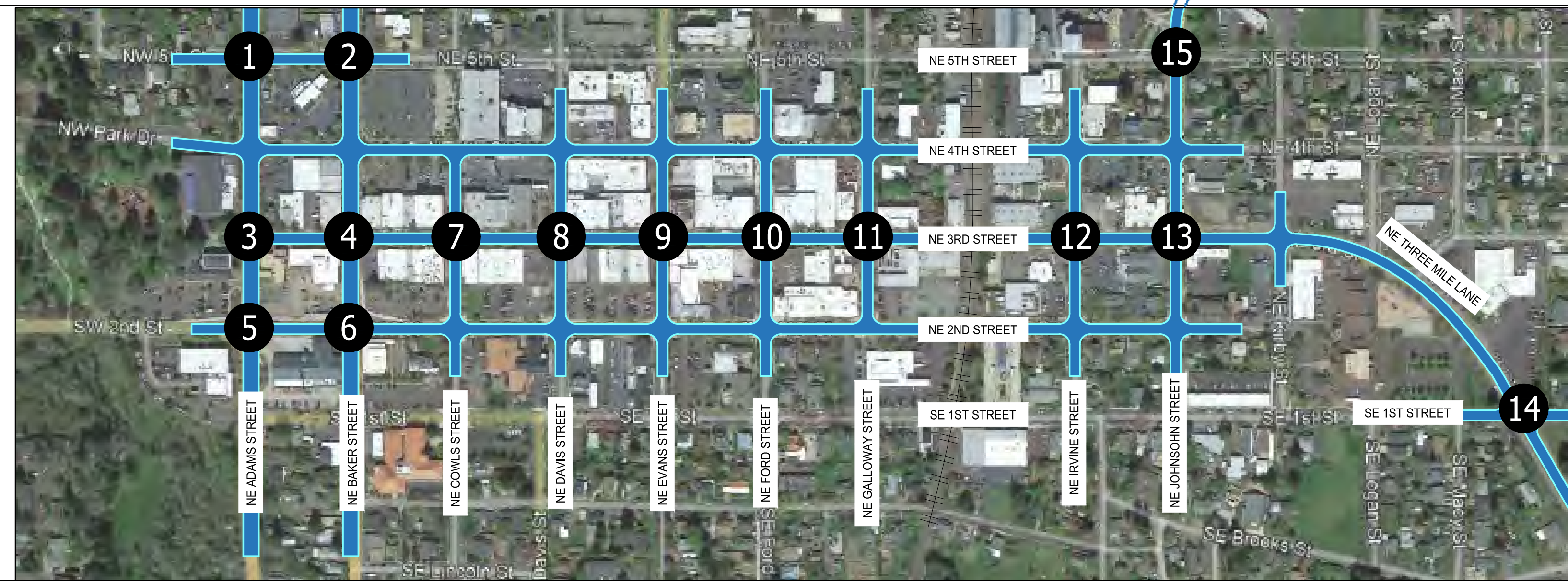
NE Johnson Street & NE 3rd Street

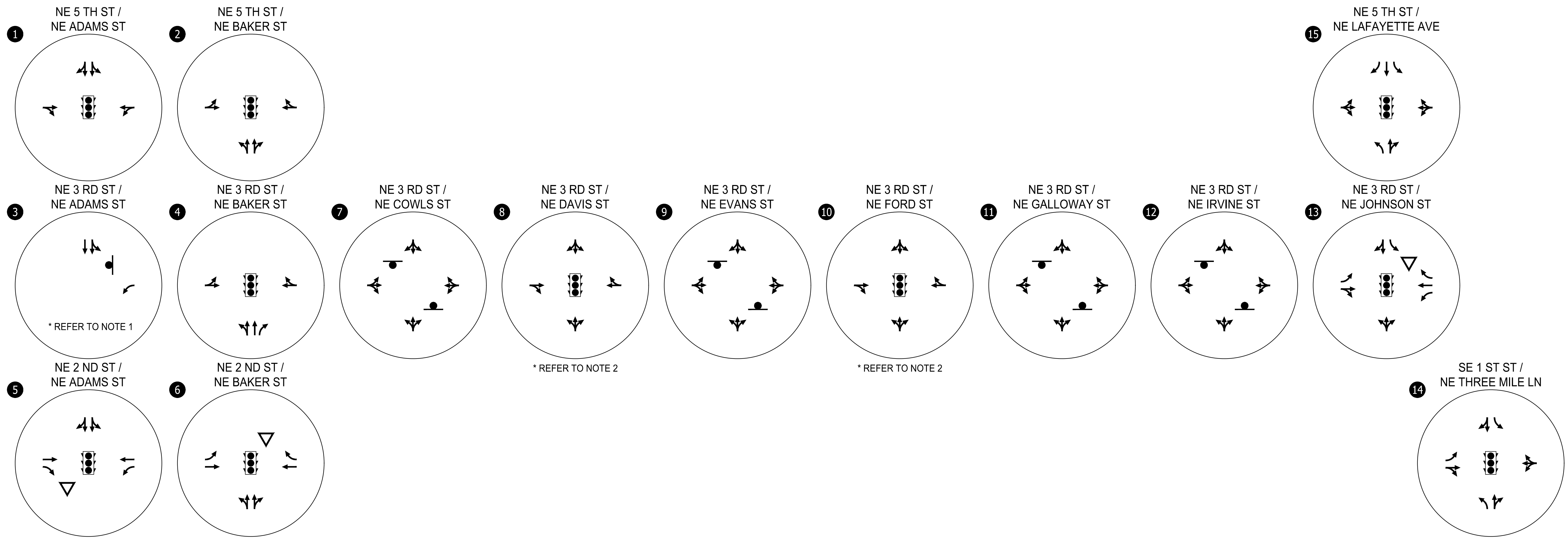
- Update the southbound left-turn from "protected-permissive" phasing to "protected-only" phasing. The left-turn volume exceeds the 300 vehicle/hour threshold for "protected-only" phasing per the ODOT *Traffic Signal Policy and Guidelines*.
- Maintain the eastbound and westbound left-turns with "protected-permissive" phasing based on the traffic volume thresholds in the ODOT *Traffic Signal Policy and Guidelines*.
- Keep the existing lane configurations on the east and west legs to accommodate the left-turn phasing.

NE Three Mile Lane & SE 1st Street

- Signalize the intersection to address the operational deficiencies summarized in the No Build scenario. Traffic signal warrants are met under existing 2023, Opening Year 2027, and Future Year 2047 traffic volumes.
- Operate the northbound and southbound left-turns with "protected-only" phasing. The northbound left-turn volume exceeds the 300 vehicle/hour threshold for "protected-only" phasing per the ODOT *Traffic Signal Policy and Guidelines*. Additionally, the horizontal curvature on NE Three Mile Lane is likely to present a sight distance issue for left-turning vehicles which is mitigated by "protected-only" phasing.
- Operate the eastbound and westbound approaches with "permissive-only" left-turn phasing. A separate eastbound left-turn lane is proposed.

Figure 13 summarizes the proposed lane configurations and traffic control devices at the study intersections for the Future Build analysis scenario.





LEGEND

- STOP SIGN
- YIELD SIGN
- TRAFFIC SIGNAL

* NOTE 1: Analyzed as a Signalized Intersection for 2047 Build scenario

* NOTE 2: Analyzed as all-way stop controlled intersection for 2027 and 2047 Build scenario for comparison purposes.

Proposed Lane Configurations and Traffic Control Devices
McMinnville, OR

Figure 13

KITTELSON & ASSOCIATES

Opening Year 2027 Intersection Operations – Build Scenario

The traffic volumes and resulting intersection operations for the Opening Year 2027 a.m. and p.m. peak hours are summarized in Figure 14 and Figure 15, respectively. With the proposed changes summarized above for the Opening Year 2027 Build scenario, all intersections are anticipated to operate within the applicable City of McMinnville and ODOT mobility targets, with the following exceptions:

NE Adams Street & NE 2nd Street

- Exceeds the HDM mobility target of 0.75 V/C ratio during the p.m. peak hour.
- Operates just above the OHP target with a V/C ratio of 0.87. Intersection delay is at LOS "C".

NE Baker Street & NE 2nd Street

- Exceeds the HDM mobility target of 0.75 V/C ratio during both a.m. and p.m. peak hours. Operates within the OHP target of 0.85 V/C ratio.

Attachment "L" includes the Synchro operations analysis worksheets for the Future Year 2027 Build analysis.

Future Year 2047 Intersection Operations – Build Scenario

The traffic volumes and resulting intersection operations for the Future Year 2047 a.m. and p.m. peak hours are summarized in Figure 16 and Figure 17, respectively. With the proposed changes summarized above for the Future Year 2047 Build scenario, all intersections are anticipated to operate within the applicable City of McMinnville and ODOT mobility targets, with the following exceptions:

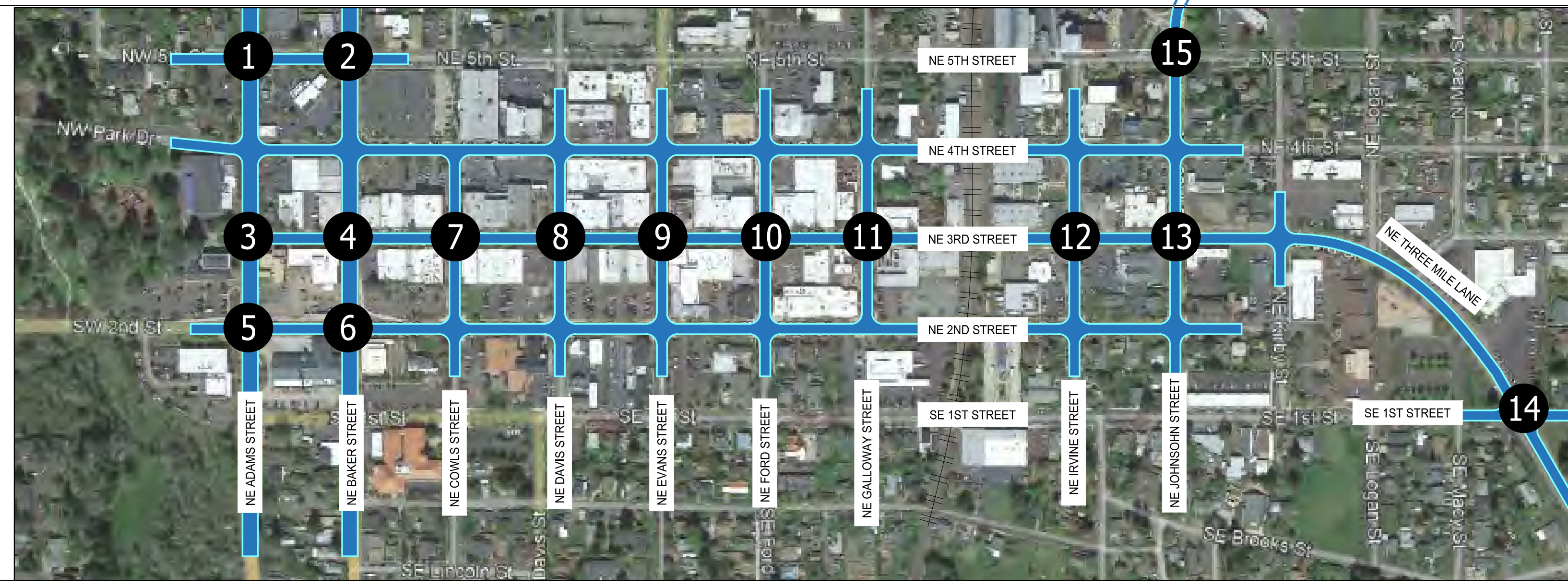
NE Adams Street & NE 2nd Street

- Exceeds the HDM mobility target of 0.75 V/C ratio during the a.m. and p.m. peak hours.
- Exceeds the OHP target of 0.85 V/C ratio during the p.m. peak hour. Intersection delay is at LOS "C".

NE Baker Street & NE 2nd Street

- Exceeds the HDM mobility target of 0.75 V/C ratio during both a.m. and p.m. peak hours.
- Exceeds the OHP target of 0.85 V/C ratio during the p.m. peak hour. Intersection delay is at LOS "C".

Attachment "M" includes the Synchro operations analysis worksheets for the Future Year 2047 No Build analysis.



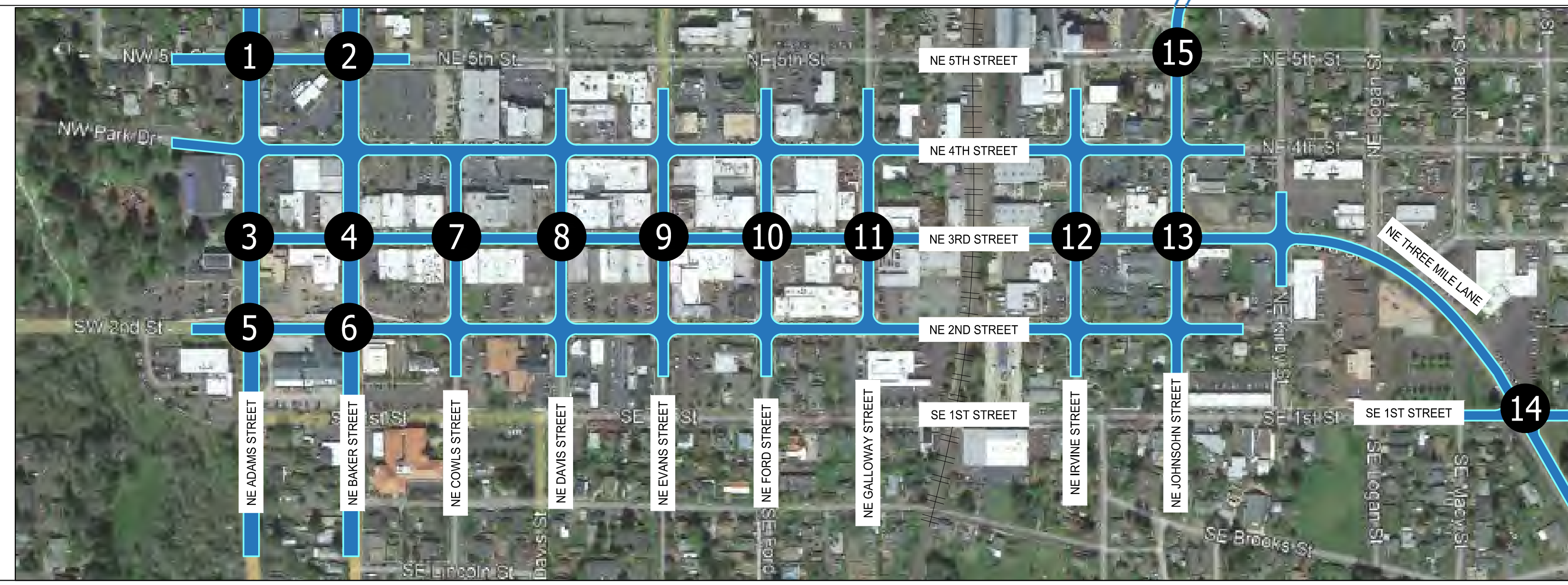
LEGEND

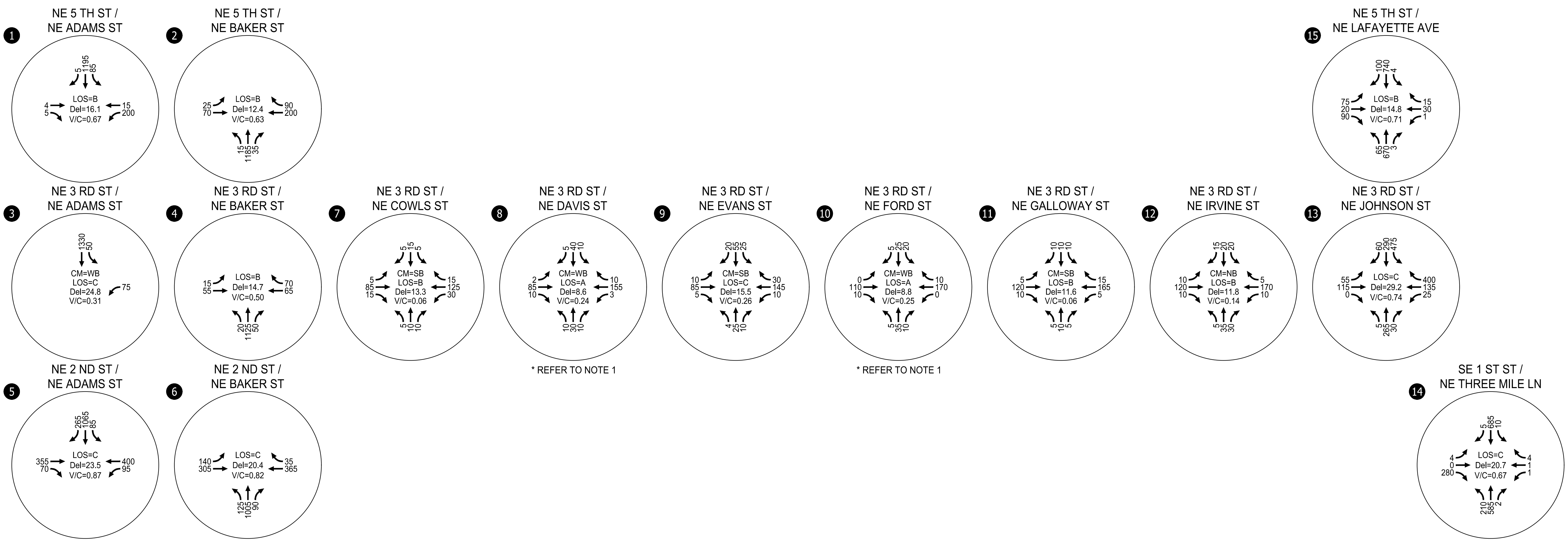
CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

Opening Year 2027 AM Peak Hour Traffic Operations
Build Scenario | McMinnville, OR

Figure
14

KITTELSON & ASSOCIATES





LEGEND

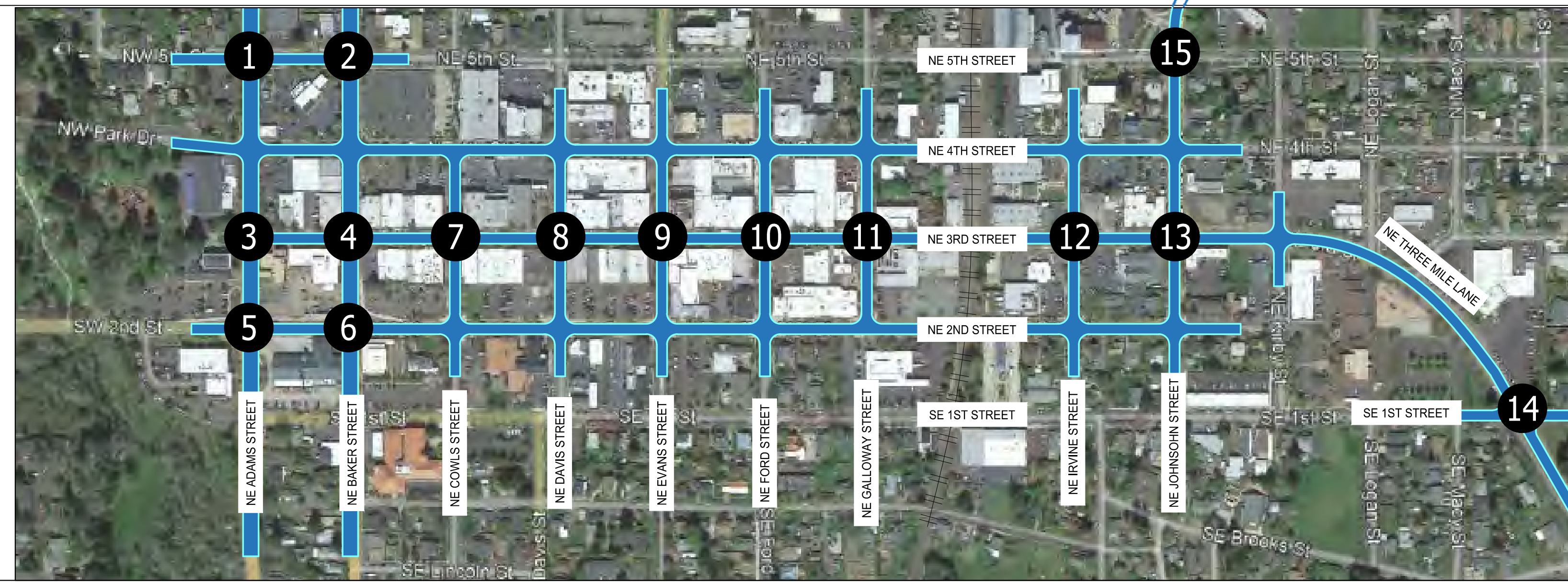
CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

* NOTE 1: Analyzed as all-way stop controlled intersection for Build scenario for comparison purposes.

Opening Year 2027 PM Peak Hour Traffic Operations
Build Scenario | McMinnville, OR

Figure
15

KITTELSON & ASSOCIATES



LEGEND

CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

* NOTE 1: Analyzed as a Signalized Intersection

Future Year 2047 AM Peak Hour Traffic Operations
Build Scenario | McMinnville, OR

Figure
16

KITTELSON & ASSOCIATES

LEGEND

CM - CRITICAL MOVEMENT
LOS - LEVEL OF SERVICE
Del - CRITICAL MOVEMENT CONTROL DELAY
V/C - VOLUME-TO-CAPACITY RATIO

* NOTE 1: Analyzed as a Signalized Intersection

* NOTE 2: Analyzed as all-way stop controlled intersection for Build scenario for comparison purposes.

Future Year 2047 PM Peak Hour Traffic Operations
Build Scenario | McMinnville, OR

Figure 17

KITTELSON & ASSOCIATES

QUEUING ANALYSIS

Table 9 summarizes the calculated 95th percentile queue lengths at the signalized study intersections along NE 3rd Street. The estimated 95th percentile vehicle queues for the Opening Year 2027 and Future Year 2047 scenarios were pulled from the corresponding Synchro analysis summary reports included in the appendices.

Queues at the stop-controlled intersections along NE 3rd Street from NE Cowl Street to NE Irvine Street were reviewed and found to be shorter than two vehicles in length for any given movement, easily fitting within the available queue storage.

The queueing analysis found the following anticipated issues with vehicle queue storage.

NE Adams Street & NE 3rd Street

- The southbound queue on NE Adams Street is shown to spill back to the NE 5th Street intersection during the p.m. peak hour under the Future Year 2047 scenario. This may be managed through signal timing and coordination if a signal is installed in the future.
- Queue storage is anticipated to be adequate during the Opening Year 2027 unsignalized scenario.

NE Baker Street & NE 3rd Street

- The northbound queue on NE Baker Street is anticipated to spill back past the NE 2nd Street intersection during all scenarios. This was also found to be an issue in the existing conditions analysis.

NE Johnson Street & NE 3rd Street

- The westbound right-turn lane storage is anticipated to be inadequate during the p.m. peak hour under the Future Year 2047 scenario.
- The queue for the shared northbound lane was found to extend back past the NE 2nd Street intersection during all scenarios. This was also found to be an issue in the existing conditions analysis.
- The queue for the southbound left-turn movement was found to extend back to NE 5th Street during the p.m. peak hour and exceeds the available queue storage under all scenarios. This was also found to be an issue in the existing conditions analysis.
- Running the southbound left-turn with the existing protected-permissive phasing instead of protected-only phasing improves the queuing for the northbound and southbound movements.

NE Three Mile Lane & SE 1st Street

- The queue for the eastbound thru/right-turn lane was found to extend past NE Macy Street during the p.m. peak hour under the Future Year 2047 scenario.
- The existing two-way left-turn lane on NE Three Mile Lane will need to be converted to left-turn storage lanes. The p.m. peak hour queue for the northbound left-turn under the Future Year 2047 scenario is expected to extend almost to SE Brooks Street, which would not leave enough space for a left-turn bay at that intersection.
- Striping the northbound left-turn lane with 200’ of queue storage would accommodate the Opening Year 2027 queueing and would allow for a short (approximately 100’) southbound left-turn storage bay at SE Brooks Street.

- The queues for the northbound and southbound through movements are anticipated to extend back past the adjacent upstream intersections during both the Opening Year and Future Year scenarios.

Table 9: Queueing Analysis Results

Intersection	Move-ment	Available Queue Storage (feet)	Opening Year 2027 Build Scenario 95th Percentile Queue (feet)		Future Year 2047 Build Scenario 95th Percentile Queue (feet)		Adequate Storage?
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
NE Adams St & NE 3rd St	SB	190'	<25'	<25'	177'	**493'**	**No**
	WB	230'	<25'	50'	34'	74'	Yes
NE Baker St & NE 3rd St	NB	190'	**275'**	**261'**	**284'**	**293'**	**No**
	EB	230'	25'	48'	25'	67'	Yes
	WB	230'	26'	65'	29'	112'	Yes
NE Davis St & NE 3rd St (Signalized)	EB	230'	-	29'	-	38'	Yes
	WB	230'	-	102'	-	135'	Yes
	NB	200'	-	28'	-	30'	Yes
	SB	200'	-	32'	-	32'	Yes
NE Ford St & NE 3rd St (Signalized)	EB	230'	-	51'	-	64'	Yes
	WB	230'	-	88'	-	188'	Yes
	NB	200'	-	<25'	-	<25'	Yes
	SB	200'	-	<25'	-	<25'	Yes
NE Johnson St & NE 3rd St	EBL	230'	48'	54'	86'	78'	Yes
	EBTR	240'	71'	113'	109'	133'	Yes
	WBL	100'	<25'	30'	<25'	<25'	Yes
	WBT	250'	52'	130'	44'	166'	Yes
	WBR	100'	63'	74'	66'	**156'**	**No**
	NB	200'	**367'**	**332'**	**346'**	**392'**	**No**
	SBL	190'	**327'**	**462'**	**352'**	**456'**	**No**
	SBTR	200'	88'	150'	132'	149'	Yes
NE Three Mile Ln & SE 1st St	EBL	100'	<25'	<25'	<25'	<25'	Yes
	EBTR	120'	48'	62'	60'	**185'**	**No**
	WB	350'	<25'	<25'	<25'	<25'	Yes
	NBL	TWLTL	120'	224'	236'	**348'**	**No**
	NBTR	400'	192'	316'	209'	400'	Yes
	SBL	TWLTL	<25'	<25'	>25'	<25'	Yes
	SBTR	400'	334'	**605'**	**464'**	**672'**	**No**

Pedestrian Crossing Assessment

One of the primary goals of the project is to create a "Person-Centered Main Street" focused on calming vehicular traffic and providing a safe and inviting pedestrian environment. Thus, Kittelson conducted an evaluation of recommended treatments to enhance safety and level of comfort for pedestrians at the midblock and unsignalized intersection crosswalks along NE 3rd Street. The approved design concept from the previous phase of the project includes narrowing vehicle lanes, adding or expanding midblock and intersection corner curb extensions, and including midblock pedestrian crossings on all blocks where feasible. Additionally, the 30% design includes a curbless "festival street" design that eliminates the vertical elevation change between the street and sidewalk realms.

The FHWA *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* (Reference11) was produced as part of the Safe Transportation for Every Pedestrian (STEP) program and provides guidance on selecting appropriate countermeasures to help improve pedestrian safety at uncontrolled crossing locations.

The FHWA Guide provides a matrix of countermeasure options for evaluating appropriate levels of crosswalk protection based on roadway configuration, posted speed limit, and average annual daily traffic (AADT). Figure 18 illustrates the countermeasure matrix and highlights the applicable matrix cell based on the characteristics within the study area. All unsignalized crosswalks between NE Cowls Street and NE Irvine Street fall within the parameters of <9,000 AADT, ≤30 mph, and 2 lanes (1 lane in each direction). An RRFB pedestrian crossing is already planned for the north crossing of OR99W/NE Adams Street at NE 3rd Street.

Figure 18: FHWA Pedestrian Crash Countermeasures

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	❶ 2 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6 7 9	① 5 6 7 9	① 5 6 ❾
3 lanes with raised median (1 lane in each direction)	❶ 2 3 4 5	❶ ❸ 5 7 9	① ❸ 5 ❼ ❾	① 3 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❼ ❾	① ❸ 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❾
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	❶ 2 3 4 5 6 7 9	❶ ❸ 5 6 7 9	① ❸ 5 6 ❾	① 3 4 5 6 7 9	① ❸ 5 6 ❼ ❾	① ❸ 5 6 ❾	① ❸ 4 5 6 7 9	① ❸ 5 6 ❾	① ❸ 5 6 ❾
4+ lanes with raised median (2 or more lanes in each direction)	❶ ❸ 5 7 8 9	❶ ❸ 5 7 8 9	① ❸ 5 8 ❾	① ❸ 5 7 8 9	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 8 ❾
4+ lanes w/o raised median (2 or more lanes in each direction)	❶ ❸ 5 6 7 8 9	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 8 ❾

Given the set of conditions in a cell,

\# Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.

○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2 Raised crosswalk
3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4 In-Street Pedestrian Crossing sign
5 Curb extension
6 Pedestrian refuge island
7 Rectangular Rapid-Flashing Beacon (RRFB)**
8 Road Diet
9 Pedestrian Hybrid Beacon (PHB)**

The following possible countermeasures were identified for the unsignalized and midblock pedestrian crossings on NE 3rd Street.

- Countermeasures to always be considered, but not mandated or required, based upon engineering judgement:
  - High-visibility crosswalk markings – Recommend for all crossings of NE 3rd Street
  - Parking restrictions on crosswalk approaches – Recommend for all crossings
  - Adequate nighttime lighting levels – Recommend for all crossings
  - Crosswalk warning signs – Recommend for all midblock crossings
- Additional candidate treatments to be considered:
  - Raised crosswalk – Not recommended for inclusion in the project. The "festival street" design will have the sidewalks at the same elevation as the street, making raised crosswalks impractical to implement.
  - In-street pedestrian crossing signs – Not recommended for inclusion in project. Planned cross-section will be narrowing vehicle lanes and will likely not include enough width for in-roadway signs without pedestrian refuge islands in place.
  - Curb extensions – Recommend for all crossings, where feasible. Used to calm vehicle speeds and improve pedestrian visibility. Consider intersection turn lane needs and design vehicle turning templates at individual intersection corners.
  - Pedestrian refuge island – Not recommended for inclusion in project. Overall planned cross-section and right-of-way width will not allow for refuge islands. The overall crossing width will be narrowed using curb extensions and narrower lanes.

NE 3rd Street & NE Johnson Street

Additional consideration was given to the existing marked crossing in the westbound channelized right-turn lane at the NE 3rd Street & NE Johnson Street intersection. Channelized turn lanes are considered to be challenging environments for pedestrians, especially those with vision impairment. The existing right-turn lane has a very high right-turning vehicular volume, and a low pedestrian volume.

We recommend that the raised channelizing island remain in place to reduce pedestrian crossing lengths and provide pedestrian refuge at the intersection. Possible improvements for this existing pedestrian crossing are:

- Signalize the right-turn: The signal timing would allow for the right-turn to go concurrently with the southbound left-turn (overlap phase), which is also a high-volume movement. A preliminary analysis indicates the signal would operate adequately with this scenario. This would facilitate a signalized ped crossing across the channelized turn lane, with a red indication for the right-turning vehicles while a pedestrian has a "walk" signal. This would require an additional signal mast arm pole at the intersection, increasing the scope and cost of improvements.
- Lighting, signing, markings: This would be instead of signalizing the slip lane and would be less costly and impactful. The design already proposes to add a light pole at the crosswalk to improve visibility of pedestrians in the crosswalk. Adding signs and/or advance yield lines has been shown to be beneficial in improving vehicle yielding behavior.

Conclusions and Recommendations

Table 10 below summarizes the recommended changes at the study intersections to be implemented with the Third Street Improvement Project.

Table 10 Recommended Intersection Improvements for NE 3rd Street Project Construction

Intersection	Proposed Improvements	Justification
NE Adams St & NE 3rd St	▪ Maintain existing stop-controlled intersection and lane configurations. ▪ Design to accommodate future signal installation.	▪ Signal is not warranted under 2027 volume scenario and operates acceptably as stop-controlled for at least 5 years after opening year.
NE Baker St & NE 3rd St	▪ Maintain existing signalized intersection and lane configurations. ▪ Rebuild signal with current standard poles and signal control equipment.	▪ Signal warrants will be met within 5 years of opening year. Operations without signal exceed V/C targets.
NE Cowls St & NE 3rd St	▪ Maintain existing stop-controlled intersection and lane configurations.	▪ Signal is not warranted under any of the analysis scenarios. Intersection operates acceptably as stop-controlled.
NE Davis St & NE 3rd St	▪ Maintain existing signalized intersection and lane configurations. ▪ Rebuild signal with current standard poles and signal control equipment.	▪ Maintain downtown grid circulation, speed management, and opportunities for signalized pedestrian crossings.
NE Evans St & NE 3rd St	▪ Maintain existing stop-controlled intersection and lane configurations.	▪ Signal is not warranted under any of the analysis scenarios. Intersection operates acceptably as stop-controlled.
NE Ford St & NE 3rd St	▪ Maintain existing signalized intersection and lane configurations. ▪ Rebuild signal with current standard poles and signal control equipment.	▪ Maintain downtown grid circulation, speed management, and opportunities for signalized pedestrian crossings.
NE Galloway St & NE 3rd St	▪ Maintain existing stop-controlled intersection and lane configurations.	▪ Signal is not warranted under any of the analysis scenarios. Intersection operates acceptably as stop-controlled.
NE Irvine St & NE 3rd St	▪ Maintain existing stop-controlled intersection and lane configurations.	▪ Signal is not warranted under any of the analysis scenarios. Intersection operates acceptably as stop-controlled.
NE Johnson St & NE 3rd St	▪ Maintain existing intersection lane configurations. ▪ Maintain existing protected-permissive left-turn signal phasing for EB and WB. ▪ Consider modifying SB left-turn to protected-only signal phasing.	▪ Separate left-turn lanes required for SB, EB and WB protected left-turn phases. ▪ Protected-permissive warranted per ODOT *Traffic Signal Policy and Guidelines.* ▪ Protected-only SB left-turn warranted per ODOT *Traffic Signal Policy and Guidelines.* Increases queuing at intersection.
Unsignalized & midblock pedestrian crossings	▪ Install high-visibility crosswalk markings at all crossings of NE 3rd Street. ▪ Provide adequate nighttime lighting levels at all crosswalks. ▪ Consider installing crosswalk warning signs at all mid-block crosswalks. ▪ Install curb extensions and restrict parking in advance of all crosswalks, where feasible.	▪ Based on guidance in FHWA *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations.*

Additional changes to the study intersections summarized in Table 11 were identified but may need to be included in separate projects by the City, depending on funding constraints and other planning considerations.

Table 11 Other Intersection Improvements for Planning Consideration

Intersection	Proposed Improvements	Justification
NE Adams St & NE 3rd St	▪ Install a traffic signal at the intersection in the future. ▪ Consider re-opening the crosswalk on the south leg of the intersection to improve pedestrian connectivity east-west along NE 3rd St.	▪ Signal warranted and necessary for operations under 2047 traffic volume scenario. Signal not needed for operations for at least 5 years after opening year. Monitor intersection operations and volumes to determine the need and timing for signalization. ▪ A traffic signal at this intersection is listed as an improvement in the 2010 McMinnville TSP. ▪ Re-opening south leg crosswalk will require additional study and approval from ODOT State-Traffic Roadway Engineer.
NE Adams St & NE 2nd St	▪ Future retiming of signal to optimize signal phase split times and/or coordination of signals along the corridor.	▪ Intersection V/C ratio exceeds ODOT HDM and OHP standard under 2047 volume scenario. Operates within OHP V/C standard with acceptable average delay (LOS "C") at opening year.
NE Baker St & NE 2nd St	▪ Future retiming of signal to optimize signal phase split times and/or coordination of signals along the corridor.	▪ Intersection V/C ratio exceeds ODOT HDM and OHP standard under 2047 volume scenario. Operates within OHP V/C standard with acceptable average delay (LOS "C") at opening year.
NE Johnson St & NE 3rd St	▪ Consider improvements to existing pedestrian crossing of WB right-turn slip lane, including: o Possible signalization of right-turn to allow for signalized pedestrian crossing. o Additional lighting to improve pedestrian visibility. o Possible raised crosswalk. o Signage and pavement markings.	▪ Channelized turn lanes can be challenging for pedestrians, especially vision-impaired pedestrians. Often the compliance for vehicles yielding to pedestrians is low. ▪ The improvements listed are aimed at improving vehicle yielding behavior as well as enhancing the visibility of pedestrians in the crosswalk.
NE Three Mile Ln & SE 1st St	▪ Install a traffic signal at the intersection. ▪ Convert center two-way left-turn lane on NE Three Mile Ln to dedicated left-turn lanes. Add an EB left-turn lane on SE 1st St. Operate NB/SB left-turns protected-only and EB/WB left-turns permissive-only. ▪ Stripe 100' queue storage for southbound left-turn lane and 200' queue storage for northbound left-turn lane.	▪ Signal warranted and necessary for operations under 2027 and 2047 traffic volume scenarios. ▪ Protected-only NB and SB left-turn phasing is warranted per ODOT *Traffic Signal Policy and Guidelines.* ▪ 200' queue storage for northbound left-turn is inadequate for Future Year 2047; however it allows for 100' southbound left-turn queue storage at SE Brooks Street.

References

1. City of McMinnville. *McMinnville Transportation System Plan*. 2010.
2. Transportation Research Board. *Highway Capacity Manual 7th Edition: A Guide for Multimodal Mobility Analysis*. 2012.
3. Oregon Department of Transportation. *1999 Oregon Highway Plan*. Including Amendments 1999 through 2023.
4. Oregon Department of Transportation. *Highway Design Manual*. 2025.
5. Oregon Department of Transportation & City of McMinnville. *OR99W (Linfield to McDonald) Active Transportation Concept Plan*. April 2021.
6. Oregon Department of Transportation. *Analysis Procedures Manual Version 2*. Last updated February 2025.
7. City of McMinnville. *Three Mile Lane Concept Plan.* November 2022.
8. Transportation Research Board. National Cooperative Highway Research Program (NCHRP) Report 765: *Analytical Travel Forecasting Approaches for Project-Level Planning and Design.* 2014.
9. U.S. Department of Transportation Federal Highway Administration. *Manual on Uniform Traffic Control Devices, 11th Edition.* December 2023.
10. Oregon Department of Transportation. *Traffic Signal Policy and Guidelines*. July 2024.
11. U.S. Department of Transportation Federal Highway Administration. *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations.* July 2018.

Attachments

A. 24-hour traffic counts.
B. Intersection Turning Movement Counts
C. Unbalanced Seasonally-Adjusted Existing a.m. and p.m. Peak Hour Volumes
D. Synchro Worksheets for Existing Conditions Analysis
E. ODOT Crash Data
F. Travel Demand Model Outputs
G. Future Volumes Growth Rates, Unbalanced 2027 and 2047 Volumes
H. Opening Year 2027 No-Build Synchro Analysis Worksheets
I. Future Year 2047 No-Build Synchro Analysis Worksheets
J. Traffic Signal Warrant Analysis Worksheets
K. All-Way Stop Control Warrant Analysis
L. Opening Year 2027 Build Synchro Analysis Worksheets
M. Future Year 2047 Build Synchro Analysis Worksheets

Attachment A: 24-Hour Traffic Counts

Type of report: Tube Count - Speed Data

LOCATION: NE Evans St north of NE 3rd St | **QC JOB #:** 16348625

SPECIFIC LOCATION: | **DIRECTION:** NB

CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

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
12:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
01:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	16-25	1
02:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1-10	0
03:00 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1-10	1
04:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	16-25	2
05:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	16-25	2
06:00 AM	1	0	1	1	0	0	0	0	0	0	0	0	0	0	3	21-30	2
07:00 AM	5	**21**	12	1	0	0	0	0	0	0	0	0	0	0	39	16-25	33
08:00 AM	9	16	**14**	**2**	0	0	0	0	0	0	0	0	0	0	41	16-25	30
09:00 AM	18	10	2	1	0	0	0	0	0	0	0	0	0	0	31	11-20	16
10:00 AM	**20**	19	3	0	0	0	0	0	0	0	0	0	0	0	42	11-20	26
11:00 AM	19	17	8	1	0	0	0	0	0	0	0	0	0	0	**45**	16-25	25
12:00 PM	**29**	28	10	0	0	0	0	0	0	0	0	0	0	0	67	16-25	38
01:00 PM	20	24	5	1	0	0	0	0	0	0	0	0	0	0	50	11-20	31
02:00 PM	24	29	6	0	0	0	0	0	0	0	0	0	0	0	59	11-20	37
03:00 PM	26	**36**	11	0	0	0	0	0	0	0	0	0	0	0	**73**	16-25	47
04:00 PM	11	26	11	1	0	0	0	0	0	0	0	0	0	0	49	16-25	37
05:00 PM	18	22	**13**	**2**	0	0	0	0	0	0	0	0	0	0	55	16-25	35
06:00 PM	22	21	3	1	0	0	0	0	0	0	0	0	0	0	47	11-20	28
07:00 PM	8	8	1	1	0	0	0	0	0	0	0	0	0	0	18	11-20	11
08:00 PM	5	13	5	0	0	0	0	0	0	0	0	0	0	0	23	16-25	18
09:00 PM	4	6	3	0	0	0	0	0	0	0	0	0	0	0	13	16-25	9
10:00 PM	1	2	4	0	0	0	0	0	0	0	0	0	0	0	7	16-25	6
11:00 PM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3	16-25	3
Day Total	243	300	119	12	0	0	0	0	0	0	0	0	0	0	674	16-25	419
Percent	36.1%	44.5%	17.7%	1.8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			

AM Peak	10:00 AM	7:00 AM	8:00 AM	8:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM		
Volume	20	21	14	2	0	0	0	0	0	0	0	0	0	0	45		
PM Peak	12:00 PM	3:00 PM	5:00 PM	5:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	3:00 PM		
Volume	29	36	13	2	0	0	0	0	0	0	0	0	0	0	73		

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: NE Evans St north of NE 3rd St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348625
DIRECTION: NB
DATE: Oct 3 2023

Speed Range	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
Grand Total Percent	243 36.1%	300 44.5%	119 17.7%	12 1.8%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	674	16-25	419
Cumulative Percent	36.1%	80.6%	98.2%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			

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85th Percentile: 21 MPH
Mean Speed(Average): 16 MPH
Median: 16 MPH
Mode: 18 MPH

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

LOCATION: NE Evans St north of NE 3rd St
QC JOB #: 16348625
SPECIFIC LOCATION:
DIRECTION: NB
CITY/STATE: McMinnville, OR
DATE: Oct 3 2023

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	Not Classed	Total
12:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
01:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
02:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
04:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
05:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
06:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
07:00 AM	0	23	12	0	3	0	1	0	0	0	0	0	0	0	39
08:00 AM	0	22	14	0	3	0	0	0	0	0	0	0	0	2	41
09:00 AM	0	14	11	0	2	0	0	0	0	0	0	0	0	4	31
10:00 AM	0	21	11	1	4	0	0	0	0	0	0	0	0	5	42
11:00 AM	0	23	12	1	6	0	0	0	0	0	0	0	0	3	45
12:00 PM	0	48	12	1	3	0	0	0	0	0	0	0	0	3	67
01:00 PM	0	27	13	0	8	0	0	0	0	0	0	0	0	2	50
02:00 PM	0	38	9	0	5	0	0	0	0	0	0	0	0	7	59
03:00 PM	0	48	15	0	3	0	0	0	0	0	0	0	0	7	73
04:00 PM	0	31	15	0	2	0	0	0	0	0	0	0	0	1	49
05:00 PM	0	35	12	0	4	0	0	0	0	0	0	0	0	4	55
06:00 PM	0	26	15	0	2	0	0	0	0	0	0	0	0	4	47
07:00 PM	0	10	3	0	4	0	0	0	0	0	0	0	0	1	18
08:00 PM	0	15	7	0	0	0	0	0	0	0	0	0	0	1	23
09:00 PM	0	8	2	0	0	0	0	0	0	0	0	0	0	3	13
10:00 PM	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7
11:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Day Total	0	403	169	3	50	0	1	0	0	0	0	0	0	48	674
Percent	0%	59.8%	25.1%	0.4%	7.4%	0%	0.1%	0%	0%	0%	0%	0%	0%	7.1%	

ADT
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	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	Not Classed	Total
AM Peak	12:00 AM	7:00 AM	8:00 AM	10:00 AM	11:00 AM	12:00 AM	7:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	10:00 AM	11:00 AM
Volume	0	23	14	1	6	0	1	0	0	0	0	0	0	5	45
PM Peak	12:00 PM	12:00 PM	3:00 PM	12:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	2:00 PM	3:00 PM
Volume	0	48	15	1	8	0	0	0	0	0	0	0	0	7	73

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: NE Evans St north of NE 3rd St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348625
DIRECTION: NB
DATE: Oct 3 2023

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	Not Classed	Total
Grand Total	0	403	169	3	50	0	1	0	0	0	0	0	0	48	674
Percent	0%	59.8%	25.1%	0.4%	7.4%	0%	0.1%	0%	0%	0%	0%	0%	0%	7.1%	

ADT
674

Comments:

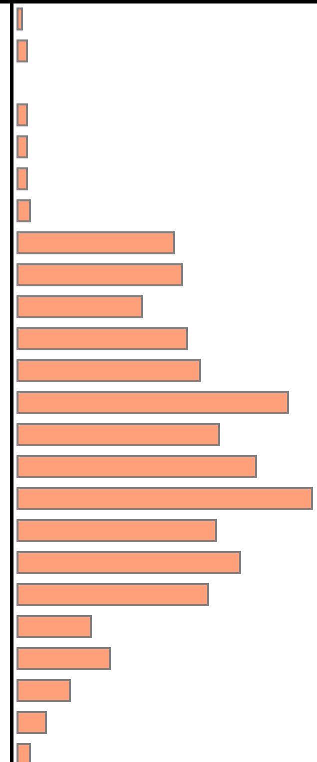
Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE Evans St north of NE 3rd St — **QC JOB #:** 16348625
SPECIFIC LOCATION: — **DIRECTION:** NB
CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		1				1			1	
01:00 AM		2				2			2	
02:00 AM		0				0			0	
03:00 AM		2				2			2	
04:00 AM		2				2			2	
05:00 AM		2				2			2	
06:00 AM		3				3			3	
07:00 AM		39				39			39	
08:00 AM		41				41			41	
09:00 AM		31				31			31	
10:00 AM		42				42			42	
11:00 AM		**45**				**45**			**45**	
12:00 PM		67				67			67	
01:00 PM		50				50			50	
02:00 PM		59				59			59	
03:00 PM		**73**				**73**			**73**	
04:00 PM		49				49			49	
05:00 PM		55				55			55	
06:00 PM		47				47			47	
07:00 PM		18				18			18	
08:00 PM		23				23			23	
09:00 PM		13				13			13	
10:00 PM		7				7			7	
11:00 PM		3				3			3	
Day Total		674				674			674	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 45				11:00 AM 45			11:00 AM 45	
PM Peak Volume		3:00 PM 73				3:00 PM 73			3:00 PM 73	



Comments:

Report generated on 10/10/2023 11:19 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

LOCATION: NE Evans St north of NE 3rd St | **QC JOB #:** 16348625
SPECIFIC LOCATION: | **DIRECTION:** NB, SB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

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
12:00 AM	2	5	2	0	0	0	0	0	0	0	0	0	0	0	9	16-25	7
01:00 AM	2	1	1	0	0	0	0	0	0	0	0	0	0	0	4	16-25	2
02:00 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	11-20	1
03:00 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1-10	1
04:00 AM	0	4	2	0	0	0	0	0	0	0	0	0	0	0	6	16-25	6
05:00 AM	2	4	2	0	0	0	0	0	0	0	0	0	0	0	8	16-25	6
06:00 AM	3	2	3	**2**	0	0	0	0	0	0	0	0	0	0	10	18-27	5
07:00 AM	10	36	21	1	0	0	0	0	0	0	0	0	0	0	68	16-25	57
08:00 AM	24	59	**28**	2	0	0	0	0	0	0	0	0	0	0	113	16-25	87
09:00 AM	42	38	7	1	0	0	0	0	0	0	0	0	0	0	88	11-20	52
10:00 AM	**49**	**64**	12	0	0	0	0	0	0	0	0	0	0	0	125	11-20	80
11:00 AM	47	64	16	1	0	0	0	0	0	0	0	0	0	0	**128**	16-25	80
12:00 PM	62	66	19	1	0	0	0	0	0	0	0	0	0	0	148	11-20	87
01:00 PM	48	52	13	1	0	0	0	0	0	0	0	0	0	0	114	11-20	68
02:00 PM	58	63	13	0	0	0	0	0	0	0	0	0	0	0	134	11-20	82
03:00 PM	**64**	**83**	20	1	0	0	0	0	0	0	0	0	0	0	**168**	11-20	104
04:00 PM	51	69	20	1	0	0	0	0	0	0	0	0	0	0	141	16-25	89
05:00 PM	51	66	**24**	**3**	0	0	0	0	0	0	0	0	0	0	144	16-25	90
06:00 PM	57	60	6	1	0	0	0	0	0	0	0	0	0	0	124	11-20	79
07:00 PM	29	36	3	1	0	0	0	0	0	0	0	0	0	0	69	11-20	46
08:00 PM	12	35	6	0	0	0	0	0	0	0	0	0	0	0	53	16-25	41
09:00 PM	8	20	6	0	0	0	0	0	0	0	0	0	0	0	34	16-25	26
10:00 PM	2	10	9	0	0	0	0	0	0	0	0	0	0	0	21	16-25	19
11:00 PM	2	1	3	0	0	0	0	0	0	0	0	0	0	0	6	16-25	4
Day Total	628	839	236	16	0	0	0	0	0	0	0	0	0	0	1719	16-25	1075
Percent	36.5%	48.8%	13.7%	0.9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
AM Peak	10:00 AM	10:00 AM	8:00 AM	6:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM		
Volume	49	64	28	2	0	0	0	0	0	0	0	0	0	0	128		
PM Peak	3:00 PM	3:00 PM	5:00 PM	5:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	3:00 PM		
Volume	64	83	24	3	0	0	0	0	0	0	0	0	0	0	168		

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: NE Evans St north of NE 3rd St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348625
DIRECTION: NB, SB
DATE: Oct 3 2023

Speed Range	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
Grand Total Percent	628 36.5%	839 48.8%	236 13.7%	16 0.9%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1719	16-25	1075
Cumulative Percent	36.5%	85.3%	99.1%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
1719

85th Percentile: 19 MPH
Mean Speed(Average): 16 MPH
Median: 16 MPH
Mode: 18 MPH

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

LOCATION: NE Evans St north of NE 3rd St | **QC JOB #:** 16348625
SPECIFIC LOCATION: | **DIRECTION:** NB, SB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

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	Not Classed	Total
12:00 AM	0	4	3	0	0	0	0	0	0	0	0	0	0	2	9
01:00 AM	0	1	3	0	0	0	0	0	0	0	0	0	0	0	4
02:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
04:00 AM	0	1	3	0	2	0	0	0	0	0	0	0	0	0	6
05:00 AM	0	6	1	0	1	0	0	0	0	0	0	0	0	0	8
06:00 AM	0	5	4	0	1	0	0	0	0	0	0	0	0	0	10
07:00 AM	0	38	16	**1**	10	**1**	**2**	0	0	0	0	0	0	0	68
08:00 AM	**1**	68	**29**	0	10	0	0	**1**	0	0	0	0	0	4	113
09:00 AM	0	49	26	1	7	0	0	0	0	0	0	0	0	5	88
10:00 AM	0	79	26	1	9	0	0	0	**1**	0	0	0	0	**9**	125
11:00 AM	0	**80**	29	1	**13**	0	0	0	1	0	0	0	0	4	**128**
12:00 PM	0	108	26	**1**	8	0	0	0	0	0	0	0	0	5	148
01:00 PM	**1**	70	26	0	**12**	0	0	0	0	0	0	0	0	5	114
02:00 PM	0	95	18	0	12	0	0	0	0	0	0	0	0	**9**	134
03:00 PM	0	**118**	31	1	11	0	0	0	0	0	0	0	0	7	**168**
04:00 PM	1	94	34	0	8	0	0	**1**	0	0	0	0	0	3	141
05:00 PM	1	85	**39**	0	10	0	0	0	0	0	0	0	0	9	144
06:00 PM	0	83	28	0	5	0	0	0	0	0	0	0	0	8	124
07:00 PM	0	45	14	0	9	0	0	0	0	0	0	0	0	1	69
08:00 PM	0	36	13	0	1	0	0	0	0	0	0	0	0	3	53
09:00 PM	0	22	7	1	0	0	0	0	0	0	0	0	0	4	34
10:00 PM	0	15	5	0	1	0	0	0	0	0	0	0	0	0	21
11:00 PM	0	4	2	0	0	0	0	0	0	0	0	0	0	0	6
Day Total	4	1108	384	7	130	1	2	2	2	0	0	0	0	79	1719
Percent	0.2%	64.5%	22.3%	0.4%	7.6%	0.1%	0.1%	0.1%	0.1%	0%	0%	0%	0%	4.6%	
ADT 1719															
AM Peak	8:00 AM	11:00 AM	8:00 AM	7:00 AM	11:00 AM	7:00 AM	7:00 AM	8:00 AM	10:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	10:00 AM	11:00 AM
Volume	1	80	29	1	13	1	2	1	1	0	0	0	0	9	128
PM Peak	1:00 PM	3:00 PM	5:00 PM	12:00 PM	1:00 PM	12:00 PM	12:00 PM	4:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	2:00 PM	3:00 PM
Volume	1	118	39	1	12	0	0	1	0	0	0	0	0	9	168

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: NE Evans St north of NE 3rd St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348625
DIRECTION: NB, SB
DATE: Oct 3 2023

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	Not Classed	Total
Grand Total	4	1108	384	7	130	1	2	2	2	0	0	0	0	79	1719
Percent	0.2%	64.5%	22.3%	0.4%	7.6%	0.1%	0.1%	0.1%	0.1%	0%	0%	0%	0%	4.6%	

ADT
1719

Comments:

Type of report: Tube Count - Volume Data

LOCATION: NE Evans St north of NE 3rd St — **QC JOB #:** 16348625

SPECIFIC LOCATION: — **DIRECTION:** NB, SB

CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		9				9			9	
01:00 AM		4				4			4	
02:00 AM		2				2			2	
03:00 AM		2				2			2	
04:00 AM		6				6			6	
05:00 AM		8				8			8	
06:00 AM		10				10			10	
07:00 AM		68				68			68	
08:00 AM		113				113			113	
09:00 AM		88				88			88	
10:00 AM		125				125			125	
11:00 AM		**128**				**128**			**128**	
12:00 PM		148				148			148	
01:00 PM		114				114			114	
02:00 PM		134				134			134	
03:00 PM		**168**				**168**			**168**	
04:00 PM		141				141			141	
05:00 PM		144				144			144	
06:00 PM		124				124			124	
07:00 PM		69				69			69	
08:00 PM		53				53			53	
09:00 PM		34				34			34	
10:00 PM		21				21			21	
11:00 PM		6				6			6	
Day Total		1719				1719			1719	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 128				11:00 AM 128			11:00 AM 128	
PM Peak Volume		3:00 PM 168				3:00 PM 168			3:00 PM 168	

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

LOCATION: NE Evans St north of NE 3rd St **QC JOB #:** 16348625
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: McMinnville, OR **DATE:** Oct 3 2023

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
12:00 AM	2	5	1	0	0	0	0	0	0	0	0	0	0	0	8	16-25	6
01:00 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	11-20	1
02:00 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	11-20	1
03:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1-10	0
04:00 AM	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4	16-25	4
05:00 AM	2	4	0	0	0	0	0	0	0	0	0	0	0	0	6	11-20	5
06:00 AM	2	2	2	1	0	0	0	0	0	0	0	0	0	0	7	16-25	4
07:00 AM	5	15	9	0	0	0	0	0	0	0	0	0	0	0	29	16-25	24
08:00 AM	15	43	14	0	0	0	0	0	0	0	0	0	0	0	72	16-25	57
09:00 AM	24	28	5	0	0	0	0	0	0	0	0	0	0	0	57	11-20	36
10:00 AM	29	45	9	0	0	0	0	0	0	0	0	0	0	0	83	11-20	55
11:00 AM	28	47	8	0	0	0	0	0	0	0	0	0	0	0	83	11-20	56
12:00 PM	33	38	9	1	0	0	0	0	0	0	0	0	0	0	81	11-20	49
01:00 PM	28	28	8	0	0	0	0	0	0	0	0	0	0	0	64	11-20	37
02:00 PM	34	34	7	0	0	0	0	0	0	0	0	0	0	0	75	11-20	45
03:00 PM	38	47	9	1	0	0	0	0	0	0	0	0	0	0	95	11-20	60
04:00 PM	40	43	9	0	0	0	0	0	0	0	0	0	0	0	92	11-20	56
05:00 PM	33	44	11	1	0	0	0	0	0	0	0	0	0	0	89	14-23	55
06:00 PM	35	39	3	0	0	0	0	0	0	0	0	0	0	0	77	11-20	51
07:00 PM	21	28	2	0	0	0	0	0	0	0	0	0	0	0	51	11-20	35
08:00 PM	7	22	1	0	0	0	0	0	0	0	0	0	0	0	30	11-20	24
09:00 PM	4	14	3	0	0	0	0	0	0	0	0	0	0	0	21	16-25	17
10:00 PM	1	8	5	0	0	0	0	0	0	0	0	0	0	0	14	16-25	13
11:00 PM	2	0	1	0	0	0	0	0	0	0	0	0	0	0	3	1-10	1
Day Total	385	539	117	4	0	0	0	0	0	0	0	0	0	0	1045	11-20	667
Percent	36.8%	51.6%	11.2%	0.4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			

	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		
AM Peak	10:00 AM	11:00 AM	8:00 AM	6:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	10:00 AM		
Volume	29	47	14	1	0	0	0	0	0	0	0	0	0	0	83		
PM Peak	4:00 PM	3:00 PM	5:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	3:00 PM		
Volume	40	47	11	1	0	0	0	0	0	0	0	0	0	0	95		

Comments:

Report generated on 10/10/2023 11:19 AM SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

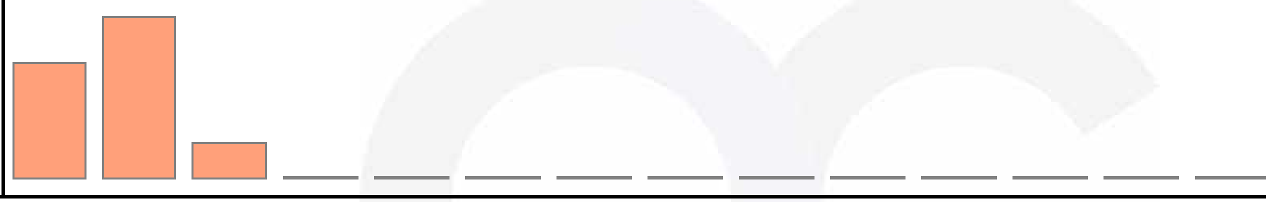
Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: NE Evans St north of NE 3rd St | **QC JOB #:** 16348625
SPECIFIC LOCATION: | **DIRECTION:** SB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

Speed Range	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
Grand Total Percent	385 36.8%	539 51.6%	117 11.2%	4 0.4%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1045	11-20	667
Cumulative Percent	36.8%	88.4%	99.6%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
1045



85th Percentile: 19 MPH
Mean Speed(Average): 16 MPH
Median: 16 MPH
Mode: 18 MPH

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

LOCATION: NE Evans St north of NE 3rd St | **QC JOB #:** 16348625
SPECIFIC LOCATION: | **DIRECTION:** SB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

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	Not Classed	Total
12:00 AM	0	3	3	0	0	0	0	0	0	0	0	0	0	2	8
01:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 AM	0	1	2	0	1	0	0	0	0	0	0	0	0	0	4
05:00 AM	0	4	1	0	1	0	0	0	0	0	0	0	0	0	6
06:00 AM	0	3	3	0	1	0	0	0	0	0	0	0	0	0	7
07:00 AM	0	15	4	**1**	**7**	**1**	**1**	0	0	0	0	0	0	0	29
08:00 AM	**1**	46	15	0	7	0	0	**1**	0	0	0	0	0	2	72
09:00 AM	0	35	15	1	5	0	0	0	0	0	0	0	0	1	57
10:00 AM	0	**58**	15	0	5	0	0	0	**1**	0	0	0	0	**4**	**83**
11:00 AM	0	57	**17**	0	7	0	0	0	1	0	0	0	0	1	83
12:00 PM	0	60	14	0	5	0	0	0	0	0	0	0	0	2	81
01:00 PM	**1**	43	13	0	4	0	0	0	0	0	0	0	0	3	64
02:00 PM	0	57	9	0	7	0	0	0	0	0	0	0	0	2	75
03:00 PM	0	**70**	16	**1**	**8**	0	0	0	0	0	0	0	0	0	**95**
04:00 PM	1	63	19	0	6	0	0	**1**	0	0	0	0	0	2	92
05:00 PM	1	50	**27**	0	6	0	0	0	0	0	0	0	0	**5**	89
06:00 PM	0	57	13	0	3	0	0	0	0	0	0	0	0	4	77
07:00 PM	0	35	11	0	5	0	0	0	0	0	0	0	0	0	51
08:00 PM	0	21	6	0	1	0	0	0	0	0	0	0	0	2	30
09:00 PM	0	14	5	1	0	0	0	0	0	0	0	0	0	1	21
10:00 PM	0	10	3	0	1	0	0	0	0	0	0	0	0	0	14
11:00 PM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
Day Total	4	705	215	4	80	1	1	2	2	0	0	0	0	31	1045
Percent	0.4%	67.5%	20.6%	0.4%	7.7%	0.1%	0.1%	0.2%	0.2%	0%	0%	0%	0%	3%	
AM Peak	8:00 AM	10:00 AM	11:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	8:00 AM	10:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	10:00 AM	10:00 AM
Volume	1	58	17	1	7	1	1	1	1	0	0	0	0	4	83
PM Peak	1:00 PM	3:00 PM	5:00 PM	3:00 PM	3:00 PM	12:00 PM	12:00 PM	4:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	5:00 PM	3:00 PM
Volume	1	70	27	1	8	0	0	1	0	0	0	0	0	5	95

ADT
1045

Comments:

Report generated on 10/10/2023 11:19 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: NE Evans St north of NE 3rd St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348625
DIRECTION: SB
DATE: Oct 3 2023

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	Not Classed	Total
Grand Total	4	705	215	4	80	1	1	2	2	0	0	0	0	31	1045
Percent	0.4%	67.5%	20.6%	0.4%	7.7%	0.1%	0.1%	0.2%	0.2%	0%	0%	0%	0%	3%	

ADT
1045

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE Evans St north of NE 3rd St — **QC JOB #:** 16348625
SPECIFIC LOCATION: — **DIRECTION:** SB
CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		8				8			8	
01:00 AM		2				2			2	
02:00 AM		2				2			2	
03:00 AM		0				0			0	
04:00 AM		4				4			4	
05:00 AM		6				6			6	
06:00 AM		7				7			7	
07:00 AM		29				29			29	
08:00 AM		72				72			72	
09:00 AM		57				57			57	
10:00 AM		**83**				**83**			**83**	
11:00 AM		83				83			83	
12:00 PM		81				81			81	
01:00 PM		64				64			64	
02:00 PM		75				75			75	
03:00 PM		**95**				**95**			**95**	
04:00 PM		92				92			92	
05:00 PM		89				89			89	
06:00 PM		77				77			77	
07:00 PM		51				51			51	
08:00 PM		30				30			30	
09:00 PM		21				21			21	
10:00 PM		14				14			14	
11:00 PM		3				3			3	
Day Total		1045				1045			1045	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		10:00 AM 83				10:00 AM 83			10:00 AM 83	
PM Peak Volume		3:00 PM 95				3:00 PM 95			3:00 PM 95	

Comments:

Report generated on 10/10/2023 11:19 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

LOCATION: NE 3rd St east of NE Evans St | **QC JOB #:** 16348626
SPECIFIC LOCATION: | **DIRECTION:** EB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

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
12:00 AM	1	2	3	0	0	0	0	0	0	0	0	0	0	0	6	16-25	5
01:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
02:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	16-25	2
03:00 AM	1	2	1	0	0	0	0	0	0	0	0	0	0	0	4	16-25	3
04:00 AM	0	1	3	1	0	0	0	0	0	0	0	0	0	0	5	18-27	4
05:00 AM	3	6	2	1	0	0	0	0	0	0	0	0	0	0	12	16-25	8
06:00 AM	6	10	9	**2**	0	0	0	0	0	0	0	0	0	0	27	16-25	19
07:00 AM	9	32	**10**	2	0	0	0	0	0	0	0	0	0	0	53	16-25	42
08:00 AM	28	40	9	0	0	0	0	0	0	0	0	0	0	0	77	11-20	49
09:00 AM	18	35	5	0	0	0	0	0	0	0	0	0	0	0	58	11-20	41
10:00 AM	27	**44**	7	2	0	0	0	0	0	0	0	0	0	0	80	11-20	53
11:00 AM	**52**	38	3	0	0	0	0	0	0	0	0	0	0	0	**93**	11-20	55
12:00 PM	53	38	3	0	0	0	0	0	0	0	0	0	0	0	94	11-20	56
01:00 PM	54	31	2	0	0	0	0	0	0	0	0	0	0	0	87	11-20	49
02:00 PM	58	37	2	0	0	0	0	0	0	0	0	0	0	0	97	11-20	56
03:00 PM	42	39	5	0	0	0	0	0	0	0	0	0	0	0	86	11-20	53
04:00 PM	**63**	**50**	4	0	0	0	0	0	0	0	0	0	0	0	**117**	11-20	71
05:00 PM	45	41	2	1	0	0	0	0	0	0	0	0	0	**1**	90	11-20	56
06:00 PM	59	22	7	0	0	0	0	0	0	0	0	0	0	0	88	11-20	42
07:00 PM	43	23	2	1	0	0	0	0	0	0	0	0	0	0	69	11-20	37
08:00 PM	13	19	3	**2**	0	0	0	0	0	0	0	0	0	0	37	11-20	23
09:00 PM	0	13	**9**	2	0	0	0	0	0	0	0	0	0	0	24	16-25	22
10:00 PM	4	13	3	0	0	0	0	0	0	0	0	0	0	0	20	16-25	16
11:00 PM	0	3	1	1	0	0	0	0	0	0	0	0	0	0	5	16-25	4
Day Total **Percent**	579 47%	540 43.8%	97 7.9%	15 1.2%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1 0.1%	1232	11-20	733

	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		
AM Peak **Volume**	11:00 AM 52	10:00 AM 44	7:00 AM 10	6:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	11:00 AM 93		
PM Peak **Volume**	4:00 PM 63	4:00 PM 50	9:00 PM 9	8:00 PM 2	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	5:00 PM 1	4:00 PM 117		

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: NE 3rd St east of NE Evans St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348626
DIRECTION: EB
DATE: Oct 3 2023

Speed Range	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
Grand Total Percent	579 47%	540 43.8%	97 7.9%	15 1.2%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1 0.1%	1232	11-20	733
Cumulative Percent	47%	90.8%	98.7%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	100%			

ADT
1232

85th Percentile: 19 MPH
Mean Speed(Average): 15 MPH
Median: 15 MPH
Mode: 8 MPH

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

LOCATION: NE 3rd St east of NE Evans St — **QC JOB #:** 16348626
SPECIFIC LOCATION: — **DIRECTION:** EB
CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023

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	Not Classed	Total
12:00 AM	0	3	3	0	0	0	0	0	0	0	0	0	0	0	6
01:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
04:00 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
05:00 AM	0	6	2	0	4	0	0	0	0	0	0	0	0	0	12
06:00 AM	1	14	9	0	2	0	0	0	0	0	0	0	0	1	27
07:00 AM	0	36	8	0	8	0	0	0	**1**	0	0	0	0	0	53
08:00 AM	0	48	13	0	11	**1**	0	**1**	0	0	0	0	0	3	77
09:00 AM	0	43	6	**1**	5	0	0	0	0	0	0	0	0	3	58
10:00 AM	**2**	45	12	0	**16**	0	0	1	1	0	0	0	0	3	80
11:00 AM	2	**59**	**15**	0	11	0	0	1	0	0	0	0	0	**5**	**93**
12:00 PM	2	68	11	**1**	7	1	0	0	0	0	0	0	0	4	94
01:00 PM	3	57	18	0	6	1	0	0	0	0	0	0	0	2	87
02:00 PM	1	63	22	0	3	0	0	0	0	0	0	0	0	**8**	97
03:00 PM	2	58	12	0	**8**	**2**	0	**1**	0	0	0	0	0	3	86
04:00 PM	1	**80**	**25**	0	5	1	0	0	0	0	0	0	0	5	**117**
05:00 PM	**4**	56	14	0	8	0	0	0	0	0	0	0	0	8	90
06:00 PM	2	61	11	0	5	1	0	0	0	0	0	0	0	8	88
07:00 PM	0	51	14	0	2	0	0	0	0	0	0	0	0	2	69
08:00 PM	0	24	7	0	5	0	0	0	0	0	0	0	0	1	37
09:00 PM	0	16	7	0	1	0	0	0	0	0	0	0	0	0	24
10:00 PM	1	15	3	0	0	0	0	0	0	0	0	0	0	1	20
11:00 PM	0	3	2	0	0	0	0	0	0	0	0	0	0	0	5
Day Total	21	818	214	2	107	7	0	4	2	0	0	0	0	57	1232
Percent	1.7%	66.4%	17.4%	0.2%	8.7%	0.6%	0%	0.3%	0.2%	0%	0%	0%	0%	4.6%	

ADT
1232

	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	Not Classed	Total
AM Peak	10:00 AM	11:00 AM	11:00 AM	9:00 AM	10:00 AM	8:00 AM	12:00 AM	8:00 AM	7:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	11:00 AM
Volume	2	59	15	1	16	1	0	1	1	0	0	0	0	5	93
PM Peak	5:00 PM	4:00 PM	4:00 PM	12:00 PM	3:00 PM	3:00 PM	12:00 PM	3:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	2:00 PM	4:00 PM
Volume	4	80	25	1	8	2	0	1	0	0	0	0	0	8	117

Comments:

Report generated on 10/10/2023 11:19 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: NE 3rd St east of NE Evans St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348626
DIRECTION: EB
DATE: Oct 3 2023

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	Not Classed	Total
Grand Total	21	818	214	2	107	7	0	4	2	0	0	0	0	57	1232
Percent	1.7%	66.4%	17.4%	0.2%	8.7%	0.6%	0%	0.3%	0.2%	0%	0%	0%	0%	4.6%	

ADT
1232

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

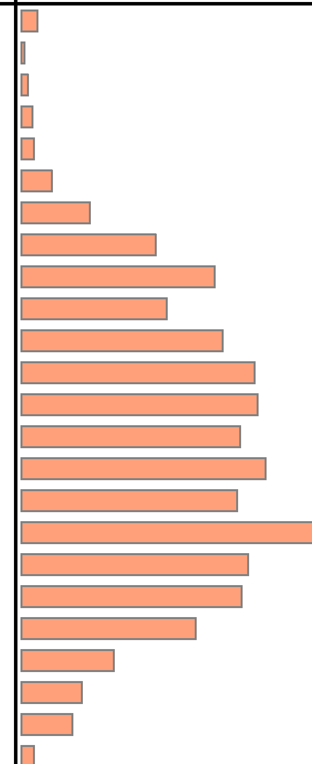
Type of report: Tube Count - Volume Data

LOCATION: NE 3rd St east of NE Evans St — **QC JOB #:** 16348626

SPECIFIC LOCATION: — **DIRECTION:** EB

CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		6				6			6	
01:00 AM		1				1			1	
02:00 AM		2				2			2	
03:00 AM		4				4			4	
04:00 AM		5				5			5	
05:00 AM		12				12			12	
06:00 AM		27				27			27	
07:00 AM		53				53			53	
08:00 AM		77				77			77	
09:00 AM		58				58			58	
10:00 AM		80				80			80	
11:00 AM		**93**				**93**			**93**	
12:00 PM		94				94			94	
01:00 PM		87				87			87	
02:00 PM		97				97			97	
03:00 PM		86				86			86	
04:00 PM		**117**				**117**			**117**	
05:00 PM		90				90			90	
06:00 PM		88				88			88	
07:00 PM		69				69			69	
08:00 PM		37				37			37	
09:00 PM		24				24			24	
10:00 PM		20				20			20	
11:00 PM		5				5			5	
Day Total		1232				1232			1232	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 93				11:00 AM 93			11:00 AM 93	
PM Peak Volume		4:00 PM 117				4:00 PM 117			4:00 PM 117	



Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

LOCATION: NE 3rd St east of NE Evans St | **QC JOB #:** 16348626
SPECIFIC LOCATION: | **DIRECTION:** EB, WB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

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
12:00 AM	2	7	4	0	0	0	0	0	0	0	0	0	0	0	13	16-25	11
01:00 AM	0	4	4	0	0	0	0	0	0	0	0	0	0	0	8	16-25	8
02:00 AM	1	6	2	0	0	0	0	0	0	0	0	0	0	0	9	16-25	8
03:00 AM	2	3	3	0	0	0	0	0	0	0	0	0	0	0	8	16-25	6
04:00 AM	2	2	7	1	0	0	0	0	0	0	0	0	0	0	12	16-25	9
05:00 AM	4	7	5	2	0	0	0	0	0	0	0	0	0	0	18	16-25	12
06:00 AM	8	15	16	**3**	0	0	0	0	0	0	0	0	0	0	42	16-25	31
07:00 AM	25	55	**27**	2	0	0	0	0	0	0	0	0	0	0	109	16-25	82
08:00 AM	60	70	13	1	0	0	0	0	0	0	0	0	0	0	144	11-20	90
09:00 AM	75	79	8	0	0	0	0	0	0	0	0	0	0	0	162	11-20	104
10:00 AM	96	**92**	16	2	0	0	0	0	0	0	0	0	0	0	206	11-20	124
11:00 AM	**147**	84	5	0	0	0	0	0	0	0	0	0	0	0	**236**	11-20	133
12:00 PM	157	62	3	0	0	0	0	0	0	0	0	0	0	0	222	11-20	114
01:00 PM	154	72	4	0	0	0	0	0	0	0	0	0	0	0	230	11-20	123
02:00 PM	149	77	3	0	0	0	0	0	0	0	0	0	0	0	229	11-20	127
03:00 PM	120	68	6	0	0	0	0	0	0	0	0	0	0	0	194	11-20	108
04:00 PM	**163**	**98**	7	0	0	0	0	0	0	0	0	0	0	0	**268**	11-20	152
05:00 PM	139	74	6	2	0	0	0	0	0	0	0	0	0	**1**	222	11-20	120
06:00 PM	154	56	7	0	0	0	0	0	0	0	0	0	0	0	217	11-20	107
07:00 PM	109	47	6	1	0	0	0	0	0	0	0	0	0	0	163	11-20	83
08:00 PM	44	44	6	**3**	0	0	0	0	0	0	0	0	0	0	97	11-20	59
09:00 PM	16	42	**20**	2	0	0	0	0	0	0	0	0	0	0	80	16-25	62
10:00 PM	8	22	7	0	0	0	**1**	0	0	0	0	0	0	0	38	16-25	29
11:00 PM	3	9	7	3	0	0	0	0	0	0	0	0	0	0	22	16-25	16
Day Total	1638	1095	192	22	0	0	1	0	0	0	0	0	0	1	2949	11-20	1641
Percent	55.5%	37.1%	6.5%	0.7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
AM Peak	11:00 AM	10:00 AM	7:00 AM	6:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM		
Volume	147	92	27	3	0	0	0	0	0	0	0	0	0	0	236		
PM Peak	4:00 PM	4:00 PM	9:00 PM	8:00 PM	12:00 PM	12:00 PM	10:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	5:00 PM	4:00 PM		
Volume	163	98	20	3	0	0	1	0	0	0	0	0	0	1	268		

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: NE 3rd St east of NE Evans St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348626
DIRECTION: EB, WB
DATE: Oct 3 2023

Speed Range	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
Grand Total Percent	1638 55.5%	1095 37.1%	192 6.5%	22 0.7%	0 0%	0 0%	1 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1 0%	2949	11-20	1641
Cumulative Percent	55.5%	92.7%	99.2%	99.9%	99.9%	99.9%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
2949

85th Percentile: 18 MPH
Mean Speed(Average): 13 MPH
Median: 13 MPH
Mode: 8 MPH

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

LOCATION: NE 3rd St east of NE Evans St | **QC JOB #:** 16348626
SPECIFIC LOCATION: | **DIRECTION:** EB, WB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

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	Not Classed	Total
12:00 AM	0	6	6	0	1	0	0	0	0	0	0	0	0	0	13
01:00 AM	0	5	2	0	1	0	0	0	0	0	0	0	0	0	8
02:00 AM	0	6	2	0	1	0	0	0	0	0	0	0	0	0	9
03:00 AM	0	5	3	0	0	0	0	0	0	0	0	0	0	0	8
04:00 AM	0	6	2	**1**	2	**1**	0	0	0	0	0	0	0	0	12
05:00 AM	0	9	3	0	5	1	0	0	0	0	0	0	0	0	18
06:00 AM	1	22	13	0	5	0	0	0	0	0	0	0	0	1	42
07:00 AM	0	70	18	0	16	0	0	2	**1**	0	0	0	0	2	109
08:00 AM	0	89	26	0	19	1	0	2	0	0	0	0	0	7	144
09:00 AM	0	108	24	1	15	0	0	**3**	0	0	0	0	0	11	162
10:00 AM	2	126	**41**	0	**28**	1	0	2	1	0	0	0	0	5	206
11:00 AM	**3**	**154**	38	1	26	1	0	1	0	0	0	0	0	**12**	**236**
12:00 PM	2	150	35	**1**	**21**	2	0	0	0	0	0	0	0	11	222
01:00 PM	3	139	56	0	18	1	0	**1**	0	0	0	0	0	12	230
02:00 PM	2	147	44	1	15	0	0	1	0	0	0	0	0	19	229
03:00 PM	3	131	29	0	14	**4**	0	1	0	0	0	0	0	12	194
04:00 PM	2	**162**	**60**	0	20	2	0	0	0	0	0	0	0	**22**	**268**
05:00 PM	**8**	136	41	0	17	1	0	0	0	0	0	0	0	19	222
06:00 PM	3	153	31	0	10	1	0	0	0	0	0	0	0	19	217
07:00 PM	1	113	28	0	9	0	0	0	0	0	0	0	0	12	163
08:00 PM	0	67	17	0	11	0	0	0	0	0	0	0	0	2	97
09:00 PM	0	63	14	0	2	0	0	0	0	0	0	0	0	1	80
10:00 PM	1	28	4	0	2	0	0	0	0	0	0	0	0	3	38
11:00 PM	0	16	6	0	0	0	0	0	0	0	0	0	0	0	22
Day Total	31	1911	543	5	258	16	0	13	2	0	0	0	0	170	2949
Percent	1.1%	64.8%	18.4%	0.2%	8.7%	0.5%	0%	0.4%	0.1%	0%	0%	0%	0%	5.8%	

ADT
2949

	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	Not Classed	Total
AM Peak	11:00 AM	11:00 AM	10:00 AM	4:00 AM	10:00 AM	4:00 AM	12:00 AM	9:00 AM	7:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	11:00 AM
Volume	3	154	41	1	28	1	0	3	1	0	0	0	0	12	236
PM Peak	5:00 PM	4:00 PM	4:00 PM	12:00 PM	12:00 PM	3:00 PM	12:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM	4:00 PM
Volume	8	162	60	1	21	4	0	1	0	0	0	0	0	22	268

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: NE 3rd St east of NE Evans St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348626
DIRECTION: EB, WB
DATE: Oct 3 2023

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	Not Classed	Total
Grand Total	31	1911	543	5	258	16	0	13	2	0	0	0	0	170	2949
Percent	1.1%	64.8%	18.4%	0.2%	8.7%	0.5%	0%	0.4%	0.1%	0%	0%	0%	0%	5.8%	

ADT
2949

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

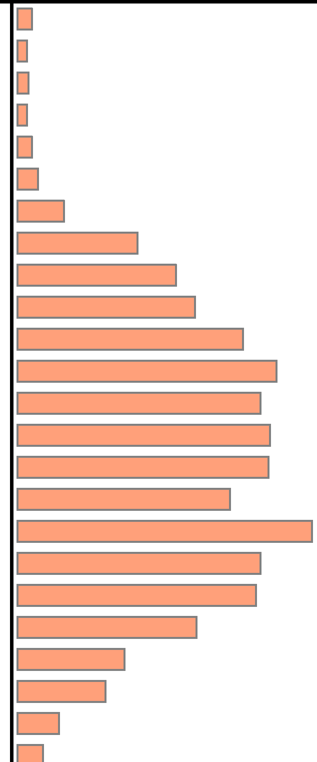
Type of report: Tube Count - Volume Data

LOCATION: NE 3rd St east of NE Evans St — **QC JOB #:** 16348626

SPECIFIC LOCATION: — **DIRECTION:** EB, WB

CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		13				13			13	
01:00 AM		8				8			8	
02:00 AM		9				9			9	
03:00 AM		8				8			8	
04:00 AM		12				12			12	
05:00 AM		18				18			18	
06:00 AM		42				42			42	
07:00 AM		109				109			109	
08:00 AM		144				144			144	
09:00 AM		162				162			162	
10:00 AM		206				206			206	
11:00 AM		**236**				**236**			**236**	
12:00 PM		222				222			222	
01:00 PM		230				230			230	
02:00 PM		229				229			229	
03:00 PM		194				194			194	
04:00 PM		**268**				**268**			**268**	
05:00 PM		222				222			222	
06:00 PM		217				217			217	
07:00 PM		163				163			163	
08:00 PM		97				97			97	
09:00 PM		80				80			80	
10:00 PM		38				38			38	
11:00 PM		22				22			22	
Day Total		2949				2949			2949	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 236				11:00 AM 236			11:00 AM 236	
PM Peak Volume		4:00 PM 268				4:00 PM 268			4:00 PM 268	



Comments:

Report generated on 10/10/2023 11:19 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

LOCATION: NE 3rd St east of NE Evans St | **QC JOB #:** 16348626
SPECIFIC LOCATION: | **DIRECTION:** WB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

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
12:00 AM	1	5	1	0	0	0	0	0	0	0	0	0	0	0	7	16-25	6
01:00 AM	0	4	3	0	0	0	0	0	0	0	0	0	0	0	7	16-25	7
02:00 AM	1	5	1	0	0	0	0	0	0	0	0	0	0	0	7	16-25	6
03:00 AM	1	1	2	0	0	0	0	0	0	0	0	0	0	0	4	16-25	3
04:00 AM	2	1	4	0	0	0	0	0	0	0	0	0	0	0	7	16-25	5
05:00 AM	1	1	3	**1**	0	0	0	0	0	0	0	0	0	0	6	18-27	4
06:00 AM	2	5	7	1	0	0	0	0	0	0	0	0	0	0	15	16-25	12
07:00 AM	16	23	**17**	0	0	0	0	0	0	0	0	0	0	0	56	16-25	40
08:00 AM	32	30	4	1	0	0	0	0	0	0	0	0	0	0	67	11-20	41
09:00 AM	57	44	3	0	0	0	0	0	0	0	0	0	0	0	104	11-20	63
10:00 AM	69	**48**	9	0	0	0	0	0	0	0	0	0	0	0	126	11-20	71
11:00 AM	**95**	46	2	0	0	0	0	0	0	0	0	0	0	0	**143**	11-20	78
12:00 PM	**104**	24	0	0	0	0	0	0	0	0	0	0	0	0	128	1-10	69
01:00 PM	100	41	2	0	0	0	0	0	0	0	0	0	0	0	143	11-20	74
02:00 PM	91	40	1	0	0	0	0	0	0	0	0	0	0	0	132	11-20	70
03:00 PM	78	29	1	0	0	0	0	0	0	0	0	0	0	0	108	11-20	55
04:00 PM	100	**48**	3	0	0	0	0	0	0	0	0	0	0	0	**151**	11-20	81
05:00 PM	94	33	4	1	0	0	0	0	0	0	0	0	0	0	132	11-20	64
06:00 PM	95	34	0	0	0	0	0	0	0	0	0	0	0	0	129	11-20	66
07:00 PM	66	24	4	0	0	0	0	0	0	0	0	0	0	0	94	11-20	46
08:00 PM	31	25	3	1	0	0	0	0	0	0	0	0	0	0	60	11-20	35
09:00 PM	16	29	**11**	0	0	0	0	0	0	0	0	0	0	0	56	16-25	40
10:00 PM	4	9	4	0	0	0	**1**	0	0	0	0	0	0	0	18	16-25	13
11:00 PM	3	6	6	**2**	0	0	0	0	0	0	0	0	0	0	17	16-25	12
Day Total **Percent**	1059 61.7%	555 32.3%	95 5.5%	7 0.4%	0 0%	0 0%	1 0.1%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1717	11-20	908
AM Peak Volume	11:00 AM 95	10:00 AM 48	7:00 AM 17	5:00 AM 1	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	11:00 AM 143		
PM Peak Volume	12:00 PM 104	4:00 PM 48	9:00 PM 11	11:00 PM 2	12:00 PM 0	12:00 PM 0	10:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	4:00 PM 151		

Comments:

Report generated on 10/10/2023 11:19 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

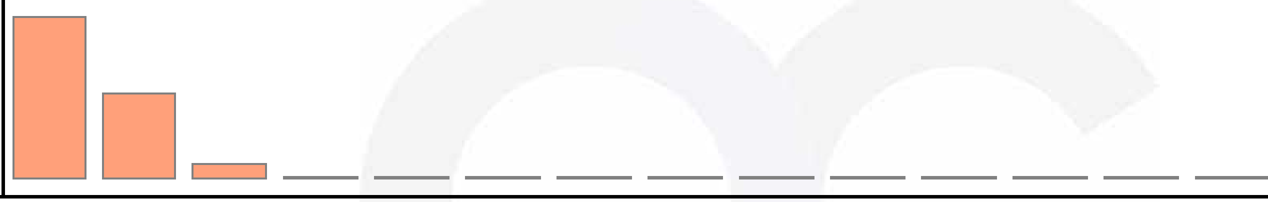
SUMMARY - Tube Count - Speed Data

LOCATION: NE 3rd St east of NE Evans St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348626
DIRECTION: WB
DATE: Oct 3 2023

Speed Range	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
Grand Total Percent	1059 61.7%	555 32.3%	95 5.5%	7 0.4%	0 0%	0 0%	1 0.1%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1717	11-20	908
Cumulative Percent	61.7%	94%	99.5%	99.9%	99.9%	99.9%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
1717



85th Percentile: 18 MPH
Mean Speed(Average): 12 MPH
Median: 12 MPH
Mode: 8 MPH

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

LOCATION: NE 3rd St east of NE Evans St | **QC JOB #:** 16348626
SPECIFIC LOCATION: | **DIRECTION:** WB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023

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	Not Classed	Total
12:00 AM	0	3	3	0	1	0	0	0	0	0	0	0	0	0	7
01:00 AM	0	4	2	0	1	0	0	0	0	0	0	0	0	0	7
02:00 AM	0	4	2	0	1	0	0	0	0	0	0	0	0	0	7
03:00 AM	0	1	3	0	0	0	0	0	0	0	0	0	0	0	4
04:00 AM	0	1	2	**1**	2	**1**	0	0	0	0	0	0	0	0	7
05:00 AM	0	3	1	0	1	1	0	0	0	0	0	0	0	0	6
06:00 AM	0	8	4	0	3	0	0	0	0	0	0	0	0	0	15
07:00 AM	0	34	10	0	8	0	0	2	0	0	0	0	0	2	56
08:00 AM	0	41	13	0	8	0	0	1	0	0	0	0	0	4	67
09:00 AM	0	65	18	0	10	0	0	**3**	0	0	0	0	0	**8**	104
10:00 AM	0	81	**29**	0	12	1	0	1	0	0	0	0	0	2	126
11:00 AM	**1**	**95**	23	1	**15**	1	0	0	0	0	0	0	0	7	**143**
12:00 PM	0	82	24	0	14	1	0	0	0	0	0	0	0	7	128
01:00 PM	0	82	**38**	0	12	0	0	**1**	0	0	0	0	0	10	143
02:00 PM	1	84	22	**1**	12	0	0	1	0	0	0	0	0	11	132
03:00 PM	1	73	17	0	6	**2**	0	0	0	0	0	0	0	9	108
04:00 PM	1	82	35	0	**15**	1	0	0	0	0	0	0	0	**17**	**151**
05:00 PM	**4**	80	27	0	9	1	0	0	0	0	0	0	0	11	132
06:00 PM	1	**92**	20	0	5	0	0	0	0	0	0	0	0	11	129
07:00 PM	1	62	14	0	7	0	0	0	0	0	0	0	0	10	94
08:00 PM	0	43	10	0	6	0	0	0	0	0	0	0	0	1	60
09:00 PM	0	47	7	0	1	0	0	0	0	0	0	0	0	1	56
10:00 PM	0	13	1	0	2	0	0	0	0	0	0	0	0	2	18
11:00 PM	0	13	4	0	0	0	0	0	0	0	0	0	0	0	17
Day Total	10	1093	329	3	151	9	0	9	0	0	0	0	0	113	1717
Percent	0.6%	63.7%	19.2%	0.2%	8.8%	0.5%	0%	0.5%	0%	0%	0%	0%	0%	6.6%	
ADT 1717															
AM Peak	11:00 AM	11:00 AM	10:00 AM	4:00 AM	11:00 AM	4:00 AM	12:00 AM	9:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	9:00 AM	11:00 AM
Volume	1	95	29	1	15	1	0	3	0	0	0	0	0	8	143
PM Peak	5:00 PM	6:00 PM	1:00 PM	2:00 PM	4:00 PM	3:00 PM	12:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM	4:00 PM
Volume	4	92	38	1	15	2	0	1	0	0	0	0	0	17	151

Comments:

Report generated on 10/10/2023 11:19 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Vehicle Classification Data

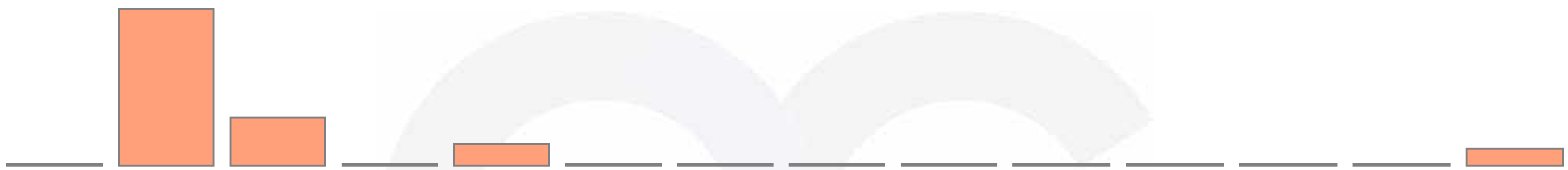
SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: NE 3rd St east of NE Evans St
SPECIFIC LOCATION:
CITY/STATE: McMinnville, OR

QC JOB #: 16348626
DIRECTION: WB
DATE: Oct 3 2023

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	Not Classed	Total
Grand Total	10	1093	329	3	151	9	0	9	0	0	0	0	0	113	1717
Percent	0.6%	63.7%	19.2%	0.2%	8.8%	0.5%	0%	0.5%	0%	0%	0%	0%	0%	6.6%	

ADT
1717



Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE 3rd St east of NE Evans St | **QC JOB #:** 16348626
SPECIFIC LOCATION: | **DIRECTION:** WB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		7				7			7	
01:00 AM		7				7			7	
02:00 AM		7				7			7	
03:00 AM		4				4			4	
04:00 AM		7				7			7	
05:00 AM		6				6			6	
06:00 AM		15				15			15	
07:00 AM		56				56			56	
08:00 AM		67				67			67	
09:00 AM		104				104			104	
10:00 AM		126				126			126	
11:00 AM		**143**				**143**			**143**	
12:00 PM		128				128			128	
01:00 PM		143				143			143	
02:00 PM		132				132			132	
03:00 PM		108				108			108	
04:00 PM		**151**				**151**			**151**	
05:00 PM		132				132			132	
06:00 PM		129				129			129	
07:00 PM		94				94			94	
08:00 PM		60				60			60	
09:00 PM		56				56			56	
10:00 PM		18				18			18	
11:00 PM		17				17			17	
Day Total		1717				1717			1717	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 143				11:00 AM 143			11:00 AM 143	
PM Peak Volume		4:00 PM 151				4:00 PM 151			4:00 PM 151	

Comments:

Report generated on 10/10/2023 11:19 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

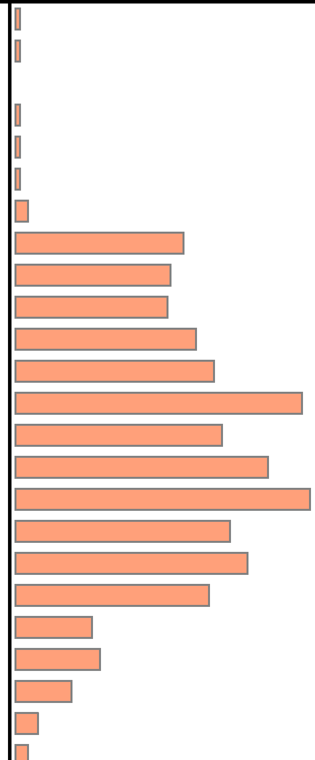
Type of report: Tube Count - Volume Data

LOCATION: NE Evans St north of NE 3rd St | **QC JOB #:** 16348629

SPECIFIC LOCATION: | **DIRECTION:** NB

CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		1				1			1	
01:00 AM		1				1			1	
02:00 AM		0				0			0	
03:00 AM		1				1			1	
04:00 AM		1				1			1	
05:00 AM		1				1			1	
06:00 AM		3				3			3	
07:00 AM		40				40			40	
08:00 AM		37				37			37	
09:00 AM		36				36			36	
10:00 AM		43				43			43	
11:00 AM		**47**				**47**			**47**	
12:00 PM		68				68			68	
01:00 PM		49				49			49	
02:00 PM		60				60			60	
03:00 PM		**70**				**70**			**70**	
04:00 PM		51				51			51	
05:00 PM		55				55			55	
06:00 PM		46				46			46	
07:00 PM		18				18			18	
08:00 PM		20				20			20	
09:00 PM		13				13			13	
10:00 PM		5				5			5	
11:00 PM		3				3			3	
Day Total		669				669			669	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 47				11:00 AM 47			11:00 AM 47	
PM Peak Volume		3:00 PM 70				3:00 PM 70			3:00 PM 70	



Comments:

Report generated on 12/12/2023 11:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE Evans St north of NE 3rd St | **QC JOB #:** 16348629
SPECIFIC LOCATION: | **DIRECTION:** SB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		5				5			5	
01:00 AM		1				1			1	
02:00 AM		1				1			1	
03:00 AM		0				0			0	
04:00 AM		3				3			3	
05:00 AM		5				5			5	
06:00 AM		5				5			5	
07:00 AM		32				32			32	
08:00 AM		75				75			75	
09:00 AM		55				55			55	
10:00 AM		84				84			84	
11:00 AM		**88**				**88**			**88**	
12:00 PM		87				87			87	
01:00 PM		65				65			65	
02:00 PM		74				74			74	
03:00 PM		**96**				**96**			**96**	
04:00 PM		91				91			91	
05:00 PM		91				91			91	
06:00 PM		78				78			78	
07:00 PM		42				42			42	
08:00 PM		28				28			28	
09:00 PM		15				15			15	
10:00 PM		13				13			13	
11:00 PM		4				4			4	
Day Total		1038				1038			1038	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 88				11:00 AM 88			11:00 AM 88	
PM Peak Volume		3:00 PM 96				3:00 PM 96			3:00 PM 96	

Comments:

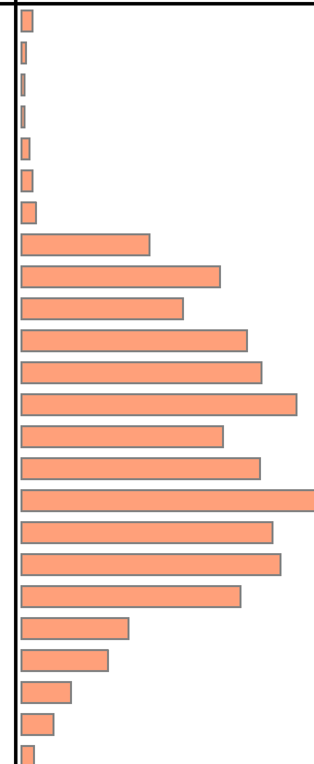
Report generated on 12/12/2023 11:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE Evans St north of NE 3rd St | **QC JOB #:** 16348629
SPECIFIC LOCATION: | **DIRECTION:** NB, SB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		6				6			6	
01:00 AM		2				2			2	
02:00 AM		1				1			1	
03:00 AM		1				1			1	
04:00 AM		4				4			4	
05:00 AM		6				6			6	
06:00 AM		8				8			8	
07:00 AM		72				72			72	
08:00 AM		112				112			112	
09:00 AM		91				91			91	
10:00 AM		127				127			127	
11:00 AM		**135**				**135**			**135**	
12:00 PM		155				155			155	
01:00 PM		114				114			114	
02:00 PM		134				134			134	
03:00 PM		**166**				**166**			**166**	
04:00 PM		142				142			142	
05:00 PM		146				146			146	
06:00 PM		124				124			124	
07:00 PM		60				60			60	
08:00 PM		48				48			48	
09:00 PM		28				28			28	
10:00 PM		18				18			18	
11:00 PM		7				7			7	
Day Total		1707				1707			1707	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 135				11:00 AM 135			11:00 AM 135	
PM Peak Volume		3:00 PM 166				3:00 PM 166			3:00 PM 166	



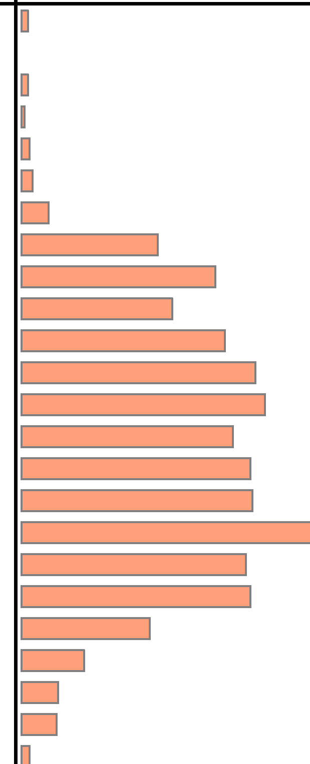
Comments:

Report generated on 12/12/2023 11:05 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE 3rd St east of NE Evans St | **QC JOB #:** 16348630
SPECIFIC LOCATION: | **DIRECTION:** EB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		2				2			2	
01:00 AM		0				0			0	
02:00 AM		2				2			2	
03:00 AM		1				1			1	
04:00 AM		3				3			3	
05:00 AM		4				4			4	
06:00 AM		11				11			11	
07:00 AM		55				55			55	
08:00 AM		79				79			79	
09:00 AM		61				61			61	
10:00 AM		83				83			83	
11:00 AM		**95**				**95**			**95**	
12:00 PM		99				99			99	
01:00 PM		86				86			86	
02:00 PM		93				93			93	
03:00 PM		94				94			94	
04:00 PM		**120**				**120**			**120**	
05:00 PM		91				91			91	
06:00 PM		93				93			93	
07:00 PM		52				52			52	
08:00 PM		25				25			25	
09:00 PM		15				15			15	
10:00 PM		14				14			14	
11:00 PM		3				3			3	
Day Total		1181				1181			1181	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 95				11:00 AM 95			11:00 AM 95	
PM Peak Volume		4:00 PM 120				4:00 PM 120			4:00 PM 120	



Comments:

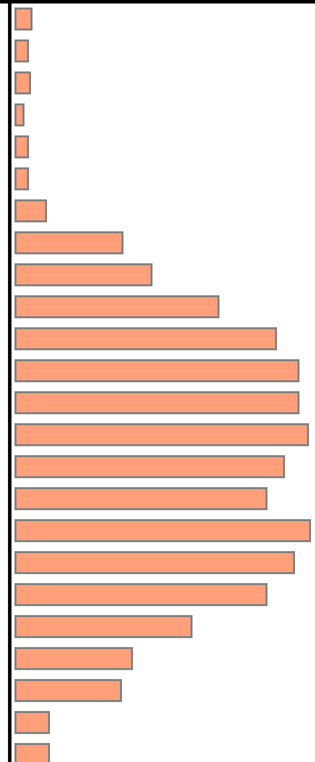
Report generated on 12/12/2023 11:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE 3rd St east of NE Evans St — **QC JOB #:** 16348630
SPECIFIC LOCATION: — **DIRECTION:** WB
CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		8				8			8	
01:00 AM		6				6			6	
02:00 AM		7				7			7	
03:00 AM		4				4			4	
04:00 AM		6				6			6	
05:00 AM		6				6			6	
06:00 AM		15				15			15	
07:00 AM		55				55			55	
08:00 AM		70				70			70	
09:00 AM		104				104			104	
10:00 AM		134				134			134	
11:00 AM		**145**				**145**			**145**	
12:00 PM		145				145			145	
01:00 PM		150				150			150	
02:00 PM		138				138			138	
03:00 PM		129				129			129	
04:00 PM		**151**				**151**			**151**	
05:00 PM		143				143			143	
06:00 PM		129				129			129	
07:00 PM		90				90			90	
08:00 PM		60				60			60	
09:00 PM		54				54			54	
10:00 PM		17				17			17	
11:00 PM		17				17			17	
Day Total		1783				1783			1783	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 145				11:00 AM 145			11:00 AM 145	
PM Peak Volume		4:00 PM 151				4:00 PM 151			4:00 PM 151	



Comments:

Report generated on 12/12/2023 11:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE 3rd St east of NE Evans St | **QC JOB #:** 16348630
SPECIFIC LOCATION: | **DIRECTION:** EB, WB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		10				10			10	
01:00 AM		6				6			6	
02:00 AM		9				9			9	
03:00 AM		5				5			5	
04:00 AM		9				9			9	
05:00 AM		10				10			10	
06:00 AM		26				26			26	
07:00 AM		110				110			110	
08:00 AM		149				149			149	
09:00 AM		165				165			165	
10:00 AM		217				217			217	
11:00 AM		**240**				**240**			**240**	
12:00 PM		244				244			244	
01:00 PM		236				236			236	
02:00 PM		231				231			231	
03:00 PM		223				223			223	
04:00 PM		**271**				**271**			**271**	
05:00 PM		234				234			234	
06:00 PM		222				222			222	
07:00 PM		142				142			142	
08:00 PM		85				85			85	
09:00 PM		69				69			69	
10:00 PM		31				31			31	
11:00 PM		20				20			20	
Day Total		2964				2964			2964	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 240				11:00 AM 240			11:00 AM 240	
PM Peak Volume		4:00 PM 271				4:00 PM 271			4:00 PM 271	

Comments:

Report generated on 12/12/2023 11:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE Evans St south of NE 3rd St — **QC JOB #:** 16348631
SPECIFIC LOCATION: — **DIRECTION:** NB
CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		1				1			1	
01:00 AM		0				0			0	
02:00 AM		0				0			0	
03:00 AM		0				0			0	
04:00 AM		2				2			2	
05:00 AM		1				1			1	
06:00 AM		4				4			4	
07:00 AM		**35**				**35**			**35**	
08:00 AM		30				30			30	
09:00 AM		19				19			19	
10:00 AM		23				23			23	
11:00 AM		25				25			25	
12:00 PM		**48**				**48**			**48**	
01:00 PM		28				28			28	
02:00 PM		36				36			36	
03:00 PM		44				44			44	
04:00 PM		33				33			33	
05:00 PM		40				40			40	
06:00 PM		30				30			30	
07:00 PM		18				18			18	
08:00 PM		11				11			11	
09:00 PM		7				7			7	
10:00 PM		5				5			5	
11:00 PM		1				1			1	
Day Total		441				441			441	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		7:00 AM 35				7:00 AM 35			7:00 AM 35	
PM Peak Volume		12:00 PM 48				12:00 PM 48			12:00 PM 48	

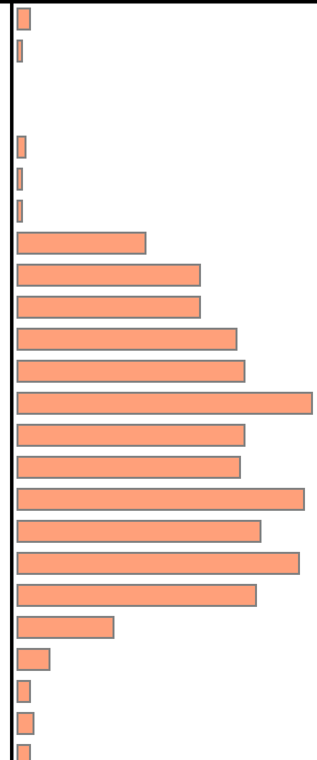
Comments:

Report generated on 12/12/2023 11:05 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE Evans St south of NE 3rd St | **QC JOB #:** 16348631
SPECIFIC LOCATION: | **DIRECTION:** SB
CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		3				3			3	
01:00 AM		1				1			1	
02:00 AM		0				0			0	
03:00 AM		0				0			0	
04:00 AM		2				2			2	
05:00 AM		1				1			1	
06:00 AM		1				1			1	
07:00 AM		32				32			32	
08:00 AM		46				46			46	
09:00 AM		46				46			46	
10:00 AM		55				55			55	
11:00 AM		**57**				**57**			**57**	
12:00 PM		**74**				**74**			**74**	
01:00 PM		57				57			57	
02:00 PM		56				56			56	
03:00 PM		72				72			72	
04:00 PM		61				61			61	
05:00 PM		71				71			71	
06:00 PM		60				60			60	
07:00 PM		24				24			24	
08:00 PM		8				8			8	
09:00 PM		3				3			3	
10:00 PM		4				4			4	
11:00 PM		3				3			3	
Day Total		737				737			737	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 57				11:00 AM 57			11:00 AM 57	
PM Peak Volume		12:00 PM 74				12:00 PM 74			12:00 PM 74	



Comments:

Report generated on 12/12/2023 11:05 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: NE Evans St south of NE 3rd St — **QC JOB #:** 16348631
SPECIFIC LOCATION: — **DIRECTION:** NB, SB
CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		4				4			4	
01:00 AM		1				1			1	
02:00 AM		0				0			0	
03:00 AM		0				0			0	
04:00 AM		4				4			4	
05:00 AM		2				2			2	
06:00 AM		5				5			5	
07:00 AM		67				67			67	
08:00 AM		76				76			76	
09:00 AM		65				65			65	
10:00 AM		78				78			78	
11:00 AM		**82**				**82**			**82**	
12:00 PM		**122**				**122**			**122**	
01:00 PM		85				85			85	
02:00 PM		92				92			92	
03:00 PM		116				116			116	
04:00 PM		94				94			94	
05:00 PM		111				111			111	
06:00 PM		90				90			90	
07:00 PM		42				42			42	
08:00 PM		19				19			19	
09:00 PM		10				10			10	
10:00 PM		9				9			9	
11:00 PM		4				4			4	
Day Total		1178				1178			1178	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		11:00 AM 82				11:00 AM 82			11:00 AM 82	
PM Peak Volume		12:00 PM 122				12:00 PM 122			12:00 PM 122	

Comments:

Report generated on 12/12/2023 11:05 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

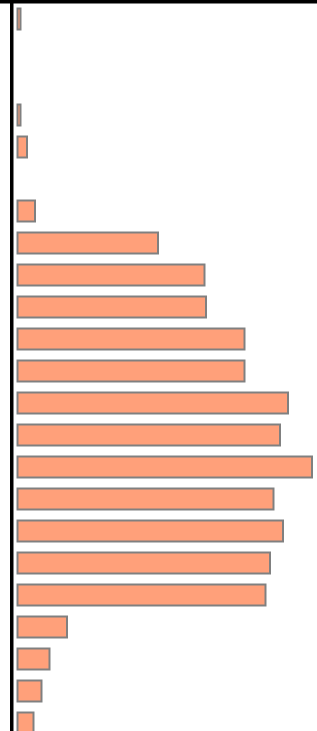
Type of report: Tube Count - Volume Data

LOCATION: NE 3rd St west of NE Evans St — **QC JOB #:** 16348632

SPECIFIC LOCATION: — **DIRECTION:** EB

CITY/STATE: McMinnville, OR — **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		1				1			1	
01:00 AM		0				0			0	
02:00 AM		0				0			0	
03:00 AM		1				1			1	
04:00 AM		3				3			3	
05:00 AM		0				0			0	
06:00 AM		6				6			6	
07:00 AM		48				48			48	
08:00 AM		64				64			64	
09:00 AM		65				65			65	
10:00 AM		**78**				**78**			**78**	
11:00 AM		78				78			78	
12:00 PM		93				93			93	
01:00 PM		90				90			90	
02:00 PM		**101**				**101**			**101**	
03:00 PM		88				88			88	
04:00 PM		91				91			91	
05:00 PM		87				87			87	
06:00 PM		85				85			85	
07:00 PM		17				17			17	
08:00 PM		11				11			11	
09:00 PM		8				8			8	
10:00 PM		5				5			5	
11:00 PM		0				0			0	
Day Total		1020				1020			1020	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		10:00 AM 78				10:00 AM 78			10:00 AM 78	
PM Peak Volume		2:00 PM 101				2:00 PM 101			2:00 PM 101	



Comments:

Report generated on 12/12/2023 11:05 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

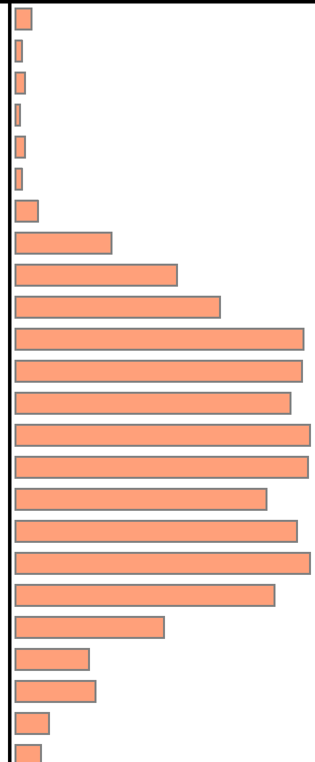
Type of report: Tube Count - Volume Data

LOCATION: NE 3rd St west of NE Evans St | **QC JOB #:** 16348632

SPECIFIC LOCATION: | **DIRECTION:** WB

CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		7				7			7	
01:00 AM		3				3			3	
02:00 AM		4				4			4	
03:00 AM		2				2			2	
04:00 AM		4				4			4	
05:00 AM		3				3			3	
06:00 AM		10				10			10	
07:00 AM		46				46			46	
08:00 AM		77				77			77	
09:00 AM		98				98			98	
10:00 AM		**138**				**138**			**138**	
11:00 AM		137				137			137	
12:00 PM		132				132			132	
01:00 PM		**141**				**141**			**141**	
02:00 PM		140				140			140	
03:00 PM		120				120			120	
04:00 PM		135				135			135	
05:00 PM		141				141			141	
06:00 PM		124				124			124	
07:00 PM		71				71			71	
08:00 PM		35				35			35	
09:00 PM		38				38			38	
10:00 PM		16				16			16	
11:00 PM		12				12			12	
Day Total		1634				1634			1634	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		10:00 AM 138				10:00 AM 138			10:00 AM 138	
PM Peak Volume		1:00 PM 141				1:00 PM 141			1:00 PM 141	



Comments:

Report generated on 12/12/2023 11:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

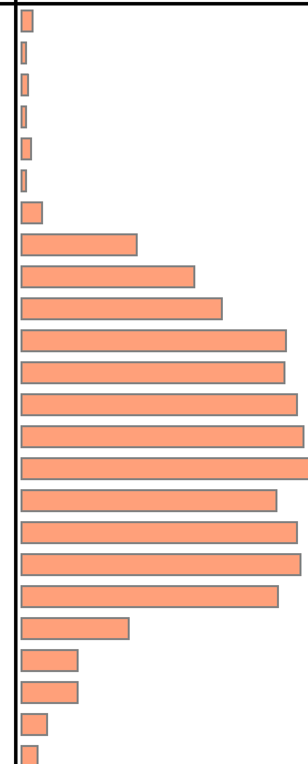
Type of report: Tube Count - Volume Data

LOCATION: NE 3rd St west of NE Evans St | **QC JOB #:** 16348632

SPECIFIC LOCATION: | **DIRECTION:** EB, WB

CITY/STATE: McMinnville, OR | **DATE:** Oct 3 2023 - Oct 3 2023

Start Time	Mon	Tue 3 Oct 23	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		8				8			8	
01:00 AM		3				3			3	
02:00 AM		4				4			4	
03:00 AM		3				3			3	
04:00 AM		7				7			7	
05:00 AM		3				3			3	
06:00 AM		16				16			16	
07:00 AM		94				94			94	
08:00 AM		141				141			141	
09:00 AM		163				163			163	
10:00 AM		**216**				**216**			**216**	
11:00 AM		215				215			215	
12:00 PM		225				225			225	
01:00 PM		231				231			231	
02:00 PM		**241**				**241**			**241**	
03:00 PM		208				208			208	
04:00 PM		226				226			226	
05:00 PM		228				228			228	
06:00 PM		209				209			209	
07:00 PM		88				88			88	
08:00 PM		46				46			46	
09:00 PM		46				46			46	
10:00 PM		21				21			21	
11:00 PM		12				12			12	
Day Total		2654				2654			2654	
% Weekday Average		100%								
% Week Average		100%				100%				
AM Peak Volume		10:00 AM 216				10:00 AM 216			10:00 AM 216	
PM Peak Volume		2:00 PM 241				2:00 PM 241			2:00 PM 241	



Comments:

Report generated on 12/12/2023 11:05 AM

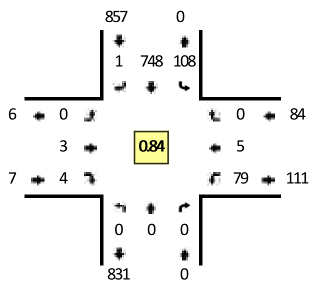
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment B: Intersection Turning Movement Counts

Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

LOCATION: NE Adams St -- NE 5th St | **QC JOB #:** 16348601

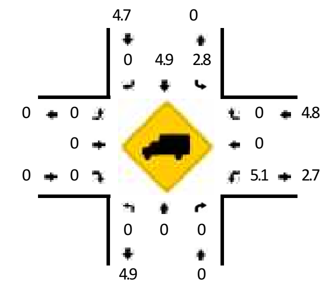
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

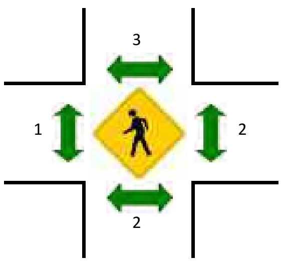


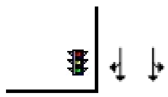
Peak-Hour: 7:30 AM -- 8:30 AM

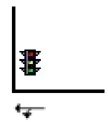
Peak 15-Min: 7:55 AM -- 8:10 AM

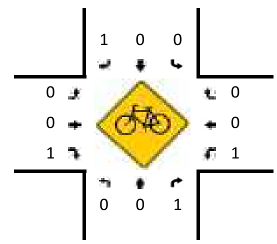
TRUE DATA TO IMPROVE MOBILITY

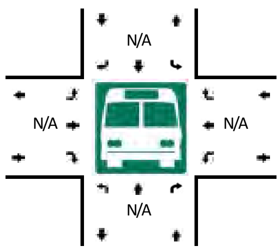


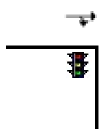


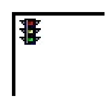


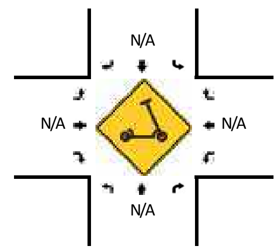












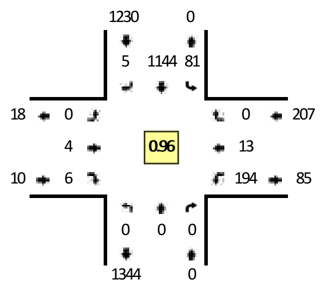
5-Min Count Period Beginning At	NE Adams St (Northbound)				NE Adams St (Southbound)				NE 5th St (Eastbound)				NE 5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	2	26	1	0	0	0	0	0	3	0	0	0	32	
7:05 AM	0	0	0	0	3	42	0	0	0	1	0	0	2	0	0	0	48	
7:10 AM	0	0	0	0	3	39	0	0	0	0	0	0	5	0	0	0	47	
7:15 AM	0	0	0	0	3	37	0	0	0	0	0	0	2	0	0	0	42	
7:20 AM	0	0	0	0	6	41	0	0	0	0	1	0	1	0	0	0	49	
7:25 AM	0	0	0	0	9	49	0	0	0	1	1	0	3	0	0	0	63	
7:30 AM	0	0	0	0	4	42	0	0	0	1	1	0	10	0	0	0	58	
7:35 AM	0	0	0	0	6	64	0	0	0	1	0	0	6	0	0	0	77	
7:40 AM	0	0	0	0	9	63	0	0	0	0	0	0	4	1	0	0	77	
7:45 AM	0	0	0	0	5	64	0	0	0	0	0	0	4	1	0	0	74	
7:50 AM	0	0	0	0	11	64	0	0	0	0	1	0	4	0	0	0	80	
7:55 AM	0	0	0	0	11	66	0	0	0	0	0	0	7	1	0	0	85	732
8:00 AM	0	0	0	0	20	70	0	0	0	0	1	0	10	1	0	0	102	802
8:05 AM	0	0	0	0	12	79	0	0	0	0	0	0	5	0	0	0	96	850
8:10 AM	0	0	0	0	5	55	0	0	0	0	0	0	4	0	0	0	64	867
8:15 AM	0	0	0	0	5	64	0	0	0	0	0	0	9	1	0	0	79	904
8:20 AM	0	0	0	0	12	61	0	0	0	0	0	0	6	0	0	0	79	934
8:25 AM	0	0	0	0	8	56	1	0	0	1	1	0	10	0	0	0	77	948
8:30 AM	0	0	0	0	3	53	0	0	0	0	0	0	4	0	0	0	60	950
8:35 AM	0	0	0	0	2	44	0	0	0	0	0	0	6	1	0	0	53	926
8:40 AM	0	0	0	0	4	63	0	0	0	0	0	0	7	0	0	0	74	923
8:45 AM	0	0	0	0	7	44	0	0	0	1	1	0	6	2	0	0	61	910
8:50 AM	0	0	0	0	5	47	1	0	0	0	3	0	8	0	0	0	64	894
8:55 AM	0	0	0	0	9	50	0	0	0	1	0	0	5	0	0	0	65	874

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	172	860	0	0	0	0	4	0	88	8	0	0	1132
Heavy Trucks	0	0	0		0	48	0		0	0	0		4	0	0		52
Buses																	
Pedestrians		4				0				4				0			8
Bicycles	0	0	0		0	0	4		0	0	0		0	0	0		4
Scooters																	

Comments:

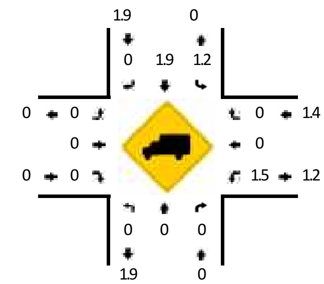
Report generated on 2/2/2024 1:51 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

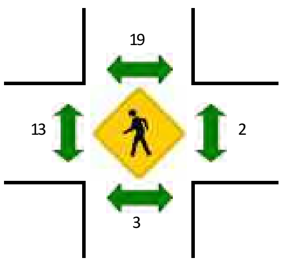
LOCATION: NE Adams St -- NE 5th St
QC JOB #: 16348602
CITY/STATE: McMinnville, OR
DATE: Tue, Oct 3 2023

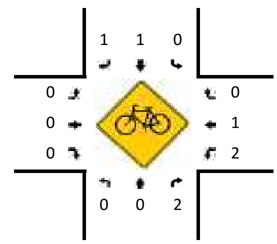


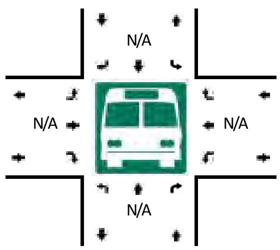
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:40 PM -- 4:55 PM

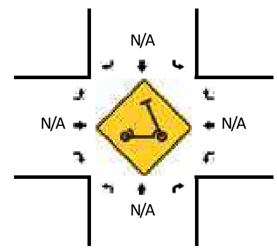
TRUE DATA TO IMPROVE MOBILITY









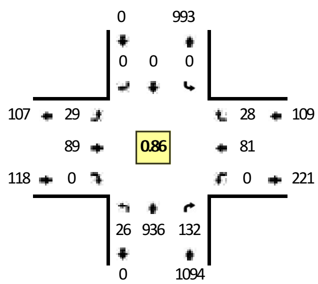


5-Min Count Period Beginning At	NE Adams St (Northbound)				NE Adams St (Southbound)				NE 5th St (Eastbound)				NE 5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	4	99	1	0	0	0	0	0	17	1	0	0	122	
4:05 PM	0	0	0	0	9	99	0	0	0	0	0	0	18	2	0	0	128	
4:10 PM	0	0	0	0	6	111	0	0	0	0	0	0	14	0	0	0	131	
4:15 PM	0	0	0	0	6	85	0	0	0	2	1	0	14	0	0	0	108	
4:20 PM	0	0	0	0	6	78	1	0	0	0	1	0	10	0	0	0	96	
4:25 PM	0	0	0	0	7	91	0	0	0	0	1	0	10	1	0	0	110	
4:30 PM	0	0	0	0	8	102	0	0	0	1	0	0	17	2	0	0	130	
4:35 PM	0	0	0	0	5	82	0	0	0	0	0	0	10	0	0	0	97	
4:40 PM	0	0	0	0	12	113	0	0	0	0	1	0	15	0	0	0	141	
4:45 PM	0	0	0	0	6	105	0	0	0	1	0	0	11	2	0	0	125	
4:50 PM	0	0	0	0	4	87	0	0	0	0	0	0	18	2	0	0	111	
4:55 PM	0	0	0	0	9	110	3	0	0	1	1	0	3	1	0	0	128	1427
5:00 PM	0	0	0	0	7	80	0	0	0	1	2	0	29	2	0	0	121	1426
5:05 PM	0	0	0	0	4	79	0	0	0	0	0	0	27	2	0	0	112	1410
5:10 PM	0	0	0	0	6	116	0	0	0	0	0	0	13	0	0	0	135	1414
5:15 PM	0	0	0	0	5	94	1	0	0	0	1	0	28	0	0	0	129	1435
5:20 PM	0	0	0	0	8	85	1	0	0	0	0	0	13	1	0	0	108	1447
5:25 PM	0	0	0	0	5	87	0	0	0	0	0	0	11	1	0	0	104	1441
5:30 PM	0	0	0	0	5	84	0	0	0	1	0	0	15	0	0	0	105	1416
5:35 PM	0	0	0	0	4	84	1	0	0	0	1	0	13	0	0	0	103	1422
5:40 PM	0	0	0	0	5	102	1	0	0	0	0	0	8	0	0	0	116	1397
5:45 PM	0	0	0	0	4	88	1	0	0	0	0	0	12	1	0	0	106	1378
5:50 PM	0	0	0	0	5	75	1	0	0	0	0	0	10	0	0	0	91	1358
5:55 PM	0	0	0	0	3	100	0	0	0	2	1	0	11	0	0	0	117	1347

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	88	1220	0	0	0	4	4	0	176	16	0	0	1508
Heavy Trucks	0	0	0		0	32	0		0	0	0		4	0	0		36
Buses																	
Pedestrians		0				16				12				4			32
Bicycles	0	0	4		0	0	4		0	0	0		0	0	0		8
Scooters																	

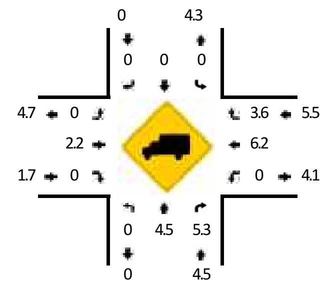
Comments:

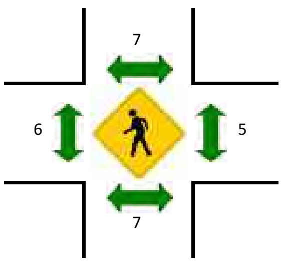
LOCATION: NE Baker St -- NE 5th St | **QC JOB #:** 16348603
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

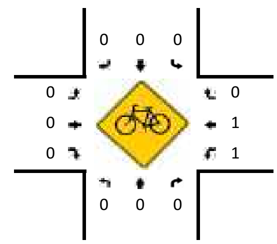


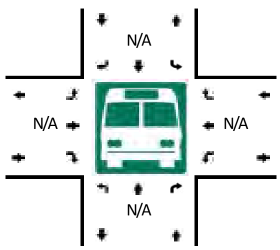
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

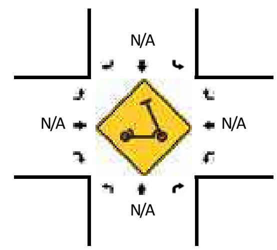
TRUE DATA TO IMPROVE MOBILITY











5-Min Count Period Beginning At	NE Baker St (Northbound)				NE Baker St (Southbound)				NE 5th St (Eastbound)				NE 5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	39	6	0	0	0	0	0	2	0	0	0	0	2	0	0	50	
7:05 AM	1	46	6	0	0	0	0	0	2	3	0	0	0	2	0	0	60	
7:10 AM	1	45	4	0	0	0	0	0	2	3	0	0	0	6	3	0	64	
7:15 AM	1	52	9	0	0	0	0	0	0	2	0	0	0	4	0	0	68	
7:20 AM	3	53	5	0	0	0	0	0	2	8	0	0	0	1	2	0	74	
7:25 AM	2	74	9	0	0	0	0	0	1	8	0	0	0	2	1	0	97	
7:30 AM	4	77	13	0	0	0	0	0	1	5	0	0	0	5	0	0	105	
7:35 AM	2	62	8	0	0	0	0	0	5	5	0	0	0	6	1	0	89	
7:40 AM	2	80	18	0	0	0	0	0	2	5	0	0	0	7	2	0	116	
7:45 AM	3	102	6	0	0	0	0	0	1	6	0	0	0	2	3	0	123	
7:50 AM	1	64	17	0	0	0	0	0	2	11	0	0	0	5	1	0	101	
7:55 AM	1	77	14	0	0	0	0	0	2	10	0	0	0	8	1	0	113	1060
8:00 AM	2	86	12	0	0	0	0	0	2	15	0	0	0	12	1	0	130	1140
8:05 AM	1	101	16	0	0	0	0	0	3	11	0	0	0	7	4	0	143	1223
8:10 AM	3	77	4	0	0	0	0	0	0	3	0	0	0	5	5	0	97	1256
8:15 AM	3	86	12	0	0	0	0	0	3	4	0	0	0	10	3	0	121	1309
8:20 AM	2	74	5	0	0	0	0	0	7	7	0	0	0	5	4	0	104	1339
8:25 AM	2	50	7	0	0	0	0	0	1	7	0	0	0	9	3	0	79	1321
8:30 AM	1	57	8	0	0	0	0	0	2	3	0	0	0	4	3	0	78	1294
8:35 AM	0	58	5	0	0	0	0	0	1	2	0	0	0	7	2	0	75	1280
8:40 AM	3	62	8	0	0	0	0	0	2	5	0	0	0	9	2	0	91	1255
8:45 AM	1	40	8	0	0	0	0	0	2	4	0	0	0	4	2	0	61	1193
8:50 AM	2	70	7	0	0	0	0	0	0	4	0	0	0	9	2	0	94	1186
8:55 AM	3	53	9	0	0	0	0	0	2	8	0	0	0	6	2	0	83	1156

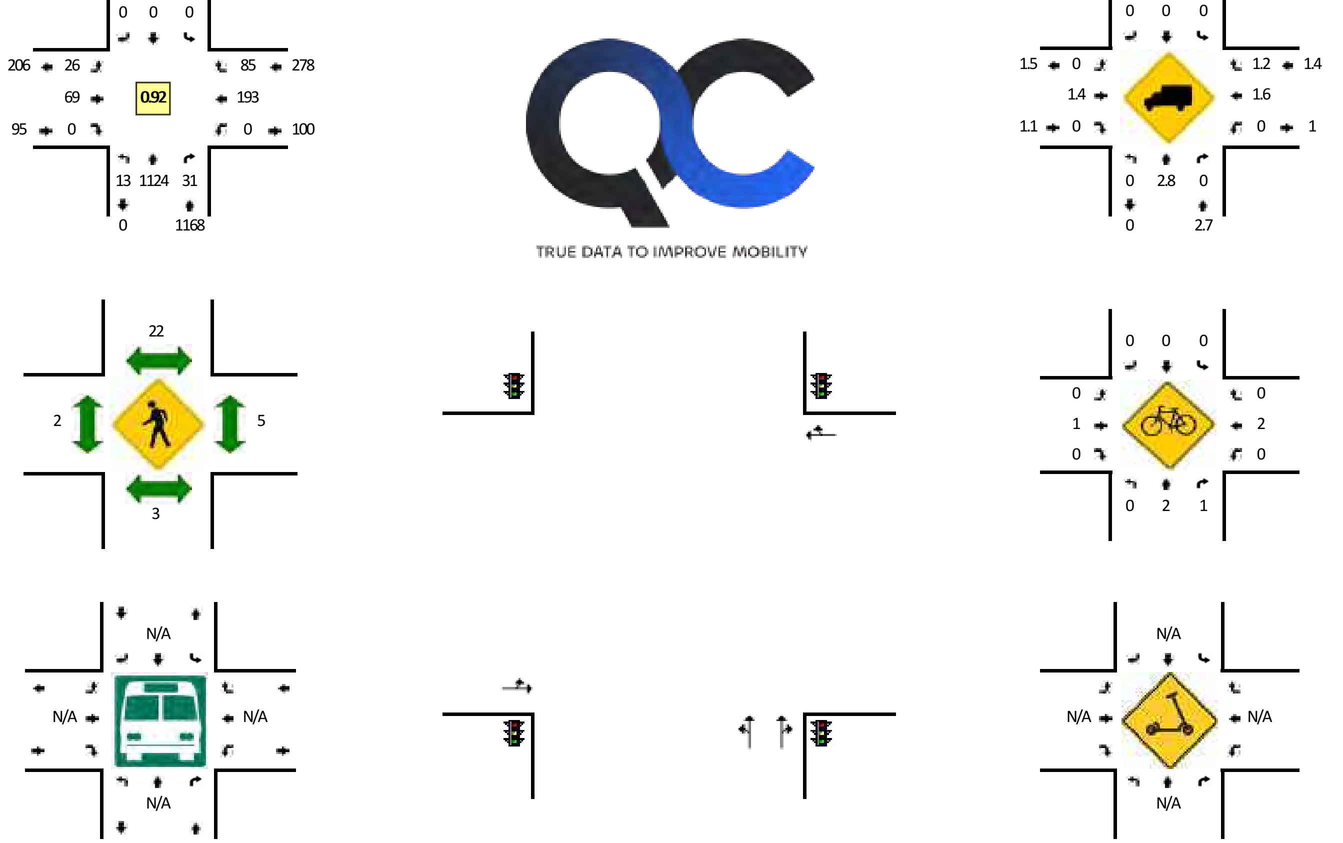
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	1056	168	0	0	0	0	0	28	144	0	0	0	108	24	0	1544
Heavy Trucks	0	48	8		0	0	0		0	0	0		0	8	4		68
Buses																	
Pedestrians		8				4				0				8			20
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

LOCATION: NE Baker St -- NE 5th St   **QC JOB #:** 16348604
CITY/STATE: McMinnville, OR   **DATE:** Tue, Oct 3 2023

Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

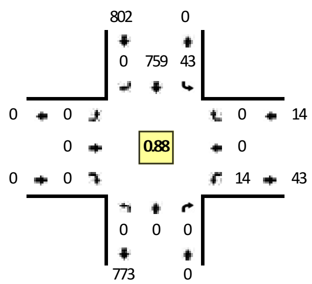


5-Min Count Period Beginning At	NE Baker St (Northbound)				NE Baker St (Southbound)				NE 5th St (Eastbound)				NE 5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	84	3	0	0	0	0	0	1	2	0	0	0	16	8	0	116	
4:05 PM	1	100	2	0	0	0	0	0	1	4	0	0	0	24	6	0	138	
4:10 PM	2	94	4	0	0	0	0	0	1	6	0	0	0	7	1	0	115	
4:15 PM	4	81	6	0	0	0	0	0	3	5	0	0	0	9	5	0	113	
4:20 PM	1	105	5	0	0	0	0	0	2	3	0	0	0	8	2	0	126	
4:25 PM	1	97	5	0	0	0	0	0	2	5	0	0	0	14	7	0	131	
4:30 PM	0	83	2	0	0	0	0	0	2	10	0	0	0	18	8	0	123	
4:35 PM	2	93	3	0	0	0	0	0	2	5	0	0	0	10	10	0	125	
4:40 PM	0	111	2	0	0	0	0	0	2	9	0	0	0	13	3	0	140	
4:45 PM	1	91	3	0	0	0	0	0	4	7	0	0	0	12	8	0	126	
4:50 PM	2	92	4	0	0	0	0	0	1	1	0	0	0	15	5	0	120	
4:55 PM	2	88	2	0	0	0	0	0	5	7	0	0	0	6	3	0	113	1486
5:00 PM	3	90	1	0	0	0	0	0	2	8	0	0	0	35	13	0	152	1522
5:05 PM	0	104	0	0	0	0	0	0	1	3	0	0	0	20	9	0	137	1521
5:10 PM	0	98	3	0	0	0	0	0	1	4	0	0	0	14	8	0	128	1534
5:15 PM	1	72	2	0	0	0	0	0	2	5	0	0	0	23	9	0	114	1535
5:20 PM	1	105	4	0	0	0	0	0	2	5	0	0	0	13	2	0	132	1541
5:25 PM	0	70	3	0	0	0	0	0	0	4	0	0	0	15	3	0	95	1505
5:30 PM	1	78	6	0	0	0	0	0	1	8	0	0	0	10	3	0	107	1489
5:35 PM	2	94	1	0	0	0	0	0	2	5	0	0	0	12	3	0	119	1483
5:40 PM	0	71	1	0	0	0	0	0	1	4	0	0	0	14	5	0	96	1439
5:45 PM	0	77	1	0	0	0	0	0	0	2	0	0	0	8	4	0	92	1405
5:50 PM	4	100	7	0	0	0	0	0	1	2	0	0	0	10	2	0	126	1411
5:55 PM	2	86	1	0	0	0	0	0	0	3	0	0	0	5	1	0	98	1396

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	1168	16	0	0	0	0	0	16	60	0	0	0	276	120	0	1668
Heavy Trucks	0	28	0		0	0	0		0	0	0		0	4	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	8	0		0	0	0		0	0	0		0	0	0		8
Scooters																	

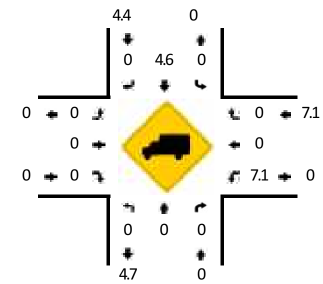
Comments:

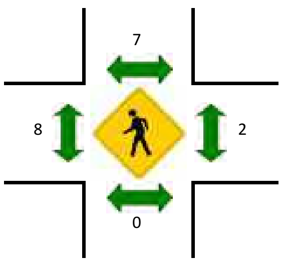
LOCATION: NE Adams St -- NE 3rd St
QC JOB #: 16348607
CITY/STATE: McMinnville, OR
DATE: Tue, Oct 3 2023

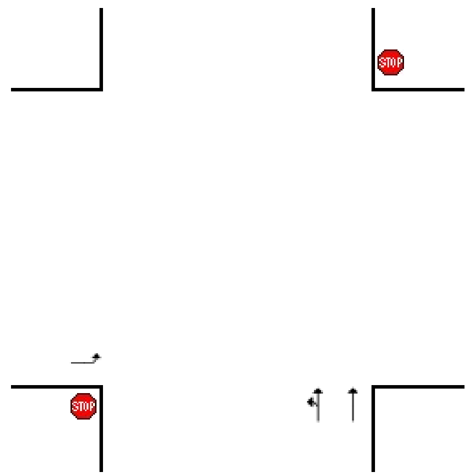


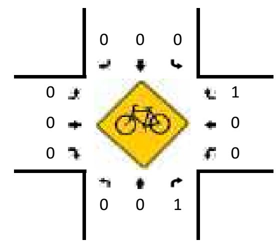
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

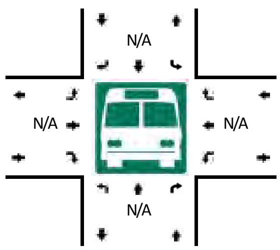
TRUE DATA TO IMPROVE MOBILITY

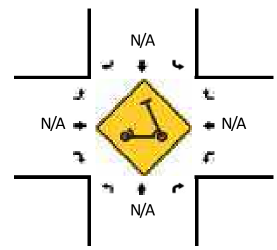












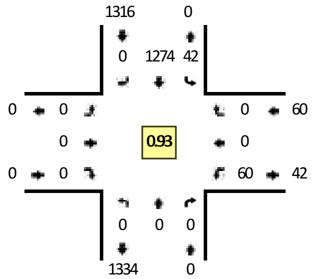
5-Min Count Period Beginning At	NE Adams St (Northbound)				NE Adams St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	1	30	0	0	0	0	0	0	0	0	0	0	31	
7:05 AM	0	0	0	0	2	39	0	0	0	0	0	0	3	0	0	0	44	
7:10 AM	0	0	0	0	1	45	0	0	0	0	0	0	3	0	0	0	49	
7:15 AM	0	0	0	0	2	38	0	0	0	0	0	0	1	0	0	0	41	
7:20 AM	0	0	0	0	0	42	0	0	0	0	0	0	0	0	0	0	42	
7:25 AM	0	0	0	0	1	48	0	0	0	0	0	0	1	0	0	0	50	
7:30 AM	0	0	0	0	2	49	0	0	0	0	0	0	2	0	0	0	53	
7:35 AM	0	0	0	0	4	67	0	0	0	0	0	0	1	0	0	0	72	
7:40 AM	0	0	0	0	4	57	0	0	0	0	0	0	0	0	0	0	61	
7:45 AM	0	0	0	0	1	60	0	0	0	0	0	0	2	0	0	0	63	
7:50 AM	0	0	0	0	5	63	0	0	0	0	0	0	1	0	0	0	69	
7:55 AM	0	0	0	0	5	65	0	0	0	0	0	0	2	0	0	0	72	647
8:00 AM	0	0	0	0	3	68	0	0	0	0	0	0	0	0	0	0	71	687
8:05 AM	0	0	0	0	4	83	0	0	0	0	0	0	1	0	0	0	88	731
8:10 AM	0	0	0	0	3	55	0	0	0	0	0	0	1	0	0	0	59	741
8:15 AM	0	0	0	0	3	73	0	0	0	0	0	0	2	0	0	0	78	778
8:20 AM	0	0	0	0	4	60	0	0	0	0	0	0	1	0	0	0	65	801
8:25 AM	0	0	0	0	5	59	0	0	0	0	0	0	1	0	0	0	65	816
8:30 AM	0	0	0	0	3	51	0	0	0	0	0	0	4	0	0	0	58	821
8:35 AM	0	0	0	0	1	49	0	0	0	0	0	0	4	0	0	0	54	803
8:40 AM	0	0	0	0	5	51	0	0	0	0	0	0	0	0	0	0	56	798
8:45 AM	0	0	0	0	2	54	0	0	0	0	0	0	3	0	0	0	59	794
8:50 AM	0	0	0	0	5	54	0	0	0	0	0	0	3	0	0	0	62	787
8:55 AM	0	0	0	0	4	47	0	0	0	0	0	0	0	0	0	0	51	766

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	48	864	0	0	0	0	0	0	12	0	0	0	924
Heavy Trucks	0	0	0		0	52	0		0	0	0		4	0	0		56
Buses																	
Pedestrians		0				4				4				4			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

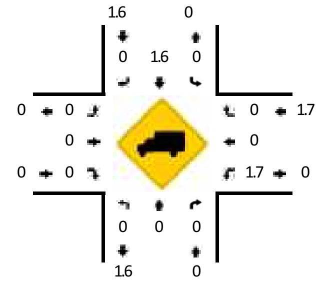
LOCATION: NE Adams St -- NE 3rd St
CITY/STATE: McMinnville, OR

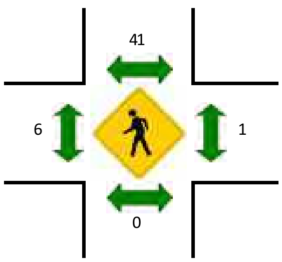
QC JOB #: 16348608
DATE: Tue, Oct 3 2023

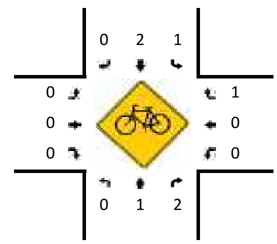


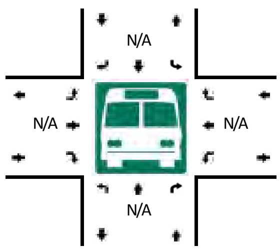
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

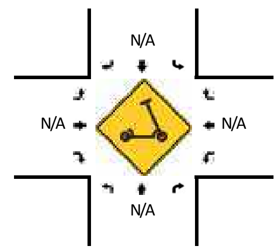
TRUE DATA TO IMPROVE MOBILITY











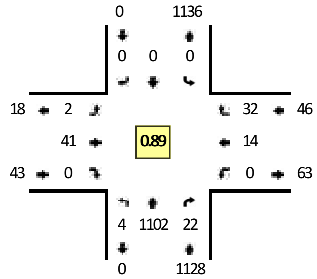
5-Min Count Period Beginning At	NE Adams St (Northbound)				NE Adams St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	4	116	0	0	0	0	0	0	5	0	0	0	125	
4:05 PM	0	0	0	0	7	121	0	0	0	0	0	0	1	0	0	0	129	
4:10 PM	0	0	0	0	2	103	0	0	0	0	0	0	5	0	0	0	110	
4:15 PM	0	0	0	0	4	106	0	0	0	0	0	0	5	0	0	0	115	
4:20 PM	0	0	0	0	3	94	0	0	0	0	0	0	4	0	0	0	101	
4:25 PM	0	0	0	0	5	78	0	0	0	0	0	0	8	0	0	0	91	
4:30 PM	0	0	0	0	4	120	0	0	0	0	0	0	3	0	0	0	127	
4:35 PM	0	0	0	0	2	96	0	0	0	0	0	0	3	0	0	0	101	
4:40 PM	0	0	0	0	5	98	0	0	0	0	0	0	6	0	0	0	109	
4:45 PM	0	0	0	0	7	106	0	0	0	0	0	0	4	0	0	0	117	
4:50 PM	0	0	0	0	2	122	0	0	0	0	0	0	5	0	0	0	129	
4:55 PM	0	0	0	0	3	101	0	0	0	0	0	0	5	0	0	0	109	1363
5:00 PM	0	0	0	0	3	99	0	0	0	0	0	0	8	0	0	0	110	1348
5:05 PM	0	0	0	0	5	117	0	0	0	0	0	0	7	0	0	0	129	1348
5:10 PM	0	0	0	0	3	107	0	0	0	0	0	0	7	0	0	0	117	1355
5:15 PM	0	0	0	0	1	122	0	0	0	0	0	0	2	0	0	0	125	1365
5:20 PM	0	0	0	0	2	108	0	0	0	0	0	0	2	0	0	0	112	1376
5:25 PM	0	0	0	0	2	92	0	0	0	0	0	0	4	0	0	0	98	1383
5:30 PM	0	0	0	0	3	84	0	0	0	0	0	0	2	0	0	0	89	1345
5:35 PM	0	0	0	0	3	112	0	0	0	0	0	0	6	0	0	0	121	1365
5:40 PM	0	0	0	0	3	95	0	0	0	0	0	0	5	0	0	0	103	1359
5:45 PM	0	0	0	0	4	104	0	0	0	0	0	0	5	0	0	0	113	1355
5:50 PM	0	0	0	0	1	91	0	0	0	0	0	0	4	0	0	0	96	1322
5:55 PM	0	0	0	0	2	97	0	0	0	0	0	0	3	0	0	0	102	1315

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	36	1384	0	0	0	0	0	0	64	0	0	0	1484
Heavy Trucks	0	0	0		0	20	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		0				36				8				0			44
Bicycles	0	0	4		4	0	0		0	0	0		0	0	0		8
Scooters																	

Comments:

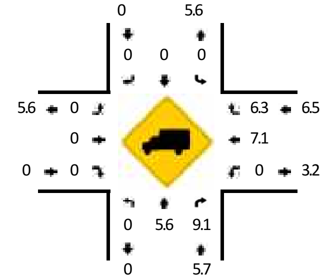
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

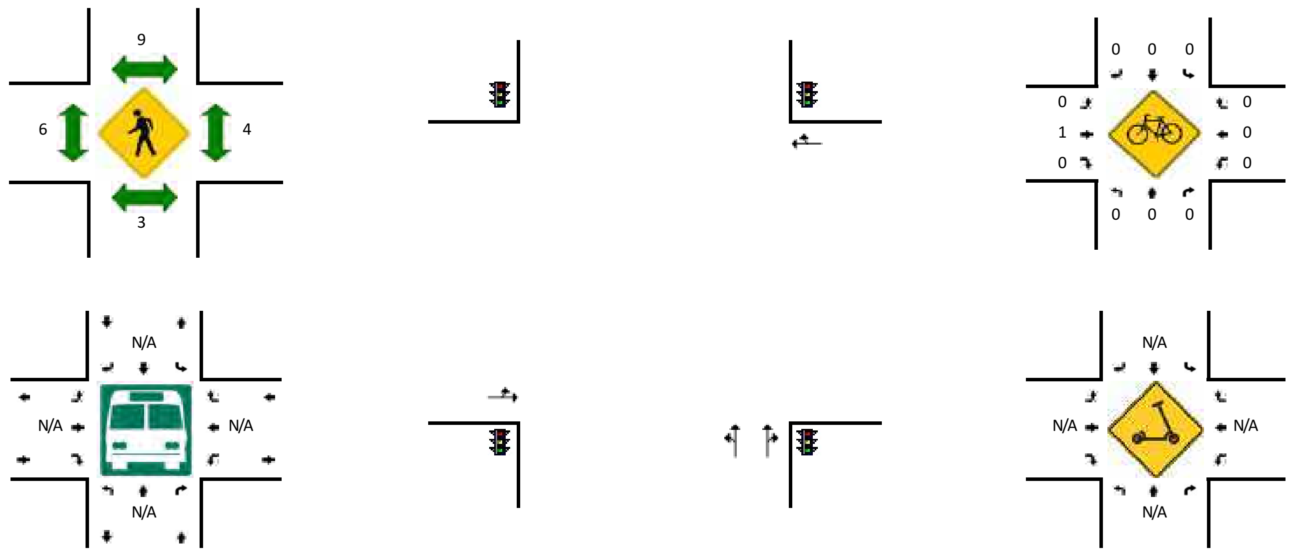
LOCATION: NE Baker St -- NE 3rd St | **QC JOB #:** 16348609
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

TRUE DATA TO IMPROVE MOBILITY





5-Min Count Period Beginning At	NE Baker St (Northbound)				NE Baker St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	55	2	0	0	0	0	0	1	2	0	0	0	0	1	0	62	
7:05 AM	0	43	0	0	0	0	0	0	1	3	0	0	0	3	2	0	52	
7:10 AM	0	50	1	0	0	0	0	0	0	1	0	0	0	3	2	0	57	
7:15 AM	0	63	0	0	0	0	0	0	0	3	0	0	0	1	0	0	67	
7:20 AM	0	72	2	0	0	0	0	0	0	0	0	0	0	0	1	0	75	
7:25 AM	1	80	2	0	0	0	0	0	1	1	0	0	0	2	1	0	88	
7:30 AM	0	87	1	0	0	0	0	0	0	2	0	0	0	1	2	0	93	
7:35 AM	0	89	2	0	0	0	0	0	0	4	0	0	0	1	1	0	97	
7:40 AM	0	104	1	0	0	0	0	0	0	4	0	0	0	1	3	0	113	
7:45 AM	0	102	2	0	0	0	0	0	1	1	0	0	0	3	3	0	112	
7:50 AM	1	89	2	0	0	0	0	0	0	5	0	0	0	0	0	0	97	
7:55 AM	0	110	1	0	0	0	0	0	0	5	0	0	0	1	2	0	119	1032
8:00 AM	0	104	1	0	0	0	0	0	0	3	0	0	0	0	7	0	115	1085
8:05 AM	1	95	3	0	0	0	0	0	0	4	0	0	0	1	5	0	109	1142
8:10 AM	1	90	2	0	0	0	0	0	0	3	0	0	0	1	4	0	101	1186
8:15 AM	1	103	2	0	0	0	0	0	1	2	0	0	0	2	1	0	112	1231
8:20 AM	0	69	1	0	0	0	0	0	0	4	0	0	0	1	2	0	77	1233
8:25 AM	0	60	4	0	0	0	0	0	0	4	0	0	0	2	2	0	72	1217
8:30 AM	1	72	2	0	0	0	0	0	0	3	0	0	0	2	2	0	82	1206
8:35 AM	1	52	0	0	0	0	0	0	0	1	0	0	0	4	2	0	60	1169
8:40 AM	0	68	4	0	0	0	0	0	1	4	0	0	0	0	4	0	81	1137
8:45 AM	2	50	2	0	0	0	0	0	1	2	0	0	0	1	3	0	61	1086
8:50 AM	0	72	7	0	0	0	0	0	2	3	0	0	0	2	3	0	89	1078
8:55 AM	0	62	2	0	0	0	0	0	1	4	0	0	0	2	2	0	73	1032

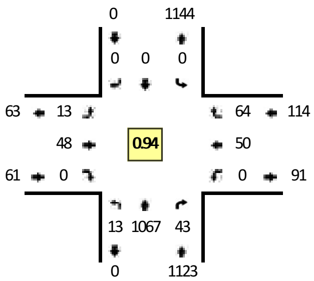
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	1236	20	0	0	0	0	0	0	48	0	0	0	8	56	0	1372
Heavy Trucks	0	56	0		0	0	0		0	0	0		0	0	4		60
Buses																	
Pedestrians		12				4				8				0			24
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/2/2024 2:04 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

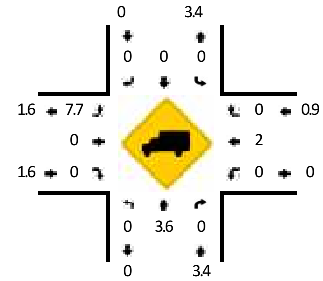
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

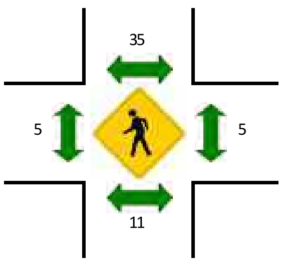
LOCATION: NE Baker St -- NE 3rd St | **QC JOB #:** 16348610
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

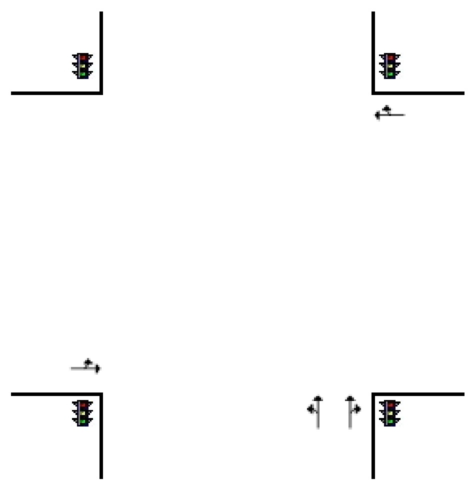


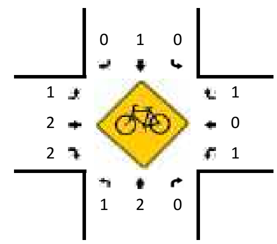
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:35 PM -- 4:50 PM

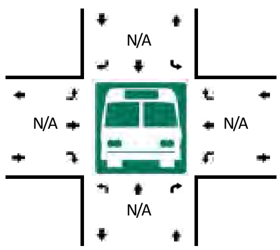
TRUE DATA TO IMPROVE MOBILITY

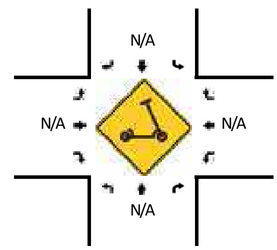












5-Min Count Period Beginning At	NE Baker St (Northbound)				NE Baker St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	92	3	0	0	0	0	0	1	3	0	0	0	4	3	0	107	
4:05 PM	0	96	1	0	0	0	0	0	2	6	0	0	0	1	4	0	110	
4:10 PM	0	80	3	0	0	0	0	0	1	2	0	0	0	5	9	0	100	
4:15 PM	2	94	0	0	0	0	0	0	1	4	0	0	0	2	8	0	111	
4:20 PM	1	101	3	0	0	0	0	0	2	1	0	0	0	3	2	0	113	
4:25 PM	1	83	1	0	0	0	0	0	2	4	0	0	0	6	6	0	103	
4:30 PM	1	89	5	0	0	0	0	0	0	3	0	0	0	2	6	0	106	
4:35 PM	2	97	5	0	0	0	0	0	4	3	0	0	0	2	4	0	117	
4:40 PM	1	90	3	0	0	0	0	0	1	4	0	0	0	5	7	0	111	
4:45 PM	1	101	3	0	0	0	0	0	0	6	0	0	0	4	1	0	116	
4:50 PM	2	87	4	0	0	0	0	0	1	2	0	0	0	5	8	0	109	
4:55 PM	1	85	3	0	0	0	0	0	0	3	0	0	0	3	6	0	101	1304
5:00 PM	1	94	6	0	0	0	0	0	1	4	0	0	0	7	7	0	120	1317
5:05 PM	1	90	1	0	0	0	0	0	1	8	0	0	0	4	4	0	109	1316
5:10 PM	0	79	4	0	0	0	0	0	1	7	0	0	0	8	6	0	105	1321
5:15 PM	2	79	5	0	0	0	0	0	2	2	0	0	0	2	7	0	99	1309
5:20 PM	0	93	3	0	0	0	0	0	0	2	0	0	0	2	2	0	102	1298
5:25 PM	0	64	3	0	0	0	0	0	0	2	0	0	0	3	5	0	77	1272
5:30 PM	3	91	4	0	0	0	0	0	2	3	0	0	0	1	8	0	112	1278
5:35 PM	2	76	5	0	0	0	0	0	1	2	0	0	0	4	6	0	96	1257
5:40 PM	1	60	2	0	0	0	0	0	1	3	0	0	0	4	2	0	73	1219
5:45 PM	1	84	2	0	0	0	0	0	0	4	0	0	0	5	4	0	100	1203
5:50 PM	0	98	2	0	0	0	0	0	0	1	0	0	0	3	5	0	109	1203
5:55 PM	0	81	4	0	0	0	0	0	0	1	0	0	0	4	5	0	95	1197

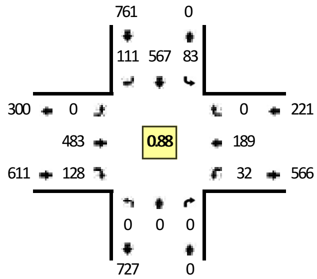
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	1152	44	0	0	0	0	0	20	52	0	0	0	44	48	0	1376
Heavy Trucks	0	72	0		0	0	0		4	0	0		0	0	0		76
Buses																	
Pedestrians		8				20				4				12			44
Bicycles	0	0	0		0	0	0		0	4	0		0	0	0		4
Scooters																	

Comments:

Report generated on 2/2/2024 2:05 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

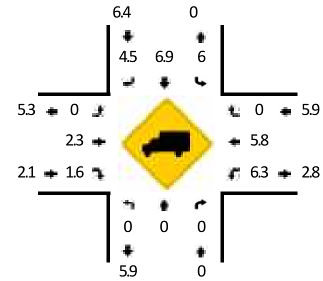
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

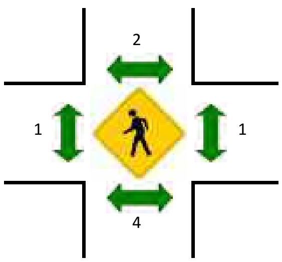
LOCATION: NE Adams St -- SW 2nd St | **QC JOB #:** 16348613
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

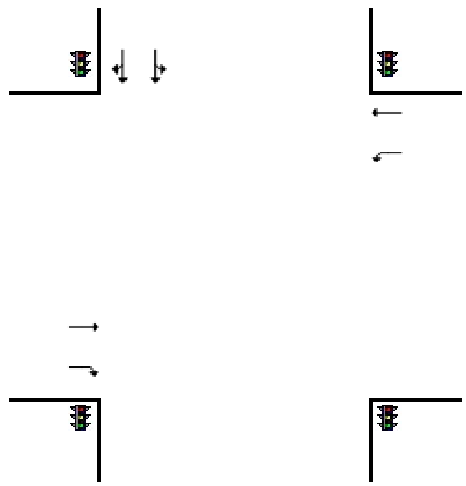


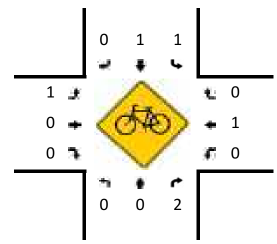
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

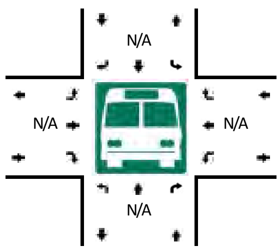
TRUE DATA TO IMPROVE MOBILITY

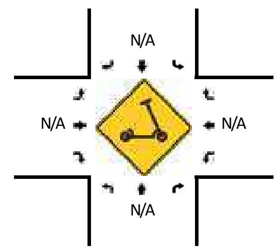












5-Min Count Period Beginning At	NE Adams St (Northbound)				NE Adams St (Southbound)				SW 2nd St (Eastbound)				SW 2nd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	3	27	1	0	0	30	10	0	4	9	0	0	84	
7:05 AM	0	0	0	0	1	41	3	0	0	26	6	0	3	3	0	0	83	
7:10 AM	0	0	0	0	3	37	4	0	0	24	5	0	4	11	0	0	88	
7:15 AM	0	0	0	0	3	31	6	0	0	18	4	0	1	3	0	0	66	
7:20 AM	0	0	0	0	8	31	5	0	0	32	8	0	2	12	0	0	98	
7:25 AM	0	0	0	0	2	39	5	0	0	22	4	0	1	15	0	0	88	
7:30 AM	0	0	0	0	3	34	8	0	0	30	7	0	0	16	0	0	98	
7:35 AM	0	0	0	0	11	54	6	0	0	34	12	0	2	14	0	0	133	
7:40 AM	0	0	0	0	8	45	9	0	0	38	10	0	4	14	0	0	128	
7:45 AM	0	0	0	0	4	46	9	0	0	48	7	0	1	17	0	0	132	
7:50 AM	0	0	0	0	7	46	11	0	0	45	7	0	3	22	0	0	141	
7:55 AM	0	0	0	0	9	54	10	0	0	36	21	0	3	17	0	0	150	1289
8:00 AM	0	0	0	0	6	48	9	0	0	46	14	0	2	23	0	0	148	1353
8:05 AM	0	0	0	0	12	52	10	0	0	45	12	0	4	22	0	0	157	1427
8:10 AM	0	0	0	0	9	51	4	0	0	47	7	0	1	12	0	0	131	1470
8:15 AM	0	0	0	0	6	54	12	0	0	42	16	0	4	12	0	0	146	1550
8:20 AM	0	0	0	0	5	39	11	0	0	45	8	0	2	9	0	0	119	1571
8:25 AM	0	0	0	0	3	44	12	0	0	27	7	0	6	11	0	0	110	1593
8:30 AM	0	0	0	0	5	48	10	0	0	30	4	0	3	12	0	0	112	1607
8:35 AM	0	0	0	0	7	36	10	0	0	24	2	0	3	9	0	0	91	1565
8:40 AM	0	0	0	0	3	36	9	0	0	26	6	0	0	6	0	0	86	1523
8:45 AM	0	0	0	0	0	46	9	0	0	21	6	0	2	13	0	0	97	1488
8:50 AM	0	0	0	0	5	45	8	0	0	20	8	0	3	8	0	0	97	1444
8:55 AM	0	0	0	0	3	33	11	0	0	28	5	0	4	9	0	0	93	1387

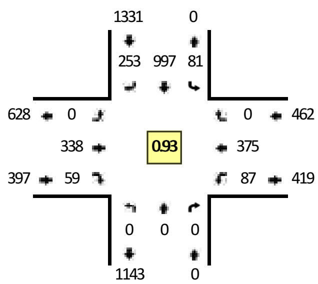
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	108	616	116	0	0	508	188	0	36	248	0	0	1820
Heavy Trucks	0	0	0		16	60	4		0	20	0		8	12	0		120
Buses																	
Pedestrians		0				4				4				0			8
Bicycles	0	0	4		4	4	0		4	0	0		0	0	0		16
Scooters																	

Comments:

Report generated on 2/2/2024 2:06 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

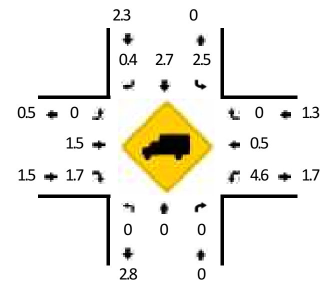
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

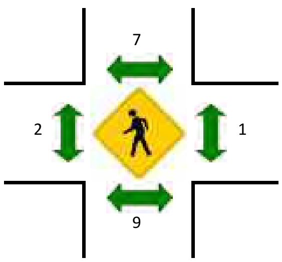
LOCATION: NE Adams St -- SW 2nd St | **QC JOB #:** 16348614
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

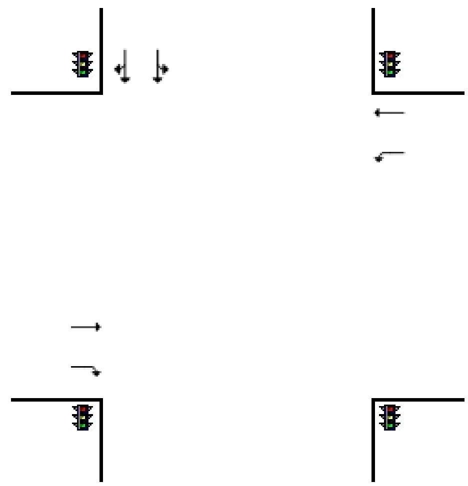


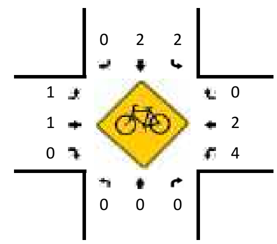
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

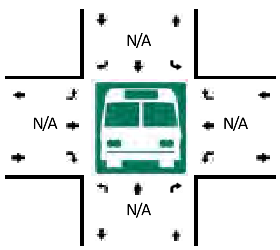
TRUE DATA TO IMPROVE MOBILITY

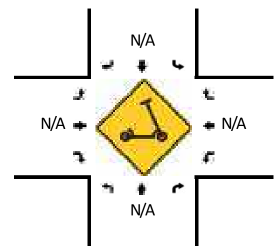












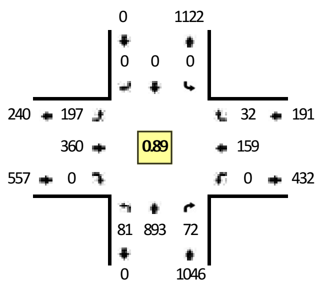
5-Min Count Period Beginning At	NE Adams St (Northbound)				NE Adams St (Southbound)				SW 2nd St (Eastbound)				SW 2nd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	5	97	26	0	0	24	7	0	9	29	0	0	197	
4:05 PM	0	0	0	0	8	82	25	0	0	25	8	0	8	27	0	0	183	
4:10 PM	0	0	0	0	4	80	17	0	0	35	8	0	11	34	0	0	189	
4:15 PM	0	0	0	0	3	102	19	0	0	24	8	0	10	25	0	0	191	
4:20 PM	0	0	0	0	12	58	22	0	0	29	2	0	4	20	0	0	147	
4:25 PM	0	0	0	0	6	58	10	0	0	24	4	0	7	30	0	0	139	
4:30 PM	0	0	0	0	10	105	19	0	0	30	5	0	6	29	0	0	204	
4:35 PM	0	0	0	0	7	73	23	0	0	29	1	0	9	27	0	0	169	
4:40 PM	0	0	0	0	7	64	18	0	0	33	4	0	11	31	0	0	168	
4:45 PM	0	0	0	0	5	85	29	0	0	30	1	0	7	26	0	0	183	
4:50 PM	0	0	0	0	7	105	11	0	0	24	6	0	9	33	0	0	195	
4:55 PM	0	0	0	0	6	72	21	0	0	33	7	0	6	32	0	0	177	2142
5:00 PM	0	0	0	0	7	81	25	0	0	27	5	0	5	20	0	0	170	2115
5:05 PM	0	0	0	0	9	87	29	0	0	27	8	0	5	38	0	0	203	2135
5:10 PM	0	0	0	0	1	79	24	0	0	27	7	0	5	44	0	0	187	2133
5:15 PM	0	0	0	0	9	95	25	0	0	26	2	0	9	34	0	0	200	2142
5:20 PM	0	0	0	0	7	93	19	0	0	28	9	0	8	31	0	0	195	2190
5:25 PM	0	0	0	0	5	64	12	0	0	33	17	0	11	42	0	0	184	2235
5:30 PM	0	0	0	0	3	69	20	0	0	32	15	0	4	32	0	0	175	2206
5:35 PM	0	0	0	0	8	88	26	0	0	29	6	0	8	24	0	0	189	2226
5:40 PM	0	0	0	0	5	69	15	0	0	33	8	0	6	35	0	0	171	2229
5:45 PM	0	0	0	0	1	89	25	0	0	22	4	0	6	20	0	0	167	2213
5:50 PM	0	0	0	0	5	72	23	0	0	22	4	0	3	28	0	0	157	2175
5:55 PM	0	0	0	0	4	71	15	0	0	29	3	0	3	32	0	0	157	2155

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	76	1044	312	0	0	320	68	0	76	464	0	0	2360
Heavy Trucks	0	0	0		4	24	0		0	4	0		4	4	0		40
Buses																	
Pedestrians		20				8				4				4			36
Bicycles	0	0	0		8	0	0		4	4	0		8	0	0		24
Scooters																	

Comments:

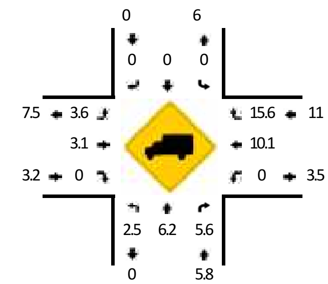
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

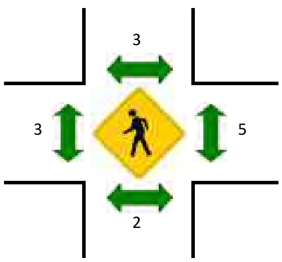
LOCATION: NE Baker St -- NE 2nd St | **QC JOB #:** 16348615
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

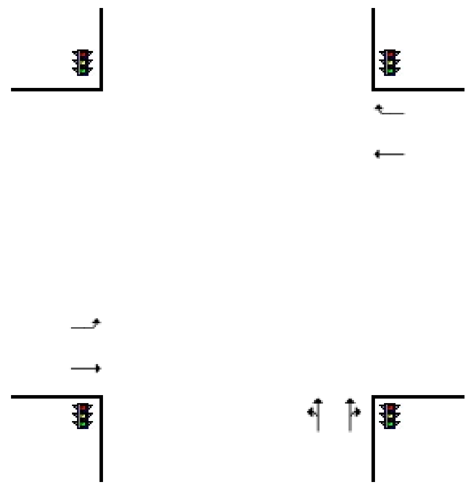


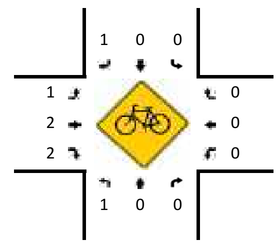
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

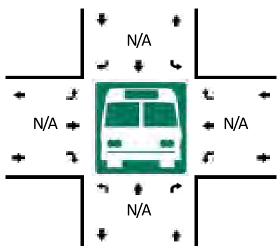
TRUE DATA TO IMPROVE MOBILITY

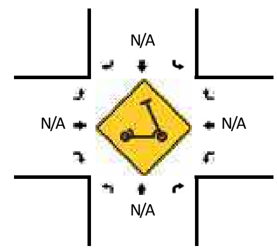












5-Min Count Period Beginning At	NE Baker St (Northbound)				NE Baker St (Southbound)				NE 2nd St (Eastbound)				NE 2nd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	6	48	7	0	0	0	0	0	8	20	0	0	0	7	1	0	97	
7:05 AM	1	33	7	0	0	0	0	0	6	16	0	0	0	6	0	0	69	
7:10 AM	6	48	6	0	0	0	0	0	10	21	0	0	0	8	0	0	99	
7:15 AM	4	57	7	0	0	0	0	0	5	15	0	0	0	2	0	0	90	
7:20 AM	9	56	3	0	0	0	0	0	10	27	0	0	0	7	1	0	113	
7:25 AM	4	74	6	0	0	0	0	0	11	18	0	0	0	11	3	0	127	
7:30 AM	7	72	4	0	0	0	0	0	15	15	0	0	0	12	1	0	126	
7:35 AM	9	72	8	0	0	0	0	0	16	26	0	0	0	11	4	0	146	
7:40 AM	7	90	6	0	0	0	0	0	11	32	0	0	0	11	1	0	158	
7:45 AM	10	77	7	0	0	0	0	0	25	35	0	0	0	8	4	0	166	
7:50 AM	6	80	5	0	0	0	0	0	6	41	0	0	0	20	4	0	162	
7:55 AM	10	88	6	0	0	0	0	0	17	30	0	0	0	15	2	0	168	1521
8:00 AM	9	80	9	0	0	0	0	0	17	31	0	0	0	22	5	0	173	1597
8:05 AM	6	73	4	0	0	0	0	0	24	34	0	0	0	16	4	0	161	1689
8:10 AM	4	78	4	0	0	0	0	0	21	30	0	0	0	12	1	0	150	1740
8:15 AM	5	74	6	0	0	0	0	0	14	37	0	0	0	13	1	0	150	1800
8:20 AM	3	58	6	0	0	0	0	0	19	33	0	0	0	6	2	0	127	1814
8:25 AM	5	51	7	0	0	0	0	0	12	16	0	0	0	13	3	0	107	1794
8:30 AM	6	53	3	0	0	0	0	0	9	22	0	0	0	13	1	0	107	1775
8:35 AM	3	41	5	0	0	0	0	0	7	25	0	0	0	8	2	0	91	1720
8:40 AM	3	60	7	0	0	0	0	0	11	19	0	0	0	8	1	0	109	1671
8:45 AM	4	54	7	0	0	0	0	0	6	15	0	0	0	8	0	0	94	1599
8:50 AM	5	58	4	0	0	0	0	0	8	17	0	0	0	9	1	0	102	1539
8:55 AM	4	51	6	0	0	0	0	0	11	22	0	0	0	8	3	0	105	1476

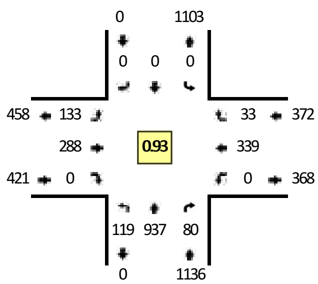
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	100	992	80	0	0	0	0	0	160	408	0	0	0	228	44	0	2012
Heavy Trucks	0	40	16		0	0	0		12	12	0		0	20	0		100
Buses																	
Pedestrians		4				0				8				4			16
Bicycles	0	0	0		0	0	0		0	0	4		0	0	0		4
Scooters																	

Comments:

Report generated on 2/2/2024 2:10 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

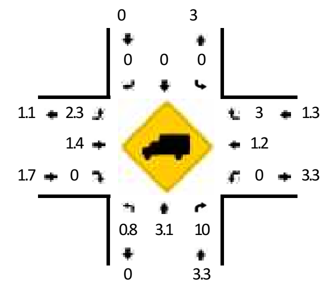
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

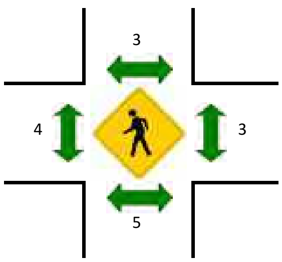
LOCATION: NE Baker St -- NE 2nd St | **QC JOB #:** 16348616
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

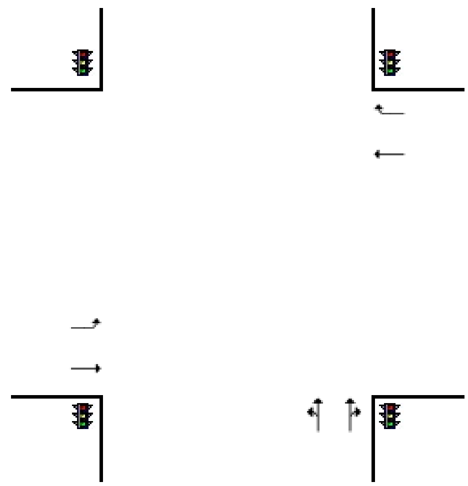


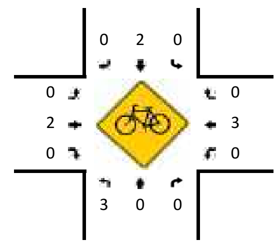
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:35 PM -- 4:50 PM

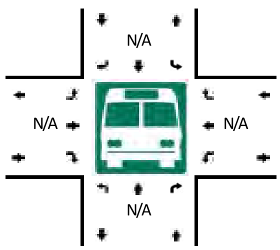
TRUE DATA TO IMPROVE MOBILITY

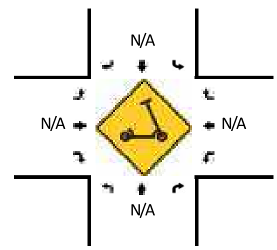












5-Min Count Period Beginning At	NE Baker St (Northbound)				NE Baker St (Southbound)				NE 2nd St (Eastbound)				NE 2nd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	85	5	0	0	0	0	0	4	23	0	0	0	34	3	0	162	
4:05 PM	14	79	7	0	0	0	0	0	10	21	0	0	0	25	4	0	160	
4:10 PM	9	63	7	0	0	0	0	0	16	26	0	0	0	31	10	0	162	
4:15 PM	14	72	6	0	0	0	0	0	13	11	0	0	0	24	5	0	145	
4:20 PM	9	78	5	0	0	0	0	0	15	28	0	0	0	17	6	0	158	
4:25 PM	5	70	6	0	0	0	0	0	12	17	0	0	0	31	5	0	146	
4:30 PM	12	77	7	0	0	0	0	0	12	28	0	0	0	22	5	0	163	
4:35 PM	4	82	12	0	0	0	0	0	15	21	0	0	0	36	5	0	175	
4:40 PM	9	80	4	0	0	0	0	0	15	30	0	0	0	30	1	0	169	
4:45 PM	8	100	9	0	0	0	0	0	6	27	0	0	0	26	1	0	177	
4:50 PM	10	75	5	0	0	0	0	0	6	25	0	0	0	34	0	0	155	
4:55 PM	6	72	8	0	0	0	0	0	18	27	0	0	0	30	2	0	163	1935
5:00 PM	11	87	11	0	0	0	0	0	9	22	0	0	0	16	5	0	161	1934
5:05 PM	20	68	3	0	0	0	0	0	10	22	0	0	0	22	3	0	148	1922
5:10 PM	9	75	6	0	0	0	0	0	10	22	0	0	0	38	1	0	161	1921
5:15 PM	12	75	7	0	0	0	0	0	9	22	0	0	0	25	3	0	153	1929
5:20 PM	13	76	2	0	0	0	0	0	11	25	0	0	0	29	2	0	158	1929
5:25 PM	9	61	8	0	0	0	0	0	11	27	0	0	0	38	1	0	155	1938
5:30 PM	12	72	6	0	0	0	0	0	13	20	0	0	0	24	4	0	151	1926
5:35 PM	8	64	3	0	0	0	0	0	14	23	0	0	0	27	1	0	140	1891
5:40 PM	5	53	2	0	0	0	0	0	17	29	0	0	0	33	1	0	140	1862
5:45 PM	6	72	3	0	0	0	0	0	11	18	0	0	0	21	2	0	133	1818
5:50 PM	8	85	5	0	0	0	0	0	7	22	0	0	0	28	2	0	157	1820
5:55 PM	8	62	3	0	0	0	0	0	19	20	0	0	0	22	4	0	138	1795

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	84	1048	100	0	0	0	0	0	144	312	0	0	0	368	28	0	2084
Heavy Trucks	0	52	12		0	0	0		0	0	0		0	4	0		68
Buses																	
Pedestrians		4				4				0				4			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

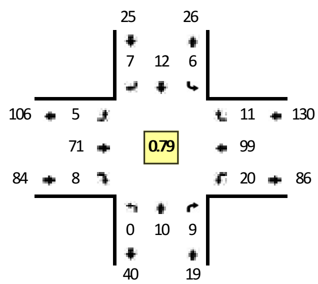
Comments:

Report generated on 2/2/2024 2:10 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

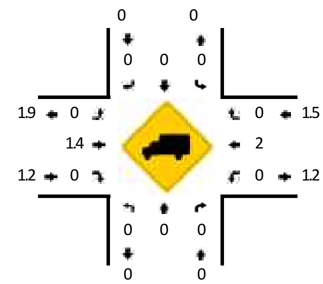
LOCATION: NE Cowls St -- NE 3rd St | **QC JOB #:** 16348619

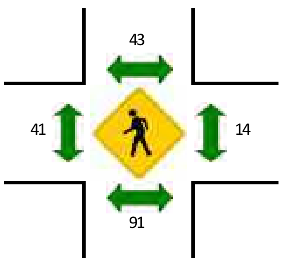
CITY/STATE: McMinnville, OR | **DATE:** Wed, Oct 11 2023

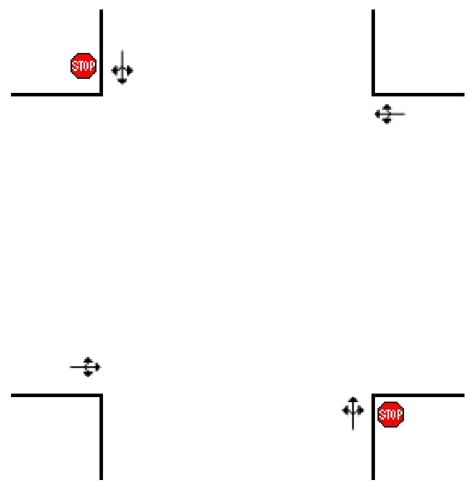


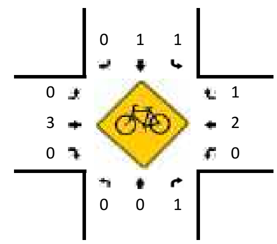
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

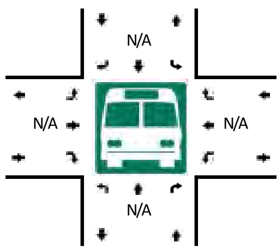
TRUE DATA TO IMPROVE MOBILITY

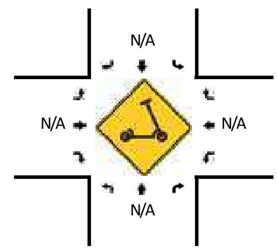












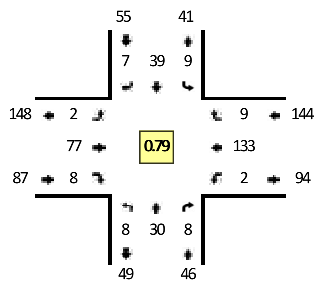
5-Min Count Period Beginning At	NE Cowls St (Northbound)				NE Cowls St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	2	1	0	1	0	1	0	1	5	2	0	2	11	3	0	29	
4:05 PM	0	0	2	0	1	0	0	0	2	7	0	0	2	9	2	0	25	
4:10 PM	0	0	1	0	1	1	0	0	1	7	0	0	1	10	3	0	25	
4:15 PM	0	0	0	0	0	0	1	0	0	11	0	0	1	5	1	0	19	
4:20 PM	0	2	1	0	0	0	0	0	2	4	0	0	1	4	1	0	15	
4:25 PM	0	0	0	0	1	2	0	0	1	5	0	0	1	6	1	0	17	
4:30 PM	0	0	1	0	1	0	1	0	0	5	0	0	4	6	0	0	18	
4:35 PM	0	0	1	0	0	0	1	0	2	4	0	0	2	9	1	0	20	
4:40 PM	0	1	0	0	0	0	0	0	0	7	0	0	0	7	0	0	15	
4:45 PM	0	0	2	0	0	1	1	0	1	4	0	0	0	6	0	0	15	
4:50 PM	0	0	0	0	0	1	1	0	0	3	0	0	2	9	5	0	21	
4:55 PM	0	2	1	0	0	2	1	0	0	7	2	0	2	10	0	0	27	246
5:00 PM	0	0	1	0	1	1	0	0	0	7	0	0	0	11	0	0	21	238
5:05 PM	0	1	2	0	1	3	1	0	1	6	3	0	0	7	2	0	27	240
5:10 PM	0	3	0	0	0	1	0	0	0	9	3	0	2	14	2	0	34	249
5:15 PM	0	3	0	0	2	0	1	0	0	4	0	0	5	5	0	0	20	250
5:20 PM	0	0	1	0	0	1	0	0	0	10	0	0	2	9	0	0	23	258
5:25 PM	1	0	1	0	1	1	0	0	0	6	1	0	0	7	1	0	19	260
5:30 PM	0	0	2	0	0	0	0	0	1	1	0	0	0	7	3	0	14	256
5:35 PM	0	0	1	0	0	0	0	0	0	6	1	0	3	6	0	0	17	253
5:40 PM	0	2	1	0	1	1	0	0	1	12	2	0	2	9	3	0	34	272
5:45 PM	1	1	1	0	0	3	0	0	0	4	1	0	1	3	1	0	16	273
5:50 PM	0	2	0	0	0	0	1	0	1	7	3	0	1	5	1	0	21	273
5:55 PM	0	2	3	0	0	0	0	0	2	5	1	0	1	6	0	0	20	266

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	16	12	0	8	20	4	0	4	88	24	0	8	128	16	0	328
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Buses																	
Pedestrians		52				32				44				32			160
Bicycles	0	0	4		4	0	0		0	0	0		0	0	0		8
Scooters																	

Comments:

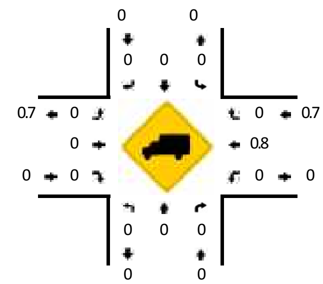
Report generated on 2/2/2024 2:48 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

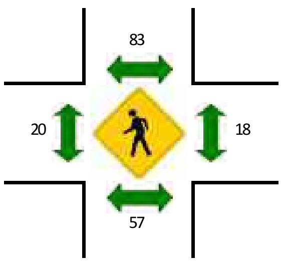
LOCATION: NE Davis St -- NE 3rd St
QC JOB #: 16348620
CITY/STATE: McMinnville, OR
DATE: Tue, Oct 3 2023

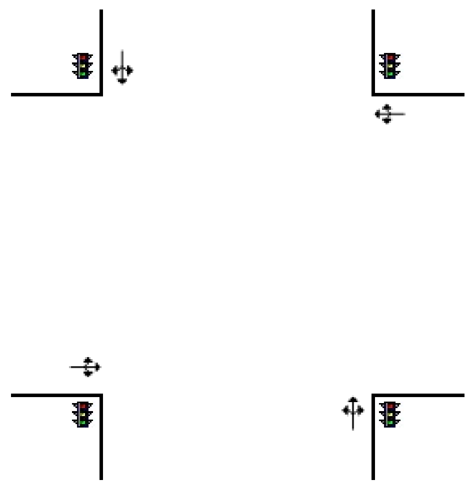


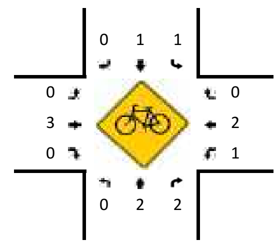
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

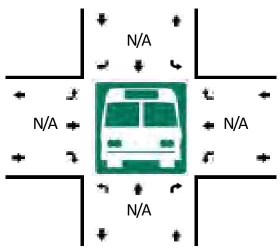
TRUE DATA TO IMPROVE MOBILITY

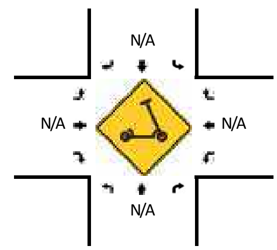












5-Min Count Period Beginning At	NE Davis St (Northbound)				NE Davis St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	1	0	0	1	5	0	0	0	7	1	0	0	9	0	0	25	
4:05 PM	0	3	1	0	1	3	0	0	0	5	2	0	0	7	2	0	24	
4:10 PM	0	2	1	0	1	3	0	0	0	6	0	0	0	11	1	0	25	
4:15 PM	0	2	1	0	1	8	1	0	0	4	1	0	0	7	2	0	27	
4:20 PM	0	2	1	0	1	3	1	0	0	4	0	0	0	11	1	0	24	
4:25 PM	1	6	1	0	1	1	0	0	0	5	1	0	0	15	2	0	33	
4:30 PM	0	3	0	0	0	3	0	0	0	6	0	0	1	10	0	0	23	
4:35 PM	0	1	2	0	1	3	1	0	0	7	2	0	0	9	0	0	26	
4:40 PM	0	3	0	0	1	5	0	0	0	8	1	0	0	12	2	0	32	
4:45 PM	1	2	1	0	1	3	0	0	0	9	0	0	1	3	1	0	22	
4:50 PM	2	2	0	0	0	2	2	0	0	8	0	0	0	13	0	0	29	
4:55 PM	0	1	1	0	0	2	0	0	0	5	0	0	0	11	1	0	21	311
5:00 PM	0	4	1	0	2	5	2	0	0	10	2	0	0	14	1	0	41	327
5:05 PM	2	3	1	0	1	4	0	0	0	5	0	0	0	14	1	0	31	334
5:10 PM	1	1	1	0	1	7	1	0	0	6	2	0	0	13	0	0	33	342
5:15 PM	1	2	0	0	0	4	1	0	0	7	0	0	0	10	1	0	26	341
5:20 PM	0	2	0	0	1	0	0	0	2	1	0	0	0	9	0	0	15	332
5:25 PM	1	2	4	0	4	3	1	0	1	6	1	0	0	11	2	0	36	335
5:30 PM	0	4	0	0	0	2	1	0	0	5	1	0	0	7	2	0	22	334
5:35 PM	1	1	0	0	0	1	0	0	0	3	1	0	1	11	1	0	20	328
5:40 PM	0	3	0	0	1	1	0	0	0	7	2	0	0	9	1	0	24	320
5:45 PM	0	0	0	0	2	0	3	0	0	4	1	0	0	10	0	0	20	318
5:50 PM	1	3	1	0	2	4	0	0	0	3	1	0	1	11	2	0	29	318
5:55 PM	0	1	1	0	1	5	2	0	0	5	0	0	0	8	0	0	23	320

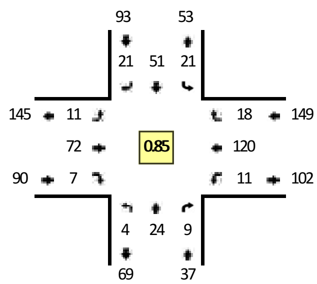
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	32	12	0	16	64	12	0	0	84	16	0	0	164	8	0	420
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Buses																	
Pedestrians		56				76				12				16			160
Bicycles	0	0	8		0	0	0		0	4	0		4	4	0		20
Scooters																	

Comments:

Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

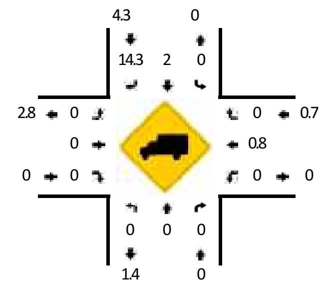
LOCATION: NE Evans St -- NE 3rd St | **QC JOB #:** 16348621

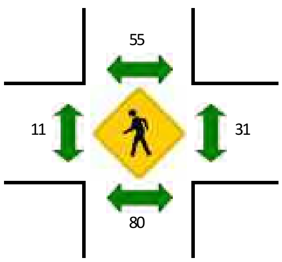
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

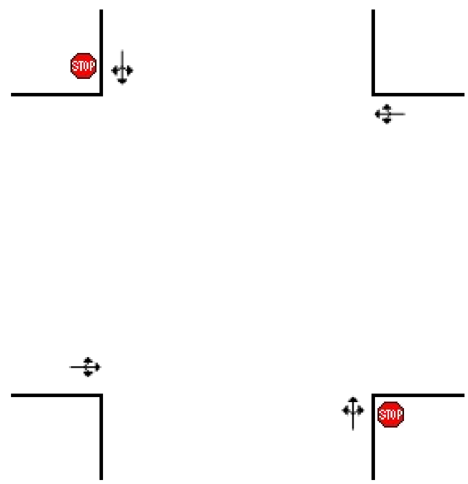


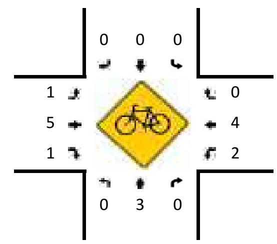
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:50 PM -- 5:05 PM

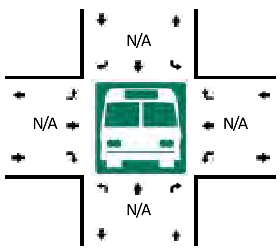
TRUE DATA TO IMPROVE MOBILITY

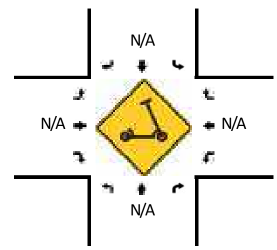












5-Min Count Period Beginning At	NE Evans St (Northbound)				NE Evans St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	3	1	0	5	4	1	0	2	9	0	0	2	9	3	0	39	
4:05 PM	0	0	0	0	1	3	1	0	0	7	1	0	0	7	4	0	24	
4:10 PM	0	2	0	0	2	2	0	0	0	7	0	0	1	13	2	0	29	
4:15 PM	0	0	1	0	5	7	1	0	0	6	0	0	1	11	0	0	32	
4:20 PM	1	2	2	0	2	3	0	0	1	5	0	0	1	8	1	0	26	
4:25 PM	1	3	0	0	4	2	3	0	2	6	0	0	4	14	1	0	40	
4:30 PM	1	1	2	0	1	7	3	0	1	5	1	0	1	6	1	0	30	
4:35 PM	0	0	2	0	2	3	1	0	0	8	0	0	2	9	1	0	28	
4:40 PM	0	0	1	0	1	4	2	0	2	5	1	0	0	12	1	0	29	
4:45 PM	0	2	1	0	2	3	1	0	0	8	0	0	1	3	2	0	23	
4:50 PM	0	3	1	0	2	6	1	0	1	7	0	0	1	12	3	0	37	
4:55 PM	0	3	1	0	4	1	2	0	2	4	0	0	0	12	2	0	31	368
5:00 PM	1	2	0	0	1	8	3	0	3	6	3	0	1	12	0	0	40	369
5:05 PM	1	5	1	0	1	3	1	0	0	8	1	0	0	12	1	0	34	379
5:10 PM	0	1	0	0	0	4	1	0	0	6	1	0	0	11	4	0	28	378
5:15 PM	0	1	0	0	0	5	3	0	0	8	0	0	0	8	1	0	26	372
5:20 PM	0	3	0	0	3	5	0	0	0	1	0	0	1	9	1	0	23	369
5:25 PM	0	4	1	0	1	2	3	0	1	13	0	0	0	10	1	0	36	365
5:30 PM	0	1	0	0	2	3	1	0	2	3	1	0	0	7	1	0	21	356
5:35 PM	1	4	0	0	0	2	3	0	0	2	1	0	2	10	2	0	27	355
5:40 PM	0	1	1	0	1	8	0	0	2	6	0	0	1	10	2	0	32	358
5:45 PM	0	3	1	0	4	3	2	0	0	5	1	0	2	8	2	0	31	366
5:50 PM	0	1	1	0	2	6	1	0	0	4	0	0	1	14	2	0	32	361
5:55 PM	1	3	1	0	3	5	1	0	1	6	1	0	0	6	0	0	28	358

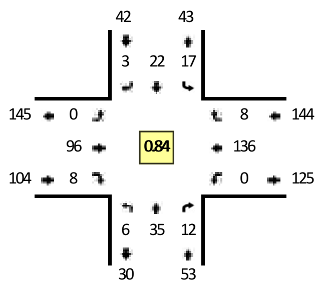
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	32	8	0	28	60	24	0	24	68	12	0	8	144	20	0	432
Heavy Trucks	0	0	0		0	0	4		0	0	0		0	4	0		8
Buses																	
Pedestrians		100				40				8				36			184
Bicycles	0	0	0		0	0	0		0	0	0		4	8	0		12
Scooters																	

Comments:

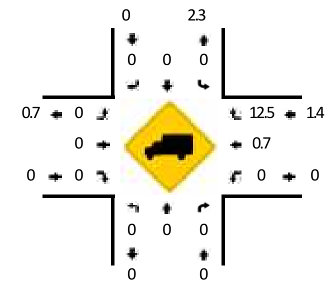
Report generated on 2/2/2024 2:49 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

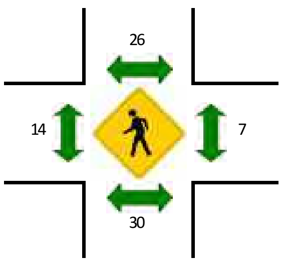
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

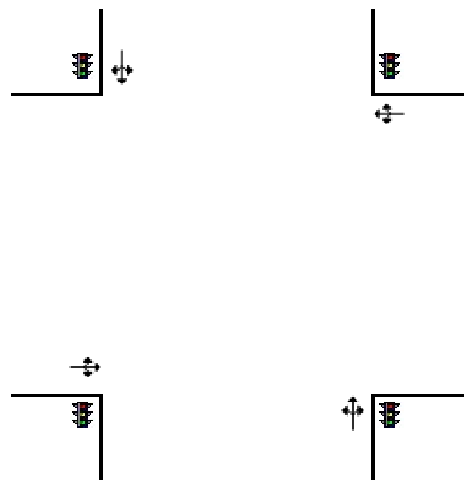
LOCATION: NE Ford St -- NE 3rd St | **QC JOB #:** 16348622
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

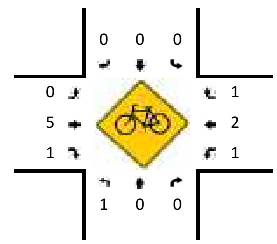


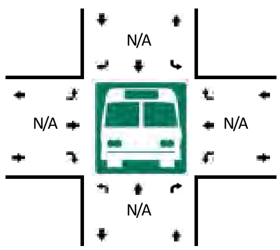
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

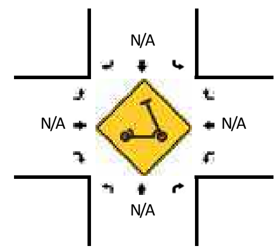












5-Min Count Period Beginning At	NE Ford St (Northbound)				NE Ford St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	2	0	0	0	5	0	0	0	13	1	0	0	16	0	0	37	
4:05 PM	1	1	1	0	1	2	0	0	0	9	2	0	0	9	1	0	27	
4:10 PM	1	2	1	0	0	0	1	0	0	7	0	0	0	14	0	0	26	
4:15 PM	1	2	1	0	1	0	0	0	0	12	1	0	0	11	0	0	29	
4:20 PM	0	4	0	0	0	1	1	0	0	7	0	0	0	12	1	0	26	
4:25 PM	0	2	2	0	0	3	1	0	0	10	2	0	0	13	1	0	34	
4:30 PM	0	1	0	0	0	2	0	0	0	7	0	0	0	8	1	0	19	
4:35 PM	0	0	2	0	0	2	0	0	0	9	0	0	0	11	0	0	24	
4:40 PM	0	4	0	0	2	1	0	0	0	8	2	0	0	14	2	0	33	
4:45 PM	0	2	0	0	1	1	1	0	0	11	2	0	0	5	0	0	23	
4:50 PM	0	4	0	0	0	1	0	0	0	8	0	0	0	20	1	0	34	
4:55 PM	0	3	2	0	3	1	0	0	0	9	0	0	0	11	2	0	31	343
5:00 PM	2	6	2	0	0	3	0	0	0	8	0	0	0	11	0	0	32	338
5:05 PM	3	2	3	0	4	5	0	0	0	6	1	0	0	10	0	0	34	345
5:10 PM	1	8	0	0	4	2	1	0	0	8	1	0	0	11	0	0	36	355
5:15 PM	0	1	1	0	2	0	0	0	0	8	0	0	0	12	1	0	25	351
5:20 PM	0	2	0	0	1	1	0	0	0	4	0	0	0	10	0	0	18	343
5:25 PM	1	0	1	0	1	2	0	0	1	10	3	0	0	11	2	0	32	341
5:30 PM	1	4	1	0	0	3	0	0	0	4	1	0	0	10	0	0	24	346
5:35 PM	0	1	1	0	0	1	1	0	0	2	1	0	0	9	0	0	16	338
5:40 PM	0	3	1	0	1	0	0	0	0	5	2	0	0	13	1	0	26	331
5:45 PM	4	2	1	0	0	3	1	0	0	8	3	0	0	10	2	0	34	342
5:50 PM	0	5	1	0	0	2	0	0	0	5	0	0	0	15	0	0	28	336
5:55 PM	0	0	1	0	0	1	1	0	0	8	1	0	0	6	3	0	21	326

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	64	20	0	32	40	4	0	0	88	8	0	0	128	0	0	408
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Buses																	
Pedestrians		20				32				20				4			76
Bicycles	0	0	0		0	0	0		0	12	0		4	4	0		20
Scooters																	

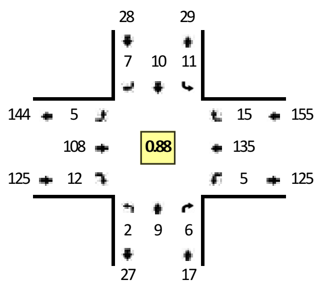
Comments:

Report generated on 2/2/2024 2:51 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

LOCATION: NE Galloway St -- NE 3rd St | **QC JOB #:** 16348623

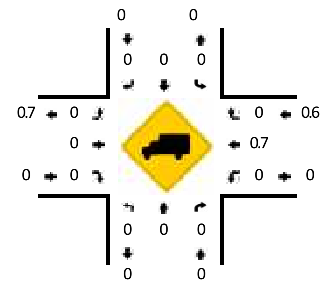
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

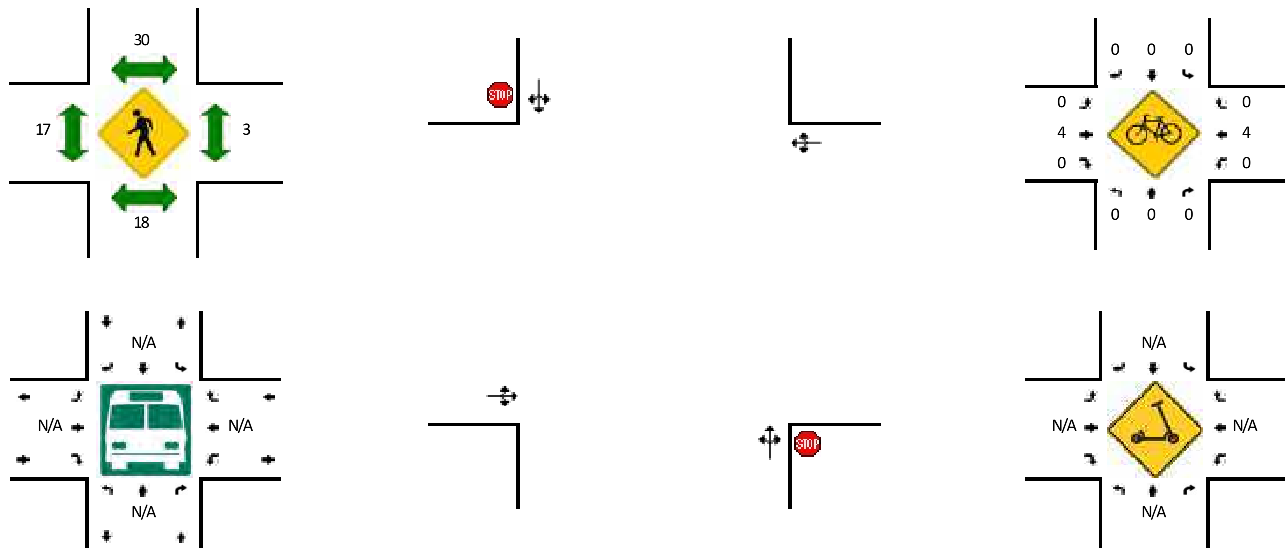


Peak-Hour: 4:25 PM -- 5:25 PM

Peak 15-Min: 4:45 PM -- 5:00 PM

TRUE DATA TO IMPROVE MOBILITY





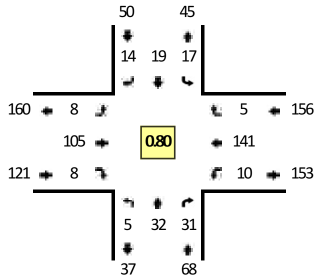
5-Min Count Period Beginning At	NE Galloway St (Northbound)				NE Galloway St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	0	0	0	0	0	0	1	11	0	0	1	16	0	0	30	
4:05 PM	1	2	0	0	1	0	0	0	0	10	1	0	1	8	2	0	26	
4:10 PM	0	0	0	0	3	1	0	0	0	8	0	0	1	15	0	0	28	
4:15 PM	0	0	3	0	2	1	0	0	1	11	0	0	1	10	1	0	30	
4:20 PM	0	0	2	0	0	1	0	0	0	6	1	0	1	13	1	0	25	
4:25 PM	2	1	0	0	0	1	2	0	0	13	0	0	1	12	1	0	33	
4:30 PM	0	2	1	0	2	0	0	0	0	6	0	0	0	7	1	0	19	
4:35 PM	0	0	0	0	1	0	0	0	2	10	0	0	0	12	1	0	26	
4:40 PM	0	0	0	0	0	0	0	0	1	9	0	0	1	15	1	0	27	
4:45 PM	0	2	0	0	2	1	1	0	0	10	1	0	0	7	3	0	27	
4:50 PM	0	1	1	0	2	2	0	0	0	7	1	0	1	19	1	0	35	
4:55 PM	0	1	0	0	0	0	1	0	1	11	3	0	0	13	0	0	30	336
5:00 PM	0	0	2	0	0	2	1	0	1	8	1	0	0	11	0	0	26	332
5:05 PM	0	0	0	0	0	1	0	0	0	10	1	0	0	11	1	0	24	330
5:10 PM	0	1	0	0	4	2	0	0	0	10	3	0	1	8	1	0	30	332
5:15 PM	0	0	1	0	0	1	1	0	0	10	2	0	0	12	2	0	29	331
5:20 PM	0	1	1	0	0	0	1	0	0	4	0	0	1	8	3	0	19	325
5:25 PM	0	0	2	0	0	0	0	0	1	7	2	0	0	12	0	0	24	316
5:30 PM	2	0	1	0	1	1	1	0	0	7	0	0	1	9	0	0	23	320
5:35 PM	1	1	0	0	1	2	0	0	0	3	0	0	0	8	0	0	16	310
5:40 PM	0	1	0	0	1	3	0	0	1	6	0	0	0	14	0	0	26	309
5:45 PM	0	0	0	0	0	0	1	0	0	7	1	0	0	11	0	0	20	302
5:50 PM	1	0	1	0	2	0	0	0	1	5	0	0	0	15	0	0	25	292
5:55 PM	1	0	0	0	0	2	1	0	1	7	2	0	0	8	3	0	25	287

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	16	4	0	16	12	8	0	4	112	20	0	4	156	16	0	368
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		16				8				12				0			36
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	

Comments:

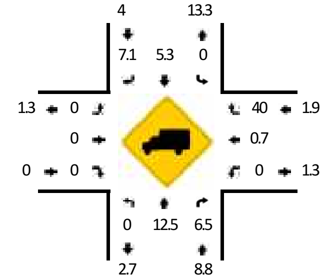
Report generated on 2/2/2024 2:51 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

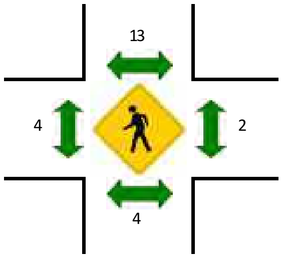
LOCATION: NE Irvine St -- NE 3rd St **QC JOB #:** 16348624
CITY/STATE: McMinnville, OR **DATE:** Tue, Oct 3 2023

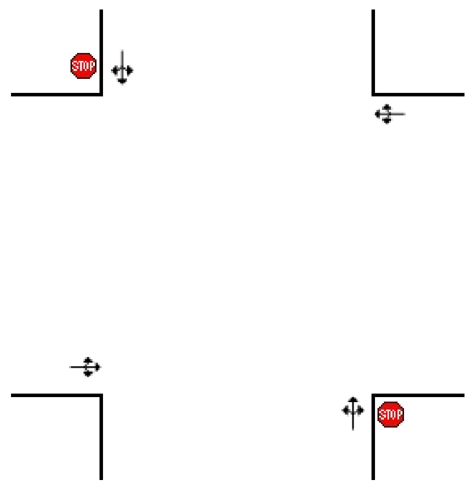


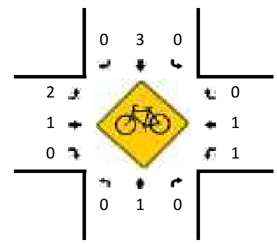
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:55 PM -- 5:10 PM

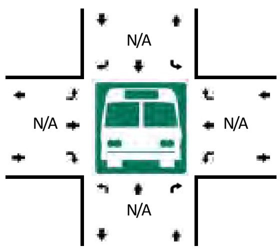
TRUE DATA TO IMPROVE MOBILITY

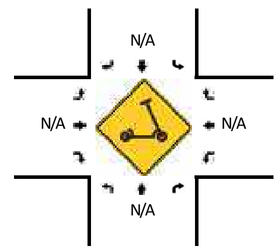










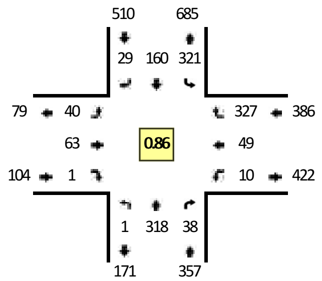


5-Min Count Period Beginning At	NE Irvine St (Northbound)				NE Irvine St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	4	5	0	1	1	2	0	1	9	0	0	1	10	0	0	38	
4:05 PM	1	1	3	0	2	1	1	0	0	10	1	0	0	13	1	0	34	
4:10 PM	0	1	2	0	3	1	2	0	0	12	1	0	1	12	0	0	35	
4:15 PM	1	4	2	0	1	0	1	0	0	13	0	0	1	14	0	0	37	
4:20 PM	2	1	1	0	1	2	0	0	1	10	0	0	1	14	0	0	33	
4:25 PM	0	0	1	0	1	0	0	0	0	8	2	0	0	13	0	0	25	
4:30 PM	0	5	2	0	0	2	1	0	0	8	1	0	2	6	0	0	27	
4:35 PM	1	1	2	0	1	1	1	0	1	9	0	0	1	12	1	0	31	
4:40 PM	0	2	3	0	2	1	1	0	0	8	0	0	0	15	0	0	32	
4:45 PM	2	5	2	0	1	2	1	0	1	9	0	0	0	7	0	0	30	
4:50 PM	0	3	2	0	0	0	1	0	0	10	2	0	0	17	0	0	35	
4:55 PM	0	2	3	0	3	2	1	0	2	9	1	0	2	13	1	0	39	396
5:00 PM	0	5	2	0	2	3	0	0	0	12	0	0	0	16	3	0	43	401
5:05 PM	1	2	5	0	2	3	3	0	1	11	1	0	2	10	0	0	41	408
5:10 PM	0	4	4	0	3	1	3	0	0	8	0	0	1	9	0	0	33	406
5:15 PM	1	2	2	0	0	1	1	0	1	11	1	0	0	11	0	0	31	400
5:20 PM	0	1	3	0	2	3	1	0	2	2	0	0	2	12	0	0	28	395
5:25 PM	2	1	4	0	0	2	1	0	1	7	2	0	3	12	0	0	35	405
5:30 PM	0	1	2	0	0	3	1	0	0	12	0	0	2	7	0	0	28	406
5:35 PM	1	3	0	0	2	0	0	0	0	2	0	0	2	14	0	0	24	399
5:40 PM	1	2	0	0	0	3	1	0	0	5	0	0	0	6	1	0	19	386
5:45 PM	0	1	0	0	2	1	1	0	0	5	0	0	2	11	1	0	24	380
5:50 PM	1	2	3	0	1	0	1	0	1	7	1	0	0	14	0	0	31	376
5:55 PM	1	1	1	0	0	0	3	0	3	4	0	0	1	9	0	0	23	360

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	36	40	0	28	32	16	0	12	128	8	0	16	156	16	0	492
Heavy Trucks	0	4	4		0	0	0		0	0	0		0	4	8		20
Buses																	
Pedestrians		0				8				4				4			16
Bicycles	0	0	0		0	0	0		4	0	0		0	0	0		4
Scooters																	

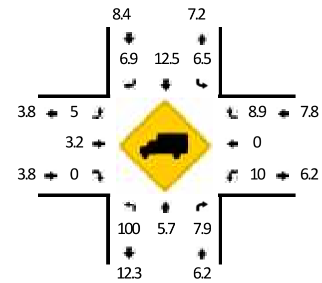
Comments:

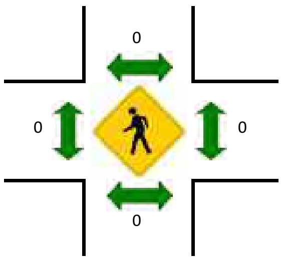
LOCATION: NE Johnson St -- NE 3rd St
CITY/STATE: McMinnville, OR
QC JOB #: 16348611
DATE: Tue, Oct 3 2023

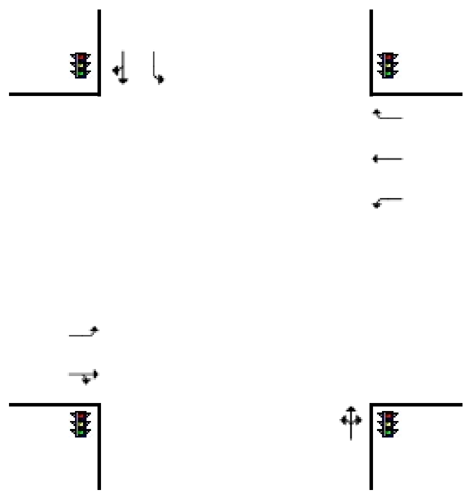


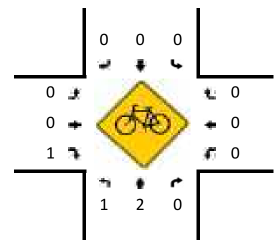
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

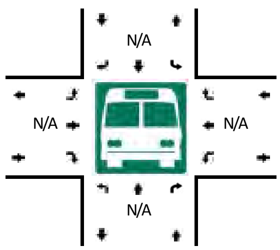
TRUE DATA TO IMPROVE MOBILITY

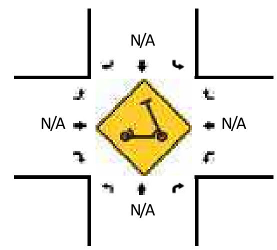












5-Min Count Period Beginning At	NE Johnson St (Northbound)				NE Johnson St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	17	5	0	18	7	3	0	2	1	0	0	0	4	14	0	71	
7:05 AM	0	19	6	0	17	12	1	0	1	4	0	0	0	6	20	0	86	
7:10 AM	0	19	4	0	16	6	3	0	0	3	0	0	0	2	19	0	72	
7:15 AM	0	18	3	0	22	6	1	0	4	3	0	0	0	3	14	0	74	
7:20 AM	0	19	2	0	18	8	0	0	1	3	0	0	0	3	11	0	65	
7:25 AM	0	16	2	0	20	7	2	0	1	8	0	0	0	3	22	0	81	
7:30 AM	0	22	1	0	23	9	0	0	1	2	0	0	0	2	7	0	67	
7:35 AM	0	28	3	0	30	13	3	0	1	3	0	0	1	6	23	0	111	
7:40 AM	0	19	4	0	21	9	5	0	2	6	0	0	1	3	23	0	93	
7:45 AM	0	33	4	0	21	16	4	0	4	0	0	0	0	2	26	0	110	
7:50 AM	0	25	3	0	30	18	0	0	5	7	0	0	3	6	36	0	133	
7:55 AM	0	35	1	0	25	18	1	0	2	4	0	0	2	5	35	0	128	1091
8:00 AM	0	35	2	0	31	16	4	0	5	6	0	0	0	7	29	0	135	1155
8:05 AM	0	25	4	0	29	17	2	0	4	8	0	0	0	3	36	0	128	1197
8:10 AM	1	28	1	0	32	13	4	0	2	7	1	0	1	3	30	0	123	1248
8:15 AM	0	24	6	0	34	8	0	0	3	6	0	0	0	2	28	0	111	1285
8:20 AM	0	20	8	0	25	11	6	0	8	5	0	0	1	3	23	0	110	1330
8:25 AM	0	24	1	0	20	12	0	0	3	9	0	0	1	7	31	0	108	1357
8:30 AM	0	20	3	0	17	5	4	0	3	6	0	0	1	8	20	0	87	1377
8:35 AM	0	18	1	0	18	7	1	0	2	5	0	0	0	9	25	0	86	1352
8:40 AM	0	10	1	0	20	13	0	0	1	3	0	0	1	4	13	0	66	1325
8:45 AM	0	15	4	0	22	7	3	0	4	5	0	0	0	5	21	0	86	1301
8:50 AM	0	12	1	0	26	12	4	0	2	4	0	0	0	3	26	0	90	1258
8:55 AM	0	22	3	0	23	8	3	0	6	6	0	0	1	3	16	0	91	1221

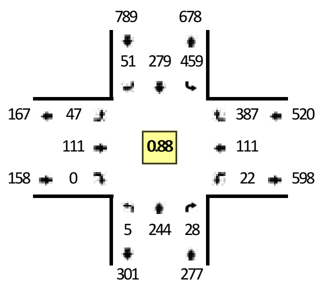
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	380	24	0	344	208	20	0	48	68	0	0	20	72	400	0	1584
Heavy Trucks	0	36	0		36	20	0		4	4	0		4	0	16		120
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

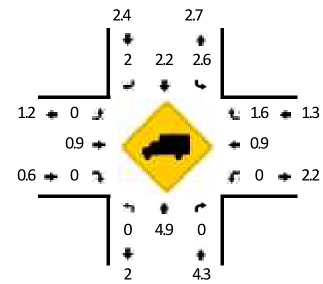
Comments:

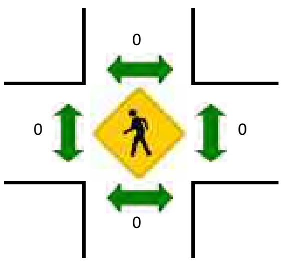
Type of peak hour being reported: User-Defined   Method for determining peak hour: Total Entering Volume

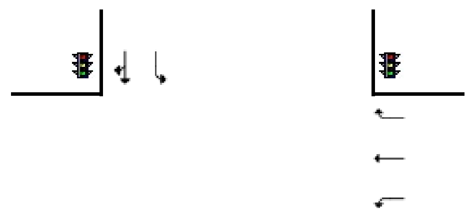
LOCATION: NE Johnson St -- NE 3rd St   **QC JOB #:** 16348612
CITY/STATE: McMinnville, OR   **DATE:** Tue, Oct 3 2023

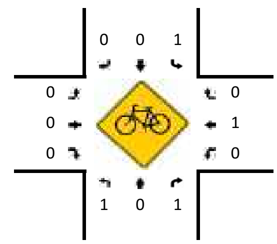
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

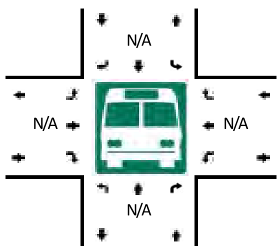


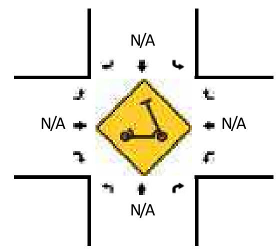












5-Min Count Period Beginning At	NE Johnson St (Northbound)				NE Johnson St (Southbound)				NE 3rd St (Eastbound)				NE 3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	23	1	0	24	19	3	0	6	12	0	0	0	10	35	0	133	
4:05 PM	0	14	4	0	35	19	5	0	2	12	0	0	2	10	32	0	135	
4:10 PM	0	14	3	0	37	16	0	0	4	10	1	0	3	12	23	0	123	
4:15 PM	0	16	1	0	32	29	3	0	5	12	0	0	0	11	34	0	143	
4:20 PM	0	9	2	0	43	23	4	0	3	9	0	0	3	11	31	0	138	
4:25 PM	1	20	2	0	28	20	6	0	5	7	0	0	1	6	31	0	127	
4:30 PM	1	16	2	0	36	19	4	0	4	6	0	0	5	6	30	0	129	
4:35 PM	0	25	2	0	36	28	2	0	2	10	0	0	4	12	32	0	153	
4:40 PM	1	18	1	0	42	21	6	0	5	9	0	0	1	9	35	0	148	
4:45 PM	1	21	4	0	31	29	4	0	2	11	0	0	2	4	27	0	136	
4:50 PM	0	18	2	0	42	24	4	0	3	10	0	0	2	13	31	0	149	
4:55 PM	0	16	1	0	22	20	5	0	3	10	0	0	0	11	30	0	118	1632
5:00 PM	1	19	1	0	44	24	6	0	9	8	0	0	1	13	34	0	160	1659
5:05 PM	0	30	1	0	49	23	3	0	5	13	0	0	0	8	32	0	164	1688
5:10 PM	0	24	4	0	45	26	1	0	3	10	0	0	4	9	46	0	172	1737
5:15 PM	0	23	4	0	42	25	4	0	3	11	0	0	1	8	37	0	158	1752
5:20 PM	0	14	4	0	42	20	6	0	3	6	0	0	1	12	22	0	130	1744
5:25 PM	0	10	2	0	27	20	7	0	4	6	0	0	2	7	36	0	121	1738
5:30 PM	0	13	1	0	36	25	4	0	8	8	0	0	4	4	30	0	133	1742
5:35 PM	1	24	2	0	29	18	9	0	3	3	0	0	3	8	23	0	123	1712
5:40 PM	0	23	0	0	34	27	3	0	0	4	0	0	0	5	22	0	118	1682
5:45 PM	0	21	2	0	34	23	9	0	1	5	0	0	0	4	33	0	132	1678
5:50 PM	0	12	0	0	29	15	6	0	5	6	0	0	5	9	27	0	114	1643
5:55 PM	1	18	1	0	24	16	3	0	0	4	0	0	2	7	21	0	97	1622

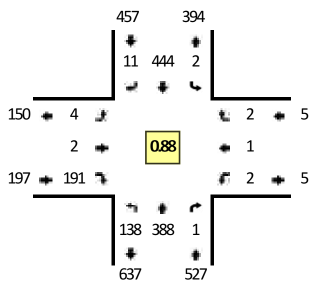
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	292	24	0	552	292	40	0	68	124	0	0	20	120	448	0	1984
Heavy Trucks	0	12	0		20	12	4		0	4	0		0	0	4		56
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		4	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 2/2/2024 2:58 PM   SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

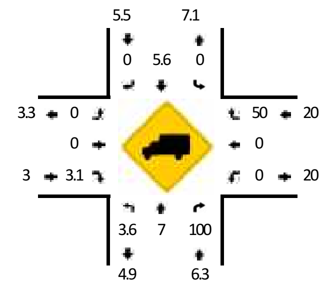
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

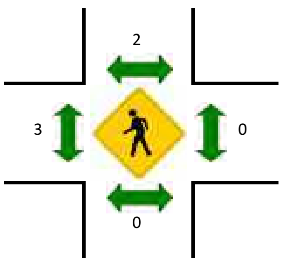
LOCATION: NE Three Mile Ln -- SE 1st St | **QC JOB #:** 16348617
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

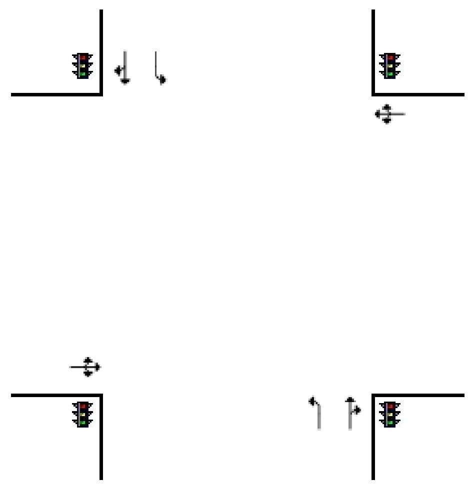


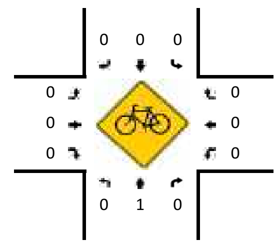
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

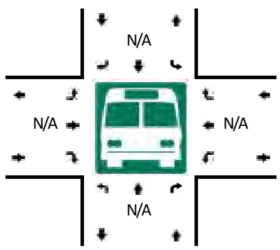
TRUE DATA TO IMPROVE MOBILITY

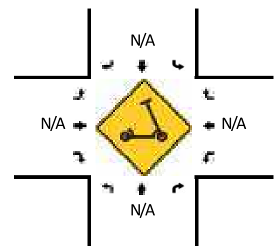












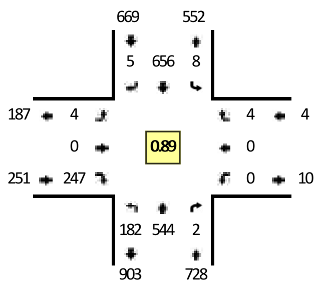
5-Min Count Period Beginning At	NE Three Mile Ln (Northbound)				NE Three Mile Ln (Southbound)				SE 1st St (Eastbound)				SE 1st St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	16	0	0	0	26	0	0	1	0	6	0	0	0	0	0	51	
7:05 AM	7	29	0	0	0	27	0	0	0	0	13	0	0	0	2	0	78	
7:10 AM	5	18	0	0	1	25	1	0	0	0	16	0	0	0	0	0	66	
7:15 AM	6	15	0	0	1	28	0	0	0	0	12	0	0	0	0	0	62	
7:20 AM	14	17	0	0	0	25	1	0	0	0	10	0	0	0	0	0	67	
7:25 AM	7	23	0	0	1	28	0	0	0	0	11	0	1	0	0	0	71	
7:30 AM	9	18	1	0	0	24	2	0	0	0	12	0	0	0	0	0	66	
7:35 AM	12	25	0	0	0	38	0	0	0	0	18	0	0	0	0	0	93	
7:40 AM	9	26	0	0	0	34	3	0	0	0	19	0	1	0	0	0	92	
7:45 AM	16	33	0	0	0	35	2	0	2	0	11	0	1	1	0	0	101	
7:50 AM	12	31	0	0	0	36	1	0	1	0	27	0	0	0	0	0	108	
7:55 AM	16	40	0	0	2	36	1	0	0	0	19	0	0	0	0	0	114	969
8:00 AM	13	36	0	0	0	36	0	0	0	0	22	0	0	0	0	0	107	1025
8:05 AM	10	50	0	0	0	42	0	0	0	2	11	0	0	0	1	0	116	1063
8:10 AM	12	30	0	0	0	45	0	0	0	0	11	0	0	0	0	0	98	1095
8:15 AM	8	27	0	0	0	44	2	0	0	0	13	0	0	0	0	0	94	1127
8:20 AM	10	34	0	0	0	44	0	0	0	0	19	0	0	0	1	0	108	1168
8:25 AM	11	38	0	0	0	30	0	0	1	0	9	0	0	0	0	0	89	1186
8:30 AM	4	25	0	0	0	30	0	0	0	0	14	0	0	1	1	0	75	1195
8:35 AM	6	35	0	0	0	28	0	0	0	0	10	0	0	0	0	0	79	1181
8:40 AM	5	21	0	0	1	23	0	0	0	0	12	0	1	2	0	0	65	1154
8:45 AM	12	27	0	0	0	31	0	0	0	0	13	0	0	0	0	0	83	1136
8:50 AM	9	32	0	0	1	25	2	0	0	0	10	0	0	0	0	0	79	1107
8:55 AM	4	22	0	0	0	33	0	0	0	0	8	0	1	1	1	0	70	1063

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	156	504	0	0	8	456	4	0	0	8	208	0	0	0	4	0	1348
Heavy Trucks	8	44	0		0	28	0		0	0	8		0	0	0		88
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

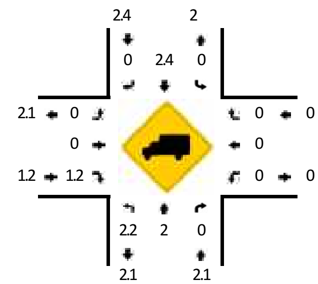
LOCATION: NE Three Mile Ln -- SE 1st St
CITY/STATE: McMinnville, OR

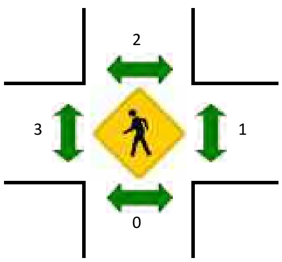
QC JOB #: 16348618
DATE: Tue, Oct 3 2023

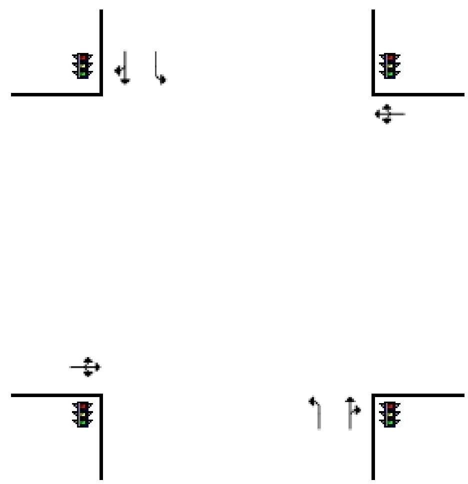


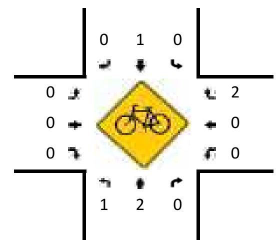
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

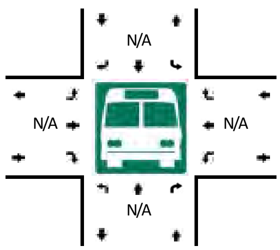
TRUE DATA TO IMPROVE MOBILITY

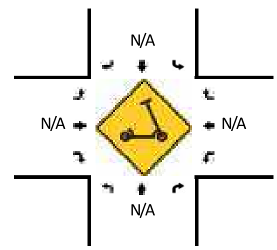












5-Min Count Period Beginning At	NE Three Mile Ln (Northbound)				NE Three Mile Ln (Southbound)				SE 1st St (Eastbound)				SE 1st St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	13	41	0	0	1	38	0	0	1	0	9	0	0	0	0	0	103	
4:05 PM	15	45	0	0	2	43	0	0	0	0	9	0	0	0	0	0	114	
4:10 PM	13	35	0	0	0	57	0	0	0	0	13	0	0	0	1	0	119	
4:15 PM	15	48	0	0	0	42	0	0	0	0	13	0	0	0	1	0	119	
4:20 PM	18	46	1	0	0	54	0	0	0	0	11	0	0	0	0	0	130	
4:25 PM	11	37	0	0	1	42	2	0	0	0	14	0	0	0	1	0	108	
4:30 PM	20	50	0	0	0	48	0	0	1	0	16	0	0	0	0	0	135	
4:35 PM	14	48	0	0	0	49	0	0	0	0	22	0	0	0	0	0	133	
4:40 PM	12	39	0	0	0	59	0	0	1	0	30	0	0	0	0	0	141	
4:45 PM	20	41	0	0	1	44	0	0	0	0	26	0	0	0	0	0	132	
4:50 PM	19	47	0	0	2	67	0	0	0	0	15	0	0	0	1	0	151	
4:55 PM	8	50	0	0	0	44	0	0	1	0	20	0	0	0	1	0	124	1509
5:00 PM	12	37	0	0	0	57	1	0	0	0	24	0	0	0	0	0	131	1537
5:05 PM	26	50	2	0	0	66	1	0	0	0	23	0	0	0	0	0	168	1591
5:10 PM	13	56	0	0	1	61	0	0	0	0	20	0	0	0	0	0	151	1623
5:15 PM	15	44	0	0	2	66	0	0	0	0	17	0	0	0	1	0	145	1649
5:20 PM	12	45	0	0	1	53	1	0	1	0	20	0	0	0	0	0	133	1652
5:25 PM	18	41	1	0	2	37	0	0	0	0	25	0	0	0	0	0	124	1668
5:30 PM	16	36	0	0	0	48	1	0	1	0	13	0	0	0	0	0	115	1648
5:35 PM	15	36	0	0	0	40	0	0	0	0	21	0	0	0	0	0	112	1627
5:40 PM	15	25	0	0	0	45	0	0	0	0	11	0	0	0	0	0	96	1582
5:45 PM	16	48	0	0	1	44	1	0	0	0	14	0	0	1	0	0	125	1575
5:50 PM	20	35	0	0	0	34	0	0	0	0	12	0	0	1	0	0	102	1526
5:55 PM	18	28	0	0	0	33	0	0	1	0	9	0	0	0	1	0	90	1492

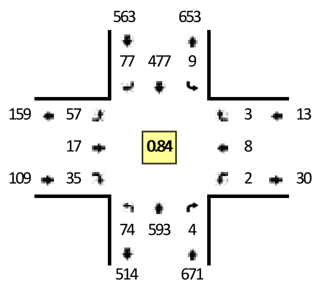
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	216	600	8	0	12	772	4	0	0	0	240	0	0	0	4	0	1856
Heavy Trucks	0	16	0		0	24	0		0	0	4		0	0	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	8	0		0	4	0		0	0	0		0	0	0		12
Scooters																	

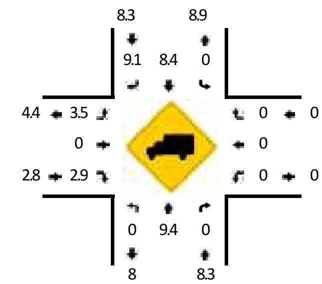
Comments:

Report generated on 2/2/2024 3:03 PM

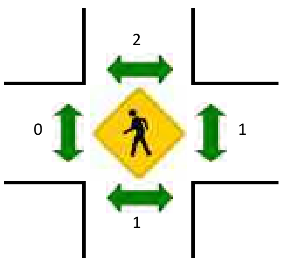
LOCATION: NE Lafayette Ave -- NE 5th St
QC JOB #: 16348605
CITY/STATE: McMinnville, OR
DATE: Tue, Oct 3 2023

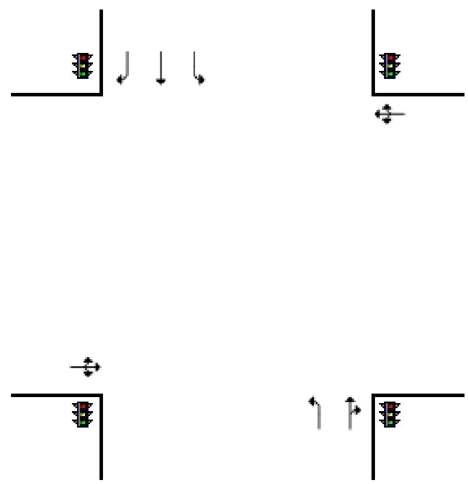
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

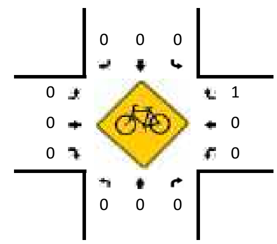


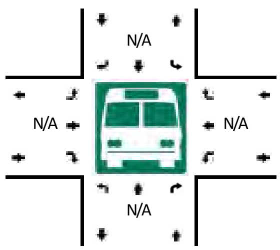


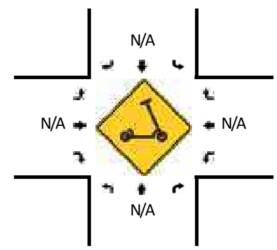
TRUE DATA TO IMPROVE MOBILITY









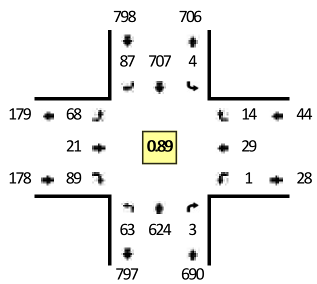


5-Min Count Period Beginning At	NE Lafayette Ave (Northbound)				NE Lafayette Ave (Southbound)				NE 5th St (Eastbound)				NE 5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	29	0	0	0	29	4	0	2	0	0	0	0	0	0	0	67	
7:05 AM	4	37	0	0	1	26	6	0	2	1	3	0	0	0	0	0	80	
7:10 AM	4	32	0	0	0	23	4	0	1	0	1	0	1	1	1	0	68	
7:15 AM	3	33	1	0	1	29	2	0	3	1	0	0	0	0	0	0	73	
7:20 AM	2	31	0	0	1	26	5	0	3	2	0	0	0	1	0	0	71	
7:25 AM	9	29	1	0	0	28	4	0	4	3	2	0	0	1	1	0	82	
7:30 AM	0	26	0	0	3	33	7	0	3	4	2	0	0	0	0	0	78	
7:35 AM	4	42	3	0	0	39	4	0	4	3	3	0	0	0	0	0	102	
7:40 AM	2	45	0	0	0	38	3	0	5	1	2	0	0	0	0	0	96	
7:45 AM	9	55	1	0	0	37	5	0	2	1	3	0	0	1	2	0	116	
7:50 AM	8	56	0	0	2	45	8	0	5	1	2	0	0	1	0	0	128	
7:55 AM	14	53	0	0	0	50	11	0	3	1	3	0	0	0	0	0	135	1096
8:00 AM	10	64	0	0	2	40	7	0	7	2	4	0	0	4	0	0	140	1169
8:05 AM	9	53	0	0	0	45	6	0	6	0	7	0	1	1	0	0	128	1217
8:10 AM	4	57	0	0	1	45	9	0	6	2	1	0	1	0	0	0	126	1275
8:15 AM	5	51	0	0	0	38	9	0	5	0	1	0	0	0	0	0	109	1311
8:20 AM	4	44	0	0	1	37	3	0	6	2	5	0	0	1	0	0	103	1343
8:25 AM	5	47	0	0	0	30	5	0	5	0	2	0	0	0	1	0	95	1356
8:30 AM	7	34	2	0	1	25	4	0	3	1	3	0	1	0	0	0	81	1359
8:35 AM	7	43	1	0	0	24	8	0	7	0	3	0	0	0	0	0	93	1350
8:40 AM	2	21	0	0	0	28	5	0	2	1	4	0	1	0	0	0	64	1318
8:45 AM	2	35	0	0	0	34	3	0	5	0	2	0	1	1	0	0	83	1285
8:50 AM	5	35	0	0	1	37	7	0	5	0	3	0	0	2	1	0	96	1253
8:55 AM	4	41	2	0	3	28	6	0	1	0	4	0	0	0	0	0	89	1207

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	128	692	0	0	16	540	104	0	60	16	36	0	0	20	0	0	1612
Heavy Trucks	0	68	0		0	48	12		4	0	0		0	0	0		132
Buses																	
Pedestrians		4				4				0				4			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

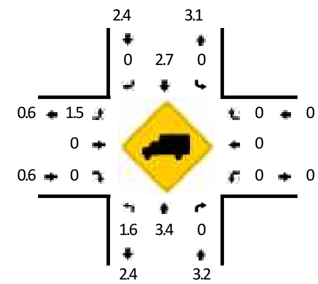
Comments:

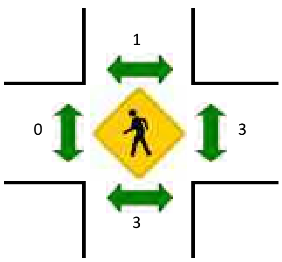
LOCATION: NE Lafayette Ave -- NE 5th St | **QC JOB #:** 16348606
CITY/STATE: McMinnville, OR | **DATE:** Tue, Oct 3 2023

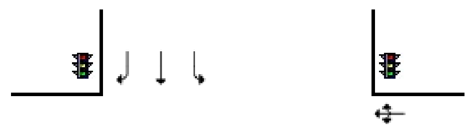


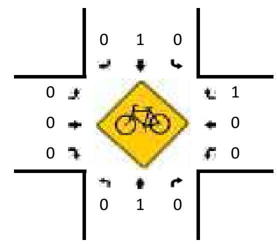
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

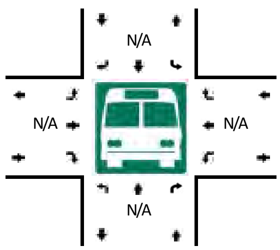
TRUE DATA TO IMPROVE MOBILITY

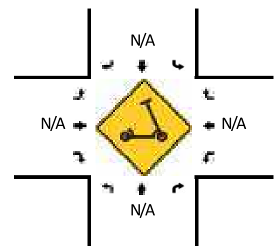












5-Min Count Period Beginning At	NE Lafayette Ave (Northbound)				NE Lafayette Ave (Southbound)				NE 5th St (Eastbound)				NE 5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	55	1	0	1	35	6	0	9	2	7	0	0	2	2	0	123	
4:05 PM	4	51	0	0	1	50	12	0	4	1	6	0	1	4	2	0	136	
4:10 PM	2	39	0	0	1	55	10	0	7	1	3	0	0	0	1	0	119	
4:15 PM	8	44	0	0	0	61	6	0	7	0	4	0	0	0	0	0	130	
4:20 PM	2	42	0	0	2	64	4	0	7	1	6	0	0	1	2	0	131	
4:25 PM	7	50	0	0	0	48	5	0	9	0	3	0	0	3	0	0	125	
4:30 PM	3	49	1	0	1	56	9	0	5	2	6	0	0	2	1	0	135	
4:35 PM	7	52	0	0	0	60	4	0	7	2	13	0	0	5	0	0	150	
4:40 PM	8	48	0	0	0	59	8	0	3	2	8	0	0	1	3	0	140	
4:45 PM	4	52	0	0	1	71	4	0	5	1	4	0	0	1	0	0	143	
4:50 PM	5	42	0	0	2	55	6	0	13	0	6	0	0	3	0	0	132	
4:55 PM	5	49	1	0	0	49	7	0	3	2	5	0	0	2	1	0	124	1588
5:00 PM	1	56	0	0	0	65	8	0	5	3	6	0	1	4	2	0	151	1616
5:05 PM	5	63	1	0	0	58	10	0	9	3	12	0	0	2	3	0	166	1646
5:10 PM	7	69	0	0	0	62	10	0	2	2	9	0	0	2	2	0	165	1692
5:15 PM	8	54	0	0	0	64	6	0	1	2	11	0	0	3	1	0	150	1712
5:20 PM	3	40	0	0	0	60	10	0	6	2	6	0	0	1	1	0	129	1710
5:25 PM	5	42	0	0	2	45	5	0	7	1	7	0	0	0	0	0	114	1699
5:30 PM	1	46	0	0	0	57	3	0	2	0	8	0	0	0	2	0	119	1683
5:35 PM	5	52	0	0	0	53	8	0	3	0	5	0	0	1	0	0	127	1660
5:40 PM	2	38	0	0	0	56	6	0	6	0	5	0	0	0	1	0	114	1634
5:45 PM	2	54	0	0	0	66	3	0	4	0	5	0	0	0	0	0	134	1625
5:50 PM	2	41	0	0	1	43	10	0	4	2	4	0	0	0	1	0	108	1601
5:55 PM	2	35	0	0	0	40	11	0	7	0	5	0	0	0	0	0	100	1577

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	52	752	4	0	0	740	112	0	64	32	108	0	4	32	28	0	1928
Heavy Trucks	0	16	0		0	24	0		0	0	0		0	0	0		40
Buses																	
Pedestrians		4				4				0				4			12
Bicycles	0	4	0		0	4	0		0	0	0		0	0	0		8
Scooters																	

Comments:

Attachment C: Unbalanced Seasonally-Adjusted Existing AM and PM Peak Hour Volumes

This sheet contains rounded AM volumes with seasonal adjustment.
Rounded per APM 5.6.2

Seasonal Factors:	
All intersections but 3rd & Cowls	1.039
Cowls & 3rd Intersection	1.042

Sum all TEV: 12044
Compare to TMC: 3.8%

Rounding explanation: Per APM 5.6.2 volumes should be rounded to nearest 5 but volumes under 5 should say <5. That's why volumes under 5 are rounded to a whole number and volumes over 5 are rounded to

TEV: 978

NE Adams St / NE 5th St — Kittelson & Associates, Inc. — City: McMinnville, State: OR — 7:30 AM to 8:30 AM — TEV: 978 — 1 — 0.84 — 2023 10 3

SB: 886 — 0% 5% 3% — 0 — 0 — 1 0 0 — 1 775 110
EB: 6 — 0% 0 — 0% 0 — 0% 1 — 0 3 4 — 7 — 270
WB: 0 0 5 80 — 90 — 85 — 0 0% — 0 0% — 1 5% — 113
NB: 0 0 0 0 — 0 0 1 — 180 — 859 — 0% 0% 0% — 0
Peds: 3, 1, 2, 2
Notes: 5-Min Count Interval

Diff: -25
(Duch Bros and Chase parking in between)
Diff: -7

TEV: 1370

NE Baker St / NE 5th St — Kittelson & Associates, Inc. — City: McMinnville, State: OR — 7:30 AM to 8:30 AM — TEV: 1370 — 2 — 0.86 — 2023 10 3

SB: 0 — 0% 0% 0% — 1035 — 0 — 0 0 0 — 0 0 0
EB: 110 — 0% 0 — 2% 0 — 0% 0 — 30 90 0 — 120 — 270
WB: 0 30 85 0 — 90 — 115 — 0 4% — 1 6% — 1 0% — 225
NB: 25 975 135 0 — 0 0 0 — 180 — 0 — 0% 4% 5% — 1135
Peds: 7, 6, 5, 7
Notes: 5-Min Count Interval

Diff: 24 (interesection in between)

Diff: -47 (interesection in between)

TEV: 850

NE Adams St / NE 3rd St — Kittelson & Associates, Inc. — City: McMinnville, State: OR — 7:30 AM to 8:30 AM — TEV: 850 — 3 — 0.88 — 2023 10 3

SB: 835 — 0% 5% 0% — 0 — 0 — 0 0 0 — 0 790 45
EB: 0 — 0% 0 — 0% 0 — 0% 0 — 0 0 0 — 0 — 270
WB: 0 0 0 15 — 90 — 15 — 1 0% — 0 0% — 0 7% — 45
NB: 0 0 0 0 — 0 0 1 — 180 — 805 — 0% 0% 0% — 0
Peds: 7, 8, 2, 0
Notes: 5-Min Count Interval

Diff: -4
(first federal driveway in between)
Diff: -2

TEV: 1271

NE Baker St / NE 3rd St — Kittelson & Associates, Inc. — City: McMinnville, State: OR — 7:30 AM to 8:30 AM — TEV: 1271 — 4 — 0.89 — 2023 10 3

SB: 0 — 0% 0% 0% — 1182 — 0 — 0 0 0 — 0 0 0
EB: 19 — 0% 0 — 0% 1 — 0% 0 — 2 45 0 — 47 — 270
WB: 0 35 15 0 — 90 — 50 — 0 6% — 0 7% — 0 0% — 70
NB: 4 1145 25 0 — 0 0 0 — 180 — 0 — 0% 6% 9% — 1174
Peds: 9, 6, 4, 3
Notes: 5-Min Count Interval

TEV: 0 — 7

NE Cowls Street / NE 3rd Street — Kittelson & Associates, Inc. — City: McMinnville, State: OR — X:00 to X:00 p.m. — TEV: 0 — phf — yyyy mm dd

SB: 0 — 0 — 0 — 0 0 0
EB: 0 — 0 0 0 — 0 — 270
WB: 0 0 0 0 — 90 — 0 — 0
NB: 0 0 0 0 — 180 — 0 — 0
Notes

Diff: 15 (two driveways in between)
(people can enter/exit driveway from a different street)

Diff: 4 (two driveways in between)
(people can enter/exit
driveway from a different street)

TEV: 1655

NE Adams St / SW 2nd St — Kittelson & Associates, Inc. — City: McMinnville, State: OR — 7:30 AM to 8:30 AM — TEV: 1655 — 5 — 0.88 — 2023 10 3

SB: 790 — 5% 7% 6% — 0 — 0 — 0 1 1 — 115 590 85
EB: 310 — 0% 1 — 2% 0 — 2% 0 — 0 500 135 — 635 — 270
WB: 0 0 195 35 — 90 — 230 — 0 0% — 1 6% — 0 6% — 585
NB: 0 0 0 0 — 0 0 2 — 180 — 760 — 0% 0% 0% — 0
Peds: 2, 1, 1, 4
Notes: 5-Min Count Interval

Diff: -20
(first federal driveway in between)
Diff: -3

TEV: 1870

NE Baker St / NE 2nd St — Kittelson & Associates, Inc. — City: McMinnville, State: OR — 7:30 AM to 8:30 AM — TEV: 1870 — 6 — 0.89 — 2023 10 3

SB: 0 — 0% 0% 0% — 1170 — 0 — 1 0 0 — 0 0 0
EB: 250 — 4% 1 — 3% 2 — 0% 2 — 205 375 0 — 580 — 270
WB: 0 35 165 0 — 90 — 200 — 0 16% — 0 10% — 0 0% — 450
NB: 85 930 75 0 — 1 0 0 — 180 — 0 — 2% 6% 6% — 1090
Peds: 3, 3, 5, 2
Notes: 5-Min Count Interval

TEV: 0 8

		0				0		
		θ 0				SB	City:	McMinnville
			0	0	0		State:	OR
0	EB	Associates,	BE Davis Street			0	90 θ	0
		0	X:00 to X:00 p.m.			0		
		0	TEV: 0		phf	0		
		0	yyyy	mm	dd	0		
0	θ 270		NE 3rd Street				WB	0
			0	0	0	0		
		NB				θ 180		
		0				0		
		Notes						

TEV: 0 9

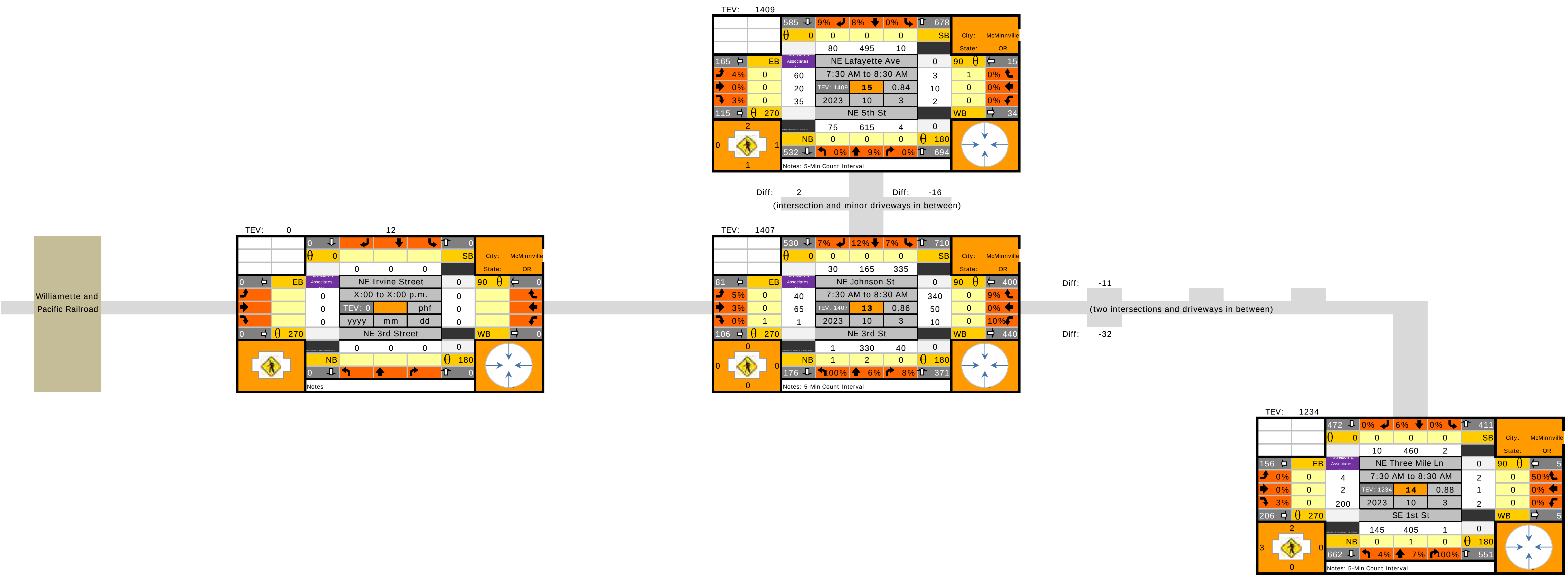
		0				0		
		θ 0				SB	City:	McMinnville
			0	0	0		State:	OR
0	EB	Associates,	NE Evans Street			0	90 θ	0
		0	X:00 to X:00 p.m.			0		
		0	TEV: 0		phf	0		
		0	yyyy	mm	dd	0		
0	θ 270		NE 3rd Street				WB	0
			0	0	0	0		
		NB				θ 180		
		0				0		
		Notes						

TEV: 0 10

		0				0		
		θ 0				SB	City:	McMinnville
			0	0	0		State:	OR
0	EB	Associates,	NE Ford Street			0	90 θ	0
		0	X:00 to X:00 p.m.			0		
		0	TEV: 0		phf	0		
		0	yyyy	mm	dd	0		
0	θ 270		NE 3rd Street				WB	0
			0	0	0	0		
		NB				θ 180		
		0				0		
		Notes						

TEV: 0 11

		0				0		
		θ 0				SB	City:	McMinnville
			0	0	0		State:	OR
0	EB	Associates,	NE Galloway Street			0	90 θ	0
		0	X:00 to X:00 p.m.			0		
		0	TEV: 0		phf	0		
		0	yyyy	mm	dd	0		
0	θ 270		NE 3rd Street				WB	0
			0	0	0	0		
		NB				θ 180		
		0				0		
		Notes						



TEV: 1409
NE Lafayette Ave
7:30 AM to 8:30 AM
NE 5th St
City: McMinnville
State: OR
Notes: 5-Min Count Interval
Diff: 2
Diff: -16
(intersection and minor driveways in between)
Williamette and Pacific Railroad
TEV: 0
NE Irvine Street
X:00 to X:00 p.m.
NE 3rd Street
Notes
TEV: 1407
NE Johnson St
7:30 AM to 8:30 AM
NE 3rd St
Notes: 5-Min Count Interval
Diff: -11
(two intersections and driveways in between)
Diff: -32
TEV: 1234
NE Three Mile Ln
7:30 AM to 8:30 AM
SE 1st St
Notes: 5-Min Count Interval

This sheet contains rounded PM volumes with seasonal adjustment.
Rounded per APM 5.6.2

Seasonal Factors:	
All intersections but 3rd & Cowls	1.039
Cowls & 3rd Intersection	1.042

Sum all TEV: 17570
Compare to TMC: 3.8%

Rounding explanation: Per APM 5.6.2 volumes should be rounded to nearest 5 but volumes under 5 should say <5. That's why volumes under 5 are rounded to a whole number and volumes over 5 are rounded to

NE Adams St / NE 5th St — TEV: 1504

City: McMinnville, State: OR. 4:25 PM to 5:25 PM, 2023, 10, 3. TEV: 1504, 1, 0.96

SB (in 1280 / out 0)	5	1190	85
SB heavy %	0%	2%	1%
SB peds/bikes	0	1	1	0
EB (in 20 / out 9)	0 (0%)	4 (0%)	5 (0%)
EB bikes	0	0	0
WB (in 215 / out 89)	0 (0%)	15 (0%)	200 (2%)
WB bikes	0	1	2
NB (in 1395 / out 0)	0	0	0
NB heavy %	0%	0%	0%
NB bikes	0	0	2

Peds: 19, 13, 2, 3. Approach angles: 0, 90, 180, 270.
Notes: 5-Min Count Interval

Diff: 0
(Duch Bros and Chase parking in betwee
Diff: -6

NE Baker St / NE 5th St — TEV: 1600

City: McMinnville, State: OR. 4:25 PM to 5:25 PM, 2023, 10, 3. TEV: 1600, 2, 0.92

SB (in 0 / out 1285)	0	0	0
SB heavy %	0%	0%	0%
SB bikes	0	0	0
EB (in 215 / out 95)	25 (0%)	70 (1%)	0 (0%)
EB bikes	0	1	0
WB (in 290 / out 100)	90 (1%)	200 (2%)	0 (0%)
WB bikes	0	2	0
NB (in 0 / out 1215)	15	1170	30
NB heavy %	0%	3%	0%
NB bikes	0	2	1

Peds: 22, 2, 5, 3.
Notes: 5-Min Count Interval

Diff: 25 (interesection in between)

Diff: 25 (interesection in between)

Note: this intsersection uses different seasonal factor as it was counted on a different day

NE Adams St / NE 3rd St — TEV: 1430

City: McMinnville, State: OR. 4:25 PM to 5:25 PM, 2023, 10, 3. TEV: 1430, 3, 0.93

SB (in 1370 / out 0)	0	1325	45
SB heavy %	0%	2%	0%
SB bikes	0	2	1
EB (in 0 / out 0)	0 (0%)	0 (0%)	0 (0%)
EB bikes	0	0	0
WB (in 60 / out 45)	0 (0%)	0 (0%)	60 (2%)
WB bikes	1	0	0
NB (in 1385 / out 0)	0	0	0
NB heavy %	0%	0%	0%
NB bikes	0	1	2

Peds: 41, 6, 1, 0.
Notes: 5-Min Count Interval

Diff: -5
(first federal driveway in betwee
Diff: -20

NE Baker St / NE 3rd St — TEV: 1350

City: McMinnville, State: OR. 4:25 PM to 5:25 PM, 2023, 10, 3. TEV: 1350, 4, 0.94

SB (in 0 / out 1190)	0	0	0
SB heavy %	0%	0%	0%
SB bikes	0	1	0
EB (in 65 / out 65)	15 (8%)	50 (0%)	0 (0%)
EB bikes	1	2	2
WB (in 115 / out 95)	65 (0%)	50 (2%)	0 (0%)
WB bikes	1	0	1
NB (in 0 / out 1170)	15	1110	45
NB heavy %	0%	4%	0%
NB bikes	1	2	0

Peds: 35, 5, 5, 11.
Notes: 5-Min Count Interval

Diff: 5
ing and one commercial driveway in betw
(people can enter/exit driveway from a
Diff: 5

NE Cowls St / NE 3rd St — TEV: 270

City: McMinnville, State: OR. 4:25 PM to 5:25 PM, 2023, 10, 11. TEV: 270, 7, 0.79

SB (in 25 / out 25)	5	15	5
SB heavy %	0%	0%	0%
SB bikes	0	1	1
EB (in 110 / out 90)	5 (0%)	75 (1%)	10 (0%)
EB bikes	0	3	0
WB (in 135 / out 90)	10 (0%)	105 (2%)	20 (0%)
WB bikes	1	2	0
NB (in 45 / out 20)	0	10	10
NB heavy %	0%	0%	0%
NB bikes	0	0	1

Peds: 43, 41, 14, 91.
Notes: 5-Min Count Interval

Diff: -20
(parking in between)
Diff: -2

Diff: 0 (two driveways in between)
(people can enter/exit driveway from a different street)

Diff: 20 (two driveways in between)
(people can enter/exit driveway from a different street)

NE Adams St / SW 2nd St — TEV: 2275

City: McMinnville, State: OR. 4:25 PM to 5:25 PM, 2023, 10, 3. TEV: 2275, 5, 0.93

SB (in 1385 / out 0)	265	1035	85
SB heavy %	0%	3%	2%
SB bikes	0	2	2
EB (in 655 / out 410)	0 (0%)	350 (1%)	60 (2%)
EB bikes	1	1	0
WB (in 480 / out 435)	0 (0%)	390 (1%)	90 (5%)
WB bikes	0	2	4
NB (in 1185 / out 0)	0	0	0
NB heavy %	0%	0%	0%
NB bikes	0	0	0

Peds: 7, 2, 1, 9.
Notes: 5-Min Count Interval

Diff: 5
(first federal driveway in betwee
Diff: -5

NE Baker St / NE 2nd St — TEV: 2010

City: McMinnville, State: OR. 4:25 PM to 5:25 PM, 2023, 10, 3. TEV: 2010, 6, 0.93

SB (in 0 / out 1150)	0	0	0
SB heavy %	0%	0%	0%
SB bikes	0	2	0
EB (in 475 / out 440)	140 (2%)	300 (1%)	0 (0%)
EB bikes	0	2	0
WB (in 385 / out 385)	35 (3%)	350 (1%)	0 (0%)
WB bikes	0	3	0
NB (in 0 / out 1185)	125	975	85
NB heavy %	1%	3%	10%
NB bikes	3	0	0

Peds: 3, 4, 3, 5.
Notes: 5-Min Count Interval

TEV: 349

		55	0%	0%	0%	42		
		θ 0	0	1	1	SB	City:	McMinnville
			5	40	10		State:	OR
155	EB	Kittelson & Associates,	NE Davis St			0	90 θ	152
0%	0	2	4:25 PM to 5:25 PM			10	0	0%
0%	3	80	TEV: 349	8	0.79	140	2	1%
0%	0	10	2023	10	3	2	1	0%
92	θ 270		NE 3rd St				WB	100
83			10	30	10	0		
20	18	NB	0	2	2	θ 180		
57		52	0%	0%	0%	50		
		Notes: 5-Min Count Interval						

Diff: 3

(parking in between)

Diff: 10

TEV: 379

		95	14%	2%	0%	55		
		θ 0	0	0	0	SB	City:	McMinnville
			20	55	20		State:	OR
149	EB	Kittelson & Associates,	NE Evans St			0	90 θ	155
0%	1	10	4:25 PM to 5:25 PM			20	0	0%
0%	5	75	TEV: 379	9	0.85	125	4	1%
0%	1	5	2023	10	3	10	2	0%
90	θ 270		NE 3rd St				WB	105
55			4	25	10	0		
11	31	NB	0	3	0	θ 180		
80		70	0%	0%	0%	39		
		Notes: 5-Min Count Interval						

Diff: 7

(parking in between)

Diff: -5

TEV: 358

		48	0%	0%	0%	45		
		θ 0	0	0	0	SB	City:	McMinnville
			3	25	20		State:	OR
148	EB	Kittelson & Associates,	NE Ford St			0	90 θ	150
0%	0	0	4:25 PM to 5:25 PM			10	1	12%
0%	5	100	TEV: 358	10	0.84	140	2	1%
0%	1	10	2023	10	3	0	1	0%
110	θ 270		NE 3rd St				WB	130
26			5	35	10	0		
14	7	NB	1	0	0	θ 180		
30		35	0%	0%	0%	50		
		Notes: 5-Min Count Interval						

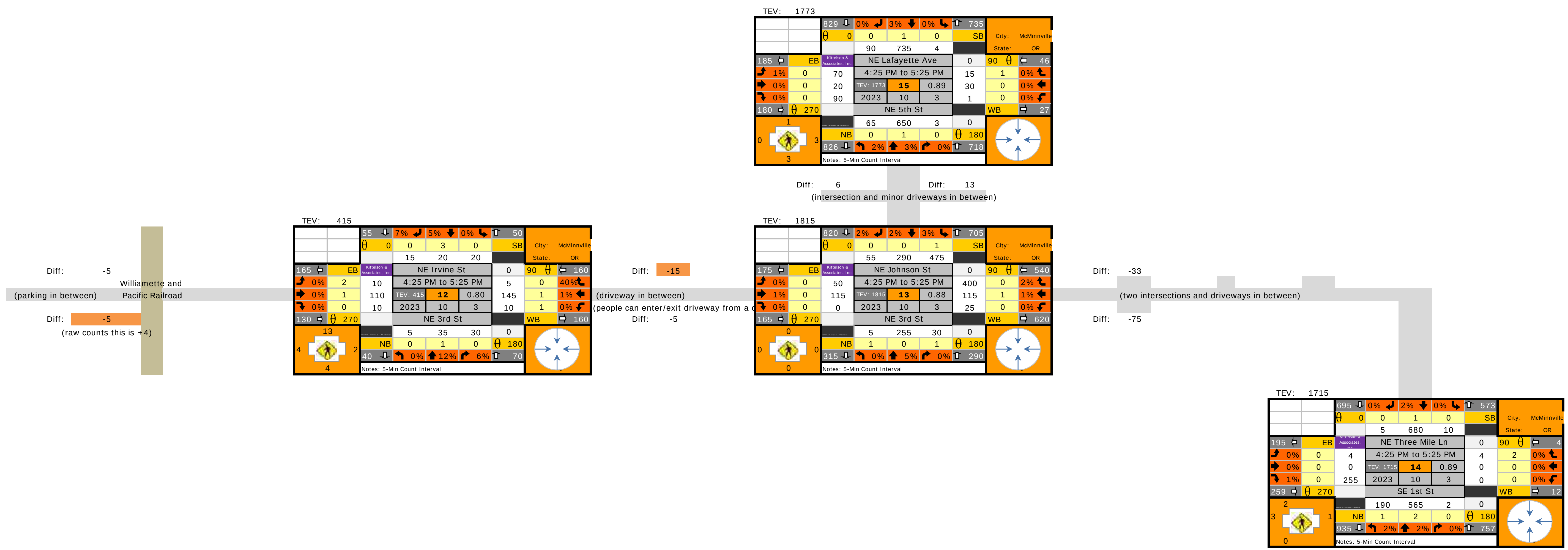
Diff: 3

Diff: 5

TEV: 327

		25	0%	0%	0%	30		
		θ 0	0	0	0	SB	City:	McMinnville
			5	10	10		State:	OR
147	EB	Kittelson & Associates,	NE Galloway St			0	90 θ	160
0%	0	5	4:25 PM to 5:25 PM			15	0	0%
0%	4	110	TEV: 327	11	0.88	140	4	1%
0%	0	10	2023	10	3	5	0	0%
125	θ 270		NE 3rd St				WB	125
30			2	10	5	0		
17	3	NB	0	0	0	θ 180		
18		25	0%	0%	0%	17		
		Notes: 5-Min Count Interval						

(parkir



TEV: 1773
NE Lafayette Ave
4:25 PM to 5:25 PM
NE 5th St
City: McMinnville
State: OR
Notes: 5-Min Count Interval
Diff: 6
Diff: 13
(intersection and minor driveways in between)
TEV: 415
NE Irvine St
4:25 PM to 5:25 PM
NE 3rd St
Notes: 5-Min Count Interval
Diff: -5
Williamette and
Pacific Railroad
(parking in between)
Diff: -5
(raw counts this is +4)
Diff: -15
(driveway in between)
(people can enter/exit driveway from a d
Diff: -5
TEV: 1815
NE Johnson St
4:25 PM to 5:25 PM
NE 3rd St
Notes: 5-Min Count Interval
Diff: -33
(two intersections and driveways in between)
Diff: -75
TEV: 1715
NE Three Mile Ln
4:25 PM to 5:25 PM
SE 1st St
Notes: 5-Min Count Interval

Attachment D: Synchro Worksheets for Existing Conditions Analysis

Queues
1: NE Adams St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	9	101	1055
v/c Ratio	0.04	0.66	0.44
Control Delay	18.5	52.7	6.4
Queue Delay	0.0	0.0	0.0
Total Delay	18.5	52.7	6.4
Queue Length 50th (ft)	2	47	86
Queue Length 95th (ft)	11	36	168
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	452	340	2382
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.30	0.44

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: NE Adams St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	3	4	80	5	0	0	0	0	110	775	1
Future Volume (vph)	0	3	4	80	5	0	0	0	0	110	775	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.96						0.99	
Satd. Flow (prot)		1744			1730						3252	
Flt Permitted		1.00			0.73						0.99	
Satd. Flow (perm)		1744			1326						3252	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	4	5	95	6	0	0	0	0	131	923	1
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	101	0	0	0	0	0	1055	0
Confl. Peds. (#/hr)	3		2	2		3	1		2	2		1
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	0%	0%	3%	5%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		9.9			9.9						52.1	
Effective Green, g (s)		6.9			6.9						49.1	
Actuated g/C Ratio		0.10			0.10						0.70	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		171			130						2281	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.08						0.32	
v/c Ratio		0.03			0.78						0.46	
Uniform Delay, d1		28.5			30.8						4.6	
Progression Factor		1.00			1.18						1.00	
Incremental Delay, d2		0.0			23.3						0.7	
Delay (s)		28.6			59.8						5.3	
Level of Service		C			E						A	
Approach Delay (s)		28.6			59.8			0.0			5.3	
Approach LOS		C			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: NE Baker St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	140	134	1320
v/c Ratio	0.54	0.41	0.54
Control Delay	37.5	22.2	1.7
Queue Delay	0.0	0.0	0.0
Total Delay	37.5	22.2	1.7
Queue Length 50th (ft)	67	41	41
Queue Length 95th (ft)	114	69	6
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	556	660	2431
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.25	0.20	0.54

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: NE Baker St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	90	0	0	85	30	25	975	135	0	0	0
Future Volume (vph)	30	90	0	0	85	30	25	975	135	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			0.98				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1662			1729			3222				
Flt Permitted		0.89			1.00			1.00				
Satd. Flow (perm)		1498			1729			3222				
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	35	105	0	0	99	35	29	1134	157	0	0	0
RTOR Reduction (vph)	0	0	0	0	24	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	140	0	0	110	0	0	1312	0	0	0	0
Confl. Peds. (#/hr)	7		7	7		7	6		5	5		6
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	0%	0%	6%	4%	0%	4%	5%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		10.9			10.9			51.1				
Effective Green, g (s)		10.9			10.9			51.1				
Actuated g/C Ratio		0.16			0.16			0.73				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		233			269			2352				
v/s Ratio Prot					0.06							
v/s Ratio Perm		c0.09						0.41				
v/c Ratio		0.60			0.41			0.56				
Uniform Delay, d1		27.5			26.6			4.3				
Progression Factor		1.22			1.00			0.21				
Incremental Delay, d2		3.4			0.7			0.6				
Delay (s)		37.0			27.4			1.5				
Level of Service		D			C			A				
Approach Delay (s)		37.0			27.4			1.5			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC
3: NE Adams St & NE 3rd St

01/11/2024

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	0	0	0	45	790
Future Vol, veh/h	15	0	0	0	45	790
Conflicting Peds, #/hr	0	7	0	2	2	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	88	88	88	88	88	88
Heavy Vehicles, %	7	0	0	0	0	5
Mvmt Flow	17	0	0	0	51	898

Major/Minor	Minor1				Major2	
Conflicting Flow All	553	-			2	0
Stage 1	2	-			-	-
Stage 2	551	-			-	-
Critical Hdwy	6.94	-			4.1	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	5.94	-			-	-
Follow-up Hdwy	3.57	-			2.2	-
Pot Cap-1 Maneuver	451	0			1634	-
Stage 1	-	0			-	-
Stage 2	527	0			-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	422	-			1631	-
Mov Cap-2 Maneuver	422	-			-	-
Stage 1	-	-			-	-
Stage 2	494	-			-	-

Approach	WB				SB
HCM Control Delay, s	13.9				0.6
HCM LOS	B				

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	422	1631	-
HCM Lane V/C Ratio	0.04	0.031	-
HCM Control Delay (s)	13.9	7.3	0.2
HCM Lane LOS	B	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-

Queues
4: NE Baker St & NE 3rd St 01/11/2024

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	53	56	1291	28
v/c Ratio	0.08	0.10	0.78	0.04
Control Delay	12.3	8.0	17.8	3.7
Queue Delay	0.0	0.0	48.9	0.0
Total Delay	12.3	8.0	66.7	3.7
Queue Length 50th (ft)	18	5	220	0
Queue Length 95th (ft)	m18	26	295	11
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	632	557	1664	757
Starvation Cap Reductn	0	0	595	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.08	0.10	1.21	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	45	0	0	15	35	4	1145	25	0	0	0
Future Volume (vph)	2	45	0	0	15	35	4	1145	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.99			1.00	0.98			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.91			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1706			1438			3235	1446			
Flt Permitted		1.00			1.00			1.00	1.00			
Satd. Flow (perm)		1702			1438			3235	1446			
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	2	51	0	0	17	39	4	1287	28	0	0	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	14	0	0	0
Lane Group Flow (vph)	0	53	0	0	33	0	0	1291	14	0	0	0
Confl. Peds. (#/hr)	9		3	3		9	6		4	4		6
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	7%	6%	0%	6%	9%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4						6		6			
Actuated Green, G (s)		26.0			26.0			36.0	36.0			
Effective Green, g (s)		26.0			26.0			36.0	36.0			
Actuated g/C Ratio		0.37			0.37			0.51	0.51			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		632			534			1663	743			
v/s Ratio Prot					0.02							
v/s Ratio Perm		c0.03						0.40	0.01			
v/c Ratio		0.08			0.06			0.78	0.02			
Uniform Delay, d1		14.3			14.2			13.7	8.3			
Progression Factor		0.83			1.00			1.00	1.00			
Incremental Delay, d2		0.2			0.2			3.6	0.0			
Delay (s)		12.0			14.4			17.4	8.4			
Level of Service		B			B			B	A			
Approach Delay (s)		12.0			14.4			17.2			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: NE Adams St & SW 2nd St

01/11/2024

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	568	153	40	222	898
v/c Ratio	0.87	0.24	0.17	0.30	0.62
Control Delay	34.4	3.8	12.1	14.3	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	3.8	12.1	14.3	16.4
Queue Length 50th (ft)	171	0	12	69	113
Queue Length 95th (ft)	#331	29	m12	m44	#208
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	695	677	237	925	1441
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	0.23	0.17	0.24	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	500	135	35	195	0	0	0	0	85	590	115
Future Volume (vph)	0	500	135	35	195	0	0	0	0	85	590	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		1863	1558	1703	1792						3119	
Flt Permitted		1.00	1.00	0.16	1.00						0.99	
Satd. Flow (perm)		1863	1558	287	1792						3119	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	568	153	40	222	0	0	0	0	97	670	131
RTOR Reduction (vph)	0	0	99	0	0	0	0	0	0	0	20	0
Lane Group Flow (vph)	0	568	54	40	222	0	0	0	0	0	878	0
Confl. Peds. (#/hr)	2		4	4		2	1		1	1		1
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	2%	2%	6%	6%	0%	0%	0%	0%	6%	7%	5%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		21.0	21.0	27.0	27.0						25.0	
Effective Green, g (s)		21.0	21.0	27.0	27.0						25.0	
Actuated g/C Ratio		0.35	0.35	0.45	0.45						0.42	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		652	545	176	806						1299	
v/s Ratio Prot		c0.30		0.01	c0.12							
v/s Ratio Perm			0.03	0.09							0.28	
v/c Ratio		0.87	0.10	0.23	0.28						0.68	
Uniform Delay, d1		18.2	13.1	12.1	10.4						14.2	
Progression Factor		1.00	1.00	1.28	1.26						1.00	
Incremental Delay, d2		12.1	0.1	0.4	0.1						2.8	
Delay (s)		30.4	13.2	16.0	13.1						17.0	
Level of Service		C	B	B	B						B	
Approach Delay (s)		26.7			13.6			0.0			17.0	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

01/11/2024

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	230	421	185	39	1225
v/c Ratio	0.64	0.64	0.55	0.11	0.75
Control Delay	17.4	13.9	27.3	1.4	16.5
Queue Delay	0.0	0.3	0.0	0.0	0.0
Total Delay	17.4	14.2	27.3	1.4	16.5
Queue Length 50th (ft)	22	41	62	0	158
Queue Length 95th (ft)	m55	m99	101	4	#323
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	359	799	489	453	1641
Starvation Cap Reductn	0	69	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.58	0.38	0.09	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: NE Baker St & NE 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	375	0	0	165	35	85	930	75	0	0	0
Future Volume (vph)	205	375	0	0	165	35	85	930	75	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1734	1845			1727	1371		3192				
Flt Permitted	0.42	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	758	1845			1727	1371		3192				
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	230	421	0	0	185	39	96	1045	84	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	31	0	8	0	0	0	0
Lane Group Flow (vph)	230	421	0	0	185	8	0	1217	0	0	0	0
Confl. Peds. (#/hr)	3		2	2		3	3		5	5		3
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	4%	3%	0%	0%	10%	16%	2%	6%	6%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	21.3	21.3			11.7	11.7		30.7				
Effective Green, g (s)	21.3	21.3			11.7	11.7		30.7				
Actuated g/C Ratio	0.36	0.36			0.19	0.19		0.51				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	360	654			336	267		1633				
v/s Ratio Prot	0.06	c0.23			0.11							
v/s Ratio Perm	0.17					0.01		0.38				
v/c Ratio	0.64	0.64			0.55	0.03		0.75				
Uniform Delay, d1	14.9	16.2			21.8	19.5		11.6				
Progression Factor	0.84	0.69			1.00	1.00		1.00				
Incremental Delay, d2	1.9	1.1			1.6	0.0		3.1				
Delay (s)	14.4	12.3			23.3	19.6		14.7				
Level of Service	B	B			C	B		B				
Approach Delay (s)		13.0			22.7			14.7			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: NE Johnson St & NE 3rd St

01/11/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	47	77	12	58	395	432	390	227
v/c Ratio	0.17	0.19	0.04	0.16	0.65	0.72	0.79	0.27
Control Delay	14.2	16.0	12.4	17.5	8.2	24.9	28.0	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	16.0	12.4	17.5	8.2	24.9	28.0	7.4
Queue Length 50th (ft)	10	17	3	13	0	81	35	16
Queue Length 95th (ft)	26	46	10	37	47	#270	#205	77
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	279	697	289	711	801	661	494	1036
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.11	0.04	0.08	0.49	0.65	0.79	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: NE Johnson St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	65	1	10	50	340	1	330	40	335	165	30
Future Volume (vph)	40	65	1	10	50	340	1	330	40	335	165	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
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		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1719	1842		1641	1900	1482		1754		1687	1669	
Flt Permitted	0.68	1.00		0.71	1.00	1.00		1.00		0.39	1.00	
Satd. Flow (perm)	1234	1842		1221	1900	1482		1754		693	1669	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	47	76	1	12	58	395	1	384	47	390	192	35
RTOR Reduction (vph)	0	1	0	0	0	322	0	7	0	0	9	0
Lane Group Flow (vph)	47	76	0	12	58	73	0	425	0	390	218	0
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	5%	3%	0%	10%	0%	9%	100%	6%	8%	7%	12%	7%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	10.6	9.6		9.6	9.1	9.1		15.9		27.1	27.1	
Effective Green, g (s)	10.6	9.6		9.6	9.1	9.1		15.9		27.1	27.1	
Actuated g/C Ratio	0.22	0.20		0.20	0.18	0.18		0.32		0.55	0.55	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	275	359		242	351	274		566		527	919	
v/s Ratio Prot	c0.00	0.04		0.00	0.03					c0.11	0.13	
v/s Ratio Perm	0.03			0.01		c0.05		0.24		c0.30		
v/c Ratio	0.17	0.21		0.05	0.17	0.27		0.75		0.74	0.24	
Uniform Delay, d1	15.6	16.6		16.1	16.9	17.2		14.9		13.4	5.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.3		0.1	0.2	0.5		5.9		5.7	0.2	
Delay (s)	15.8	16.9		16.1	17.1	17.7		20.8		19.1	5.9	
Level of Service	B	B		B	B	B		C		B	A	
Approach Delay (s)		16.5			17.6			20.8			14.2	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	49.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC
14: NE Three Mile Ln & SE 1st St

01/11/2024

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	200	2	1	2	145	405	1	2	460	10
Future Vol, veh/h	4	2	200	2	1	2	145	405	1	2	460	10
Conflicting Peds, #/hr	2	0	0	0	0	2	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	3	0	0	50	4	7	100	0	6	0
Mvmt Flow	5	2	227	2	1	2	165	460	1	2	523	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1330	1327	532	1438	1332	463	537	0	0	461	0	0
Stage 1	536	536	-	791	791	-	-	-	-	-	-	-
Stage 2	794	791	-	647	541	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.7	4.14	-	-	4.1	-	-
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	3.327	3.5	4	3.75	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	133	157	546	112	156	511	1021	-	-	1111	-	-
Stage 1	532	527	-	386	404	-	-	-	-	-	-	-
Stage 2	384	404	-	463	524	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	115	131	544	56	130	510	1018	-	-	1111	-	-
Mov Cap-2 Maneuver	115	131	-	56	130	-	-	-	-	-	-	-
Stage 1	445	524	-	323	339	-	-	-	-	-	-	-
Stage 2	319	339	-	268	521	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.7	40.9	2.4	0
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1018	-	-	493	106	1111	-	-
HCM Lane V/C Ratio	0.162	-	-	0.475	0.054	0.002	-	-
HCM Control Delay (s)	9.2	-	-	18.7	40.9	8.2	-	-
HCM Lane LOS	A	-	-	C	E	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	2.5	0.2	0	-	-

Queues
15: NE Lafayette Ave & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	18	89	737	12	589	95
v/c Ratio	0.51	0.06	0.18	0.66	0.03	0.64	0.12
Control Delay	27.5	20.7	5.1	12.0	4.5	15.6	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	20.7	5.1	12.1	4.5	15.6	5.3
Queue Length 50th (ft)	32	4	8	114	1	140	7
Queue Length 95th (ft)	100	21	28	385	7	286	29
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	598	720	693	1496	700	1511	1280
Starvation Cap Reductn	0	0	0	43	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.03	0.13	0.51	0.02	0.39	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	20	35	2	10	3	75	615	4	10	495	80
Future Volume (vph)	60	20	35	2	10	3	75	615	4	10	495	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.96			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1539			1641		1805	1742		1805	1759	1482
Flt Permitted		0.83			0.97		0.28	1.00		0.29	1.00	1.00
Satd. Flow (perm)		1314			1605		531	1742		547	1759	1482
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	71	24	42	2	12	4	89	732	5	12	589	95
RTOR Reduction (vph)	0	17	0	0	3	0	0	0	0	0	0	24
Lane Group Flow (vph)	0	120	0	0	15	0	89	737	0	12	589	71
Confl. Peds. (#/hr)	2		1	1		2			1	1		
Heavy Vehicles (%)	4%	0%	3%	0%	0%	0%	0%	9%	0%	0%	8%	9%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		11.5			11.5		42.9	38.1		34.6	33.8	33.8
Effective Green, g (s)		11.5			11.5		42.9	38.1		34.6	33.8	33.8
Actuated g/C Ratio		0.18			0.18		0.69	0.61		0.55	0.54	0.54
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		242			295		469	1063		319	952	802
v/s Ratio Prot							c0.02	c0.42		0.00	0.33	
v/s Ratio Perm		c0.09			0.01		0.11			0.02		0.05
v/c Ratio		0.50			0.05		0.19	0.69		0.04	0.62	0.09
Uniform Delay, d1		22.8			21.0		4.9	8.2		6.8	9.9	6.9
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		1.2			0.1		0.1	2.1		0.0	1.4	0.1
Delay (s)		24.0			21.0		5.1	10.3		6.9	11.2	6.9
Level of Service		C			C		A	B		A	B	A
Approach Delay (s)		24.0			21.0			9.8			10.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	62.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1: NE Adams St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	9	224	1334
v/c Ratio	0.03	0.90	0.60
Control Delay	19.8	56.8	11.0
Queue Delay	0.0	0.4	0.0
Total Delay	19.8	57.2	11.0
Queue Length 50th (ft)	2	139	199
Queue Length 95th (ft)	13	210	333
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	452	352	2224
Starvation Cap Reductn	0	13	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.66	0.60

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: NE Adams St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	5	200	15	0	0	0	0	85	1190	5
Future Volume (vph)	0	4	5	200	15	0	0	0	0	85	1190	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.96						1.00	
Satd. Flow (prot)		1742			1776						3350	
Flt Permitted		1.00			0.73						1.00	
Satd. Flow (perm)		1742			1366						3350	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	4	5	208	16	0	0	0	0	89	1240	5
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	5	0	0	224	0	0	0	0	0	1334	0
Confl. Peds. (#/hr)	19		3	3		19	13		2	2		13
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%	2%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		19.4			19.4						62.6	
Effective Green, g (s)		16.4			16.4						59.6	
Actuated g/C Ratio		0.18			0.18						0.66	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		317			248						2218	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.16						0.40	
v/c Ratio		0.02			0.90						0.60	
Uniform Delay, d1		30.2			36.0						8.5	
Progression Factor		1.00			0.68						1.00	
Incremental Delay, d2		0.0			29.6						1.2	
Delay (s)		30.2			54.0						9.7	
Level of Service		C			D						A	
Approach Delay (s)		30.2			54.0			0.0			9.7	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: NE Baker St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	103	315	1321
v/c Ratio	0.41	0.77	0.58
Control Delay	23.9	42.0	5.6
Queue Delay	0.0	0.3	0.0
Total Delay	23.9	42.3	5.7
Queue Length 50th (ft)	51	154	81
Queue Length 95th (ft)	m66	222	358
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	391	626	2291
Starvation Cap Reductn	0	0	58
Spillback Cap Reductn	0	51	74
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.26	0.55	0.60

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
2: NE Baker St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	70	0	0	200	90	15	1170	30	0	0	0
Future Volume (vph)	25	70	0	0	200	90	15	1170	30	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			1.00				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1670			1767			3316				
Flt Permitted		0.67			1.00			1.00				
Satd. Flow (perm)		1137			1767			3316				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	76	0	0	217	98	16	1272	33	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	103	0	0	293	0	0	1319	0	0	0	0
Confl. Peds. (#/hr)	22		3	3		22	2		5	5		2
Confl. Bikes (#/hr)			1			2			2			
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	3%	0%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		19.8			19.8			62.2				
Effective Green, g (s)		19.8			19.8			62.2				
Actuated g/C Ratio		0.22			0.22			0.69				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		250			388			2291				
v/s Ratio Prot					c0.17							
v/s Ratio Perm		0.09						0.40				
v/c Ratio		0.41			0.76			0.58				
Uniform Delay, d1		30.1			32.8			7.1				
Progression Factor		0.69			1.00			0.58				
Incremental Delay, d2		0.7			7.8			0.9				
Delay (s)		21.3			40.6			5.0				
Level of Service		C			D			A				
Approach Delay (s)		21.3			40.6			5.0			0.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC
3: NE Adams St & NE 3rd St

01/11/2024

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	0	0	0	45	1325
Future Vol, veh/h	60	0	0	0	45	1325
Conflicting Peds, #/hr	0	41	0	1	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	93	93	93	93	93	93
Heavy Vehicles, %	2	0	0	0	0	2
Mvmt Flow	65	0	0	0	48	1425

Major/Minor	Minor1			Major2	
Conflicting Flow All	810	-		1	0
Stage 1	1	-		-	-
Stage 2	809	-		-	-
Critical Hdwy	6.84	-		4.1	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.2	-
Pot Cap-1 Maneuver	318	0		1635	-
Stage 1	-	0		-	-
Stage 2	398	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	273	-		1633	-
Mov Cap-2 Maneuver	273	-		-	-
Stage 1	-	-		-	-
Stage 2	342	-		-	-

Approach	WB	SB
HCM Control Delay, s	22.2	0.7
HCM LOS	C	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	273	1633	-
HCM Lane V/C Ratio	0.236	0.03	-
HCM Control Delay (s)	22.2	7.3	0.5
HCM Lane LOS	C	A	A
HCM 95th %tile Q(veh)	0.9	0.1	-

Queues
4: NE Baker St & NE 3rd St

01/11/2024

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	69	122	1197	48
v/c Ratio	0.15	0.25	0.58	0.05
Control Delay	24.0	13.4	11.5	2.2
Queue Delay	0.0	0.0	47.1	0.0
Total Delay	24.0	13.4	58.6	2.2
Queue Length 50th (ft)	28	22	192	0
Queue Length 95th (ft)	m52	64	249	12
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	451	489	2050	995
Starvation Cap Reductn	0	0	956	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.25	1.09	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	50	0	0	50	65	15	1110	45	0	0	0
Future Volume (vph)	15	50	0	0	50	65	15	1110	45	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.97			1.00	0.97			
Flpb, ped/bikes		0.99			1.00			1.00	1.00			
Frt		1.00			0.92			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1647			1522			3297	1571			
Flt Permitted		0.94			1.00			1.00	1.00			
Satd. Flow (perm)		1563			1522			3297	1571			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	16	53	0	0	53	69	16	1181	48	0	0	0
RTOR Reduction (vph)	0	0	0	0	49	0	0	0	18	0	0	0
Lane Group Flow (vph)	0	69	0	0	73	0	0	1197	30	0	0	0
Confl. Peds. (#/hr)	35		11	11		35	5		5	5		5
Confl. Bikes (#/hr)			2						2			1
Heavy Vehicles (%)	8%	0%	0%	0%	2%	0%	0%	4%	0%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4						6		6			
Actuated Green, G (s)		26.0			26.0			56.0	56.0			
Effective Green, g (s)		26.0			26.0			56.0	56.0			
Actuated g/C Ratio		0.29			0.29			0.62	0.62			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		451			439			2051	977			
v/s Ratio Prot					c0.05							
v/s Ratio Perm		0.04						0.36	0.02			
v/c Ratio		0.15			0.17			0.58	0.03			
Uniform Delay, d1		23.8			23.9			10.1	6.5			
Progression Factor		0.96			1.00			1.00	1.00			
Incremental Delay, d2		0.7			0.8			1.2	0.1			
Delay (s)		23.5			24.7			11.3	6.6			
Level of Service		C			C			B	A			
Approach Delay (s)		23.5			24.7			11.1			0.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.9	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)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: NE Adams St & SW 2nd St

01/11/2024

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	376	65	97	419	1489
v/c Ratio	0.82	0.15	0.42	0.63	0.87
Control Delay	39.8	4.5	18.3	21.4	22.2
Queue Delay	0.0	0.0	0.0	3.1	0.0
Total Delay	39.8	4.5	18.3	24.5	22.2
Queue Length 50th (ft)	137	0	24	124	269
Queue Length 95th (ft)	#260	19	51	204	#432
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	491	466	232	752	1715
Starvation Cap Reductn	0	0	0	230	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.14	0.42	0.80	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	350	60	90	390	0	0	0	0	85	1035	265
Future Volume (vph)	0	350	60	90	390	0	0	0	0	85	1035	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1547	1718	1881						3228	
Flt Permitted		1.00	1.00	0.20	1.00						1.00	
Satd. Flow (perm)		1881	1547	365	1881						3228	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	376	65	97	419	0	0	0	0	91	1113	285
RTOR Reduction (vph)	0	0	49	0	0	0	0	0	0	0	29	0
Lane Group Flow (vph)	0	376	16	97	419	0	0	0	0	0	1460	0
Confl. Peds. (#/hr)	7		9	9		7	2		1	1		2
Confl. Bikes (#/hr)			1			2						2
Heavy Vehicles (%)	0%	1%	2%	5%	1%	0%	0%	0%	0%	2%	3%	0%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		15.8	15.8	23.8	23.8						33.2	
Effective Green, g (s)		15.8	15.8	23.8	23.8						33.2	
Actuated g/C Ratio		0.24	0.24	0.37	0.37						0.51	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		457	376	216	688						1648	
v/s Ratio Prot		c0.20		0.03	c0.22							
v/s Ratio Perm			0.01	0.14							0.45	
v/c Ratio		0.82	0.04	0.45	0.61						0.89	
Uniform Delay, d1		23.3	18.8	15.3	16.8						14.2	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		11.2	0.0	1.1	1.3						7.4	
Delay (s)		34.4	18.8	16.3	18.1						21.6	
Level of Service		C	B	B	B						C	
Approach Delay (s)		32.1			17.8			0.0			21.6	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

01/11/2024

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	151	323	376	38	1273
v/c Ratio	0.58	0.46	0.79	0.08	0.79
Control Delay	20.7	15.5	34.0	0.9	19.2
Queue Delay	0.0	0.9	0.0	0.0	0.0
Total Delay	20.7	16.5	34.0	0.9	19.2
Queue Length 50th (ft)	32	76	121	0	208
Queue Length 95th (ft)	64	131	#229	4	#345
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	262	815	532	501	1615
Starvation Cap Reductn	0	264	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.59	0.71	0.08	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: NE Baker St & NE 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	300	0	0	350	35	125	975	85	0	0	0
Future Volume (vph)	140	300	0	0	350	35	125	975	85	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1769	1881			1881	1540		3260				
Flt Permitted	0.21	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	388	1881			1881	1540		3260				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	151	323	0	0	376	38	134	1048	91	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	28	0	9	0	0	0	0
Lane Group Flow (vph)	151	323	0	0	376	10	0	1264	0	0	0	0
Confl. Peds. (#/hr)	3		5	5		3	4		3	3		4
Confl. Bikes (#/hr)			2			3						2
Heavy Vehicles (%)	2%	1%	0%	0%	1%	3%	1%	3%	10%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	23.2	23.2			15.2	15.2		28.8				
Effective Green, g (s)	23.2	23.2			15.2	15.2		28.8				
Actuated g/C Ratio	0.39	0.39			0.25	0.25		0.48				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	242	727			476	390		1564				
v/s Ratio Prot	c0.04	0.17			c0.20							
v/s Ratio Perm	0.20					0.01		0.39				
v/c Ratio	0.62	0.44			0.79	0.02		0.81				
Uniform Delay, d1	13.7	13.6			20.9	16.8		13.3				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	4.3	0.3			8.2	0.0		4.6				
Delay (s)	18.0	13.9			29.1	16.8		17.9				
Level of Service	B	B			C	B		B				
Approach Delay (s)		15.2			28.0			17.9			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC
7: NE Cowls St & NE 3rd St

01/11/2024

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	5	75	10	25	110	15	5	10	10	5	15	5
Future Vol, veh/h	5	75	10	25	110	15	5	10	10	5	15	5
Conflicting Peds, #/hr	43	0	91	91	0	43	41	0	14	14	0	41
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	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	6	95	13	32	139	19	6	13	13	6	19	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	201	0	0	199	0	0	471	470	207	397	467	233
Stage 1	-	-	-	-	-	-	205	205	-	256	256	-
Stage 2	-	-	-	-	-	-	266	265	-	141	211	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1383	-	-	1385	-	-	506	495	839	567	496	811
Stage 1	-	-	-	-	-	-	802	736	-	753	699	-
Stage 2	-	-	-	-	-	-	744	693	-	867	731	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1326	-	-	1265	-	-	414	419	756	502	420	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	414	419	-	502	420	-
Stage 1	-	-	-	-	-	-	729	668	-	718	651	-
Stage 2	-	-	-	-	-	-	669	646	-	821	664	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.3	12.6	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	508	1326	-	-	1265	-	-	477
HCM Lane V/C Ratio	0.062	0.005	-	-	0.025	-	-	0.066
HCM Control Delay (s)	12.6	7.7	0	-	7.9	0	-	13.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Queues
8: NE Davis St & NE 3rd St

01/11/2024

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	117	193	64	70
v/c Ratio	0.10	0.16	0.26	0.28
Control Delay	3.6	10.6	17.0	19.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.6	10.6	17.0	19.1
Queue Length 50th (ft)	6	48	14	18
Queue Length 95th (ft)	27	88	28	32
Internal Link Dist (ft)	216	222	171	182
Turn Bay Length (ft)				
Base Capacity (vph)	1231	1233	492	502
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.13	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: NE Davis St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	80	10	2	140	10	10	30	10	10	40	5
Future Volume (vph)	2	80	10	2	140	10	10	30	10	10	40	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.98			0.99			0.97			0.99	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		1664			1664			1618			1658	
Flt Permitted		1.00			1.00			0.92			0.93	
Satd. Flow (perm)		1660			1663			1509			1557	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	3	101	13	3	177	13	13	38	13	13	51	6
RTOR Reduction (vph)	0	4	0	0	3	0	0	11	0	0	5	0
Lane Group Flow (vph)	0	113	0	0	190	0	0	53	0	0	65	0
Confl. Peds. (#/hr)	83		57	57		83	20		18	18		20
Confl. Bikes (#/hr)			3			2			2			1
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.4			35.4			6.6			6.6	
Effective Green, g (s)		35.4			35.4			6.6			6.6	
Actuated g/C Ratio		0.71			0.71			0.13			0.13	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		1175			1177			199			205	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.11			0.03			c0.04	
v/c Ratio		0.10			0.16			0.26			0.32	
Uniform Delay, d1		2.3			2.4			19.5			19.7	
Progression Factor		1.00			2.92			1.00			1.00	
Incremental Delay, d2		0.2			0.3			0.3			0.3	
Delay (s)		2.5			7.3			19.8			20.0	
Level of Service		A			A			B			B	
Approach Delay (s)		2.5			7.3			19.8			20.0	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC
9: NE Evans St & NE 3rd St

01/11/2024

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	80	5	10	125	20	4	25	10	20	55	20
Future Vol, veh/h	10	80	5	10	125	20	4	25	10	20	55	20
Conflicting Peds, #/hr	55	0	80	80	0	55	11	0	31	31	0	11
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	2	14
Mvmt Flow	12	94	6	12	147	24	5	29	12	24	65	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	226	0	0	180	0	0	440	451	208	411	442	225
Stage 1	-	-	-	-	-	-	201	201	-	238	238	-
Stage 2	-	-	-	-	-	-	239	250	-	173	204	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.52	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4.018	3.426
Pot Cap-1 Maneuver	1354	-	-	1408	-	-	531	507	837	555	510	785
Stage 1	-	-	-	-	-	-	805	739	-	770	708	-
Stage 2	-	-	-	-	-	-	769	704	-	834	733	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1283	-	-	1301	-	-	410	436	750	470	438	736
Mov Cap-2 Maneuver	-	-	-	-	-	-	410	436	-	470	438	-
Stage 1	-	-	-	-	-	-	737	676	-	722	665	-
Stage 2	-	-	-	-	-	-	658	661	-	754	671	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.5	13.2	14.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	485	1283	-	-	1301	-	-	486
HCM Lane V/C Ratio	0.095	0.009	-	-	0.009	-	-	0.23
HCM Control Delay (s)	13.2	7.8	0	-	7.8	0	-	14.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.9

Queues
10: NE Ford St & NE 3rd St

01/11/2024

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	131	179	60	60
v/c Ratio	0.42	0.59	0.05	0.05
Control Delay	17.8	25.3	3.7	4.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.8	25.3	3.7	4.0
Queue Length 50th (ft)	30	48	3	4
Queue Length 95th (ft)	47	73	17	18
Internal Link Dist (ft)	216	220	175	172
Turn Bay Length (ft)				
Base Capacity (vph)	544	536	1173	1115
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.24	0.33	0.05	0.05

Intersection Summary

HCM Signalized Intersection Capacity Analysis
10: NE Ford St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	100	10	0	140	10	5	35	10	20	25	5
Future Volume (vph)	0	100	10	0	140	10	5	35	10	20	25	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
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			1.00			1.00	
Frt		0.99			0.99			0.97			0.99	
Flt Protected		1.00			1.00			1.00			0.98	
Satd. Flow (prot)		1676			1658			1644			1644	
Flt Permitted		1.00			1.00			0.99			0.93	
Satd. Flow (perm)		1676			1658			1632			1554	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	119	12	0	167	12	6	42	12	24	30	6
RTOR Reduction (vph)	0	9	0	0	7	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	122	0	0	172	0	0	56	0	0	58	0
Confl. Peds. (#/hr)	26		30	30		26	14		7	7		14
Confl. Bikes (#/hr)			5			2						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	12%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0			0			0	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		7.7			7.7			34.3			34.3	
Effective Green, g (s)		7.7			7.7			34.3			34.3	
Actuated g/C Ratio		0.15			0.15			0.69			0.69	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		258			255			1119			1066	
v/s Ratio Prot		0.07			c0.10							
v/s Ratio Perm								0.03			c0.04	
v/c Ratio		0.47			0.68			0.05			0.05	
Uniform Delay, d1		19.3			20.0			2.6			2.6	
Progression Factor		0.86			1.00			1.00			1.00	
Incremental Delay, d2		0.5			5.5			0.1			0.1	
Delay (s)		17.2			25.4			2.6			2.7	
Level of Service		B			C			A			A	
Approach Delay (s)		17.2			25.4			2.6			2.7	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC
11: NE Galloway St & NE 3rd St

01/11/2024

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	110	10	5	140	15	5	10	5	10	10	5
Future Vol, veh/h	5	110	10	5	140	15	5	10	5	10	10	5
Conflicting Peds, #/hr	30	0	18	18	0	30	17	0	3	3	0	17
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	6	125	11	6	159	17	6	11	6	11	11	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	206	0	0	154	0	0	366	379	152	364	376	215
Stage 1	-	-	-	-	-	-	161	161	-	210	210	-
Stage 2	-	-	-	-	-	-	205	218	-	154	166	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1377	-	-	1439	-	-	594	556	900	596	558	830
Stage 1	-	-	-	-	-	-	846	769	-	797	732	-
Stage 2	-	-	-	-	-	-	802	726	-	853	765	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1338	-	-	1414	-	-	557	525	882	560	527	793
Mov Cap-2 Maneuver	-	-	-	-	-	-	557	525	-	560	527	-
Stage 1	-	-	-	-	-	-	827	752	-	771	707	-
Stage 2	-	-	-	-	-	-	767	701	-	828	748	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	11.3	11.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	594	1338	-	-	1414	-	-	580
HCM Lane V/C Ratio	0.038	0.004	-	-	0.004	-	-	0.049
HCM Control Delay (s)	11.3	7.7	0	-	7.6	0	-	11.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

HCM 6th TWSC
12: NE Irvine St & NE 3rd St

01/11/2024

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	110	10	10	145	5	5	35	30	20	20	15
Future Vol, veh/h	10	110	10	10	145	5	5	35	30	20	20	15
Conflicting Peds, #/hr	13	0	4	4	0	13	4	0	2	2	0	4
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	0	1	40	0	12	6	0	5	7
Mvmt Flow	13	138	13	13	181	6	6	44	38	25	25	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	200	0	0	155	0	0	411	401	151	437	404	201
Stage 1	-	-	-	-	-	-	175	175	-	223	223	-
Stage 2	-	-	-	-	-	-	236	226	-	214	181	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.62	6.26	7.1	6.55	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.108	3.354	3.5	4.045	3.363
Pot Cap-1 Maneuver	1384	-	-	1438	-	-	555	522	885	533	531	827
Stage 1	-	-	-	-	-	-	832	736	-	784	713	-
Stage 2	-	-	-	-	-	-	772	699	-	793	744	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1367	-	-	1433	-	-	510	503	880	463	512	814
Mov Cap-2 Maneuver	-	-	-	-	-	-	510	503	-	463	512	-
Stage 1	-	-	-	-	-	-	820	726	-	767	697	-
Stage 2	-	-	-	-	-	-	717	684	-	705	734	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.5	11.8	12.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	617	1367	-	-	1433	-	-	546
HCM Lane V/C Ratio	0.142	0.009	-	-	0.009	-	-	0.126
HCM Control Delay (s)	11.8	7.7	0	-	7.5	0	-	12.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.4

Queues
13: NE Johnson St & NE 3rd St

01/11/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	57	131	28	131	455	330	540	393
v/c Ratio	0.20	0.33	0.09	0.37	0.69	0.71	0.75	0.35
Control Delay	18.5	23.6	16.9	25.5	8.8	31.5	22.8	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	23.6	16.9	25.5	8.8	31.5	22.8	7.9
Queue Length 50th (ft)	16	39	8	46	0	114	112	67
Queue Length 95th (ft)	38	87	23	87	61	#237	#267	137
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	289	579	303	570	786	545	772	1239
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.23	0.09	0.23	0.58	0.61	0.70	0.32

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: NE Johnson St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	115	0	25	115	400	5	255	30	475	290	55
Future Volume (vph)	50	115	0	25	115	400	5	255	30	475	290	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
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	0.98		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1805	1881		1805	1881	1548		1793		1752	1818	
Flt Permitted	0.64	1.00		0.67	1.00	1.00		0.99		0.40	1.00	
Satd. Flow (perm)	1213	1881		1279	1881	1548		1779		730	1818	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	57	131	0	28	131	455	6	290	34	540	330	62
RTOR Reduction (vph)	0	0	0	0	0	372	0	6	0	0	9	0
Lane Group Flow (vph)	57	131	0	28	131	83	0	324	0	540	384	0
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	2%	0%	5%	0%	3%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	13.2	11.6		12.0	11.0	11.0		15.1		35.4	35.4	
Effective Green, g (s)	13.2	11.6		12.0	11.0	11.0		15.1		35.4	35.4	
Actuated g/C Ratio	0.22	0.19		0.20	0.18	0.18		0.25		0.59	0.59	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	282	363		264	344	283		447		708	1072	
v/s Ratio Prot	c0.01	c0.07		0.00	0.07					c0.21	0.21	
v/s Ratio Perm	0.04			0.02		0.05		0.18		c0.24		
v/c Ratio	0.20	0.36		0.11	0.38	0.29		0.72		0.76	0.36	
Uniform Delay, d1	18.9	21.0		19.5	21.5	21.2		20.5		13.6	6.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6		0.1	0.7	0.6		6.1		5.0	0.3	
Delay (s)	19.1	21.6		19.6	22.2	21.7		26.7		18.6	6.7	
Level of Service	B	C		B	C	C		C		B	A	
Approach Delay (s)		20.8			21.7			26.7			13.6	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC
14: NE Three Mile Ln & SE 1st St

01/11/2024

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	255	0	0	4	190	565	2	10	680	5
Future Vol, veh/h	4	0	255	0	0	4	190	565	2	10	680	5
Conflicting Peds, #/hr	2	0	0	0	0	2	3	0	1	1	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	0	0	2	2	0	0	2	0
Mvmt Flow	4	0	287	0	0	4	213	635	2	11	764	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1858	1856	770	1996	1858	639	773	0	0	638	0	0
Stage 1	792	792	-	1063	1063	-	-	-	-	-	-	-
Stage 2	1066	1064	-	933	795	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.21	7.1	6.5	6.2	4.12	-	-	4.1	-	-
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	3.309	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	57	75	402	45	74	480	842	-	-	956	-	-
Stage 1	385	404	-	272	302	-	-	-	-	-	-	-
Stage 2	271	302	-	322	402	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	45	55	401	10	54	479	840	-	-	955	-	-
Mov Cap-2 Maneuver	45	55	-	10	54	-	-	-	-	-	-	-
Stage 1	286	398	-	203	225	-	-	-	-	-	-	-
Stage 2	200	225	-	91	396	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.2	12.6	2.7	0.1
HCM LOS	E	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	840	-	-	357	479	955	-	-
HCM Lane V/C Ratio	0.254	-	-	0.815	0.009	0.012	-	-
HCM Control Delay (s)	10.7	-	-	47.2	12.6	8.8	-	-
HCM Lane LOS	B	-	-	E	B	A	-	-
HCM 95th %tile Q(veh)	1	-	-	7.1	0	0	-	-

Queues
15: NE Lafayette Ave & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	202	52	73	733	4	826	101
v/c Ratio	0.67	0.16	0.22	0.60	0.01	0.77	0.11
Control Delay	34.6	21.2	6.0	11.0	5.0	20.2	5.4
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay	34.6	21.2	6.0	11.5	5.0	20.2	5.4
Queue Length 50th (ft)	69	14	9	140	1	276	9
Queue Length 95th (ft)	148	45	27	422	4	#565	36
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	522	606	531	1384	657	1310	1138
Starvation Cap Reductn	0	0	0	264	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.09	0.14	0.65	0.01	0.63	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	20	90	1	30	15	65	650	3	4	735	90
Future Volume (vph)	70	20	90	1	30	15	65	650	3	4	735	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.93			0.96		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1537			1621		1770	1844		1804	1845	1582
Flt Permitted		0.85			1.00		0.16	1.00		0.29	1.00	1.00
Satd. Flow (perm)		1337			1615		301	1844		556	1845	1582
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	79	22	101	1	34	17	73	730	3	4	826	101
RTOR Reduction (vph)	0	38	0	0	14	0	0	0	0	0	0	22
Lane Group Flow (vph)	0	164	0	0	38	0	73	733	0	4	826	79
Confl. Peds. (#/hr)	1		3	3		1			3	3		
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		14.4			14.4		53.0	48.3		45.2	44.4	44.4
Effective Green, g (s)		14.4			14.4		53.0	48.3		45.2	44.4	44.4
Actuated g/C Ratio		0.19			0.19		0.70	0.64		0.60	0.59	0.59
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		255			308		302	1179		346	1085	930
v/s Ratio Prot							c0.02	c0.40		0.00	c0.45	
v/s Ratio Perm		c0.12			0.02		0.15			0.01		0.05
v/c Ratio		0.64			0.12		0.24	0.62		0.01	0.76	0.09
Uniform Delay, d1		28.2			25.3		8.6	8.1		6.9	11.6	6.7
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		4.8			0.1		0.3	1.2		0.0	3.4	0.1
Delay (s)		33.0			25.5		8.9	9.3		6.9	15.0	6.8
Level of Service		C			C		A	A		A	B	A
Approach Delay (s)		33.0			25.5			9.3			14.1	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Attachment E: ODOT Crash Data

URBAN NON-SYSTEM CRASH LISTING

CITY OF MCMINNVILLE, YAMHILL COUNTY

3RD ST and Intersectional Crashes at 3RD ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021

1 - 3 of 32 Crash records shown.

SER# INVEST RD DPT UNLOC?	S P E A U I C O / D M R J S W / E L G N H R / D C S V L K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	SPCL USE TRLR QTY OWNER V# TYPE	MOVE FROM TO	PRTC P# TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00445	N N N N	06/02/2020	17	ADAMS ST	INTER	3-LEG	N	N	CLR	PED	01 NONE	TURN-L									106	02
CITY		TU	0	3RD ST	E		STOP SIGN	N	DRY	PED	PRVTE	N -E								000		00
N		3P			05	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	90	M	OR-Y		029	000		02
N		45 12 36.07	-123 11														OR<25					
			56.5																			
												-										
												STRGHT	01 PED	INJC	80	F		I XWLK	000	034	106	00
												S N										
00645	N N N N N N	08/30/2020	17	ADAMS ST	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE	STRGHT									004	07,27
CITY		SU	0	3RD ST	E		STOP SIGN	N	DRY	REAR	PRVTE	E -W								000		00
N		7P			06	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	31	M	OR-Y		026,043	038		07,27
N		45 12 36.06	-123 11														OR<25					
			56.49																			
											02 NONE	STOP										
											PRVTE	E -W								012	004	00
											PSNGR CAR		01 DRVR	INJC	31	F	OR-Y		000	000		00
																	OR<25					
											02 NONE	STOP										
											PRVTE	E -W								012	004	00
											PSNGR CAR		02 PSNG	INJC	29	M			000	000		00
00183	N N N N	02/25/2019	14	ADAMS ST	INTER	3-LEG	N	N	SNOW	S-1TURN	01 NONE	TURN-L										08,13
NONE		MO		3RD ST	CN		ONE-WAY	N	WET	TURN	PRVTE	N -E								000		00
N		2P			04	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	17	M	OR-Y		006,045	000		08,13
N		45 12 36.09	-123 11	009100100S00													OR<25					
			56.83																			
											02 NONE	STRGHT										
											PRVTE	N -S								000		00
											PSNGR CAR		01 DRVR	INJC	36	F	OR-Y		000	000		00
																	OR<25					
											02 NONE	STRGHT										
											PRVTE	N -S								000		00
											PSNGR CAR		02 PSNG	INJC	35	M			000	000		00
											02 NONE	STRGHT										
											PRVTE	N -S								000		00
											PSNGR CAR		03 PSNG	INJC	06	F			000	000		00
00751	N N N N N N	08/08/2021	14	ADAMS ST	INTER	3-LEG	N	N	CLR	S-STRGHT	01 NONE 0	STRGHT									003	27,13
CITY		SU		3RD ST	CN		ONE-WAY	N	DRY	SS-O	PRVTE	N -S								000		00
N		4P			04	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	32	M	OR-Y		016,080,045	038	003	27,13
N		45 12 36.04	-123 11	009100100S00													OR>25					
			56.84																			

URBAN NON-SYSTEM CRASH LISTING

CITY OF MCMINNVILLE, YAMHILL COUNTY

3RD ST and Intersectional Crashes at 3RD ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021

4 - 9 of 32 Crash records shown.

SER# INVEST RD DPT UNLOC?	S P E A U I C O D M R J S W E L G N H R D C S V L K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	SPCL USE TRLR QTY OWNER V# TYPE	MOVE FROM TO	PRTC P# TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
											02 NONE 0	STRGHT										
											PRVTE	N -S								000		00
											TRUCK		01 DRVR	INJB	26	M	OR-Y		000	000		00
																	OR<25					
00922	N N N N N N	11/16/2020	17	3RD ST	STRGHT		Y	Y	CLD	FIX OBJ	01 NONE 9	STRGHT									054	17
CITY		MO		ADAMS ST	E	(NONE)	STOP SIGN	N	WET	FIX	N/A	E -W								000		00
N		9P			06			N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 12 36.06	-123 11			(02)											UNK					
			56.44																			
00221	N N N N N N	03/16/2020	17	3RD ST	STRGHT		N	Y	CLR	FIX OBJ	01 NONE	TURN-L									040,062	08,10
CITY		MO	50	ADAMS ST	E	(NONE)	UNKNOWN	N	DRY	FIX	PRVTE	N -E								000	040,062	00
Y		10A			05			N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	82	F	OR-Y		080,081	000		08,10
N		45 12 36.06	-123 11			(02)											OR<25					
			55.78																			
00551	N N N N N N	06/23/2021	14	BAKER ST	INTER	CROSS	N	Y	CLR	PED	01 NONE 0	TURN-R										27,02
CITY		WE		3RD ST	N		TRF SIGNAL	N	DRY	PED	PRVTE	E -N								000		00
N		12P			05	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	24	F	OR-Y		016,029	000		27,02
N		45 12 36.05	-123 11	009100200S00													OR<25					
			52.65																			
												-										
												STRGHT	01 PED	INJB	47	M		I XWLK	000	000		00
												E W										
01178	N N N N N N	11/24/2019	14	BAKER ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT										04
CITY		SU		3RD ST	CN		TRF SIGNAL	N	DRY	ANGL	N/A	E -W								000		00
N		5P			01	0		N	DUSK	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 12 36.06	-123 11	009100200S00													UNK					
			52.65																			
											02 NONE 9	STRGHT										
											N/A	S -N								000		00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK					
00222	N N N N	03/04/2017	17	3RD ST	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT										29
NONE		SA	40	BAKER ST	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E								006		00
N		1P			05			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	36	M	OR-Y		026	000		29
N		45 12 36.05	-123 11			(02)											OR<25					
			51.99																			
											02 NONE 0	STOP										
											PRVTE	W -E								011		00
											PSNGR CAR		01 DRVR	INJC	19	F	OR-Y		000	000		00
																	OR<25					
											02 NONE 0	STOP										
											PRVTE	W -E								011		00
											PSNGR CAR		02 PSNG	INJC	43	F			000	000		00

CITY OF MCMINNVILLE, YAMHILL COUNTY

3RD ST and Intersectional Crashes at 3RD ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021

10 - 14 of 32 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D C / D M R J S W / E A U I C O / E L G N H R / D C S V L K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	SPCL USE / TRLR QTY / OWNER / V# TYPE	MOVE / FROM / TO	PRTC / P# TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT EVENT	CAUSE
00075	N N N N	01/18/2018	17	COWLS ST	INTER	CROSS	N	N	RAIN	ANGL-OTH	01 NONE 9	STRGHT									04,02
CITY		TH		3RD ST	CN		STOP SIGN	N	WET	ANGL	N/A	S -N								015	00
N		12P			02	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 12 36.08	-123 11														UNK				
			48.49																		
											02 NONE 9	STRGHT									
											N/A	E -W								000	00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				
00764	N N N N	07/31/2018	17	COWLS ST	INTER	CROSS	N	N	CLR	S-OTHER	01 NONE 9	BACK									06,02
NONE		TU	0	3RD ST	CN		STOP SIGN	N	DRY	BACK	N/A	W -E								088	00
N		4P			03	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 12 36.06	-123 11														UNK				
			48.85																		
											02 NONE 9	STOP									
											N/A	W -E								011	00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				
00528	N N N N	05/28/2017	16	EVANS ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT									02
NONE		SU	0	3RD ST	CN		STOP SIGN	N	DRY	ANGL	N/A	E -W								000	00
N		5P			01	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 12 36.07	-123 11														UNK				
			40.1																		
											02 NONE 9	STRGHT									
											N/A	N -S								015	00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				
01177	N N N N	10/26/2017	16	EVANS ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT									03
NONE		TH	0	3RD ST	CN		STOP SIGN	N	DRY	ANGL	N/A	N -S								000	00
N		10A			01	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 12 36.07	-123 11														UNK				
			40.1																		
											02 NONE 9	STRGHT									
											N/A	E -W								000	00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				
01193	N N N N N N	10/28/2017	16	EVANS ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT								084	02
CITY		SA	0	3RD ST	CN		STOP SIGN	N	DRY	ANGL	N/A	W -E								000	00
N		5P			03	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 12 36.07	-123 11														UNK				
			40.1																		
											02 NONE 9	STRGHT									
											N/A	N -S								015	00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

3RD ST and Intersectional Crashes at 3RD ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021

15 - 19 of 32 Crash records shown.

SER# INVEST RD DPT UNLOC?	S P E D E L C / D R A U G C S / M J I I N S V / S C H L / W O R K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	SPCL USE TRLR QTY OWNER V# TYPE	MOVE FROM TO	PRTC P# TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01313	N N N N N N	11/26/2017	16	EVANS ST	INTER	CROSS	N	N	CLD	ANGL-OTH	01 NONE 9	STRGHT										02
CITY		SU	0	3RD ST	CN		STOP SIGN	N	WET	ANGL	N/A	S -N								000		00
N		5P			04	0		N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 12 36.07	-123 11 40.1														UNK					
											02 NONE 9	STRGHT										
											N/A	W -E								000		00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK					
00461	N N N N	05/05/2018	17	EVANS ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT										02
CITY		SA	0	3RD ST	CN		STOP SIGN	N	DRY	ANGL	N/A	N -S								015		00
N		1P			03	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 12 36.07	-123 11 40.1														UNK					
											02 NONE 9	STRGHT										
											N/A	W -E								000		00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK					
00416	N N N N N N	06/17/2020	17	3RD ST	STRGHT		N	Y	CLR	FIX OBJ	01 NONE	STRGHT									040,062	27,10
CITY		WE	87	EVANS ST	W	(NONE)	UNKNOWN	N	DRY	FIX	PRVTE	E -W								000	040,062	00
Y		12A			07			N	DLIT	INJ	PSNGR CAR		01 DRVR	INJB	21	F	OR-Y		080,081	038		10,27
N		45 12 36.09	-123 11 41.8			(02)											OR<25					
											01 NONE	STRGHT										
											PRVTE	E -W								000	040,062	00
											PSNGR CAR		02 PSNG	INJB	26	F			000	000		00
00132	N N Y N N N	02/19/2021	17	FORD ST	INTER	CROSS	N	N	CLD	S-1STOP	01 NONE 0	STRGHT										07,29,17
CITY		FR	0	3RD ST	E		TRF SIGNAL	N	WET	REAR	PRVTE	E -W								000		00
N		5P			06	0		N	DUSK	INJ	PSNGR CAR		01 DRVR	INJB	60	M	EXP		043,026	028		07,29,17
N		45 12 36.06	-123 11 35.9														OR>25					
											02 NONE 0	STOP										
											PRVTE	E -W								011		00
											PSNGR CAR		01 DRVR	NONE	24	M	OR-Y		000	000		00
																	OR<25					
01334	N N N N N N	12/27/2018	17	FORD ST	INTER	CROSS	N	N	CLD	PED	01 NONE	TURN-L										02,19
CITY		TH	0	3RD ST	W		TRF SIGNAL	N	WET	PED	PRVTE	S -W								000		00
N		8P			05	0		N	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	16	M	OR-Y		029	000		02
N		45 12 36.08	-123 11 35.91														OR>25					
												-										
												STRGHT	01 PED	INJC	63	F		I XWLK	000	035		19
												N S										

CITY OF MCMINNVILLE, YAMHILL COUNTY **3RD ST and Intersectional Crashes at 3RD ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021**

20 - 24 of 32 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E A U I C O / D M R J S W E L G N H R / D C S V L K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	SPCL USE / TRLR QTY / OWNER / V# TYPE	MOVE / FROM / TO	PRTC / P# TYPE	INJ / SVRTY	AGE	SEX	LICNS / RES	PED / LOC	ERROR	ACT EVENT	CAUSE
01365	N N N N N N	12/12/2017	17	3RD ST	STRGHT		N	N	CLR	BIKE	01 NONE 0	STRGHT									02
CITY		TU	120	GALLOWAY ST	W	(NONE)	NONE	N	DRY	ANGL	PRVTE	W -E								000	00
N		4P			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	77	F	OR-Y		000	000	00
N		45 12 36.08	-123 11 33.74			(02)											OR<25				
												- STRGHT	01 BIKE	INJB	12	M		ROAD	028	037	02
												S N									
~~00544~~	~~N N N N~~	~~06/02/2019~~	~~19~~	~~3RD ST~~	~~STRGHT~~		~~N~~	~~Y~~	~~CLR~~	~~PRKD MV~~	~~01 NONE 9~~	~~UNK~~									~~10~~
~~NO RPT~~		~~SU~~	~~114~~	~~HICKORY ST~~	~~W~~	~~(NONE)~~	~~UNKNOWN~~	~~N~~	~~DRY~~	~~SS-M~~	~~N/A~~	~~UN-UN~~								~~000~~	~~00~~
~~Y~~		~~5P~~			~~07~~			~~N~~	~~DAY~~	~~PDO~~	~~PSNGR CAR~~		~~01 DRVR~~	~~NONE~~	~~00~~	~~Unk~~	~~UNK~~		~~000~~	~~000~~	~~00~~
~~N~~		~~45 12 35.42~~	~~-123 12 56.71~~			~~(02)~~											~~UNK~~				
00752	N N N N N N	08/08/2019	17	IRVINE ST	INTER	CROSS	N	N	CLD	ANGL-OTH	01 NONE 9	STRGHT									02
STATE		TH	0	3RD ST	CN		STOP SIGN	N	DRY	ANGL	N/A	W -E								000	00
N		2P			03	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 12 36.1	-123 11 23.31														UNK				
											02 NONE 9	STRGHT									
											N/A	N -S								015	00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				
00214	N N N N	03/02/2017	17	3RD ST	STRGHT		Y	N	CLD	S-1STOP	01 NONE 0	STRGHT									07
CITY		TH	40	IRVINE ST	E	(NONE)	NONE	N	DRY	REAR	PRVTE	E -W								006	00
N		12P			06			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	17	M	OR-Y		043	000	07
N		45 12 36.1	-123 11 22.75			(02)											OR<25				
											02 NONE 0	STOP									
											PRVTE	E -W								011	00
											PSNGR CAR		01 DRVR	INJC	54	F	OR-Y		000	000	00
																	OR<25				
01226	N N N N N N	11/03/2017	14	JOHNSON ST	INTER	CROSS	N	N	CLD	S-1STOP	01 NONE 9	STRGHT									07,29
CITY		FR	0	3RD ST	E		TRF SIGNAL	N	DRY	REAR	N/A	E -W								000	00
N		9A			06	1		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 12 36.1	-123 11 19.15														UNK				
											02 NONE 9	STOP									
											N/A	E -W								011	00
											TRUCK		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				

3RD ST and Intersectional Crashes at 3RD ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021

25 - 29 of 32 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E L D C / D R A G C S / M J U N S V / S I L / W C H K / O R (SPEL DRJSW flags)	DATE / DAY / TIME / LAT	CLASS / DIST FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	SPCL USE / TRLR QTY / OWNER / V# TYPE	MOVE FROM TO	P# TYPE	PRTC INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
01370	N N N N	12/13/2017	14	JOHNSON ST	INTER	CROSS	N	N	CLR	ANGL-STP	01 NONE 9	TURN-L									08
NONE		WE	0	3RD ST	E		L-GRN-SIG	N	DRY	TURN	N/A	N -E								000	00
N		1P			06	0		N	DAY	PDO	SEMI TOW		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 12 36.1	-123 11 19.15														UNK				
											02 NONE 9	STOP									
											N/A	E -W								012	00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				
00664	N N N N N N	07/22/2021	14	JOHNSON ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	TURN-L									08
CITY		TH	0	3RD ST	E		TRF SIGNAL	N	DRY	TURN	N/A	N -E								000	00
N		5P			06	1		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 12 36.07	-123 11 19.14														UNK				
											02 NONE 9	STOP									
											N/A	E -W								011	00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				
00108	N N N N N N	02/04/2017	14	JOHNSON ST	INTER	CROSS	N	N	RAIN	O-1 L-TURN	01 NONE 0	TURN-L									02
CITY		SA	0	3RD ST	CN		TRF SIGNAL	N	WET	TURN	PRVTE	N -E								000	00
N		4P			04	1		N	DUSK	INJ	PSNGR CAR		01 DRVR	NONE	85	M	OR-Y		028	000	02
N		45 12 36.1	-123 11 19.15														OR<25				
											02 NONE 0	STRGHT									
											PRVTE	S -N								000	00
											PSNGR CAR		01 DRVR	INJC	22	F	OR-Y		000	000	00
																	OR<25				
00836	N N N N	08/29/2019	17	JOHNSON ST	INTER	CROSS	N	N	UNK	O-1 L-TURN	01 NONE	STRGHT									04,08,02
CITY		TH	0	3RD ST	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	N -S								000	00
N		5A			01	0		N	DLIT	INJ	PSNGR CAR		01 DRVR	INJB	48	F	OR-Y		000	000	00
N		45 12 36.11	-123 11 19.17														OR<25				
											02 NONE	TURN-L									
											PRVTE	S -W								000	00
											PSNGR CAR		01 DRVR	INJC	16	M	NONE		004,020,028	000	04,08,02
																	OR<25				
01185	N N N N	11/25/2019	14	JOHNSON ST	INTER	CROSS	N	N	CLR	O-1 L-TURN	01 NONE	TURN-L									02
CITY		MO	0	3RD ST	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	N -E								000	00
N		1P			04	1		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	80	M	OR-Y		028,004	000	02
N		45 12 36.1	-123 11 19.15														OR<25				
											02 NONE	STRGHT									
											PRVTE	S -N								000	00
											PSNGR CAR		01 DRVR	INJC	23	F	OR-Y		000	000	00
																	OR<25				

3RD ST and Intersectional Crashes at 3RD ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021

30 - 32 of 32 Crash records shown.

SER# INVEST RD DPT UNLOC?	S P E D / A L C / D R U G S / M J I N V / S C H L / W O R K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	SPCL USE TRLR QTY OWNER V# TYPE	MOVE FROM TO	PRTC P# TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00507	N N N N N N	06/12/2021	17	JOHNSON ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 0	STRGHT										27,04
CITY		SA	0	3RD ST	CN		TRF SIGNAL	N	DRY	ANGL	PRVTE	E -W								000		00
N		10A			01	1		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	37	M	OR-Y		016,020	038		27,04
N		45 12 36.07	-123 11														OR<25					
			19.14																			
											02 NONE 0	STRGHT										
											PRVTE	N -S								000		00
											PSNGR CAR		01 DRVR	INJB	67	M	NONE		000	000		00
																	OR<25					
~~00213~~	~~N N N N Y~~	~~03/02/2017~~	~~14~~	~~KIRBY ST~~	~~INTER~~	~~CROSS~~	~~N~~	~~N~~	~~RAIN~~	~~BIKE~~	~~01 NONE 0~~	~~TURN-R~~									~~001~~	~~02,18,19~~
~~CITY~~		~~TH~~	~~0~~	~~3RD ST~~	~~N~~		~~STOP SIGN~~	~~N~~	~~WET~~	~~TURN~~	~~PRVTE~~	~~N -W~~								~~015~~		~~00~~
~~N~~		~~4P~~			~~06~~	~~0~~		~~N~~	~~DAY~~	~~INJ~~	~~PSNGR CAR~~		~~01 DRVR~~	~~NONE~~	~~38~~	~~F~~	~~OR-Y~~		~~000~~	~~000~~		~~00~~
~~N~~		~~45 12 36.13~~	~~-123 11~~														~~OR<25~~					
			~~14.96~~																			
												~~-~~										
												~~STRGHT~~	~~01 BIKE~~	~~INJC~~	~~13~~	M		~~I XWLK~~	~~071,060,028~~	~~047~~	~~001~~	~~02,18,19~~
												W ~~E~~										
~~01211~~	~~Y N N N Y N~~	~~12/13/2021~~	~~14~~	~~KIRBY ST~~	~~INTER~~	~~CROSS~~	~~N~~	~~N~~	~~RAIN~~	~~S-STRGHT~~	~~01 NONE 0~~	~~STRGHT~~										~~30,07,29~~
~~CITY~~		~~MO~~	~~0~~	~~3RD ST~~	~~W~~		~~STOP SIGN~~	~~N~~	~~WET~~	~~REAR~~	~~PRVTE~~	~~W -E~~								~~000~~		~~00~~
~~N~~		~~2P~~			~~06~~	~~0~~		~~N~~	~~DAY~~	~~INJ~~	~~PSNGR CAR~~		~~01 DRVR~~	~~NONE~~	~~57~~	~~F~~	~~OR-Y~~		~~050,043,042~~	~~038~~		~~30,07,29~~
~~N~~		~~45 12 36.1~~	~~-123 11~~														~~OR<25~~					
			~~14.94~~																			
											~~02 NONE 0~~	~~TURN-R~~										
											~~PRVTE~~	~~W -S~~								~~006~~		~~00~~
											~~PSNGR CAR~~		~~01 DRVR~~	~~INJC~~	~~31~~	~~F~~	~~OR-Y~~		~~000~~	~~000~~		~~00~~
																	OR<25					

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION

TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CITY OF MCMINNVILLE, YAMHILL COUNTY

3RD ST at ADAMS ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021

1 - 3 of 4 Crash records shown.

SER# INVEST RD DPT UNLOC?	S D M / P R J S W / E A U I C O / E L G N H R / D C S V L K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	SPCL USE TRLR QTY OWNER V# TYPE	MOVE FROM TO	PRTC P# TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00445	N N N N	06/02/2020	17	ADAMS ST	INTER	3-LEG	N	N	CLR	PED	01 NONE	TURN-L									106	02
CITY		TU	0	3RD ST	E		STOP SIGN	N	DRY	PED	PRVTE	N -E								000		00
N		3P			05	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	90	M	OR-Y		029	000		02
N		45 12 36.07	-123 11														OR<25					
			56.5																			
												-										
												STRGHT	01 PED	INJC	80	F		I XWLK	000	034	106	00
												S N										
00645	N N N N N N	08/30/2020	17	ADAMS ST	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE	STRGHT									004	07,27
CITY		SU	0	3RD ST	E		STOP SIGN	N	DRY	REAR	PRVTE	E -W								000		00
N		7P			06	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	31	M	OR-Y		026,043	038		07,27
N		45 12 36.06	-123 11														OR<25					
			56.49																			
											02 NONE	STOP										
											PRVTE	E -W								012	004	00
											PSNGR CAR		01 DRVR	INJC	31	F	OR-Y		000	000		00
																	OR<25					
											02 NONE	STOP										
											PRVTE	E -W								012	004	00
											PSNGR CAR		02 PSNG	INJC	29	M			000	000		00
00183	N N N N	02/25/2019	14	ADAMS ST	INTER	3-LEG	N	N	SNOW	S-1TURN	01 NONE	TURN-L										08,13
NONE		MO		3RD ST	CN		ONE-WAY	N	WET	TURN	PRVTE	N -E								000		00
N		2P			04	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	17	M	OR-Y		006,045	000		08,13
N		45 12 36.09	-123 11	009100100S00													OR<25					
			56.83																			
											02 NONE	STRGHT										
											PRVTE	N -S								000		00
											PSNGR CAR		01 DRVR	INJC	36	F	OR-Y		000	000		00
																	OR<25					
											02 NONE	STRGHT										
											PRVTE	N -S								000		00
											PSNGR CAR		02 PSNG	INJC	35	M			000	000		00
											02 NONE	STRGHT										
											PRVTE	N -S								000		00
											PSNGR CAR		03 PSNG	INJC	06	F			000	000		00
00751	N N N N N N	08/08/2021	14	ADAMS ST	INTER	3-LEG	N	N	CLR	S-STRGHT	01 NONE 0	STRGHT									003	27,13
CITY		SU		3RD ST	CN		ONE-WAY	N	DRY	SS-O	PRVTE	N -S								000		00
N		4P			04	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	32	M	OR-Y		016,080,045	038	003	27,13
N		45 12 36.04	-123 11	009100100S00													OR>25					
			56.84																			

CITY OF MCMINNVILLE, YAMHILL COUNTY

3RD ST at ADAMS ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021

4 - 4 of 4 Crash records shown.

SER# INVEST RD DPT UNLOC?	S P E E D	A L C	D R U G	M J U I C N S V	S H L	W O R K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	SPCL USE TRLR QTY OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																02	NONE 0	STRGHT											
																	PRVTE	N -S									000		00
																	TRUCK		01	DRVR	INJB	26	M	OR-Y OR<25		000	000		00

CDS380 OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION

09/26/2023 TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CITY OF MCMINNVILLE, YAMHILL COUNTY **3RD ST at EVANS ST, City of McMinnville, Yamhill County, 01/01/2017 to 12/31/2021**

1 - 5 of 5 Crash records shown.

SER# INVEST RD DPT UNLOC?	S P E D / D M R J S W / E A U I C O / E L G N H R / D C S V L K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	SPCL USE TRLR QTY OWNER V# TYPE	MOVE FROM TO	PRTC P# TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00528	N N N N	05/28/2017	16	EVANS ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT										02
NONE		SU	0	3RD ST	CN		STOP SIGN	N	DRY	ANGL	N/A	E -W								000		00
N		5P			01	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 12 36.07	-123 11														UNK					
			40.1																			
											02 NONE 9	STRGHT										
											N/A	N -S								015		00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK					
01177	N N N N	10/26/2017	16	EVANS ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT										03
NONE		TH	0	3RD ST	CN		STOP SIGN	N	DRY	ANGL	N/A	N -S								000		00
N		10A			01	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 12 36.07	-123 11														UNK					
			40.1																			
											02 NONE 9	STRGHT										
											N/A	E -W								000		00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK					
01193	N N N N N N	10/28/2017	16	EVANS ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT									084	02
CITY		SA	0	3RD ST	CN		STOP SIGN	N	DRY	ANGL	N/A	W -E								000		00
N		5P			03	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 12 36.07	-123 11														UNK					
			40.1																			
											02 NONE 9	STRGHT										
											N/A	N -S								015		00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK					
01313	N N N N N N	11/26/2017	16	EVANS ST	INTER	CROSS	N	N	CLD	ANGL-OTH	01 NONE 9	STRGHT										02
CITY		SU	0	3RD ST	CN		STOP SIGN	N	WET	ANGL	N/A	S -N								000		00
N		5P			04	0		N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 12 36.07	-123 11														UNK					
			40.1																			
											02 NONE 9	STRGHT										
											N/A	W -E								000		00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK					
00461	N N N N	05/05/2018	17	EVANS ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT										02
CITY		SA	0	3RD ST	CN		STOP SIGN	N	DRY	ANGL	N/A	N -S								015		00
N		1P			03	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
N		45 12 36.07	-123 11														UNK					
			40.1																			
											02 NONE 9	STRGHT										
											N/A	W -E								000		00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK					

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING
055	SPRAY	BLINDED BY WATER SPRAY

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED
4	EXP	EXPIRED
8	N-VAL	OTHER NON-VALID LICENSE
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHI(
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	PARTICIPANT UNINJURED, OVER THE AGE OF 4

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYA
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OB
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

Attachment F: Travel Demand Model Outputs

City of McMinnville **2015** **AM PEAK**

City of McMinnville

2015 PM PEAK

City of McMinnville

2041 AM PEAK
No Build

City of McMinnville

2041 PM PEAK
No Build

City of McMinnville

2041 AM Peak
Third Street Improvement

City of McMinnville

2015 Daily Volume
No Build

City of McMinnville

2041 Daily Volume No Build


NW 6th St
NE 6th St
E 6th St
NE Cowls St
NE Ford St
NW 5th St
NW Park Dr
NE 4th St
NE 4th St
NE Kirby St
NE Logan St
NE Macy St
NE Newby St
NE 9th Ave
N Alpine Ave
NW Western Way
NE 3rd St
NE 2nd St
SE Adams St
SE Washington St
SE Washington St
SE Washington St
SE Washington St
SE Lincoln St
E Holly Way
SE Evans St
SE Irvine St
SE Logan St
SE Macy St
SE Dayton Ave
SE Brooks St
© 2023 PTV, HERE

Attachment G: Future Volumes Growth Rates, Unbalanced 2027 and 2047 Volumes

This sheet is used yearly growth rates developed based on 2023 and 2041 volumes. Values with yellow highlights have been manually adjusted

Sum all rates 66.7%

Existing year	2023
Model year	2041
difference:	18

TEV: 0.004

	0	0%	5%	3%	0	
	0	1	0	0	SB	City: McMinnville
		0.00%	0.78%	-0.35%		State: OR
0 EB		NE Adams St			0	90 0
0%	0	0.00%	7:30 AM to 8:30 AM	0.00%	0	0%
0%	0	0.00%	TEV: 0 1 0.84	0.00%	0	0%
0%	1	0.00%	2023 10 3	0.00%	1	5%
0 270		NE 5th St			WB	0
3		0.00%	0.00%	0.00%	0	
1 2	NB	0	0	1	180	
2	0	0%	0%	0%	0	

Notes: 5-Min Count Interval

Diff: 0

Diff: 0

TEV: -0.005

	0	0%	0%	0%	0	
	0	0	0	0	SB	City: McMinnville
		0.00%	0.00%	0.00%		State: OR
0 EB		NE Baker St			0	90 0
0%	0	-0.37%	7:30 AM to 8:30 AM	-0.19%	0	4%
2%	0	-0.31%	TEV: 0 2 0.86	-0.07%	1	6%
0%	0	0.00%	2023 10 3	0.00%	1	0%
0 270		NE 5th St			WB	0
7		0.22%	0.05%	0.16%	0	
6 5	NB	0	0	0	180	
7	0	0%	4%	5%	0	

Notes: 5-Min Count Interval

Diff: 0

Diff: 0

TEV: 0.057

	0	0%	5%	0%	0	
	0	0	0	0	SB	City: McMinnville
		0.00%	0.64%	2.47%		State: OR
0 EB		NE Adams St			0	90 0
0%	0	0.00%	7:30 AM to 8:30 AM	0.00%	1	0%
0%	0	0.00%	TEV: 0 3 0.88	0.00%	0	0%
0%	0	0.00%	2023 10 3	2.59%	0	7%
0 270		NE 3rd St			WB	0
7		0.00%	0.00%	0.00%	0	
8 2	NB	0	0	1	180	
0	0	0%	0%	0%	0	

Notes: 5-Min Count Interval

Diff: 0

Diff: 0

TEV: 0.151

	0	0%	0%	0%	0	
	0	0	0	0	SB	City: McMinnville
		0.00%	0.00%	0.00%		State: OR
0 EB		NE Baker St			0	90 0
0%	0	-2.78%	7:30 AM to 8:30 AM	0.48%	0	6%
0%	1	2.59%	TEV: 0 4 0.89	1.85%	0	7%
0%	0	0.00%	2023 10 3	0.00%	0	0%
0 270		NE 3rd St			WB	0
9		1.39%	0.03%	####	0	
6 4	NB	0	0	0	180	
3	0	0%	6%	9%	0	

Notes: 5-Min Count Interval

TEV: 0

	0				0	
	0				SB	City: McMinnville
		0.00%	0.00%	0.00%		State: OR
0 EB		NE Cowls Street			0	90 0
		0.00%	X:00 to X:00 p.m.	0.00%		
		0.00%	TEV: 0 phf	0.00%		
		0.00%	yyyy mm dd	0.00%		
0 270		NE 3rd Street			WB	0
		0.00%	0.00%	0.00%	0	
	NB				180	
	0				0	

Notes

Diff: 0

Diff: 0

TEV: 0.102

	0	5%	7%	6%	0	
	0	0	1	1	SB	City: McMinnville
		0.00%	1.07%	-0.46%		State: OR
0 EB		NE Adams St			0	90 0
0%	1	0.00%	7:30 AM to 8:30 AM	0.00%	0	0%
2%	0	-0.01%	TEV: 0 5 0.88	2.79%	1	6%
2%	0	1.60%	2023 10 3	5.24%	0	6%
0 270		SW 2nd St			WB	0
2		0.00%	0.00%	0.00%	0	
1 1	NB	0	0	2	180	
4	0	0%	0%	0%	0	

Notes: 5-Min Count Interval

Diff: 0

Diff: -3

TEV: 0.085

	0	0%	0%	0%	0	
	0	1	0	0	SB	City: McMinnville
		0.00%	0.00%	0.00%		State: OR
0 EB		NE Baker St			0	90 0
4%	1	-0.43%	7:30 AM to 8:30 AM	1.43%	0	16%
3%	2	0.13%	TEV: 0 6 0.89	3.40%	0	10%
0%	2	0.00%	2023 10 3	0.00%	0	0%
0 270		NE 2nd St			WB	0
3		2.29%	0.52%	1.19%	0	
3 5	NB	1	0	0	180	
2	0	2%	6%	6%	0	

Notes: 5-Min Count Interval

TEV: 0

		0				0	City:	McMinnville
		θ 0				SB	State:	OR
			0.00%	0.00%	0.00%			
0	EB	Kittelson & Associates, Inc.	BE Davis Street			0	90 θ	0
		0.00%	X:00 to X:00 p.m.			0.00%		
		0.00%	TEV: 0		phf	0.00%		
		0.00%	yyyy	mm	dd	0.00%		
0	θ 270		NE 3rd Street				WB	0
			0.00%	0.00%	0.00%	0		
		NB				θ 180		
		0				0		
		Notes						

TEV: 0

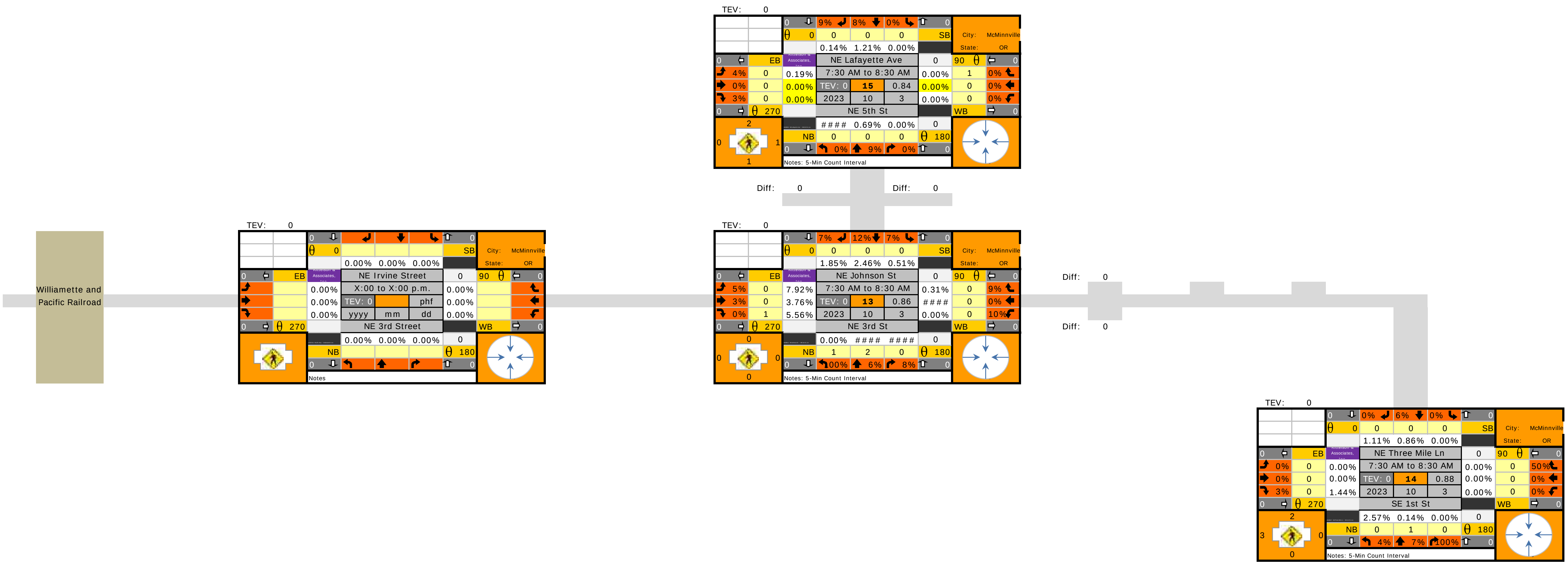
		0				0	City:	McMinnville
		θ 0				SB	State:	OR
			0.00%	0.00%	0.00%			
0	EB	Kittelson & Associates, Inc.	NE Evans Street			0	90 θ	0
		0.00%	X:00 to X:00 p.m.			0.00%		
		0.00%	TEV: 0		phf	0.00%		
		0.00%	yyyy	mm	dd	0.00%		
0	θ 270		NE 3rd Street				WB	0
			0.00%	0.00%	0.00%	0		
		NB				θ 180		
		0				0		
		Notes						

TEV: 0

		0				0	City:	McMinnville
		θ 0				SB	State:	OR
			0.00%	0.00%	0.00%			
0	EB	Kittelson & Associates, Inc.	NE Ford Street			0	90 θ	0
		0.00%	X:00 to X:00 p.m.			0.00%		
		0.00%	TEV: 0		phf	0.00%		
		0.00%	yyyy	mm	dd	0.00%		
0	θ 270		NE 3rd Street				WB	0
			0.00%	0.00%	0.00%	0		
		NB				θ 180		
		0				0		
		Notes						

TEV: 0

		0				0	City:	McMinnville
		θ 0				SB	State:	OR
			0.00%	0.00%	0.00%			
0	EB	Kittelson & Associates, Inc.	NE Galloway Street			0	90 θ	0
		0.00%	X:00 to X:00 p.m.			0.00%		
		0.00%	TEV: 0		phf	0.00%		
		0.00%	yyyy	mm	dd	0.00%		
0	θ 270		NE 3rd Street				WB	0
			0.00%	0.00%	0.00%	0		
		NB				θ 180		
		0				0		
		Notes						


TEV: 0
NE Lafayette Ave
7:30 AM to 8:30 AM
NE 5th St
City: McMinnville
State: OR
Notes: 5-Min Count Interval
Diff: 0
Diff: 0
Williamette and Pacific Railroad
TEV: 0
NE Irvine Street
X:00 to X:00 p.m.
NE 3rd Street
Notes
TEV: 0
NE Johnson St
7:30 AM to 8:30 AM
NE 3rd St
Notes: 5-Min Count Interval
Diff: 0
Diff: 0
TEV: 0
NE Three Mile Ln
7:30 AM to 8:30 AM
SE 1st St
Notes: 5-Min Count Interval

This sheet contains 2027 volumes that are developed based on individual movement growth rates between 2023 and 2041. If an overall growth is negative, it assumes that no volume will be reduced between 2023 and 2027

Sum all TEV: 12,376

Base year	2023
Analysis year	2027
difference:	4

TEV: 1002

	910	0%	5%	3%	0			
	0	1	0	0	SB	City: McMinnville		
		1	799	110		State: OR		
6	EB		NE Adams St		0	90	85	
0%	0	0	7:30 AM to 8:30 AM		0	0	0%	
0%	0	3	TEV: 1002	1	0.84	5	0	0%
0%	1	4	2023	10	3	80	1	5%
7	270		NE 5th St			WB	113	
3		0	0	0	0			
1	2	NB	0	0	1	180		
	883	0%	0%	0%	0			
2		Notes: 5-Min Count Interval						

Diff: -25

Diff: -7

TEV: 1373

	0	0%	0%	0%	1037			
	0	0	0	0	SB	City: McMinnville		
		0	0	0		State: OR		
110	EB		NE Baker St		0	90	115	
0%	0	30	7:30 AM to 8:30 AM		30	0	4%	
2%	0	90	TEV: 1373	2	0.86	85	1	6%
0%	0	0	2023	10	3	0	1	0%
120	270		NE 5th St			WB	226	
7		25	977	136	0			
6	5	NB	0	0	0	180		
	0	0%	4%	5%	1138			
7		Notes: 5-Min Count Interval						

Diff: 24

Diff: -47

TEV: 876

	859	0%	5%	0%	0			
	0	0	0	0	SB	City: McMinnville		
		0	810	49		State: OR		
0	EB		NE Adams St		0	90	17	
0%	0	0	7:30 AM to 8:30 AM		0	1	0%	
0%	0	0	TEV: 876	3	0.88	0	0	0%
0%	0	0	2023	10	3	17	0	7%
0	270		NE 3rd St			WB	49	
7		0	0	0	0			
8	2	NB	0	0	1	180		
	827	0%	0%	0%	0			
0		Notes: 5-Min Count Interval						

Diff: -3

Diff: -3

TEV: 1292

	0	0%	0%	0%	1185			
	0	0	0	0	SB	City: McMinnville		
		0	0	0		State: OR		
20	EB		NE Baker St		0	90	52	
0%	0	2	7:30 AM to 8:30 AM		36	0	6%	
0%	1	50	TEV: 1292	4	0.89	16	0	7%
0%	0	0	2023	10	3	0	0	0%
52	270		NE 3rd St			WB	87	
9		4	1147	37	0			
6	4	NB	0	0	0	180		
	0	0%	6%	9%	1188			
3		Notes: 5-Min Count Interval						

TEV: 0

	0				0			
	0				SB	City: McMinnville		
		0	0	0		State: OR		
0	EB		NE Cowls Street		0	90	0	
		0	X:00 to X:00 p.m.		0			
		0	TEV: 0		phf	0		
		0	yyyy	mm	dd	0		
0	270		NE 3rd Street			WB	0	
		0	0	0	0			
		NB				180		
	0				0			
		Notes						

Diff: 12

Diff: -3

TEV: 1718

	815	5%	7%	6%	0			
	0	0	1	1	SB	City: McMinnville		
		115	615	85		State: OR		
332	EB		NE Adams St		0	90	259	
0%	1	0	7:30 AM to 8:30 AM		0	0	0%	
2%	0	500	TEV: 1718	5	0.88	217	1	6%
2%	0	144	2023	10	3	42	0	6%
644	270		SW 2nd St			WB	585	
2		0	0	0	0			
1	1	NB	0	0	2	180		
	801	0%	0%	0%	0			
4		Notes: 5-Min Count Interval						

Diff: -21

Diff: -3

TEV: 1927

	0	0%	0%	0%	1191			
	0	1	0	0	SB	City: McMinnville		
		0	0	0		State: OR		
280	EB		NE Baker St		0	90	224	
4%	1	205	7:30 AM to 8:30 AM		37	0	16%	
3%	2	377	TEV: 1927	6	0.89	187	0	10%
0%	2	0	2023	10	3	0	0	0%
582	270		NE 2nd St			WB	456	
3		93	949	79	0			
3	5	NB	1	0	0	180		
	0	2%	6%	6%	1121			
2		Notes: 5-Min Count Interval						

TEV: 377

		55 ⇩	0%	0%	0%	⇧ 42	City:	McMinnville
		θ 0	0	1	1	SB	State:	OR
			5	40	10			
172	EB	Associates,	NE Davis St			0	90 θ	170
0%	0	2	4:25 PM to 5:25 PM			10	0	0%
0%	3	87	TEV: 377	8	0.79	157	2	1%
0%	0	11	2023	10	3	3	1	0%
100	θ 270		NE 3rd St				WB	109
83			10	30	12	0		
20	18	NB	0	2	2	θ 180		
		54 ⇩	0%	0%	0%	⇧ 52		
57		Notes: 5-Min Count Interval						

Diff: 3

Diff: -6

TEV: 425

		98 ⇩	14%	2%	0%	⇧ 69	City:	McMinnville
		θ 0	0	0	0	SB	State:	OR
			20	55	23			
167	EB	Associates,	NE Evans St			0	90 θ	184
0%	1	12	4:25 PM to 5:25 PM			31	0	0%
0%	5	86	TEV: 425	9	0.85	143	4	1%
0%	1	5	2023	10	3	10	2	0%
103	θ 270		NE 3rd St				WB	119
55			4	26	10	0		
11	31	NB	0	3	0	θ 180		
		70 ⇩	0%	0%	0%	⇧ 40		
80		Notes: 5-Min Count Interval						

Diff: 3

Diff: 0

TEV: 400

		50 ⇩	0%	0%	0%	⇧ 45	City:	McMinnville
		θ 0	0	0	0	SB	State:	OR
			5	25	20			
181	EB	Associates,	NE Ford St			0	90 θ	180
0%	0	0	4:25 PM to 5:25 PM			10	1	12%
0%	5	109	TEV: 400	10	0.84	170	2	1%
0%	1	10	2023	10	3	0	1	0%
119	θ 270		NE 3rd St				WB	139
26			6	35	10	0		
14	7	NB	1	0	0	θ 180		
		35 ⇩	0%	0%	0%	⇧ 51		
30		Notes: 5-Min Count Interval						

Diff: 1

Diff: -6

TEV: 371

		32 ⇩	0%	0%	0%	⇧ 34	City:	McMinnville
		θ 0	0	0	0	SB	State:	OR
			10	10	12			
179	EB	Associates,	NE Galloway St			0	90 θ	186
0%	0	7	4:25 PM to 5:25 PM			17	0	0%
0%	4	116	TEV: 371	11	0.88	164	4	1%
0%	0	10	2023	10	3	5	0	0%
133	θ 270		NE 3rd St				WB	133
30			5	10	5	0		
17	3	NB	0	0	0	θ 180		
		25 ⇩	0%	0%	0%	⇧ 20		
18		Notes: 5-Min Count Interval						

TEV: 1815

NE Lafayette Ave / NE 5th St	
Time	4:25 PM to 5:25 PM
TEV: 1815	15 / 0.89
Date	2023 / 10 / 3
City:	McMinnville
State:	OR

Approach	Out / In	HV % (L, T, R)	Bikes (L, T, R)	Volumes (L, T, R)	Peds
SB	846 / 759	0%, 3%, 0%	0, 1, 0	100, 742, 4	0
EB	196 / 186	1%, 0%, 0%	0, 0, 0	76, 20, 90	270
WB	46 / 27	0%, 0%, 0%	1, 0, 0	15, 30, 1	0 / 90
NB	833 / 737	2%, 3%, 0%	0, 1, 0	66, 668, 3	0 / 180

Pedestrians: 1 / 0 / 3 / 3

Notes: 5-Min Count Interval

-1 14

TEV: 450

NE Irvine St / NE 3rd St	
Time	4:25 PM to 5:25 PM
TEV: 450	12 / 0.80
Date	2023 / 10 / 3
City:	McMinnville
State:	OR

Approach	Out / In	HV % (L, T, R)	Bikes (L, T, R)	Volumes (L, T, R)	Peds
SB	56 / 50	7%, 5%, 0%	0, 3, 0	16, 20, 20	0
EB	191 / 138	0%, 0%, 0%	2, 1, 0	10, 118, 10	270
WB	186 / 168	40%, 1%, 0%	0, 1, 1	5, 170, 11	0 / 90
NB	41 / 70	0%, 12%, 6%	0, 1, 0	5, 35, 30	0 / 180

Pedestrians: 13 / 4 / 2 / 4

Notes: 5-Min Count Interval

Diff: -5

Williamette and Pacific Railroad

Diff: 5

Diff: -17

Diff: 7

TEV: 1865

NE Johnson St / NE 3rd St	
Time	4:25 PM to 5:25 PM
TEV: 1865	13 / 0.88
Date	2023 / 10 / 3
City:	McMinnville
State:	OR

Approach	Out / In	HV % (L, T, R)	Bikes (L, T, R)	Volumes (L, T, R)	Peds
SB	832 / 723	2%, 2%, 3%	0, 0, 1	67, 290, 475	0
EB	203 / 175	0%, 1%, 0%	0, 0, 0	56, 119, 0	270
WB	557 / 624	2%, 1%, 0%	0, 1, 0	402, 130, 25	0 / 90
NB	315 / 301	0%, 5%, 0%	1, 0, 1	6, 265, 30	0 / 180

Pedestrians: 0 / 0 / 0 / 0

Notes: 5-Min Count Interval

TEV: 1779

NE Three Mile Ln / SE 1st St	
Time	4:25 PM to 5:25 PM
TEV: 1779	14 / 0.89
Date	2023 / 10 / 3
City:	McMinnville
State:	OR

Approach	Out / In	HV % (L, T, R)	Bikes (L, T, R)	Volumes (L, T, R)	Peds
SB	698 / 591	0%, 2%, 0%	0, 1, 0	5, 683, 10	0
EB	214 / 283	0%, 0%, 1%	0, 0, 0	4, 0, 279	270
WB	4 / 12	0%, 0%, 0%	2, 0, 0	4, 0, 0	0 / 90
NB	962 / 794	2%, 2%, 0%	1, 2, 0	209, 583, 2	0 / 180

Pedestrians: 2 / 3 / 1 / 0

Notes: 5-Min Count Interval

P

This sheet contains 2047 volumes based on manually adjsuted growth rates

Existing year 2023
Base model year 2041
Analysis year 2047
difference: 24

Sum all TEV: 13,928

TEV: 1114

1022 | 0% | 2% | 1% | 0
0 | 1 | 1 | 0 | SB | City: McMinnville
1 | 920 | 101 | State: OR
6 | EB | NE Adams St | 0 | 90 | 85
0% | 0 | 0 | 7:30 AM to 8:30 AM | 0 | 0 | 0%
0% | 0 | 3 | TEV: 1114 | 1 | 0.96 | 5 | 1 | 0%
0% | 0 | 4 | 2023 | 10 | 3 | 80 | 2 | 2%
7 | 270 | NE 5th St | WB | 104
19 | 0 | 0 | 0 | 0
13 | 2 | NB | 0 | 0 | 2 | 180
1004 | 0% | 0% | 0% | 0
3 | Notes: 5-Min Count Interval

Diff: -25

Diff: 6

TEV: 1376

0 | 0% | 0% | 0% | 1043
0 | 0 | 0 | 0 | SB | City: McMinnville
0 | 0 | 0 | State: OR
110 | EB | NE Baker St | 0 | 90 | 113
0% | 0 | 27 | 7:30 AM to 8:30 AM | 29 | 0 | 1%
1% | 1 | 83 | TEV: 1376 | 2 | 0.92 | 84 | 2 | 2%
0% | 0 | 0 | 2023 | 10 | 3 | 0 | 0 | 0%
110 | 270 | NE 5th St | WB | 223
22 | 26 | 987 | 140 | 0
2 | 5 | NB | 0 | 2 | 1 | 180
0 | 0% | 3% | 0% | 1153
3 | Notes: 5-Min Count Interval

-21

-41

TEV: 1007

983 | 0% | 2% | 0% | 0
0 | 0 | 2 | 1 | SB | City: McMinnville
0 | 911 | 72 | State: OR
0 | EB | NE Adams St | 0 | 90 | 24
0% | 0 | 0 | 7:30 AM to 8:30 AM | 0 | 1 | 0%
0% | 0 | 0 | TEV: 1007 | 3 | 0.93 | 0 | 0 | 0%
0% | 0 | 0 | 2023 | 10 | 3 | 24 | 0 | 2%
0 | 270 | NE 3rd St | WB | 72
41 | 0 | 0 | 0 | 0
6 | 1 | NB | 0 | 1 | 2 | 180
935 | 0% | 0% | 0% | 0
0 | Notes: 5-Min Count Interval

Diff: -3

Diff: 2

TEV: 1388

0 | 0% | 0% | 0% | 1194
0 | 0 | 1 | 0 | SB | City: McMinnville
0 | 0 | 0 | State: OR
27 | EB | NE Baker St | 0 | 90 | 61
8% | 1 | 1 | 7:30 AM to 8:30 AM | 39 | 1 | 0%
0% | 2 | 73 | TEV: 1388 | 4 | 0.94 | 22 | 0 | 2%
0% | 2 | 0 | 2023 | 10 | 3 | 0 | 1 | 0%
74 | 270 | NE 3rd St | WB | 167
35 | 5 | 1154 | 94 | 0
5 | 5 | NB | 1 | 2 | 0 | 180
0 | 0% | 4% | 0% | 1253
11 | Notes: 5-Min Count Interval

Diff: 61

Diff: -167

TEV: 0

0 | 0% | 0% | 0% | 0
0 | 0 | 1 | 1 | SB | City: McMinnville
0 | 0 | 0 | State: OR
0 | EB | NE Cowls St | 0 | 90 | 0
0% | 0 | 0 | X:00 to X:00 p.m. | 0 | 1 | 0%
1% | 3 | 0 | TEV: 0 | 7 | 0.79 | 0 | 2 | 2%
0% | 0 | 0 | 2023 | 10 | 11 | 0 | 0 | 0%
0 | 270 | NE 3rd St | WB | 0
43 | 0 | 0 | 0 | 0
41 | 14 | NB | 0 | 0 | 1 | 180
0 | 0% | 0% | 0% | 0
91 | Notes: 5-Min Count Interval

Diff: -2

-24

TEV: 2024

933 | 0% | 3% | 2% | 0
0 | 0 | 2 | 2 | SB | City: McMinnville
115 | 742 | 76 | State: OR
441 | EB | NE Adams St | 0 | 90 | 405
0% | 1 | 0 | 7:30 AM to 8:30 AM | 0 | 0 | 0%
1% | 1 | 499 | TEV: 2024 | 5 | 0.93 | 326 | 2 | 1%
2% | 0 | 187 | 2023 | 10 | 3 | 79 | 4 | 5%
686 | 270 | SW 2nd St | WB | 575
7 | 0 | 0 | 0 | 0
2 | 1 | NB | 0 | 0 | 0 | 180
1008 | 0% | 0% | 0% | 0
9 | Notes: 5-Min Count Interval

Diff: -27

Diff: -4

TEV: 2192

0 | 0% | 0% | 0% | 1277
0 | 0 | 2 | 0 | SB | City: McMinnville
0 | 0 | 0 | State: OR
432 | EB | NE Baker St | 0 | 90 | 347
2% | 0 | 184 | 7:30 AM to 8:30 AM | 47 | 0 | 3%
1% | 2 | 387 | TEV: 2192 | 6 | 0.93 | 300 | 3 | 1%
0% | 0 | 0 | 2023 | 10 | 3 | 0 | 0 | 0%
571 | 270 | NE 2nd St | WB | 483
3 | 132 | 1046 | 96 | 0
4 | 3 | NB | 3 | 0 | 0 | 180
0 | 1% | 3% | 10% | 1274
5 | Notes: 5-Min Count Interval

adjust to existing volumes

TEV: 513

Diff: 5

Diff: -1

		55	0%	0%	0%	43		
		0	0	1	1	SB	City:	McMinnville
			5	40	10		State:	OR
257	EB	Kittelson & Associates, Inc.	NE Davis St			0	90	258
0%	0	2	4:25 PM to 5:25 PM			11	0	0%
0%	3	121	TEV: 513	8	0.79	241	2	1%
0%	0	17	2023	10	3	6	1	0%
140	270		NE 3rd St				WB	150
83			11	30	19	0		
20	18	NB	0	2	2	180		
57		63	0%	0%	0%	60		
		Notes: 5-Min Count Interval						

adjust to existing volumes

TEV: 634

Diff: -2

Diff: -7

		118	14%	2%	0%	134		
		0	0	0	0	SB	City:	McMinnville
			23	55	40		State:	OR
260	EB	Kittelson & Associates, Inc.	NE Evans St			0	90	330
0%	1	21	4:25 PM to 5:25 PM			84	0	0%
0%	5	117	TEV: 634	9	0.85	233	4	1%
0%	1	5	2023	10	3	13	2	0%
143	270		NE 3rd St				WB	167
55			4	29	10	0		
11	31	NB	0	3	0	180		
80		73	0%	0%	0%	43		
		Notes: 5-Min Count Interval						

adjust to existing volumes

TEV: 603

Diff: -2

Diff: -2

		51	0%	0%	0%	48		
		0	0	0	0	SB	City:	McMinnville
			6	25	20		State:	OR
332	EB	Kittelson & Associates, Inc.	NE Ford St			0	90	330
0%	0	0	4:25 PM to 5:25 PM			13	1	12%
0%	5	152	TEV: 603	10	0.84	317	2	1%
0%	1	13	2023	10	3	0	1	0%
165	270		NE 3rd St				WB	185
26			9	35	13	0		
14	7	NB	1	0	0	180		
30		38	0%	0%	0%	57		
		Notes: 5-Min Count Interval						

adjust to existing volumes

TEV: 586

Diff: -2

Diff: -8

		69	0%	0%	0%	55		
		0	0	0	0	SB	City:	McMinnville
			37	10	22		State:	OR
332	EB	Kittelson & Associates, Inc.	NE Galloway St			0	90	316
0%	0	20	4:25 PM to 5:25 PM			24	0	0%
0%	4	147	TEV: 586	11	0.88	287	4	1%
0%	0	10	2023	10	3	5	0	0%
177	270		NE 3rd St				WB	174
30			8	11	5	0		
17	3	NB	0	0	0	180		
18		25	0%	0%	0%	24		
		Notes: 5-Min Count Interval						

adjust to existing volumes

Diff: -5

Diff: 8

Williamette and Pacific Railroad

-22

7

-14

28

TEV: 2025

		932	0%	3%	0%	877		
		0	0	1	0	SB	City:	McMinnville
			149	779	4		State:	OR
252	EB		NE Lafayette Ave			0	90	46
1%	0	103	4:25 PM to 5:25 PM			15	1	0%
0%	0	20	TEV: 2025	15	0.89	30	0	0%
0%	0	90	2023	10	3	1	0	0%
213	270		NE 5th St				WB	26
1			73	759	2	0		
0	3	NB	0	1	0	180		
3		870	2%	3%	0%	834		
		Notes: 5-Min Count Interval						

TEV: 634

		60	7%	5%	0%	56		
		0	0	3	0	SB	City:	McMinnville
			19	20	21		State:	OR
321	EB		NE Irvine St			0	90	318
0%	2	13	4:25 PM to 5:25 PM			8	0	40%
0%	1	158	TEV: 634	12	0.80	296	1	1%
0%	0	11	2023	10	3	14	1	0%
182	270		NE 3rd St				WB	212
13			6	35	33	0		
4	2	NB	0	1	0	180		
4		45	0%	12%	6%	74		
		Notes: 5-Min Count Interval						

TEV: 2053

		856	2%	2%	3%	806		
		0	0	0	1	SB	City:	McMinnville
			127	254	475		State:	OR
340	EB		NE Johnson St			0	90	630
0%	0	83	4:25 PM to 5:25 PM			411	0	2%
1%	0	136	TEV: 2053	13	0.88	203	1	1%
0%	0	0	2023	10	3	16	0	0%
219	270		NE 3rd St				WB	637
0			10	312	26	0		
0	0	NB	1	0	1	180		
0		270	0%	5%	0%	348		
		Notes: 5-Min Count Interval						

TEV: 2110

		715	0%	2%	0%	684		
		0	0	1	0	SB	City:	McMinnville
			5	700	10		State:	OR
311	EB		NE Three Mile Ln			0	90	4
0%	0	4	4:25 PM to 5:25 PM			4	2	0%
0%	0	0	TEV: 2110	14	0.89	0	0	0%
1%	0	402	2023	10	3	0	0	0%
406	270		SE 1st St				WB	13
2			306	676	3	0		
3	1	NB	1	2	0	180		
0		1102	2%	2%	0%	985		
		Notes: 5-Min Count Interval						

This sheet is used yearly growth rates developed based on 2023 and 2041 volumes. Values with yellow highlights have been manually adjusted

Sum all rates 233%

Existing year	2023
Model year	2041
difference:	18

TEV: 0

SB rates		0%	2%	1%		City: McMinnville
SB	0	1	1	0	SB	State: OR
		0.00%	0.14%	####		
EB	0	NE Adams St			0	90 WB
0%	0	0.00%	4:25 PM to 5:25 PM	0.00%	0	0%
0%	0	0.00%	TEV: 0 / 1 / 0.96	0.00%	1	0%
0%	0	0.00%	2023 / 10 / 3	0.00%	2	2%
270			NE 5th St			WB
		0.00%	0.00%	0.00%	0	
NB		0	0	2	180	
NB rates		0%	0%	0%		

Peds: 19 / 13 / 2 / 3

Notes: 5-Min Count Interval

TEV: 0

SB rates		0%	0%	0%		City: McMinnville
SB	0	0	0	0	SB	State: OR
		0.00%	0.00%	0.00%		
EB	0	NE Baker St			0	90 WB
0%	0	####	4:25 PM to 5:25 PM	####	0	1%
1%	1	####	TEV: 0 / 2 / 0.92	####	2	2%
0%	0	0.00%	2023 / 10 / 3	0.00%	0	0%
270			NE 5th St			WB
		0.74%	0.29%	2.22%	0	
NB		1	2	1	180	
NB rates		0%	3%	0%		

Peds: 22 / 2 / 5 / 3

Notes: 5-Min Count Interval

TEV: 0

SB rates		0%	2%	0%		City: McMinnville
SB	0	0	2	1	SB	State: OR
		0.00%	0.08%	3.33%		
EB	0	NE Adams St			0	90 WB
0%	0	0.00%	4:25 PM to 5:25 PM	0.00%	1	0%
0%	0	0.00%	TEV: 0 / 3 / 0.93	0.00%	0	0%
0%	0	0.00%	2023 / 10 / 3	7.04%	0	2%
270			NE 3rd St			WB
		0.00%	0.00%	0.00%	0	
NB		0	1	2	180	
NB rates		0%	0%	0%		

Peds: 41 / 6 / 1 / 0

Notes: 5-Min Count Interval

TEV: 0

SB rates		0%	0%	0%		City: McMinnville
SB	0	0	1	0	SB	State: OR
		0.00%	0.00%	0.00%		
EB	0	NE Baker St			0	90 WB
8%	1	0.00%	4:25 PM to 5:25 PM	0.85%	1	0%
0%	2	3.00%	TEV: 0 / 4 / 0.94	6.56%	0	2%
0%	2	0.00%	2023 / 10 / 3	0.00%	1	0%
270			NE 3rd St			WB
		5.56%	0.33%	3.70%	0	
NB		1	2	0	180	
NB rates		0%	4%	0%		

Peds: 35 / 5 / 5 / 11

Notes: 5-Min Count Interval

Diff: 0

Diff: 0

TEV: 0

SB rates		0%	0%	0%		City: McMinnville
SB	0	0	1	1	SB	State: OR
		0.00%	0.00%	0.00%		
EB	0	NE Cowls St			0	90 WB
0%	0	3.33%	4:25 PM to 5:25 PM	0.00%	1	0%
1%	3	2.81%	TEV: 0 / 7 / 0.79	3.59%	2	2%
0%	0	####	2023 / 10 / 11	2.89%	0	0%
270			NE 3rd St			WB
		3.33%	0.00%	0.00%	0	
NB		0	0	1	180	
NB rates		0%	0%	0%		

Peds: 43 / 41 / 14 / 91

Notes: 5-Min Count Interval

Diff: 0

TEV: 0

SB rates		0%	3%	2%		City: McMinnville
SB	0	0	2	2	SB	State: OR
		0.00%	0.74%	####		
EB	0	NE Adams St			0	90 WB
0%	1	0.00%	4:25 PM to 5:25 PM	0.00%	0	0%
1%	1	0.62%	TEV: 0 / 5 / 0.93	0.70%	2	1%
2%	0	3.61%	2023 / 10 / 3	2.04%	4	5%
270			SW 2nd St			WB
		0.00%	0.00%	0.00%	0	
NB		0	0	0	180	
NB rates		0%	0%	0%		

Peds: 7 / 2 / 1 / 9

Notes: 5-Min Count Interval

TEV: 0

SB rates		0%	0%	0%		City: McMinnville
SB	0	0	2	0	SB	State: OR
		0.00%	0.00%	0.00%		
EB	0	NE Baker St			0	90 WB
2%	0	####	4:25 PM to 5:25 PM	1.59%	0	3%
1%	2	0.54%	TEV: 0 / 6 / 0.93	1.11%	3	1%
0%	0	0.00%	2023 / 10 / 3	0.00%	0	0%
270			NE 2nd St			WB
		0.36%	0.72%	1.96%	0	
NB		3	0	0	180	
NB rates		1%	3%	10%		

Peds: 3 / 4 / 3 / 5

Notes: 5-Min Count Interval

TEV: 0

Diff: 0

Diff: 0

		0	0%	0%	0%	0	City:	McMinnville
		0	0	1	1	SB	State:	OR
			0.00%	0.00%	0.00%			
0	EB	Kittelson & Associates,	NE Davis St			0	90	0
0%	0	0.00%	4:25 PM to 5:25 PM			0.56%	0	0%
0%	3	2.15%	TEV: 0	8	0.79	3.02%	2	1%
0%	0	2.78%	2023	10	3	8.33%	1	0%
0	270		NE 3rd St				WB	0
83			0.56%	0.00%	3.89%	0		
20	18	NB	0	2	2	180		
57		0	0%	0%	0%	0		
		Notes: 5-Min Count Interval						

TEV: 0

Diff: 0

Diff: 0

		0	14%	2%	0%	0	City:	McMinnville
		0	0	0	0	SB	State:	OR
			0.56%	0.00%	4.17%			
0	EB	Kittelson & Associates,	NE Evans St			0	90	0
0%	1	4.44%	4:25 PM to 5:25 PM			####	0	0%
0%	5	1.94%	TEV: 0	9	0.85	3.60%	4	1%
0%	1	0.00%	2023	10	3	1.11%	2	0%
0	270		NE 3rd St				WB	0
55			0.00%	0.67%	0.00%	0		
11	31	NB	0	3	0	180		
80		0	0%	0%	0%	0		
		Notes: 5-Min Count Interval						

TEV: 0

Diff: 0

Diff: 0

		0	0%	0%	0%	0	City:	McMinnville
		0	0	0	0	SB	State:	OR
			1.11%	0.00%	0.00%			
0	EB	Kittelson & Associates,	NE Ford St			0	90	0
0%	0	0.00%	4:25 PM to 5:25 PM			1.11%	1	12%
0%	5	2.17%	TEV: 0	10	0.84	5.28%	2	1%
0%	1	1.11%	2023	10	3	0.00%	1	0%
0	270		NE 3rd St				WB	0
26			3.33%	0.00%	1.11%	0		
14	7	NB	1	0	0	180		
30		0	0%	0%	0%	0		
		Notes: 5-Min Count Interval						

TEV: 1

Diff: 0

Diff: 0

		0	0%	0%	0%	0	City:	McMinnville
		0	0	0	0	SB	State:	OR
			####	0.00%	5.00%			
0	EB	Kittelson & Associates,	NE Galloway St			0	90	0
0%	0	####	4:25 PM to 5:25 PM			2.59%	0	0%
0%	4	1.41%	TEV: 1	11	0.88	4.37%	4	1%
0%	0	0.00%	2023	10	3	0.00%	0	0%
0	270		NE 3rd St				WB	0
30			2.22%	0.56%	0.00%	0		
17	3	NB	0	0	0	180		
18		0	0%	0%	0%	0		
		Notes: 5-Min Count Interval						

TEV: 0

0	0%	3%	0%	0		
0	0	1	0	SB	City:	McMinnville
	2.72%	0.25%	0.00%		State:	OR
0 EB		NE Lafayette Ave		0	90	0
1%	0	1.98%	4:25 PM to 5:25 PM	0.00%	1	0%
0%	0	0.00%	TEV: 0 / 15 / 0.89	0.00%	0	0%
0%	0	0.00%	2023 / 10 / 3	0.00%	0	0%
0	270		NE 5th St		WB	0
			0.51% 0.70% ####	0		
	NB	0	1	0	180	
0	2%	3%	0%	0		

Pedestrians: 1 (N), 0 (W), 3 (E), 3 (S)

Notes: 5-Min Count Interval

TEV: 0

Diff: 0

Williamette and Pacific Railroad

Diff: 0

0	7%	5%	0%	0		
0	0	3	0	SB	City:	McMinnville
	1.11%	0.00%	0.28%		State:	OR
0 EB		NE Irvine St		0	90	0
0%	2	1.11%	4:25 PM to 5:25 PM	2.22%	0	40%
0%	1	1.82%	TEV: 0 / 12 / 0.80	4.33%	1	1%
0%	0	0.56%	2023 / 10 / 3	1.67%	1	0%
0	270		NE 3rd St		WB	0
			1.11% 0.00% 0.37%	0		
	NB	0	1	0	180	
0	0%	12%	6%	0		

Pedestrians: 13 (N), 4 (W), 2 (E), 4 (S)

Notes: 5-Min Count Interval

TEV: 0

0	2%	2%	3%	0		
0	0	0	1	SB	City:	McMinnville
	5.45%	####	0.00%		State:	OR
0 EB		NE Johnson St		0	90	0
0%	0	2.78%	4:25 PM to 5:25 PM	0.11%	0	2%
1%	0	0.77%	TEV: 0 / 13 / 0.88	3.19%	1	1%
0%	0	0.00%	2023 / 10 / 3	####	0	0%
0	270		NE 3rd St		WB	0
			4.44% 0.94% ####	0		
	NB	1	0	1	180	
0	0%	5%	0%	0		

Pedestrians: 0 (N), 0 (W), 0 (E), 0 (S)

Notes: 5-Min Count Interval

TEV: 0

0	0%	2%	0%	0		
0	0	1	0	SB	City:	McMinnville
	0.00%	0.12%	0.00%		State:	OR
0 EB		NE Three Mile Ln		0	90	0
0%	0	0.00%	4:25 PM to 5:25 PM	0.00%	2	0%
0%	0	0.00%	TEV: 0 / 14 / 0.89	0.00%	0	0%
1%	0	2.40%	2023 / 10 / 3	0.00%	0	0%
0	270		SE 1st St		WB	0
			2.54% 0.82% 2.78%	0		
	NB	1	2	0	180	
0	2%	2%	0%	0		

Pedestrians: 2 (N), 3 (W), 1 (E), 0 (S)

Notes: 5-Min Count Interval

This sheet contains 2027 volumes that are developed based on individual movement growth rates between 2023 and 2041. If an overall growth is negative, it assumes that no volume will be reduced between 2023 and 2027

Sum all TEV: 18,198

Base year	2023
Analysis year	2027
difference:	4

TEV: 1511

		1287	0%	2%	1%	0		
		0	1	1	0	SB	City:	McMinnville
			5	1197	85		State:	OR
20	EB		NE Adams St			0	90	215
0%	0	0	4:25 PM to 5:25 PM			0	0	0%
0%	0	4	TEV: 1511	1	0.96	15	1	0%
0%	0	5	2023	10	3	200	2	2%
9	270		NE 5th St				WB	89
19			0	0	0	0		
13	2	NB	0	0	2	180		
3		1402	0%	0%	0%	0		
		Notes: 5-Min Count Interval						

Diff: 0

Diff: 6

TEV: 1617

		0	0%	0%	0%	1299		
		0	0	0	0	SB	City:	McMinnville
			0	0	0		State:	OR
215	EB		NE Baker St			0	90	290
0%	0	25	4:25 PM to 5:25 PM			90	0	1%
1%	1	70	TEV: 1617	2	0.92	200	2	2%
0%	0	0	2023	10	3	0	0	0%
95	270		NE 5th St				WB	103
22			15	1184	33	0		
2	5	NB	0	2	1	180		
3		0	0%	3%	0%	1232		
		Notes: 5-Min Count Interval						

Diff: 22

26

TEV: 1457

		1380	0%	2%	0%	0		
		0	0	2	1	SB	City:	McMinnville
			0	1329	51		State:	OR
0	EB		NE Adams St			0	90	77
0%	0	0	4:25 PM to 5:25 PM			0	1	0%
0%	0	0	TEV: 1457	3	0.93	0	0	0%
0%	0	0	2023	10	3	77	0	2%
0	270		NE 3rd St				WB	51
41			0	0	0	0		
6	1	NB	0	1	2	180		
0		1406	0%	0%	0%	0		
		Notes: 5-Min Count Interval						

Diff: -4

Diff: 20

TEV: 1395

		0	0%	0%	0%	1206		
		0	0	1	0	SB	City:	McMinnville
			0	0	0		State:	OR
81	EB		NE Baker St			0	90	130
8%	1	15	4:25 PM to 5:25 PM			67	1	0%
0%	2	56	TEV: 1395	4	0.94	63	0	2%
0%	0	0	2023	10	3	0	1	0%
71	270		NE 3rd St				WB	108
35			18	1124	52	0		
5	5	NB	1	2	0	180		
11		0	0%	4%	0%	1194		
		Notes: 5-Min Count Interval						

Diff: -7

Diff: -5

TEV: 323

		25	0%	0%	0%	31		
		0	0	1	1	SB	City:	McMinnville
			5	15	5		State:	OR
137	EB		NE Cowls St			0	90	169
0%	0	6	4:25 PM to 5:25 PM			15	1	0%
1%	3	83	TEV: 323	7	0.79	126	2	2%
0%	0	14	2023	10	11	28	0	0%
103	270		NE 3rd St				WB	98
43			6	10	10	0		
41	14	NB	0	0	1	180		
91		57	0%	0%	0%	26		
		Notes: 5-Min Count Interval						

Diff: 10

14

TEV: 2342

		1416	0%	3%	2%	0		
		0	0	2	2	SB	City:	McMinnville
			265	1066	85		State:	OR
666	EB		NE Adams St			0	90	498
0%	1	0	4:25 PM to 5:25 PM			0	0	0%
1%	1	359	TEV: 2342	5	0.93	401	2	1%
2%	0	69	2023	10	3	97	4	5%
428	270		SW 2nd St				WB	444
7			0	0	0	0		
2	1	NB	0	0	0	180		
9		1232	0%	0%	0%	0		
		Notes: 5-Min Count Interval						

Diff: 5

Diff: 2

TEV: 2071

		0	0%	0%	0%	1180		
		0	0	2	0	SB	City:	McMinnville
			0	0	0		State:	OR
493	EB		NE Baker St			0	90	403
2%	0	140	4:25 PM to 5:25 PM			37	0	3%
1%	2	306	TEV: 2071	6	0.93	366	3	1%
0%	0	0	2023	10	3	0	0	0%
446	270		NE 2nd St				WB	398
3			127	1003	92	0		
4	3	NB	3	0	0	180		
5		0	1%	3%	10%	1222		
		Notes: 5-Min Count Interval						

TEV: 377

		55	0%	0%	0%	42	City:	McMinnville
		0	0	1	1	SB		
			5	40	10		State:	OR
172	EB	Kittelson & Associates,	NE Davis St			0	90	170
0%	0	2	4:25 PM to 5:25 PM			10	0	0%
0%	3	87	TEV: 377	8	0.79	157	2	1%
0%	0	11	2023	10	3	3	1	0%
100	270		NE 3rd St				WB	109
83			10	30	12	0		
20	18	NB	0	2	2	180		
		54	0%	0%	0%	52		
57		Notes: 5-Min Count Interval						

Diff: 3

Diff: -6

TEV: 425

		98	14%	2%	0%	69	City:	McMinnville
		0	0	0	0	SB		
			20	55	23		State:	OR
167	EB	Kittelson & Associates,	NE Evans St			0	90	184
0%	1	12	4:25 PM to 5:25 PM			31	0	0%
0%	5	86	TEV: 425	9	0.85	143	4	1%
0%	1	5	2023	10	3	10	2	0%
103	270		NE 3rd St				WB	119
55			4	26	10	0		
11	31	NB	0	3	0	180		
		70	0%	0%	0%	40		
80		Notes: 5-Min Count Interval						

Diff: 3

Diff: 0

TEV: 400

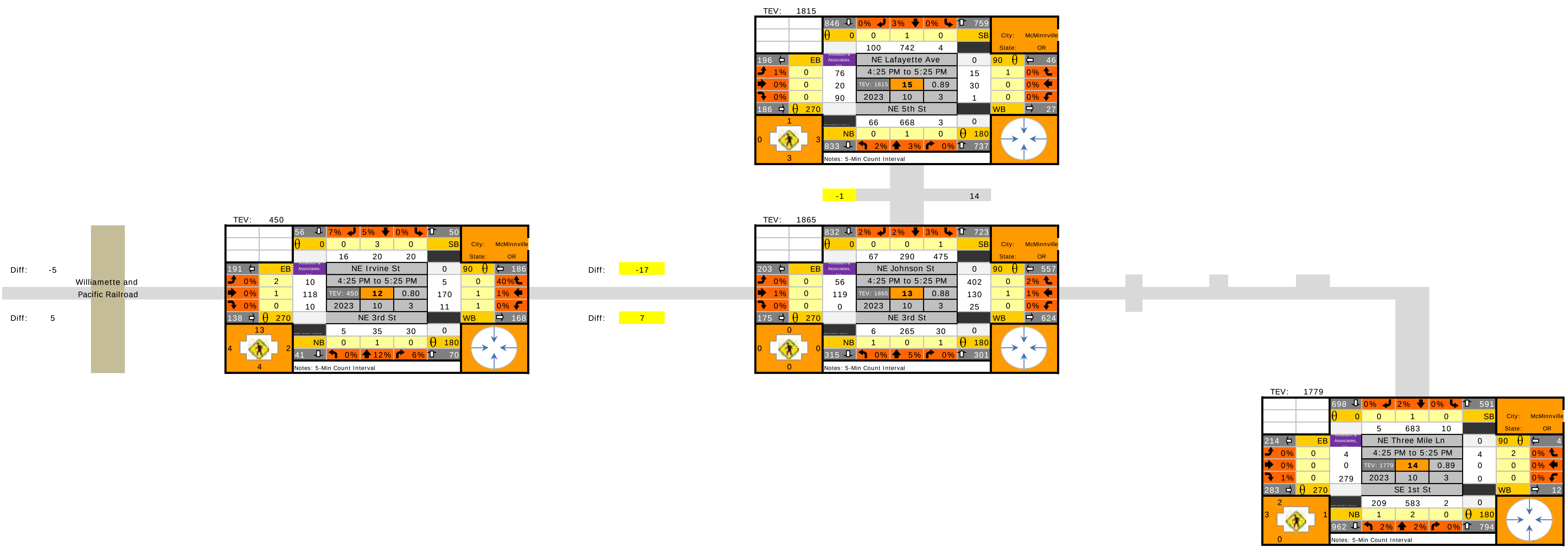
		50	0%	0%	0%	45	City:	McMinnville
		0	0	0	0	SB		
			5	25	20		State:	OR
181	EB	Kittelson & Associates,	NE Ford St			0	90	180
0%	0	0	4:25 PM to 5:25 PM			10	1	12%
0%	5	109	TEV: 400	10	0.84	170	2	1%
0%	1	10	2023	10	3	0	1	0%
119	270		NE 3rd St				WB	139
26			6	35	10	0		
14	7	NB	1	0	0	180		
		35	0%	0%	0%	51		
30		Notes: 5-Min Count Interval						

Diff: 1

Diff: -6

TEV: 371

		32	0%	0%	0%	34	City:	McMinnville
		0	0	0	0	SB		
			10	10	12		State:	OR
179	EB	Kittelson & Associates,	NE Galloway St			0	90	186
0%	0	7	4:25 PM to 5:25 PM			17	0	0%
0%	4	116	TEV: 371	11	0.88	164	4	1%
0%	0	10	2023	10	3	5	0	0%
133	270		NE 3rd St				WB	133
30			5	10	5	0		
17	3	NB	0	0	0	180		
		25	0%	0%	0%	20		
18		Notes: 5-Min Count Interval						



TEV: 1815
846 0% 3% 0% 759
0 0 1 0 SB
100 742 4
City: McMinnville
State: OR
196 EB
NE Lafayette Ave
0 90 46
1% 0 76
4:25 PM to 5:25 PM
15 1 0%
0% 0 20
TEV: 1815 15 0.89
30 0 0%
0% 0 90
2023 10 3
1 0 0%
186 270
NE 5th St
WB 27
1
66 668 3 0
0 3
NB 0 1 0 180
3
833 2% 3% 0% 737
Notes: 5-Min Count Interval
-1
14
TEV: 450
56 7% 5% 0% 50
0 0 3 0 SB
16 20 20
City: McMinnville
State: OR
Diff: -5
Williamette and Pacific Railroad
Diff: 5
191 EB
NE Irvine St
0 90 186
0% 2 10
4:25 PM to 5:25 PM
5 0 40%
0% 1 118
TEV: 450 12 0.80
170 1 1%
0% 0 10
2023 10 3
11 1 0%
138 270
NE 3rd St
WB 168
13
5 35 30 0
4 2
NB 0 1 0 180
4
41 0% 12% 6% 70
Notes: 5-Min Count Interval
Diff: -17
Diff: 7
TEV: 1865
832 2% 2% 3% 723
0 0 0 1 SB
67 290 475
City: McMinnville
State: OR
203 EB
NE Johnson St
0 90 557
0% 0 56
4:25 PM to 5:25 PM
402 0 2%
1% 0 119
TEV: 1865 13 0.88
130 1 1%
0% 0 0
2023 10 3
25 0 0%
175 270
NE 3rd St
WB 624
0
6 265 30 0
0 0
NB 1 0 1 180
0
315 0% 5% 0% 301
Notes: 5-Min Count Interval
TEV: 1779
698 0% 2% 0% 591
0 0 1 0 SB
5 683 10
City: McMinnville
State: OR
214 EB
NE Three Mile Ln
0 90 4
0% 0 4
4:25 PM to 5:25 PM
4 2 0%
0% 0 0
TEV: 1779 14 0.89
0 0 0%
1% 0 279
2023 10 3
0 0 0%
283 270
SE 1st St
WB 12
2
209 583 2 0
3 1
NB 1 2 0 180
0
962 2% 2% 0% 794
Notes: 5-Min Count Interval

This sheet contains 2047 volumes based on manually adjsuted growth rates

Existing year	2023
Base model year	2041
Analysis year	2047
difference:	24

Sum all TEV: 21,057

NE Adams St / NE 5th St (TEV: 1525)

City: McMinnville; State: OR; 4:25 PM to 5:25 PM; TEV: 1525; 1; 0.96; 2023; 10; 3; Notes: 5-Min Count Interval

- SB: 1301; 0%; 2%; 1%; 0 — 0; 1; 1; 0 — 5; 1230; 66
- EB: 20; 0% 0 0; 0% 0 4; 0% 0 5; 9; 270
- WB: 90; 215; 0 0 0%; 15 1 0%; 200 2 2%; 70
- NB: 0 0 0 0; 0 0 2; 180; 1435; 0%; 0%; 0%; 0
- Peds: 19; 13; 2; 3

5 — 5 — -2

NE Baker St / NE 5th St (TEV: 1666)

City: McMinnville; State: OR; 4:25 PM to 5:25 PM; TEV: 1666; 2; 0.92; 2023; 10; 3; Notes: 5-Min Count Interval

- SB: 0; 0%; 0%; 0%; 1349 — 0; 0; 0; 0 — 0; 0; 0
- EB: 210; 0% 0 14; 1% 1 61; 0% 0 0; 75; 270
- WB: 0; 90; 274; 82 0 1%; 192 2 2%; 0 0 0%; 107
- NB: 18 1253 46 0; 1 2 1; 180; 0; 0%; 3%; 0%; 1317
- Peds: 22; 2; 5; 3

27

NE Adams St / NE 3rd St (TEV: 1594)

City: McMinnville; State: OR; 4:25 PM to 5:25 PM; TEV: 1594; 3; 0.93; 2023; 10; 3; Notes: 5-Min Count Interval

- SB: 1433; 0%; 2%; 0%; 0 — 0; 0; 2; 1 — 0; 1352; 81
- EB: 0; 0% 0 0; 0% 0 0; 0% 0 0; 0; 270
- WB: 0; 90; 161; 0 1 0%; 0 0 2%; 161 0 2%; 81
- NB: 0 0 0 0; 0 1 2; 180; 1513; 0%; 0%; 0%; 0
- Peds: 41; 6; 1; 0

-3 — 20

NE Baker St / NE 3rd St (TEV: 1625)

City: McMinnville; State: OR; 4:25 PM to 5:25 PM; TEV: 1625; 4; 0.94; 2023; 10; 3; Notes: 5-Min Count Interval

- SB: 0; 0%; 0%; 0%; 1290 — 0; 0; 1; 0
- EB: 164; 8% 1 15; 0% 2 86; 0% 2 0; 101; 270
- WB: 0; 90; 207; 78 1 0%; 129 0 2%; 0 1 0%; 171
- NB: 35 1197 85 0; 1 2 0; 180; 0; 0%; 4%; 0%; 1317
- Peds: 35; 5; 5; 11

Diff: -12 — Diff: -1

NE Cowls St / NE 3rd St (TEV: 486)

City: McMinnville; State: OR; 4:25 PM to 5:25 PM; TEV: 486; 7; 0.79; 2023; 10; 11; Notes: 5-Min Count Interval

- SB: 25; 0%; 0%; 0%; 34 — 0; 0; 1; 1 — 5; 15; 5
- EB: 219; 0% 0 9; 1% 3 126; 0% 0 35; 170; 270
- WB: 0; 90; 262; 15 1 0%; 205 2 2%; 42 0 0%; 141
- NB: 9 10 10 0; 0 0 1; 180; 92; 0%; 0%; 0%; 29
- Peds: 43; 41; 14; 91

Diff: 29 — 2

NE Adams St / SW 2nd St (TEV: 2645)

City: McMinnville; State: OR; 4:25 PM to 5:25 PM; TEV: 2645; 5; 0.93; 2023; 10; 3; Notes: 5-Min Count Interval

- SB: 1542; 0%; 3%; 2%; 0 — 0; 0; 2; 2 — 265; 1219; 58
- EB: 720; 0% 1 0; 1% 1 402; 2% 0 112; 514; 270
- WB: 0; 90; 589; 0 0 0%; 455 2 1%; 134 4 5%; 460
- NB: 0 0 0 0; 0 0 0; 180; 1465; 0%; 0%; 0%; 0
- Peds: 7; 2; 1; 9

10 — 3

NE Baker St / NE 2nd St (TEV: 2358)

City: McMinnville; State: OR; 4:25 PM to 5:25 PM; TEV: 2358; 6; 0.93; 2023; 10; 3; Notes: 5-Min Count Interval

- SB: 0; 0%; 0%; 0%; 1315 — 0; 0; 2; 0 — 0; 0; 0
- EB: 579; 2% 0 124; 1% 2 339; 0% 0 0; 463; 270
- WB: 0; 90; 491; 48 0 3%; 443 3 1%; 0 0 0%; 464
- NB: 136 1143 125 0; 3 0 0; 180; 0; 1%; 3%; 10%; 1404
- Peds: 3; 4; 3; 5

adjust to existing volumes

TEV: 513

Diff: 5

Diff: -1

		55	0%	0%	0%	43		
		θ 0	0	1	1	SB	City:	McMinnville
			5	40	10		State:	OR
257	EB	Associates,	NE Davis St			0	90 θ	258
0%	0	2	4:25 PM to 5:25 PM			11	0	0%
0%	3	121	TEV: 513	8	0.79	241	2	1%
0%	0	17	2023	10	3	6	1	0%
140	θ 270		NE 3rd St				WB	150
83			11	30	19	0		
20	18	NB	0	2	2	θ 180		
57		63	0%	0%	0%	60		
		Notes: 5-Min Count Interval						

adjust to existing volumes

TEV: 634

Diff: -2

Diff: -7

		118	14%	2%	0%	134		
		θ 0	0	0	0	SB	City:	McMinnville
			23	55	40		State:	OR
260	EB	Associates,	NE Evans St			0	90 θ	330
0%	1	21	4:25 PM to 5:25 PM			84	0	0%
0%	5	117	TEV: 634	9	0.85	233	4	1%
0%	1	5	2023	10	3	13	2	0%
143	θ 270		NE 3rd St				WB	167
55			4	29	10	0		
11	31	NB	0	3	0	θ 180		
80		73	0%	0%	0%	43		
		Notes: 5-Min Count Interval						

adjust to existing volumes

TEV: 603

Diff: -2

Diff: -2

		51	0%	0%	0%	48		
		θ 0	0	0	0	SB	City:	McMinnville
			6	25	20		State:	OR
332	EB	Associates,	NE Ford St			0	90 θ	330
0%	0	0	4:25 PM to 5:25 PM			13	1	12%
0%	5	152	TEV: 603	10	0.84	317	2	1%
0%	1	13	2023	10	3	0	1	0%
165	θ 270		NE 3rd St				WB	185
26			9	35	13	0		
14	7	NB	1	0	0	θ 180		
30		38	0%	0%	0%	57		
		Notes: 5-Min Count Interval						

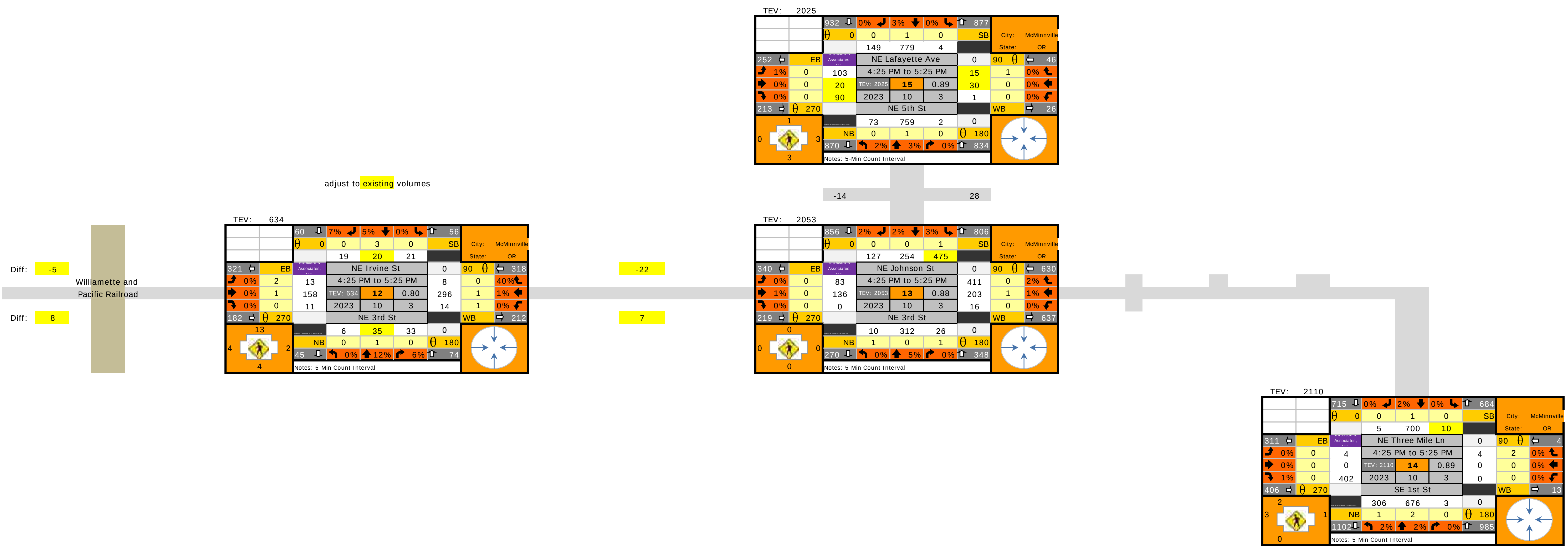
adjust to existing volumes

TEV: 586

Diff: -2

Diff: -8

		69	0%	0%	0%	55		
		θ 0	0	0	0	SB	City:	McMinnville
			37	10	22		State:	OR
332	EB	Associates,	NE Galloway St			0	90 θ	316
0%	0	20	4:25 PM to 5:25 PM			24	0	0%
0%	4	147	TEV: 586	11	0.88	287	4	1%
0%	0	10	2023	10	3	5	0	0%
177	θ 270		NE 3rd St				WB	174
30			8	11	5	0		
17	3	NB	0	0	0	θ 180		
18		25	0%	0%	0%	24		
		Notes: 5-Min Count Interval						


TEV: 2025
932 0% 3% 0% 877
0 0 1 0 SB
149 779 4
City: McMinnville
State: OR
252 EB NE Lafayette Ave 0 90 46
1% 0 103 4:25 PM to 5:25 PM 15 1 0%
0% 0 20 TEV: 2025 15 0.89 30 0 0%
0% 0 90 2023 10 3 1 0 0%
213 270 NE 5th St WB 26
73 759 2 0
NB 0 1 0 180
870 2% 3% 0% 834
Notes: 5-Min Count Interval
-14
28
adjust to existing volumes
Diff: -5
Diff: 8
Williamette and Pacific Railroad
TEV: 634
60 7% 5% 0% 56
0 0 3 0 SB
19 20 21
City: McMinnville
State: OR
321 EB NE Irvine St 0 90 318
0% 2 13 4:25 PM to 5:25 PM 8 0 40%
0% 1 158 TEV: 634 12 0.80 296 1 1%
0% 0 11 2023 10 3 14 1 0%
182 270 NE 3rd St WB 212
13
4 2
4
6 35 33 0
NB 0 1 0 180
45 0% 12% 6% 74
Notes: 5-Min Count Interval
-22
7
TEV: 2053
856 2% 2% 3% 806
0 0 0 1 SB
127 254 475
City: McMinnville
State: OR
340 EB NE Johnson St 0 90 630
0% 0 83 4:25 PM to 5:25 PM 411 0 2%
1% 0 136 TEV: 2053 13 0.88 203 1 1%
0% 0 0 2023 10 3 16 0 0%
219 270 NE 3rd St WB 637
0
0 0
0
10 312 26 0
NB 1 0 1 180
270 0% 5% 0% 348
Notes: 5-Min Count Interval
TEV: 2110
715 0% 2% 0% 684
0 0 1 0 SB
5 700 10
City: McMinnville
State: OR
311 EB NE Three Mile Ln 0 90 4
0% 0 4 4:25 PM to 5:25 PM 4 2 0%
0% 0 0 TEV: 2110 14 0.89 0 0 0%
1% 0 402 2023 10 3 0 0 0%
406 270 SE 1st St WB 13
2
3 1
0
306 676 3 0
NB 1 2 0 180
1102 2% 2% 0% 985
Notes: 5-Min Count Interval

Attachment H: Opening Year 2027 No-Build Synchro Analysis Worksheets

Queues
1: NE Adams St & NE 5th St
01/11/2024

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	7	92	991
v/c Ratio	0.04	0.62	0.41
Control Delay	18.7	49.6	6.0
Queue Delay	0.0	0.0	0.0
Total Delay	18.7	49.6	6.0
Queue Length 50th (ft)	1	43	76
Queue Length 95th (ft)	10	m37	172
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	450	341	2397
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.27	0.41

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1: NE Adams St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	3	4	80	5	0	0	0	0	110	800	1
Future Volume (vph)	0	3	4	80	5	0	0	0	0	110	800	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.92			1.00						1.00	
Flt Protected		1.00			0.95						0.99	
Satd. Flow (prot)		1739			1729						3252	
Flt Permitted		1.00			0.73						0.99	
Satd. Flow (perm)		1739			1327						3252	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	4	87	5	0	0	0	0	120	870	1
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	3	0	0	92	0	0	0	0	0	991	0
Confl. Peds. (#/hr)	3		2	2		3	1		2	2		1
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	0%	0%	3%	5%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		9.6			9.6						52.4	
Effective Green, g (s)		6.6			6.6						49.4	
Actuated g/C Ratio		0.09			0.09						0.71	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		163			125						2294	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.07						0.30	
v/c Ratio		0.02			0.74						0.43	
Uniform Delay, d1		28.8			30.9						4.4	
Progression Factor		1.00			1.14						1.00	
Incremental Delay, d2		0.0			18.6						0.6	
Delay (s)		28.8			53.7						5.0	
Level of Service		C			D						A	
Approach Delay (s)		28.8			53.7			0.0			5.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: NE Baker St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	131	125	1234
v/c Ratio	0.51	0.39	0.51
Control Delay	37.1	21.9	1.9
Queue Delay	0.0	0.0	0.0
Total Delay	37.1	21.9	1.9
Queue Length 50th (ft)	61	38	50
Queue Length 95th (ft)	112	68	5
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	557	660	2443
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.24	0.19	0.51

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: NE Baker St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	90	0	0	85	30	25	975	135	0	0	0
Future Volume (vph)	30	90	0	0	85	30	25	975	135	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			0.98				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1661			1728			3222				
Flt Permitted		0.89			1.00			1.00				
Satd. Flow (perm)		1502			1728			3222				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	98	0	0	92	33	27	1060	147	0	0	0
RTOR Reduction (vph)	0	0	0	0	25	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	131	0	0	100	0	0	1226	0	0	0	0
Confl. Peds. (#/hr)	7		7	7		7	6		5	5		6
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	0%	0%	6%	4%	0%	4%	5%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		10.7			10.7			51.3				
Effective Green, g (s)		10.7			10.7			51.3				
Actuated g/C Ratio		0.15			0.15			0.73				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		229			264			2361				
v/s Ratio Prot					0.06							
v/s Ratio Perm		c0.09						0.38				
v/c Ratio		0.57			0.38			0.52				
Uniform Delay, d1		27.5			26.7			4.0				
Progression Factor		1.22			1.00			0.27				
Incremental Delay, d2		2.7			0.7			0.5				
Delay (s)		36.2			27.3			1.6				
Level of Service		D			C			A				
Approach Delay (s)		36.2			27.3			1.6			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	0	0	0	50	810
Future Vol, veh/h	15	0	0	0	50	810
Conflicting Peds, #/hr	0	7	0	2	2	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	92	92	92	92	92	92
Heavy Vehicles, %	7	0	0	0	0	5
Mvmt Flow	16	0	0	0	54	880

Major/Minor	Minor1		Major2	
Conflicting Flow All	550	-	2	0
Stage 1	2	-	-	-
Stage 2	548	-	-	-
Critical Hdwy	6.94	-	4.1	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.94	-	-	-
Follow-up Hdwy	3.57	-	2.2	-
Pot Cap-1 Maneuver	453	0	1634	-
Stage 1	-	0	-	-
Stage 2	529	0	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	423	-	1631	-
Mov Cap-2 Maneuver	423	-	-	-
Stage 1	-	-	-	-
Stage 2	495	-	-	-

Approach	WB	SB
HCM Control Delay, s	13.9	0.6
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	423	1631	-
HCM Lane V/C Ratio	0.039	0.033	-
HCM Control Delay (s)	13.9	7.3	0.2
HCM Lane LOS	B	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-

Queues
4: NE Baker St & NE 3rd St

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	56	54	1249	38
v/c Ratio	0.09	0.10	0.75	0.05
Control Delay	12.8	7.7	17.0	3.4
Queue Delay	0.0	0.0	49.1	0.0
Total Delay	12.8	7.7	66.1	3.4
Queue Length 50th (ft)	18	4	208	0
Queue Length 95th (ft)	22	25	286	13
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	632	557	1664	762
Starvation Cap Reductn	0	0	609	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.10	1.18	0.05

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	50	0	0	15	35	4	1145	35	0	0	0
Future Volume (vph)	2	50	0	0	15	35	4	1145	35	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.99			1.00	0.98			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.91			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1707			1436			3235	1446			
Flt Permitted		1.00			1.00			1.00	1.00			
Satd. Flow (perm)		1702			1436			3235	1446			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	54	0	0	16	38	4	1245	38	0	0	0
RTOR Reduction (vph)	0	0	0	0	24	0	0	0	18	0	0	0
Lane Group Flow (vph)	0	56	0	0	30	0	0	1249	20	0	0	0
Confl. Peds. (#/hr)	9		3	3		9	6		4	4		6
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	7%	6%	0%	6%	9%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4						6		6			
Actuated Green, G (s)		26.0			26.0			36.0	36.0			
Effective Green, g (s)		26.0			26.0			36.0	36.0			
Actuated g/C Ratio		0.37			0.37			0.51	0.51			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		632			533			1663	743			
v/s Ratio Prot					0.02							
v/s Ratio Perm		c0.03						0.39	0.01			
v/c Ratio		0.09			0.06			0.75	0.03			
Uniform Delay, d1		14.3			14.1			13.5	8.4			
Progression Factor		0.86			1.00			1.00	1.00			
Incremental Delay, d2		0.3			0.2			3.2	0.1			
Delay (s)		12.6			14.3			16.6	8.4			
Level of Service		B			B			B	A			
Approach Delay (s)		12.6			14.3			16.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: NE Adams St & SW 2nd St

01/11/2024

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	543	158	43	239	885
v/c Ratio	0.85	0.25	0.18	0.33	0.60
Control Delay	33.2	3.8	13.1	15.6	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	3.8	13.1	15.6	15.8
Queue Length 50th (ft)	165	0	15	85	107
Queue Length 95th (ft)	#323	31	m12	m55	#216
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	689	676	236	925	1471
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.79	0.23	0.18	0.26	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	500	145	40	220	0	0	0	0	85	615	115
Future Volume (vph)	0	500	145	40	220	0	0	0	0	85	615	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		1863	1558	1703	1792						3122	
Flt Permitted		1.00	1.00	0.16	1.00						0.99	
Satd. Flow (perm)		1863	1558	293	1792						3122	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	543	158	43	239	0	0	0	0	92	668	125
RTOR Reduction (vph)	0	0	104	0	0	0	0	0	0	0	20	0
Lane Group Flow (vph)	0	543	54	43	239	0	0	0	0	0	865	0
Confl. Peds. (#/hr)	2		4	4		2	1		1	1		1
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	2%	2%	6%	6%	0%	0%	0%	0%	6%	7%	5%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		20.5	20.5	26.5	26.5						25.5	
Effective Green, g (s)		20.5	20.5	26.5	26.5						25.5	
Actuated g/C Ratio		0.34	0.34	0.44	0.44						0.42	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		636	532	176	791						1326	
v/s Ratio Prot		c0.29		0.01	c0.13							
v/s Ratio Perm			0.03	0.10							0.28	
v/c Ratio		0.85	0.10	0.24	0.30						0.65	
Uniform Delay, d1		18.4	13.5	12.1	10.8						13.7	
Progression Factor		1.00	1.00	1.35	1.31						1.00	
Incremental Delay, d2		10.7	0.1	0.5	0.1						2.5	
Delay (s)		29.0	13.5	16.8	14.2						16.2	
Level of Service		C	B	B	B						B	
Approach Delay (s)		25.5			14.6			0.0			16.2	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

01/11/2024

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	223	408	201	38	1223
v/c Ratio	0.64	0.62	0.58	0.11	0.75
Control Delay	17.3	12.9	27.9	1.2	16.8
Queue Delay	0.0	0.2	0.0	0.0	0.0
Total Delay	17.3	13.2	27.9	1.2	16.8
Queue Length 50th (ft)	19	36	67	0	161
Queue Length 95th (ft)	m55	m99	110	4	#329
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	350	799	489	453	1628
Starvation Cap Reductn	0	70	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.56	0.41	0.08	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: NE Baker St & NE 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	375	0	0	185	35	95	950	80	0	0	0
Future Volume (vph)	205	375	0	0	185	35	95	950	80	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1734	1845			1727	1371		3191				
Flt Permitted	0.39	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	718	1845			1727	1371		3191				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	408	0	0	201	38	103	1033	87	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	30	0	8	0	0	0	0
Lane Group Flow (vph)	223	408	0	0	201	8	0	1215	0	0	0	0
Confl. Peds. (#/hr)	3		2	2		3	3		5	5		3
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	4%	3%	0%	0%	10%	16%	2%	6%	6%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	21.5	21.5			12.0	12.0		30.5				
Effective Green, g (s)	21.5	21.5			12.0	12.0		30.5				
Actuated g/C Ratio	0.36	0.36			0.20	0.20		0.51				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	350	661			345	274		1622				
v/s Ratio Prot	0.06	c0.22			0.12							
v/s Ratio Perm	c0.17					0.01		0.38				
v/c Ratio	0.64	0.62			0.58	0.03		0.75				
Uniform Delay, d1	14.7	15.9			21.7	19.3		11.7				
Progression Factor	0.82	0.65			1.00	1.00		1.00				
Incremental Delay, d2	2.1	0.9			2.1	0.0		3.2				
Delay (s)	14.1	11.3			23.8	19.3		14.9				
Level of Service	B	B			C	B		B				
Approach Delay (s)		12.3			23.1			14.9			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: NE Johnson St & NE 3rd St

01/11/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	63	86	11	57	392	421	386	239
v/c Ratio	0.21	0.19	0.04	0.16	0.66	0.73	0.81	0.30
Control Delay	14.5	15.6	12.0	18.2	8.3	26.2	30.3	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	15.6	12.0	18.2	8.3	26.2	30.3	8.2
Queue Length 50th (ft)	14	19	2	15	0	104	59	30
Queue Length 95th (ft)	33	51	10	37	51	#270	#213	84
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	296	682	297	695	790	648	479	1015
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.13	0.04	0.08	0.50	0.65	0.81	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: NE Johnson St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	75	1	10	50	345	1	330	40	340	180	30
Future Volume (vph)	55	75	1	10	50	345	1	330	40	340	180	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
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		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1719	1842		1641	1900	1482		1755		1687	1671	
Flt Permitted	0.64	1.00		0.70	1.00	1.00		1.00		0.39	1.00	
Satd. Flow (perm)	1162	1842		1211	1900	1482		1754		695	1671	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	62	85	1	11	57	392	1	375	45	386	205	34
RTOR Reduction (vph)	0	1	0	0	0	320	0	7	0	0	9	0
Lane Group Flow (vph)	63	85	0	11	57	72	0	414	0	386	230	0
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	5%	3%	0%	10%	0%	9%	100%	6%	8%	7%	12%	7%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	11.8	10.2		9.6	9.1	9.1		15.6		26.9	26.9	
Effective Green, g (s)	11.8	10.2		9.6	9.1	9.1		15.6		26.9	26.9	
Actuated g/C Ratio	0.24	0.21		0.19	0.18	0.18		0.31		0.54	0.54	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	294	378		238	348	271		551		522	906	
v/s Ratio Prot	c0.01	0.05		0.00	0.03					c0.11	0.14	
v/s Ratio Perm	0.04			0.01		c0.05		0.24		c0.29		
v/c Ratio	0.21	0.23		0.05	0.16	0.27		0.75		0.74	0.25	
Uniform Delay, d1	15.0	16.4		16.2	17.0	17.4		15.3		13.6	6.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.3		0.1	0.2	0.5		6.1		5.6	0.2	
Delay (s)	15.2	16.7		16.3	17.3	17.9		21.4		19.2	6.3	
Level of Service	B	B		B	B	B		C		B	A	
Approach Delay (s)		16.1			17.8			21.4			14.3	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	49.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	210	2	1	2	160	405	1	2	475	10
Future Vol, veh/h	4	2	210	2	1	2	160	405	1	2	475	10
Conflicting Peds, #/hr	2	0	0	0	0	2	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	3	0	0	50	4	7	100	0	6	0
Mvmt Flow	5	2	239	2	1	2	182	460	1	2	540	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1381	1378	549	1495	1383	463	554	0	0	461	0	0
Stage 1	553	553	-	825	825	-	-	-	-	-	-	-
Stage 2	828	825	-	670	558	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.7	4.14	-	-	4.1	-	-
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	3.327	3.5	4	3.75	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	123	146	534	102	145	511	1006	-	-	1111	-	-
Stage 1	521	518	-	370	390	-	-	-	-	-	-	-
Stage 2	368	390	-	450	515	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	104	119	532	48	118	510	1003	-	-	1111	-	-
Mov Cap-2 Maneuver	104	119	-	48	118	-	-	-	-	-	-	-
Stage 1	425	515	-	303	319	-	-	-	-	-	-	-
Stage 2	298	319	-	247	512	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.1	46.7	2.7	0
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1003	-	-	480	92	1111	-	-
HCM Lane V/C Ratio	0.181	-	-	0.511	0.062	0.002	-	-
HCM Control Delay (s)	9.4	-	-	20.1	46.7	8.2	-	-
HCM Lane LOS	A	-	-	C	E	A	-	-
HCM 95th %tile Q(veh)	0.7	-	-	2.9	0.2	0	-	-

Queues
15: NE Lafayette Ave & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	131	16	85	721	11	591	91
v/c Ratio	0.44	0.05	0.17	0.61	0.02	0.55	0.10
Control Delay	18.7	15.1	5.5	13.2	5.3	13.3	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	15.1	5.5	13.2	5.3	13.3	3.5
Queue Length 50th (ft)	23	3	7	91	1	115	1
Queue Length 95th (ft)	63	15	31	#470	8	#321	23
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	605	715	513	1184	452	1128	980
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.02	0.17	0.61	0.02	0.52	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	20	35	2	10	3	75	630	4	10	520	80
Future Volume (vph)	60	20	35	2	10	3	75	630	4	10	520	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.96			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1540			1649		1805	1742		1805	1759	1482
Flt Permitted		0.83			0.96		0.32	1.00		0.28	1.00	1.00
Satd. Flow (perm)		1309			1595		615	1742		540	1759	1482
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	68	23	40	2	11	3	85	716	5	11	591	91
RTOR Reduction (vph)	0	30	0	0	3	0	0	0	0	0	0	36
Lane Group Flow (vph)	0	101	0	0	13	0	85	721	0	11	591	55
Confl. Peds. (#/hr)	2		1	1		2			1	1		
Heavy Vehicles (%)	4%	0%	3%	0%	0%	0%	0%	9%	0%	0%	8%	9%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		8.3			8.3		34.4	32.2		31.2	30.6	30.6
Effective Green, g (s)		8.3			8.3		34.4	32.2		31.2	30.6	30.6
Actuated g/C Ratio		0.16			0.16		0.65	0.61		0.59	0.58	0.58
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		204			249		447	1056		331	1013	854
v/s Ratio Prot							c0.01	c0.41		0.00	0.34	
v/s Ratio Perm		c0.08			0.01		0.12			0.02		0.04
v/c Ratio		0.49			0.05		0.19	0.68		0.03	0.58	0.06
Uniform Delay, d1		20.5			19.1		4.2	7.0		5.2	7.2	5.0
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		1.4			0.1		0.2	2.0		0.0	1.0	0.0
Delay (s)		21.8			19.1		4.4	9.0		5.2	8.2	5.0
Level of Service		C			B		A	A		A	A	A
Approach Delay (s)		21.8			19.1			8.5			7.7	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1: NE Adams St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	9	224	1339
v/c Ratio	0.03	0.90	0.60
Control Delay	19.8	56.4	11.0
Queue Delay	0.0	0.4	0.0
Total Delay	19.8	56.8	11.0
Queue Length 50th (ft)	2	139	201
Queue Length 95th (ft)	13	210	335
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	452	352	2224
Starvation Cap Reductn	0	13	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.66	0.60

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: NE Adams St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	5	200	15	0	0	0	0	85	1195	5
Future Volume (vph)	0	4	5	200	15	0	0	0	0	85	1195	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.96						1.00	
Satd. Flow (prot)		1742			1776						3350	
Flt Permitted		1.00			0.73						1.00	
Satd. Flow (perm)		1742			1366						3350	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	4	5	208	16	0	0	0	0	89	1245	5
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	5	0	0	224	0	0	0	0	0	1339	0
Confl. Peds. (#/hr)	19		3	3		19	13		2	2		13
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%	2%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		19.4			19.4						62.6	
Effective Green, g (s)		16.4			16.4						59.6	
Actuated g/C Ratio		0.18			0.18						0.66	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		317			248						2218	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.16						0.40	
v/c Ratio		0.02			0.90						0.60	
Uniform Delay, d1		30.2			36.0						8.6	
Progression Factor		1.00			0.67						1.00	
Incremental Delay, d2		0.0			29.6						1.2	
Delay (s)		30.2			53.6						9.8	
Level of Service		C			D						A	
Approach Delay (s)		30.2			53.6			0.0			9.8	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: NE Baker St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	103	315	1342
v/c Ratio	0.41	0.77	0.59
Control Delay	23.9	42.0	5.8
Queue Delay	0.0	0.3	0.0
Total Delay	23.9	42.3	5.8
Queue Length 50th (ft)	51	154	83
Queue Length 95th (ft)	m67	222	373
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	391	626	2291
Starvation Cap Reductn	0	0	69
Spillback Cap Reductn	0	52	69
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.26	0.55	0.60

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
2: NE Baker St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	70	0	0	200	90	15	1185	35	0	0	0
Future Volume (vph)	25	70	0	0	200	90	15	1185	35	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			1.00				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1670			1767			3314				
Flt Permitted		0.67			1.00			1.00				
Satd. Flow (perm)		1137			1767			3314				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	76	0	0	217	98	16	1288	38	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	103	0	0	293	0	0	1340	0	0	0	0
Confl. Peds. (#/hr)	22		3	3		22	2		5	5		2
Confl. Bikes (#/hr)			1			2			2			
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	3%	0%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		19.8			19.8			62.2				
Effective Green, g (s)		19.8			19.8			62.2				
Actuated g/C Ratio		0.22			0.22			0.69				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		250			388			2290				
v/s Ratio Prot					c0.17							
v/s Ratio Perm		0.09						0.40				
v/c Ratio		0.41			0.76			0.59				
Uniform Delay, d1		30.1			32.8			7.2				
Progression Factor		0.69			1.00			0.59				
Incremental Delay, d2		0.7			7.8			0.9				
Delay (s)		21.3			40.6			5.2				
Level of Service		C			D			A				
Approach Delay (s)		21.3			40.6			5.2			0.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	0	0	0	50	1330
Future Vol, veh/h	75	0	0	0	50	1330
Conflicting Peds, #/hr	0	41	0	1	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	93	93	93	93	93	93
Heavy Vehicles, %	2	0	0	0	0	2
Mvmt Flow	81	0	0	0	54	1430

Major/Minor	Minor1				Major2	
Conflicting Flow All	824	-			1	0
Stage 1	1	-			-	-
Stage 2	823	-			-	-
Critical Hdwy	6.84	-			4.1	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	5.84	-			-	-
Follow-up Hdwy	3.52	-			2.2	-
Pot Cap-1 Maneuver	311	0			1635	-
Stage 1	-	0			-	-
Stage 2	392	0			-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	261	-			1633	-
Mov Cap-2 Maneuver	261	-			-	-
Stage 1	-	-			-	-
Stage 2	329	-			-	-

Approach	WB	SB
HCM Control Delay, s	24.8	0.7
HCM LOS	C	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	261	1633	-
HCM Lane V/C Ratio	0.309	0.033	-
HCM Control Delay (s)	24.8	7.3	0.5
HCM Lane LOS	C	A	A
HCM 95th %tile Q(veh)	1.3	0.1	-

Queues
4: NE Baker St & NE 3rd St

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	75	144	1218	53
v/c Ratio	0.17	0.30	0.59	0.05
Control Delay	24.2	16.8	11.7	2.1
Queue Delay	0.0	0.0	49.5	0.0
Total Delay	24.2	16.8	61.2	2.1
Queue Length 50th (ft)	30	36	197	0
Queue Length 95th (ft)	m56	85	256	13
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	453	485	2050	997
Starvation Cap Reductn	0	0	946	0
Spillback Cap Reductn	0	0	3	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.17	0.30	1.10	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	55	0	1	65	70	20	1125	50	0	0	0
Future Volume (vph)	15	55	0	1	65	70	20	1125	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.97			1.00	0.97			
Flpb, ped/bikes		0.99			1.00			1.00	1.00			
Frt		1.00			0.93			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1654			1536			3297	1571			
Flt Permitted		0.94			1.00			1.00	1.00			
Satd. Flow (perm)		1569			1535			3297	1571			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	16	59	0	1	69	74	21	1197	53	0	0	0
RTOR Reduction (vph)	0	0	0	0	42	0	0	0	20	0	0	0
Lane Group Flow (vph)	0	75	0	0	102	0	0	1218	33	0	0	0
Confl. Peds. (#/hr)	35		11	11		35	5		5	5		5
Confl. Bikes (#/hr)			2						2			1
Heavy Vehicles (%)	8%	0%	0%	0%	2%	0%	0%	4%	0%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4			4			6		6			
Actuated Green, G (s)		26.0			26.0			56.0	56.0			
Effective Green, g (s)		26.0			26.0			56.0	56.0			
Actuated g/C Ratio		0.29			0.29			0.62	0.62			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		453			443			2051	977			
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.07			0.37	0.02			
v/c Ratio		0.17			0.23			0.59	0.03			
Uniform Delay, d1		23.9			24.4			10.2	6.6			
Progression Factor		0.96			1.00			1.00	1.00			
Incremental Delay, d2		0.7			1.2			1.3	0.1			
Delay (s)		23.7			25.6			11.5	6.6			
Level of Service		C			C			B	A			
Approach Delay (s)		23.7			25.6			11.3			0.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: NE Adams St & SW 2nd St

04/10/2024

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	382	75	102	430	1521
v/c Ratio	0.83	0.17	0.44	0.64	0.89
Control Delay	40.5	5.6	18.8	21.7	23.7
Queue Delay	0.0	0.0	0.0	3.5	0.0
Total Delay	40.5	5.6	18.8	25.2	23.7
Queue Length 50th (ft)	140	0	25	128	280
Queue Length 95th (ft)	#265	24	53	210	#447
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	491	466	233	752	1711
Starvation Cap Reductn	0	0	0	228	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.78	0.16	0.44	0.82	0.89

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

04/10/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	355	70	95	400	0	0	0	0	85	1065	265
Future Volume (vph)	0	355	70	95	400	0	0	0	0	85	1065	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1547	1718	1881						3231	
Flt Permitted		1.00	1.00	0.20	1.00						1.00	
Satd. Flow (perm)		1881	1547	364	1881						3231	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	382	75	102	430	0	0	0	0	91	1145	285
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	0	0	28	0
Lane Group Flow (vph)	0	382	18	102	430	0	0	0	0	0	1493	0
Confl. Peds. (#/hr)	7		9	9		7	2		1	1		2
Confl. Bikes (#/hr)			1			2						2
Heavy Vehicles (%)	0%	1%	2%	5%	1%	0%	0%	0%	0%	2%	3%	0%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		15.9	15.9	23.9	23.9						33.1	
Effective Green, g (s)		15.9	15.9	23.9	23.9						33.1	
Actuated g/C Ratio		0.24	0.24	0.37	0.37						0.51	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		460	378	217	691						1645	
v/s Ratio Prot		c0.20		0.03	c0.23							
v/s Ratio Perm			0.01	0.14							0.46	
v/c Ratio		0.83	0.05	0.47	0.62						0.91	
Uniform Delay, d1		23.3	18.8	15.3	16.8						14.6	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		11.8	0.0	1.2	1.5						8.8	
Delay (s)		35.1	18.8	16.5	18.4						23.4	
Level of Service		D	B	B	B						C	
Approach Delay (s)		32.4			18.0			0.0			23.4	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	151	328	392	38	1312
v/c Ratio	0.58	0.46	0.81	0.08	0.82
Control Delay	20.6	15.4	35.4	0.9	20.8
Queue Delay	0.0	1.0	0.0	0.0	0.0
Total Delay	20.6	16.4	35.4	0.9	20.8
Queue Length 50th (ft)	32	77	127	0	221
Queue Length 95th (ft)	64	134	#244	4	#363
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	262	815	532	501	1600
Starvation Cap Reductn	0	266	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.60	0.74	0.08	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: NE Baker St & NE 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	305	0	0	365	35	125	1005	90	0	0	0
Future Volume (vph)	140	305	0	0	365	35	125	1005	90	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1769	1881			1881	1540		3259				
Flt Permitted	0.21	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	382	1881			1881	1540		3259				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	151	328	0	0	392	38	134	1081	97	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	28	0	9	0	0	0	0
Lane Group Flow (vph)	151	328	0	0	392	10	0	1303	0	0	0	0
Confl. Peds. (#/hr)	3		5	5		3	4		3	3		4
Confl. Bikes (#/hr)			2			3						2
Heavy Vehicles (%)	2%	1%	0%	0%	1%	3%	1%	3%	10%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	23.5	23.5			15.5	15.5		28.5				
Effective Green, g (s)	23.5	23.5			15.5	15.5		28.5				
Actuated g/C Ratio	0.39	0.39			0.26	0.26		0.48				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	242	736			485	397		1548				
v/s Ratio Prot	c0.04	0.17			c0.21							
v/s Ratio Perm	0.20					0.01		0.40				
v/c Ratio	0.62	0.45			0.81	0.02		0.84				
Uniform Delay, d1	13.6	13.4			20.9	16.6		13.8				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	4.3	0.3			9.3	0.0		5.7				
Delay (s)	17.9	13.8			30.2	16.6		19.5				
Level of Service	B	B			C	B		B				
Approach Delay (s)		15.1			29.0			19.5			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	85	15	30	125	15	5	10	10	5	15	5
Future Vol, veh/h	5	85	15	30	125	15	5	10	10	5	15	5
Conflicting Peds, #/hr	43	0	91	91	0	43	41	0	14	14	0	41
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	6	100	18	35	147	18	6	12	12	6	18	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	208	0	0	209	0	0	491	490	214	416	490	240
Stage 1	-	-	-	-	-	-	212	212	-	269	269	-
Stage 2	-	-	-	-	-	-	279	278	-	147	221	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1375	-	-	1374	-	-	491	482	831	551	482	804
Stage 1	-	-	-	-	-	-	795	731	-	741	690	-
Stage 2	-	-	-	-	-	-	732	684	-	860	724	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1319	-	-	1255	-	-	402	407	749	488	407	741
Mov Cap-2 Maneuver	-	-	-	-	-	-	402	407	-	488	407	-
Stage 1	-	-	-	-	-	-	723	664	-	707	641	-
Stage 2	-	-	-	-	-	-	658	635	-	816	657	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.4	12.7	13.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	496	1319	-	-	1255	-	-	464
HCM Lane V/C Ratio	0.059	0.004	-	-	0.028	-	-	0.063
HCM Control Delay (s)	12.7	7.7	0	-	8	0	-	13.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Queues
8: NE Davis St & NE 3rd St

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	114	198	59	65
v/c Ratio	0.09	0.16	0.24	0.26
Control Delay	3.6	11.4	16.7	18.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.6	11.4	16.7	18.6
Queue Length 50th (ft)	6	55	13	16
Queue Length 95th (ft)	29	102	28	32
Internal Link Dist (ft)	216	222	171	182
Turn Bay Length (ft)				
Base Capacity (vph)	1236	1233	492	503
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.16	0.12	0.13

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: NE Davis St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	85	10	3	155	10	10	30	10	10	40	5
Future Volume (vph)	2	85	10	3	155	10	10	30	10	10	40	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.99			0.99			0.97			0.99	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		1668			1666			1618			1656	
Flt Permitted		1.00			1.00			0.93			0.93	
Satd. Flow (perm)		1666			1664			1512			1559	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	2	100	12	4	182	12	12	35	12	12	47	6
RTOR Reduction (vph)	0	4	0	0	3	0	0	10	0	0	5	0
Lane Group Flow (vph)	0	110	0	0	195	0	0	49	0	0	60	0
Confl. Peds. (#/hr)	83		57	57		83	20		18	18		20
Confl. Bikes (#/hr)			3			2			2			1
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.4			35.4			6.6			6.6	
Effective Green, g (s)		35.4			35.4			6.6			6.6	
Actuated g/C Ratio		0.71			0.71			0.13			0.13	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		1179			1178			199			205	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.12			0.03			c0.04	
v/c Ratio		0.09			0.17			0.24			0.29	
Uniform Delay, d1		2.3			2.4			19.5			19.6	
Progression Factor		1.00			3.12			1.00			1.00	
Incremental Delay, d2		0.2			0.3			0.2			0.3	
Delay (s)		2.4			7.8			19.7			19.9	
Level of Service		A			A			B			B	
Approach Delay (s)		2.4			7.8			19.7			19.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	10	85	5	10	145	30	4	25	10	25	55	20
Future Vol, veh/h	10	85	5	10	145	30	4	25	10	25	55	20
Conflicting Peds, #/hr	55	0	80	80	0	55	11	0	31	31	0	11
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	2	14
Mvmt Flow	12	100	6	12	171	35	5	29	12	29	65	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	261	0	0	186	0	0	475	492	214	447	478	255
Stage 1	-	-	-	-	-	-	207	207	-	268	268	-
Stage 2	-	-	-	-	-	-	268	285	-	179	210	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.52	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4.018	3.426
Pot Cap-1 Maneuver	1315	-	-	1401	-	-	503	481	831	525	486	755
Stage 1	-	-	-	-	-	-	800	734	-	742	687	-
Stage 2	-	-	-	-	-	-	742	679	-	827	728	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1246	-	-	1294	-	-	385	413	745	442	417	708
Mov Cap-2 Maneuver	-	-	-	-	-	-	385	413	-	442	417	-
Stage 1	-	-	-	-	-	-	732	672	-	696	644	-
Stage 2	-	-	-	-	-	-	631	637	-	748	666	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.4	13.7	15.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	462	1246	-	-	1294	-	-	461
HCM Lane V/C Ratio	0.099	0.009	-	-	0.009	-	-	0.255
HCM Control Delay (s)	13.7	7.9	0	-	7.8	0	-	15.5
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	1

Queues
10: NE Ford St & NE 3rd St

01/11/2024

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	141	212	59	59
v/c Ratio	0.43	0.65	0.06	0.06
Control Delay	17.3	27.3	3.9	4.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.3	27.3	3.9	4.3
Queue Length 50th (ft)	32	57	4	4
Queue Length 95th (ft)	51	88	17	18
Internal Link Dist (ft)	216	220	175	172
Turn Bay Length (ft)				
Base Capacity (vph)	544	536	1061	1006
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.40	0.06	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis
10: NE Ford St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	110	10	0	170	10	5	35	10	20	25	5
Future Volume (vph)	0	110	10	0	170	10	5	35	10	20	25	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
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			1.00			1.00	
Frt		0.99			0.99			0.97			0.99	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		1679			1664			1643			1643	
Flt Permitted		1.00			1.00			0.99			0.92	
Satd. Flow (perm)		1679			1664			1630			1550	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	129	12	0	200	12	6	41	12	24	29	6
RTOR Reduction (vph)	0	8	0	0	5	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	133	0	0	207	0	0	55	0	0	57	0
Confl. Peds. (#/hr)	26		30	30		26	14		7	7		14
Confl. Bikes (#/hr)			5			2						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	12%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0			0			0	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		9.6			9.6			32.4			32.4	
Effective Green, g (s)		9.6			9.6			32.4			32.4	
Actuated g/C Ratio		0.19			0.19			0.65			0.65	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		322			319			1056			1004	
v/s Ratio Prot		0.08			c0.12							
v/s Ratio Perm								0.03			c0.04	
v/c Ratio		0.41			0.65			0.05			0.06	
Uniform Delay, d1		17.7			18.6			3.2			3.2	
Progression Factor		0.87			1.00			1.00			1.00	
Incremental Delay, d2		0.3			3.4			0.1			0.1	
Delay (s)		15.7			22.0			3.3			3.3	
Level of Service		B			C			A			A	
Approach Delay (s)		15.7			22.0			3.3			3.3	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	1.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	120	10	5	165	15	5	10	5	10	10	10
Future Vol, veh/h	5	120	10	5	165	15	5	10	5	10	10	10
Conflicting Peds, #/hr	30	0	18	18	0	30	17	0	3	3	0	17
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	6	136	11	6	188	17	6	11	6	11	11	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	235	0	0	165	0	0	409	419	163	404	416	244
Stage 1	-	-	-	-	-	-	172	172	-	239	239	-
Stage 2	-	-	-	-	-	-	237	247	-	165	177	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1344	-	-	1426	-	-	556	528	887	561	530	800
Stage 1	-	-	-	-	-	-	835	760	-	769	711	-
Stage 2	-	-	-	-	-	-	771	706	-	842	756	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1306	-	-	1402	-	-	517	499	869	526	501	765
Mov Cap-2 Maneuver	-	-	-	-	-	-	517	499	-	526	501	-
Stage 1	-	-	-	-	-	-	817	743	-	744	687	-
Stage 2	-	-	-	-	-	-	731	682	-	817	739	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	11.7	11.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	564	1306	-	-	1402	-	-	576
HCM Lane V/C Ratio	0.04	0.004	-	-	0.004	-	-	0.059
HCM Control Delay (s)	11.7	7.8	0	-	7.6	0	-	11.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	120	10	10	170	5	5	35	30	20	20	15
Future Vol, veh/h	10	120	10	10	170	5	5	35	30	20	20	15
Conflicting Peds, #/hr	13	0	4	4	0	13	4	0	2	2	0	4
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	1	40	0	12	6	0	5	7
Mvmt Flow	12	141	12	12	200	6	6	41	35	24	24	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	219	0	0	157	0	0	427	418	153	451	421	220
Stage 1	-	-	-	-	-	-	175	175	-	240	240	-
Stage 2	-	-	-	-	-	-	252	243	-	211	181	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.62	6.26	7.1	6.55	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.108	3.354	3.5	4.045	3.363
Pot Cap-1 Maneuver	1362	-	-	1435	-	-	541	511	883	522	519	807
Stage 1	-	-	-	-	-	-	832	736	-	768	701	-
Stage 2	-	-	-	-	-	-	757	687	-	796	744	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1345	-	-	1430	-	-	499	493	878	456	501	794
Mov Cap-2 Maneuver	-	-	-	-	-	-	499	493	-	456	501	-
Stage 1	-	-	-	-	-	-	820	726	-	751	686	-
Stage 2	-	-	-	-	-	-	706	673	-	712	734	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	11.8	12.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	608	1345	-	-	1430	-	-	536
HCM Lane V/C Ratio	0.135	0.009	-	-	0.008	-	-	0.121
HCM Control Delay (s)	11.8	7.7	0	-	7.5	0	-	12.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.4

Queues
13: NE Johnson St & NE 3rd St

01/11/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	63	131	28	153	455	341	540	398
v/c Ratio	0.22	0.33	0.09	0.42	0.68	0.67	0.77	0.36
Control Delay	18.4	22.9	16.3	25.8	8.5	29.3	24.1	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	22.9	16.3	25.8	8.5	29.3	24.1	8.3
Queue Length 50th (ft)	18	38	8	53	0	115	110	68
Queue Length 95th (ft)	40	85	22	98	60	#249	#289	145
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	281	588	309	586	796	530	748	1103
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.22	0.09	0.26	0.57	0.64	0.72	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: NE Johnson St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	115	0	25	135	400	5	265	30	475	290	60
Future Volume (vph)	55	115	0	25	135	400	5	265	30	475	290	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
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	0.98		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1805	1881		1805	1881	1549		1794		1752	1815	
Flt Permitted	0.59	1.00		0.67	1.00	1.00		0.99		0.40	1.00	
Satd. Flow (perm)	1129	1881		1279	1881	1549		1781		747	1815	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	62	131	0	28	153	455	6	301	34	540	330	68
RTOR Reduction (vph)	0	0	0	0	0	369	0	6	0	0	7	0
Lane Group Flow (vph)	63	131	0	28	153	86	0	335	0	540	391	0
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	2%	0%	5%	0%	3%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	13.7	12.1		12.5	11.5	11.5		16.8		35.9	35.9	
Effective Green, g (s)	13.7	12.1		12.5	11.5	11.5		16.8		35.9	35.9	
Actuated g/C Ratio	0.22	0.20		0.20	0.19	0.19		0.28		0.59	0.59	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	271	373		270	354	292		490		688	1068	
v/s Ratio Prot	c0.01	0.07		0.00	c0.08					c0.19	0.22	
v/s Ratio Perm	0.05			0.02		0.06		0.19		c0.27		
v/c Ratio	0.23	0.35		0.10	0.43	0.29		0.68		0.78	0.37	
Uniform Delay, d1	19.1	21.1		19.6	21.9	21.3		19.7		14.1	6.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6		0.1	0.8	0.6		4.3		6.0	0.3	
Delay (s)	19.4	21.6		19.7	22.7	21.8		24.0		20.2	6.9	
Level of Service	B	C		B	C	C		C		C	A	
Approach Delay (s)		20.9			21.9			24.0			14.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	11.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	280	0	0	4	210	585	2	10	685	5
Future Vol, veh/h	4	0	280	0	0	4	210	585	2	10	685	5
Conflicting Peds, #/hr	2	0	0	0	0	2	3	0	1	1	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	0	0	2	2	0	0	2	0
Mvmt Flow	4	0	315	0	0	4	236	657	2	11	770	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1932	1930	776	2084	1932	661	779	0	0	660	0	0
Stage 1	798	798	-	1131	1131	-	-	-	-	-	-	-
Stage 2	1134	1132	-	953	801	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.21	7.1	6.5	6.2	4.12	-	-	4.1	-	-
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	3.309	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	50	67	399	39	67	466	838	-	-	938	-	-
Stage 1	382	401	-	249	281	-	-	-	-	-	-	-
Stage 2	249	281	-	314	400	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	38	47	398	6	47	465	836	-	-	937	-	-
Mov Cap-2 Maneuver	38	47	-	6	47	-	-	-	-	-	-	-
Stage 1	274	395	-	179	201	-	-	-	-	-	-	-
Stage 2	177	201	-	65	394	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	62.7	12.8	2.9	0.1
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	836	-	-	351	465	937	-	-
HCM Lane V/C Ratio	0.282	-	-	0.909	0.01	0.012	-	-
HCM Control Delay (s)	11	-	-	62.7	12.8	8.9	-	-
HCM Lane LOS	B	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	1.2	-	-	9.1	0	0	-	-

Queues
15: NE Lafayette Ave & NE 5th St

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	207	52	73	756	4	831	112
v/c Ratio	0.68	0.15	0.22	0.62	0.01	0.78	0.12
Control Delay	35.4	21.0	6.3	11.7	5.0	20.8	5.9
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	35.4	21.0	6.3	12.3	5.0	20.8	5.9
Queue Length 50th (ft)	74	14	9	153	1	285	12
Queue Length 95th (ft)	154	44	28	455	4	#601	41
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	513	599	522	1374	637	1296	1126
Starvation Cap Reductn	0	0	0	264	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.09	0.14	0.68	0.01	0.64	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	20	90	1	30	15	65	670	3	4	740	100
Future Volume (vph)	75	20	90	1	30	15	65	670	3	4	740	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.93			0.96		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1539			1621		1770	1844		1804	1845	1582
Flt Permitted		0.85			1.00		0.16	1.00		0.28	1.00	1.00
Satd. Flow (perm)		1331			1615		293	1844		524	1845	1582
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	84	22	101	1	34	17	73	753	3	4	831	112
RTOR Reduction (vph)	0	36	0	0	14	0	0	0	0	0	0	22
Lane Group Flow (vph)	0	171	0	0	38	0	73	756	0	4	831	90
Confl. Peds. (#/hr)	1		3	3		1			3	3		
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		14.9			14.9		53.4	48.7		45.6	44.8	44.8
Effective Green, g (s)		14.9			14.9		53.4	48.7		45.6	44.8	44.8
Actuated g/C Ratio		0.20			0.20		0.70	0.64		0.60	0.59	0.59
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		259			314		295	1175		326	1081	927
v/s Ratio Prot							c0.02	c0.41		0.00	c0.45	
v/s Ratio Perm		c0.13			0.02		0.16			0.01		0.06
v/c Ratio		0.66			0.12		0.25	0.64		0.01	0.77	0.10
Uniform Delay, d1		28.4			25.4		9.0	8.5		7.2	11.9	6.9
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.3			0.1		0.3	1.4		0.0	3.6	0.1
Delay (s)		33.7			25.5		9.3	9.9		7.2	15.5	7.0
Level of Service		C			C		A	A		A	B	A
Approach Delay (s)		33.7			25.5			9.8			14.4	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Attachment I: Future Year 2047 No-Build Synchro Analysis Worksheets

Queues
1: NE Adams St & NE 5th St

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	7	92	1110
v/c Ratio	0.04	0.62	0.46
Control Delay	18.7	47.4	6.4
Queue Delay	0.0	0.0	0.0
Total Delay	18.7	47.4	6.4
Queue Length 50th (ft)	1	38	90
Queue Length 95th (ft)	10	m34	203
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	450	341	2398
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.27	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1: NE Adams St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	3	4	80	5	0	0	0	0	100	920	1
Future Volume (vph)	0	3	4	80	5	0	0	0	0	100	920	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.92			1.00						1.00	
Flt Protected		1.00			0.95						1.00	
Satd. Flow (prot)		1739			1729						3255	
Flt Permitted		1.00			0.73						1.00	
Satd. Flow (perm)		1739			1327						3255	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	4	87	5	0	0	0	0	109	1000	1
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	3	0	0	92	0	0	0	0	0	1110	0
Confl. Peds. (#/hr)	3		2	2		3	1		2	2		1
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	0%	0%	3%	5%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		9.6			9.6						52.4	
Effective Green, g (s)		6.6			6.6						49.4	
Actuated g/C Ratio		0.09			0.09						0.71	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		163			125						2297	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.07						0.34	
v/c Ratio		0.02			0.74						0.48	
Uniform Delay, d1		28.8			30.9						4.6	
Progression Factor		1.00			1.06						1.00	
Incremental Delay, d2		0.0			18.6						0.7	
Delay (s)		28.8			51.3						5.3	
Level of Service		C			D						A	
Approach Delay (s)		28.8			51.3			0.0			5.3	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: NE Baker St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	119	125	1250
v/c Ratio	0.48	0.41	0.51
Control Delay	33.2	22.5	1.8
Queue Delay	0.0	0.0	0.0
Total Delay	33.2	22.5	1.8
Queue Length 50th (ft)	54	38	51
Queue Length 95th (ft)	103	68	6
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	565	660	2460
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.19	0.51

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: NE Baker St & NE 5th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	85	0	0	85	30	25	985	140	0	0	0
Future Volume (vph)	25	85	0	0	85	30	25	985	140	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			0.98				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1663			1728			3221				
Flt Permitted		0.91			1.00			1.00				
Satd. Flow (perm)		1523			1728			3221				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	92	0	0	92	33	27	1071	152	0	0	0
RTOR Reduction (vph)	0	0	0	0	25	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	119	0	0	100	0	0	1242	0	0	0	0
Confl. Peds. (#/hr)	7		7	7		7	6		5	5		6
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	0%	0%	6%	4%	0%	4%	5%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		10.3			10.3			51.7				
Effective Green, g (s)		10.3			10.3			51.7				
Actuated g/C Ratio		0.15			0.15			0.74				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		224			254			2378				
v/s Ratio Prot					0.06							
v/s Ratio Perm		c0.08						0.39				
v/c Ratio		0.53			0.39			0.52				
Uniform Delay, d1		27.6			27.0			3.9				
Progression Factor		1.10			1.00			0.26				
Incremental Delay, d2		1.7			0.7			0.5				
Delay (s)		32.1			27.8			1.5				
Level of Service		C			C			A				
Approach Delay (s)		32.1			27.8			1.5			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	0	0	0	70	910
Future Vol, veh/h	25	0	0	0	70	910
Conflicting Peds, #/hr	0	7	0	2	2	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	92	92	92	92	92	92
Heavy Vehicles, %	7	0	0	0	0	5
Mvmt Flow	27	0	0	0	76	989

Major/Minor	Minor1			Major2	
Conflicting Flow All	649	-		2	0
Stage 1	2	-		-	-
Stage 2	647	-		-	-
Critical Hdwy	6.94	-		4.1	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.94	-		-	-
Follow-up Hdwy	3.57	-		2.2	-
Pot Cap-1 Maneuver	391	0		1634	-
Stage 1	-	0		-	-
Stage 2	470	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	350	-		1631	-
Mov Cap-2 Maneuver	350	-		-	-
Stage 1	-	-		-	-
Stage 2	422	-		-	-

Approach	WB	SB
HCM Control Delay, s	16.2	0.8
HCM LOS	C	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	350	1631	-
HCM Lane V/C Ratio	0.078	0.047	-
HCM Control Delay (s)	16.2	7.3	0.3
HCM Lane LOS	C	A	A
HCM 95th %tile Q(veh)	0.3	0.1	-

Queues
4: NE Baker St & NE 3rd St

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	83	65	1271	103
v/c Ratio	0.13	0.12	0.76	0.13
Control Delay	12.8	8.4	17.4	2.6
Queue Delay	0.0	0.0	49.0	0.0
Total Delay	12.8	8.4	66.4	2.6
Queue Length 50th (ft)	28	7	214	0
Queue Length 95th (ft)	22	30	294	21
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	634	561	1664	793
Starvation Cap Reductn	0	0	601	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.12	1.20	0.13

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	75	0	0	20	40	5	1165	95	0	0	0
Future Volume (vph)	1	75	0	0	20	40	5	1165	95	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.99			1.00	0.98			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.91			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1709			1446			3235	1446			
Flt Permitted		1.00			1.00			1.00	1.00			
Satd. Flow (perm)		1708			1446			3235	1446			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	82	0	0	22	43	5	1266	103	0	0	0
RTOR Reduction (vph)	0	0	0	0	25	0	0	0	50	0	0	0
Lane Group Flow (vph)	0	83	0	0	40	0	0	1271	53	0	0	0
Confl. Peds. (#/hr)	9		3	3		9	6		4	4		6
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	7%	6%	0%	6%	9%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4						6		6			
Actuated Green, G (s)		26.0			26.0			36.0	36.0			
Effective Green, g (s)		26.0			26.0			36.0	36.0			
Actuated g/C Ratio		0.37			0.37			0.51	0.51			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		634			537			1663	743			
v/s Ratio Prot					0.03							
v/s Ratio Perm		c0.05						0.39	0.04			
v/c Ratio		0.13			0.08			0.76	0.07			
Uniform Delay, d1		14.5			14.2			13.6	8.6			
Progression Factor		0.84			1.00			1.00	1.00			
Incremental Delay, d2		0.4			0.3			3.4	0.2			
Delay (s)		12.6			14.5			17.0	8.8			
Level of Service		B			B			B	A			
Approach Delay (s)		12.6			14.5			16.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: NE Adams St & SW 2nd St

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	543	201	87	359	1011
v/c Ratio	0.88	0.33	0.35	0.44	0.77
Control Delay	37.3	6.6	11.9	12.5	21.5
Queue Delay	0.0	0.0	0.0	1.1	0.0
Total Delay	37.3	6.6	11.9	13.6	21.5
Queue Length 50th (ft)	176	13	15	75	168
Queue Length 95th (ft)	#335	52	35	129	#280
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	652	640	252	896	1320
Starvation Cap Reductn	0	0	0	317	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.83	0.31	0.35	0.62	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	500	185	80	330	0	0	0	0	75	740	115
Future Volume (vph)	0	500	185	80	330	0	0	0	0	75	740	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1863	1558	1703	1792						3134	
Flt Permitted		1.00	1.00	0.17	1.00						1.00	
Satd. Flow (perm)		1863	1558	301	1792						3134	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	543	201	87	359	0	0	0	0	82	804	125
RTOR Reduction (vph)	0	0	98	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	543	103	87	359	0	0	0	0	0	994	0
Confl. Peds. (#/hr)	2		4	4		2	1		1	1		1
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	2%	2%	6%	6%	0%	0%	0%	0%	6%	7%	5%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		19.8	19.8	27.8	27.8						24.2	
Effective Green, g (s)		19.8	19.8	27.8	27.8						24.2	
Actuated g/C Ratio		0.33	0.33	0.46	0.46						0.40	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		614	514	232	830						1264	
v/s Ratio Prot		c0.29		0.02	c0.20							
v/s Ratio Perm			0.07	0.15							0.32	
v/c Ratio		0.88	0.20	0.38	0.43						0.79	
Uniform Delay, d1		19.0	14.4	11.8	10.8						15.6	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		14.2	0.1	0.7	0.3						5.0	
Delay (s)		33.2	14.6	12.6	11.1						20.6	
Level of Service		C	B	B	B						C	
Approach Delay (s)		28.2			11.4			0.0			20.6	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

04/10/2024

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	201	418	326	49	1380
v/c Ratio	0.69	0.57	0.77	0.12	0.91
Control Delay	25.6	12.4	33.8	2.3	27.7
Queue Delay	0.0	0.4	0.0	0.0	0.0
Total Delay	25.6	12.7	33.8	2.3	27.7
Queue Length 50th (ft)	40	60	106	0	236
Queue Length 95th (ft)	m59	m97	#186	9	#400
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	293	799	489	453	1511
Starvation Cap Reductn	0	94	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.59	0.67	0.11	0.91

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: NE Baker St & NE 2nd St

04/10/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	385	0	0	300	45	130	1045	95	0	0	0
Future Volume (vph)	185	385	0	0	300	45	130	1045	95	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1735	1845			1727	1371		3188				
Flt Permitted	0.26	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	478	1845			1727	1371		3188				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	418	0	0	326	49	141	1136	103	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	37	0	10	0	0	0	0
Lane Group Flow (vph)	201	418	0	0	326	12	0	1370	0	0	0	0
Confl. Peds. (#/hr)	3		2	2		3	3		5	5		3
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	4%	3%	0%	0%	10%	16%	2%	6%	6%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	23.7	23.7			14.7	14.7		28.3				
Effective Green, g (s)	23.7	23.7			14.7	14.7		28.3				
Actuated g/C Ratio	0.39	0.39			0.24	0.24		0.47				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	293	728			423	335		1503				
v/s Ratio Prot	0.06	c0.23			0.19							
v/s Ratio Perm	c0.21					0.01		0.43				
v/c Ratio	0.69	0.57			0.77	0.04		0.91				
Uniform Delay, d1	13.5	14.2			21.1	17.3		14.7				
Progression Factor	1.35	0.75			1.00	1.00		1.00				
Incremental Delay, d2	3.5	0.5			8.1	0.0		9.9				
Delay (s)	21.7	11.1			29.2	17.3		24.6				
Level of Service	C	B			C	B		C				
Approach Delay (s)		14.6			27.6			24.6			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: NE Johnson St & NE 3rd St

01/11/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	131	144	11	45	415	382	426	346
v/c Ratio	0.43	0.32	0.04	0.14	0.70	0.74	0.70	0.35
Control Delay	21.0	19.4	14.3	20.7	9.6	30.1	22.0	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	19.4	14.3	20.7	9.6	30.1	22.0	8.3
Queue Length 50th (ft)	35	38	3	13	0	109	66	47
Queue Length 95th (ft)	67	86	12	35	56	#266	#207	125
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	303	603	270	612	758	573	630	1051
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.24	0.04	0.07	0.55	0.67	0.68	0.33

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: NE Johnson St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	125	2	10	40	365	1	315	20	375	260	45
Future Volume (vph)	115	125	2	10	40	365	1	315	20	375	260	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
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		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1719	1842		1641	1900	1482		1769		1687	1670	
Flt Permitted	0.62	1.00		0.67	1.00	1.00		1.00		0.38	1.00	
Satd. Flow (perm)	1116	1842		1149	1900	1482		1768		674	1670	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	131	142	2	11	45	415	1	358	23	426	295	51
RTOR Reduction (vph)	0	1	0	0	0	341	0	4	0	0	8	0
Lane Group Flow (vph)	131	143	0	11	45	74	0	378	0	426	338	0
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	5%	3%	0%	10%	0%	9%	100%	6%	8%	7%	12%	7%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	14.1	11.8		10.5	10.0	10.0		15.8		31.7	31.7	
Effective Green, g (s)	14.1	11.8		10.5	10.0	10.0		15.8		31.7	31.7	
Actuated g/C Ratio	0.25	0.21		0.19	0.18	0.18		0.28		0.57	0.57	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	305	388		219	339	264		498		596	945	
v/s Ratio Prot	c0.02	0.08		0.00	0.02					c0.15	0.20	
v/s Ratio Perm	c0.09			0.01		0.05		0.21		c0.25		
v/c Ratio	0.43	0.37		0.05	0.13	0.28		0.76		0.71	0.36	
Uniform Delay, d1	17.5	18.9		18.6	19.4	19.9		18.4		13.9	6.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.6		0.1	0.2	0.6		7.0		4.2	0.4	
Delay (s)	18.3	19.5		18.7	19.5	20.5		25.3		18.1	7.0	
Level of Service	B	B		B	B	C		C		B	A	
Approach Delay (s)		18.9			20.3			25.3			13.1	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	56.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥		↰	↱		↰	↱	
Traffic Vol, veh/h	4	2	270	2	1	2	235	420	1	2	555	15
Future Vol, veh/h	4	2	270	2	1	2	235	420	1	2	555	15
Conflicting Peds, #/hr	2	0	0	0	0	2	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	3	0	0	50	4	7	100	0	6	0
Mvmt Flow	5	2	307	2	1	2	267	477	1	2	631	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1662	1659	643	1810	1667	480	651	0	0	478	0	0
Stage 1	647	647	-	1012	1012	-	-	-	-	-	-	-
Stage 2	1015	1012	-	798	655	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.7	4.14	-	-	4.1	-	-
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	3.327	3.5	4	3.75	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	78	99	472	62	97	499	926	-	-	1095	-	-
Stage 1	463	470	-	291	319	-	-	-	-	-	-	-
Stage 2	290	319	-	382	466	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	59	70	471	16	69	498	923	-	-	1095	-	-
Mov Cap-2 Maneuver	59	70	-	16	69	-	-	-	-	-	-	-
Stage 1	328	468	-	207	227	-	-	-	-	-	-	-
Stage 2	204	227	-	132	464	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	36.7	126.8	3.8	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	923	-	-	412	35	1095	-	-
HCM Lane V/C Ratio	0.289	-	-	0.761	0.162	0.002	-	-
HCM Control Delay (s)	10.5	-	-	36.7	126.8	8.3	-	-
HCM Lane LOS	B	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	1.2	-	-	6.3	0.5	0	-	-

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	16	74	818	11	727	97
v/c Ratio	0.55	0.05	0.18	0.69	0.03	0.72	0.11
Control Delay	32.1	23.6	5.0	12.9	4.4	17.1	4.9
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	32.1	23.6	5.0	13.2	4.4	17.1	4.9
Queue Length 50th (ft)	41	4	7	148	1	203	7
Queue Length 95th (ft)	111	22	25	508	7	427	32
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	512	621	613	1363	635	1353	1153
Starvation Cap Reductn	0	0	0	126	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.03	0.12	0.66	0.02	0.54	0.08

Intersection Summary

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	20	35	2	10	3	65	715	4	10	640	85
Future Volume (vph)	65	20	35	2	10	3	65	715	4	10	640	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.96			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1540			1649		1805	1742		1805	1759	1482
Flt Permitted		0.82			0.97		0.22	1.00		0.25	1.00	1.00
Satd. Flow (perm)		1303			1610		421	1742		470	1759	1482
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	74	23	40	2	11	3	74	812	5	11	727	97
RTOR Reduction (vph)	0	16	0	0	2	0	0	0	0	0	0	22
Lane Group Flow (vph)	0	121	0	0	14	0	74	818	0	11	727	75
Confl. Peds. (#/hr)	2		1	1		2			1	1		
Heavy Vehicles (%)	4%	0%	3%	0%	0%	0%	0%	9%	0%	0%	8%	9%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		12.2			12.2		50.5	45.7		42.5	41.7	41.7
Effective Green, g (s)		12.2			12.2		50.5	45.7		42.5	41.7	41.7
Actuated g/C Ratio		0.17			0.17		0.71	0.65		0.60	0.59	0.59
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		224			277		394	1126		297	1037	874
v/s Ratio Prot							c0.01	c0.47		0.00	0.41	
v/s Ratio Perm		c0.09			0.01		0.12			0.02		0.05
v/c Ratio		0.54			0.05		0.19	0.73		0.04	0.70	0.09
Uniform Delay, d1		26.7			24.4		6.0	8.3		6.8	10.1	6.3
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.1			0.1		0.2	2.5		0.0	2.3	0.1
Delay (s)		28.8			24.5		6.2	10.9		6.9	12.5	6.3
Level of Service		C			C		A	B		A	B	A
Approach Delay (s)		28.8			24.5			10.5			11.7	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1: NE Adams St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	9	230	1365
v/c Ratio	0.03	0.90	0.62
Control Delay	19.6	56.3	11.5
Queue Delay	0.0	0.5	0.0
Total Delay	19.6	56.8	11.5
Queue Length 50th (ft)	2	142	210
Queue Length 95th (ft)	13	214	351
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	453	353	2213
Starvation Cap Reductn	0	15	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.68	0.62

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: NE Adams St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	5	205	15	0	0	0	0	65	1240	5
Future Volume (vph)	0	4	5	205	15	0	0	0	0	65	1240	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.96						1.00	
Satd. Flow (prot)		1742			1775						3352	
Flt Permitted		1.00			0.73						1.00	
Satd. Flow (perm)		1742			1365						3352	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	4	5	214	16	0	0	0	0	68	1292	5
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	5	0	0	230	0	0	0	0	0	1365	0
Confl. Peds. (#/hr)	19		3	3		19	13		2	2		13
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%	2%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		19.9			19.9						62.1	
Effective Green, g (s)		16.9			16.9						59.1	
Actuated g/C Ratio		0.19			0.19						0.66	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		327			256						2201	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.17						0.41	
v/c Ratio		0.02			0.90						0.62	
Uniform Delay, d1		29.8			35.7						8.9	
Progression Factor		1.00			0.68						1.00	
Incremental Delay, d2		0.0			28.2						1.3	
Delay (s)		29.8			52.6						10.3	
Level of Service		C			D						B	
Approach Delay (s)		29.8			52.6			0.0			10.3	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	81	294	1435
v/c Ratio	0.29	0.76	0.62
Control Delay	21.3	42.3	5.6
Queue Delay	0.0	0.3	0.1
Total Delay	21.3	42.6	5.7
Queue Length 50th (ft)	39	144	81
Queue Length 95th (ft)	m45	210	418
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	470	627	2327
Starvation Cap Reductn	0	0	91
Spillback Cap Reductn	0	65	84
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.17	0.52	0.64

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
2: NE Baker St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	60	0	0	190	80	20	1255	45	0	0	0
Future Volume (vph)	15	60	0	0	190	80	20	1255	45	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1675			1771			3311				
Flt Permitted		0.81			1.00			1.00				
Satd. Flow (perm)		1367			1771			3311				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	65	0	0	207	87	22	1364	49	0	0	0
RTOR Reduction (vph)	0	0	0	0	21	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	81	0	0	273	0	0	1433	0	0	0	0
Confl. Peds. (#/hr)	22		3	3		22	2		5	5		2
Confl. Bikes (#/hr)			1			2			2			
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	3%	0%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		18.8			18.8			63.2				
Effective Green, g (s)		18.8			18.8			63.2				
Actuated g/C Ratio		0.21			0.21			0.70				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		285			369			2325				
v/s Ratio Prot					c0.15							
v/s Ratio Perm		0.06						0.43				
v/c Ratio		0.28			0.74			0.62				
Uniform Delay, d1		29.9			33.3			7.0				
Progression Factor		0.68			1.00			0.57				
Incremental Delay, d2		0.3			7.4			1.0				
Delay (s)		20.7			40.7			5.0				
Level of Service		C			D			A				
Approach Delay (s)		20.7			40.7			5.0			0.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	9.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	165	0	0	0	80	1350
Future Vol, veh/h	165	0	0	0	80	1350
Conflicting Peds, #/hr	0	41	0	1	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	93	93	93	93	93	93
Heavy Vehicles, %	2	0	0	0	0	2
Mvmt Flow	177	0	0	0	86	1452

Major/Minor	Minor1				Major2	
Conflicting Flow All	899	-			1	0
Stage 1	1	-			-	-
Stage 2	898	-			-	-
Critical Hdwy	6.84	-			4.1	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	5.84	-			-	-
Follow-up Hdwy	3.52	-			2.2	-
Pot Cap-1 Maneuver	279	0			1635	-
Stage 1	-	0			-	-
Stage 2	358	0			-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	203	-			1633	-
Mov Cap-2 Maneuver	203	-			-	-
Stage 1	-	-			-	-
Stage 2	261	-			-	-

Approach	WB	SB
HCM Control Delay, s	82.6	1.3
HCM LOS	F	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	203	1633	-
HCM Lane V/C Ratio	0.874	0.053	-
HCM Control Delay (s)	82.6	7.3	0.9
HCM Lane LOS	F	A	A
HCM 95th %tile Q(veh)	6.7	0.2	-

Queues
4: NE Baker St & NE 3rd St

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	112	229	1308	90
v/c Ratio	0.24	0.48	0.64	0.09
Control Delay	25.3	26.4	12.4	1.8
Queue Delay	0.0	0.0	49.2	0.0
Total Delay	25.3	26.4	61.7	1.8
Queue Length 50th (ft)	45	91	222	0
Queue Length 95th (ft)	m86	160	287	16
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	461	478	2051	1011
Starvation Cap Reductn	0	0	901	0
Spillback Cap Reductn	0	0	65	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.24	0.48	1.14	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	90	0	0	135	80	35	1195	85	0	0	0
Future Volume (vph)	15	90	0	0	135	80	35	1195	85	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.98			1.00	0.97			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.95			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1673			1575			3296	1571			
Flt Permitted		0.95			1.00			1.00	1.00			
Satd. Flow (perm)		1597			1575			3296	1571			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	16	96	0	0	144	85	37	1271	90	0	0	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	34	0	0	0
Lane Group Flow (vph)	0	112	0	0	206	0	0	1308	56	0	0	0
Confl. Peds. (#/hr)	35		11	11		35	5		5	5		5
Confl. Bikes (#/hr)			2						2			1
Heavy Vehicles (%)	8%	0%	0%	0%	2%	0%	0%	4%	0%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4						6		6			
Actuated Green, G (s)		26.0			26.0			56.0	56.0			
Effective Green, g (s)		26.0			26.0			56.0	56.0			
Actuated g/C Ratio		0.29			0.29			0.62	0.62			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		461			455			2050	977			
v/s Ratio Prot					c0.13							
v/s Ratio Perm		0.07						0.40	0.04			
v/c Ratio		0.24			0.45			0.64	0.06			
Uniform Delay, d1		24.5			26.2			10.7	6.7			
Progression Factor		0.97			1.00			1.00	1.00			
Incremental Delay, d2		1.1			3.2			1.5	0.1			
Delay (s)		24.8			29.4			12.2	6.8			
Level of Service		C			C			B	A			
Approach Delay (s)		24.8			29.4			11.8			0.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: NE Adams St & SW 2nd St

04/10/2024

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	430	118	145	489	1651
v/c Ratio	0.90	0.26	0.62	0.71	0.98
Control Delay	48.8	9.4	26.8	23.8	36.5
Queue Delay	0.0	0.0	0.0	7.4	0.0
Total Delay	48.8	9.4	26.8	31.2	36.5
Queue Length 50th (ft)	163	10	36	152	~380
Queue Length 95th (ft)	#314	46	#79	246	#510
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	491	466	233	752	1685
Starvation Cap Reductn	0	0	0	217	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.88	0.25	0.62	0.91	0.98

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	400	110	135	455	0	0	0	0	60	1210	265
Future Volume (vph)	0	400	110	135	455	0	0	0	0	60	1210	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1547	1718	1881						3240	
Flt Permitted		1.00	1.00	0.20	1.00						1.00	
Satd. Flow (perm)		1881	1547	353	1881						3240	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	430	118	145	489	0	0	0	0	65	1301	285
RTOR Reduction (vph)	0	0	63	0	0	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	430	55	145	489	0	0	0	0	0	1625	0
Confl. Peds. (#/hr)	7		9	9		7	2		1	1		2
Confl. Bikes (#/hr)			1			2						2
Heavy Vehicles (%)	0%	1%	2%	5%	1%	0%	0%	0%	0%	2%	3%	0%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		16.5	16.5	24.5	24.5						32.5	
Effective Green, g (s)		16.5	16.5	24.5	24.5						32.5	
Actuated g/C Ratio		0.25	0.25	0.38	0.38						0.50	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		477	392	217	708						1620	
v/s Ratio Prot		c0.23		0.04	c0.26							
v/s Ratio Perm			0.04	0.21							0.50	
v/c Ratio		0.90	0.14	0.67	0.69						1.00	
Uniform Delay, d1		23.5	18.8	15.8	17.1						16.2	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		20.0	0.1	6.8	2.7						23.1	
Delay (s)		43.5	18.9	22.6	19.7						39.4	
Level of Service		D	B	C	B						D	
Approach Delay (s)		38.2			20.4			0.0			39.4	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	134	366	478	54	1516
v/c Ratio	0.52	0.49	0.92	0.11	0.99
Control Delay	18.1	15.4	47.3	2.4	40.3
Queue Delay	0.0	1.3	0.0	0.0	0.0
Total Delay	18.1	16.7	47.3	2.4	40.3
Queue Length 50th (ft)	28	89	165	0	~328
Queue Length 95th (ft)	58	151	#323	11	#454
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	260	815	532	501	1534
Starvation Cap Reductn	0	258	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.52	0.66	0.90	0.11	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	340	0	0	445	50	140	1145	125	0	0	0
Future Volume (vph)	125	340	0	0	445	50	140	1145	125	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1769	1881			1881	1541		3248				
Flt Permitted	0.19	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	360	1881			1881	1541		3248				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	134	366	0	0	478	54	151	1231	134	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	39	0	11	0	0	0	0
Lane Group Flow (vph)	134	366	0	0	478	15	0	1505	0	0	0	0
Confl. Peds. (#/hr)	3		5	5		3	4		3	3		4
Confl. Bikes (#/hr)			2			3						2
Heavy Vehicles (%)	2%	1%	0%	0%	1%	3%	1%	3%	10%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	24.7	24.7			16.7	16.7		27.3				
Effective Green, g (s)	24.7	24.7			16.7	16.7		27.3				
Actuated g/C Ratio	0.41	0.41			0.28	0.28		0.46				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	242	774			523	428		1477				
v/s Ratio Prot	0.04	c0.19			c0.25							
v/s Ratio Perm	0.19					0.01		0.46				
v/c Ratio	0.55	0.47			0.91	0.04		1.02				
Uniform Delay, d1	13.5	12.9			21.0	15.8		16.4				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	2.2	0.3			20.5	0.0		28.2				
Delay (s)	15.7	13.2			41.4	15.8		44.6				
Level of Service	B	B			D	B		D				
Approach Delay (s)		13.9			38.8			44.6			0.0	
Approach LOS		B			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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	10	125	35	40	205	15	10	10	10	5	15	5
Future Vol, veh/h	10	125	35	40	205	15	10	10	10	5	15	5
Conflicting Peds, #/hr	43	0	91	91	0	43	41	0	14	14	0	41
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	12	147	41	47	241	18	12	12	12	6	18	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	302	0	0	279	0	0	680	679	273	605	690	334
Stage 1	-	-	-	-	-	-	283	283	-	387	387	-
Stage 2	-	-	-	-	-	-	397	396	-	218	303	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1270	-	-	1295	-	-	368	376	771	413	371	712
Stage 1	-	-	-	-	-	-	728	681	-	641	613	-
Stage 2	-	-	-	-	-	-	633	607	-	789	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1218	-	-	1183	-	-	293	310	695	357	306	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	293	310	-	357	306	-
Stage 1	-	-	-	-	-	-	657	615	-	608	560	-
Stage 2	-	-	-	-	-	-	556	555	-	742	602	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.3	15.7	16.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	371	1218	-	-	1183	-	-	354
HCM Lane V/C Ratio	0.095	0.01	-	-	0.04	-	-	0.083
HCM Control Delay (s)	15.7	8	0	-	8.2	0	-	16.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.3

Queues
8: NE Davis St & NE 3rd St

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	161	300	71	65
v/c Ratio	0.13	0.24	0.28	0.26
Control Delay	3.6	11.1	15.3	18.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.6	11.1	15.3	18.6
Queue Length 50th (ft)	9	87	13	16
Queue Length 95th (ft)	38	m135	30	32
Internal Link Dist (ft)	216	222	171	182
Turn Bay Length (ft)				
Base Capacity (vph)	1236	1238	494	502
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.24	0.14	0.13

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
8: NE Davis St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	120	15	5	240	10	10	30	20	10	40	5
Future Volume (vph)	2	120	15	5	240	10	10	30	20	10	40	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.98			0.99			0.95			0.99	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		1667			1675			1580			1656	
Flt Permitted		1.00			1.00			0.94			0.93	
Satd. Flow (perm)		1664			1670			1493			1555	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	2	141	18	6	282	12	12	35	24	12	47	6
RTOR Reduction (vph)	0	5	0	0	2	0	0	21	0	0	5	0
Lane Group Flow (vph)	0	156	0	0	298	0	0	50	0	0	60	0
Confl. Peds. (#/hr)	83		57	57		83	20		18	18		20
Confl. Bikes (#/hr)			3			2			2			1
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.4			35.4			6.6			6.6	
Effective Green, g (s)		35.4			35.4			6.6			6.6	
Actuated g/C Ratio		0.71			0.71			0.13			0.13	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		1178			1182			197			205	
v/s Ratio Prot												
v/s Ratio Perm		0.09			c0.18			0.03			c0.04	
v/c Ratio		0.13			0.25			0.25			0.29	
Uniform Delay, d1		2.4			2.6			19.5			19.6	
Progression Factor		1.00			2.81			1.00			1.00	
Incremental Delay, d2		0.2			0.4			0.2			0.3	
Delay (s)		2.6			7.7			19.7			19.9	
Level of Service		A			A			B			B	
Approach Delay (s)		2.6			7.7			19.7			19.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	120	5	15	235	85	4	30	10	40	55	25
Future Vol, veh/h	20	120	5	15	235	85	4	30	10	40	55	25
Conflicting Peds, #/hr	55	0	80	80	0	55	11	0	31	31	0	11
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	2	14
Mvmt Flow	24	141	6	18	276	100	5	35	12	47	65	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	431	0	0	227	0	0	692	739	255	664	692	392
Stage 1	-	-	-	-	-	-	272	272	-	417	417	-
Stage 2	-	-	-	-	-	-	420	467	-	247	275	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.52	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4.018	3.426
Pot Cap-1 Maneuver	1139	-	-	1353	-	-	361	347	789	377	367	631
Stage 1	-	-	-	-	-	-	738	688	-	617	591	-
Stage 2	-	-	-	-	-	-	615	565	-	761	683	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1079	-	-	1250	-	-	255	291	707	300	308	592
Mov Cap-2 Maneuver	-	-	-	-	-	-	255	291	-	300	308	-
Stage 1	-	-	-	-	-	-	666	621	-	571	550	-
Stage 2	-	-	-	-	-	-	501	526	-	669	616	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.4	17.9	23
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	331	1079	-	-	1250	-	-	339
HCM Lane V/C Ratio	0.156	0.022	-	-	0.014	-	-	0.416
HCM Control Delay (s)	17.9	8.4	0	-	7.9	0	-	23
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	2

Queues
10: NE Ford St & NE 3rd St

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	194	389	71	59
v/c Ratio	0.42	0.86	0.08	0.07
Control Delay	14.7	36.9	5.0	5.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.7	36.9	5.0	5.6
Queue Length 50th (ft)	38	101	6	6
Queue Length 95th (ft)	64	#188	20	19
Internal Link Dist (ft)	216	220	175	172
Turn Bay Length (ft)				
Base Capacity (vph)	543	537	915	881
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.36	0.72	0.08	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
10: NE Ford St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	150	15	0	315	15	10	35	15	20	25	5
Future Volume (vph)	0	150	15	0	315	15	10	35	15	20	25	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
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			1.00			1.00	
Frt		0.99			0.99			0.97			0.99	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		1677			1669			1623			1643	
Flt Permitted		1.00			1.00			0.97			0.92	
Satd. Flow (perm)		1677			1669			1591			1541	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	176	18	0	371	18	12	41	18	24	29	6
RTOR Reduction (vph)	0	8	0	0	4	0	0	8	0	0	3	0
Lane Group Flow (vph)	0	186	0	0	385	0	0	63	0	0	56	0
Confl. Peds. (#/hr)	26		30	30		26	14		7	7		14
Confl. Bikes (#/hr)			5			2						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	12%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0			0			0	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		13.5			13.5			28.5			28.5	
Effective Green, g (s)		13.5			13.5			28.5			28.5	
Actuated g/C Ratio		0.27			0.27			0.57			0.57	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		452			450			906			878	
v/s Ratio Prot		0.11			c0.23							
v/s Ratio Perm								c0.04			0.04	
v/c Ratio		0.41			0.86			0.07			0.06	
Uniform Delay, d1		15.0			17.3			4.8			4.8	
Progression Factor		0.87			1.00			1.00			1.00	
Incremental Delay, d2		0.2			14.3			0.1			0.1	
Delay (s)		13.3			31.6			5.0			4.9	
Level of Service		B			C			A			A	
Approach Delay (s)		13.3			31.6			5.0			4.9	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC
11: NE Galloway St & NE 3rd St

Intersection												
Int Delay, s/veh	2.5											
Movement	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations												
Traffic Vol, veh/h	20	155	10	5	290	25	10	10	5	20	10	35
Future Vol, veh/h	20	155	10	5	290	25	10	10	5	20	10	35
Conflicting Peds, #/hr	30	0	18	18	0	30	17	0	3	3	0	17
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	23	176	11	6	330	28	11	11	6	23	11	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	388	0	0	205	0	0	645	646	203	625	637	391
Stage 1	-	-	-	-	-	-	246	246	-	386	386	-
Stage 2	-	-	-	-	-	-	399	400	-	239	251	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1182	-	-	1378	-	-	388	393	843	400	398	662
Stage 1	-	-	-	-	-	-	762	706	-	641	614	-
Stage 2	-	-	-	-	-	-	631	605	-	769	703	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1148	-	-	1354	-	-	336	365	826	368	369	633
Mov Cap-2 Maneuver	-	-	-	-	-	-	336	365	-	368	369	-
Stage 1	-	-	-	-	-	-	732	678	-	609	593	-
Stage 2	-	-	-	-	-	-	567	584	-	732	676	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.1	14.8	14
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	395	1148	-	-	1354	-	-	475
HCM Lane V/C Ratio	0.072	0.02	-	-	0.004	-	-	0.156
HCM Control Delay (s)	14.8	8.2	0	-	7.7	0	-	14
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.5

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	15	160	10	15	300	10	5	35	35	20	20	20
Future Vol, veh/h	15	160	10	15	300	10	5	35	35	20	20	20
Conflicting Peds, #/hr	13	0	4	4	0	13	4	0	2	2	0	4
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	1	40	0	12	6	0	5	7
Mvmt Flow	18	188	12	18	353	12	6	41	41	24	24	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	378	0	0	204	0	0	657	648	200	681	648	376
Stage 1	-	-	-	-	-	-	234	234	-	408	408	-
Stage 2	-	-	-	-	-	-	423	414	-	273	240	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.62	6.26	7.1	6.55	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.108	3.354	3.5	4.045	3.363
Pot Cap-1 Maneuver	1192	-	-	1380	-	-	381	377	831	367	385	659
Stage 1	-	-	-	-	-	-	774	693	-	624	592	-
Stage 2	-	-	-	-	-	-	613	576	-	737	701	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1177	-	-	1375	-	-	338	359	826	306	367	648
Mov Cap-2 Maneuver	-	-	-	-	-	-	338	359	-	306	367	-
Stage 1	-	-	-	-	-	-	758	678	-	606	575	-
Stage 2	-	-	-	-	-	-	555	560	-	645	686	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.4	14.1	16
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	485	1177	-	-	1375	-	-	398
HCM Lane V/C Ratio	0.182	0.015	-	-	0.013	-	-	0.177
HCM Control Delay (s)	14.1	8.1	0	-	7.7	0	-	16
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0.6

Queues
13: NE Johnson St & NE 3rd St

01/11/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	97	153	17	227	466	391	540	432
v/c Ratio	0.36	0.29	0.05	0.55	0.66	0.84	0.87	0.42
Control Delay	20.0	19.4	14.7	27.5	7.5	42.3	37.1	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	19.4	14.7	27.5	7.5	42.3	37.1	9.6
Queue Length 50th (ft)	27	44	5	81	0	147	129	80
Queue Length 95th (ft)	55	95	16	137	59	#306	#317	156
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	268	622	347	574	796	487	620	1045
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.25	0.05	0.40	0.59	0.80	0.87	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	135	0	15	200	410	10	310	25	475	255	125
Future Volume (vph)	85	135	0	15	200	410	10	310	25	475	255	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
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	0.98		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1805	1881		1805	1881	1549		1798		1752	1771	
Flt Permitted	0.42	1.00		0.66	1.00	1.00		0.98		0.33	1.00	
Satd. Flow (perm)	802	1881		1254	1881	1549		1772		607	1771	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	97	153	0	17	227	466	11	352	28	540	290	142
RTOR Reduction (vph)	0	0	0	0	0	363	0	4	0	0	23	0
Lane Group Flow (vph)	97	153	0	17	227	103	0	387	0	540	409	0
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	2%	0%	5%	0%	3%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	18.3	16.0		14.7	14.2	14.2		16.6		35.9	35.9	
Effective Green, g (s)	18.3	16.0		14.7	14.2	14.2		16.6		35.9	35.9	
Actuated g/C Ratio	0.28	0.25		0.23	0.22	0.22		0.26		0.56	0.56	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	263	467		290	414	341		456		610	987	
v/s Ratio Prot	c0.01	0.08		0.00	c0.12					c0.21	0.23	
v/s Ratio Perm	0.09			0.01		0.07		0.22		c0.28		
v/c Ratio	0.37	0.33		0.06	0.55	0.30		0.85		0.89	0.41	
Uniform Delay, d1	18.1	19.8		19.4	22.3	21.0		22.7		17.8	8.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.4		0.1	1.5	0.5		14.3		14.7	0.4	
Delay (s)	18.8	20.2		19.4	23.7	21.5		37.0		32.5	8.6	
Level of Service	B	C		B	C	C		D		C	A	
Approach Delay (s)		19.7			22.1			37.0			21.9	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	64.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	45.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	400	0	0	4	305	675	3	10	700	5
Future Vol, veh/h	4	0	400	0	0	4	305	675	3	10	700	5
Conflicting Peds, #/hr	2	0	0	0	0	2	3	0	1	1	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	0	0	2	2	0	0	2	0
Mvmt Flow	4	0	449	0	0	4	343	758	3	11	787	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2265	2263	793	2484	2265	763	796	0	0	762	0	0
Stage 1	815	815	-	1447	1447	-	-	-	-	-	-	-
Stage 2	1450	1448	-	1037	818	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.21	7.1	6.5	6.2	4.12	-	-	4.1	-	-
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	3.309	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	29	41	~ 390	20	41	408	826	-	-	859	-	-
Stage 1	374	394	-	165	198	-	-	-	-	-	-	-
Stage 2	164	198	-	282	393	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	19	24	~ 389	-	24	407	824	-	-	858	-	-
Mov Cap-2 Maneuver	19	24	-	-	24	-	-	-	-	-	-	-
Stage 1	218	388	-	96	115	-	-	-	-	-	-	-
Stage 2	94	115	-	-	387	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	225.6		3.9	0.1
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	824	-	-	326	-	858	-	-
HCM Lane V/C Ratio	0.416	-	-	1.392	-	0.013	-	-
HCM Control Delay (s)	12.4	-	-	225.6	-	9.3	-	-
HCM Lane LOS	B	-	-	F	-	A	-	-
HCM 95th %tile Q(veh)	2.1	-	-	23.3	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Queues
15: NE Lafayette Ave & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	241	52	84	856	4	876	169
v/c Ratio	0.76	0.14	0.29	0.71	0.01	0.82	0.18
Control Delay	42.8	21.1	7.9	15.1	5.8	24.7	7.8
Queue Delay	0.0	0.0	0.0	1.2	0.0	0.0	0.0
Total Delay	42.8	21.1	7.9	16.2	5.8	24.7	7.8
Queue Length 50th (ft)	108	16	13	230	1	360	27
Queue Length 95th (ft)	194	45	33	581	4	#716	68
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	456	539	460	1339	540	1203	1050
Starvation Cap Reductn	0	0	0	259	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.10	0.18	0.79	0.01	0.73	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	20	90	1	30	15	75	760	2	4	780	150
Future Volume (vph)	105	20	90	1	30	15	75	760	2	4	780	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.94			0.96		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1548			1621		1770	1844		1805	1845	1582
Flt Permitted		0.84			1.00		0.13	1.00		0.21	1.00	1.00
Satd. Flow (perm)		1328			1616		236	1844		390	1845	1582
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	118	22	101	1	34	17	84	854	2	4	876	169
RTOR Reduction (vph)	0	27	0	0	13	0	0	0	0	0	0	22
Lane Group Flow (vph)	0	214	0	0	39	0	84	856	0	4	876	147
Confl. Peds. (#/hr)	1		3	3		1			3	3		
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		17.9			17.9		57.9	53.0		49.8	48.9	48.9
Effective Green, g (s)		17.9			17.9		57.9	53.0		49.8	48.9	48.9
Actuated g/C Ratio		0.21			0.21		0.69	0.63		0.59	0.58	0.58
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		283			345		254	1166		246	1076	923
v/s Ratio Prot							c0.02	c0.46		0.00	c0.47	
v/s Ratio Perm		c0.16			0.02		0.21			0.01		0.09
v/c Ratio		0.76			0.11		0.33	0.73		0.02	0.81	0.16
Uniform Delay, d1		30.9			26.5		11.7	10.6		9.3	13.8	8.0
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		10.5			0.1		0.6	2.6		0.0	5.1	0.1
Delay (s)		41.4			26.7		12.3	13.2		9.3	18.9	8.1
Level of Service		D			C		B	B		A	B	A
Approach Delay (s)		41.4			26.7			13.1			17.1	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Attachment J: Traffic Signal Warrant Analysis Worksheets

KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_03_Adams
Intersection:	NE Adams St (OR99W) & NE 3rd St
Scenario:	2023 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	NB	SB	EB	WB
4:25 PM	5:25 PM	0	1370	0	60
2nd Highest Hour		0	1281	0	57
3rd Highest Hour		0	1263	0	56
4th Highest Hour		0	1228	0	54
5th Highest Hour		0	1121	0	53
6th Highest Hour		0	1103	0	53
7th Highest Hour		0	1032	0	50
8th Highest Hour		0	961	0	50
9th Highest Hour		0	961	0	48
10th Highest Hour		0	943	0	45
11th Highest Hour		0	890	0	43
12th Highest Hour		0	836	0	42
13th Highest Hour		0	818	0	41
14th Highest Hour		0	783	0	35
15th Highest Hour		0	623	0	28
16th Highest Hour		0	587	0	26
17th Highest Hour		0	534	0	18
18th Highest Hour		0	463	0	15
19th Highest Hour		0	374	0	8
20th Highest Hour		0	178	0	6
21st Highest Hour		0	160	0	5
22nd Highest Hour		0	107	0	3
23rd Highest Hour		0	89	0	2
24th Highest Hour		0	89	0	2

Warrant Summary

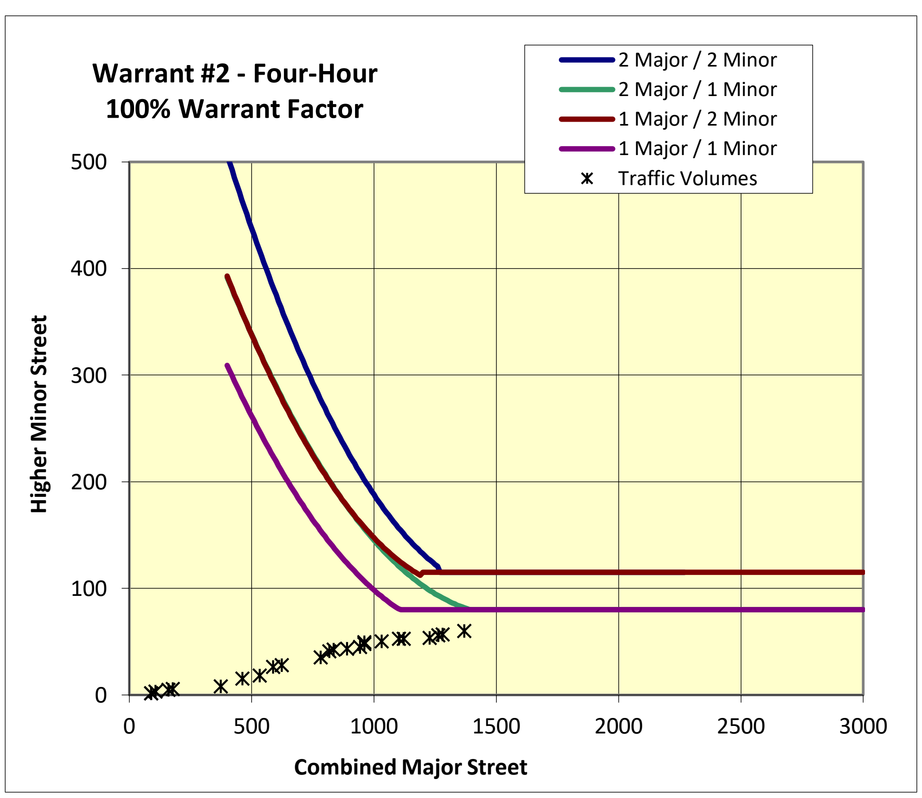
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

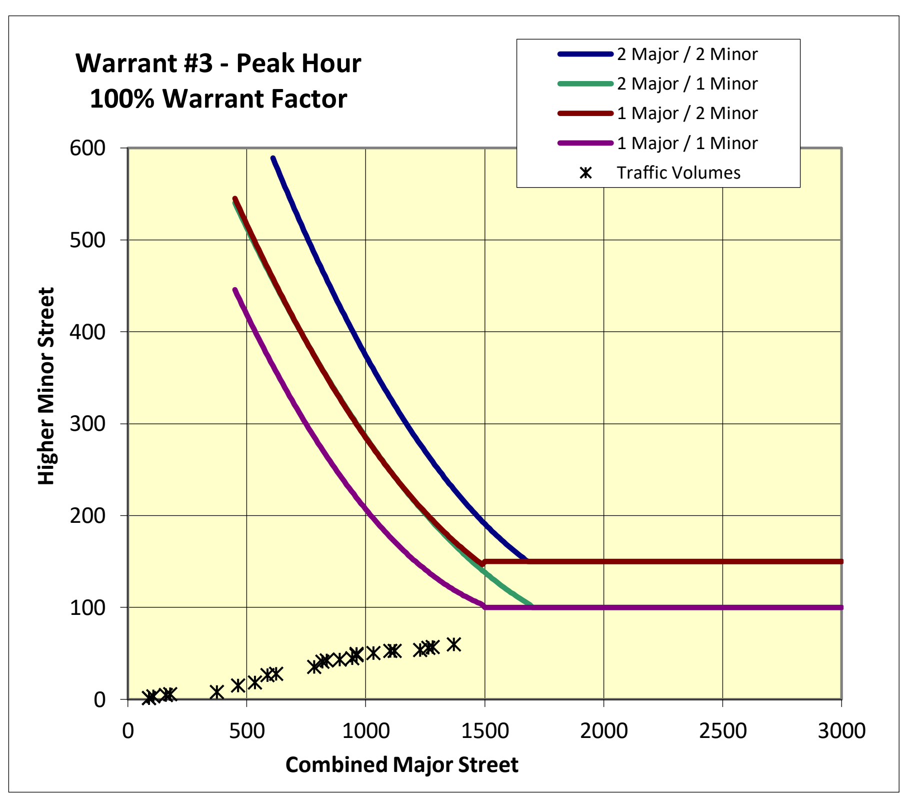
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	2
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	90%
Major Street: 8th-Highest Hour / Peak Hour	70%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	600	150	0	No	**No**
	B	900	75	0	No	
80%	A	480	120	0	No	**No**
	B	720	60	1	No	
70%	A	420	105	0	No	**No**
	B	630	53	6	No	
56%	A	336	84	0	No	**Yes**
	B	504	42	12	Yes	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019 Signal-Warrant-Analysis 03 Adams
Intersection:	NE Adams St (OR99W) & NE 3rd St
Scenario:	2027 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	NB	SB	EB	WB
4:25 PM	5:25 PM	0	1380	0	75
2nd Highest Hour		0	1290	0	71
3rd Highest Hour		0	1272	0	70
4th Highest Hour		0	1237	0	67
5th Highest Hour		0	1129	0	66
6th Highest Hour		0	1111	0	66
7th Highest Hour		0	1039	0	63
8th Highest Hour		0	968	0	62
9th Highest Hour		0	968	0	60
10th Highest Hour		0	950	0	56
11th Highest Hour		0	896	0	54
12th Highest Hour		0	842	0	53
13th Highest Hour		0	824	0	51
14th Highest Hour		0	789	0	44
15th Highest Hour		0	627	0	35
16th Highest Hour		0	591	0	33
17th Highest Hour		0	538	0	23
18th Highest Hour		0	466	0	19
19th Highest Hour		0	376	0	10
20th Highest Hour		0	179	0	7
21st Highest Hour		0	161	0	6
22nd Highest Hour		0	108	0	4
23rd Highest Hour		0	90	0	2
24th Highest Hour		0	90	0	2

Warrant Summary

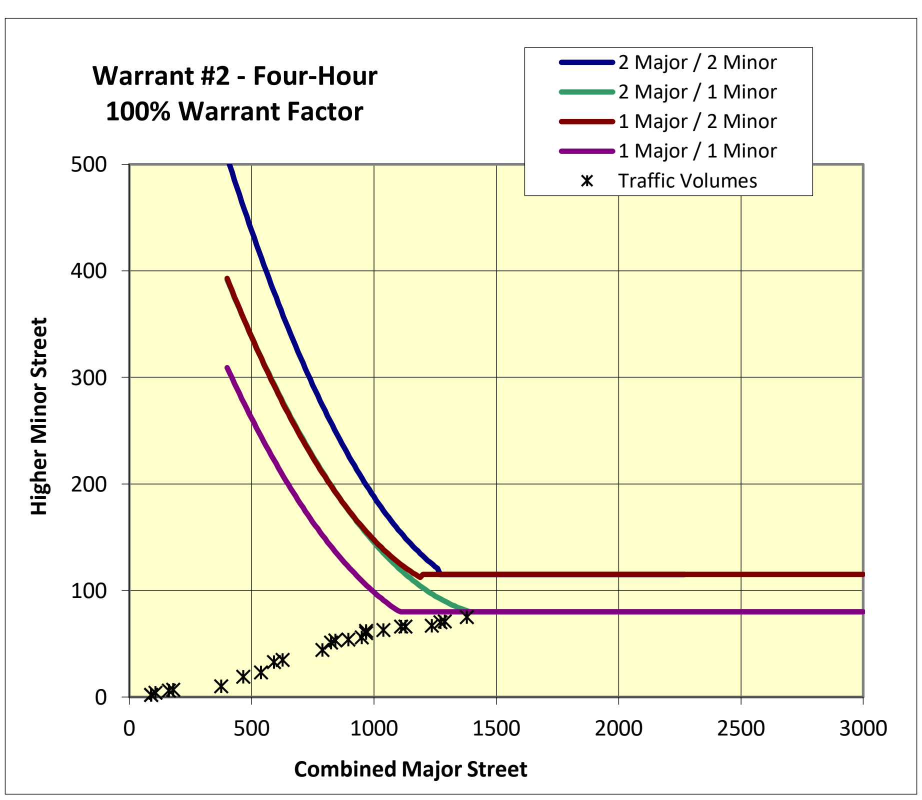
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

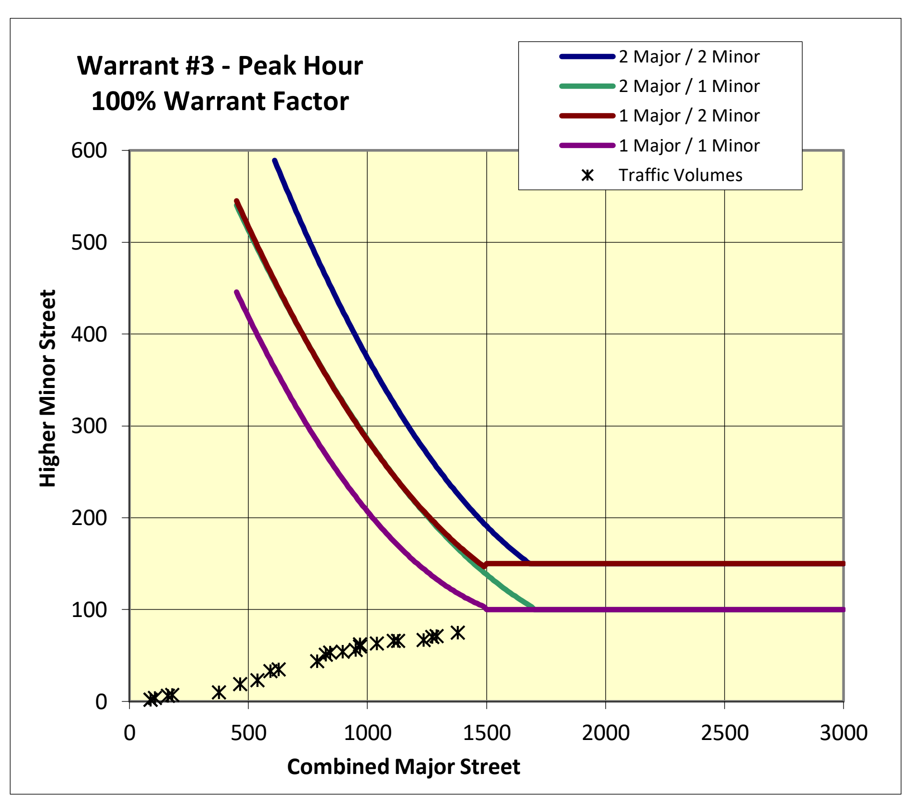
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	2
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	90%
Major Street: 8th-Highest Hour / Peak Hour	70%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	600	150	0	No	No
	B	900	75	1	No	
80%	A	480	120	0	No	Yes
	B	720	60	9	Yes	
70%	A	420	105	0	No	Yes
	B	630	53	12	Yes	
56%	A	336	84	0	No	Yes
	B	504	42	14	Yes	





Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_03_Adams
Intersection:	NE Adams St (OR99W) & NE 3rd St
Scenario:	2032 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour Begin	Hour End	Major Street NB	Major Street SB	Minor Street EB	Minor Street WB
4:25 PM	5:25 PM	0	1395	0	100
2nd Highest Hour		0	1304	0	95
3rd Highest Hour		0	1286	0	93
4th Highest Hour		0	1250	0	89
5th Highest Hour		0	1141	0	88
6th Highest Hour		0	1123	0	88
7th Highest Hour		0	1051	0	84
8th Highest Hour		0	978	0	83
9th Highest Hour		0	978	0	80
10th Highest Hour		0	960	0	75
11th Highest Hour		0	906	0	72
12th Highest Hour		0	851	0	71
13th Highest Hour		0	833	0	68
14th Highest Hour		0	797	0	59
15th Highest Hour		0	634	0	47
16th Highest Hour		0	598	0	44
17th Highest Hour		0	544	0	31
18th Highest Hour		0	471	0	25
19th Highest Hour		0	380	0	13
20th Highest Hour		0	181	0	9
21st Highest Hour		0	163	0	8
22nd Highest Hour		0	109	0	5
23rd Highest Hour		0	91	0	3
24th Highest Hour		0	91	0	3

Warrant Summary

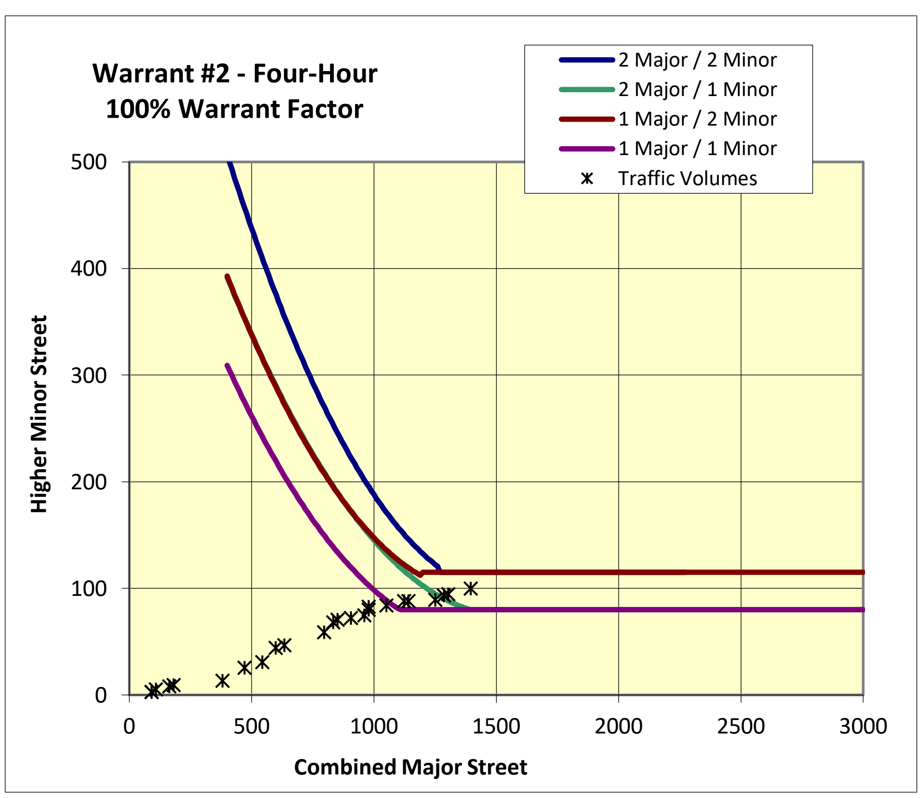
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

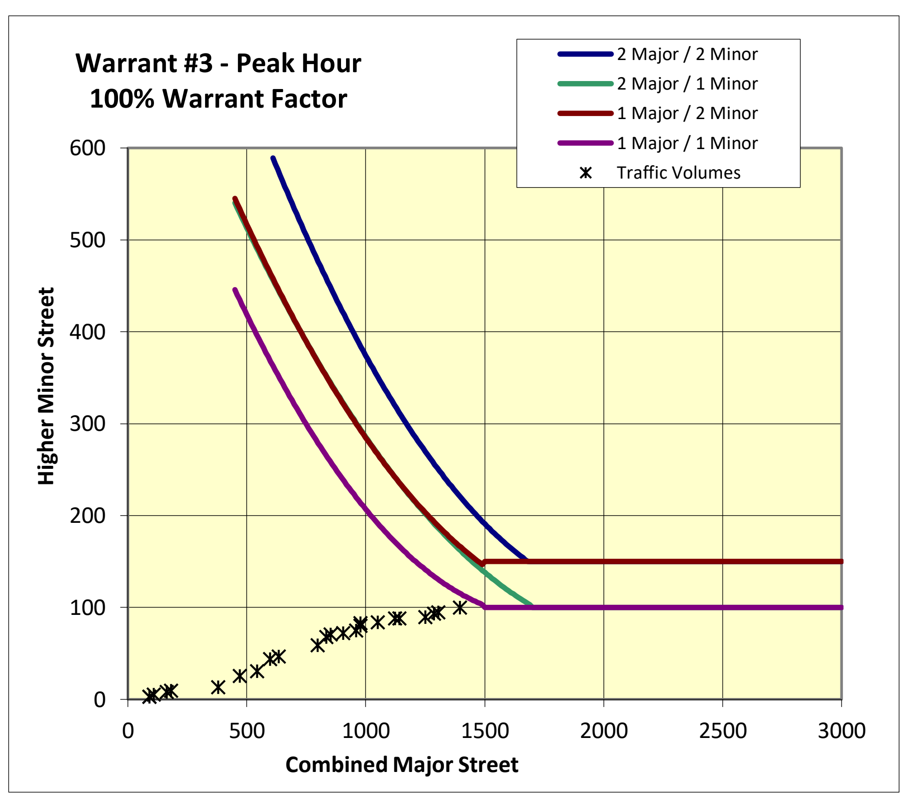
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	2
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	90%
Major Street: 8th-Highest Hour / Peak Hour	70%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	600	150	0	No	**Yes**
	B	900	75	10	Yes	
80%	A	480	120	0	No	**Yes**
	B	720	60	13	Yes	
70%	A	420	105	0	No	**Yes**
	B	630	53	14	Yes	
56%	A	336	84	7	No	**Yes**
	B	504	42	16	Yes	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_03_Adams
Intersection:	NE Adams St (OR99W) & NE 3rd St
Scenario:	2047 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	NB	SB	EB	WB
4:25 PM	5:25 PM	0	1430	0	165
2nd Highest Hour		0	1337	0	156
3rd Highest Hour		0	1319	0	154
4th Highest Hour		0	1281	0	147
5th Highest Hour		0	1170	0	145
6th Highest Hour		0	1151	0	145
7th Highest Hour		0	1077	0	139
8th Highest Hour		0	1003	0	136
9th Highest Hour		0	1003	0	132
10th Highest Hour		0	984	0	123
11th Highest Hour		0	929	0	119
12th Highest Hour		0	873	0	117
13th Highest Hour		0	854	0	112
14th Highest Hour		0	817	0	97
15th Highest Hour		0	650	0	77
16th Highest Hour		0	613	0	73
17th Highest Hour		0	557	0	51
18th Highest Hour		0	483	0	42
19th Highest Hour		0	390	0	22
20th Highest Hour		0	186	0	15
21st Highest Hour		0	167	0	13
22nd Highest Hour		0	111	0	9
23rd Highest Hour		0	93	0	4
24th Highest Hour		0	93	0	4

Warrant Summary

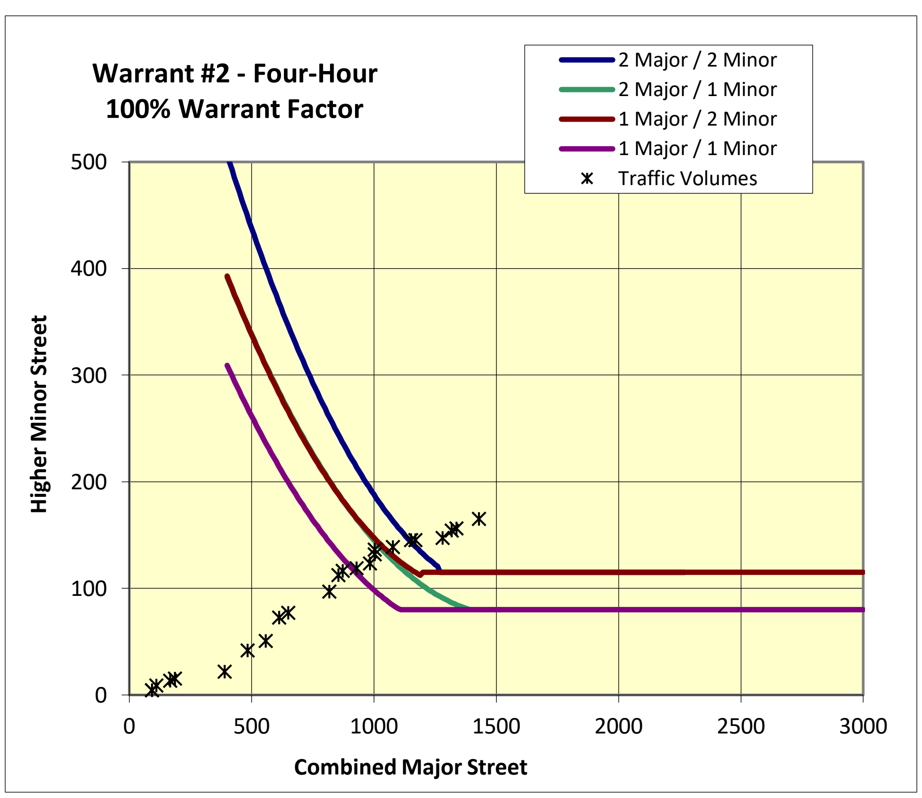
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

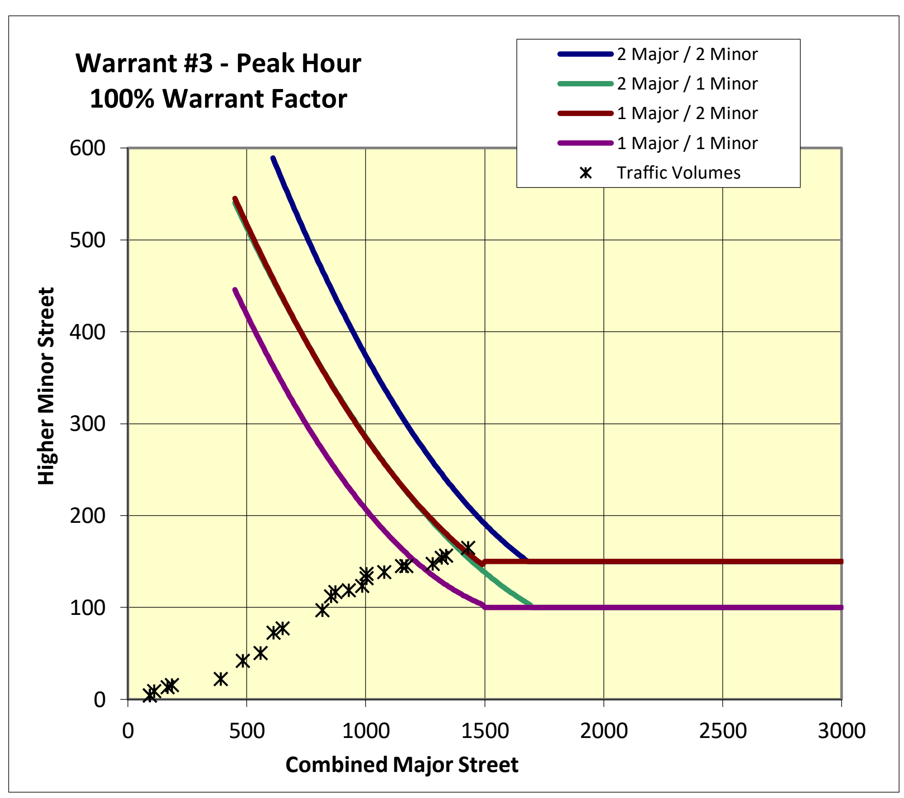
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	2
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	90%
Major Street: 8th-Highest Hour / Peak Hour	70%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	600	150	3	No	**Yes**
	B	900	75	11	Yes	
80%	A	480	120	10	Yes	**Yes**
	B	720	60	14	Yes	
70%	A	420	105	13	Yes	**Yes**
	B	630	53	15	Yes	
56%	A	336	84	14	Yes	**Yes**
	B	504	42	17	Yes	





Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_04_Baker
Intersection:	NE Baker St (OR99W) & NE 3rd St
Scenario:	2023 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	NB	SB	EB	WB
4:25 PM	5:25 PM	1170	0	65	115
2nd Highest Hour		1094	0	62	109
3rd Highest Hour		1079	0	61	107
4th Highest Hour		1048	0	58	103
5th Highest Hour		957	0	57	101
6th Highest Hour		942	0	57	101
7th Highest Hour		881	0	55	97
8th Highest Hour		821	0	54	95
9th Highest Hour		821	0	52	92
10th Highest Hour		805	0	49	86
11th Highest Hour		760	0	47	83
12th Highest Hour		714	0	46	81
13th Highest Hour		699	0	44	78
14th Highest Hour		669	0	38	67
15th Highest Hour		532	0	30	54
16th Highest Hour		501	0	29	51
17th Highest Hour		456	0	20	35
18th Highest Hour		395	0	16	29
19th Highest Hour		319	0	9	15
20th Highest Hour		152	0	6	11
21st Highest Hour		137	0	5	9
22nd Highest Hour		91	0	3	6
23rd Highest Hour		76	0	2	3
24th Highest Hour		76	0	2	3

Warrant Summary

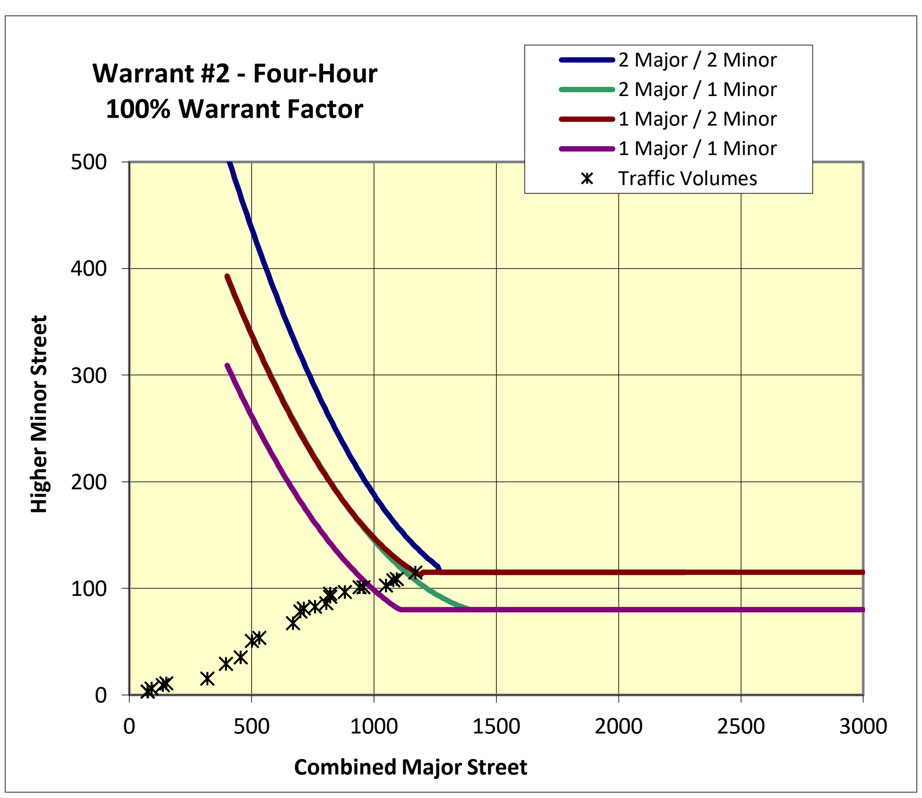
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

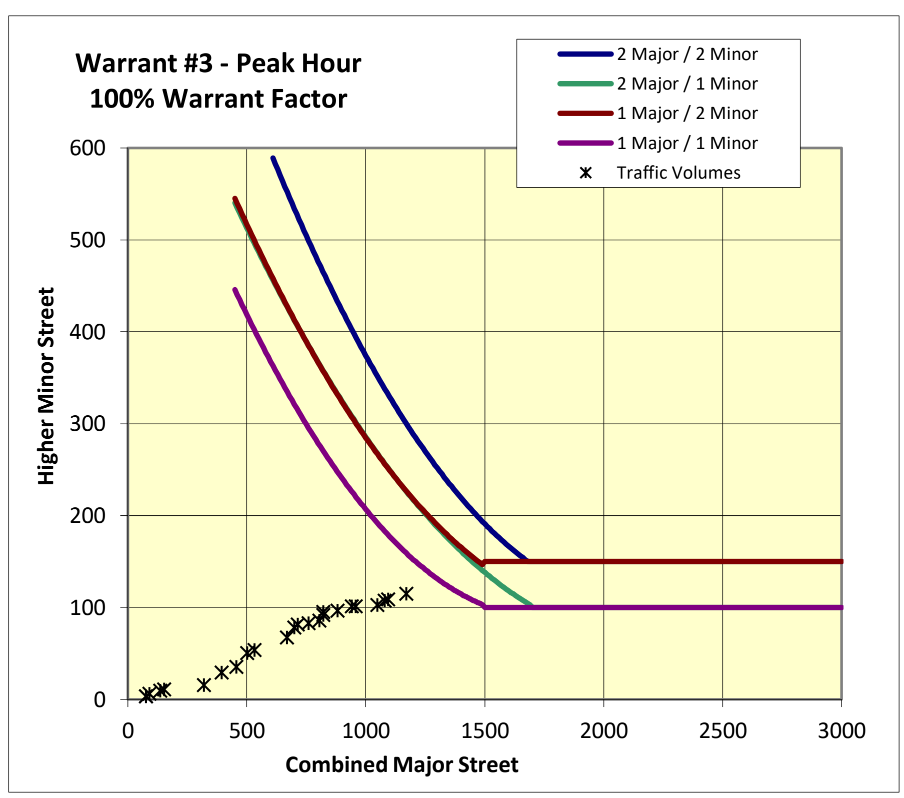
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	2
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	90%
Major Street: 8th-Highest Hour / Peak Hour	70%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	600	150	0	No	**No**
	B	900	75	6	No	
80%	A	480	120	0	No	**Yes**
	B	720	60	11	Yes	
70%	A	420	105	3	No	**Yes**
	B	630	53	14	Yes	
56%	A	336	84	10	Yes	**Yes**
	B	504	42	15	Yes	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_04_Baker
Intersection:	NE Baker St (OR99W) & NE 3rd St
Scenario:	2027 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	NB	SB	EB	WB
4:25 PM	5:25 PM	1195	0	70	136
2nd Highest Hour		1117	0	66	129
3rd Highest Hour		1102	0	65	127
4th Highest Hour		1071	0	63	121
5th Highest Hour		978	0	62	120
6th Highest Hour		962	0	62	120
7th Highest Hour		900	0	59	114
8th Highest Hour		838	0	58	112
9th Highest Hour		838	0	56	109
10th Highest Hour		823	0	52	102
11th Highest Hour		776	0	50	98
12th Highest Hour		729	0	49	96
13th Highest Hour		714	0	48	92
14th Highest Hour		683	0	41	80
15th Highest Hour		543	0	33	63
16th Highest Hour		512	0	31	60
17th Highest Hour		466	0	21	42
18th Highest Hour		404	0	18	34
19th Highest Hour		326	0	9	18
20th Highest Hour		155	0	7	13
21st Highest Hour		140	0	6	11
22nd Highest Hour		93	0	4	7
23rd Highest Hour		78	0	2	4
24th Highest Hour		78	0	2	4

Warrant Summary

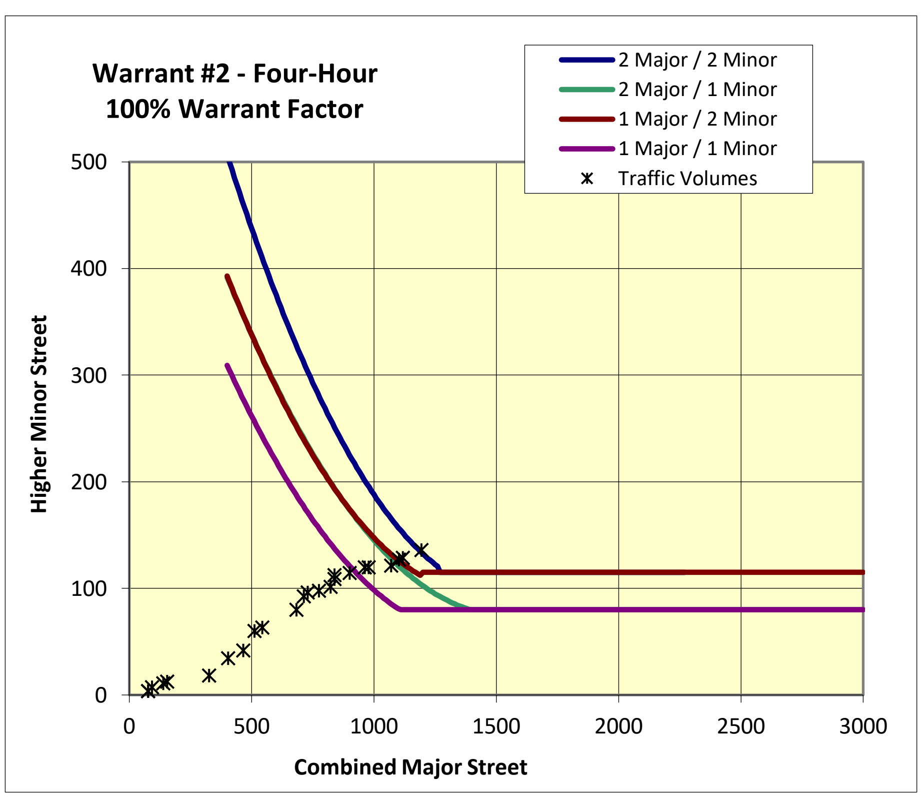
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

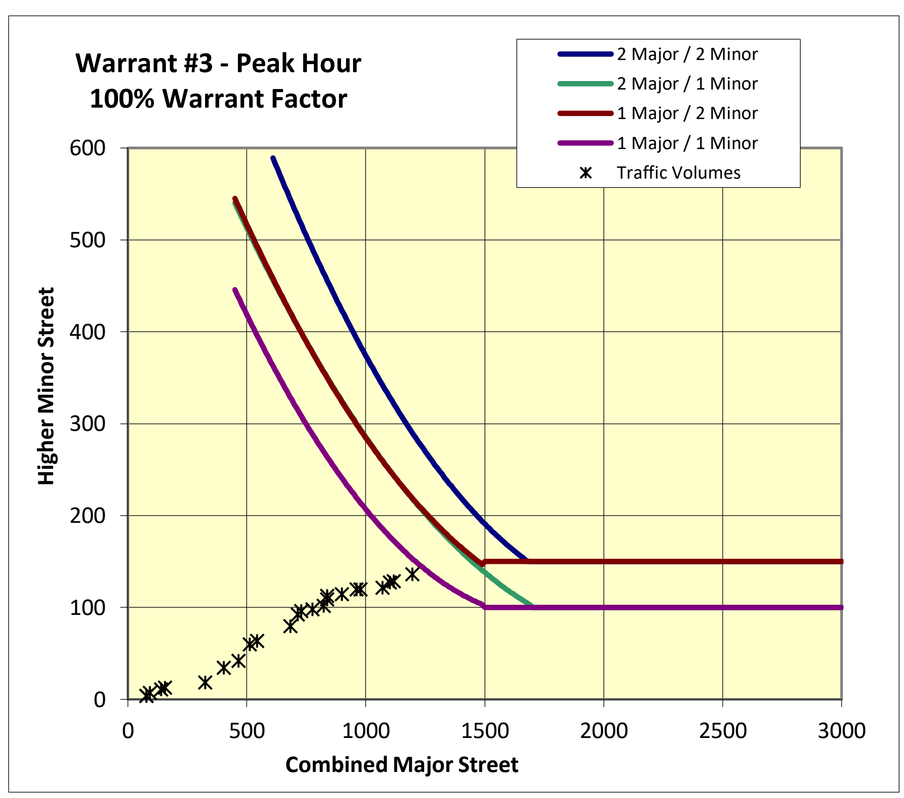
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	2
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	90%
Major Street: 8th-Highest Hour / Peak Hour	70%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	600	150	0	No	**No**
	B	900	75	7	No	
80%	A	480	120	6	No	**Yes**
	B	720	60	12	Yes	
70%	A	420	105	9	Yes	**Yes**
	B	630	53	14	Yes	
56%	A	336	84	13	Yes	**Yes**
	B	504	42	16	Yes	





Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	NB	SB	EB	WB
4:25 PM	5:25 PM	1226	0	79	150
2nd Highest Hour		1146	0	75	142
3rd Highest Hour		1130	0	74	140
4th Highest Hour		1099	0	71	134
5th Highest Hour		1003	0	70	132
6th Highest Hour		987	0	70	132
7th Highest Hour		923	0	66	126
8th Highest Hour		860	0	65	124
9th Highest Hour		860	0	63	120
10th Highest Hour		844	0	59	112
11th Highest Hour		796	0	57	108
12th Highest Hour		748	0	56	106
13th Highest Hour		732	0	54	102
14th Highest Hour		701	0	46	88
15th Highest Hour		557	0	37	70
16th Highest Hour		525	0	35	66
17th Highest Hour		478	0	24	46
18th Highest Hour		414	0	20	38
19th Highest Hour		334	0	11	20
20th Highest Hour		159	0	7	14
21st Highest Hour		143	0	6	12
22nd Highest Hour		96	0	4	8
23rd Highest Hour		80	0	2	4
24th Highest Hour		80	0	2	4

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_04_Baker
Intersection:	NE Baker St (OR99W) & NE 3rd St
Scenario:	2032 PM Peak Hour Volumes
Data Date:	10/3/2023

Warrant Summary

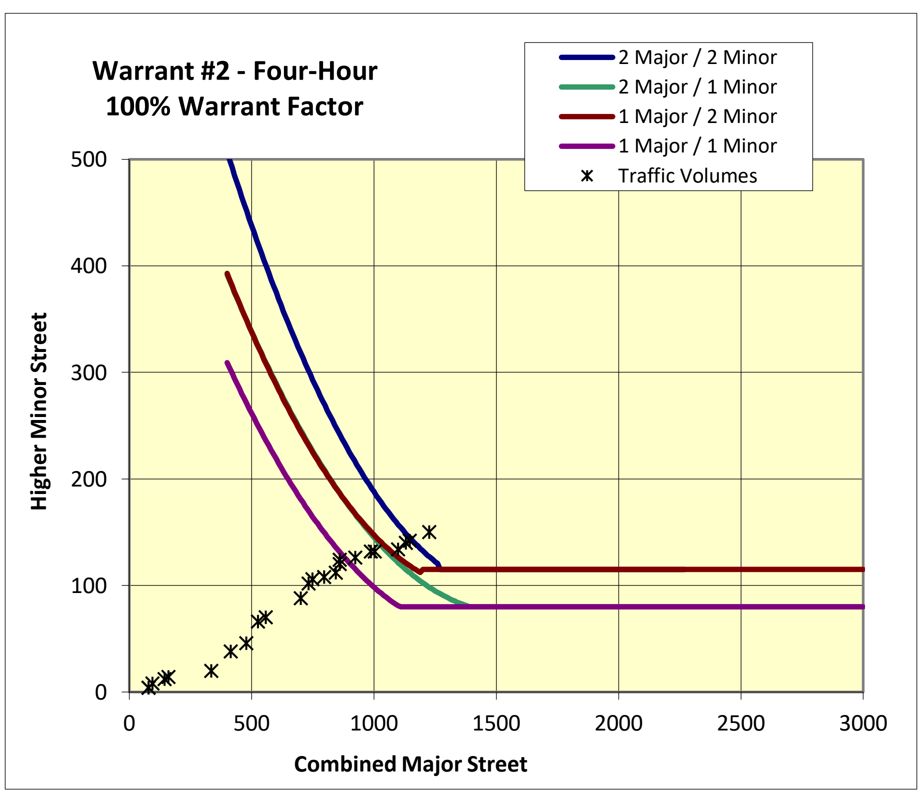
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

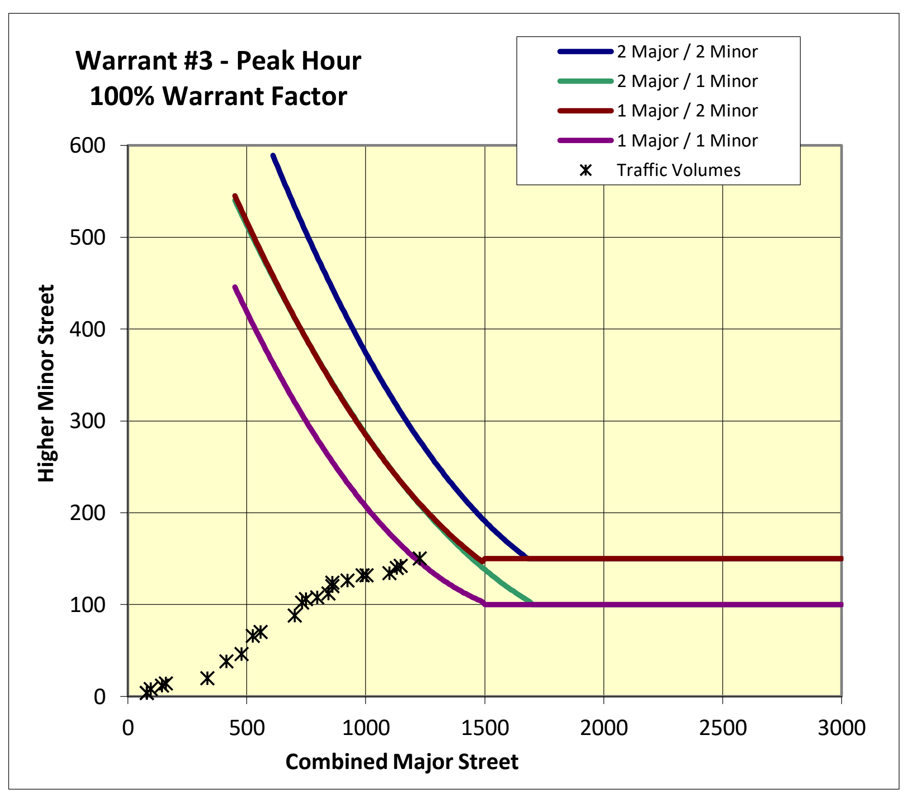
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	2
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	90%
Major Street: 8th-Highest Hour / Peak Hour	70%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	600	150	1	No	**No**
	B	900	75	7	No	
80%	A	480	120	9	Yes	**Yes**
	B	720	60	13	Yes	
70%	A	420	105	12	Yes	**Yes**
	B	630	53	14	Yes	
56%	A	336	84	14	Yes	**Yes**
	B	504	42	16	Yes	





Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_04_Baker
Intersection:	NE Baker St (OR99W) & NE 3rd St
Scenario:	2047 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	NB	SB	EB	WB
4:25 PM	5:25 PM	1315	0	105	215
2nd Highest Hour		1230	0	99	204
3rd Highest Hour		1213	0	98	201
4th Highest Hour		1178	0	94	192
5th Highest Hour		1076	0	92	189
6th Highest Hour		1059	0	92	189
7th Highest Hour		991	0	88	181
8th Highest Hour		922	0	87	178
9th Highest Hour		922	0	84	172
10th Highest Hour		905	0	78	161
11th Highest Hour		854	0	76	155
12th Highest Hour		803	0	74	152
13th Highest Hour		786	0	71	146
14th Highest Hour		751	0	62	126
15th Highest Hour		598	0	49	100
16th Highest Hour		564	0	46	95
17th Highest Hour		512	0	32	66
18th Highest Hour		444	0	27	54
19th Highest Hour		359	0	14	29
20th Highest Hour		171	0	10	20
21st Highest Hour		154	0	8	17
22nd Highest Hour		102	0	6	11
23rd Highest Hour		85	0	3	6
24th Highest Hour		85	0	3	6

Warrant Summary

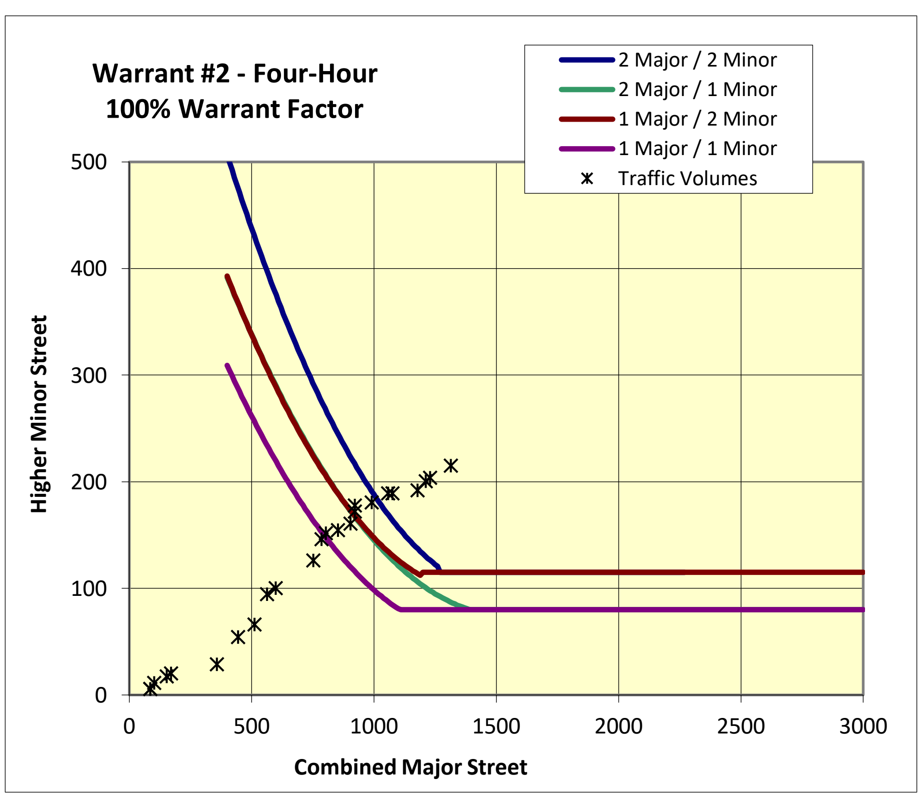
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

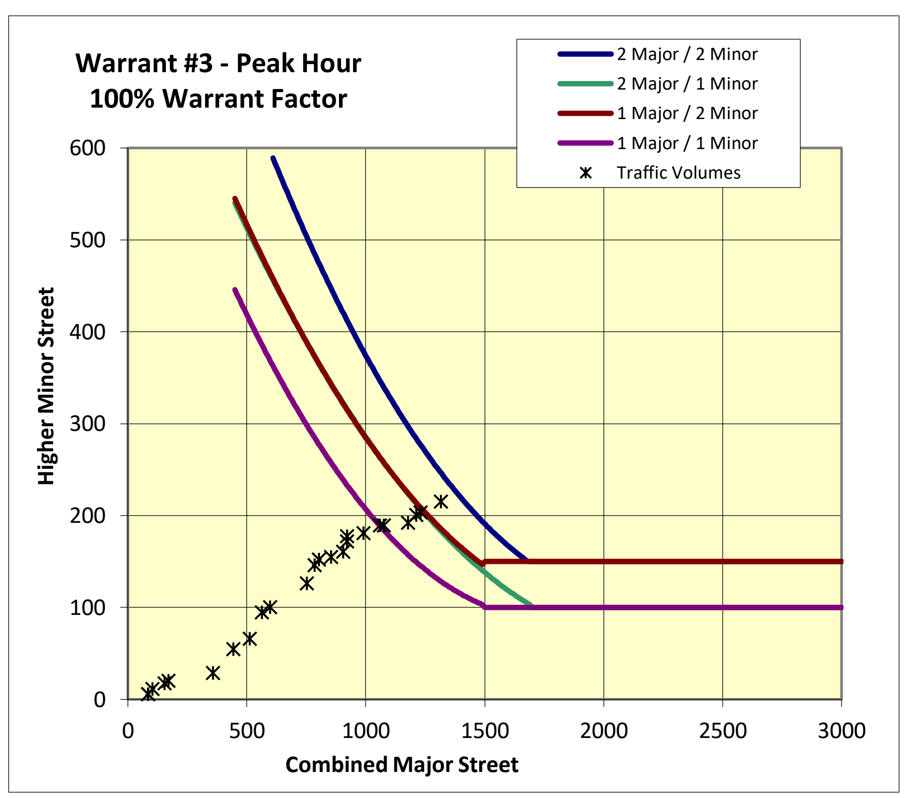
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	2
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	90%
Major Street: 8th-Highest Hour / Peak Hour	70%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	600	150	12	Yes	**Yes**
	B	900	75	10	Yes	
80%	A	480	120	14	Yes	**Yes**
	B	720	60	14	Yes	
70%	A	420	105	14	Yes	**Yes**
	B	630	53	14	Yes	
56%	A	336	84	16	Yes	**Yes**
	B	504	42	17	Yes	





Project #: 29019
Project Name: McMinnville 3rd Street Improvements
Analyst: JBB
Analysis Date: 2/21/2024
File: H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_07_Cowls
Intersection: NE Cowls St (OR99W) & NE 3rd St
Scenario: 2047 PM Peak Hour Volumes
Data Date: 10/3/2023

Analysis Traffic Volumes

Hour Begin	Hour End	Major Street EB	Major Street WB	Minor Street NB	Minor Street SB
4:25 PM	5:25 PM	170	260	30	25
2nd Highest Hour		161	246	28	24
3rd Highest Hour		159	243	28	23
4th Highest Hour		152	232	27	22
5th Highest Hour		150	229	26	22
6th Highest Hour		150	229	26	22
7th Highest Hour		143	218	25	21
8th Highest Hour		141	215	25	21
9th Highest Hour		136	208	24	20
10th Highest Hour		127	194	22	19
11th Highest Hour		122	187	22	18
12th Highest Hour		120	184	21	18
13th Highest Hour		116	177	20	17
14th Highest Hour		100	153	18	15
15th Highest Hour		79	121	14	12
16th Highest Hour		75	114	13	11
17th Highest Hour		52	80	9	8
18th Highest Hour		43	66	8	6
19th Highest Hour		23	35	4	3
20th Highest Hour		16	24	3	2
21st Highest Hour		14	21	2	2
22nd Highest Hour		9	14	2	1
23rd Highest Hour		5	7	1	1
24th Highest Hour		5	7	1	1

Warrant Summary

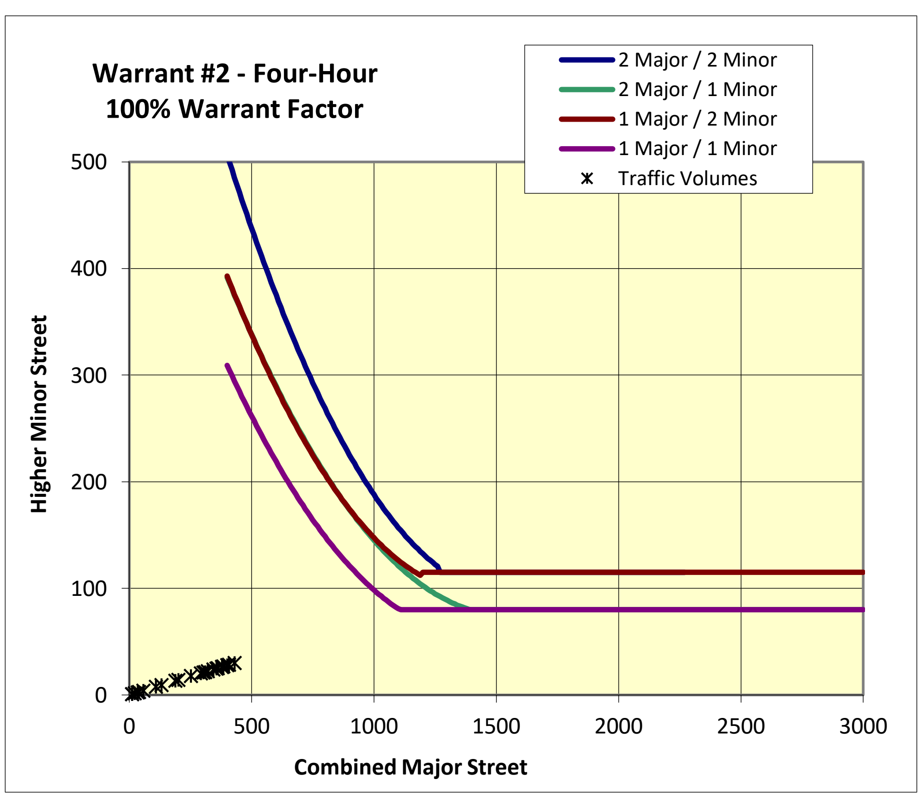
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

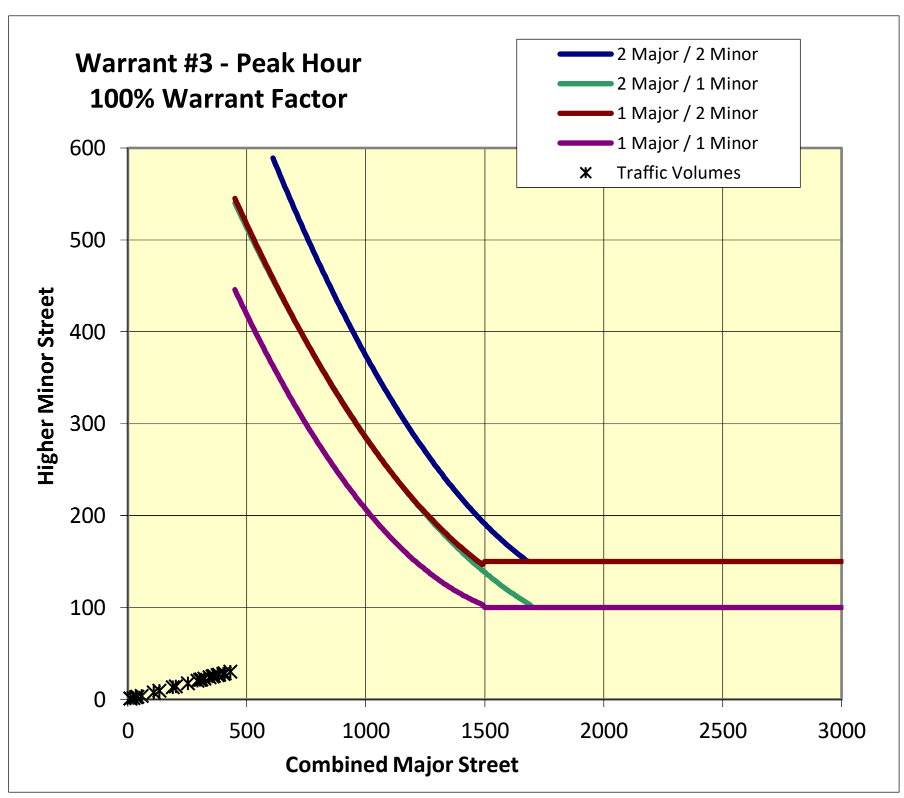
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	No
	B	750	75	0	No	
80%	A	400	120	0	No	No
	B	600	60	0	No	
70%	A	350	105	0	No	No
	B	525	53	0	No	
56%	A	280	84	0	No	No
	B	420	42	0	No	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_08_Davis &
Intersection:	NE Davis St & NE 3rd St
Scenario:	2047 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour Begin	Hour End	Major Street EB	Major Street WB	Minor Street NB	Minor Street SB
4:25 PM	5:25 PM	137	255	60	55
2nd Highest Hour		130	241	57	52
3rd Highest Hour		128	238	56	51
4th Highest Hour		122	228	54	49
5th Highest Hour		121	224	53	48
6th Highest Hour		121	224	53	48
7th Highest Hour		115	214	50	46
8th Highest Hour		113	211	50	45
9th Highest Hour		110	204	48	44
10th Highest Hour		102	190	45	41
11th Highest Hour		99	184	43	40
12th Highest Hour		97	180	42	39
13th Highest Hour		93	173	41	37
14th Highest Hour		80	150	35	32
15th Highest Hour		64	119	28	26
16th Highest Hour		60	112	26	24
17th Highest Hour		42	78	18	17
18th Highest Hour		35	65	15	14
19th Highest Hour		18	34	8	7
20th Highest Hour		13	24	6	5
21st Highest Hour		11	20	5	4
22nd Highest Hour		7	14	3	3
23rd Highest Hour		4	7	2	1
24th Highest Hour		4	7	2	1

Warrant Summary

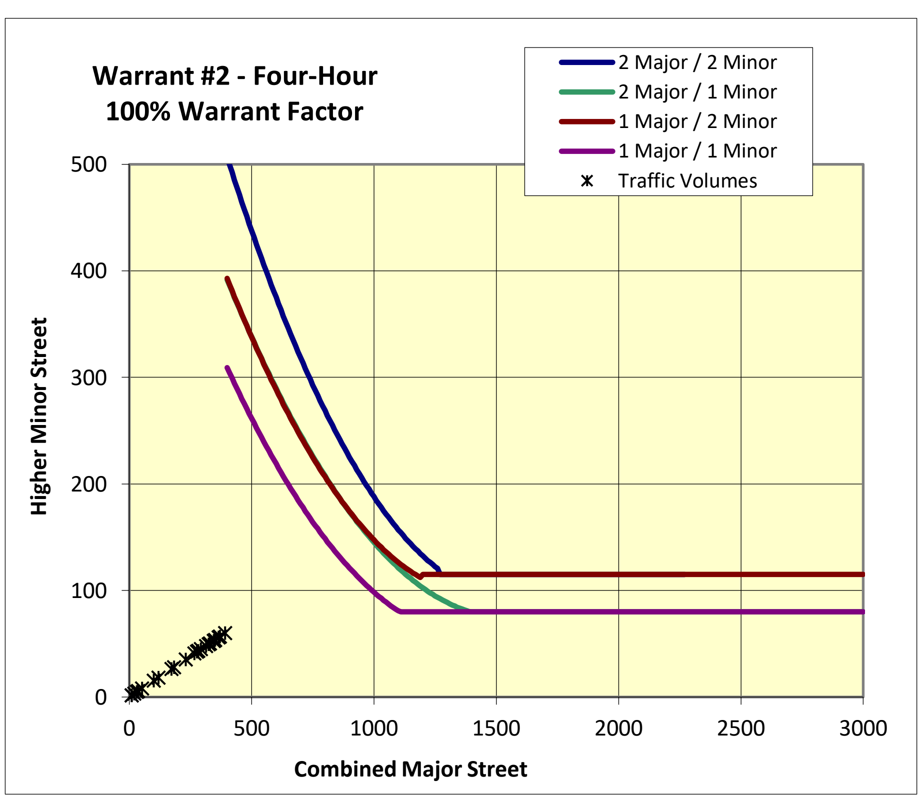
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

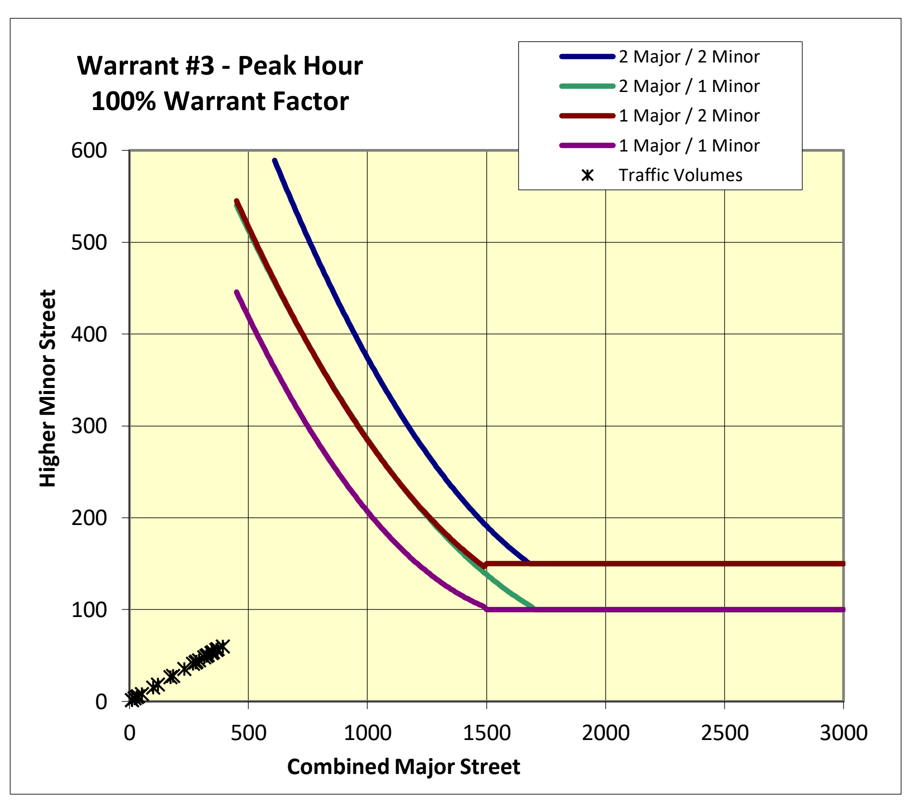
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	0	No	
80%	A	400	120	0	No	**No**
	B	600	60	0	No	
70%	A	350	105	0	No	**No**
	B	525	53	0	No	
56%	A	280	84	0	No	**No**
	B	420	42	0	No	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_09_Evans
Intersection:	NE Evans St & NE 3rd St
Scenario:	2047 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	EB	WB	NB	SB
4:25 PM	5:25 PM	145	335	44	120
2nd Highest Hour		137	317	42	114
3rd Highest Hour		135	313	41	112
4th Highest Hour		130	299	39	107
5th Highest Hour		128	295	39	106
6th Highest Hour		128	295	39	106
7th Highest Hour		122	281	37	101
8th Highest Hour		120	277	36	99
9th Highest Hour		116	268	35	96
10th Highest Hour		108	250	33	90
11th Highest Hour		104	241	32	86
12th Highest Hour		102	237	31	85
13th Highest Hour		99	228	30	82
14th Highest Hour		85	197	26	70
15th Highest Hour		68	156	21	56
16th Highest Hour		64	147	19	53
17th Highest Hour		44	103	13	37
18th Highest Hour		37	85	11	30
19th Highest Hour		19	45	6	16
20th Highest Hour		14	31	4	11
21st Highest Hour		12	27	4	10
22nd Highest Hour		8	18	2	6
23rd Highest Hour		4	9	1	3
24th Highest Hour		4	9	1	3

Warrant Summary

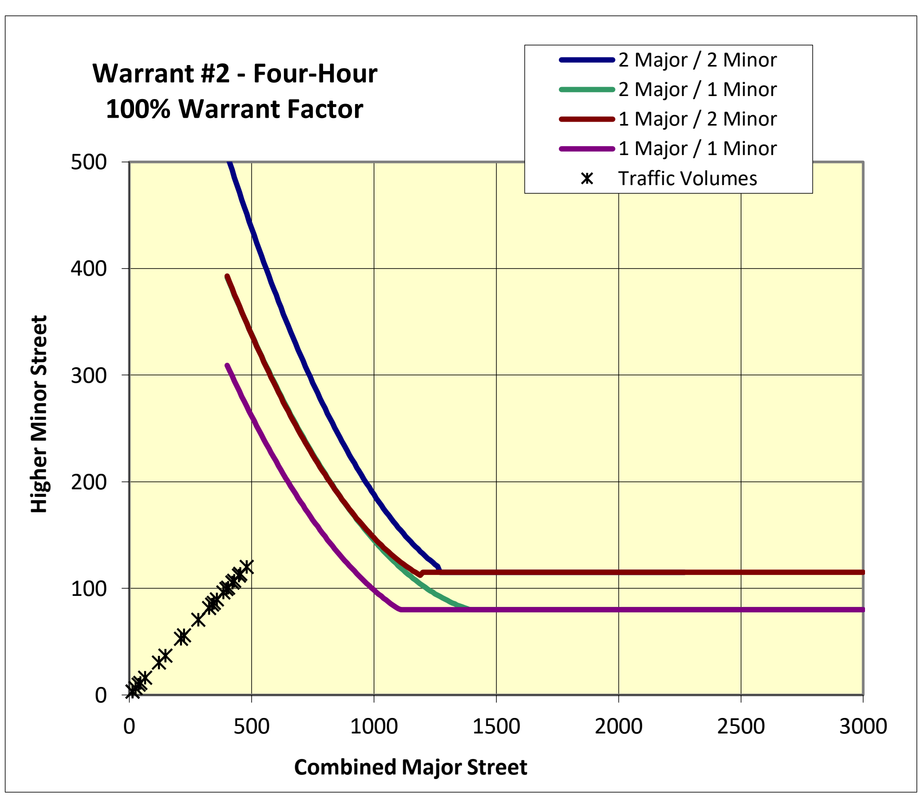
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

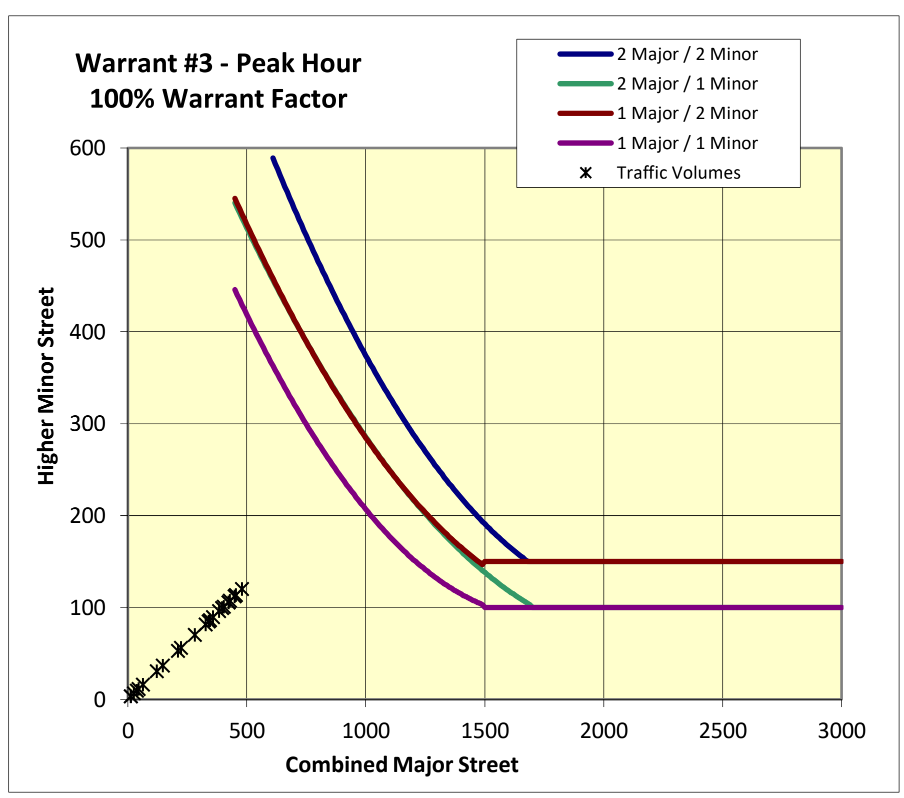
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	0	No	
80%	A	400	120	1	No	**No**
	B	600	60	0	No	
70%	A	350	105	6	No	**No**
	B	525	53	0	No	
56%	A	280	84	12	Yes	**Yes**
	B	420	42	6	No	





Project #:	29019
Project Name:	McMinnville 3rd St Improvements
Analyst:	POP
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_09_Evans
Intersection:	NE Evans St & NE 3rd St
Scenario:	Existing 2023
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	EB	WB	NB	SB
12:00 AM	1:00 AM	1	8	1	5
1:00 AM		0	6	0	1
2:00 AM		0	7	0	1
3:00 AM		1	4	0	0
4:00 AM		3	6	2	3
5:00 AM		0	6	1	5
6:00 AM		6	16	4	5
7:00 AM		50	57	36	33
8:00 AM		66	73	31	78
9:00 AM		68	108	20	57
10:00 AM		81	139	24	87
11:00 AM		81	151	26	91
12:00 PM		97	151	50	90
1:00 PM		94	156	29	68
2:00 PM		105	143	37	77
3:00 PM		91	134	46	100
4:00 PM		95	157	34	95
5:00 PM		90	149	42	95
6:00 PM		88	134	31	81
7:00 PM		18	94	19	44
8:00 PM		11	62	11	29
9:00 PM		8	56	7	16
10:00 PM		5	18	5	14
11:00 PM		0	18	1	4

Warrant Summary

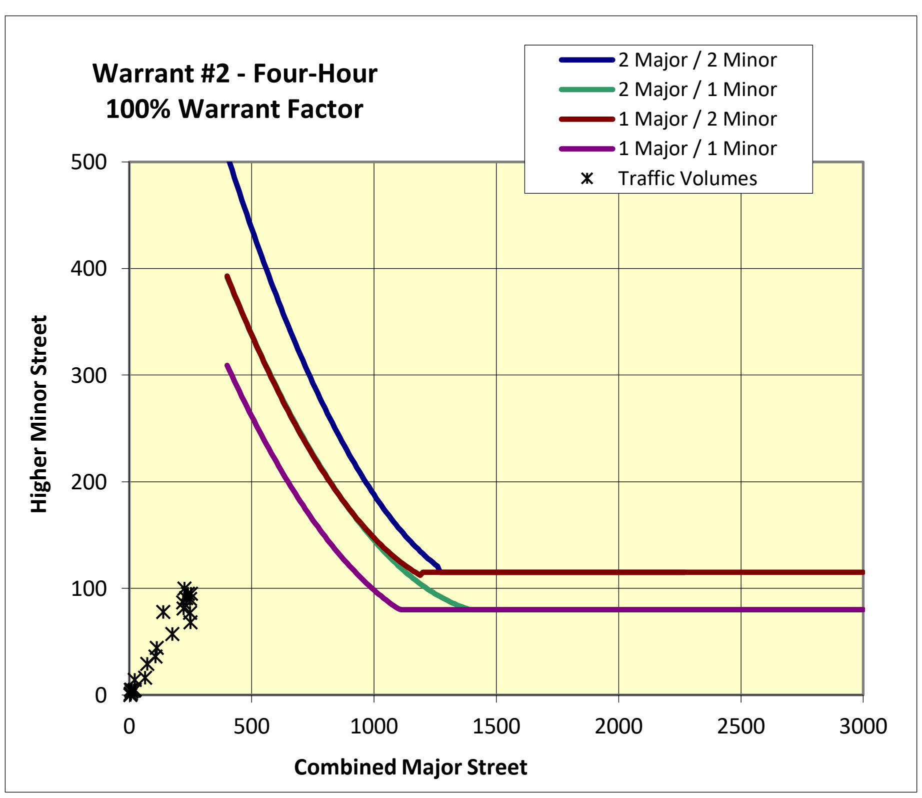
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

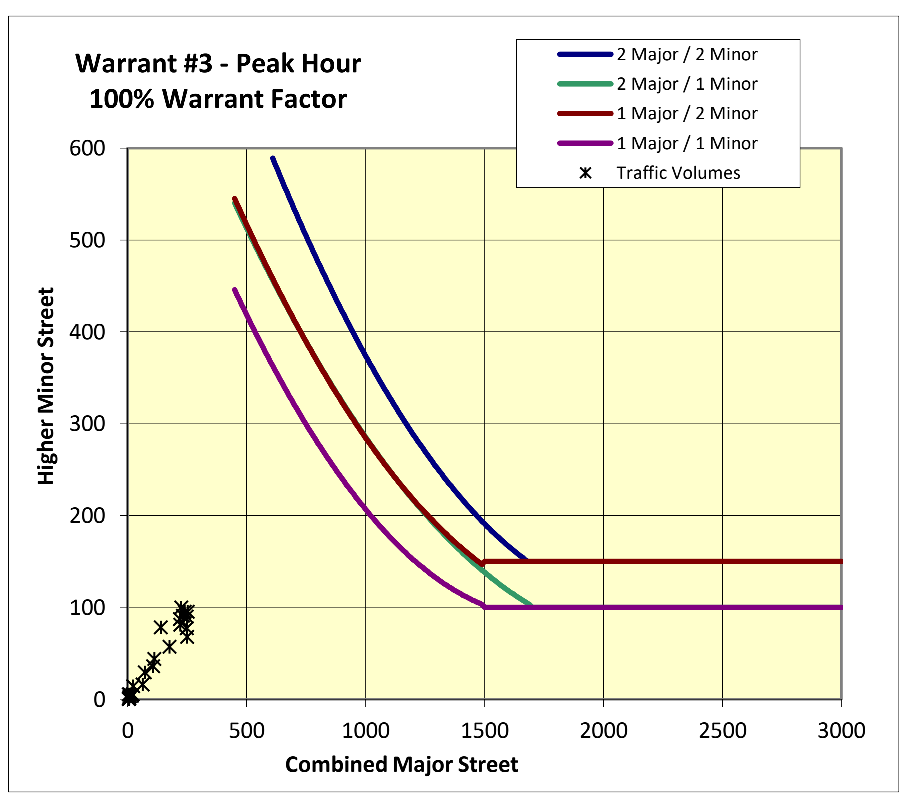
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Daily

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	0	No	
80%	A	400	120	0	No	**No**
	B	600	60	0	No	
70%	A	350	105	0	No	**No**
	B	525	53	0	No	
56%	A	280	84	0	No	**No**
	B	420	42	0	No	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_10_Ford &
Intersection:	NE Ford St & NE 3rd St
Scenario:	2047 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	EB	WB	NB	SB
4:25 PM	5:25 PM	165	330	60	50
2nd Highest Hour		156	312	57	47
3rd Highest Hour		154	308	56	47
4th Highest Hour		147	295	54	45
5th Highest Hour		145	290	53	44
6th Highest Hour		145	290	53	44
7th Highest Hour		139	277	50	42
8th Highest Hour		136	273	50	41
9th Highest Hour		132	264	48	40
10th Highest Hour		123	246	45	37
11th Highest Hour		119	238	43	36
12th Highest Hour		117	233	42	35
13th Highest Hour		112	224	41	34
14th Highest Hour		97	194	35	29
15th Highest Hour		77	154	28	23
16th Highest Hour		73	145	26	22
17th Highest Hour		51	101	18	15
18th Highest Hour		42	84	15	13
19th Highest Hour		22	44	8	7
20th Highest Hour		15	31	6	5
21st Highest Hour		13	26	5	4
22nd Highest Hour		9	18	3	3
23rd Highest Hour		4	9	2	1
24th Highest Hour		4	9	2	1

Warrant Summary

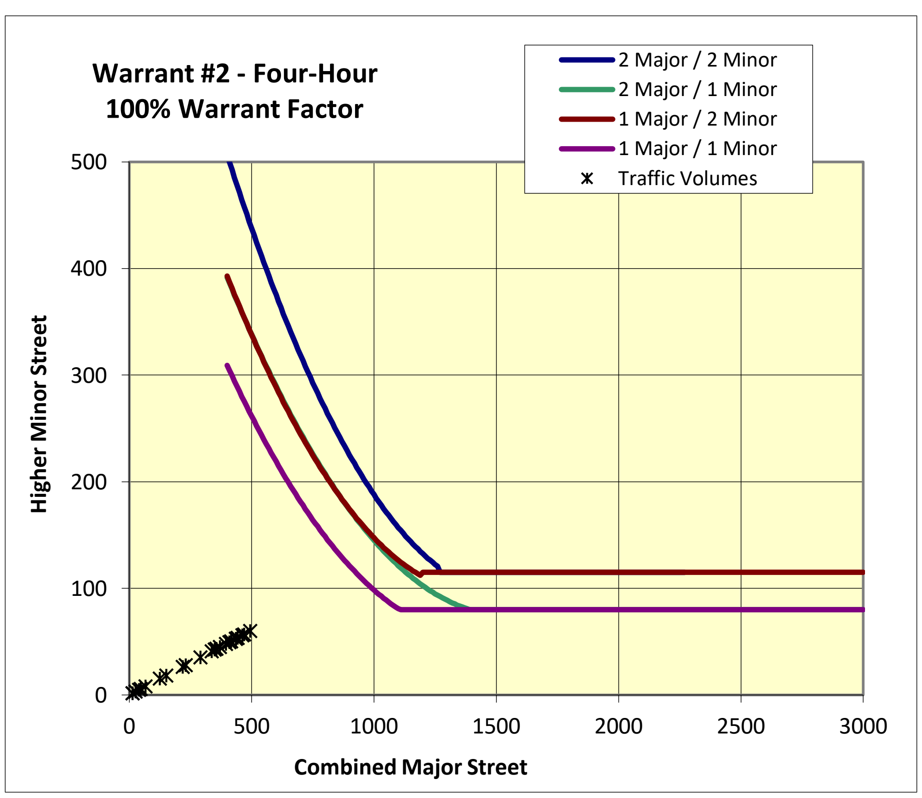
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

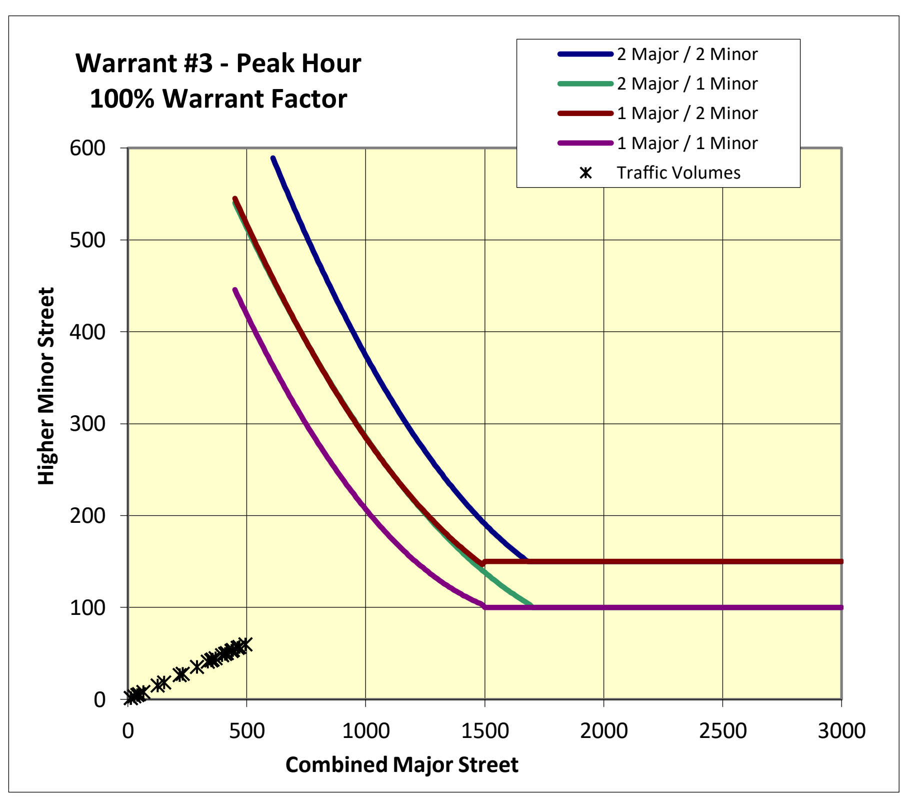
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	0	No	
80%	A	400	120	0	No	**No**
	B	600	60	0	No	
70%	A	350	105	0	No	**No**
	B	525	53	0	No	
56%	A	280	84	0	No	**No**
	B	420	42	6	No	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-
Intersection:	NE Galloway St & NE 3rd St
Scenario:	2047 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	EB	WB	NB	SB
4:25 PM	5:25 PM	185	320	25	65
2nd Highest Hour		175	303	24	62
3rd Highest Hour		173	299	23	61
4th Highest Hour		165	286	22	58
5th Highest Hour		163	282	22	57
6th Highest Hour		163	282	22	57
7th Highest Hour		155	269	21	55
8th Highest Hour		153	265	21	54
9th Highest Hour		148	256	20	52
10th Highest Hour		138	239	19	49
11th Highest Hour		133	230	18	47
12th Highest Hour		131	226	18	46
13th Highest Hour		126	218	17	44
14th Highest Hour		109	188	15	38
15th Highest Hour		86	149	12	30
16th Highest Hour		81	141	11	29
17th Highest Hour		57	98	8	20
18th Highest Hour		47	81	6	16
19th Highest Hour		25	43	3	9
20th Highest Hour		17	30	2	6
21st Highest Hour		15	26	2	5
22nd Highest Hour		10	17	1	3
23rd Highest Hour		5	9	1	2
24th Highest Hour		5	9	1	2

Warrant Summary

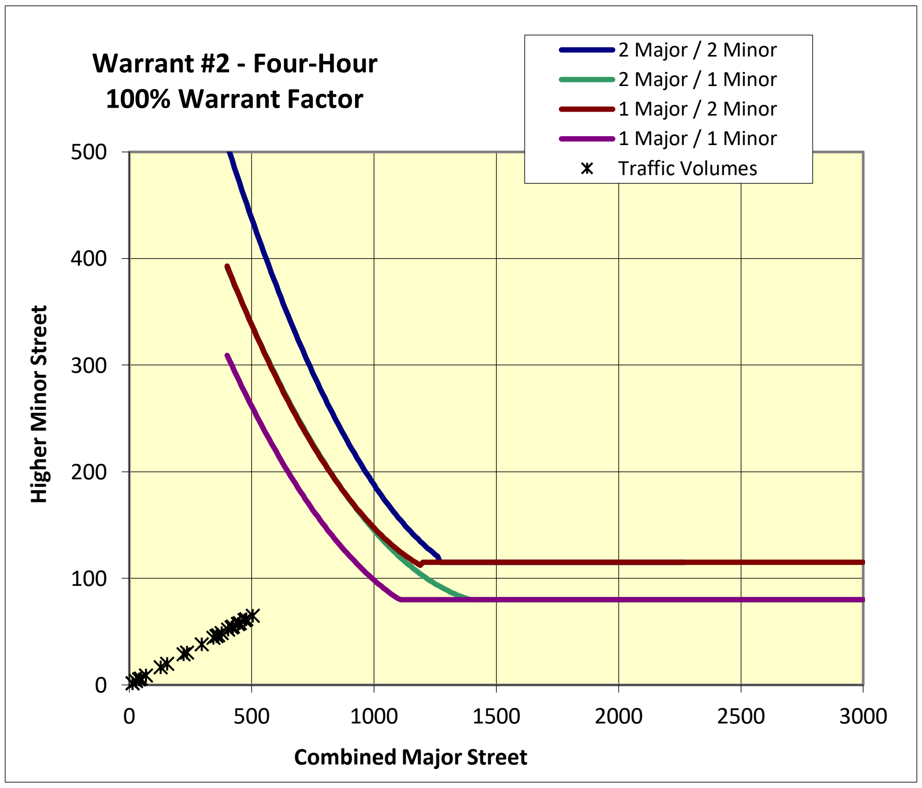
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

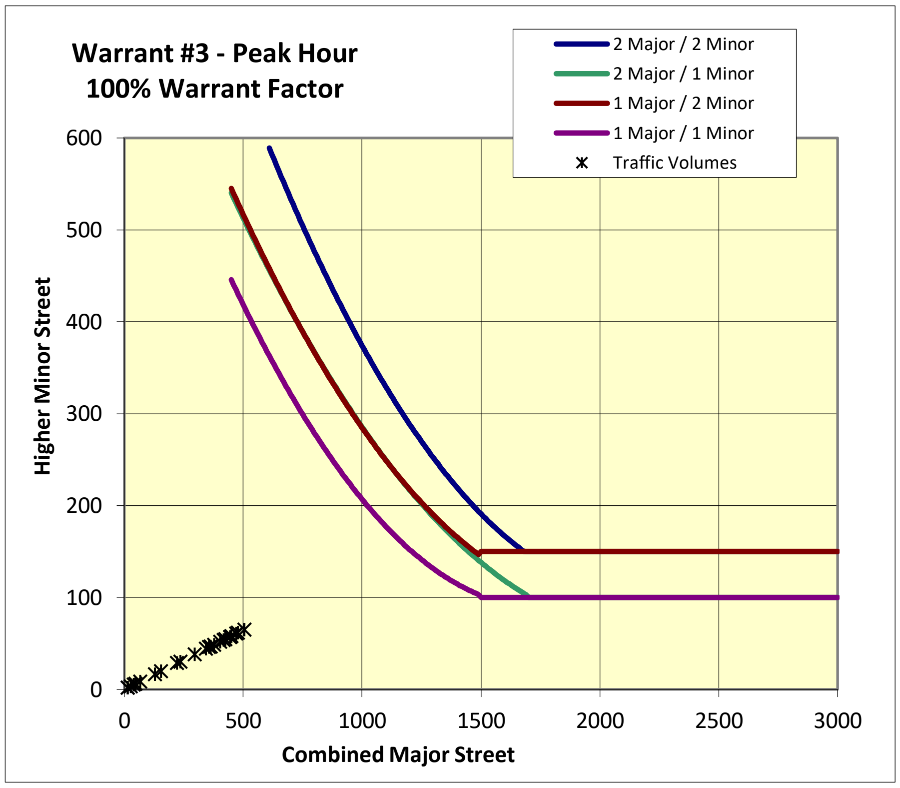
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	0	No	
80%	A	400	120	0	No	**No**
	B	600	60	0	No	
70%	A	350	105	0	No	**No**
	B	525	53	0	No	
56%	A	280	84	0	No	**No**
	B	420	42	7	No	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_12_Irvine
Intersection:	NE Irvine St & NE 3rd St
Scenario:	2047 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour Begin	Hour End	Major Street EB	Major Street WB	Minor Street NB	Minor Street SB
4:25 PM	5:25 PM	185	320	25	65
2nd Highest Hour		175	303	24	62
3rd Highest Hour		173	299	23	61
4th Highest Hour		165	286	22	58
5th Highest Hour		163	282	22	57
6th Highest Hour		163	282	22	57
7th Highest Hour		155	269	21	55
8th Highest Hour		153	265	21	54
9th Highest Hour		148	256	20	52
10th Highest Hour		138	239	19	49
11th Highest Hour		133	230	18	47
12th Highest Hour		131	226	18	46
13th Highest Hour		126	218	17	44
14th Highest Hour		109	188	15	38
15th Highest Hour		86	149	12	30
16th Highest Hour		81	141	11	29
17th Highest Hour		57	98	8	20
18th Highest Hour		47	81	6	16
19th Highest Hour		25	43	3	9
20th Highest Hour		17	30	2	6
21st Highest Hour		15	26	2	5
22nd Highest Hour		10	17	1	3
23rd Highest Hour		5	9	1	2
24th Highest Hour		5	9	1	2

Warrant Summary

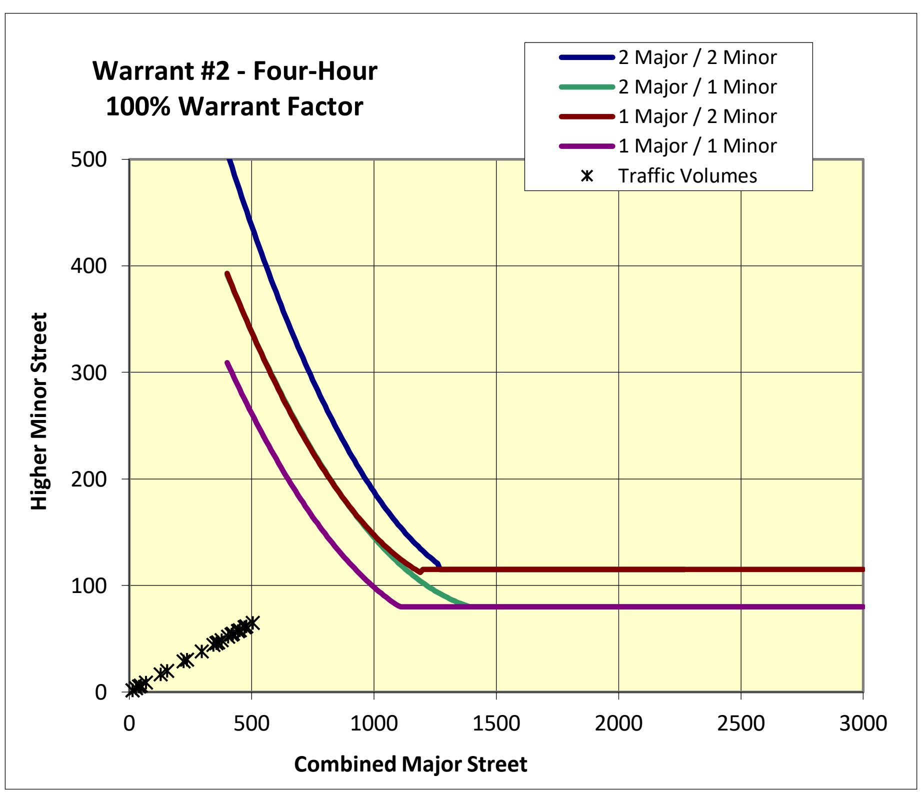
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	No
#3	Peak Hour	Yes	No
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

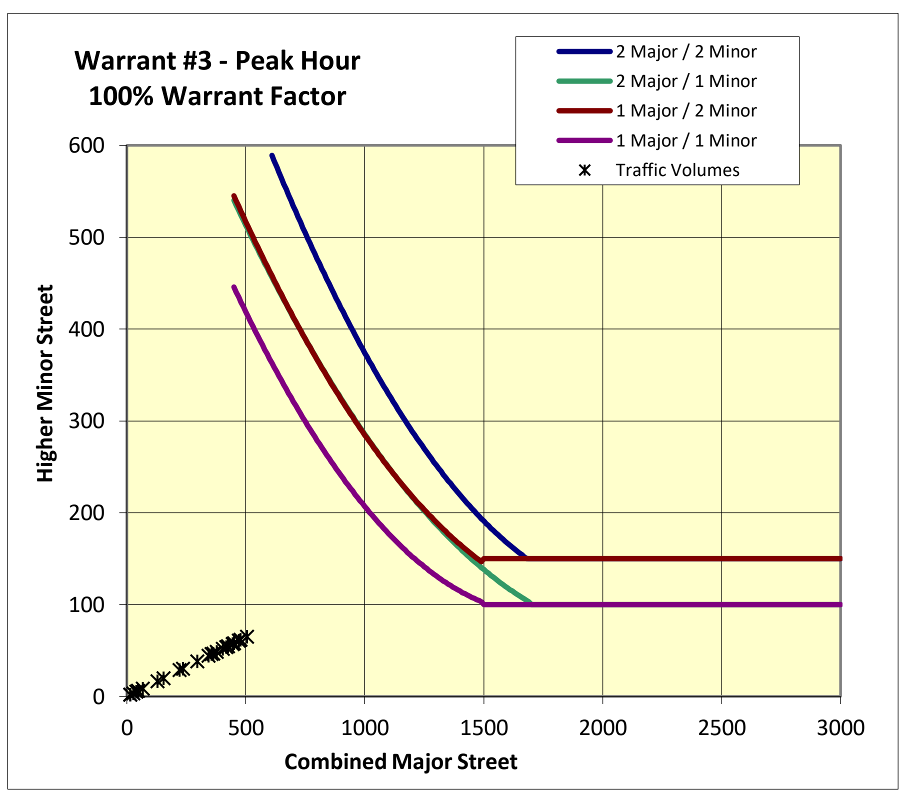
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	0	No	
80%	A	400	120	0	No	**No**
	B	600	60	0	No	
70%	A	350	105	0	No	**No**
	B	525	53	0	No	
56%	A	280	84	0	No	**No**
	B	420	42	7	No	





Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-
Intersection:	NE Johnson St & NE 3rd St
Scenario:	2023 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	NB	SB	EB	WB
4:25 PM	5:25 PM	290	820	165	540
2nd Highest Hour		275	776	156	511
3rd Highest Hour		271	765	154	504
4th Highest Hour		259	733	147	482
5th Highest Hour		255	722	145	475
6th Highest Hour		255	722	145	475
7th Highest Hour		244	689	139	454
8th Highest Hour		240	678	136	446
9th Highest Hour		232	656	132	432
10th Highest Hour		217	612	123	403
11th Highest Hour		209	590	119	389
12th Highest Hour		205	579	117	382
13th Highest Hour		197	558	112	367
14th Highest Hour		170	481	97	317
15th Highest Hour		135	383	77	252
16th Highest Hour		128	361	73	238
17th Highest Hour		89	251	51	166
18th Highest Hour		73	208	42	137
19th Highest Hour		39	109	22	72
20th Highest Hour		27	77	15	50
21st Highest Hour		23	66	13	43
22nd Highest Hour		15	44	9	29
23rd Highest Hour		8	22	4	14
24th Highest Hour		8	22	4	14

Warrant Summary

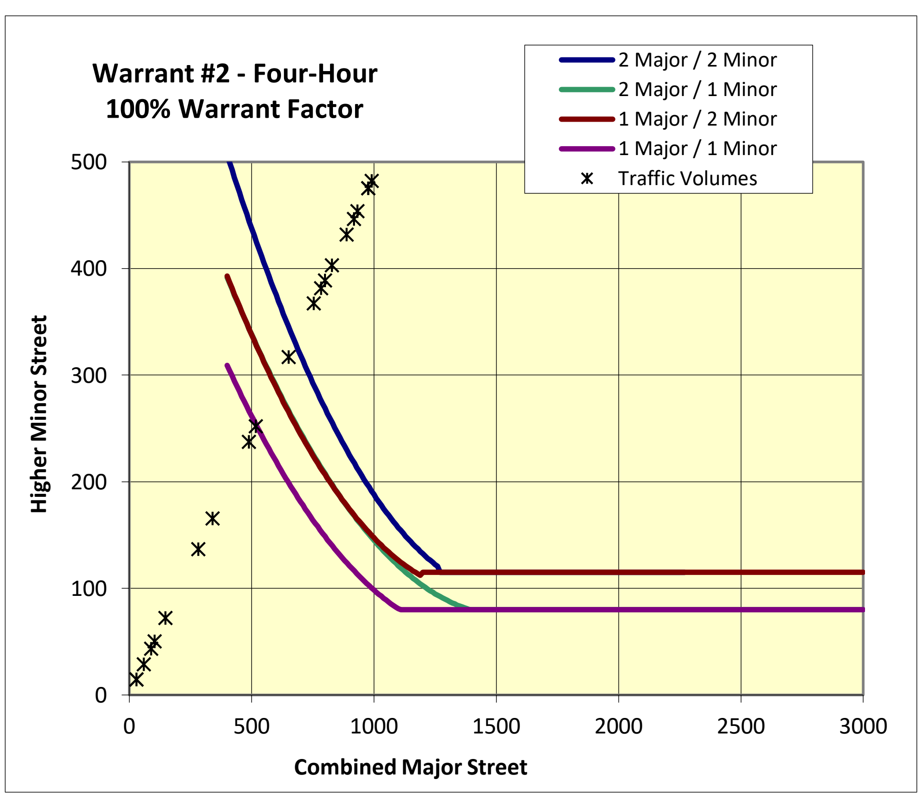
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

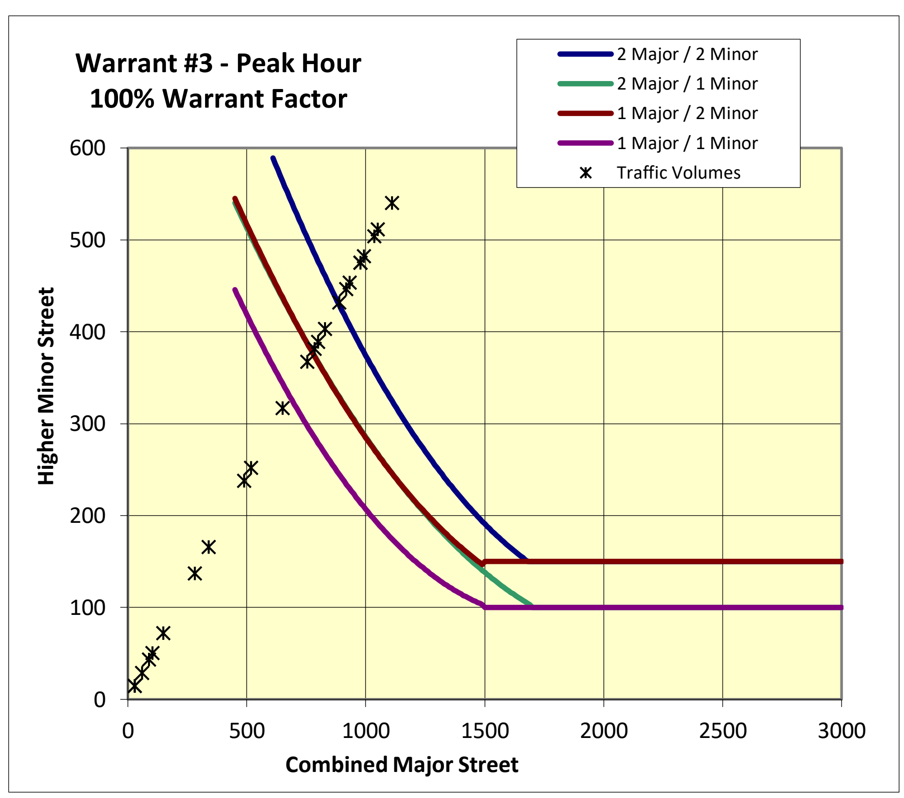
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	15	Yes	**Yes**
	B	750	75	13	Yes	
80%	A	400	120	16	Yes	**Yes**
	B	600	60	14	Yes	
70%	A	350	105	16	Yes	**Yes**
	B	525	53	14	Yes	
56%	A	280	84	18	Yes	**Yes**
	B	420	42	16	Yes	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_14_Three
Intersection:	Three Mile Lane & NE 1st St
Scenario:	2023 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	NB	SB	EB	WB
4:25 PM	5:25 PM	757	695	259	4
2nd Highest Hour		717	658	245	4
3rd Highest Hour		707	649	242	4
4th Highest Hour		676	621	231	4
5th Highest Hour		666	612	228	4
6th Highest Hour		666	612	228	4
7th Highest Hour		636	584	218	3
8th Highest Hour		626	575	214	3
9th Highest Hour		606	556	207	3
10th Highest Hour		565	519	193	3
11th Highest Hour		545	500	186	3
12th Highest Hour		535	491	183	3
13th Highest Hour		515	473	176	3
14th Highest Hour		444	408	152	2
15th Highest Hour		353	324	121	2
16th Highest Hour		333	306	114	2
17th Highest Hour		232	213	79	1
18th Highest Hour		192	176	66	1
19th Highest Hour		101	93	35	1
20th Highest Hour		71	65	24	0
21st Highest Hour		61	56	21	0
22nd Highest Hour		40	37	14	0
23rd Highest Hour		20	19	7	0
24th Highest Hour		20	19	7	0

Warrant Summary

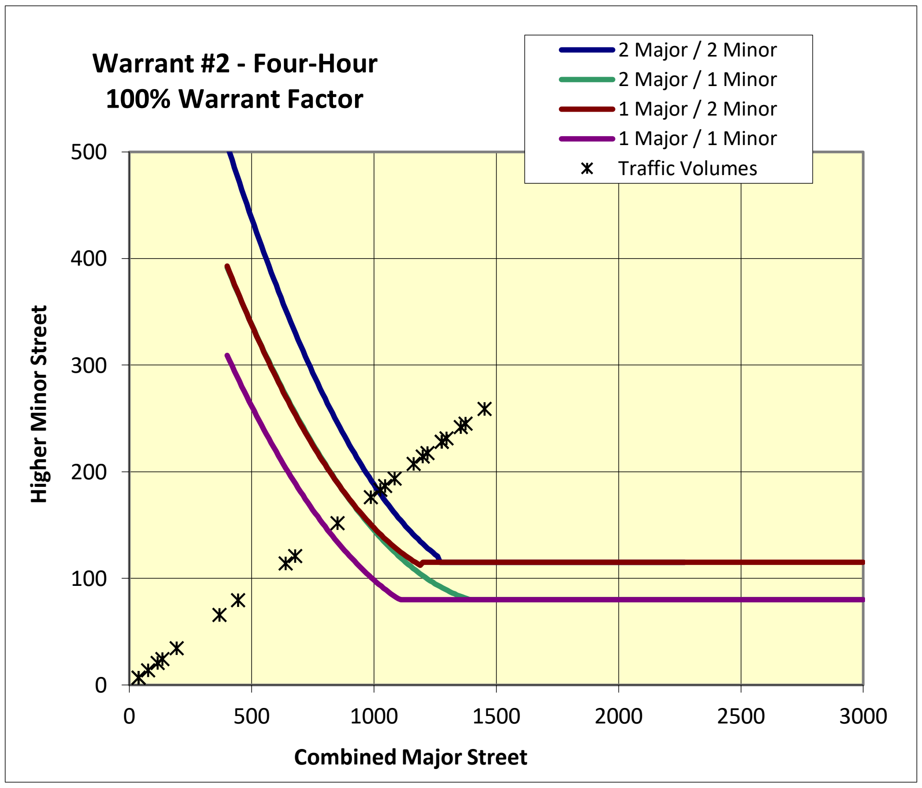
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

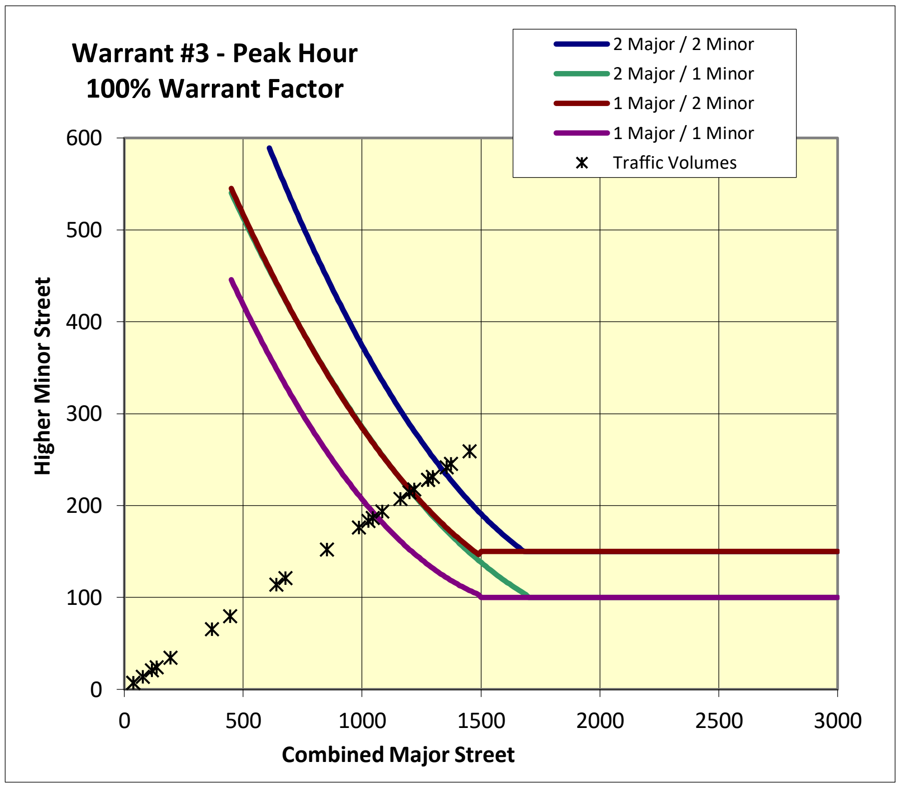
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	14	Yes	**Yes**
	B	750	75	14	Yes	
80%	A	400	120	15	Yes	**Yes**
	B	600	60	16	Yes	
70%	A	350	105	16	Yes	**Yes**
	B	525	53	16	Yes	
56%	A	280	84	16	Yes	**Yes**
	B	420	42	17	Yes	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_14_Three
Intersection:	Three Mile Lane & NE 1st St
Scenario:	2027 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour Begin	Hour End	Major Street NB	Major Street SB	Minor Street EB	Minor Street WB
4:25 PM	5:25 PM	797	700	284	4
2nd Highest Hour		754	663	269	4
3rd Highest Hour		744	653	265	4
4th Highest Hour		712	625	254	4
5th Highest Hour		701	616	250	4
6th Highest Hour		701	616	250	4
7th Highest Hour		669	588	239	3
8th Highest Hour		659	579	235	3
9th Highest Hour		638	560	227	3
10th Highest Hour		595	523	212	3
11th Highest Hour		574	504	204	3
12th Highest Hour		563	495	201	3
13th Highest Hour		542	476	193	3
14th Highest Hour		468	411	167	2
15th Highest Hour		372	327	133	2
16th Highest Hour		351	308	125	2
17th Highest Hour		244	215	87	1
18th Highest Hour		202	177	72	1
19th Highest Hour		106	93	38	1
20th Highest Hour		74	65	27	0
21st Highest Hour		64	56	23	0
22nd Highest Hour		43	37	15	0
23rd Highest Hour		21	19	8	0
24th Highest Hour		21	19	8	0

Warrant Summary

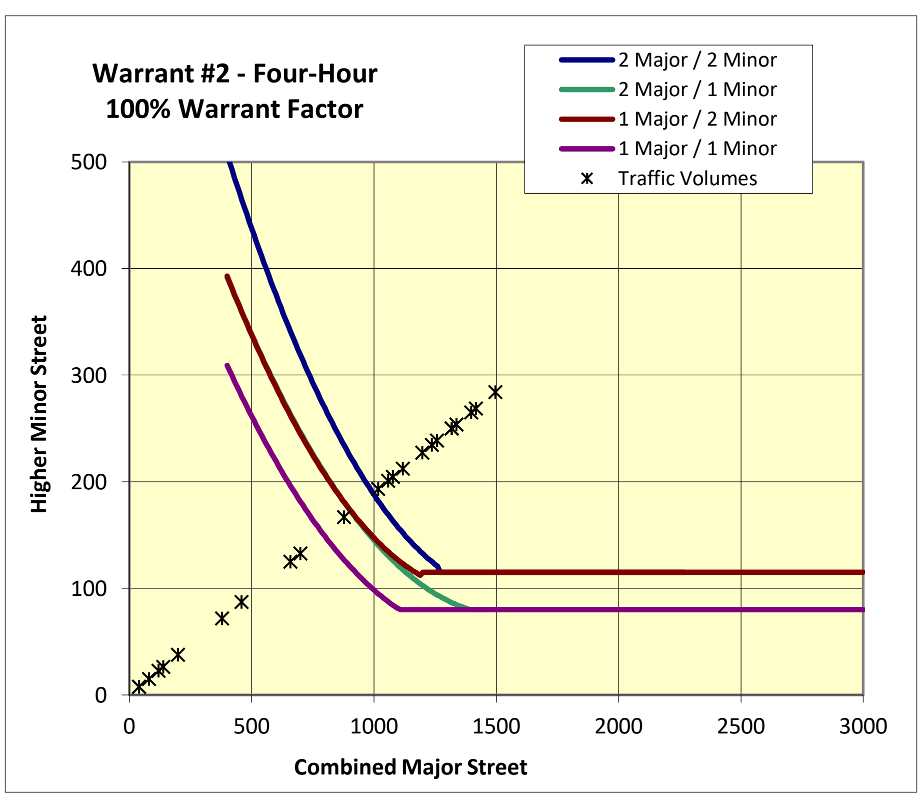
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

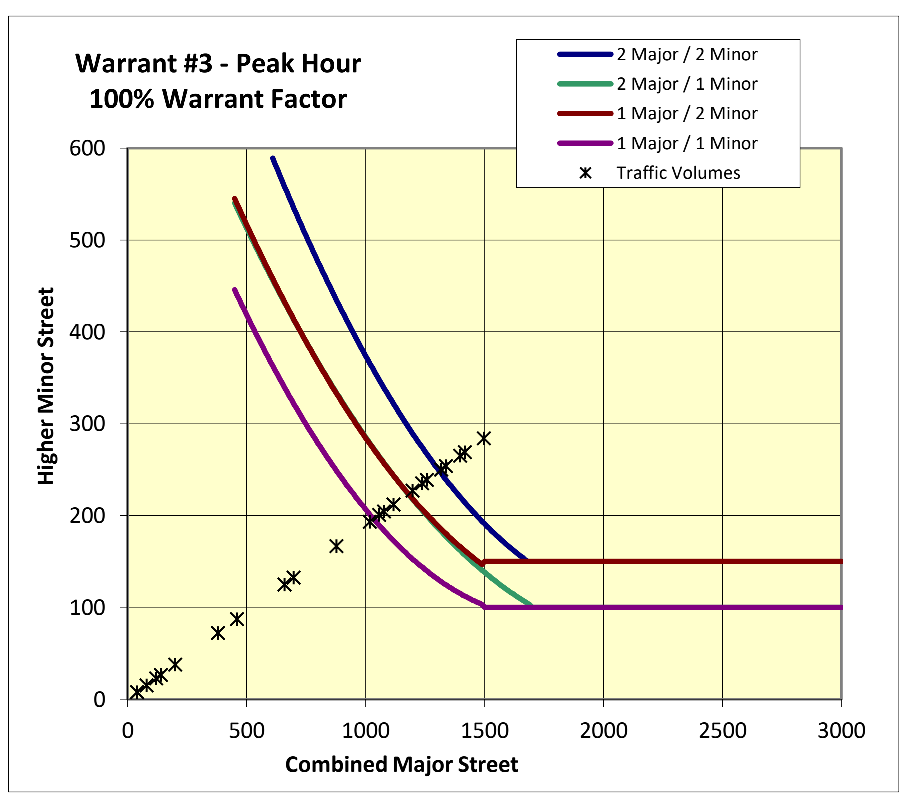
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	14	Yes	Yes
	B	750	75	14	Yes	
80%	A	400	120	16	Yes	Yes
	B	600	60	16	Yes	
70%	A	350	105	16	Yes	Yes
	B	525	53	16	Yes	
56%	A	280	84	17	Yes	Yes
	B	420	42	17	Yes	





KITTELSON & ASSOCIATES

Project #:	29019
Project Name:	McMinnville 3rd Street Improvements
Analyst:	JBB
Analysis Date:	2/21/2024
File:	H:\29\29019 - McMinnville Third Strete Improvement\analysis\Warrant analysis\[29019_Signal-Warrant-Analysis_14_Three
Intersection:	Three Mile Lane & NE 1st St
Scenario:	2047 PM Peak Hour Volumes
Data Date:	10/3/2023

Analysis Traffic Volumes

Hour Begin	Hour End	Major Street NB	Major Street SB	Minor Street EB	Minor Street WB
4:25 PM	5:25 PM	983	715	404	4
2nd Highest Hour		931	677	382	4
3rd Highest Hour		917	667	377	4
4th Highest Hour		878	639	361	4
5th Highest Hour		865	629	356	4
6th Highest Hour		865	629	356	4
7th Highest Hour		826	601	339	3
8th Highest Hour		813	591	334	3
9th Highest Hour		786	572	323	3
10th Highest Hour		734	534	302	3
11th Highest Hour		708	515	291	3
12th Highest Hour		695	505	285	3
13th Highest Hour		668	486	275	3
14th Highest Hour		577	419	237	2
15th Highest Hour		459	334	189	2
16th Highest Hour		433	315	178	2
17th Highest Hour		301	219	124	1
18th Highest Hour		249	181	102	1
19th Highest Hour		131	95	54	1
20th Highest Hour		92	67	38	0
21st Highest Hour		79	57	32	0
22nd Highest Hour		52	38	22	0
23rd Highest Hour		26	19	11	0
24th Highest Hour		26	19	11	0

Warrant Summary

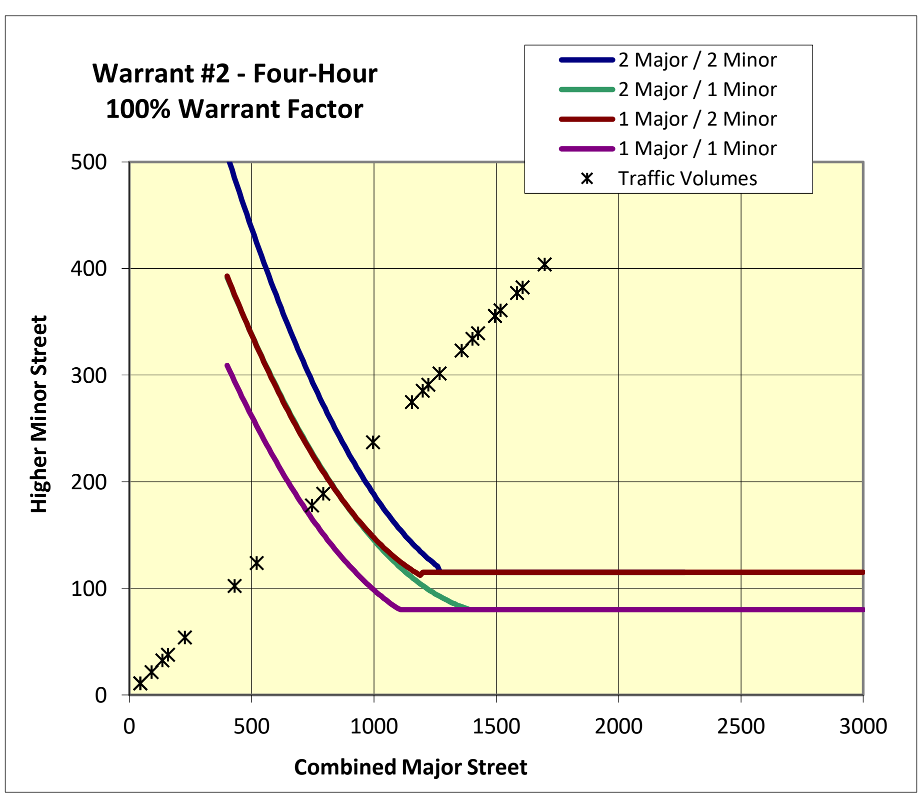
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

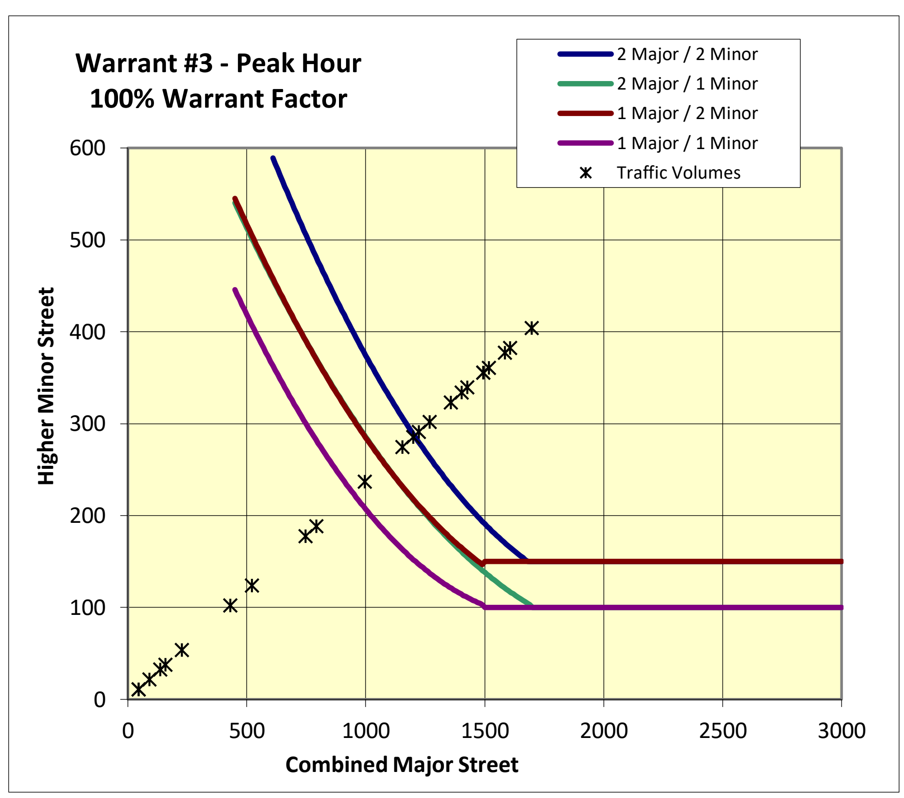
Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Major
East-West Approach =	Minor
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	16	Yes	**Yes**
	B	750	75	15	Yes	
80%	A	400	120	17	Yes	**Yes**
	B	600	60	16	Yes	
70%	A	350	105	17	Yes	**Yes**
	B	525	53	16	Yes	
56%	A	280	84	18	Yes	**Yes**
	B	420	42	18	Yes	





Attachment K: All-Way Stop Control Warrant Analysis Worksheets

All-Way Stop Application Criteria
Based on Section 2B of the MUTCD 11th Edition

Project #: 29219
Project Name: McMinnville Third Street Improvements
Analyst: JBB
Intersection: NE 3rd St & NE Davis St
Data Date: 10/3/2023
Scenario: 2027 PM Peak Volumes

85th Percentile Speed on Major Road> 40mph? No
Factor (based on speed) 100%

MUTCD Criteria Met?
Yes D

MUTCD Criteria Assessment

Warrant A: Crash Experience

1. For a four-leg intersection, are there five or more reported crashes in a 12-month period or six or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control?
2. For a three-leg intersection, are there four or more reported crashes in a 12-month period or five or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control.

\# crashes 0
Criteria Met? **No**

Warrant B: Sight Distance

All-way stop control may be installed at an intersection where an engineering study indicates that sight distance on the minor-road approaches controlled by a STOP sign is not adequate for a vehicle to turn onto or cross the major (uncontrolled) road.

At such a location, a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

Criteria Met? **No**

Warrant C: Transition to Signal Control or Transition to Yield Control at a Circular Intersection

All-way stop control may be installed at locations where all-way stop control is an interim measure that can be installed to control traffic while arrangements are being made for the installation of a traffic control signal (see Chapter 4C) at the intersection or for the installation of yield control at a circular intersection.

Criteria Met? **No**

Warrant D: 8-Hour Volume (Vehicles, Pedestrians, Bicycles)

1. Is the combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the major-street approaches (total of both) at least <u>300</u> units per hour for each of any 8 hours of a typical day; **<u>and</u>**
2. Is the combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the minor-street approaches (total of both) at least <u>200</u> units per hour for each of any of the same 8 hours.

No

3. If the 85th percentile speed on the major road exceeds 40 mph, do volumes meet 70% of the values in D-1 and D-2?

No

Criteria Met? **No**

Warrant E: Other Factors

All-way stop control may be installed at an intersection where an engineering study indicates that all-way stop control is needed due to other factors not addressed in the other all-way stop control warrants. Such other factors may include, but are not limited to, the following:
A. The need to control left-turn conflicts, **<u>or</u>**
B. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way stop control would improve traffic operational characteristics of the intersection, **<u>or</u>**
C. Where pedestrian and/or bicyclist movements support the installation of all-way stop control.

Criteria Met? **Yes**

Volume Data:

								70% (Criteria D.3)		
Time Period	**From**	**To**	**Major Road: Both App. (vehicles)**	**Minor Road: Both App. (ped, bike, & veh)**	**C.1**	**C.2**	**C.1 and C.2 Met?**	**C.1**	**C.2**	**C.1 and C.2 Met?**
1	17:00	18:00	411	149	Yes	No	No	Yes	Yes	Yes
2	2nd Highest Hour		389	141	Yes	No	No	Yes	Yes	Yes
3	3rd Highest Hour		384	139	Yes	No	No	Yes	No	No
4	4th Highest Hour		367	133	Yes	No	No	Yes	No	No
5	5th Highest Hour		362	131	Yes	No	No	Yes	No	No
6	6th Highest Hour		362	131	Yes	No	No	Yes	No	No
7	7th Highest Hour		345	125	Yes	No	No	Yes	No	No
8	8th Highest Hour		340	123	Yes	No	No	Yes	No	No
9	9th Highest Hour		329	119	Yes	No	No	Yes	No	No
10	10th Highest Hour		307	111	Yes	No	No	Yes	No	No
11	11th Highest Hour		296	107	No	No	No	Yes	No	No
12	12th Highest Hour		290	105	No	No	No	Yes	No	No
13	13th Highest Hour		279	101	No	No	No	Yes	No	No
14	14th Highest Hour		241	87	No	No	No	Yes	No	No
15	15th Highest Hour		192	70	No	No	No	No	No	No
16	16th Highest Hour		181	66	No	No	No	No	No	No
17	17th Highest Hour		126	46	No	No	No	No	No	No
18	18th Highest Hour		104	38	No	No	No	No	No	No
19	19th Highest Hour		55	20	No	No	No	No	No	No
20	20th Highest Hour		38	14	No	No	No	No	No	No
21	21st Highest Hour		33	12	No	No	No	No	No	No
22	22nd Highest Hour		22	8	No	No	No	No	No	No
23	23rd Highest Hour		11	4	No	No	No	No	No	No
24	24th Highest Hour		11	4	No	No	No	No	No	No

All-Way Stop Application Criteria
Based on Section 2B of the MUTCD 11th Edition

Project #: 29219
Project Name: McMinnville Third Street Improvements
Analyst: JBB
Intersection: NE 3rd St & NE Davis St
Data Date: 10/3/2023
Scenario: 2047 PM Peak Volumes

85th Percentile Speed on Major Road> 40mph? No
Factor (based on speed) 100%

MUTCD Criteria Met?
Yes D

MUTCD Criteria Assessment

Warrant A: Crash Experience

1. For a four-leg intersection, are there five or more reported crashes in a 12-month period or six or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control?
2. For a three-leg intersection, are there four or more reported crashes in a 12-month period or five or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control.

\# crashes 0
Criteria Met? **No**

Warrant B: Sight Distance

All-way stop control may be installed at an intersection where an engineering study indicates that sight distance on the minor-road approaches controlled by a STOP sign is not adequate for a vehicle to turn onto or cross the major (uncontrolled) road.

At such a location, a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

Criteria Met? **No**

Warrant C: Transition to Signal Control or Transition to Yield Control at a Circular Intersection

All-way stop control may be installed at locations where all-way stop control is an interim measure that can be installed to control traffic while arrangements are being made for the installation of a traffic control signal (see Chapter 4C) at the intersection or for the installation of yield control at a circular intersection.

Criteria Met? **No**

Warrant D: 8-Hour Volume (Vehicles, Pedestrians, Bicycles)

1. Is the combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the major-street approaches (total of both) at least 300 units per hour for each of any 8 hours of a typical day; **and**
2. Is the combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the minor-street approaches (total of both) at least 200 units per hour for each of any of the same 8 hours.

No

3. If the 85th percentile speed on the major road exceeds 40 mph, do volumes meet 70% of the values in D-1 and D-2?

No

Criteria Met? **No**

Warrant E: Other Factors

All-way stop control may be installed at an intersection where an engineering study indicates that all-way stop control is needed due to other factors not addressed in the other all-way stop control warrants. Such other factors may include, but are not limited to, the following:

A. The need to control left-turn conflicts, **or**
B. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way stop control would improve traffic operational characteristics of the intersection, **or**
C. Where pedestrian and/or bicyclist movements support the installation of all-way stop control.

Criteria Met? **Yes**

Volume Data:

								70% (Criteria D.3)		
Time Period	**From**	**To**	**Major Road: Both App. (vehicles)**	**Minor Road: Both App. (ped, bike, & veh)**	**C.1**	**C.2**	**C.1 and C.2 Met?**	**C.1**	**C.2**	**C.1 and C.2 Met?**
1	17:00	18:00	538	159	Yes	No	No	Yes	Yes	Yes
2	2nd Highest Hour		509	151	Yes	No	No	Yes	Yes	Yes
3	3rd Highest Hour		502	148	Yes	No	No	Yes	Yes	Yes
4	4th Highest Hour		481	142	Yes	No	No	Yes	Yes	Yes
5	5th Highest Hour		473	140	Yes	No	No	Yes	No	No
6	6th Highest Hour		473	140	Yes	No	No	Yes	No	No
7	7th Highest Hour		452	134	Yes	No	No	Yes	No	No
8	8th Highest Hour		445	131	Yes	No	No	Yes	No	No
9	9th Highest Hour		430	127	Yes	No	No	Yes	No	No
10	10th Highest Hour		402	119	Yes	No	No	Yes	No	No
11	11th Highest Hour		387	114	Yes	No	No	Yes	No	No
12	12th Highest Hour		380	112	Yes	No	No	Yes	No	No
13	13th Highest Hour		366	108	Yes	No	No	Yes	No	No
14	14th Highest Hour		316	93	Yes	No	No	Yes	No	No
15	15th Highest Hour		251	74	No	No	No	Yes	No	No
16	16th Highest Hour		237	70	No	No	No	Yes	No	No
17	17th Highest Hour		165	49	No	No	No	No	No	No
18	18th Highest Hour		136	40	No	No	No	No	No	No
19	19th Highest Hour		72	21	No	No	No	No	No	No
20	20th Highest Hour		50	15	No	No	No	No	No	No
21	21st Highest Hour		43	13	No	No	No	No	No	No
22	22nd Highest Hour		29	8	No	No	No	No	No	No
23	23rd Highest Hour		14	4	No	No	No	No	No	No
24	24th Highest Hour		14	4	No	No	No	No	No	No

KITTELSON & ASSOCIATES

All-Way Stop Application Criteria
Based on Section 2B of the MUTCD 11th Edition

Project #: 29219
Project Name: McMinnville Third Street Improvements
Analyst: JBB
Intersection: NE 3rd St & NE Ford St
Data Date: 10/3/2023
Scenario: 2027 PM Peak Volumes

85th Percentile Speed on Major Road> 40mph? No
Factor (based on speed) 100%

MUTCD Criteria Met?
Yes D

MUTCD Criteria Assessment

Warrant A: Crash Experience

1. For a four-leg intersection, are there five or more reported crashes in a 12-month period or six or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control?
2. For a three-leg intersection, are there four or more reported crashes in a 12-month period or five or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control.

crashes: 0
Criteria Met? **No**

Warrant B: Sight Distance

All-way stop control may be installed at an intersection where an engineering study indicates that sight distance on the minor-road approaches controlled by a STOP sign is not adequate for a vehicle to turn onto or cross the major (uncontrolled) road.

At such a location, a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

Criteria Met? **No**

Warrant C: Transition to Signal Control or Transition to Yield Control at a Circular Intersection

All-way stop control may be installed at locations where all-way stop control is an interim measure that can be installed to control traffic while arrangements are being made for the installation of a traffic control signal (see Chapter 4C) at the intersection or for the installation of yield control at a circular intersection.

Criteria Met? **No**

Warrant D: 8-Hour Volume (Vehicles, Pedestrians, Bicycles)

1. Is the combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the major-street approaches (total of both) at least 300 units per hour for each of any 8 hours of a typical day; **and**
2. Is the combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the minor-street approaches (total of both) at least 200 units per hour for each of any of the same 8 hours.

No

3. If the 85th percentile speed on the major road exceeds 40 mph, do volumes meet 70% of the values in D-1 and D-2?

No

Criteria Met? **No**

Warrant E: Other Factors

All-way stop control may be installed at an intersection where an engineering study indicates that all-way stop control is needed due to other factors not addressed in the other all-way stop control warrants. Such other factors may include, but are not limited to, the following:

A. The need to control left-turn conflicts, **or**
B. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way stop control would improve traffic operational characteristics of the intersection, **or**
C. Where pedestrian and/or bicyclist movements support the installation of all-way stop control.

Criteria Met? **Yes**

Volume Data:

								70% (Criteria D.3)		
Time Period	**From**	**To**	**Major Road: Both App. (vehicles)**	**Minor Road: Both App. (ped, bike, & veh)**	**C.1**	**C.2**	**C.1 and C.2 Met?**	**C.1**	**C.2**	**C.1 and C.2 Met?**
1	17:00	18:00	366	122	Yes	No	No	Yes	No	No
2	2nd Highest Hour		346	115	Yes	No	No	Yes	No	No
3	3rd Highest Hour		342	114	Yes	No	No	Yes	No	No
4	4th Highest Hour		327	109	Yes	No	No	Yes	No	No
5	5th Highest Hour		322	107	Yes	No	No	Yes	No	No
6	6th Highest Hour		322	107	Yes	No	No	Yes	No	No
7	7th Highest Hour		307	102	Yes	No	No	Yes	No	No
8	8th Highest Hour		303	101	Yes	No	No	Yes	No	No
9	9th Highest Hour		293	98	No	No	No	Yes	No	No
10	10th Highest Hour		273	91	No	No	No	Yes	No	No
11	11th Highest Hour		264	88	No	No	No	Yes	No	No
12	12th Highest Hour		259	86	No	No	No	Yes	No	No
13	13th Highest Hour		249	83	No	No	No	Yes	No	No
14	14th Highest Hour		215	72	No	No	No	Yes	No	No
15	15th Highest Hour		171	57	No	No	No	No	No	No
16	16th Highest Hour		161	54	No	No	No	No	No	No
17	17th Highest Hour		112	37	No	No	No	No	No	No
18	18th Highest Hour		93	31	No	No	No	No	No	No
19	19th Highest Hour		49	16	No	No	No	No	No	No
20	20th Highest Hour		34	11	No	No	No	No	No	No
21	21st Highest Hour		29	10	No	No	No	No	No	No
22	22nd Highest Hour		20	7	No	No	No	No	No	No
23	23rd Highest Hour		10	3	No	No	No	No	No	No
24	24th Highest Hour		10	3	No	No	No	No	No	No

All-Way Stop Application Criteria
Based on Section 2B of the MUTCD 11th Edition

Project #: 29219
Project Name: McMinnville Third Street Improvements
Analyst: JBB
Intersection: NE 3rd St & NE Ford St
Data Date: 10/3/2023
Scenario: 2047 PM Peak Volumes

85th Percentile Speed on Major Road> 40mph? No
Factor (based on speed) 100%

MUTCD Criteria Met?
Yes D

MUTCD Criteria Assessment

Warrant A: Crash Experience

1. For a four-leg intersection, are there five or more reported crashes in a 12-month period or six or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control?
2. For a three-leg intersection, are there four or more reported crashes in a 12-month period or five or more reported crashes in a 36-month period that were of a type susceptible to correction by the installation of all-way stop control.

\# crashes 0
Criteria Met? **No**

Warrant B: Sight Distance

All-way stop control may be installed at an intersection where an engineering study indicates that sight distance on the minor-road approaches controlled by a STOP sign is not adequate for a vehicle to turn onto or cross the major (uncontrolled) road.

At such a location, a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

Criteria Met? **No**

Warrant C: Transition to Signal Control or Transition to Yield Control at a Circular Intersection

All-way stop control may be installed at locations where all-way stop control is an interim measure that can be installed to control traffic while arrangements are being made for the installation of a traffic control signal (see Chapter 4C) at the intersection or for the installation of yield control at a circular intersection.

Criteria Met? **No**

Warrant D: 8-Hour Volume (Vehicles, Pedestrians, Bicycles)

1. Is the combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the major-street approaches (total of both) at least 300 units per hour for each of any 8 hours of a typical day; **and**
2. Is the combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the minor-street approaches (total of both) at least 200 units per hour for each of any of the same 8 hours.

No

3. If the 85th percentile speed on the major road exceeds 40 mph, do volumes meet 70% of the values in D-1 and D-2?

No

Criteria Met? **No**

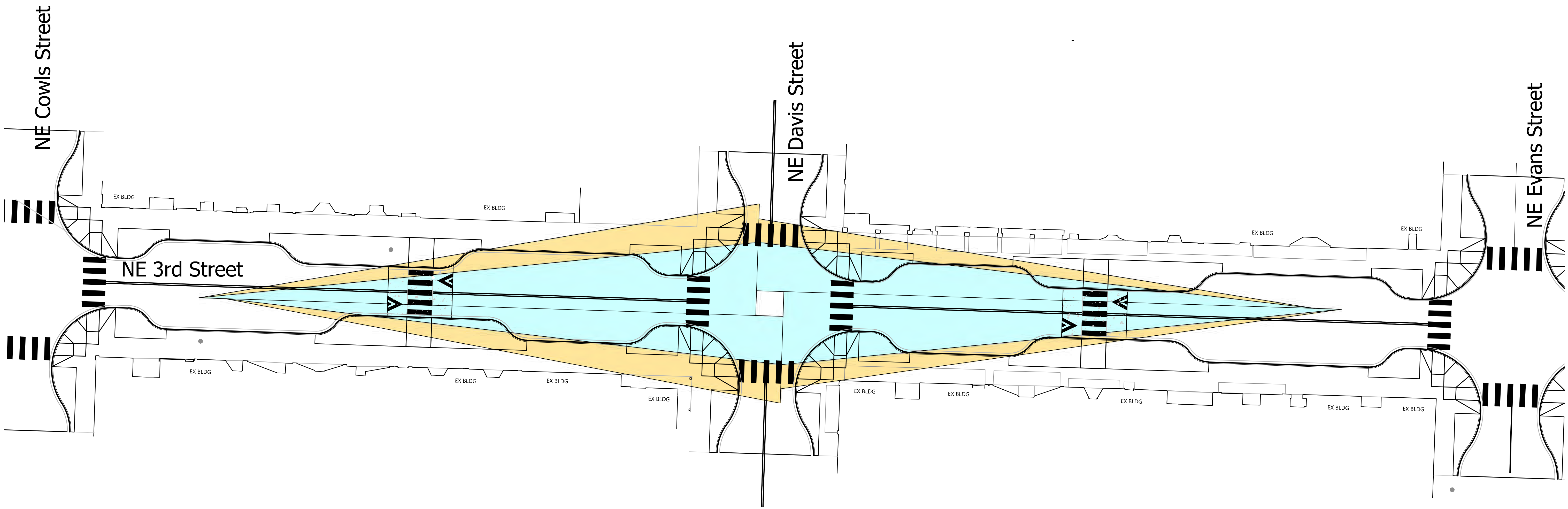
Warrant E: Other Factors

All-way stop control may be installed at an intersection where an engineering study indicates that all-way stop control is needed due to other factors not addressed in the other all-way stop control warrants. Such other factors may include, but are not limited to, the following:
A. The need to control left-turn conflicts, **or**
B. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way stop control would improve traffic operational characteristics of the intersection, **or**
C. Where pedestrian and/or bicyclist movements support the installation of all-way stop control.

Criteria Met? **Yes**

Volume Data:

								70% (Criteria D.3)		
Time Period	**From**	**To**	**Major Road: Both App. (vehicles)**	**Minor Road: Both App. (ped, bike, & veh)**	**C.1**	**C.2**	**C.1 and C.2 Met?**	**C.1**	**C.2**	**C.1 and C.2 Met?**
1	17:00	18:00	561	132	Yes	No	No	Yes	No	No
2	2nd Highest Hour		531	125	Yes	No	No	Yes	No	No
3	3rd Highest Hour		524	123	Yes	No	No	Yes	No	No
4	4th Highest Hour		501	118	Yes	No	No	Yes	No	No
5	5th Highest Hour		494	116	Yes	No	No	Yes	No	No
6	6th Highest Hour		494	116	Yes	No	No	Yes	No	No
7	7th Highest Hour		471	111	Yes	No	No	Yes	No	No
8	8th Highest Hour		464	109	Yes	No	No	Yes	No	No
9	9th Highest Hour		449	106	Yes	No	No	Yes	No	No
10	10th Highest Hour		419	99	Yes	No	No	Yes	No	No
11	11th Highest Hour		404	95	Yes	No	No	Yes	No	No
12	12th Highest Hour		396	93	Yes	No	No	Yes	No	No
13	13th Highest Hour		381	90	Yes	No	No	Yes	No	No
14	14th Highest Hour		329	77	Yes	No	No	Yes	No	No
15	15th Highest Hour		262	62	No	No	No	Yes	No	No
16	16th Highest Hour		247	58	No	No	No	Yes	No	No
17	17th Highest Hour		172	40	No	No	No	No	No	No
18	18th Highest Hour		142	33	No	No	No	No	No	No
19	19th Highest Hour		75	18	No	No	No	No	No	No
20	20th Highest Hour		52	12	No	No	No	No	No	No
21	21st Highest Hour		45	11	No	No	No	No	No	No
22	22nd Highest Hour		30	7	No	No	No	No	No	No
23	23rd Highest Hour		15	4	No	No	No	No	No	No
24	24th Highest Hour		15	4	No	No	No	No	No	No



Sight Triangle - Drivers Eye 14.5' Back from Edge of Traveled Way

Sight Triangle - Drivers Eye Positioned at Sight Obstruction (Building)

ISD Sight Triangle Length = 225' For Left-Turn from Minor Street (20mph)

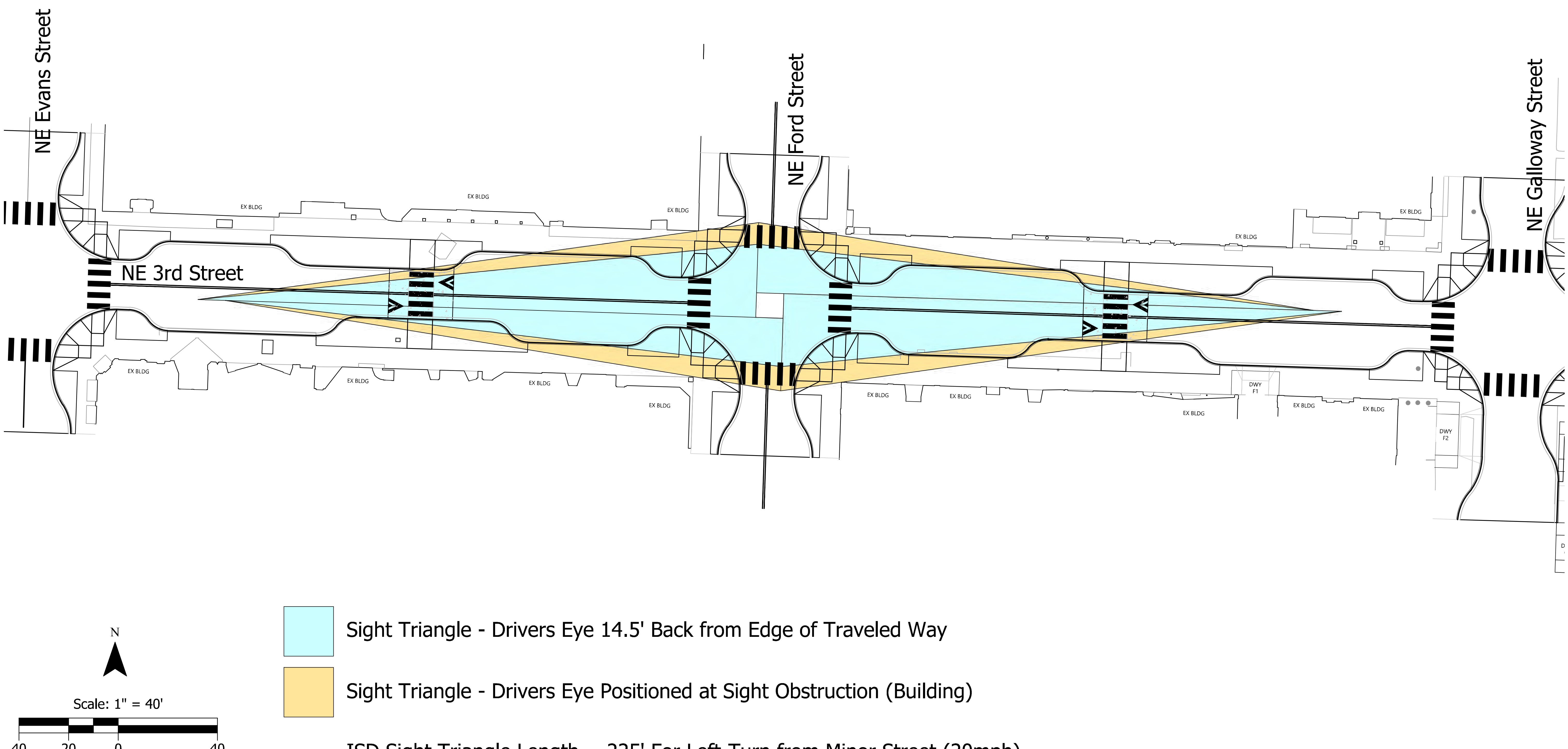
N

Scale: 1" = 40'

40 20 0 40

Intersection Sight Distance - NE 3rd St & NE Davis St
McMInnville, OR

Figure
K-1



Sight Triangle - Drivers Eye 14.5' Back from Edge of Traveled Way

Sight Triangle - Drivers Eye Positioned at Sight Obstruction (Building)

ISD Sight Triangle Length = 225' For Left-Turn from Minor Street (20mph)

Intersection Sight Distance - NE 3rd St & NE Ford St
McMInnville, OR

Figure
K-2

H:\29\29019 - McMinnville Third Strete Improvement\design_Xref\29019-sight distance.dwg Jul 02, 2024 - 12:12am - jbhansen Layout Tab: K-1_Ford

KITTELSON & ASSOCIATES

Attachment L: Opening Year 2027 Build Synchro Analysis Worksheets

Queues
1: NE Adams St & NE 5th St

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	7	92	991
v/c Ratio	0.04	0.62	0.41
Control Delay	18.7	49.5	6.0
Queue Delay	0.0	0.0	0.0
Total Delay	18.7	49.5	6.0
Queue Length 50th (ft)	1	43	76
Queue Length 95th (ft)	10	m37	172
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	450	341	2397
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.27	0.41

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1: NE Adams St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	3	4	80	5	0	0	0	0	110	800	1
Future Volume (vph)	0	3	4	80	5	0	0	0	0	110	800	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.92			1.00						1.00	
Flt Protected		1.00			0.95						0.99	
Satd. Flow (prot)		1739			1729						3252	
Flt Permitted		1.00			0.73						0.99	
Satd. Flow (perm)		1739			1327						3252	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	4	87	5	0	0	0	0	120	870	1
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	3	0	0	92	0	0	0	0	0	991	0
Confl. Peds. (#/hr)	3		2	2		3	1		2	2		1
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	0%	0%	3%	5%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		9.6			9.6						52.4	
Effective Green, g (s)		6.6			6.6						49.4	
Actuated g/C Ratio		0.09			0.09						0.71	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		163			125						2294	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.07						0.30	
v/c Ratio		0.02			0.74						0.43	
Uniform Delay, d1		28.8			30.9						4.4	
Progression Factor		1.00			1.13						1.00	
Incremental Delay, d2		0.0			18.6						0.6	
Delay (s)		28.8			53.6						5.0	
Level of Service		C			D						A	
Approach Delay (s)		28.8			53.6			0.0			5.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: NE Baker St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	131	125	1234
v/c Ratio	0.51	0.39	0.51
Control Delay	37.1	21.9	1.9
Queue Delay	0.0	0.0	0.0
Total Delay	37.1	21.9	1.9
Queue Length 50th (ft)	61	38	50
Queue Length 95th (ft)	112	68	6
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	557	660	2443
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.24	0.19	0.51

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	90	0	0	85	30	25	975	135	0	0	0
Future Volume (vph)	30	90	0	0	85	30	25	975	135	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			0.98				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1661			1728			3222				
Flt Permitted		0.89			1.00			1.00				
Satd. Flow (perm)		1502			1728			3222				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	98	0	0	92	33	27	1060	147	0	0	0
RTOR Reduction (vph)	0	0	0	0	25	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	131	0	0	100	0	0	1226	0	0	0	0
Confl. Peds. (#/hr)	7		7	7		7	6		5	5		6
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	0%	0%	6%	4%	0%	4%	5%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		10.7			10.7			51.3				
Effective Green, g (s)		10.7			10.7			51.3				
Actuated g/C Ratio		0.15			0.15			0.73				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		229			264			2361				
v/s Ratio Prot					0.06							
v/s Ratio Perm		c0.09						0.38				
v/c Ratio		0.57			0.38			0.52				
Uniform Delay, d1		27.5			26.7			4.0				
Progression Factor		1.22			1.00			0.27				
Incremental Delay, d2		2.7			0.7			0.5				
Delay (s)		36.2			27.3			1.6				
Level of Service		D			C			A				
Approach Delay (s)		36.2			27.3			1.6			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection						
Int Delay, s/veh	0.8					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	0	0	0	50	810
Future Vol, veh/h	15	0	0	0	50	810
Conflicting Peds, #/hr	0	7	0	2	2	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	92	92	92	92	92	92
Heavy Vehicles, %	7	0	0	0	0	5
Mvmt Flow	16	0	0	0	54	880

Major/Minor	Minor1				Major2	
Conflicting Flow All	550	-			2	0
Stage 1	2	-			-	-
Stage 2	548	-			-	-
Critical Hdwy	6.94	-			4.1	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	5.94	-			-	-
Follow-up Hdwy	3.57	-			2.2	-
Pot Cap-1 Maneuver	453	0			1634	-
Stage 1	-	0			-	-
Stage 2	529	0			-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	423	-			1631	-
Mov Cap-2 Maneuver	423	-			-	-
Stage 1	-	-			-	-
Stage 2	495	-			-	-

Approach	WB	SB
HCM Control Delay, s	13.9	0.6
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	423	1631	-
HCM Lane V/C Ratio	0.039	0.033	-
HCM Control Delay (s)	13.9	7.3	0.2
HCM Lane LOS	B	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-

Queues
4: NE Baker St & NE 3rd St

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	56	54	1249	38
v/c Ratio	0.09	0.10	0.73	0.05
Control Delay	13.6	8.1	15.9	3.2
Queue Delay	0.0	0.0	49.1	0.0
Total Delay	13.6	8.1	65.0	3.2
Queue Length 50th (ft)	19	4	201	0
Queue Length 95th (ft)	25	26	275	12
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	608	537	1710	782
Starvation Cap Reductn	0	0	636	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.10	1.16	0.05

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

07/01/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	50	0	0	15	35	4	1145	35	0	0	0
Future Volume (vph)	2	50	0	0	15	35	4	1145	35	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.99			1.00	0.98			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.91			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1707			1436			3235	1446			
Flt Permitted		1.00			1.00			1.00	1.00			
Satd. Flow (perm)		1702			1436			3235	1446			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	54	0	0	16	38	4	1245	38	0	0	0
RTOR Reduction (vph)	0	0	0	0	24	0	0	0	18	0	0	0
Lane Group Flow (vph)	0	56	0	0	30	0	0	1249	20	0	0	0
Confl. Peds. (#/hr)	9		3	3		9	6		4	4		6
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	7%	6%	0%	6%	9%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4						6		6			
Actuated Green, G (s)		25.0			25.0			37.0	37.0			
Effective Green, g (s)		25.0			25.0			37.0	37.0			
Actuated g/C Ratio		0.36			0.36			0.53	0.53			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		607			512			1709	764			
v/s Ratio Prot					0.02							
v/s Ratio Perm		c0.03						0.39	0.01			
v/c Ratio		0.09			0.06			0.73	0.03			
Uniform Delay, d1		15.0			14.8			12.7	7.9			
Progression Factor		0.87			1.00			1.00	1.00			
Incremental Delay, d2		0.3			0.2			2.8	0.1			
Delay (s)		13.3			15.0			15.5	8.0			
Level of Service		B			B			B	A			
Approach Delay (s)		13.3			15.0			15.2			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: NE Adams St & SW 2nd St

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	543	158	43	239	885
v/c Ratio	0.85	0.25	0.20	0.32	0.60
Control Delay	34.9	3.8	11.4	13.3	18.2
Queue Delay	0.0	0.0	0.0	0.8	0.0
Total Delay	34.9	3.8	11.4	14.0	18.2
Queue Length 50th (ft)	203	0	9	55	112
Queue Length 95th (ft)	#326	33	22	94	267
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	718	697	216	921	1465
Starvation Cap Reductn	0	0	0	419	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.23	0.20	0.48	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	500	145	40	220	0	0	0	0	85	615	115
Future Volume (vph)	0	500	145	40	220	0	0	0	0	85	615	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		1863	1557	1703	1792						3122	
Flt Permitted		1.00	1.00	0.14	1.00						0.99	
Satd. Flow (perm)		1863	1557	256	1792						3122	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	543	158	43	239	0	0	0	0	92	668	125
RTOR Reduction (vph)	0	0	104	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	543	54	43	239	0	0	0	0	0	868	0
Confl. Peds. (#/hr)	2		4	4		2	1		1	1		1
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	2%	2%	6%	6%	0%	0%	0%	0%	6%	7%	5%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		24.0	24.0	31.1	31.1						30.9	
Effective Green, g (s)		24.0	24.0	31.1	31.1						30.9	
Actuated g/C Ratio		0.34	0.34	0.44	0.44						0.44	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		638	533	177	796						1378	
v/s Ratio Prot		c0.29		0.01	c0.13							
v/s Ratio Perm			0.03	0.10							0.28	
v/c Ratio		0.85	0.10	0.24	0.30						0.63	
Uniform Delay, d1		21.3	15.7	14.1	12.5						15.1	
Progression Factor		1.00	1.00	1.00	1.00						1.04	
Incremental Delay, d2		10.5	0.1	0.5	0.2						2.1	
Delay (s)		31.8	15.7	14.6	12.6						17.8	
Level of Service		C	B	B	B						B	
Approach Delay (s)		28.2			12.9			0.0			17.8	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	223	408	201	38	1223
v/c Ratio	0.64	0.62	0.58	0.11	0.75
Control Delay	23.0	19.9	27.9	1.2	16.8
Queue Delay	0.0	0.7	0.0	0.0	0.0
Total Delay	23.0	20.6	27.9	1.2	16.8
Queue Length 50th (ft)	59	121	67	0	161
Queue Length 95th (ft)	92	173	110	4	#329
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	350	799	489	453	1628
Starvation Cap Reductn	0	152	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.63	0.41	0.08	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: NE Baker St & NE 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	375	0	0	185	35	95	950	80	0	0	0
Future Volume (vph)	205	375	0	0	185	35	95	950	80	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1734	1845			1727	1371		3191				
Flt Permitted	0.39	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	718	1845			1727	1371		3191				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	408	0	0	201	38	103	1033	87	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	30	0	8	0	0	0	0
Lane Group Flow (vph)	223	408	0	0	201	8	0	1215	0	0	0	0
Confl. Peds. (#/hr)	3		2	2		3	3		5	5		3
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	4%	3%	0%	0%	10%	16%	2%	6%	6%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	21.5	21.5			12.0	12.0		30.5				
Effective Green, g (s)	21.5	21.5			12.0	12.0		30.5				
Actuated g/C Ratio	0.36	0.36			0.20	0.20		0.51				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	350	661			345	274		1622				
v/s Ratio Prot	0.06	c0.22			0.12							
v/s Ratio Perm	c0.17					0.01		0.38				
v/c Ratio	0.64	0.62			0.58	0.03		0.75				
Uniform Delay, d1	14.7	15.9			21.7	19.3		11.7				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	3.3	1.5			2.1	0.0		3.2				
Delay (s)	18.0	17.3			23.8	19.3		14.9				
Level of Service	B	B			C	B		B				
Approach Delay (s)		17.6			23.1			14.9			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: NE Johnson St & NE 3rd St

01/11/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	63	86	11	57	392	421	386	239
v/c Ratio	0.24	0.24	0.04	0.21	0.72	0.80	0.78	0.26
Control Delay	22.6	24.7	19.5	28.5	11.4	37.7	36.7	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	24.7	19.5	28.5	11.4	37.7	36.7	7.5
Queue Length 50th (ft)	22	29	4	23	0	170	153	36
Queue Length 95th (ft)	48	71	14	52	63	#367	#327	88
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	268	518	247	515	687	549	549	1172
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.17	0.04	0.11	0.57	0.77	0.70	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: NE Johnson St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	75	1	10	50	345	1	330	40	340	180	30
Future Volume (vph)	55	75	1	10	50	345	1	330	40	340	180	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0		4.5	4.0	4.0		4.0		4.0	4.0	
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		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1719	1842		1641	1900	1482		1755		1687	1671	
Flt Permitted	0.60	1.00		0.70	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1089	1842		1211	1900	1482		1754		1687	1671	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	62	85	1	11	57	392	1	375	45	386	205	34
RTOR Reduction (vph)	0	1	0	0	0	336	0	5	0	0	6	0
Lane Group Flow (vph)	63	85	0	11	57	56	0	416	0	386	233	0
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	5%	3%	0%	10%	0%	9%	100%	6%	8%	7%	12%	7%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8					
Actuated Green, G (s)	14.3	11.6		10.5	9.7	9.7		19.9		19.6	43.5	
Effective Green, g (s)	14.3	11.6		10.5	9.7	9.7		19.9		19.6	43.5	
Actuated g/C Ratio	0.21	0.17		0.15	0.14	0.14		0.29		0.29	0.64	
Clearance Time (s)	4.5	4.0		4.5	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	252	312		190	269	210		510		483	1062	
v/s Ratio Prot	c0.01	c0.05		0.00	0.03					c0.23	0.14	
v/s Ratio Perm	0.04			0.01		0.04		c0.24				
v/c Ratio	0.25	0.27		0.06	0.21	0.26		0.82		0.80	0.22	
Uniform Delay, d1	22.2	24.7		24.7	26.0	26.2		22.5		22.6	5.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.5		0.1	0.4	0.7		10.2		9.2	0.2	
Delay (s)	22.8	25.2		24.8	26.4	26.8		32.8		31.8	5.4	
Level of Service	C	C		C	C	C		C		C	A	
Approach Delay (s)		24.2			26.7			32.8			21.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
14: NE Three Mile Ln & SE 1st St

07/01/2024

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	241	5	182	461	2	551
v/c Ratio	0.03	0.63	0.04	0.57	0.37	0.01	0.63
Control Delay	22.5	11.9	20.0	31.7	6.7	27.0	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	11.9	20.0	31.7	6.7	27.0	18.8
Queue Length 50th (ft)	2	1	1	65	38	1	144
Queue Length 95th (ft)	9	48	8	120	192	6	#334
Internal Link Dist (ft)		558	382		425		435
Turn Bay Length (ft)				100		100	
Base Capacity (vph)	395	564	256	317	1252	156	871
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.43	0.02	0.57	0.37	0.01	0.63

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
14: NE Three Mile Ln & SE 1st St

07/01/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	210	2	1	2	160	405	1	2	475	10
Future Volume (vph)	4	2	210	2	1	2	160	405	1	2	475	10
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	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.95		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1799	1414			1309		1736	1772		1805	1788	
Flt Permitted	0.75	1.00			0.69		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1428	1414			920		1736	1772		1805	1788	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	5	2	239	2	1	2	182	460	1	2	540	11
RTOR Reduction (vph)	0	210	0	0	2	0	0	0	0	0	1	0
Lane Group Flow (vph)	5	31	0	0	3	0	182	461	0	2	550	0
Confl. Peds. (#/hr)	2					2	3					3
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	3%	0%	0%	50%	4%	7%	100%	0%	6%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	8.0	8.0			8.0		11.9	42.3		1.2	31.6	
Effective Green, g (s)	8.0	8.0			8.0		11.9	42.3		1.2	31.6	
Actuated g/C Ratio	0.12	0.12			0.12		0.18	0.65		0.02	0.49	
Clearance Time (s)	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	
Lane Grp Cap (vph)	175	174			113		317	1153		33	869	
v/s Ratio Prot		c0.02					c0.10	0.26		0.00	c0.31	
v/s Ratio Perm	0.00				0.00							
v/c Ratio	0.03	0.18			0.03		0.57	0.40		0.06	0.63	
Uniform Delay, d1	25.1	25.6			25.1		24.2	5.4		31.3	12.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.5			0.1		2.5	1.0		0.8	3.5	
Delay (s)	25.1	26.1			25.2		26.7	6.4		32.1	15.9	
Level of Service	C	C			C		C	A		C	B	
Approach Delay (s)		26.0			25.2			12.2			16.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
15: NE Lafayette Ave & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	131	16	85	721	11	591	91
v/c Ratio	0.49	0.05	0.17	0.65	0.02	0.64	0.11
Control Delay	27.0	21.1	4.9	11.6	4.5	15.5	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	21.1	4.9	11.6	4.5	15.5	5.1
Queue Length 50th (ft)	30	3	8	106	1	138	6
Queue Length 95th (ft)	102	21	28	406	7	311	30
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	610	733	699	1504	714	1519	1287
Starvation Cap Reductn	0	0	0	45	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.02	0.12	0.49	0.02	0.39	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	20	35	2	10	3	75	630	4	10	520	80
Future Volume (vph)	60	20	35	2	10	3	75	630	4	10	520	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.96			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1539			1649		1805	1742		1805	1759	1482
Flt Permitted		0.83			0.97		0.28	1.00		0.30	1.00	1.00
Satd. Flow (perm)		1317			1608		530	1742		569	1759	1482
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	68	23	40	2	11	3	85	716	5	11	591	91
RTOR Reduction (vph)	0	17	0	0	2	0	0	0	0	0	0	24
Lane Group Flow (vph)	0	114	0	0	14	0	85	721	0	11	591	67
Confl. Peds. (#/hr)	2		1	1		2			1	1		
Heavy Vehicles (%)	4%	0%	3%	0%	0%	0%	0%	9%	0%	0%	8%	9%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		11.2			11.2		42.4	37.6		34.2	33.4	33.4
Effective Green, g (s)		11.2			11.2		42.4	37.6		34.2	33.4	33.4
Actuated g/C Ratio		0.18			0.18		0.69	0.61		0.56	0.54	0.54
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		239			292		468	1063		331	953	803
v/s Ratio Prot							c0.01	c0.41		0.00	0.34	
v/s Ratio Perm		c0.09			0.01		0.11			0.02		0.05
v/c Ratio		0.48			0.05		0.18	0.68		0.03	0.62	0.08
Uniform Delay, d1		22.6			20.8		4.9	8.0		6.6	9.7	6.8
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		1.1			0.0		0.1	1.9		0.0	1.4	0.1
Delay (s)		23.7			20.8		5.0	9.9		6.7	11.2	6.8
Level of Service		C			C		A	A		A	B	A
Approach Delay (s)		23.7			20.8			9.4			10.5	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1: NE Adams St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	9	224	1339
v/c Ratio	0.03	0.90	0.60
Control Delay	19.8	56.3	11.0
Queue Delay	0.0	0.4	0.0
Total Delay	19.8	56.7	11.0
Queue Length 50th (ft)	2	138	201
Queue Length 95th (ft)	13	210	335
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	452	352	2224
Starvation Cap Reductn	0	13	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.66	0.60

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: NE Adams St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	5	200	15	0	0	0	0	85	1195	5
Future Volume (vph)	0	4	5	200	15	0	0	0	0	85	1195	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.96						1.00	
Satd. Flow (prot)		1742			1776						3350	
Flt Permitted		1.00			0.73						1.00	
Satd. Flow (perm)		1742			1366						3350	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	4	5	208	16	0	0	0	0	89	1245	5
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	5	0	0	224	0	0	0	0	0	1339	0
Confl. Peds. (#/hr)	19		3	3		19	13		2	2		13
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%	2%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		19.4			19.4						62.6	
Effective Green, g (s)		16.4			16.4						59.6	
Actuated g/C Ratio		0.18			0.18						0.66	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		317			248						2218	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.16						0.40	
v/c Ratio		0.02			0.90						0.60	
Uniform Delay, d1		30.2			36.0						8.6	
Progression Factor		1.00			0.67						1.00	
Incremental Delay, d2		0.0			29.6						1.2	
Delay (s)		30.2			53.6						9.8	
Level of Service		C			D						A	
Approach Delay (s)		30.2			53.6			0.0			9.8	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: NE Baker St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	103	315	1342
v/c Ratio	0.41	0.77	0.59
Control Delay	23.9	42.0	5.7
Queue Delay	0.0	0.3	0.1
Total Delay	23.9	42.3	5.7
Queue Length 50th (ft)	51	154	83
Queue Length 95th (ft)	m67	222	372
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	391	626	2291
Starvation Cap Reductn	0	0	99
Spillback Cap Reductn	0	52	69
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.26	0.55	0.61

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
2: NE Baker St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	70	0	0	200	90	15	1185	35	0	0	0
Future Volume (vph)	25	70	0	0	200	90	15	1185	35	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			1.00				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1670			1767			3314				
Flt Permitted		0.67			1.00			1.00				
Satd. Flow (perm)		1137			1767			3314				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	76	0	0	217	98	16	1288	38	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	103	0	0	293	0	0	1340	0	0	0	0
Confl. Peds. (#/hr)	22		3	3		22	2		5	5		2
Confl. Bikes (#/hr)			1			2			2			
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	3%	0%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		19.8			19.8			62.2				
Effective Green, g (s)		19.8			19.8			62.2				
Actuated g/C Ratio		0.22			0.22			0.69				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		250			388			2290				
v/s Ratio Prot					c0.17							
v/s Ratio Perm		0.09						0.40				
v/c Ratio		0.41			0.76			0.59				
Uniform Delay, d1		30.1			32.8			7.2				
Progression Factor		0.69			1.00			0.58				
Incremental Delay, d2		0.7			7.8			0.9				
Delay (s)		21.3			40.6			5.1				
Level of Service		C			D			A				
Approach Delay (s)		21.3			40.6			5.1			0.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	0	0	0	50	1330
Future Vol, veh/h	75	0	0	0	50	1330
Conflicting Peds, #/hr	0	41	0	1	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	93	93	93	93	93	93
Heavy Vehicles, %	2	0	0	0	0	2
Mvmt Flow	81	0	0	0	54	1430

Major/Minor	Minor1				Major2	
Conflicting Flow All	824	-			1	0
Stage 1	1	-			-	-
Stage 2	823	-			-	-
Critical Hdwy	6.84	-			4.1	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	5.84	-			-	-
Follow-up Hdwy	3.52	-			2.2	-
Pot Cap-1 Maneuver	311	0			1635	-
Stage 1	-	0			-	-
Stage 2	392	0			-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	261	-			1633	-
Mov Cap-2 Maneuver	261	-			-	-
Stage 1	-	-			-	-
Stage 2	329	-			-	-

Approach	WB	SB
HCM Control Delay, s	24.8	0.7
HCM LOS	C	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	261	1633	-
HCM Lane V/C Ratio	0.309	0.033	-
HCM Control Delay (s)	24.8	7.3	0.5
HCM Lane LOS	C	A	A
HCM 95th %tile Q(veh)	1.3	0.1	-

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	75	144	1218	53
v/c Ratio	0.13	0.25	0.70	0.06
Control Delay	16.1	11.8	15.1	2.9
Queue Delay	0.0	0.0	49.3	0.0
Total Delay	16.1	11.8	64.4	2.9
Queue Length 50th (ft)	21	27	190	0
Queue Length 95th (ft)	48	65	261	14
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	563	583	1742	856
Starvation Cap Reductn	0	0	673	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.25	1.14	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

07/01/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	55	0	1	65	70	20	1125	50	0	0	0
Future Volume (vph)	15	55	0	1	65	70	20	1125	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.98			1.00	0.97			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.93			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1655			1543			3297	1573			
Flt Permitted		0.94			1.00			1.00	1.00			
Satd. Flow (perm)		1578			1542			3297	1573			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	16	59	0	1	69	74	21	1197	53	0	0	0
RTOR Reduction (vph)	0	0	0	0	33	0	0	0	25	0	0	0
Lane Group Flow (vph)	0	75	0	0	111	0	0	1218	28	0	0	0
Confl. Peds. (#/hr)	35		11	11		35	5		5	5		5
Confl. Bikes (#/hr)			2						2			1
Heavy Vehicles (%)	8%	0%	0%	0%	2%	0%	0%	4%	0%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4			4			6		6			
Actuated Green, G (s)		25.0			25.0			37.0	37.0			
Effective Green, g (s)		25.0			25.0			37.0	37.0			
Actuated g/C Ratio		0.36			0.36			0.53	0.53			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		563			550			1742	831			
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.07			0.37	0.02			
v/c Ratio		0.13			0.20			0.70	0.03			
Uniform Delay, d1		15.2			15.6			12.3	7.9			
Progression Factor		1.00			1.00			1.00	1.00			
Incremental Delay, d2		0.5			0.8			2.4	0.1			
Delay (s)		15.7			16.4			14.7	8.0			
Level of Service		B			B			B	A			
Approach Delay (s)		15.7			16.4			14.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: NE Adams St & SW 2nd St

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	382	75	102	430	1521
v/c Ratio	0.87	0.18	0.47	0.68	0.84
Control Delay	48.2	6.8	22.4	25.5	19.9
Queue Delay	0.0	0.0	0.0	6.2	0.0
Total Delay	48.2	6.8	22.4	31.8	19.9
Queue Length 50th (ft)	157	0	29	147	280
Queue Length 95th (ft)	#297	28	60	238	#446
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	456	434	217	698	1801
Starvation Cap Reductn	0	0	0	212	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	0.17	0.47	0.88	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	355	70	95	400	0	0	0	0	85	1065	265
Future Volume (vph)	0	355	70	95	400	0	0	0	0	85	1065	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1546	1718	1881						3230	
Flt Permitted		1.00	1.00	0.20	1.00						1.00	
Satd. Flow (perm)		1881	1546	356	1881						3230	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	382	75	102	430	0	0	0	0	91	1145	285
RTOR Reduction (vph)	0	0	58	0	0	0	0	0	0	0	27	0
Lane Group Flow (vph)	0	382	17	102	430	0	0	0	0	0	1494	0
Confl. Peds. (#/hr)	7		9	9		7	2		1	1		2
Confl. Bikes (#/hr)			1			2						2
Heavy Vehicles (%)	0%	1%	2%	5%	1%	0%	0%	0%	0%	2%	3%	0%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		16.3	16.3	24.3	24.3						37.7	
Effective Green, g (s)		16.3	16.3	24.3	24.3						37.7	
Actuated g/C Ratio		0.23	0.23	0.35	0.35						0.54	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		438	359	201	652						1739	
v/s Ratio Prot		c0.20		0.03	c0.23							
v/s Ratio Perm			0.01	0.15							0.46	
v/c Ratio		0.87	0.05	0.51	0.66						0.86	
Uniform Delay, d1		25.8	20.8	17.5	19.3						13.9	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		17.0	0.0	1.5	2.2						5.8	
Delay (s)		42.9	20.9	19.0	21.5						19.7	
Level of Service		D	C	B	C						B	
Approach Delay (s)		39.2			21.0			0.0			19.7	
Approach LOS		D			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

01/11/2024

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	151	328	392	38	1312
v/c Ratio	0.58	0.46	0.81	0.08	0.82
Control Delay	20.6	15.4	35.4	0.9	20.8
Queue Delay	0.0	1.0	0.0	0.0	0.0
Total Delay	20.6	16.4	35.4	0.9	20.8
Queue Length 50th (ft)	32	77	127	0	221
Queue Length 95th (ft)	64	134	#244	4	#363
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	262	815	532	501	1600
Starvation Cap Reductn	0	266	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.60	0.74	0.08	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: NE Baker St & NE 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	305	0	0	365	35	125	1005	90	0	0	0
Future Volume (vph)	140	305	0	0	365	35	125	1005	90	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1769	1881			1881	1540		3259				
Flt Permitted	0.21	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	382	1881			1881	1540		3259				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	151	328	0	0	392	38	134	1081	97	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	28	0	9	0	0	0	0
Lane Group Flow (vph)	151	328	0	0	392	10	0	1303	0	0	0	0
Confl. Peds. (#/hr)	3		5	5		3	4		3	3		4
Confl. Bikes (#/hr)			2			3						2
Heavy Vehicles (%)	2%	1%	0%	0%	1%	3%	1%	3%	10%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	23.5	23.5			15.5	15.5		28.5				
Effective Green, g (s)	23.5	23.5			15.5	15.5		28.5				
Actuated g/C Ratio	0.39	0.39			0.26	0.26		0.48				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	242	736			485	397		1548				
v/s Ratio Prot	c0.04	0.17			c0.21							
v/s Ratio Perm	0.20					0.01		0.40				
v/c Ratio	0.62	0.45			0.81	0.02		0.84				
Uniform Delay, d1	13.6	13.4			20.9	16.6		13.8				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	4.3	0.3			9.3	0.0		5.7				
Delay (s)	17.9	13.8			30.2	16.6		19.5				
Level of Service	B	B			C	B		B				
Approach Delay (s)		15.1			29.0			19.5			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	85	15	30	125	15	5	10	10	5	15	5
Future Vol, veh/h	5	85	15	30	125	15	5	10	10	5	15	5
Conflicting Peds, #/hr	43	0	91	91	0	43	41	0	14	14	0	41
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	6	100	18	35	147	18	6	12	12	6	18	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	208	0	0	209	0	0	491	490	214	416	490	240
Stage 1	-	-	-	-	-	-	212	212	-	269	269	-
Stage 2	-	-	-	-	-	-	279	278	-	147	221	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1375	-	-	1374	-	-	491	482	831	551	482	804
Stage 1	-	-	-	-	-	-	795	731	-	741	690	-
Stage 2	-	-	-	-	-	-	732	684	-	860	724	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1319	-	-	1255	-	-	402	407	749	488	407	741
Mov Cap-2 Maneuver	-	-	-	-	-	-	402	407	-	488	407	-
Stage 1	-	-	-	-	-	-	723	664	-	707	641	-
Stage 2	-	-	-	-	-	-	658	635	-	816	657	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.4	12.7	13.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	496	1319	-	-	1255	-	-	464
HCM Lane V/C Ratio	0.059	0.004	-	-	0.028	-	-	0.063
HCM Control Delay (s)	12.7	7.7	0	-	8	0	-	13.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	85	10	3	155	10	10	30	10	10	40	5
Future Vol, veh/h	2	85	10	3	155	10	10	30	10	10	40	5
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	2	100	12	4	182	12	12	35	12	12	47	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8.6	8	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	2%	2%	18%
Vol Thru, %	60%	88%	92%	73%
Vol Right, %	20%	10%	6%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	97	168	55
LT Vol	10	2	3	10
Through Vol	30	85	155	40
RT Vol	10	10	10	5
Lane Flow Rate	59	114	198	65
Geometry Grp	1	1	1	1
Degree of Util (X)	0.075	0.138	0.235	0.083
Departure Headway (Hd)	4.589	4.343	4.282	4.644
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	781	827	840	773
Service Time	2.613	2.361	2.298	2.667
HCM Lane V/C Ratio	0.076	0.138	0.236	0.084
HCM Control Delay	8	8.1	8.6	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.9	0.3

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	85	5	10	145	30	4	25	10	25	55	20
Future Vol, veh/h	10	85	5	10	145	30	4	25	10	25	55	20
Conflicting Peds, #/hr	55	0	80	80	0	55	11	0	31	31	0	11
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	2	14
Mvmt Flow	12	100	6	12	171	35	5	29	12	29	65	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	261	0	0	186	0	0	475	492	214	447	478	255
Stage 1	-	-	-	-	-	-	207	207	-	268	268	-
Stage 2	-	-	-	-	-	-	268	285	-	179	210	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.52	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4.018	3.426
Pot Cap-1 Maneuver	1315	-	-	1401	-	-	503	481	831	525	486	755
Stage 1	-	-	-	-	-	-	800	734	-	742	687	-
Stage 2	-	-	-	-	-	-	742	679	-	827	728	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1246	-	-	1294	-	-	385	413	745	442	417	708
Mov Cap-2 Maneuver	-	-	-	-	-	-	385	413	-	442	417	-
Stage 1	-	-	-	-	-	-	732	672	-	696	644	-
Stage 2	-	-	-	-	-	-	631	637	-	748	666	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.4	13.7	15.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	462	1246	-	-	1294	-	-	461
HCM Lane V/C Ratio	0.099	0.009	-	-	0.009	-	-	0.255
HCM Control Delay (s)	13.7	7.9	0	-	7.8	0	-	15.5
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	1

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	110	10	0	170	10	5	35	10	20	25	5
Future Vol, veh/h	0	110	10	0	170	10	5	35	10	20	25	5
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	1	12	0	0	0	0	0	0
Mvmt Flow	0	129	12	0	200	12	6	41	12	24	29	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	8.8	8.1	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	0%	0%	40%
Vol Thru, %	70%	92%	94%	50%
Vol Right, %	20%	8%	6%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	120	180	50
LT Vol	5	0	0	20
Through Vol	35	110	170	25
RT Vol	10	10	10	5
Lane Flow Rate	59	141	212	59
Geometry Grp	1	1	1	1
Degree of Util (X)	0.076	0.171	0.254	0.078
Departure Headway (Hd)	4.657	4.359	4.319	4.776
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	769	824	834	750
Service Time	2.685	2.377	2.336	2.804
HCM Lane V/C Ratio	0.077	0.171	0.254	0.079
HCM Control Delay	8.1	8.3	8.8	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.6	1	0.3

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	120	10	5	165	15	5	10	5	10	10	10
Future Vol, veh/h	5	120	10	5	165	15	5	10	5	10	10	10
Conflicting Peds, #/hr	30	0	18	18	0	30	17	0	3	3	0	17
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	6	136	11	6	188	17	6	11	6	11	11	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	235	0	0	165	0	0	409	419	163	404	416	244
Stage 1	-	-	-	-	-	-	172	172	-	239	239	-
Stage 2	-	-	-	-	-	-	237	247	-	165	177	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1344	-	-	1426	-	-	556	528	887	561	530	800
Stage 1	-	-	-	-	-	-	835	760	-	769	711	-
Stage 2	-	-	-	-	-	-	771	706	-	842	756	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1306	-	-	1402	-	-	517	499	869	526	501	765
Mov Cap-2 Maneuver	-	-	-	-	-	-	517	499	-	526	501	-
Stage 1	-	-	-	-	-	-	817	743	-	744	687	-
Stage 2	-	-	-	-	-	-	731	682	-	817	739	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	11.7	11.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	564	1306	-	-	1402	-	-	576
HCM Lane V/C Ratio	0.04	0.004	-	-	0.004	-	-	0.059
HCM Control Delay (s)	11.7	7.8	0	-	7.6	0	-	11.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	120	10	10	170	5	5	35	30	20	20	15
Future Vol, veh/h	10	120	10	10	170	5	5	35	30	20	20	15
Conflicting Peds, #/hr	13	0	4	4	0	13	4	0	2	2	0	4
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	1	40	0	12	6	0	5	7
Mvmt Flow	12	141	12	12	200	6	6	41	35	24	24	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	219	0	0	157	0	0	427	418	153	451	421	220
Stage 1	-	-	-	-	-	-	175	175	-	240	240	-
Stage 2	-	-	-	-	-	-	252	243	-	211	181	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.62	6.26	7.1	6.55	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.108	3.354	3.5	4.045	3.363
Pot Cap-1 Maneuver	1362	-	-	1435	-	-	541	511	883	522	519	807
Stage 1	-	-	-	-	-	-	832	736	-	768	701	-
Stage 2	-	-	-	-	-	-	757	687	-	796	744	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1345	-	-	1430	-	-	499	493	878	456	501	794
Mov Cap-2 Maneuver	-	-	-	-	-	-	499	493	-	456	501	-
Stage 1	-	-	-	-	-	-	820	726	-	751	686	-
Stage 2	-	-	-	-	-	-	706	673	-	712	734	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	11.8	12.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	608	1345	-	-	1430	-	-	536
HCM Lane V/C Ratio	0.135	0.009	-	-	0.008	-	-	0.121
HCM Control Delay (s)	11.8	7.7	0	-	7.5	0	-	12.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.4

Queues
13: NE Johnson St & NE 3rd St

01/11/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	63	131	28	153	455	341	540	398
v/c Ratio	0.25	0.34	0.10	0.50	0.72	0.81	0.87	0.34
Control Delay	25.8	31.4	23.6	37.9	10.5	48.2	41.4	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	31.4	23.6	37.9	10.5	48.2	41.4	8.1
Queue Length 50th (ft)	26	55	11	76	0	171	257	81
Queue Length 95th (ft)	54	113	30	130	74	#332	#462	150
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	257	486	294	458	721	450	715	1286
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.27	0.10	0.33	0.63	0.76	0.76	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: NE Johnson St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	115	0	25	135	400	5	265	30	475	290	60
Future Volume (vph)	55	115	0	25	135	400	5	265	30	475	290	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0		4.5	4.0	4.0		4.0		4.0	4.0	
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	0.98		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1805	1881		1805	1881	1548		1794		1752	1815	
Flt Permitted	0.48	1.00		0.67	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (perm)	905	1881		1279	1881	1548		1781		1752	1815	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	62	131	0	28	153	455	6	301	34	540	330	68
RTOR Reduction (vph)	0	0	0	0	0	381	0	5	0	0	8	0
Lane Group Flow (vph)	63	131	0	28	153	74	0	336	0	540	390	0
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	2%	0%	5%	0%	3%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8					
Actuated Green, G (s)	18.5	14.8		14.7	12.9	12.9		18.4		28.3	50.7	
Effective Green, g (s)	18.5	14.8		14.7	12.9	12.9		18.4		28.3	50.7	
Actuated g/C Ratio	0.23	0.19		0.18	0.16	0.16		0.23		0.35	0.64	
Clearance Time (s)	4.5	4.0		4.5	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	251	348		247	304	250		410		621	1153	
v/s Ratio Prot	c0.01	0.07		0.00	c0.08					c0.31	0.22	
v/s Ratio Perm	0.05			0.02		0.05		c0.19				
v/c Ratio	0.25	0.38		0.11	0.50	0.29		0.82		0.87	0.34	
Uniform Delay, d1	24.5	28.5		27.0	30.5	29.4		29.1		24.0	6.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.7		0.2	1.3	0.7		12.9		12.7	0.3	
Delay (s)	25.0	29.1		27.2	31.8	30.1		42.1		36.7	7.0	
Level of Service	C	C		C	C	C		D		D	A	
Approach Delay (s)		27.8			30.4			42.1			24.1	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
14: NE Three Mile Ln & SE 1st St 07/01/2024

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	4	315	6	236	659	11	776
v/c Ratio	0.03	0.73	0.10	0.74	0.45	0.09	0.73
Control Delay	33.5	14.6	27.6	49.4	6.3	41.1	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	14.6	27.6	49.4	6.3	41.1	21.2
Queue Length 50th (ft)	2	0	1	125	62	6	286
Queue Length 95th (ft)	10	62	12	#224	316	23	#605
Internal Link Dist (ft)		558	382		425		435
Turn Bay Length (ft)				100		100	
Base Capacity (vph)	286	548	125	336	1453	119	1067
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.57	0.05	0.70	0.45	0.09	0.73

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
14: NE Three Mile Ln & SE 1st St

07/01/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	280	1	1	4	210	585	2	10	685	5
Future Volume (vph)	4	0	280	1	1	4	210	585	2	10	685	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	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.91		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1439			1518		1770	1862		1805	1860	
Flt Permitted	0.75	1.00			0.40		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1425	1439			606		1770	1862		1805	1860	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	4	0	315	1	1	4	236	657	2	11	770	6
RTOR Reduction (vph)	0	285	0	0	4	0	0	0	0	0	0	0
Lane Group Flow (vph)	4	30	0	0	2	0	236	659	0	11	776	0
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	2%	2%	0%	0%	2%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	8.6	8.6			8.6		16.3	66.6		1.3	51.6	
Effective Green, g (s)	8.6	8.6			8.6		16.3	66.6		1.3	51.6	
Actuated g/C Ratio	0.10	0.10			0.10		0.18	0.74		0.01	0.57	
Clearance Time (s)	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	
Lane Grp Cap (vph)	136	137			57		320	1377		26	1066	
v/s Ratio Prot		c0.02					c0.13	0.35		0.01	c0.42	
v/s Ratio Perm	0.00				0.00							
v/c Ratio	0.03	0.22			0.04		0.74	0.48		0.42	0.73	
Uniform Delay, d1	36.9	37.6			37.0		34.8	4.7		44.0	14.1	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.8			0.3		8.6	1.2		10.7	4.4	
Delay (s)	37.0	38.4			37.3		43.4	5.9		54.7	18.4	
Level of Service	D	D			D		D	A		D	B	
Approach Delay (s)		38.4			37.3			15.8			18.9	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
15: NE Lafayette Ave & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	207	52	73	756	4	831	112
v/c Ratio	0.68	0.15	0.22	0.62	0.01	0.78	0.12
Control Delay	35.4	21.0	6.3	11.7	5.0	20.8	5.9
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	35.4	21.0	6.3	12.3	5.0	20.8	5.9
Queue Length 50th (ft)	74	14	9	153	1	285	12
Queue Length 95th (ft)	154	44	28	455	4	#601	41
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	513	599	522	1374	637	1296	1126
Starvation Cap Reductn	0	0	0	264	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.09	0.14	0.68	0.01	0.64	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	20	90	1	30	15	65	670	3	4	740	100
Future Volume (vph)	75	20	90	1	30	15	65	670	3	4	740	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.93			0.96		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1539			1621		1770	1844		1804	1845	1582
Flt Permitted		0.85			1.00		0.16	1.00		0.28	1.00	1.00
Satd. Flow (perm)		1331			1615		293	1844		524	1845	1582
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	84	22	101	1	34	17	73	753	3	4	831	112
RTOR Reduction (vph)	0	36	0	0	14	0	0	0	0	0	0	22
Lane Group Flow (vph)	0	171	0	0	38	0	73	756	0	4	831	90
Confl. Peds. (#/hr)	1		3	3		1			3	3		
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		14.9			14.9		53.4	48.7		45.6	44.8	44.8
Effective Green, g (s)		14.9			14.9		53.4	48.7		45.6	44.8	44.8
Actuated g/C Ratio		0.20			0.20		0.70	0.64		0.60	0.59	0.59
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		259			314		295	1175		326	1081	927
v/s Ratio Prot							c0.02	c0.41		0.00	c0.45	
v/s Ratio Perm		c0.13			0.02		0.16			0.01		0.06
v/c Ratio		0.66			0.12		0.25	0.64		0.01	0.77	0.10
Uniform Delay, d1		28.4			25.4		9.0	8.5		7.2	11.9	6.9
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.3			0.1		0.3	1.4		0.0	3.6	0.1
Delay (s)		33.7			25.5		9.3	9.9		7.2	15.5	7.0
Level of Service		C			C		A	A		A	B	A
Approach Delay (s)		33.7			25.5			9.8			14.4	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Attachment M: Future Year 2047 Build Synchro Analysis Worksheets

Queues
1: NE Adams St & NE 5th St

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	7	92	1110
v/c Ratio	0.04	0.62	0.46
Control Delay	18.7	47.3	6.4
Queue Delay	0.0	0.0	0.0
Total Delay	18.7	47.3	6.4
Queue Length 50th (ft)	1	38	90
Queue Length 95th (ft)	10	m34	203
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	450	341	2398
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.27	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1: NE Adams St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	3	4	80	5	0	0	0	0	100	920	1
Future Volume (vph)	0	3	4	80	5	0	0	0	0	100	920	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.92			1.00						1.00	
Flt Protected		1.00			0.95						1.00	
Satd. Flow (prot)		1739			1729						3255	
Flt Permitted		1.00			0.73						1.00	
Satd. Flow (perm)		1739			1327						3255	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	4	87	5	0	0	0	0	109	1000	1
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	3	0	0	92	0	0	0	0	0	1110	0
Confl. Peds. (#/hr)	3		2	2		3	1		2	2		1
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	0%	0%	3%	5%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		9.6			9.6						52.4	
Effective Green, g (s)		6.6			6.6						49.4	
Actuated g/C Ratio		0.09			0.09						0.71	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		163			125						2297	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.07						0.34	
v/c Ratio		0.02			0.74						0.48	
Uniform Delay, d1		28.8			30.9						4.6	
Progression Factor		1.00			1.06						1.00	
Incremental Delay, d2		0.0			18.6						0.7	
Delay (s)		28.8			51.2						5.3	
Level of Service		C			D						A	
Approach Delay (s)		28.8			51.2			0.0			5.3	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: NE Baker St & NE 5th St

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	119	125	1250
v/c Ratio	0.48	0.41	0.51
Control Delay	33.2	22.5	1.8
Queue Delay	0.0	0.0	0.0
Total Delay	33.2	22.5	1.8
Queue Length 50th (ft)	54	38	53
Queue Length 95th (ft)	103	68	m8
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	565	660	2460
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.19	0.51

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
2: NE Baker St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	85	0	0	85	30	25	985	140	0	0	0
Future Volume (vph)	25	85	0	0	85	30	25	985	140	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			0.98				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1663			1728			3221				
Flt Permitted		0.91			1.00			1.00				
Satd. Flow (perm)		1523			1728			3221				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	92	0	0	92	33	27	1071	152	0	0	0
RTOR Reduction (vph)	0	0	0	0	25	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	119	0	0	100	0	0	1242	0	0	0	0
Confl. Peds. (#/hr)	7		7	7		7	6		5	5		6
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	2%	0%	0%	6%	4%	0%	4%	5%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		10.3			10.3			51.7				
Effective Green, g (s)		10.3			10.3			51.7				
Actuated g/C Ratio		0.15			0.15			0.74				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		224			254			2378				
v/s Ratio Prot					0.06							
v/s Ratio Perm		c0.08						0.39				
v/c Ratio		0.53			0.39			0.52				
Uniform Delay, d1		27.6			27.0			3.9				
Progression Factor		1.10			1.00			0.27				
Incremental Delay, d2		1.7			0.7			0.5				
Delay (s)		32.1			27.8			1.5				
Level of Service		C			C			A				
Approach Delay (s)		32.1			27.8			1.5			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: NE Adams St & NE 3rd St

Lane Group	WBL	SBT
Lane Group Flow (vph)	27	1065
v/c Ratio	0.17	0.38
Control Delay	35.9	3.3
Queue Delay	0.0	0.0
Total Delay	35.9	3.3
Queue Length 50th (ft)	15	55
Queue Length 95th (ft)	34	177
Internal Link Dist (ft)	203	470
Turn Bay Length (ft)		
Base Capacity (vph)	396	2817
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.07	0.38

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: NE Adams St & NE 3rd St

02/05/2024

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	0	0	0	70	910
Future Volume (vph)	25	0	0	0	70	910
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5					4.0
Lane Util. Factor	1.00					0.95
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					1.00
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1518					3265
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1518					3265
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	0	0	0	76	989
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	27	0	0	0	0	1065
Confl. Peds. (#/hr)		7		2	2	
Heavy Vehicles (%)	7%	0%	0%	0%	0%	5%
Parking (#/hr)	0					0
Turn Type	Prot				Perm	NA
Protected Phases	4					2
Permitted Phases					2	
Actuated Green, G (s)	7.2					74.3
Effective Green, g (s)	7.2					74.3
Actuated g/C Ratio	0.08					0.83
Clearance Time (s)	4.5					4.0
Vehicle Extension (s)	3.0					4.0
Lane Grp Cap (vph)	121					2695
v/s Ratio Prot	c0.02					
v/s Ratio Perm						0.33
v/c Ratio	0.22					0.40
Uniform Delay, d1	38.8					2.0
Progression Factor	1.00					1.00
Incremental Delay, d2	0.9					0.4
Delay (s)	39.7					2.5
Level of Service	D					A
Approach Delay (s)	39.7		0.0			2.5
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	3.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: NE Baker St & NE 3rd St

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	83	65	1271	103
v/c Ratio	0.14	0.12	0.74	0.13
Control Delay	13.5	8.2	16.2	2.4
Queue Delay	0.0	0.0	49.0	0.0
Total Delay	13.5	8.2	65.2	2.4
Queue Length 50th (ft)	28	6	206	0
Queue Length 95th (ft)	25	29	284	20
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	610	544	1710	812
Starvation Cap Reductn	0	0	628	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.14	0.12	1.17	0.13

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

07/01/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	75	0	0	20	40	5	1165	95	0	0	0
Future Volume (vph)	1	75	0	0	20	40	5	1165	95	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.99			1.00	0.98			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.91			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1709			1446			3235	1446			
Flt Permitted		1.00			1.00			1.00	1.00			
Satd. Flow (perm)		1708			1446			3235	1446			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	82	0	0	22	43	5	1266	103	0	0	0
RTOR Reduction (vph)	0	0	0	0	28	0	0	0	49	0	0	0
Lane Group Flow (vph)	0	83	0	0	37	0	0	1271	54	0	0	0
Confl. Peds. (#/hr)	9		3	3		9	6		4	4		6
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	7%	6%	0%	6%	9%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4						6		6			
Actuated Green, G (s)		25.0			25.0			37.0	37.0			
Effective Green, g (s)		25.0			25.0			37.0	37.0			
Actuated g/C Ratio		0.36			0.36			0.53	0.53			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		610			516			1709	764			
v/s Ratio Prot					0.03							
v/s Ratio Perm		c0.05						0.39	0.04			
v/c Ratio		0.14			0.07			0.74	0.07			
Uniform Delay, d1		15.2			14.8			12.8	8.1			
Progression Factor		0.84			1.00			1.00	1.00			
Incremental Delay, d2		0.4			0.3			3.0	0.2			
Delay (s)		13.2			15.1			15.8	8.3			
Level of Service		B			B			B	A			
Approach Delay (s)		13.2			15.1			15.2			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: NE Adams St & SW 2nd St

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	543	201	87	359	1011
v/c Ratio	0.88	0.33	0.35	0.44	0.77
Control Delay	37.3	6.6	11.9	12.5	21.5
Queue Delay	0.0	0.0	0.0	1.1	0.0
Total Delay	37.3	6.6	11.9	13.6	21.5
Queue Length 50th (ft)	176	13	15	75	168
Queue Length 95th (ft)	#335	52	35	129	#280
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	652	640	252	896	1320
Starvation Cap Reductn	0	0	0	317	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.83	0.31	0.35	0.62	0.77

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	500	185	80	330	0	0	0	0	75	740	115
Future Volume (vph)	0	500	185	80	330	0	0	0	0	75	740	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1863	1558	1703	1792						3134	
Flt Permitted		1.00	1.00	0.17	1.00						1.00	
Satd. Flow (perm)		1863	1558	301	1792						3134	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	543	201	87	359	0	0	0	0	82	804	125
RTOR Reduction (vph)	0	0	98	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	543	103	87	359	0	0	0	0	0	994	0
Confl. Peds. (#/hr)	2		4	4		2	1		1	1		1
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	2%	2%	6%	6%	0%	0%	0%	0%	6%	7%	5%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		19.8	19.8	27.8	27.8						24.2	
Effective Green, g (s)		19.8	19.8	27.8	27.8						24.2	
Actuated g/C Ratio		0.33	0.33	0.46	0.46						0.40	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		614	514	232	830						1264	
v/s Ratio Prot		c0.29		0.02	c0.20							
v/s Ratio Perm			0.07	0.15							0.32	
v/c Ratio		0.88	0.20	0.38	0.43						0.79	
Uniform Delay, d1		19.0	14.4	11.8	10.8						15.6	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		14.2	0.1	0.7	0.3						5.0	
Delay (s)		33.2	14.6	12.6	11.1						20.6	
Level of Service		C	B	B	B						C	
Approach Delay (s)		28.2			11.4			0.0			20.6	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

01/11/2024

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	201	418	326	49	1380
v/c Ratio	0.73	0.60	0.80	0.13	0.87
Control Delay	33.0	20.0	39.4	2.9	22.6
Queue Delay	0.0	3.1	0.0	0.0	0.0
Total Delay	33.0	23.1	39.4	2.9	22.6
Queue Length 50th (ft)	52	124	117	0	245
Queue Length 95th (ft)	#125	204	#226	11	#395
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	275	738	451	420	1591
Starvation Cap Reductn	0	218	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.80	0.72	0.12	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: NE Baker St & NE 2nd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	385	0	0	300	45	130	1045	95	0	0	0
Future Volume (vph)	185	385	0	0	300	45	130	1045	95	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1735	1845			1727	1371		3187				
Flt Permitted	0.24	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	443	1845			1727	1371		3187				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	418	0	0	326	49	141	1136	103	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	37	0	9	0	0	0	0
Lane Group Flow (vph)	201	418	0	0	326	12	0	1371	0	0	0	0
Confl. Peds. (#/hr)	3		2	2		3	3		5	5		3
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	4%	3%	0%	0%	10%	16%	2%	6%	6%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	24.7	24.7			15.3	15.3		32.3				
Effective Green, g (s)	24.7	24.7			15.3	15.3		32.3				
Actuated g/C Ratio	0.38	0.38			0.24	0.24		0.50				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	275	701			406	322		1583				
v/s Ratio Prot	c0.06	0.23			0.19							
v/s Ratio Perm	c0.22					0.01		0.43				
v/c Ratio	0.73	0.60			0.80	0.04		0.87				
Uniform Delay, d1	15.3	16.2			23.4	19.2		14.4				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	9.1	1.1			10.6	0.0		6.6				
Delay (s)	24.3	17.3			34.1	19.2		21.1				
Level of Service	C	B			C	B		C				
Approach Delay (s)		19.6			32.1			21.1			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: NE Johnson St & NE 3rd St

01/11/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	131	144	11	45	415	382	426	346
v/c Ratio	0.47	0.35	0.04	0.17	0.74	0.80	0.81	0.32
Control Delay	27.5	25.9	19.5	28.4	12.1	41.6	37.5	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	25.9	19.5	28.4	12.1	41.6	37.5	7.7
Queue Length 50th (ft)	47	51	4	18	0	156	164	56
Queue Length 95th (ft)	86	109	14	44	66	#346	#352	132
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	280	496	248	494	692	476	577	1123
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.29	0.04	0.09	0.60	0.80	0.74	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: NE Johnson St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	125	2	10	40	365	1	315	20	375	260	45
Future Volume (vph)	115	125	2	10	40	365	1	315	20	375	260	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0		4.5	4.0	4.0		4.0		4.0	4.0	
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		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1719	1842		1641	1900	1482		1769		1687	1670	
Flt Permitted	0.57	1.00		0.67	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1034	1842		1149	1900	1482		1768		1687	1670	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	131	142	2	11	45	415	1	358	23	426	295	51
RTOR Reduction (vph)	0	1	0	0	0	353	0	3	0	0	7	0
Lane Group Flow (vph)	131	143	0	11	45	62	0	379	0	426	339	0
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	5%	3%	0%	10%	0%	9%	100%	6%	8%	7%	12%	7%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8					
Actuated Green, G (s)	17.3	13.5		11.5	10.6	10.6		18.4		21.5	43.9	
Effective Green, g (s)	17.3	13.5		11.5	10.6	10.6		18.4		21.5	43.9	
Actuated g/C Ratio	0.24	0.19		0.16	0.15	0.15		0.26		0.30	0.62	
Clearance Time (s)	4.5	4.0		4.5	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	289	351		192	284	221		459		512	1035	
v/s Ratio Prot	c0.02	0.08		0.00	0.02					c0.25	0.20	
v/s Ratio Perm	c0.09			0.01		0.04		c0.21				
v/c Ratio	0.45	0.41		0.06	0.16	0.28		0.83		0.83	0.33	
Uniform Delay, d1	22.3	25.1		25.0	26.2	26.7		24.7		23.0	6.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.8		0.1	0.3	0.7		12.1		11.3	0.3	
Delay (s)	23.4	25.9		25.1	26.5	27.4		36.7		34.3	6.7	
Level of Service	C	C		C	C	C		D		C	A	
Approach Delay (s)		24.7			27.3			36.7			21.9	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
14: NE Three Mile Ln & SE 1st St

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	309	5	267	478	2	648
v/c Ratio	0.03	0.72	0.09	0.73	0.36	0.02	0.71
Control Delay	28.5	14.4	27.5	43.1	6.1	34.5	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	14.4	27.5	43.1	6.1	34.5	22.5
Queue Length 50th (ft)	2	1	1	121	40	1	225
Queue Length 95th (ft)	11	60	10	#236	209	8	#464
Internal Link Dist (ft)		558	382		425		435
Turn Bay Length (ft)				100		100	
Base Capacity (vph)	322	557	112	372	1332	127	916
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.55	0.04	0.72	0.36	0.02	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
14: NE Three Mile Ln & SE 1st St

07/01/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	270	2	1	2	235	420	1	2	555	15
Future Volume (vph)	4	2	270	2	1	2	235	420	1	2	555	15
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	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.95		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1797	1413			1309		1736	1772		1805	1787	
Flt Permitted	0.75	1.00			0.37		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1427	1413			492		1736	1772		1805	1787	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	5	2	307	2	1	2	267	477	1	2	631	17
RTOR Reduction (vph)	0	274	0	0	2	0	0	0	0	0	1	0
Lane Group Flow (vph)	5	35	0	0	3	0	267	478	0	2	647	0
Confl. Peds. (#/hr)	2					2	3					3
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	3%	0%	0%	50%	4%	7%	100%	0%	6%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	8.7	8.7			8.7		16.8	56.6		1.2	41.0	
Effective Green, g (s)	8.7	8.7			8.7		16.8	56.6		1.2	41.0	
Actuated g/C Ratio	0.11	0.11			0.11		0.21	0.71		0.01	0.51	
Clearance Time (s)	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	
Lane Grp Cap (vph)	155	153			53		364	1253		27	915	
v/s Ratio Prot		c0.03					c0.15	0.27		0.00	c0.36	
v/s Ratio Perm	0.00				0.01							
v/c Ratio	0.03	0.23			0.06		0.73	0.38		0.07	0.71	
Uniform Delay, d1	31.9	32.6			32.0		29.5	4.7		38.9	14.9	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.8			0.5		7.5	0.9		1.2	4.6	
Delay (s)	32.0	33.4			32.5		37.0	5.6		40.0	19.5	
Level of Service	C	C			C		D	A		D	B	
Approach Delay (s)		33.3			32.5			16.8			19.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
15: NE Lafayette Ave & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	16	74	818	11	727	97
v/c Ratio	0.55	0.05	0.18	0.69	0.03	0.72	0.11
Control Delay	32.1	23.6	5.0	12.9	4.4	17.1	4.9
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	32.1	23.6	5.0	13.2	4.4	17.1	4.9
Queue Length 50th (ft)	41	4	7	148	1	203	7
Queue Length 95th (ft)	111	22	25	508	7	427	32
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	512	621	613	1363	635	1353	1153
Starvation Cap Reductn	0	0	0	126	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.03	0.12	0.66	0.02	0.54	0.08

Intersection Summary

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	20	35	2	10	3	65	715	4	10	640	85
Future Volume (vph)	65	20	35	2	10	3	65	715	4	10	640	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.96			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.97			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1540			1649		1805	1742		1805	1759	1482
Flt Permitted		0.82			0.97		0.22	1.00		0.25	1.00	1.00
Satd. Flow (perm)		1303			1610		421	1742		470	1759	1482
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	74	23	40	2	11	3	74	812	5	11	727	97
RTOR Reduction (vph)	0	16	0	0	2	0	0	0	0	0	0	22
Lane Group Flow (vph)	0	121	0	0	14	0	74	818	0	11	727	75
Confl. Peds. (#/hr)	2		1	1		2			1	1		
Heavy Vehicles (%)	4%	0%	3%	0%	0%	0%	0%	9%	0%	0%	8%	9%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		12.2			12.2		50.5	45.7		42.5	41.7	41.7
Effective Green, g (s)		12.2			12.2		50.5	45.7		42.5	41.7	41.7
Actuated g/C Ratio		0.17			0.17		0.71	0.65		0.60	0.59	0.59
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		224			277		394	1126		297	1037	874
v/s Ratio Prot							c0.01	c0.47		0.00	0.41	
v/s Ratio Perm		c0.09			0.01		0.12			0.02		0.05
v/c Ratio		0.54			0.05		0.19	0.73		0.04	0.70	0.09
Uniform Delay, d1		26.7			24.4		6.0	8.3		6.8	10.1	6.3
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.1			0.1		0.2	2.5		0.0	2.3	0.1
Delay (s)		28.8			24.5		6.2	10.9		6.9	12.5	6.3
Level of Service		C			C		A	B		A	B	A
Approach Delay (s)		28.8			24.5			10.5			11.7	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1: NE Adams St & NE 5th St

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	9	230	1365
v/c Ratio	0.03	0.90	0.62
Control Delay	19.6	56.3	11.5
Queue Delay	0.0	0.5	0.0
Total Delay	19.6	56.8	11.5
Queue Length 50th (ft)	2	142	210
Queue Length 95th (ft)	13	214	351
Internal Link Dist (ft)	316	215	253
Turn Bay Length (ft)			
Base Capacity (vph)	453	353	2213
Starvation Cap Reductn	0	15	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.68	0.62

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	5	205	15	0	0	0	0	65	1240	5
Future Volume (vph)	0	4	5	205	15	0	0	0	0	65	1240	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0						7.0	
Lane Util. Factor		1.00			1.00						0.95	
Frpb, ped/bikes		0.99			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.96						1.00	
Satd. Flow (prot)		1742			1775						3352	
Flt Permitted		1.00			0.73						1.00	
Satd. Flow (perm)		1742			1365						3352	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	4	5	214	16	0	0	0	0	68	1292	5
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	5	0	0	230	0	0	0	0	0	1365	0
Confl. Peds. (#/hr)	19		3	3		19	13		2	2		13
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%	2%	0%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		19.9			19.9						62.1	
Effective Green, g (s)		16.9			16.9						59.1	
Actuated g/C Ratio		0.19			0.19						0.66	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		2.5			2.5						4.0	
Lane Grp Cap (vph)		327			256						2201	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.17						0.41	
v/c Ratio		0.02			0.90						0.62	
Uniform Delay, d1		29.8			35.7						8.9	
Progression Factor		1.00			0.68						1.00	
Incremental Delay, d2		0.0			28.2						1.3	
Delay (s)		29.8			52.6						10.3	
Level of Service		C			D						B	
Approach Delay (s)		29.8			52.6			0.0			10.3	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: NE Baker St & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	81	294	1435
v/c Ratio	0.29	0.76	0.62
Control Delay	21.3	42.3	5.4
Queue Delay	0.0	0.3	0.1
Total Delay	21.3	42.6	5.5
Queue Length 50th (ft)	39	144	82
Queue Length 95th (ft)	m45	210	400
Internal Link Dist (ft)	215	223	465
Turn Bay Length (ft)			
Base Capacity (vph)	470	627	2327
Starvation Cap Reductn	0	0	140
Spillback Cap Reductn	0	65	84
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.17	0.52	0.66

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
2: NE Baker St & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	60	0	0	190	80	20	1255	45	0	0	0
Future Volume (vph)	15	60	0	0	190	80	20	1255	45	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.96			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1675			1771			3311				
Flt Permitted		0.81			1.00			1.00				
Satd. Flow (perm)		1367			1771			3311				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	65	0	0	207	87	22	1364	49	0	0	0
RTOR Reduction (vph)	0	0	0	0	21	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	81	0	0	273	0	0	1433	0	0	0	0
Confl. Peds. (#/hr)	22		3	3		22	2		5	5		2
Confl. Bikes (#/hr)			1			2			2			
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	3%	0%	0%	0%	0%
Parking (#/hr)		0						0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		8			4			6				
Permitted Phases	8						6					
Actuated Green, G (s)		18.8			18.8			63.2				
Effective Green, g (s)		18.8			18.8			63.2				
Actuated g/C Ratio		0.21			0.21			0.70				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.5			2.5			4.0				
Lane Grp Cap (vph)		285			369			2325				
v/s Ratio Prot					c0.15							
v/s Ratio Perm		0.06						0.43				
v/c Ratio		0.28			0.74			0.62				
Uniform Delay, d1		29.9			33.3			7.0				
Progression Factor		0.68			1.00			0.55				
Incremental Delay, d2		0.3			7.4			0.9				
Delay (s)		20.7			40.7			4.8				
Level of Service		C			D			A				
Approach Delay (s)		20.7			40.7			4.8			0.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: NE Adams St & NE 3rd St

02/05/2024

Lane Group	WBL	SBT
Lane Group Flow (vph)	177	1538
v/c Ratio	0.68	0.62
Control Delay	35.0	10.1
Queue Delay	9.5	0.3
Total Delay	44.6	10.3
Queue Length 50th (ft)	54	138
Queue Length 95th (ft)	m74	493
Internal Link Dist (ft)	203	470
Turn Bay Length (ft)		
Base Capacity (vph)	398	2485
Starvation Cap Reductn	6	316
Spillback Cap Reductn	184	278
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.83	0.71

Intersection Summary
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
3: NE Adams St & NE 3rd St

02/05/2024

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	165	0	0	0	80	1350
Future Volume (vph)	165	0	0	0	80	1350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5					4.0
Lane Util. Factor	1.00					0.95
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					1.00
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1593					3356
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1593					3356
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	177	0	0	0	86	1452
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	177	0	0	0	0	1538
Confl. Peds. (#/hr)		41		1	1	
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Parking (#/hr)	0					0
Turn Type	Prot				Perm	NA
Protected Phases	4					2
Permitted Phases					2	
Actuated Green, G (s)	14.8					66.7
Effective Green, g (s)	14.8					66.7
Actuated g/C Ratio	0.16					0.74
Clearance Time (s)	4.5					4.0
Vehicle Extension (s)	2.5					4.0
Lane Grp Cap (vph)	261					2487
v/s Ratio Prot	c0.11					
v/s Ratio Perm						0.46
v/c Ratio	0.68					0.62
Uniform Delay, d1	35.4					5.6
Progression Factor	0.68					1.41
Incremental Delay, d2	5.4					0.9
Delay (s)	29.5					8.8
Level of Service	C					A
Approach Delay (s)	29.5		0.0			8.8
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: NE Baker St & NE 3rd St

07/01/2024

Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	112	229	1308	90
v/c Ratio	0.20	0.39	0.75	0.10
Control Delay	16.7	15.9	16.4	2.5
Queue Delay	0.0	0.0	48.9	0.0
Total Delay	16.7	15.9	65.3	2.5
Queue Length 50th (ft)	33	58	214	0
Queue Length 95th (ft)	67	112	293	18
Internal Link Dist (ft)	203	235	165	
Turn Bay Length (ft)				
Base Capacity (vph)	573	591	1742	873
Starvation Cap Reductn	0	0	641	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.39	1.19	0.10

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: NE Baker St & NE 3rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	90	0	0	135	80	35	1195	85	0	0	0
Future Volume (vph)	15	90	0	0	135	80	35	1195	85	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.98			1.00	0.97			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.95			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1674			1580			3296	1573			
Flt Permitted		0.95			1.00			1.00	1.00			
Satd. Flow (perm)		1605			1580			3296	1573			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	16	96	0	0	144	85	37	1271	90	0	0	0
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	42	0	0	0
Lane Group Flow (vph)	0	112	0	0	202	0	0	1308	48	0	0	0
Confl. Peds. (#/hr)	35		11	11		35	5		5	5		5
Confl. Bikes (#/hr)			2						2			1
Heavy Vehicles (%)	8%	0%	0%	0%	2%	0%	0%	4%	0%	0%	0%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			6				
Permitted Phases	4						6		6			
Actuated Green, G (s)		25.0			25.0			37.0	37.0			
Effective Green, g (s)		25.0			25.0			37.0	37.0			
Actuated g/C Ratio		0.36			0.36			0.53	0.53			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.5			2.5			4.0	4.0			
Lane Grp Cap (vph)		573			564			1742	831			
v/s Ratio Prot					c0.13							
v/s Ratio Perm		0.07						0.40	0.03			
v/c Ratio		0.20			0.36			0.75	0.06			
Uniform Delay, d1		15.5			16.6			12.9	8.0			
Progression Factor		1.00			1.00			1.00	1.00			
Incremental Delay, d2		0.8			1.8			3.0	0.1			
Delay (s)		16.3			18.4			15.9	8.2			
Level of Service		B			B			B	A			
Approach Delay (s)		16.3			18.4			15.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	430	118	145	489	1651
v/c Ratio	0.92	0.28	0.77	0.73	0.91
Control Delay	61.0	16.0	50.9	33.0	27.9
Queue Delay	0.0	0.0	0.0	54.1	0.0
Total Delay	61.0	16.0	50.9	87.1	27.9
Queue Length 50th (ft)	236	25	57	239	392
Queue Length 95th (ft)	#407	69	#145	357	#608
Internal Link Dist (ft)	318			210	164
Turn Bay Length (ft)					
Base Capacity (vph)	480	439	189	668	1820
Starvation Cap Reductn	0	0	0	248	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.90	0.27	0.77	1.16	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: NE Adams St & SW 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	400	110	135	455	0	0	0	0	60	1210	265
Future Volume (vph)	0	400	110	135	455	0	0	0	0	60	1210	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1541	1719	1881						3240	
Flt Permitted		1.00	1.00	0.15	1.00						1.00	
Satd. Flow (perm)		1881	1541	275	1881						3240	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	430	118	145	489	0	0	0	0	65	1301	285
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	20	0
Lane Group Flow (vph)	0	430	72	145	489	0	0	0	0	0	1631	0
Confl. Peds. (#/hr)	7		9	9		7	2		1	1		2
Confl. Bikes (#/hr)			1			2						2
Heavy Vehicles (%)	0%	1%	2%	5%	1%	0%	0%	0%	0%	2%	3%	0%
Parking (#/hr)											0	
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		8		7	4						2	
Permitted Phases			8	4						2		
Actuated Green, G (s)		22.3	22.3	32.0	32.0						50.0	
Effective Green, g (s)		22.3	22.3	32.0	32.0						50.0	
Actuated g/C Ratio		0.25	0.25	0.36	0.36						0.56	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5						4.0	
Lane Grp Cap (vph)		466	381	189	668						1800	
v/s Ratio Prot		c0.23		0.05	c0.26							
v/s Ratio Perm			0.05	0.22							0.50	
v/c Ratio		0.92	0.19	0.77	0.73						0.91	
Uniform Delay, d1		33.0	26.7	23.2	25.3						17.9	
Progression Factor		1.00	1.00	1.00	1.00						1.15	
Incremental Delay, d2		23.9	0.2	16.2	3.9						7.1	
Delay (s)		56.9	26.9	39.4	29.2						27.6	
Level of Service		E	C	D	C						C	
Approach Delay (s)		50.4			31.5			0.0			27.6	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
6: NE Baker St & NE 2nd St

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	134	366	478	54	1516
v/c Ratio	0.64	0.50	0.92	0.11	0.92
Control Delay	32.4	20.9	53.0	5.0	28.8
Queue Delay	0.0	4.4	0.0	0.0	0.0
Total Delay	32.4	25.3	53.0	5.0	28.8
Queue Length 50th (ft)	42	133	227	0	348
Queue Length 95th (ft)	#96	209	#398	20	#518
Internal Link Dist (ft)		210	186		203
Turn Bay Length (ft)	230				
Base Capacity (vph)	209	752	540	490	1654
Starvation Cap Reductn	0	304	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.82	0.89	0.11	0.92

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: NE Baker St & NE 2nd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	340	0	0	445	50	140	1145	125	0	0	0
Future Volume (vph)	125	340	0	0	445	50	140	1145	125	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1770	1881			1881	1539		3247				
Flt Permitted	0.15	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	284	1881			1881	1539		3247				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	134	366	0	0	478	54	151	1231	134	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	39	0	9	0	0	0	0
Lane Group Flow (vph)	134	366	0	0	478	15	0	1507	0	0	0	0
Confl. Peds. (#/hr)	3		5	5		3	4		3	3		4
Confl. Bikes (#/hr)			2			3						2
Heavy Vehicles (%)	2%	1%	0%	0%	1%	3%	1%	3%	10%	0%	0%	0%
Parking (#/hr)								0				
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	3	8			4			6				
Permitted Phases	8					4	6					
Actuated Green, G (s)	31.5	31.5			22.2	22.2		40.5				
Effective Green, g (s)	31.5	31.5			22.2	22.2		40.5				
Actuated g/C Ratio	0.39	0.39			0.28	0.28		0.51				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	2.5	2.5			2.5	2.5		4.0				
Lane Grp Cap (vph)	210	740			521	427		1643				
v/s Ratio Prot	c0.04	0.19			c0.25							
v/s Ratio Perm	0.21					0.01		0.46				
v/c Ratio	0.64	0.49			0.92	0.04		0.92				
Uniform Delay, d1	18.9	18.3			28.0	21.1		18.2				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	5.5	0.4			21.0	0.0		9.6				
Delay (s)	24.4	18.6			49.0	21.1		27.9				
Level of Service	C	B			D	C		C				
Approach Delay (s)		20.2			46.2			27.9			0.0	
Approach LOS		C			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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	10	125	35	40	205	15	10	10	10	5	15	5
Future Vol, veh/h	10	125	35	40	205	15	10	10	10	5	15	5
Conflicting Peds, #/hr	43	0	91	91	0	43	41	0	14	14	0	41
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	1	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	12	147	41	47	241	18	12	12	12	6	18	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	302	0	0	279	0	0	680	679	273	605	690	334
Stage 1	-	-	-	-	-	-	283	283	-	387	387	-
Stage 2	-	-	-	-	-	-	397	396	-	218	303	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1270	-	-	1295	-	-	368	376	771	413	371	712
Stage 1	-	-	-	-	-	-	728	681	-	641	613	-
Stage 2	-	-	-	-	-	-	633	607	-	789	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1218	-	-	1183	-	-	293	310	695	357	306	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	293	310	-	357	306	-
Stage 1	-	-	-	-	-	-	657	615	-	608	560	-
Stage 2	-	-	-	-	-	-	556	555	-	742	602	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.3	15.7	16.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	371	1218	-	-	1183	-	-	354
HCM Lane V/C Ratio	0.095	0.01	-	-	0.04	-	-	0.083
HCM Control Delay (s)	15.7	8	0	-	8.2	0	-	16.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.3

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	120	15	5	240	10	10	30	20	10	40	5
Future Vol, veh/h	2	120	15	5	240	10	10	30	20	10	40	5
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	2	141	18	6	282	12	12	35	24	12	47	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	10	8.4	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	1%	2%	18%
Vol Thru, %	50%	88%	94%	73%
Vol Right, %	33%	11%	4%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	137	255	55
LT Vol	10	2	5	10
Through Vol	30	120	240	40
RT Vol	20	15	10	5
Lane Flow Rate	71	161	300	65
Geometry Grp	1	1	1	1
Degree of Util (X)	0.095	0.201	0.366	0.09
Departure Headway (Hd)	4.853	4.499	4.395	5.009
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	736	796	819	714
Service Time	2.896	2.531	2.422	3.051
HCM Lane V/C Ratio	0.096	0.202	0.366	0.091
HCM Control Delay	8.4	8.7	10	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.7	1.7	0.3

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	120	5	15	235	85	4	30	10	40	55	25
Future Vol, veh/h	20	120	5	15	235	85	4	30	10	40	55	25
Conflicting Peds, #/hr	55	0	80	80	0	55	11	0	31	31	0	11
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	2	14
Mvmt Flow	24	141	6	18	276	100	5	35	12	47	65	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	431	0	0	227	0	0	692	739	255	664	692	392
Stage 1	-	-	-	-	-	-	272	272	-	417	417	-
Stage 2	-	-	-	-	-	-	420	467	-	247	275	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.52	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4.018	3.426
Pot Cap-1 Maneuver	1139	-	-	1353	-	-	361	347	789	377	367	631
Stage 1	-	-	-	-	-	-	738	688	-	617	591	-
Stage 2	-	-	-	-	-	-	615	565	-	761	683	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1079	-	-	1250	-	-	255	291	707	300	308	592
Mov Cap-2 Maneuver	-	-	-	-	-	-	255	291	-	300	308	-
Stage 1	-	-	-	-	-	-	666	621	-	571	550	-
Stage 2	-	-	-	-	-	-	501	526	-	669	616	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.4	17.9	23
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	331	1079	-	-	1250	-	-	339
HCM Lane V/C Ratio	0.156	0.022	-	-	0.014	-	-	0.416
HCM Control Delay (s)	17.9	8.4	0	-	7.9	0	-	23
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	2

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	0	150	15	0	315	15	10	35	15	20	25	5
Future Vol, veh/h	0	150	15	0	315	15	10	35	15	20	25	5
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	1	12	0	0	0	0	0	0
Mvmt Flow	0	176	18	0	371	18	12	41	18	24	29	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	11.5	8.8	8.9
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	0%	0%	40%
Vol Thru, %	58%	91%	95%	50%
Vol Right, %	25%	9%	5%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	165	330	50
LT Vol	10	0	0	20
Through Vol	35	150	315	25
RT Vol	15	15	15	5
Lane Flow Rate	71	194	388	59
Geometry Grp	1	1	1	1
Degree of Util (X)	0.101	0.248	0.479	0.087
Departure Headway (Hd)	5.172	4.604	4.444	5.326
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	689	776	808	669
Service Time	3.235	2.65	2.481	3.391
HCM Lane V/C Ratio	0.103	0.25	0.48	0.088
HCM Control Delay	8.8	9.2	11.5	8.9
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.3	1	2.6	0.3

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	155	10	5	290	25	10	10	5	20	10	35
Future Vol, veh/h	20	155	10	5	290	25	10	10	5	20	10	35
Conflicting Peds, #/hr	30	0	18	18	0	30	17	0	3	3	0	17
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	23	176	11	6	330	28	11	11	6	23	11	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	388	0	0	205	0	0	645	646	203	625	637	391
Stage 1	-	-	-	-	-	-	246	246	-	386	386	-
Stage 2	-	-	-	-	-	-	399	400	-	239	251	-
Critical Hdwy	4.1	-	-	4.1	-	-	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	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1182	-	-	1378	-	-	388	393	843	400	398	662
Stage 1	-	-	-	-	-	-	762	706	-	641	614	-
Stage 2	-	-	-	-	-	-	631	605	-	769	703	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1148	-	-	1354	-	-	336	365	826	368	369	633
Mov Cap-2 Maneuver	-	-	-	-	-	-	336	365	-	368	369	-
Stage 1	-	-	-	-	-	-	732	678	-	609	593	-
Stage 2	-	-	-	-	-	-	567	584	-	732	676	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.1	14.8	14
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	395	1148	-	-	1354	-	-	475
HCM Lane V/C Ratio	0.072	0.02	-	-	0.004	-	-	0.156
HCM Control Delay (s)	14.8	8.2	0	-	7.7	0	-	14
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.5

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	15	160	10	15	300	10	5	35	35	20	20	20
Future Vol, veh/h	15	160	10	15	300	10	5	35	35	20	20	20
Conflicting Peds, #/hr	13	0	4	4	0	13	4	0	2	2	0	4
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	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	1	40	0	12	6	0	5	7
Mvmt Flow	18	188	12	18	353	12	6	41	41	24	24	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	378	0	0	204	0	0	657	648	200	681	648	376
Stage 1	-	-	-	-	-	-	234	234	-	408	408	-
Stage 2	-	-	-	-	-	-	423	414	-	273	240	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.62	6.26	7.1	6.55	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.62	-	6.1	5.55	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.108	3.354	3.5	4.045	3.363
Pot Cap-1 Maneuver	1192	-	-	1380	-	-	381	377	831	367	385	659
Stage 1	-	-	-	-	-	-	774	693	-	624	592	-
Stage 2	-	-	-	-	-	-	613	576	-	737	701	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1177	-	-	1375	-	-	338	359	826	306	367	648
Mov Cap-2 Maneuver	-	-	-	-	-	-	338	359	-	306	367	-
Stage 1	-	-	-	-	-	-	758	678	-	606	575	-
Stage 2	-	-	-	-	-	-	555	560	-	645	686	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.4	14.1	16
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	485	1177	-	-	1375	-	-	398
HCM Lane V/C Ratio	0.182	0.015	-	-	0.013	-	-	0.177
HCM Control Delay (s)	14.1	8.1	0	-	7.7	0	-	16
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0.6

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	97	153	17	227	466	391	540	432
v/c Ratio	0.46	0.39	0.06	0.72	0.72	0.92	0.82	0.37
Control Delay	33.0	33.6	30.5	47.4	12.9	64.1	38.8	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	33.6	30.5	47.4	12.9	64.1	38.8	7.9
Queue Length 50th (ft)	41	67	5	102	10	221	285	97
Queue Length 95th (ft)	78	133	m15	166	156	#392	#456	149
Internal Link Dist (ft)		231		615		193		426
Turn Bay Length (ft)	175		115		115		160	
Base Capacity (vph)	211	424	284	355	670	423	658	1182
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.36	0.06	0.64	0.70	0.92	0.82	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
13: NE Johnson St & NE 3rd St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	135	0	15	200	410	10	310	25	475	255	125
Future Volume (vph)	85	135	0	15	200	410	10	310	25	475	255	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0		4.5	4.0	4.0		4.0		4.0	4.0	
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	0.98		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1805	1881		1805	1881	1549		1798		1752	1771	
Flt Permitted	0.34	1.00		0.64	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (perm)	646	1881		1210	1881	1549		1772		1752	1771	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	97	153	0	17	227	466	11	352	28	540	290	142
RTOR Reduction (vph)	0	0	0	0	0	378	0	3	0	0	19	0
Lane Group Flow (vph)	97	153	0	17	227	88	0	388	0	540	413	0
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	2%	0%	5%	0%	3%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6		6	8					
Actuated Green, G (s)	23.0	19.0		19.0	17.0	17.0		21.4		31.1	56.5	
Effective Green, g (s)	23.0	19.0		19.0	17.0	17.0		21.4		31.1	56.5	
Actuated g/C Ratio	0.26	0.21		0.21	0.19	0.19		0.24		0.35	0.63	
Clearance Time (s)	4.5	4.0		4.5	4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		4.0		3.5	4.3	
Lane Grp Cap (vph)	216	397		268	355	292		421		605	1111	
v/s Ratio Prot	c0.02	0.08		0.00	c0.12					c0.31	0.23	
v/s Ratio Perm	0.09			0.01		0.06		c0.22				
v/c Ratio	0.45	0.39		0.06	0.64	0.30		0.92		0.89	0.37	
Uniform Delay, d1	26.8	30.5		28.3	33.7	31.4		33.5		27.9	8.1	
Progression Factor	1.00	1.00		1.29	1.03	1.99		1.00		1.00	1.00	
Incremental Delay, d2	1.5	0.6		0.1	3.2	0.5		25.8		18.0	0.3	
Delay (s)	28.3	31.1		36.5	37.8	62.8		59.2		45.9	8.5	
Level of Service	C	C		D	D	E		E		D	A	
Approach Delay (s)		30.0			54.2			59.2			29.3	
Approach LOS		C			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
14: NE Three Mile Ln & SE 1st St

07/01/2024

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	4	450	6	343	761	11	793
v/c Ratio	0.02	0.87	0.05	0.86	0.56	0.10	0.89
Control Delay	29.5	26.2	22.4	56.6	9.2	52.3	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	26.2	22.4	56.6	9.2	52.3	27.3
Queue Length 50th (ft)	2	44	1	180	154	7	409
Queue Length 95th (ft)	10	#185	11	#348	400	m12	m#672
Internal Link Dist (ft)		558	382		425		435
Turn Bay Length (ft)				100		100	
Base Capacity (vph)	289	582	180	401	1368	108	896
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.77	0.03	0.86	0.56	0.10	0.89

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
14: NE Three Mile Ln & SE 1st St

07/01/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	1	400	1	1	4	305	675	3	10	700	5
Future Volume (vph)	4	1	400	1	1	4	305	675	3	10	700	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	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.91		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1440			1518		1770	1862		1805	1861	
Flt Permitted	0.75	1.00			0.57		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1425	1440			872		1770	1862		1805	1861	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	4	1	449	1	1	4	343	758	3	11	787	6
RTOR Reduction (vph)	0	312	0	0	3	0	0	0	0	0	1	0
Lane Group Flow (vph)	4	138	0	0	3	0	343	761	0	11	792	0
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	2%	2%	0%	0%	2%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	12.9	12.9			12.9		20.3	62.6		1.0	43.3	
Effective Green, g (s)	12.9	12.9			12.9		20.3	62.6		1.0	43.3	
Actuated g/C Ratio	0.14	0.14			0.14		0.23	0.70		0.01	0.48	
Clearance Time (s)	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	
Lane Grp Cap (vph)	204	206			124		399	1295		20	895	
v/s Ratio Prot		c0.10					c0.19	0.41		0.01	c0.43	
v/s Ratio Perm	0.00				0.00							
v/c Ratio	0.02	0.67			0.02		0.86	0.59		0.55	0.89	
Uniform Delay, d1	33.1	36.5			33.1		33.5	7.1		44.3	21.1	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.25	0.66	
Incremental Delay, d2	0.0	8.3			0.1		16.6	2.0		22.4	9.8	
Delay (s)	33.2	44.8			33.2		50.1	9.0		77.9	23.8	
Level of Service	C	D			C		D	A		E	C	
Approach Delay (s)		44.7			33.2			21.8			24.6	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
15: NE Lafayette Ave & NE 5th St

01/11/2024

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	241	52	84	856	4	876	169
v/c Ratio	0.76	0.14	0.29	0.71	0.01	0.82	0.18
Control Delay	42.8	21.1	7.9	15.1	5.8	24.7	7.8
Queue Delay	0.0	0.0	0.0	1.2	0.0	0.0	0.0
Total Delay	42.8	21.1	7.9	16.2	5.8	24.7	7.8
Queue Length 50th (ft)	108	16	13	230	1	360	27
Queue Length 95th (ft)	194	45	33	581	4	#716	68
Internal Link Dist (ft)	231	206		426		263	
Turn Bay Length (ft)			110		125		50
Base Capacity (vph)	456	539	460	1339	540	1203	1050
Starvation Cap Reductn	0	0	0	259	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.10	0.18	0.79	0.01	0.73	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
15: NE Lafayette Ave & NE 5th St

01/11/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	20	90	1	30	15	75	760	2	4	780	150
Future Volume (vph)	105	20	90	1	30	15	75	760	2	4	780	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.94			0.96		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1548			1621		1770	1844		1805	1845	1582
Flt Permitted		0.84			1.00		0.13	1.00		0.21	1.00	1.00
Satd. Flow (perm)		1328			1616		236	1844		390	1845	1582
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	118	22	101	1	34	17	84	854	2	4	876	169
RTOR Reduction (vph)	0	27	0	0	13	0	0	0	0	0	0	22
Lane Group Flow (vph)	0	214	0	0	39	0	84	856	0	4	876	147
Confl. Peds. (#/hr)	1		3	3		1			3	3		
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)		17.9			17.9		57.9	53.0		49.8	48.9	48.9
Effective Green, g (s)		17.9			17.9		57.9	53.0		49.8	48.9	48.9
Actuated g/C Ratio		0.21			0.21		0.69	0.63		0.59	0.58	0.58
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5		2.5	4.0		2.5	4.0	4.0
Lane Grp Cap (vph)		283			345		254	1166		246	1076	923
v/s Ratio Prot							c0.02	c0.46		0.00	c0.47	
v/s Ratio Perm		c0.16			0.02		0.21			0.01		0.09
v/c Ratio		0.76			0.11		0.33	0.73		0.02	0.81	0.16
Uniform Delay, d1		30.9			26.5		11.7	10.6		9.3	13.8	8.0
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		10.5			0.1		0.6	2.6		0.0	5.1	0.1
Delay (s)		41.4			26.7		12.3	13.2		9.3	18.9	8.1
Level of Service		D			C		B	B		A	B	A
Approach Delay (s)		41.4			26.7			13.1			17.1	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

30% CD
STORMWATER REPORT

Third Street Improvements (NE Adams to NE Johnson Street)
McMinnville, OR, 97218

April 28, 2025

Prepared by:

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EXPIRES: 6/30/2026

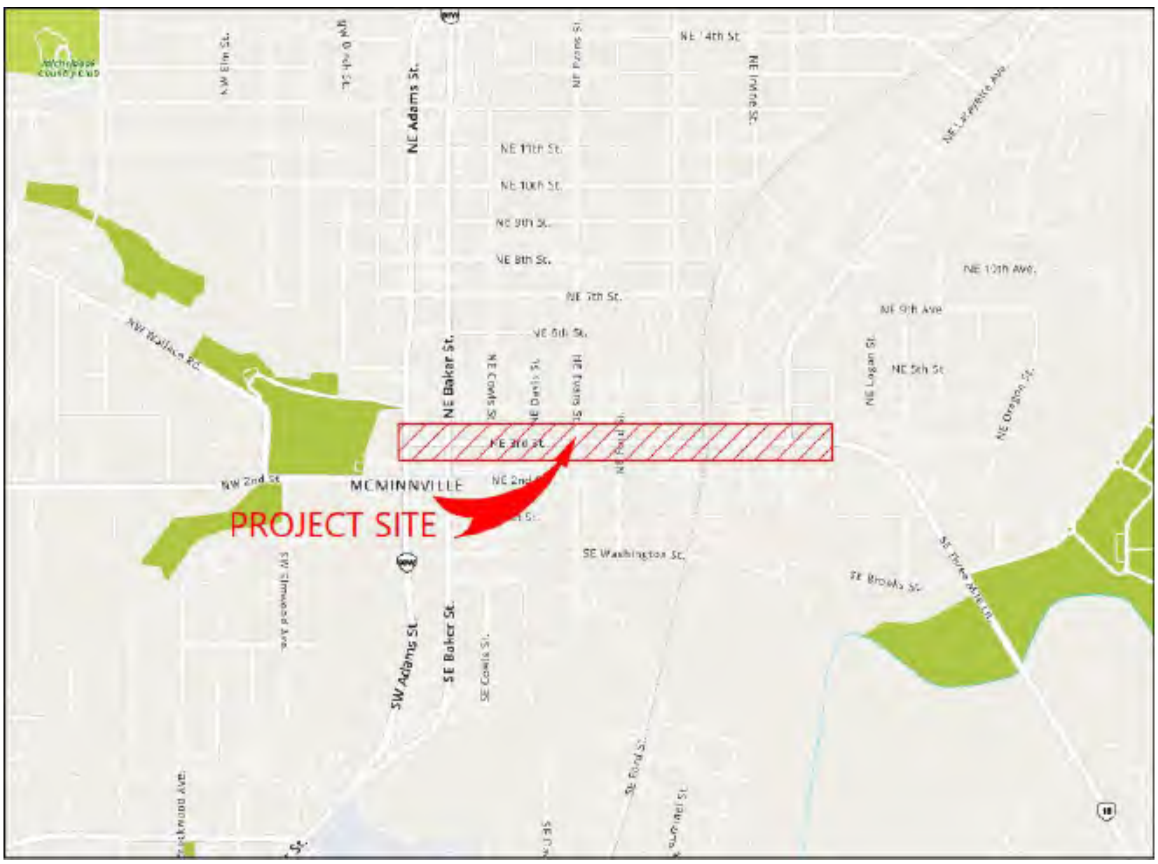
TABLE OF CONTENTS

Attachments

I. PROJECT DESCRIPTION

The proposed Third Street Improvement project consists of rehabilitating nine blocks of the downtown area from Adams Street to Johnson Street, with surface and utility improvements throughout. Complete surface improvements are proposed along the entirety of the nine blocks of Third Street and within adjacent intersections, including new sidewalk, paver and permeable paver pedestrian flexible space, raised concrete roadway and parking with a flush curb condition and concrete valley gutter, pedestrian crossings, new trees and other plantings, and other furnishings throughout. Utility improvements to the storm, water, sanitary sewer, gas, and electrical are proposed throughout the project limits. This report will focus on the proposed stormwater improvements.

Existing storm mains are to be replaced due to age, condition, and location. New main lines will be relocated into the public street and out of sidewalks and curb lines and new inlets will be located at low points in the roadway. Where feasible, stormwater will be routed into soil cell systems below the sidewalk to be treated prior to it entering the downstream system.



Vicinity Map: Limits of Third Street Improvements

II. EXISTING CONDITIONS

The existing land is 9-blocks of fully developed downtown corridor area from NE Adams Street to NE Johnson Street. There are four existing ultimate discharge locations associated with the project. NE Adams Street to Baker Street discharge into Cozine Creek via a storm main that extends west, past Third Street. From NE Baker Street to NE Evans Street, the existing storm system discharges to NE 4th Street. From NE Evans to NE Galloway Street the existing storm system discharges to NE

1st Street. The existing storm drain systems in both 1st and 4th Streets are conveyed to their eventual discharge locations in North Cozine Creek. NE Irvine Street to NE Johnson Street are conveyed east to an existing storm system in Third Street where it flows east to its eventual discharge in the South Yamhill River. See Attachment A in the appendix for the City of McMinnville Storm Sewer Map and enlargement of the project area.

Due to the developed nature of the existing land, limited infiltration testing has been conducted at this time. The two borings that were completed, show limited infiltration rates at approximately 3 feet of depth, ranging from 1.5-2.3 inches per hour. The on-site soil at 1-3 feet of depth was found to be dark lean clay, the clay is underlain by soft to medium stiff silt and elastic silt with variable amounts of sand extending to depths of up to 11.5 below ground surface (bgs). Due to low unfactored infiltration rates and low hydraulic conductivity, the geotechnical engineer does not recommend infiltration as a stormwater management approach (Attachment D). In general, groundwater was not encountered during shallow explorations, however, one boring A-11 (near the existing railroad corridor) encountered groundwater at approximately 9 feet below ground surface (bgs). Results of geotechnical laboratory moisture content testing did not imply presence of groundwater in in other explorations. Based on Oregon Water Resources Department records, the groundwater in the project corridor is typically 3 to 10 feet bgs, and likely fluctuates seasonally during the wet season (November-May). The Geotechnical Report documenting this information is included as Attachment D of this report.

III. PROPOSED CONDITIONS

This report and stormwater design are preliminary and based on 30% design plans. The proposed Third Street design is a curb-less design with a crowned centerline. All stormwater from the roadway and sidewalks will flow towards a concrete valley gutter at the roadway/parking limits. Storm inlets will be located at low points along the valley gutters, not exceeding ODOT's maximum inlet spacing requirements.

Where feasible, stormwater will then be routed into soil cell systems below the sidewalk to be treated prior to it entering the downstream system. As infiltration is not recommended, the soil cell systems will be lined and include underdrains, allowing the stormwater to enter the outlet pipes once treated. Although the proposed project will be designed to treat all stormwater runoff before it enters the downstream public storm system, there are some locations where soil cells are not feasible and the specifics for treatment in those areas are still to be determined. This will be studied further in later stages of the design.

After treatment, stormwater will enter the City's conveyance system and generally will remain in the same watersheds as existing conditions. Pipes have been sized to account for additional storage that could typically be accommodated in the gutter of a curbed roadway.

The total tributary area for these improvements is approximately 12 acres – this area includes the improved right-of-way, roof drains, and all adjacent property that drains into the project area.

IV. REFERENCES

City of McMinnville Storm Drainage Design and Construction Standards (COM SDDCS)

City of McMinnville Stormwater Standards (COM SS)

City of McMinnville Storm Drainage Master Plan (COM SDMP)

ODOT Hydraulics Manual (Chapter 7)

Geotechnical Report: Report of Geotechnical Engineering Services for Third Street Improvements: NE Third Street to NE Johnson Street, prepared by Haley and Aldrich for BKF Engineers, dated July 2024.

V. DESIGN AND CONSTRUCTION STANDARDS

The proposed development will provide stormwater management in accordance with Chapter 7 of the ODOT Hydraulics Manual, as well as Appendix E of the COM SDDCS. Per Appendix E of the COM SDDCS, detention of stormwater is not required since circumstances A, B, and C do not apply (see detention criteria below). Compliance with the COM SDMP has also been implemented by proposing drainage improvements for known conveyance inadequacies described in the report.

Per the COM SDDCS Appendix E, this project is not subject to stormwater detention requirements.

Applicability of Stormwater Detention Criteria

Detention of stormwater is not required except in the following circumstances:

A. Development of sites greater than 2 acres in size located within Sub-basins N-30L2, N-50, and C-80R2.

B. Any commercial or industrial development that creates more than 5 new acres of impervious area or creates more than 3 additional impervious acres on a site with 5 acres or more of existing impervious acres.

C. Any multi-family residential development that develops a total land area greater than 10 acres in size. If construction of-a multi-family development is phased with less than 10 acres being constructed in any one phase, then drainage patterns shall be planned for future stormwater quality facilities with the actual construction of such facilities postponed until more than 10 acres are actually constructed.

NOTE: Detention is not required for any development if the site discharges directly into the North Yamhill River, the South Yamhill River, or into Main Cozine Creek downstream of its confluence with North Cozine Creek.

Per the COM SDDCS standards, this basin is <100 acres in size, and therefore requires the Rational Method Design procedure.

TABLE E-1
Summary of Recommended Hydrology Methods

Basin Characteristics	Design Procedure
Less than 100 acres	Rational Method
Between 100 and 300 acres	Rational Method or SBUH/TR-55
Greater than 300 acres*	SBUH/TR-55

* Reported flow from master plan may be used for delineated basins greater than 300 acres, if land use and routing assumptions have been reviewed and updated.

VI. HYDROLOGY AND CONVEYANCE

The City of McMinnville SDDCS and ODOT Hydraulics Manual (Chapter 7) were used to design the proposed stormwater conveyance systems. Given the COM SDDCS design storm frequency requirements (upstream watershed <100 acres), the proposed conveyance system is sized to handle the 10 to 50-year storm events using the rational method. A proposed basin exhibit/block map and calculations have been provided in the Attachment A of this report.

Conveyance Sizing Requirements:

The Rational Method is used to size pipes per COM SDDCCS Appendix E. Per the City of McMinnville stormwater standards, the proposed project is classified as a "small and moderate pipe system" within the public right-of-way that serves an upstream watershed no more than 320 aces and is therefore required to accommodate the 10-year storm event. A portion of the system also contains sag curves within the ODOT right-of-way, and therefore a 50-year design event would be applied in those areas. Per the COM SDMP, existing downstream storm main deficiencies have been identified. To mitigate for potential downstream deficiencies, a hydraulic grade line (HGL) analysis was performed and applied to the conveyance design to ensure pipes would adequately convey the 50-year storm event, without backing up into any portions of the proposed surface improvements. Until a more thorough investigation of the downstream conditions can be identified, some conservative assumptions have been made and applied to the conveyance design (see below).

Conveyance Sizing Method and Findings:

For the conveyance design, the peak rainfall intensity and duration for 50-year storm was used from the ODOT IDF Curve table, Zone 8 (ODOT Hydrology Manual, Appendix A). The runoff coefficient of 0.85 for "City Business Areas" was selected from Table 1 in Appendix F of Chapter 7 of the ODOT Hydrology Manual. For this preliminary analysis, two (2) project areas were selected to be assessed which would represent the most conservative sizing for the project. Based on the preliminary grading and drainage patterns, the largest tributary drainage area to Cozine Creek was identified as Block D (from Davis Street to Evans Street). The largest tributary drainage area to Yamhill River was identified as Blocks H through J (east of the railroad, to Johnson street). Per the proposed basin exhibit/block map in Attachment A, the drainage area for Block D represents approximately 1.62 acres. The drainage area for Blocks H-J represents approximately 3.04 acres. A time of concentration (TC) of 5 minutes was assumed for each tributary drainage area, and a minimum pipe slope of 0.5% was assumed for existing and proposed conditions. For this exercise, a user defined tailwater elevation was set at the existing downstream pipe connection point for each basin, assuming that the existing pipe would be half full. Based on the assumptions and parameters outlined above, the HGL for the 50-year storm event was modeled using Bentley StormCAD software (see calculations in Attachment C). Based on this analysis, it was determined that all proposed storm mains from Adams Street to the railroad will need to be 18" in order to convey the required amount of runoff for the proposed development in the Third Street right-of-way, without backing up into the street for the selected storm event.

From the railroad east to the connection point in Johnson Street, the storm main from blocks H-J will need to be 24" diameter, given its larger tributary area (see Block H-J Profile, attachment C). Further studies will need to be conducted to confirm the capacity of the existing downstream storm mains, and also to further refine the proposed storm main sizes for each proposed block/basin as the project progresses to the next phases.

DESIGN STORM INTENSITIES AND RUNOFF COEFFICIENT (ODOT HYDROLOGY MANUAL, CHAPTER 7)		
Design Storm (per Zone 8 IDF Curves)	**Intensity (i) (in/hr)**	**Runoff Coefficient (C) (City Business Area)**
10-year 24-hour	2.3	0.85
50-year 24-hour	3	0.85

VII. STORMWATER RUNOFF TREATMENT

The City of McMinnville SDDCS was used to design the proposed stormwater treatment facilities. For water quality treatment, the soil cell facilities are designed using a 6% simplified sizing factor. The simplified sizing factor is being used for the preliminary water quality sizing only. Soil cells have been designated by the Washington Department of Ecology as being functionally equivalent to a bioretention facility.

Water Quality Requirements:

Due to anticipation of the project being federally funded and portions of the project being within the ODOT right-of-way, stormwater treatment is proposed to manage all stormwater runoff.

Stormwater Management (SWM) Facility Types:

For the 30% construction documents, proprietary soil cell water quality treatment technology is proposed. The soil cells have been proposed in an effort to provide as much growing medium for large trees in the right-of-way as possible. Large trees are proposed throughout the proposed Third Street Improvements Plan – soil cells provide room for large root systems to grow while also providing low impact storm water quality treatment. Preliminary footprints for the soil cell systems are shown in Attachment C of this report.

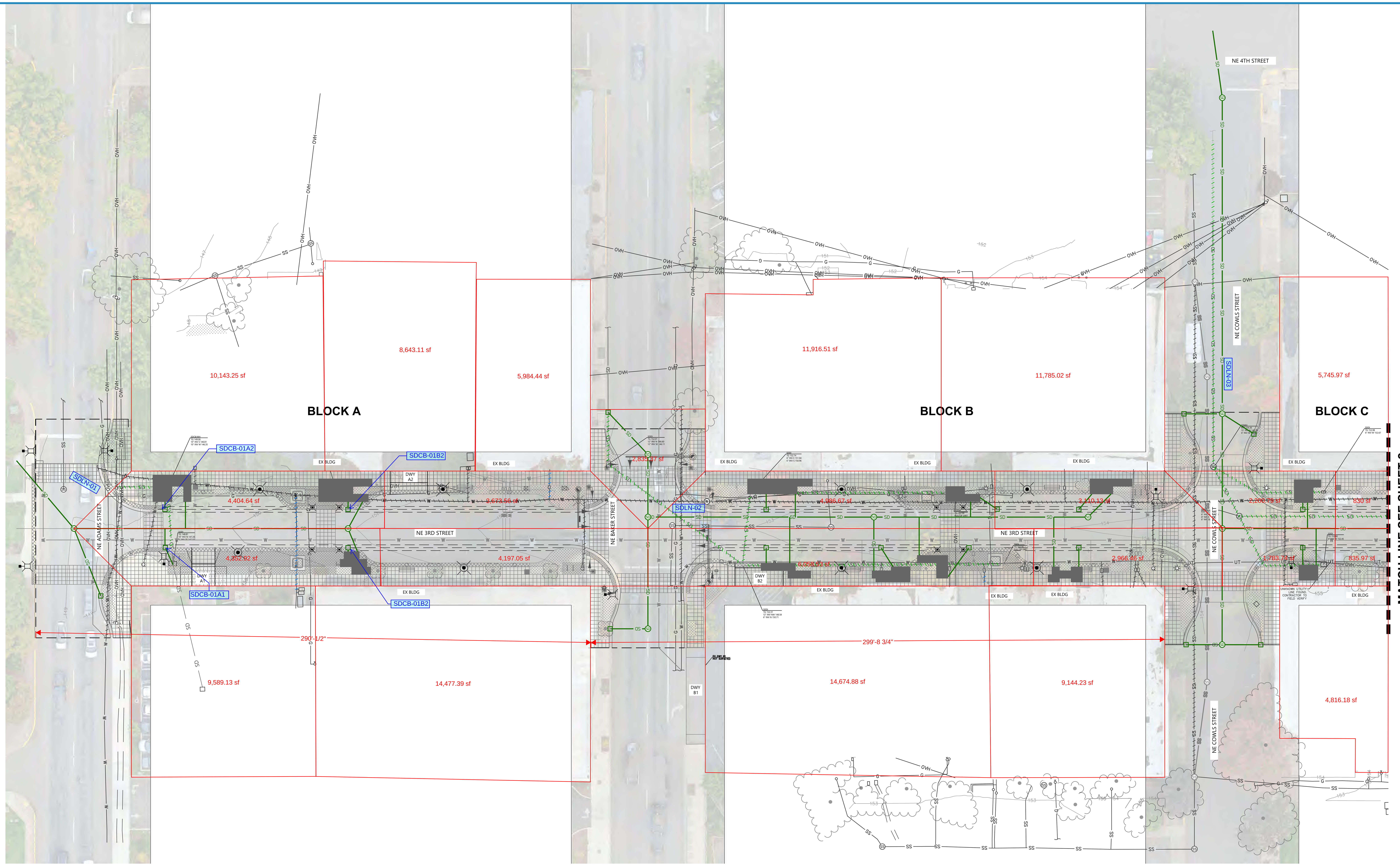
Other treatment options will be explored as the design progresses through the construction documents phase.

VIII. SUMMARY

Due to existing downstream deficiencies described in the City of McMinnville Stormwater Master Plan, and portions of the project site existing within sag curves in the ODOT right-of-way, all existing storm mains within the 9-block project area will be replaced. For the 30% construction documents, conservative assumptions have been made for the proposed conveyance design – a more robust downstream analysis is required to assess all downstream conditions. A hydraulic grade line (HGL) analysis was performed and applied to the conveyance design to ensure pipes can adequately convey the 50-year storm event, without backing up into any portions of the proposed surface improvements. This study results in a proposed 18" storm main from Adams Street to the Railroad tracks, and a 24" storm main from the Railroad east to the downstream connection point in Johnson Street.

Per City of McMinnville SDDCS requirements, this project is not subject to detention requirements. All stormwater runoff will be treated to meet ODOT and federal funding requirements – for the 30% construction documents, proprietary soil cell technology is proposed as the primary treatment method. The proposed soil cells have been preliminary sized using a 6% sizing factor.

ATTACHMENT A



LEGEND:

PROPERTY LINE	PROPOSED STORM DRAIN MANHOLE
CENTER LINE	PROPOSED STORM DRAIN INLET
PROPOSED WATER MAIN	HISTORICAL CISTERN
PROPOSED WATER LATERAL	HISTORICAL WATER SUPPLY WELL
PROPOSED FIRE SERVICE LATERAL	PROPOSED STREET LIGHTS
PROPOSED SANITARY SEWER LINE	HISTORICAL CISTERN
PROPOSED STORM DRAIN LINE	HISTORICAL WATER SUPPLY WELL
REMOVE OR ABANDON EXISTING WATER LINE	
REMOVE OR ABANDON EXISTING SANITARY SEWER LINE	
REMOVE OR ABANDON EXISTING STORM DRAIN LINE	

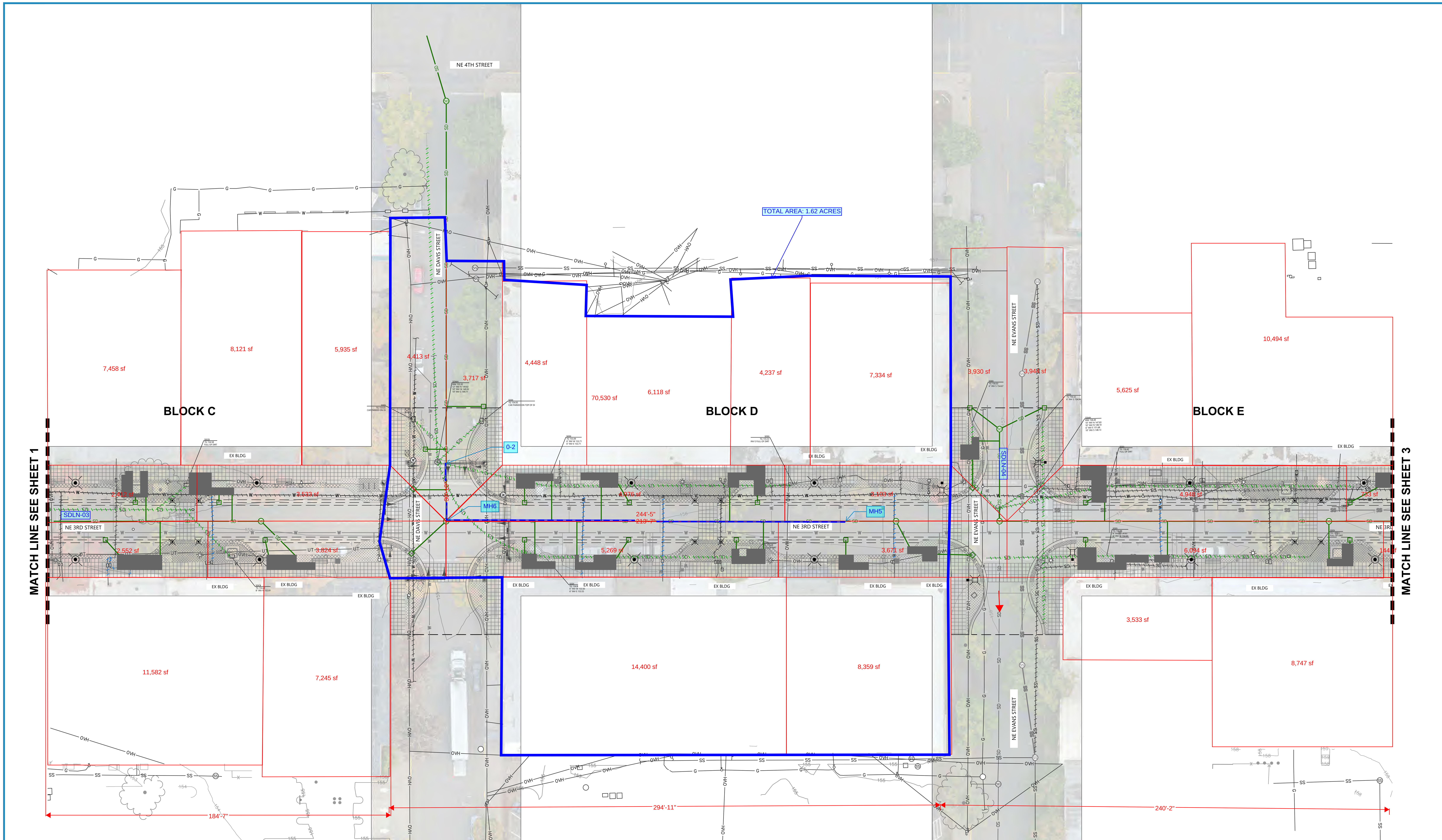
scale 1" = 20' feet

BKF ENGINEERS
1125 NW COUCH STREET
SUITE 420
PORTLAND, OR 97209
(503) 553-3231
www.bkf.com

THIRD STREET IMPROVEMENT PROJECT
NE THIRD STREET (ADAMS STREET TO JOHNSON STREET), MCMINNVILLE, OREGON 97128
YAMHILL COUNTY

STORM SIZING EXHIBIT

DATE 2/16/24	SCALE 1" = 20'
CLIENT CITY OF MCMINNVILLE	
EXHIBIT NO. 20221310-000	
SHEET 1 of 4	



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CENTER LINE		PROPOSED STORM DRAIN INLET	
W	PROPOSED WATER MAIN		HISTORICAL CISTERN
W	PROPOSED WATER LATERAL		HISTORICAL WATER SUPPLY WELL
FW	PROPOSED FIRE SERVICE LATERAL		PROPOSED STREET LIGHTS
SS	PROPOSED SANITARY SEWER LINE		HISTORICAL CISTERN
SD	PROPOSED STORM DRAIN LINE		HISTORICAL WATER SUPPLY WELL
	REMOVE OR ABANDON EXISTING WATER LINE		
	REMOVE OR ABANDON EXISTING SANITARY SEWER LINE		
	REMOVE OR ABANDON EXISTING STORM DRAIN LINE		

N

20 0 20 40
scale 1" = 20' feet

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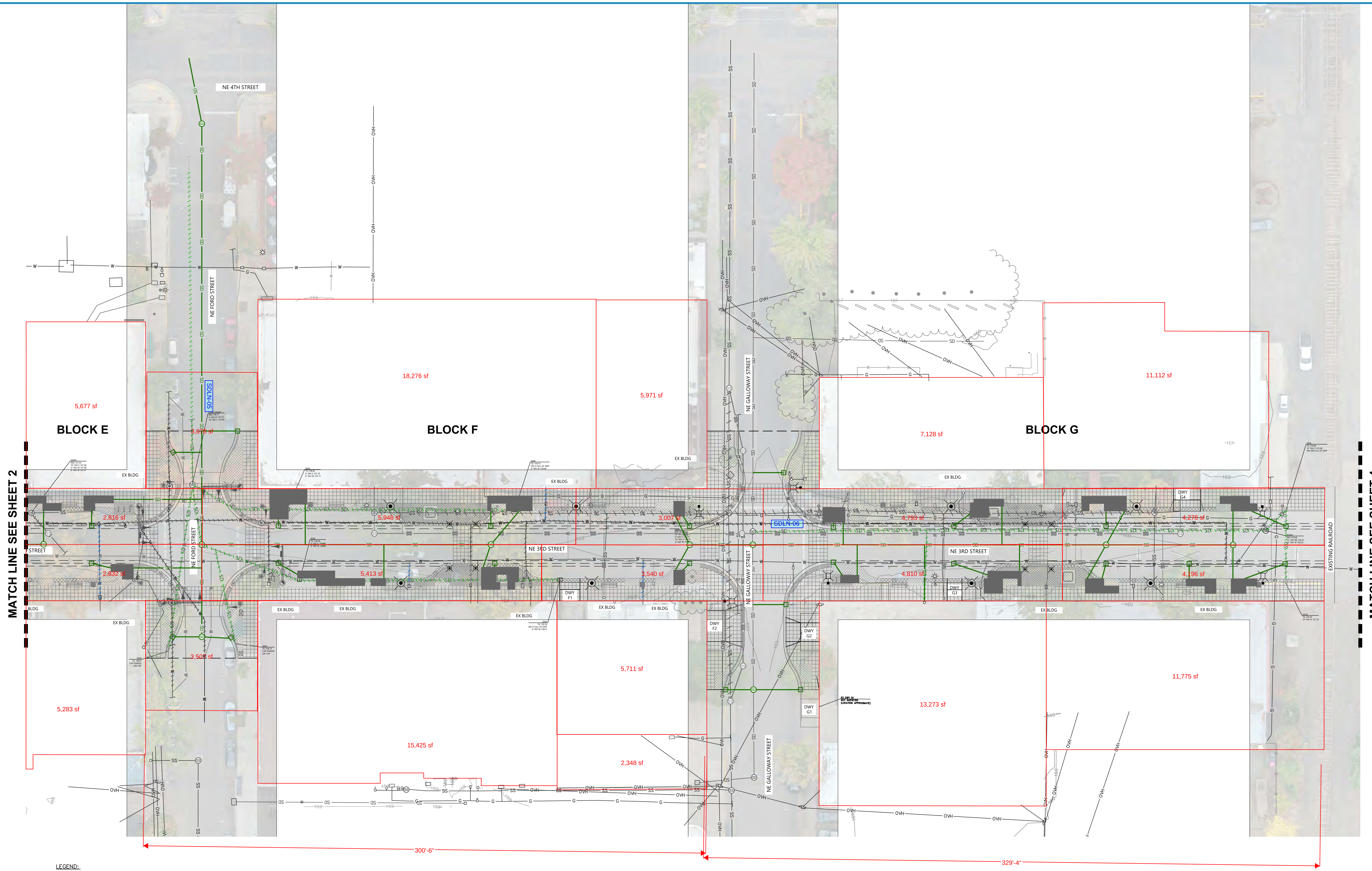
THIRD STREET IMPROVEMENT PROJECT
NE THIRD STREET (ADAMS STREET TO JOHNSON STREET), MCMINNVILLE, OREGON 97128
YAMHILL COUNTY

STORM SIZING EXHIBIT

DATE 2/16/24
SCALE 1" = 20'
CLIENT CITY OF MCMINNVILLE
EXHIBIT NO. 20221310-000
SHEET 2 OF 4



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— W —	PROPOSED WATER LATERAL	⊙	HISTORICAL WATER SUPPLY WELL
— FW —	PROPOSED FIRE SERVICE LATERAL		PROPOSED STREET LIGHTS
— SS —	PROPOSED SANITARY SEWER LINE	□	HISTORICAL CISTERN
— SD —	PROPOSED STORM DRAIN LINE	⊙	HISTORICAL WATER SUPPLY WELL
	REMOVE OR ABANDON EXISTING WATER LINE		
	REMOVE OR ABANDON EXISTING SANITARY SEWER LINE		
	REMOVE OR ABANDON EXISTING STORM DRAIN LINE		

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THIRD STREET IMPROVEMENT PROJECT

NE THIRD STREET (ADAMS STREET TO JOHNSON STREET), MCMINNVILLE, OREGON 97128
YAMHILL COUNTY

STORM SIZING EXHIBIT

DATE	SCALE
2/16/24	1" = 20'

CLIENT: CITY OF MCMINNVILLE

EXHIBIT NO.: 20221310-000

SHEET: 3 OF 4

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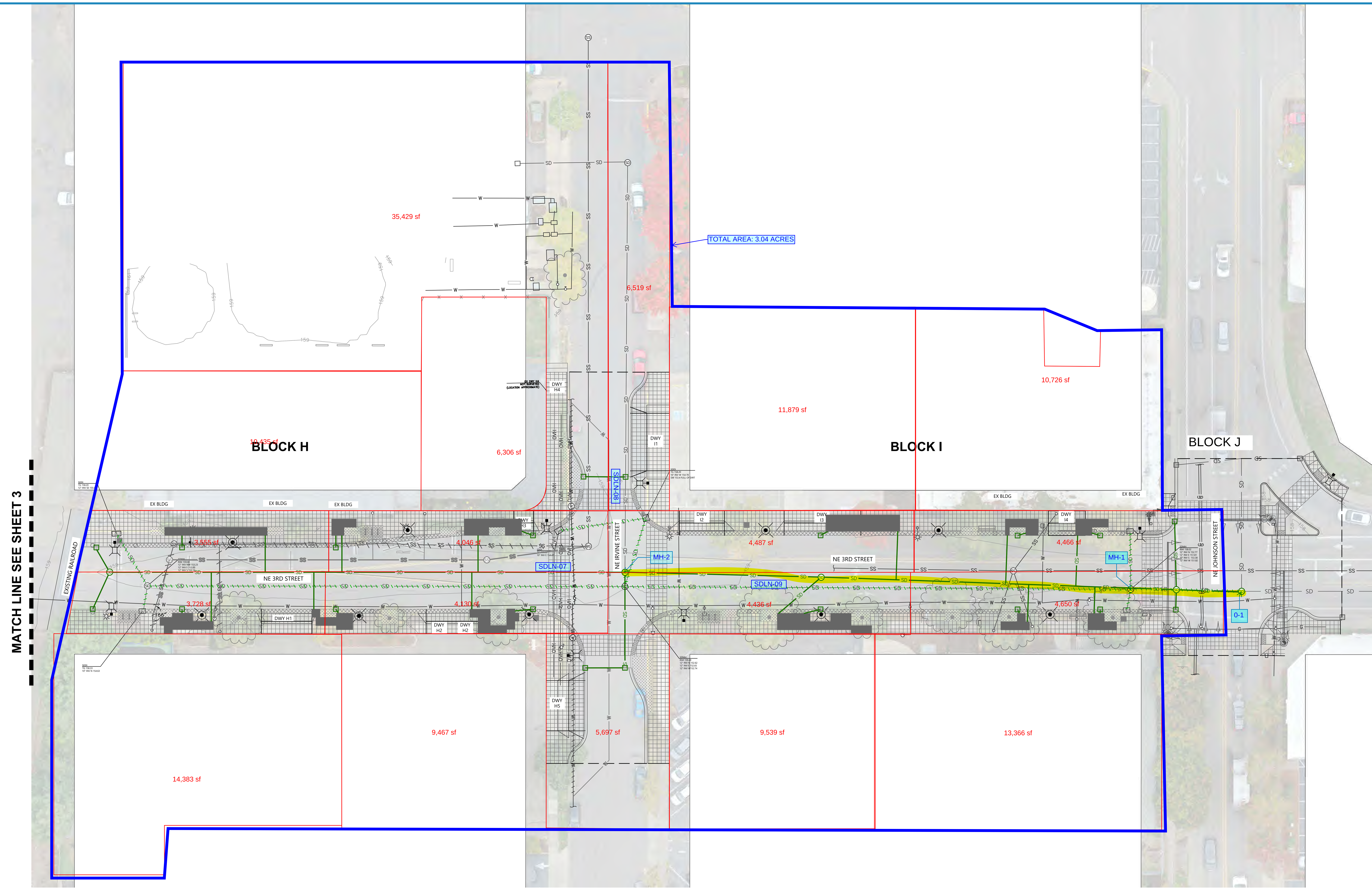

LEGEND:

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CENTER LINE	PROPOSED STORM DRAIN INLET
PROPOSED WATER MAIN	HISTORICAL CISTERN
PROPOSED WATER LATERAL	HISTORICAL WATER SUPPLY WELL
PROPOSED FIRE SERVICE LATERAL	PROPOSED STREET LIGHTS
PROPOSED SANITARY SEWER LINE	HISTORICAL CISTERN
PROPOSED STORM DRAIN LINE	HISTORICAL WATER SUPPLY WELL
REMOVE OR ABANDON EXISTING WATER LINE	
REMOVE OR ABANDON EXISTING SANITARY SEWER LINE	
REMOVE OR ABANDON EXISTING STORM DRAIN LINE	

20 0 20 40
scale 1" = 20' feet

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THIRD STREET IMPROVEMENT PROJECT

NE THIRD STREET (ADAMS STREET TO JOHNSON STREET), MCMINNVILLE, OREGON 97128
YAMHILL COUNTY

STORM SIZING EXHIBIT

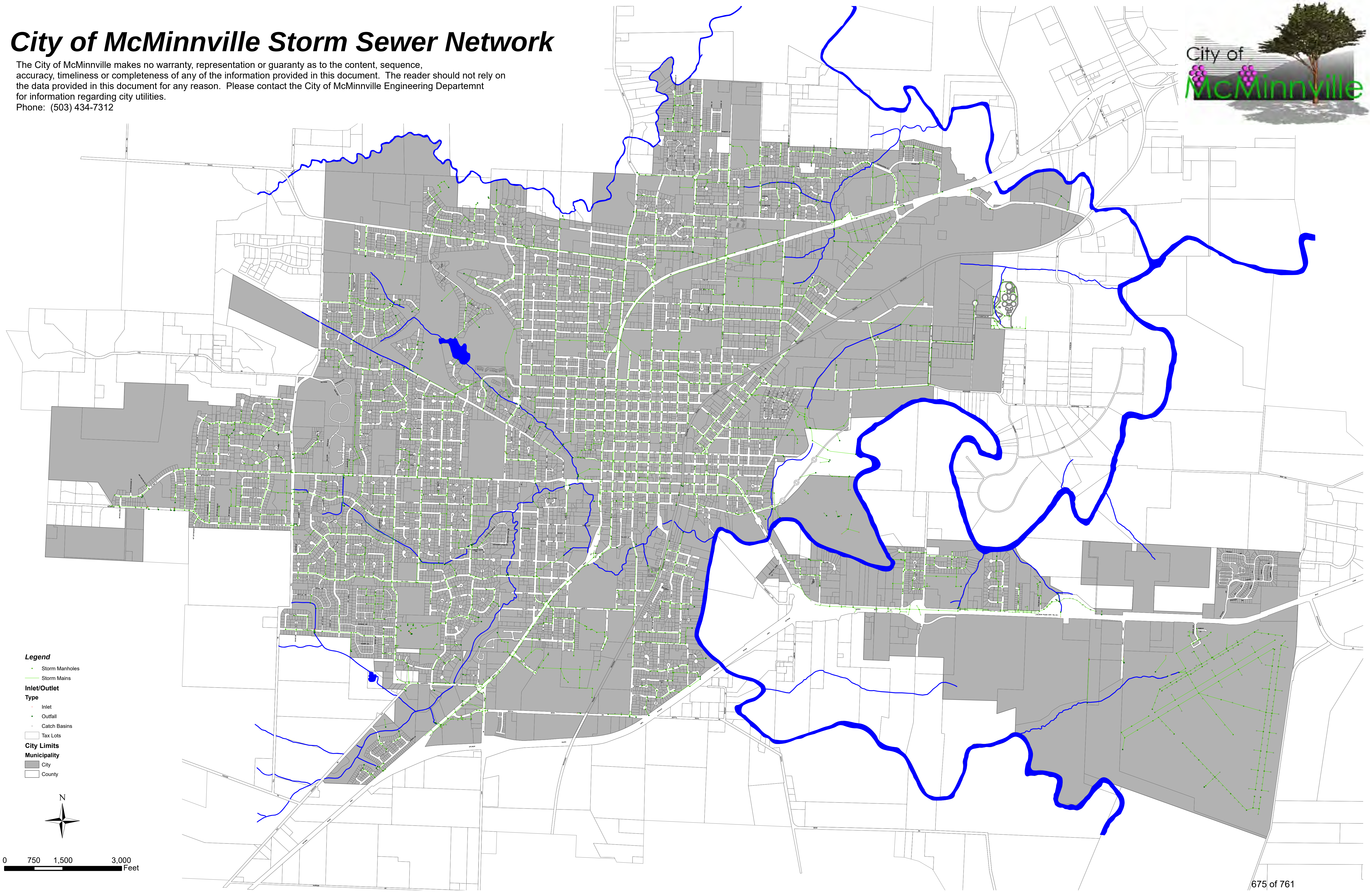
DATE 2/16/24	SCALE 1" = 20'
CLIENT CITY OF MCMINNVILLE	
EXHIBIT NO. 20221310-000	
SHEET 4 OF 4	

221310_Utility Sizing Exhibit.dwg

ATTACHMENT B

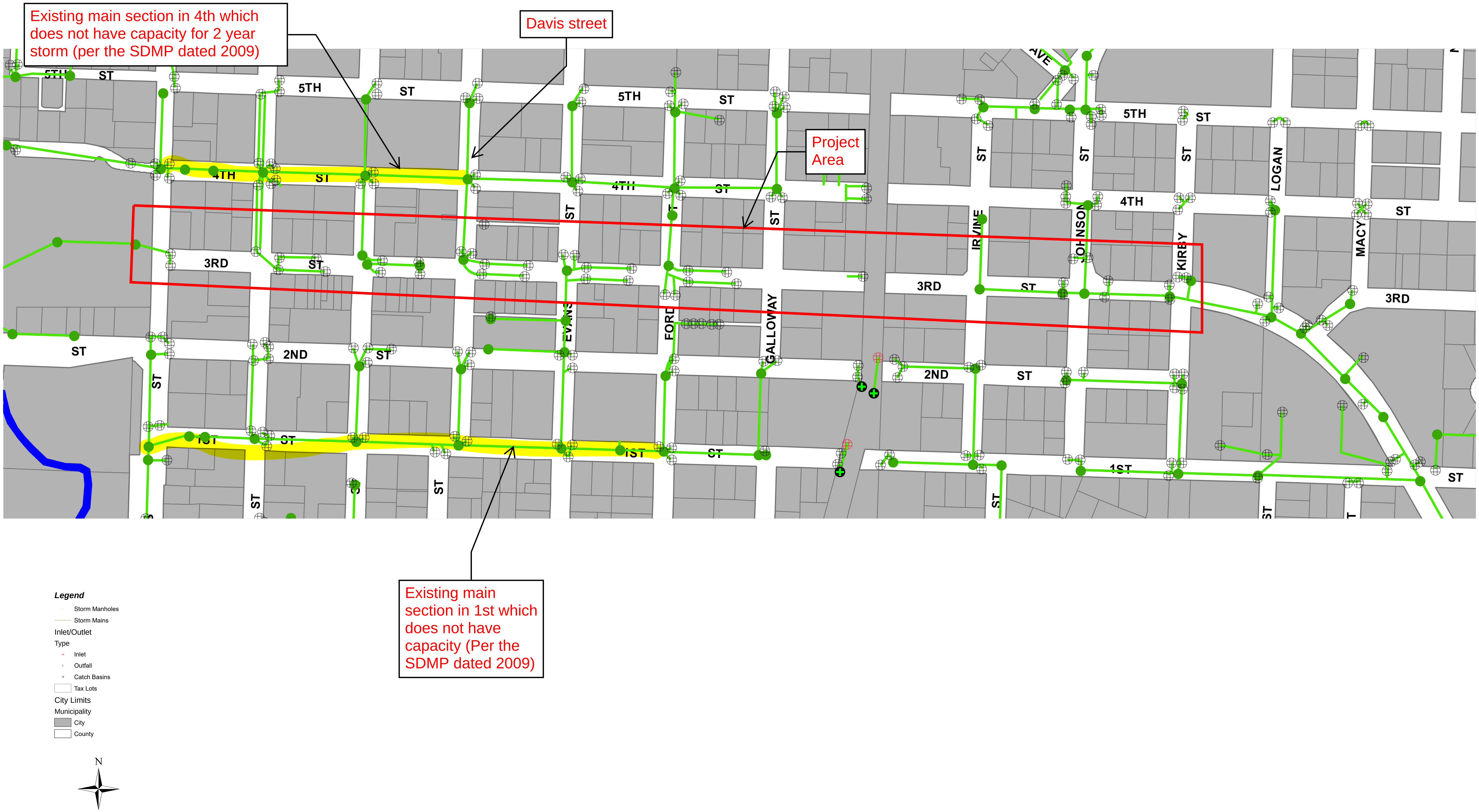
City of McMinnville Storm Sewer Network

The City of McMinnville makes no warranty, representation or guaranty as to the content, sequence, accuracy, timeliness or completeness of any of the information provided in this document. The reader should not rely on the data provided in this document for any reason. Please contact the City of McMinnville Engineering Departemnt for information regarding city utilities.
Phone: (503) 434-7312



City of McMinnville Storm Sewer Network *ENLARGMENT*

The City of McMinnville makes no warranty, representation or guaranty as to the content, sequence, accuracy, timeliness or completeness of any of the information provided in this document. The reader should not rely on the data provided in this document for any reason. Please contact the City of McMinnville Engineering Departemnt for information regarding city utilities.
Phone: (503) 434-7312

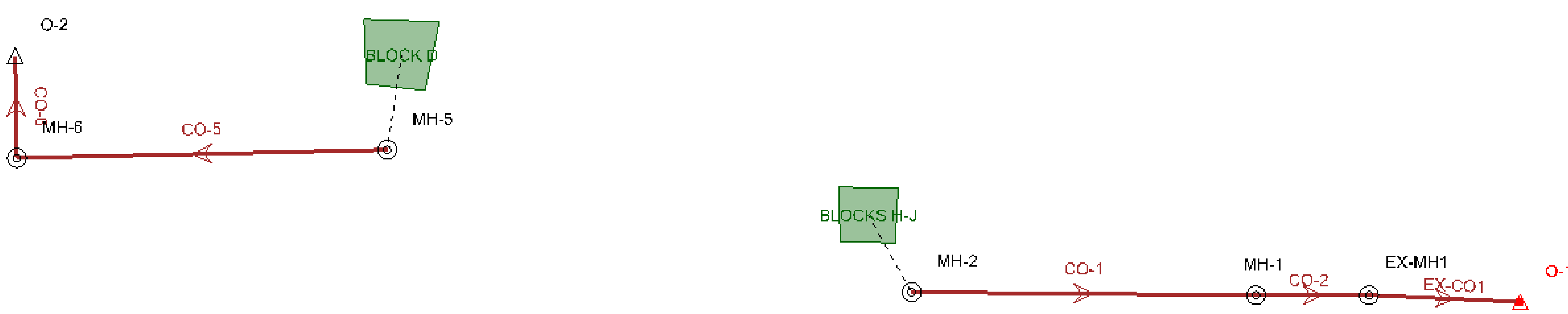


ATTACHMENT C

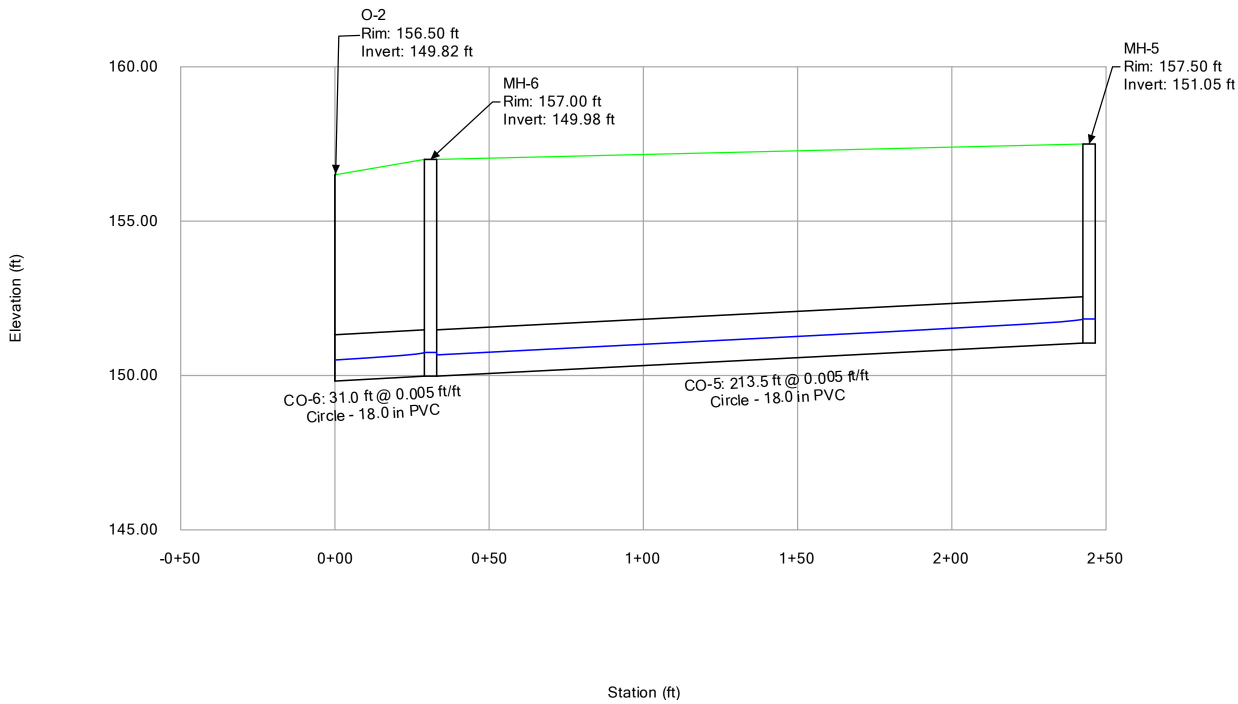
Conduit Flex Table - 50 year storm event																				
ID	Label	Start Node	Set Invert to Start?	Invert (Start) (ft)	Stop Node	Set Invert to Stop?	Invert (Stop) (ft)	Has User Defined Length?	Length (User Defined) (ft)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Section Type	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Out) (ft)	Capacity (Full Flow) (cfs)	Flow / Capacity (Design) (%)	Depth (Normal) / Rise (%)
33	CO-1	MH-2	FALSE	153.05	MH-1	FALSE	151.82	TRUE	247	109.6	0.005	Circle	24	0.01	11.72	3.73	6.06	20.75	56.5	53.8
52	CO-5	MH-5	TRUE	151.05	MH-6	TRUE	149.98	TRUE	213.5	117.9	0.005	Circle	18	0.01	4.16	5.26	0.98	9.67	43.1	45.9
53	CO-6	MH-6	TRUE	149.98	O-2	TRUE	149.82	TRUE	31	32.6	0.005	Circle	12	0.01	4.03	5.13	0.85	3.33	121.2	(N/A)
56	CO-2	MH-1	TRUE	151.82	EX-MH1	FALSE	151.55	TRUE	54	36	0.005	Circle	24	0.01	11.37	3.62	6.25	20.79	54.7	52.7
60	EX-CO1	EX-MH1	TRUE	151.55	O-1	TRUE	151.05	TRUE	100	48.2	0.005	Circle	12	0.01	11.29	14.37	1	3.27	344.7	(N/A)

Manhole Flex Table- 50 year storm event													
ID	Label	Elevation (Ground) (ft)	Set Rim to G	Elevation (Rim) (ft)	Bolted Cover	Elevation (Invert in 1) (ft)	Flow (Total In)	Flow (Total Out) (cfs)	Depth (Out) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Hydraulic Grade Line (In) (ft)	Notes
31	MH-1	158.02	TRUE	158.02	FALSE	151.82	11.72472	11.37	6.06	157.88	Absolute	157.88	
32	MH-2	159.2	TRUE	159.2	FALSE	(N/A)	11.72472	11.72	5.65	158.27	Absolute	158.27	
49	MH-5	157.5	TRUE	157.5	FALSE	(N/A)	4.164048195	4.16	0.78	151.83	Absolute	151.83	
50	MH-6	157	TRUE	157	FALSE	149.98	4.164048195	4.03	0.98	150.96	Absolute	150.96	
55	EX-MH1	157.8	TRUE	157.8	FALSE	151.55	11.36981106	11.29	6.25	157.8	Absolute	157.8	

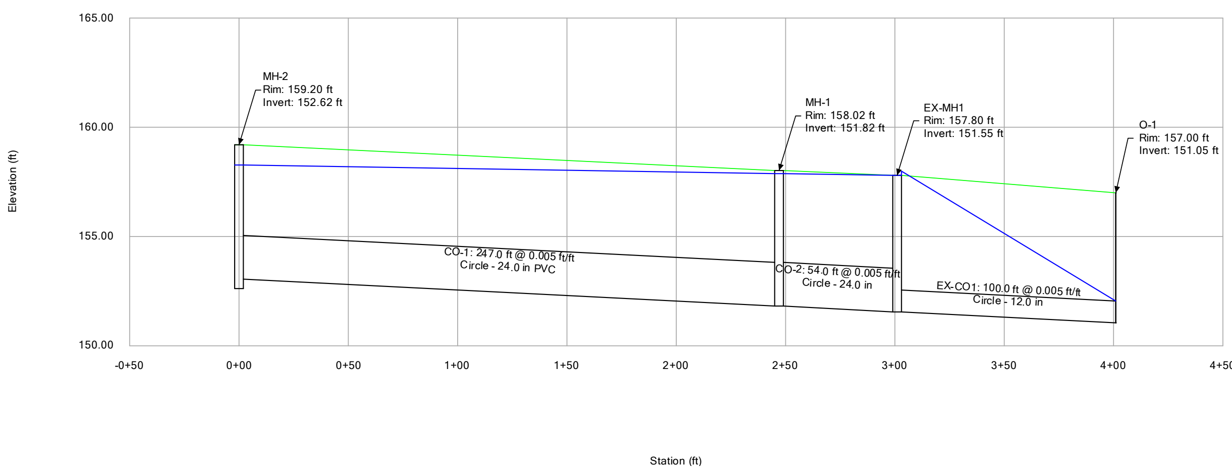
Outfall Flex Table- 50 year storm event										
ID	Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Invert) (ft)	Boundary Condition Type	Boundary Element	Elevation (User Defined Tailwater) (ft)	Hydraulic Grade (ft)	Flow (Total Out) (cfs)	Notes
51	O-2	156.5	TRUE	149.82	User Defined	<None>	150.48	150.67	4.01	
59	O-1	157	TRUE	151.05	User Defined	<None>	152.05	152.05	11.25	



Profile Report
Engineering Profile - BLOCK D (PRELIM.stsw)



Profile Report
Engineering Profile - BLOCK H-J (PRELIM.stsw)



ATTACHMENT D

www.haleyaldrich.com

REPORT OF GEOTECHNICAL ENGINEERING SERVICES FOR
THIRD STREET IMPROVEMENTS
NE THIRD STREET - NE ADAMS STREET TO NE JOHNSON STREET
MCMINNVILLE, OREGON

by
Haley & Aldrich, Inc.
Portland, Oregon

for
BKF Engineers
Portland, Oregon

File No. 0208183-000
July 2024

HALEY & ALDRICH, INC.
6420 S. Macadam Avenue
Suite 100
Portland, OR 97239-3517
503.620.7284

25 July 2024
File No. 0208183-000

BKF Engineers
1125 NW Couch Street, Suite 420
Portland, Oregon 97209

Attention: Jason White, P.E., LEED AP
Principal/Vice President

Subject: Report of Geotechnical Engineering Services
Third Street Improvement Project
NE Third Street - NE Adams Street to NE Johnson Street
McMinnville, Oregon

Dear Jason White:

Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit to BKF Engineers our report of geotechnical engineering services for the Third Street Improvement Project (Project) in McMinnville, Oregon.

We understand the City of McMinnville intends to perform improvements to NE Third Street between NE Adams Street and NE Johnson Street (Project Corridor) in downtown McMinnville. The Project limits span a total of nine city blocks. The street sections within the Project Corridor typically consist of two bi-directional traffic lanes with parking lanes and a center turn lane in the eastern portion of the Project Corridor. While specific project details have not yet been developed, construction activities in the Project Corridor will likely include street and sidewalk reconstruction, underground infrastructure improvements, above-ground street furnishings, and landscaping. The current street alignment is entirely asphalt-paved, and options for repaving include full reconstruction and rehabilitation.

The primary geotechnical issues affecting the design and construction of the planned improvements include the presence of soft and fine-grained subgrade soils, shallow groundwater, and an existing asphalt concrete over Portland cement concrete pavement section, which can present challenges for rehabilitation. Our recommendations regarding roadway and flatwork construction, stormwater infiltration features, site grading, and other geotechnical aspects of this project are presented in this report.

We appreciate the opportunity to provide our services to you on this project. If you have any questions, please contact the undersigned at 971.327.9115.

Sincerely yours,
HALEY & ALDRICH, INC.

Luke Kevan, P.E.
Senior Engineer

Micah D. Hintz, P.E., G.E.
Geotechnical Engineer

Daniel J. Trisler, P.E., G.E.
Principal Geotechnical Engineer

Enclosure

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HALEY & ALDRICH, INC.
6420 S. MACADAM AVENUE
SUITE 100
PORTLAND, OR 97239-3517
503.620.7284

SIGNATURE PAGE FOR

REPORT OF GEOTECHNICAL ENGINEERING SERVICES FOR
THIRD STREET IMPROVEMENTS
NE THIRD STREET - NE ADAMS STREET TO NE JOHNSON STREET
MCMINNVILLE, OREGON

PREPARED FOR
BKF ENGINEERS
PORTLAND, OREGON

PREPARED BY:

Luke Kevan, P.E.
Senior Engineer
Haley & Aldrich, Inc.

REVIEWED AND APPROVED BY:

Micah D. Hintz, P.E., G.E.
Geotechnical Engineer
Haley & Aldrich, Inc.

Daniel J. Trisler, P.E., G.E.
Principal Geotechnical Engineer
Haley & Aldrich, Inc.

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1. Introduction

Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit this report to BKF Engineers (BKF) summarizing our geotechnical engineering services for the Third Street Improvements Project (Project) on NE Third Street between NE Adams Street and NE Johnson Street (Project Corridor), located in McMinnville, Oregon. We completed our work in general accordance with our agreement dated 18 August 2023.

While specific Project details have not yet been developed, construction activities for the Project will likely include street and sidewalk reconstruction, underground infrastructure improvements, above-ground street furnishings, and landscaping improvements to the City of McMinnville's (City's) historic downtown Third Street. The existing asphalt concrete pavements present throughout the Project Corridor are in poor to fair condition, showing signs of fatigue cracking, trench cut repairs, and undesired low points inhibiting drainage. Existing sidewalks consist of a mixture of concrete, tile, and brick, in variable conditions. Based on the City's 29 July 2022 Final Concept Design document, concepts for the improved Project Corridor favor repaving the street with Portland cement concrete and including on-street parallel parking zones, raised mid-block crosswalks, curb extension areas, and street and building frontage zones. Existing mature trees are likely to be removed and replaced with new trees, possibly taking advantage of buried soil cells to reduce potential for root damage to pavements. The typical 60-foot-wide right-of-way conceptually features 12 feet of sidewalk and 8 feet of curb extension or parking on each side of the street, as well as one 10-foot-wide vehicle travel lane running in each direction.

This report contains the results of our analyses and provides recommendations for design and construction of the proposed improvements. The first section of this report provides an overview of the Project information. The main body of the report presents our geotechnical engineering findings and design recommendations in detail. Figures are presented at the end of the text. The location of the site is shown on Figure 1, Vicinity Map, and the existing and proposed site layout is shown on Figure 2, Site and Exploration Plan. Appendix A describes our field exploration procedures and presents field data and logs. Appendix B describes our laboratory testing procedures and results. Appendix C presents photographs of the pavement cores and dynamic cone penetrometer (DCP) probe data and correlations.

2. Scope of Services

The purpose of our services was to evaluate the subsurface conditions along the Project Corridor and to develop geotechnical engineering recommendations for design and construction of the Project elements. We completed the following tasks in general accordance with the Consulting Agreement between BKF and Haley & Aldrich dated 18 August 2023:

- Reviewed readily available geologic, groundwater, and soil survey maps that cover the Project vicinity;
- Conducted a reconnaissance of the Project Corridor;
- Performed the following exploratory work to characterize as-built pavement and subsurface soil and groundwater conditions;
  - Completed 15 pavement cores at approximately 100 to 250 feet on center.
  - Conducted DCP testing at ten core locations through the underlying base rock and soil subgrade to depths of about 3 feet below surface grade to evaluate pavement subgrade strength.
  - Advanced six borings to about 11 feet below grade adjacent to select cores to characterize subsurface soils.
  - Completed two infiltration tests in borings along the alignment at a depth of 2.5 to 3 feet below the existing grade.
- Maintained a log of the materials encountered in the explorations and collected representative soil samples for laboratory testing;
- Conducted a program of laboratory testing on select soil samples including grain-size distribution, percent fines (percent passing the No. 200 sieve), moisture content, and Atterberg Limits determinations;
- Conducted engineering analyses to evaluate pavement design and rehabilitation alternatives and infiltration characteristics along the Project Corridor; and
- Prepared this geotechnical report summarizing the results of the subsurface exploration and laboratory testing programs and presenting our recommendations and conclusions.

3. Site Conditions

3.1 GEOLOGIC, SOILS, AND GROUNDWATER MAPPING

The geology of the Project Corridor is mapped as Willamette Silt in the study entitled *Preliminary geologic map of the McMinnville and Dayton Quadrangles* (Brownfield and Schlicker, 1981). These soils are described as consisting of poorly sorted semi-consolidated deposits of silt, clay, and sand with varying amounts of fine gravel. Our subsurface investigation suggests that these soils are present along the Project Corridor .

The U.S. Department of Agriculture (USDA) has mapped one near-surface soil unit, *Woodburn Silt Loam 0 to 3 percent slopes*, in the immediate vicinity of the Project Corridor in the Soil Survey of Yamhill County Area (USDA, 2024). The Woodburn Silt Loam spans the entire Project Corridor and extends across much of downtown McMinnville. Sourced from silty glaciolacustrine deposits and formed via river terraces, the typical profile described for this soil unit consists of silt loam extending to 17 inches below ground surface (bgs), followed by silty clay loam to 32 inches bgs, then silt loam to 68 inches bgs, then transitioning to a stratified fine sandy loam to silt loam to depths of at least 92 inches bgs. The unit is described as moderately well-drained and a depth to water table of 25 to 32 inches is reported.

The USDA provides the index properties presented in Table 1 for the Woodburn Silt Loam soil unit.

Table 1. Summary of USDA Soil Data

Soil Unit	Clay (percent)	Silt (percent)	Sand (percent)	Liquid Limit, LL	Plasticity Index	Corrosivity to Steel	Saturated Hydraulic Conductivity (inches/hour)
Woodburn Silt Loam	23.5	58.2	19.5	34.1	10.8	High	0.2 – 2.0

3.2 SURFACE CONDITIONS

3.2.1 General

Between NE Adams Street and NE Irvine Street, the Project Corridor is defined as a two-lane road with curb and gutter, and features curbside parallel parking stalls and sidewalks along each side of the road. Between NE Irvine Street and NE Johnson Street, a center turn lane substitutes the curbside parking stalls. A rail crossing is present between the intersections with NE Galloway Street and NE Irvine Street. The roadway is relatively flat with grade changes of less than 2 percent. Drainage is currently facilitated by curbside catch basins. This downtown area of McMinnville is developed with commercial developments generally consisting of retail and restaurant businesses on either side of the road for the entire Project Corridor. The sides of the Project Corridor include at-grade landscape strips and planter boxes landscaped with trees, bushes, and flowers.

3.2.2 Pavement Condition

We conducted a pavement condition survey in accordance with the 2010 Oregon Department of Transportation (ODOT) GFP Pavement Condition Rating Manual (ODOT, 2010). The pavement conditions were judged to range from Very Good to Poor as defined below.

- **Very Good:** No noticeable cracking or fatigue, rut depths less than 1/4-inch.
- **Good:** Low- to medium-severity transverse cracking, low-severity alligator cracking.
- **Fair:** Medium-severity transverse cracking, low- to medium-severity alligator cracking, slight rutting under traffic path.
- **Moderate:** Medium- to high-severity transverse cracking, medium- to high-severity alligator cracking, moderate rutting under traffic path.
- **Poor:** High-severity alligator cracking, deep rutting under traffic path.

A summary of our observations is provided in Table 2.

Table 2. Third Street Pavement Condition Summary

Approximate Location	Pavement Condition
NE Adams St to NE Baker St	Fair – Moderate trench cut repairs, moderate longitudinal cracking, minor transverse and alligator cracking
NE Baker St to NE Cowls St	Moderate – Heavy trench cut repairs, moderate longitudinal cracking, moderate alligator cracking (especially in WB lane), some patched potholes
NE Cowls St to NE Davis St	Moderate – Heavy trench cut repairs, heavy longitudinal cracking, localized areas of alligator cracking (especially in WB lane)
NE Davis St to NE Evans St	Fair – Moderate longitudinal cracking, minor transverse cracking, initiation of alligator cracking in localized areas
NE Evans St to NE Ford St	Fair – Moderate longitudinal cracking, minor transverse cracking, initiation of alligator cracking in localized areas
NE Ford St to NE Galloway St	Fair – Moderate longitudinal and transverse cracking, minor trench cut repairs
NE Galloway St to NE Irvine St	Poor – Heavy trench cut repairs, moderate longitudinal cracking, heavy alligator cracking and pothole repairs near RR crossing, especially east of railroad crossing
NE Irvine St to NE Johnson St	Fair – Moderate trench cut repairs, moderate longitudinal cracking, minor transverse cracking
NE Johnson St/3rd Street Intersection	Moderate – Moderate longitudinal, transverse, and alligator cracking

Note:
WB = Westbound

3.3 SUBSURFACE CONDITIONS

3.3.1 General

We explored subsurface soil and groundwater conditions along the Project Corridor by advancing solid stem auger borings and DCP probes, drilling pavement cores, and performing in situ infiltration tests. The locations of the explorations are shown on Figures 2 through 10. Soil conditions interpreted from geologic maps and our explorations, in conjunction with soil properties inferred from field observations and laboratory tests, formed the basis for the conclusions and recommendations contained within this report. Appendix A describes our field exploration procedures and presents field data and boring logs. Appendix B describes our laboratory soil testing procedures and results. Appendix C presents photographs of the pavement cores and DCP probe data and correlations.

3.3.2 Pavement

Pavement and soil conditions along NE 3rd Street were evaluated by drilling 15 pavement cores (designated A-1 through A-15) distributed between parking and drive lanes within the Project Corridor limits. DCP testing was performed at 10 of these core locations to estimate soil strength and California Bearing Ratio (CBR) values. Solid stem auger soil borings were drilled at six core locations to depths of up to 11.5 feet bgs to develop a better understanding of subgrade conditions at depth.

The asphalt concrete (AC) pavement sections encountered within the cores generally ranged from 2.5 to 8 inches thick, though sections are typically 3 to 6 inches thick (a section thickness of 11 inches was encountered at A-15, as discussed later). The AC appeared to be layered, with deeper layers showing distinct differences in aggregate composition, suggesting that the layers were placed at different points in time. The entire Project Corridor between NE Adams Street and NE Johnson Street is underlain by older Portland cement concrete (PCC). Core A-15, which was performed in the Third Street westbound left turn lane east of the intersection with NE Johnson Street, did not appear to encounter an underlying layer of PCC pavement beneath the AC pavement, which may explain why a thicker AC section was identified at this location. The A-15 location may coincide with a former trench cut that was repaired with full-depth asphalt.

At all cores except A-15, the AC section was underlain by PCC pavement ranging in thickness from 3.5 to 5 inches (average thickness of about 4 inches). Table 3 summarizes the layering of the pavement cores.

Table 3. Pavement Cores Data

Core Location	Lane	AC Thickness (inches)	Number of AC Layers Present	PCC Thickness (inches)
A-1	Parking Lane	4.5	3	4.5
A-2	Parking Lane	6	3	3.5
A-3	Parking Lane	3	2	3.5
A-4	Parking Lane	4	4	4
A-5	Parking Lane	4.5	2	4
A-6	Drive Lane	5	3	3.5
A-7	Parking Lane	3	3	3.5
A-8	Parking Lane	5.5	4	3.5
A-9	Parking Lane	4	3	4
A-10	Drive Lane	5	3	3.5
A-11	Drive Lane	2.5	2	4.75
A-12	Drive Lane	5	3	5
A-13	Drive Lane	6.5	2	4
A-14	Drive Lane	8	5	4
A-15	Drive Lane	11	4	None

3.3.3 Soils

Below the pavement sections, the explorations typically encountered a 3-inch-thick layer of a rounded gravel fill serving as a base aggregate. The soil subgrade beneath the base aggregate typically consisted of a 1- to 3-foot-thick layer of dark brown lean clay, which based on the presence of some minor brick fragments was judged to be fill, though is also possibly re-worked native soils. Moisture contents within the clay layer ranged from 19 to 34 percent. One Atterberg Limits test performed on the clay revealed a plasticity index of 12. The clay was typically underlain by soft to medium stiff silt and elastic silt with variable amounts of sand extending to depths of up to 11.5 feet bgs. The silty soils had laboratory-measured moisture contents between 19 and 41 percent. Three Atterberg Limits tests performed on the silts revealed plasticity indexes ranging from 2 to 20. Fines contents of the silts and clays ranged from 88 to 97 percent.

Two utility trenches were encountered during our exploration activities, near explorations A-8 and A-10. Trench backfill in these locations was characterized by 3- to 4-inch sub-rounded cobbles mixed with dark brown lean clay. The trench near boring A-10 included a 1-inch diameter steel pipe running perpendicular to NE 3rd Street.

3.3.4 Groundwater

In general, we did not observe groundwater in our shallow explorations; however, boring A-11 encountered water at approximately 9 feet bgs. Furthermore, we note that the results of our laboratory moisture content testing did not imply presence of groundwater in our explorations.

Review of water well records filed with the Oregon Water Resources Department indicate that depth to groundwater in the Project Corridor vicinity is typically 3 to 10 feet bgs. The depth to groundwater beneath the Project Corridor likely fluctuates seasonally and may be present at shallower depths during the wet season, which is typically between November and May.

3.3.5 Infiltration Testing

We performed two in situ encased falling head infiltration tests within two of the boring locations at depths of approximately 3 feet bgs (boring A-3) and 2.5 feet bgs (boring A-10). The field-measured "drawdown" rates (i.e., the vertical drop in the water level with time) are shown in Table 4 below. The fines contents of samples collected from the test locations are also shown in Table 4. The pre-soak period of each test was limited to 1 hour to limit traffic lane closures.

Table 4. Infiltration Test Data

Infiltration Test No.	Approximate Test Depth (feet)	Field Drawdown Rate (inches/hour)	Fines Content (percent)
IT-1 (at boring A-3)	3	2.3	91.9
IT-2 (at boring A-10)	2.5	1.5	88.2

Refer to Section 7, Infiltration Systems, for a discussion of our findings and recommendations regarding the design of infiltration systems.

3.3.6 DCP Probes

A U.S. Army Corps of Engineers Dual Mass DCP was advanced in select pavement cores to help characterize soil stiffness and obtain an estimate of the in situ CBR and resilient modulus of the native soils up to 3 feet below surface grade. The DCP consists of a steel extension shaft assembly with a 60-degree hardened steel cone tip attached to one end, which is driven into the subgrade by means of a sliding dual mass (10.1 pound) hammer. The DCP was simply lifted out of the ground under manual force upon completion of testing. Testing was conducted in accordance with ASTM International (ASTM) D6951/D6951M-18 (2018). DCP testing indicated resilient moduli ranging from 4,000 to 6,000 pounds per square inch (psi) were typical throughout the Project Corridor, with some outlier readings both greater and lesser than these values appearing at some depths in some locations.

4. Conclusions

Based on our explorations, testing, and analyses, it is our opinion that the site is suitable for the proposed roadway improvements, provided the recommendations in this report are included in design and construction. We offer the following general summary of our conclusions.

- The AC pavements throughout the Project Corridor are typically in poor to fair condition. We recommend complete replacement of the AC pavement with a new AC or PCC section to achieve a 20-year or greater design life. Alternatively, pavement rehabilitation consisting of a complete removal and replacement of existing AC down to the PCC layer may be completed for a 15-year design life. Mill and overlay rehabilitation is not recommended due to the potential for reflective cracking through the PCC layer to the pavement surface.
- The subgrade soils that blanket the Project area beneath the existing pavements consist of medium stiff, moist, clays and silts.
  - These materials will be easily disturbed by construction equipment, causing rutting, pumping, and general deterioration of subgrades when trafficked. We recommend that the contractor limit trafficking on the subgrade and/or employ wet weather/soil practices during all seasons.
  - Due to the fine-grained nature of the subgrade soils, it will not be reasonably possible to compact new aggregate base materials on top of the native subgrade without employing stabilization techniques, such as thickened rock sections or cement amendment.
  - The subgrade soils will require significant aeration/drying to use as structural fill. For planning purposes, they should be considered unsuitable for reuse as structural fill.
- While extensive groundwater is not expected to be encountered in shallow subgrade excavations, deeper utility trenches may encounter groundwater. Additionally, if construction occurs during wet weather the water is likely to pond in low areas and excavations and shallow seepage may occur. The contractor shall be prepared to control surface runoff and seepage into excavations, particularly during wet weather.
- Subgrade and shallow soils generally have low to moderate bearing capacity and moderate compressibility. Soft conditions may be encountered during pavement and utility subgrade preparation, and stabilization measures may be required.
- The hydraulic conductivity of the soils on site is low. As such, we do not recommend the use of infiltration systems unless further testing is completed that indicates that they are feasible.

The following sections present our recommendations for geotechnical aspects of the Project design. We have developed our conclusions and recommendations based on our current understanding of the Project. If the nature of the Project or location-specific Project elements are altered from those described in this report, Haley & Aldrich should be notified so we can confirm or modify our recommendations.

5. Pavement Design and Considerations

5.1 GENERAL

Paving for the Project includes new and/or rehabilitated AC and/or PCC pavements. Pavements should be constructed in accordance with City standards and Oregon Standard Specifications for Construction (OSSC) 00744 – Asphalt Concrete Pavement or OSSC 00756 – Plain Concrete Pavement, as applicable.

5.2 ROADWAY TRAFFIC

The following traffic loading criteria for the pavement design were based on guidelines found in the ODOT Pavement Design Guide (ODOT, 2019) and on traffic estimates provided by BKF.

- A 20- or 30-year design life for new and rebuilt AC pavement sections and a 30 or 50-year design life for new PCC pavement sections.
- A 15-year design life for rehabilitated AC pavement sections
- Average daily traffic (ADT) of 2,949 vehicles total, consisting of 1,232 vehicles in the eastbound direction and 1,717 vehicles in the westbound direction. The more conservative westbound ADT values were used for design. Vehicle types were broken down into the following FHWA classifications:
  - Types 1, 2, and 3: 83.5 percent of ADT Total
  - Types 4, 5, 6, and 7: 16 percent of ADT Total
  - Types 8, 9, and 10: 0.5 percent of ADT Total
- Assumed traffic growth rate of 2.5 percent per year.

Based on the data outlined above and equivalent single-axle load (ESAL) factors in ODOT (2019), we calculated the following design traffic loadings.

- New AC Pavements: 800,000 ESALs (20-year life); 1,500,000 ESALS (30-year life).
- New PCC Pavements: 1,600,000 ESALs (30-year life); 4,300,000 ESALs (50-year life).
- Rehabilitated Pavement Section: 530,000 ESALs (15-year life).

5.3 DESIGN PARAMETERS

The following pavement design parameters were based on guidelines found in ODOT (2019) and American Association of State Highway and Transportation Officials (AASHTO) Guide for Design of Pavement Structures (AASHTO, 1993).

- Design resilient modulus of 4,000 psi for in situ soil subgrade.
- A resilient modulus of 20,000 psi for base rock.
- Structural coefficients of 0.42 and 0.10 for new asphalt and base rock layers, respectively.
- Structural coefficient of 0.25 and 0.275 for existing AC and concrete pavement layers, respectively.

- Structural coefficient of 0.075 for a native soil subgrade that has been cement treated or for stabilization rock with a geotextile fabric.
- An effective modulus of subgrade reaction of 240 pounds per cubic inch for the design of new PCC pavement.

5.4 PAVEMENT SECTIONS

The following section describes options for new and/or rehabilitated pavements. Due to generally soft to medium stiff and moist subgrade conditions, where new pavement sections are installed, it should be assumed that subgrade stabilization work will be required. We have prepared recommendations for new AC pavement sections that include either 18 inches of stabilization rock or 10 inches of cement-amended soil subgrade. The recommended new AC pavement sections are for 20-year and 30-year design lives; recommendations for new PCC pavement sections use 30-year and 50-year design lives. Rehabilitated (e.g., crack-and-seat) pavements have been designed for a 15-year design life, in accordance with ODOT (2019).

The existing AC is underlain by PCC pavement. Due to joints, utility cuts, and cracks in the PCC, reflective cracking may transmit through new AC if the PCC is left in place in its current condition. Therefore, we recommend the use of the “crack-and-seat” method of breaking up the PCC to reduce the potential for reflective cracking. Refer to Section 5.5, Pavement Materials and Construction, for additional discussion regarding crack-and-seat. However, because the PCC bears directly on the native subgrade, we consider it to be somewhat risky to attempt cracking-and-seating, since there is a potential that the native subgrade may become disturbed during the process.

The existing pavement section along the Project Corridor is in fair to poor condition. The existing AC thickness varies from 2.5 to 11.0 inches and is typically underlain by PCC, except where demolished for excavation of utility trenches and in the small portion of the Project Corridor located east of NE Johnson Street. Where present, the PCC bears on a thin layer of rounded gravel underlain by several feet of lean clay fill.

We recommend that the entire pavement section either be rebuilt, or that new AC be placed atop the existing PCC after undergoing a crack-and-seat procedure. Table 4 summarizes pavement section options for the Project Corridor.

Table 4. Pavement Design Options

Classification	Design Life (years)	Pavement Thickness (inches)	Aggregate Base (inches)	Subgrade
New AC Pavement Section	20	5.5	5.0	18 inches stabilization rock over geotextile
	30	6.0	7.0	
	20	5.5	4.0	10 inches of cement amended soil
	30	6.0	5.5	
New PCC Pavement Section	30	8.0	6.0	In situ soil subgrade
	50	9.0	6.0	
New AC with Crack and Seat PCC	15	8.0	n/a	Crack-and-seat existing PCC

Note: *The ODOT Pavement Design Guide (PDG) recommends a minimum design life of 20 years for AC pavements in “rural” areas and 30 years in urban areas. The PDG recommends a typical design life of 50 years for PCC pavements, though a 30-year design life is permissible for “design of short segments with low traffic.”*

Parking lanes (not including bus stops or lanes expected to experience heavy truck traffic) may be designed with reduced pavement sections. Rigid PCC sections for parking lanes may consist of 6 inches of PCC over 6 inches of aggregate base. AC pavement sections in parking lanes may consist of 3.5 inches of AC over 3.5 inches of aggregate base.

5.5 PAVEMENT MATERIALS AND CONSTRUCTION

5.5.1 AC

The AC should conform to the specifications provided in OSS 00745 – Asphalt Concrete Pavement. The wearing and base course layers should be 1/2-inch Level 3 dense-graded hot mix asphalt with minimum and maximum lift thicknesses of 2 and 3 inches, respectively. The AC should be compacted to 92 percent of Rice Density of the mix, as determined in accordance with ASTM D 2041.

The AC binder should be PG 70-22 Performance Grade Asphalt Cement according to 00745.11 – Asphalt Cement and Additives.

5.5.2 Rigid PCC

Rigid PCC used for pavement should meet the specifications provided in OSS 00756 – Plain Concrete Pavement. The installed concrete should be Class 4000 1.5-inch paving concrete per OSS 02001 – Concrete. The PCC joints should have a maximum spacing of 12 feet and be constructed in accordance with OSS 00756.48 – Joints and ODOT standard details DET 1600 and 1602. Joints should not be located in wheel tracks.

PCC should be interlocked at contraction joints (e.g., continuous slab with no dowels), though dowels should be used at construction and expansion joints. Dowels should have a minimum diameter equal to 1/8-inch per 1 inch of PCC thickness.

Where the pavement is tied into the curb and gutters to reduce the PCC thickness, tie bars should be installed at the longitudinal joints using dowels equal in diameter to those used for construction and expansion joints.

5.5.3 Aggregate Base

Imported granular material used as aggregate base (base rock) beneath conventional AC pavement should meet the criteria specified in Section 6.2, Structural Fill and Backfill. A subgrade geotextile conforming to OSS 02320 (Table 4) shall be placed atop the soil subgrade before aggregate base is installed. However, a subgrade geotextile is not required atop a cement-treated subgrade or stabilization material that is underlain by a subgrade geotextile.

5.5.4 AC Grinding

Grinding of existing AC should be completed in conformance with OSSC 620 – Cold Plane Pavement Removal.

5.5.5 Cement-Treated Subgrade

If the in situ fine-grained subgrade soils are stabilized via cement treatment, then the soil amending should be conducted in accordance with the Section 6.2.7, Cement-Treated Soil. The treatment depth shall be a minimum of 10 inches and a target 28-day unconfined compressive strength of 100 psi for the treated soil shall be achieved.

5.5.6 Crack-and-Seat PCC

PCC underlies AC pavements throughout the Project Corridor. One pavement rehabilitation option is provided that allows the PCC to remain in place and an AC overlay to be installed. If this option is chosen, then the PCC will need to be prepared via the “crack-and-seat” methodology to help reduce the potential for future reflective cracking. Where existing PCC will be left in place, the panels shall be cut into pieces ranging from 1 to 3 feet in greatest dimension. Due to the soft, easily disturbed nature of the soil subgrade, “rubblization” should not be attempted. The panels shall only be broken down by saw cutting, as dynamic action, such as hydraulic hammers, will also disturb the subgrade. After the slabs have been saw cut, they should be “seated” by several passes of an approximately 25- to 35-ton pneumatic (rubber-tired) roller.

6. Earthwork Recommendations

Based on available information, we estimate mass grading for the site will be limited, with shallow areal excavations being made to accommodate aggregate base sections for reconstructed or newly constructed roadways, curbs, and sidewalks. However, because of soft, moist soil conditions, proper planning and execution of earthwork will have significant implications for successful completion of the Project.

All earthwork should be conducted in accordance with City requirements and the OSSC (ODOT, 2024). Project-specific recommendations for earthwork are provided in the following sections.

6.1 SITE PREPARATION

6.1.1 General

The site soils are highly susceptible to moisture-related disturbance. Wet soil construction practices will be necessary throughout most of the year, particularly during periods of wet weather. Wet soil construction practices include limiting trafficking on exposed subgrades and using equipment, such as smooth excavator buckets and tracked equipment, to limit subgrade disturbance, etc. Due to widespread soft, wet conditions, the existing soil subgrade will not be suitable for placement of aggregate base or fill material without prior stabilization, as discussed later.

6.1.2 Demolition

Demolition should include complete removal of existing site improvements within areas to receive new pavements, curbs, or sidewalks. Underground utility lines, vaults, or tanks that are to be abandoned should be completely removed or grouted full if left in place.

Voids resulting from removal of below-grade structures or loose soil in utility lines should be backfilled with compacted structural fill, as discussed in Section 6.2, Structural Fill and Backfill. The bases of such excavations should be completed to a firm subgrade before filling, and their sides sloped slightly to allow for more uniform compaction at the edges of the excavations.

Materials generated during demolition of existing improvements should be transported off site for disposal or stockpiled in areas designated by the City. In general, these materials will not be suitable for reuse as engineered fill. However, asphalt, concrete, and base rock material may be crushed and recycled for use as general fill. Such recycled material should meet the specifications for imported granular material, as described in Section 6.2, Structural Fill and Backfill.

Refer to Section 5, Pavement Design and Considerations, for discussion regarding AC grinding and “crack-and-seat” preparation of existing PCC.

6.1.3 Stripping

We anticipate most of the improvements will not require stripping of the existing ground surface; however, some stripping will be required in localized areas throughout the Project. Actual stripping depths should be evaluated, based on observations during the stripping operation. The prepared subgrade should be observed and approved by the engineer. Generally, visible organic material (sod, roots larger than 1/4-inch diameter, and/or other plant material), debris, and other unsuitable materials should be removed from the subgrade areas. Such material will not be suitable for use as structural fill and should be hauled off site as designated by the City.

6.1.4 Subgrade Preparation

Wherever possible, the contractor should work from existing paved surfaces and limit trafficking onto exposed soil subgrades. As noted in Section 5, Pavement Design and Considerations, the new pavement designs assume the pavement subgrade will be augmented by the installation of an 18-inch-thick layer of stabilization rock or by 10 inches of cement amended subgrade. These measures are to provide a stable subgrade for compaction of aggregate base and AC. The contractor is responsible for providing additional stabilization material, if needed, to protect the subgrade from disturbance caused by construction traffic. The contractor should not attempt to compact the native soil subgrade prior to implementing one of the stabilization measures discussed above.

Following subgrade excavation and prior to implementing stabilization measures, the suitability of the subgrade should be evaluated by Haley & Aldrich. It is unlikely that the typical proof-rolling with a fully loaded dump truck or similar heavy rubber-tired construction equipment will be suitable due to soft conditions, though this method should be utilized if deemed feasible by Haley & Aldrich. Otherwise, the evaluation will likely include use of a steel T-probe to identify any excessively soft areas. If excessively soft zones are identified during the evaluation, then additional subgrade excavation may be required.

6.1.5 Utility Considerations

Underground utilities should be installed prior to installation of geotextile and stabilization rock or cement amendment of the subgrade; otherwise, utility construction will disturb these stabilization measures. Additionally, care should be taken in the selection of the subgrade stabilization measure to assure that existing utilities are not disturbed. For planning purposes, a minimum of 1 foot of clearance between the base of a cement-treated soil (currently proposed to be 10 inches thick) and any buried utilities should be maintained. Individual contractors may require greater clearance or release of liability from potential damage to buried utilities.

6.2 STRUCTURAL FILL AND BACKFILL

Structural fill includes fill for embankments; for slab and pavement support, such as aggregate base; and other fill within the influence zone of structures adjacent to the improvement area. Fill should only be placed over a subgrade that has been prepared in accordance with Section 6.1, Site Preparation. A variety of soils may be used as structural fill, provided they are free of debris, clay balls, roots, organic matter, frozen soil, man-made contaminants, particles exceeding 4 inches in size, and other deleterious material. Structural fill should meet the appropriate specifications provided in OSSC 00330.12 – Borrow Material, 00330.13 – Selected General Backfill, 00330.14 – Selected Granular Backfill or others as appropriate.

Fill and backfill material should be placed and compacted in lifts with maximum uncompacted thicknesses and relative densities as recommended in the OSSC and the tables that follow.

6.2.1 On-Site Soils

In general, the native materials in the Project Corridor consist of moist, fine-grained soils and will not be suitable for reuse as structural fill. However, they may be reused when they are directly incorporated into a cement-amended subgrade.

6.2.2 Recycled AC, PC, and Aggregate Base

Existing AC, PCC, and aggregate base from the site can be used in general structural fill, provided these materials are thoroughly and uniformly crushed with no particles greater than 3 inches. If used as trench backfill, this material should not be used within the pipe zone. The recycled materials should meet the specifications provided in OSSC 00330.13 – Selected General Backfill.

6.2.3 Aggregate Base

Imported granular material used as aggregate base beneath pavements or slabs should be clean, crushed rock or crushed gravel and sand that is fairly well graded between coarse and fine. The base aggregate should meet the specifications provided in OSSC 02630.10 – Dense Graded Base Aggregate, depending upon application. For use beneath sidewalks, we generally recommend the rock have a maximum particle size of 0.75 or 1 inch.

Aggregate base should be separated from the base of untreated fine-grained subgrades with a layer of subgrade geotextile that meets the specifications provided in OSSC 02320.20 – Geotextile Property Values for subgrade geotextile (separation). The geotextile should be installed in conformance with the specifications provided in OSSC 00350 – Geosynthetic Installation.

6.2.4 Trench Backfill

Trench backfill placed beneath, adjacent to, and for at least 12 inches above utility lines (i.e., the pipe zone) should meet City and ODOT specifications and consist of well-graded granular material with a maximum particle size of 3/4 inch and less than 10 percent by dry weight passing the U.S. Standard No. 200 Sieve, and should meet the specifications provided in OSSC 00405.13 – Pipe Zone Material. Within roadway alignments, the remainder of the trench backfill up to the subgrade elevation should consist of well-graded granular material with a maximum particle size of 3 inches, have less than 10 percent by dry weight passing the U.S. Standard No. 200 Sieve, and meet the specifications provided in OSSC 00405.14 – Trench Backfill, Class B or D.

Outside of structural improvement areas, trench backfill placed above the pipe zone may consist of general fill materials that are free of organics and material over 6 inches in diameter and meet the specifications provided in OSSC 00330.12 – Borrow Material.

6.2.5 Imported Select Structural Fill

Imported granular material used as structural fill during periods of wet weather should be pit or quarry run rock, crushed rock, or crushed gravel and sand and should meet the specifications provided in OSSC 00330.14 – Selected Granular Backfill, 00330.15 – Selected Stone Backfill, or 00330.16 – Selected Stone Embankment. The imported granular material should also be angular, fairly well-graded between coarse and fine material, have less than 5 percent by dry weight passing the U.S. Standard No. 200 Sieve, and have at least two mechanically fractured faces.

6.2.6 Stabilization Material

If imported granular material is used to stabilize subgrade excavations, we recommend that material consist of pit or quarry run rock, or crushed rock. The material should generally be sized between 2 and 6 inches, have less than 5 percent by dry weight passing the U.S. Standard No. 4 Sieve, and have at least two mechanically fractured faces. The material should be free of organic matter and other deleterious material. Material meeting the specifications of OSSC 00330.16 – Stone Embankment, though with the maximum size noted above is generally acceptable, as are smaller quarry spalls, ballast, and other similar clean angular materials.

Stabilization material should be separated from the base of soft or fine-grained subgrades with a layer of subgrade geotextile that meets the specifications provided in OSSC 02320.20 – Geotextile Property Values for subgrade geotextile (separation). The geotextile should be installed in conformance with the specifications provided in OSSC 00350 – Geosynthetic Installation.

Stabilization material should be placed atop the geotextile in an initial 12-inch loose lift. The rock should be compacted with a 2- to 3-ton, smooth, dual-drummed roller operating in "static" mode to a well "keyed" condition. The remaining 6 inches of rock should be placed and compacted to 95 percent of the rock's maximum dry density as determined by ASTM D 1557/AASHTO T-180.

6.2.7 Cement-Treated Soil

As an alternative to the use of stabilization material for subgrade protection, an experienced contractor may be able to amend the on-site soils with Portland cement to obtain suitable support properties. Successful use of soil amendment depends on the use of correct mixing techniques, soil moisture content, and amendment quantities. Specific recommendations for soil amendment, based on exposed site conditions, can be provided if necessary. Soil amendment should be conducted in accordance with the specifications provided in OSSC 00344 – Treated Subgrade.

For budgeting purposes, we recommend 6 percent cement (by dry weight) be used for soil treatment. A dry weight of 110 pounds per cubic foot should be assumed for the soil. Actual percentages of cement will need to be based on in situ soil moisture contents and other field conditions at the time of amendment.

Portland cement-amended soils are hard and have low permeability. These soils do not drain well, nor are they suitable for planting. Future planted areas should not be cement amended, if practical, or accommodations should be made for drainage and planting. Moreover, cement amending of soil within building areas must be done carefully to avoid trapping water under floor slabs. We should be contacted if this approach is considered. Cement amendment should not be used if runoff during construction cannot be directed away from adjacent wetlands.

To protect the cement-treated surfaces from abrasion, "slickening," or other damage, the treated surface should be covered with 4 to 6 inches of imported granular material before it is tracked by equipment. The crushed rock can become contaminated with soil during construction if not properly protected. If the rock becomes contaminated, it should be removed and replaced with clean rock prior to paving.

It is not possible to amend soils during heavy or continuous rainfall. Work should be completed during suitable conditions. To prevent strength loss during curing, cement-amended soil should be allowed to cure for a minimum of four days prior to access by construction traffic.

6.3 FILL PLACEMENT AND COMPACTION

Structural fill should be placed and compacted in accordance with OSSC 00330.43 – Earthwork Compaction requirements and the following guidelines.

- Place fill and backfill on a prepared subgrade that consists of firm, inorganic native soils or approved structural fill.
- Place fill or backfill in uniform horizontal lifts with a thickness appropriate for the material type and compaction equipment. Table 5, below, provides general guidance for uncompacted lift thicknesses.
- Do not place fill and backfill until the required tests and evaluation of the underlying materials have been made and the appropriate approvals have been obtained.
- Limit the maximum particle size within the fill to two-thirds of the loose lift thickness.
- Control the moisture content of the fill to within 3 percent of the optimum moisture content based on laboratory Proctor tests. The optimum moisture content corresponds to the moisture content at the maximum attainable Proctor dry density.
- Perform a representative number of in-place density tests on structural fill in the field to verify adequate compaction.

Table 5. Guidelines for Uncompacted Lift Thickness

Compaction Equipment	Guidelines for Uncompacted Lift Thickness (inches)	
	Granular and Crushed Rock Maximum Particle Size less than or equal to 1½ inch	Crushed Rock Maximum Particle Size greater than 1½ inch
Plate Compactors and Jumping Jacks	4 to 8	Not Recommended
Rubber-Tire Equipment	8 to 12	6 to 8
Light Roller	8 to 12	8 to 10
Heavy Roller	12 to 18	12 to 16
Hoe Pack Equipment	18 to 24	12 to 16

Note:

The above table is based on our experience and is intended to serve as a guideline. The information provided in this table should not be included in the Project specifications.

During structural fill placement and compaction, a sufficient number of in-place density tests should be completed by Haley & Aldrich to verify that the specified degree of compaction is being achieved. For structural fill with more than 30 percent retained on the 3/4-inch sieve, proper compaction should be verified with a proof roll or other performance methods.

6.4 EXCAVATION

6.4.1 General

Site soils within expected excavation depths generally consist of moist clay and silt. In our opinion, conventional earthmoving equipment in proper working condition should be capable of making necessary general excavations for utilities and other earthwork. The earthwork contractor should be responsible for providing equipment and following procedures as needed to excavate the site soils, as described in this report, while protecting the subgrade.

6.4.2 Temporary Cut Stability

Because of the variables involved, actual slope angles required for stability in temporary cut areas can only be estimated before construction. We recommend that stability of the temporary slopes used for construction be the responsibility of the contractor, since the contractor is in control of the construction operation and is continuously at the site to observe the nature and condition of the subsurface.

All temporary soil cuts associated with site excavations (greater than 4 feet in depth) should be adequately sloped back to prevent sloughing and collapse, in accordance with Occupational Safety and Health Administration (OSHA) guidelines. The stability and safety of cut slopes depend on a number of factors, including:

- The type and density of the soil;
- The presence and amount of any seepage;
- Depth of cut;
- Proximity and magnitude of the cut to any surcharge loads, such as stockpiled material, traffic loads, or structures;
- Duration of the open excavation; and
- Care and methods used by the contractor.

All excavations should be made in accordance with all local, state, and federal safety requirements. According to OSHA guidelines, we expect that the existing site soils would be considered Type C.

Where groundwater seepage is encountered within excavation slopes, the cut slope inclination may have to be flatter than 1.5 horizontal to 1 vertical. However, appropriate inclinations will ultimately depend on the actual soil and groundwater seepage conditions exposed in the cuts at the time of construction. It is the responsibility of the contractor to ensure that the excavation is properly sloped or braced for worker protection, in accordance with OSHA guidelines. To assist with this effort, for planning purposes only, we make the following recommendations regarding temporary excavations.

- Protect excavations from erosion with plastic sheeting for the duration of the excavation to minimize surface erosion and raveling.
- Limit the maximum duration of the open excavation to the shortest time period possible.
- Place no surcharge loads (equipment, materials, etc.) within 10 feet of the top of excavations.

More restrictive requirements may apply depending on specific site conditions, which should be continuously assessed by the contractor.

If temporary sloping is not feasible based on site spatial constraints, excavations could be supported by internally braced shoring systems, such as a trench box or other temporary shoring. There are a variety of options available. We recommend that the contractor be responsible for selecting the type of shoring system to apply.

6.5 DEWATERING AND TEMPORARY DRAINAGE

Groundwater may be present within the depths of utility excavations; therefore, trenching operations may require dewatering. Refer to Section 3.3.4, Groundwater, for a discussion of groundwater conditions at the site. Dewatering is typically the responsibility of the contractor. Due to the fine-grained nature of the site soils, pumping from sumps located within the excavation will likely be effective in removing water resulting from seepage. Deeper trenching and excavation work may require well point dewatering, though this is not anticipated. Failure to dewater can result in issues, such as base heave, sidewall caving and sloughing, increased backfill and haul off requirements, and Project delays.

During grading at the site, the contractor should be made responsible for temporary drainage of surface water as necessary to prevent standing water and/or erosion of the working surface. During rough and finished grading of the roadway alignment, the contractor should keep subgrades free of water.

7. Infiltration Systems

The results of on-site field infiltration testing are described in Section 3.3.5, Infiltration Testing. In general, we found that the soils are not suitable for infiltration with unfactored hydraulic conductivity values between 1.5 and 2.3 inches per hour. Further, mapping from the USDA Web Soil Survey indicates that the hydraulic conductivity of on-site soils is typically between 0.2 and 2 inches per hour. Based on the high fines content of the soils (89 to 97 percent), we consider the field testing to be unrepresentative of the actual, long-term infiltration capacity of the site soils. Longer-term in situ field testing may be required to better characterize the actual infiltration capacity. We would anticipate long-term rates to be on the order of 0.2 inches per hour or less. As such, we recommend against the use of stormwater infiltration facilities. If further consideration for such systems is desired, then additional field testing will be necessary.

8. Design Support and Construction Observations

The final Project plans and specifications, particularly those including pavement and subsurface improvements, should be reviewed by Haley & Aldrich prior to construction to check that they are in general conformance with the intent of our recommendations.

Satisfactory pavement and earthwork performance depends to a large degree on quality of construction. Sufficient monitoring of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. Subsurface conditions observed during construction should be compared with those encountered during subsurface explorations. Recognition of changed conditions often requires experience; therefore, Haley & Aldrich or their representative should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated.

We recommend that Haley & Aldrich be retained to monitor construction at the site to confirm that subsurface conditions are consistent with the site explorations and to confirm that the intent of Project plans and specifications relating to earthwork and paving are being met. In particular, we recommend that stripping and subgrade preparation/stabilization, as well as placement and compaction of structural backfill, aggregate base, and asphalt pavement be observed and/or tested by Haley & Aldrich.

9. Limitations

We have prepared this report for the exclusive use of BKF, the City, and their authorized agents for the proposed Third Street Improvements Project in McMinnville, Oregon in accordance with our subconsultant agreement. Our report is intended to provide our opinion of geotechnical parameters for design and construction of the proposed Project based on exploration locations that are believed to be representative of site conditions. However, conditions can vary significantly between exploration locations and our conclusions should not be construed as a warranty or guarantee of subsurface conditions or future site performance.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty, express or implied, should be understood.

Any electronic form, facsimile, or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by Haley & Aldrich and will serve as the official document of record.

References

1. American Association of State Highway and Transportation Officials , 1993. Guide for Design of Pavement Structures.

2. Brownfield, M.E., and Schlicker, H.G., 1981. Preliminary geologic map of the McMinnville and Dayton quadrangles: Oregon Department of Geology and Mineral Industries, Open-File Report 81-6, scale 1:24,000.

3. Oregon Department of Transportation (ODOT), 2024. Oregon Standard Specifications for Construction.

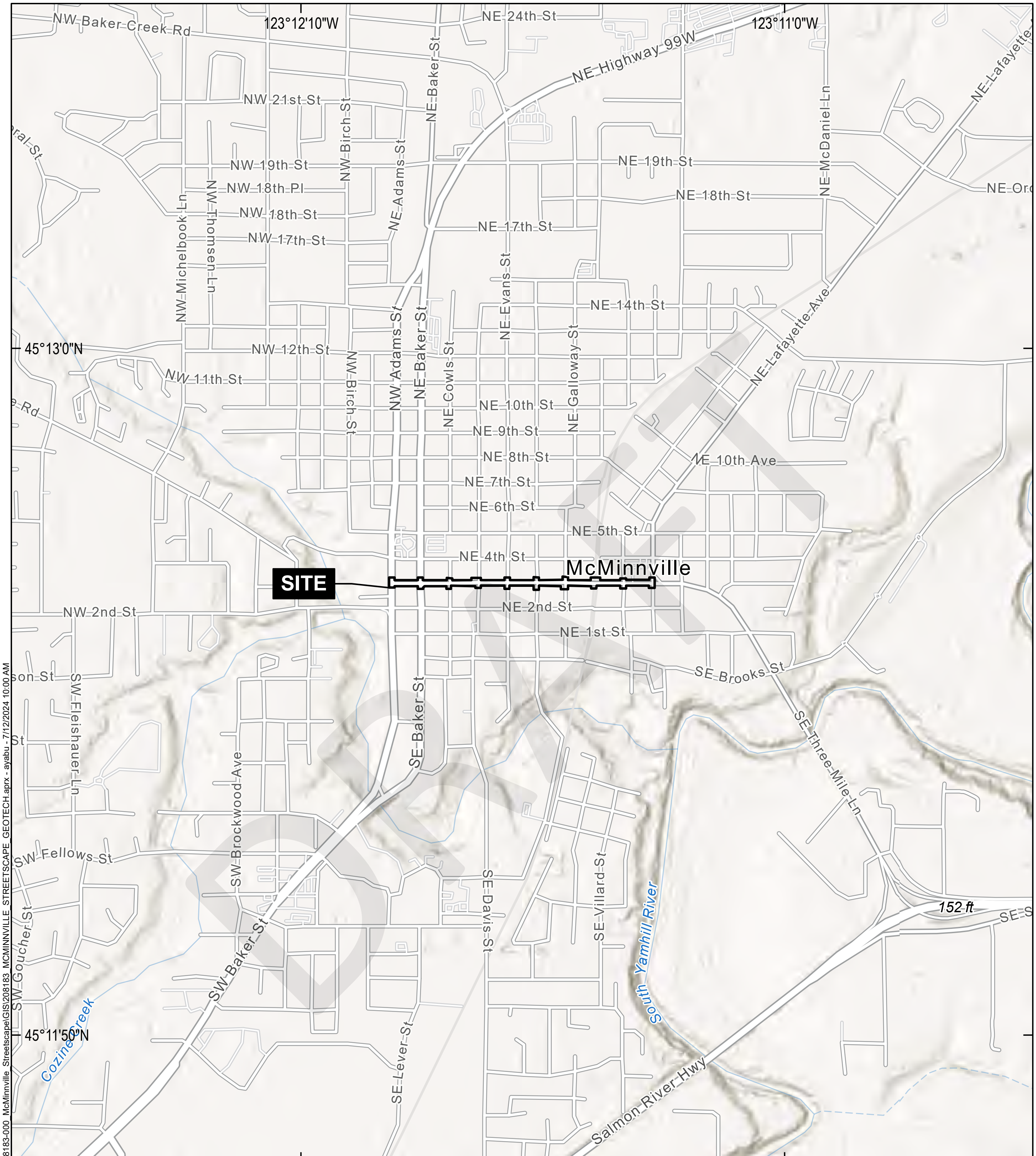
4. ODOT, 2019. ODOT Pavement Design Guide.

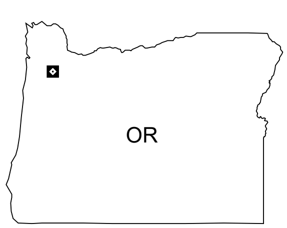
5. ODOT, 2010. GFP Pavement Condition Rating Manual, ODOT Pavement Management Unit, updated July.

6. United States Department of Agriculture, 2024. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture Web Soil Survey. Available online at the following link: http://websoilsurvey.sc.egov.usda.gov/. Accessed 07/9/2024.

\\haleyaldrich.com\share\CF\Projects\0208183\Geotech\Deliverables\In-Basket\Geotech_Report\2024_0725_HAI_0208183-000_3rd_Street_D.docx

FIGURES





N

MAP SOURCE: ESRI
SITE COORDINATES: 45°12'36"N, 123°11'37"W

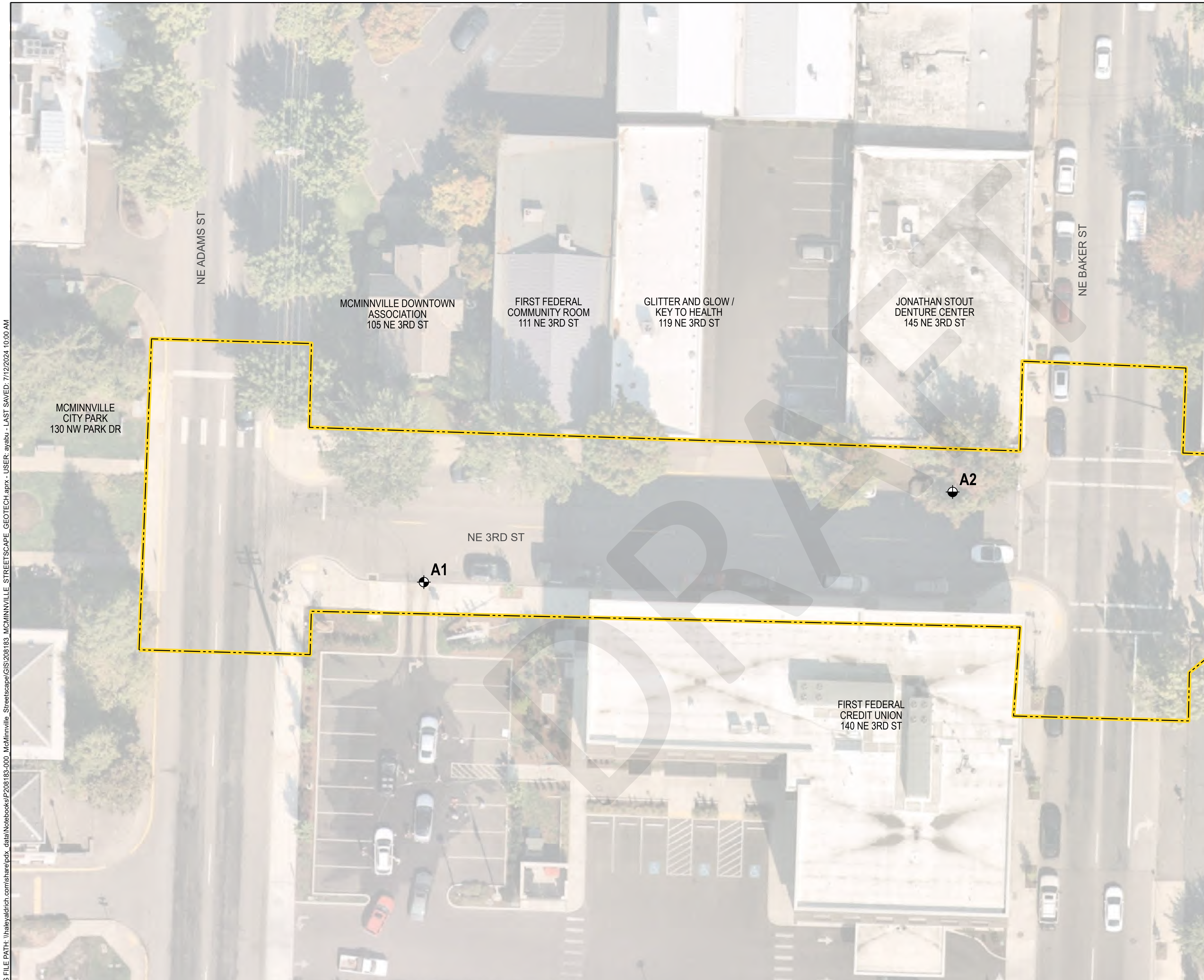
THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
JULY 2024

FIGURE 1

GIS: \\haleyaldrich.com\share\pdx_data\Notebooks\P208183-000_McMinnville_Streetscape\GIS\208183_MCMINNVILLE_STREETSCAPE_GEOTECH.aprx - ayabu - 7/12/2024 10:00 AM

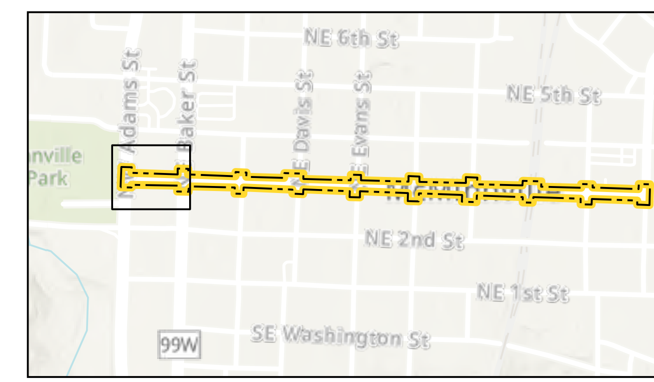


LEGEND

- DCP AND SOLID STEM AUGER BORING
- DCP AND SOLID STEM AUGER BORING / INFILTRATION TEST
- PAVEMENT CORE
- PAVEMENT CORE / INFILTRATION TEST
- SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: NEARMAP, 16 SEPTEMBER 2023



N

0 30 60
SCALE IN FEET

HALEY ALDRICH

THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

SITE AND EXPLORATION PLAN
NE ADAMS ST TO NE BAKER ST

JULY 2024

FIGURE 2

GIS FILE PATH: \\haleyaldrich.com\share\pdx_data\Notebooks\P208183-000_McMinnville_Streetscape\GIS\208183_MCMINNVILLE_STREETSCAPE_GEOTECH.aprx - USER: ayabu - LAST SAVED: 7/12/2024 10:00 AM

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LEGEND

- DCP AND SOLID STEM AUGER BORING
- DCP AND SOLID STEM AUGER BORING / INFILTRATION TEST
- PAVEMENT CORE
- PAVEMENT CORE / INFILTRATION TEST
- SITE BOUNDARY

NOTES

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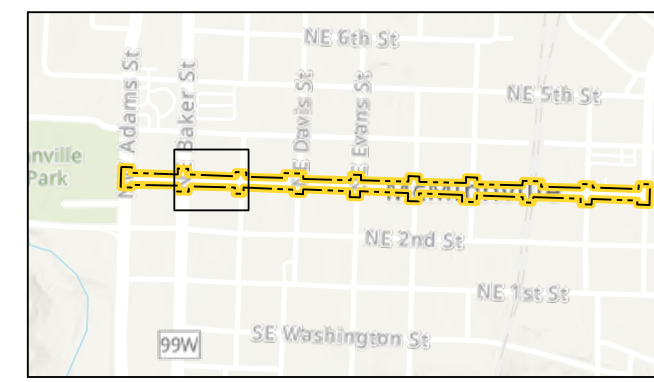
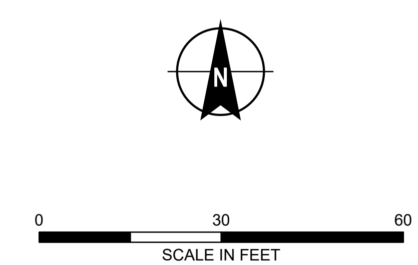
2. AERIAL IMAGERY SOURCE: NEARMAP, 16 SEPTEMBER 2023





HALEY ALDRICH

THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

SITE AND EXPLORATION PLAN
NE BAKER ST TO NE COWLS ST

JULY 2024

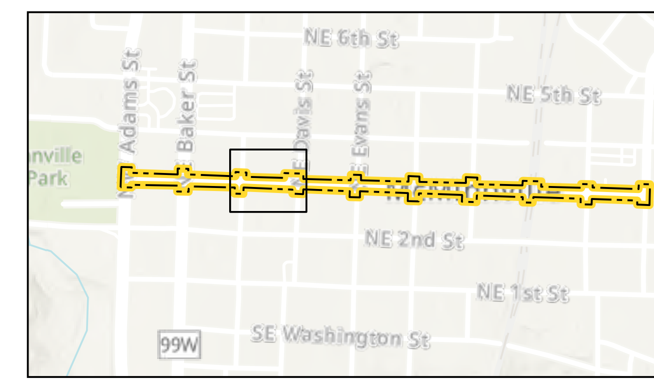
FIGURE 3

LEGEND

- DCP AND SOLID STEM AUGER BORING
- DCP AND SOLID STEM AUGER BORING / INFILTRATION TEST
- PAVEMENT CORE
- PAVEMENT CORE / INFILTRATION TEST
- SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: NEARMAP, 16 SEPTEMBER 2023



0 30 60
SCALE IN FEET

HALEY ALDRICH

THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

SITE AND EXPLORATION PLAN
NE COWL ST TO NE DAVIS ST

JULY 2024

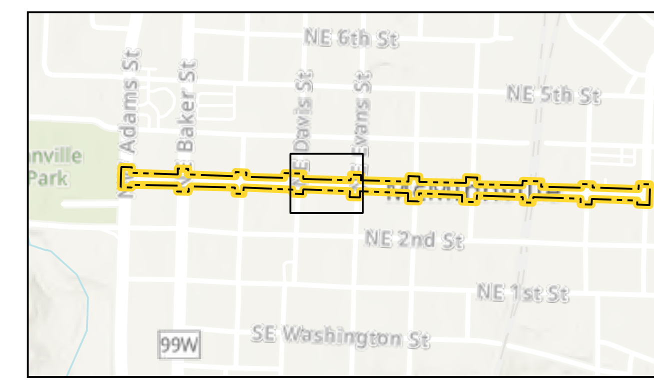
FIGURE 4

LEGEND

- DCP AND SOLID STEM AUGER BORING
- DCP AND SOLID STEM AUGER BORING / INFILTRATION TEST
- PAVEMENT CORE
- PAVEMENT CORE / INFILTRATION TEST
- SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: NEARMAP, 16 SEPTEMBER 2023



N

0 30 60
SCALE IN FEET

HALEY ALDRICH

THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

SITE AND EXPLORATION PLAN
NE DAVIS ST TO NE EVANS ST

JULY 2024

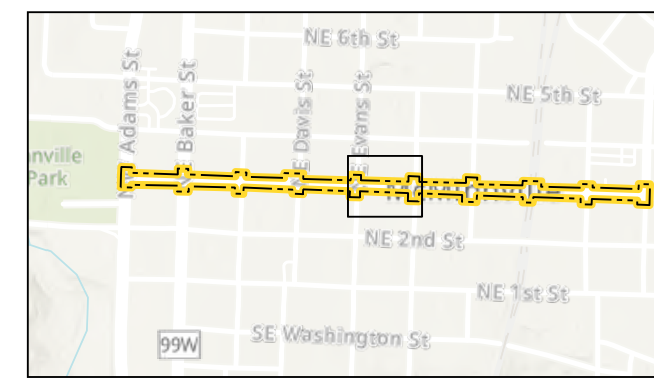
FIGURE 5

LEGEND

- DCP AND SOLID STEM AUGER BORING
- DCP AND SOLID STEM AUGER BORING / INFILTRATION TEST
- PAVEMENT CORE
- PAVEMENT CORE / INFILTRATION TEST
- SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: NEARMAP, 16 SEPTEMBER 2023



N

0 30 60
SCALE IN FEET

HALEY ALDRICH

THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

SITE AND EXPLORATION PLAN
NE EVANS ST TO NE FORD ST

JULY 2024

FIGURE 6

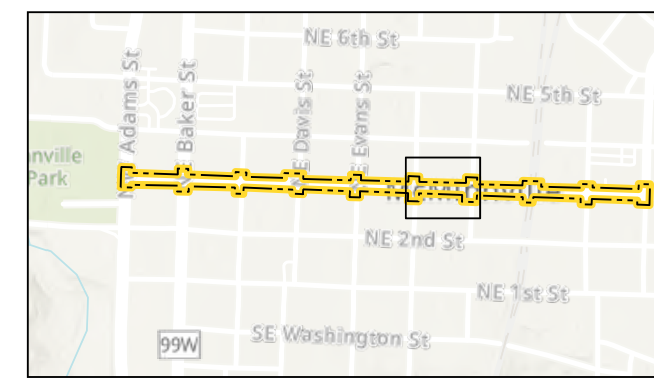
GIS FILE PATH: \\haleyaldrich.com\share\pdx_data\Notebooks\P208183-000_McMinnville_Streetscape\GIS\208183_MCMINNVILLE_STREETSCAPE_GEOTECH.aprx - USER: ayabu - LAST SAVED: 7/12/2024 10:00 AM

LEGEND

- DCP AND SOLID STEM AUGER BORING
- DCP AND SOLID STEM AUGER BORING / INFILTRATION TEST
- PAVEMENT CORE
- PAVEMENT CORE / INFILTRATION TEST
- SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: NEARMAP, 16 SEPTEMBER 2023



N

0 30 60
SCALE IN FEET

HALEY ALDRICH

THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

SITE AND EXPLORATION PLAN
NE FORD ST TO NE GALLOWAY ST

JULY 2024

FIGURE 7

LEGEND

- DCP AND SOLID STEM AUGER BORING
- DCP AND SOLID STEM AUGER BORING / INFILTRATION TEST
- PAVEMENT CORE
- PAVEMENT CORE / INFILTRATION TEST
- SITE BOUNDARY

NOTES

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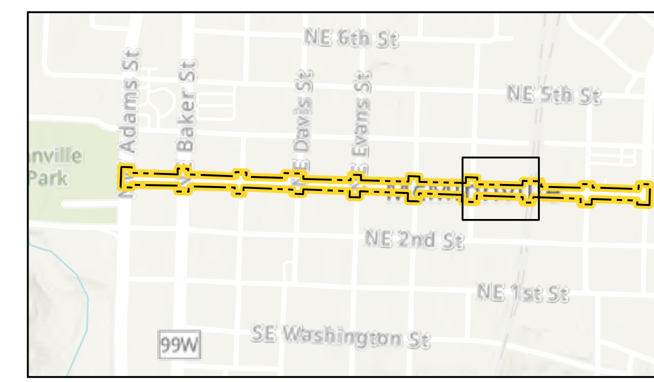
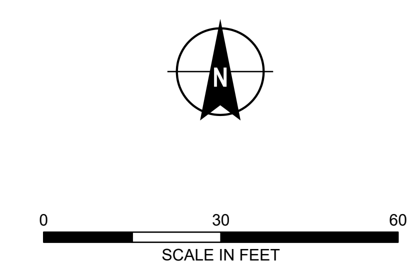
2. AERIAL IMAGERY SOURCE: NEARMAP, 16 SEPTEMBER 2023





HALEY ALDRICH

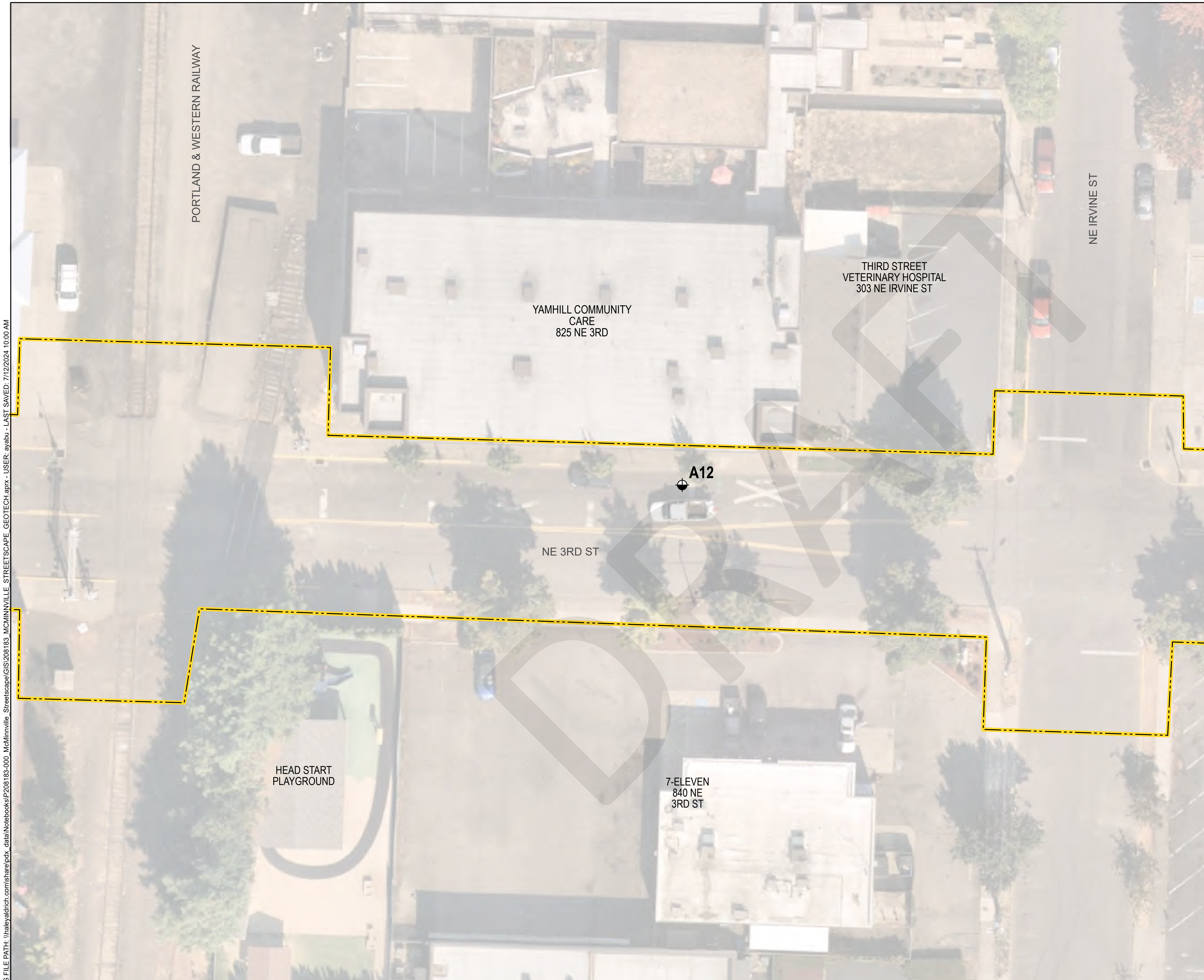
THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

SITE AND EXPLORATION PLAN
NE GALLOWAY ST TO RAILROAD

JULY 2024

FIGURE 8

GIS FILE PATH: \\haleyaldrich.com\share\pdx_data\Notebooks\P208183-000_McMinnville_Streetscape\GIS\208183_MCMINNVILLE_STREETSCAPE_GEOTECH.aprx - USER: ayabu - LAST SAVED: 7/12/2024 10:00 AM



LEGEND

- DCP AND SOLID STEM AUGER BORING
- DCP AND SOLID STEM AUGER BORING / INFILTRATION TEST
- PAVEMENT CORE
- PAVEMENT CORE / INFILTRATION TEST
- SITE BOUNDARY

NOTES

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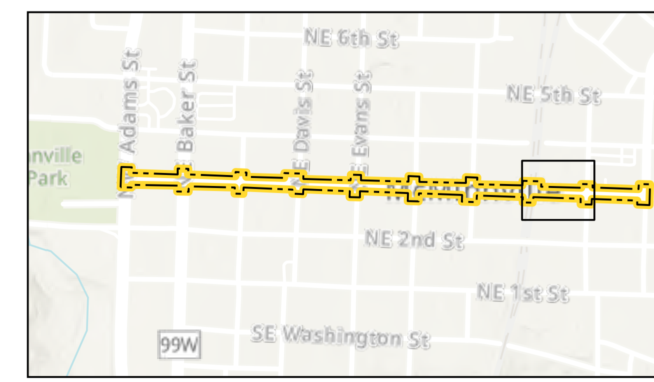
2. AERIAL IMAGERY SOURCE: NEARMAP, 16 SEPTEMBER 2023



0 30 60
SCALE IN FEET

HALEY ALDRICH

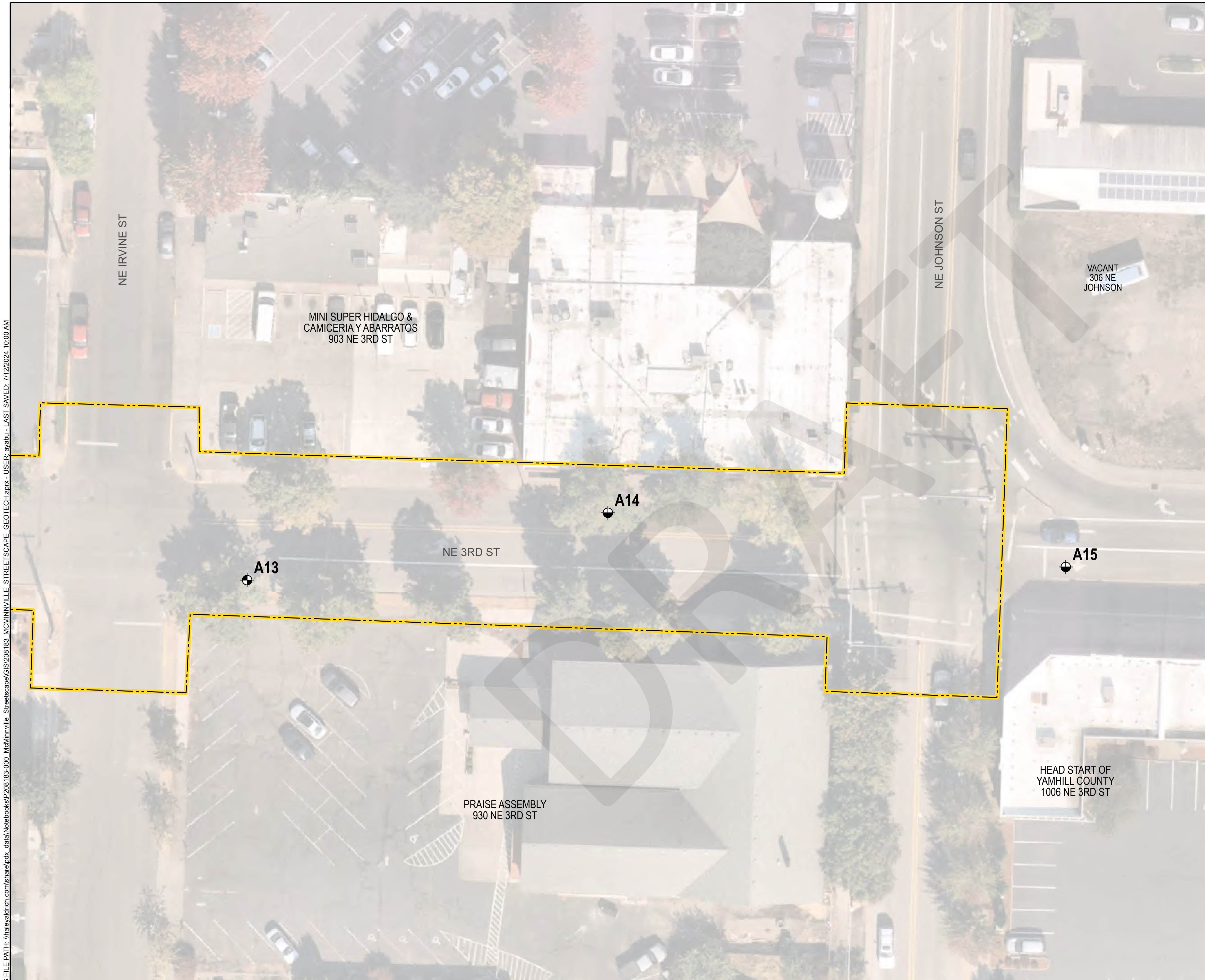
THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

SITE AND EXPLORATION PLAN
RAILROAD TO NE IRVINE ST

JULY 2024

FIGURE 9

GIS FILE PATH: \\haleyaldrich.com\share\pdx_data\Notebooks\P208183-000_McMinnville_Streetscape\GIS\208183_MCMINNVILLE_STREETSCAPE_GEOTECH.aprx - USER: ayabu - LAST SAVED: 7/12/2024 10:00 AM



LEGEND

- DCP AND SOLID STEM AUGER BORING
- DCP AND SOLID STEM AUGER BORING / INFILTRATION TEST
- PAVEMENT CORE
- PAVEMENT CORE / INFILTRATION TEST
- SITE BOUNDARY

NOTES

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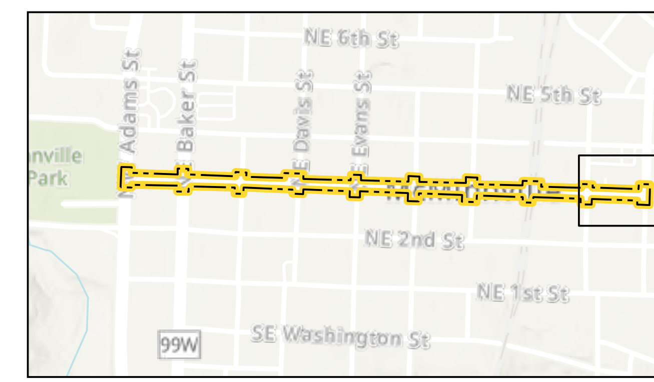
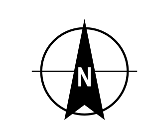
2. AERIAL IMAGERY SOURCE: NEARMAP, 16 SEPTEMBER 2023





0 30 60
SCALE IN FEET

HALEY ALDRICH

THIRD STREET IMPROVEMENTS
MCMINNVILLE, OREGON

SITE AND EXPLORATION PLAN
NE IRVINE ST TO NE JOHNSON ST

JULY 2024

FIGURE 10

GIS FILE PATH: \\haleyaldrich.com\share\pdx_data\Notebooks\P208183-000_McMinnville_Streetscape\GIS\208183_MCMINNVILLE_STREETSCAPE_GEOTECH.aprx - USER: avabu - LAST SAVED: 7/12/2024 10:00 AM

APPENDIX A
Exploration Logs

APPENDIX A

Field Explorations

This appendix documents the processes Haley & Aldrich, Inc. (Haley & Aldrich) used to determine the nature and quality of the soil and groundwater underlying the project site addressed by this report.

Explorations and Their Location

We investigated subsurface conditions at the site by completing six borings, 10 Dynamic Cone Penetrometer (DCP) probes, 15 pavement cores, and two infiltration tests. The borings were advanced to depths of 11.5ft bgs. The borings were advanced using a solid-stem auger on a trailer-mounted Big Beaver drill rig operated by Dan Fischer Excavating of Forest Grove, Oregon under subcontract to Haley & Aldrich. The locations of the explorations are shown on Figures 2 through 10.

The field explorations were coordinated by one of our geotechnical engineering staff members, who classified the various soil units encountered, obtained representative soil samples for geotechnical testing, and maintained a detailed log of the borings. The exploration logs are included in this appendix. Results of the laboratory testing are indicated on the exploration logs and are included in Appendix B.

The exploration logs within this appendix show our interpretation of the drilling, sampling, and testing data. They indicate the approximate depth where the soils change. Note that the change may be gradual. In the field, we classified the samples taken from the exploration per the methods presented on Figure A-1, Key to Exploration Logs, in this appendix. This figure also provides a legend explaining the symbols and abbreviations used in the log.

Soil Sampling Procedures

Materials encountered in the explorations were classified in the field in general accordance with ASTM International (ASTM) Standard Practice D 2488 "Standard Practice for the Classification of Soils (Visual Manual Procedure)." Soil classification and sampling intervals are shown in the exploration log in this appendix.

Soil samples are obtained from the borings using the following methods.

- Soil samples were obtained from the boring using a standard penetration testing sampler completed in general conformance with ASTM Test Method D 1586 "Standard Method for Penetration Test and Split-Barrel Sampling of Soils". The sampler was driven with a 140-pound cat head hammer falling 30 inches. The N value, or number of blows required to drive the sampler 1 foot or as otherwise indicated into the soils, is shown adjacent to the sample symbols on the boring log. Disturbed samples were obtained from the sampler for subsequent classification and testing.

Pavement Cores

AC cores were collected during the boring explorations using core barrels mounted on the drill rods and delivered to our laboratory. The core information is included in the main body of the report and photographs of the cores are presented in Appendix C.

DCP Testing

We performed a total of 10 DCP probes at explorations A-1, A-2, A-3, A-5, A-6, A-8, A-11, A-12, A-13, and A-14. The DCP consists of a steel extension shaft assembly with a 60-degree hardened steel cone tip attached to one end, which is driven into the subgrade by means of a sliding dual mass hammer. Testing was conducted in accordance with ASTM D 6951/D 6951M-09. Testing provides an evaluation of in-place California Bearing Ratio and Resilient Modulus values for the subgrade. DCP testing was conducted by a member of Haley & Aldrich's geotechnical staff. DCP logs are presented in Appendix C.

Sample Description

Identification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field nor laboratory testing unless presented herein. ASTM D 2488 visual-manual identification methods were used as a guide. Where laboratory testing confirmed visual-manual identifications, then ASTM D 2487 was used to classify the soils.

Relative Density/Consistency

Soil density/consistency in borings is related primarily to the standard penetration resistance (N). Soil density/consistency in test pits and probes is estimated based on visual observation and is presented parenthetically on the logs.

SAND or GRAVEL Relative Density	N (Blows/Foot)	SILT or CLAY Consistency	N (Blows/Foot)
Very loose	0 to 4	Very soft	0 to 1
Loose	5 to 10	Soft	2 to 4
Medium dense	11 to 30	Medium stiff	5 to 8
Dense	31 to 50	Stiff	9 to 15
Very dense	>50	Very stiff	16 to 30
		Hard	>30

Moisture

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

USCS Soil Classification Chart (ASTM D 2487)

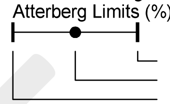
Major Divisions			Symbols: Graph	Symbols: USCS	Typical Descriptions
Coarse Grained Soils More than 50% of Material Retained on No. 200 Sieve	Gravel and Gravelly Soils More than 50% of Coarse Fraction Retained on No. 4 Sieve	Clean Gravels *(<5% fines)*		GW	Well-Graded Gravel; Well-Graded Gravel with Sand
				GP	Poorly Graded Gravel; Poorly Graded Gravel with Sand
		Gravels *(5-12% fines)*		GW-GM	Well-Graded Gravel with Silt; Well-Graded Gravel with Silt and Sand
				GW-GC	Well-Graded Gravel with Clay; Well-Graded Gravel with Clay and Sand
				GP-GM	Poorly Graded Gravel with Silt; Poorly Graded Gravel with Silt and Sand
				GP-GC	Poorly Graded Gravel with Clay; Poorly Graded Gravel with Clay and Sand
		Gravels with Fines *(>12% fines)*		GM	Silty Gravel; Silty Gravel with Sand
				GC	Clayey Gravel; Clayey Gravel with Sand
	Sand and Sandy Soils More than 50% of Coarse Fraction Passing No. 4 Sieve	Sands with few Fines *(<5% fines)*		SW	Well-Graded Sand; Well-Graded Sand with Gravel
				SP	Poorly Graded Sand; Poorly Graded Sand with Gravel
		Sands *(5-12% fines)*		SW-SM	Well-Graded Sand with Silt; Well-Graded Sand with Silt and Gravel
				SW-SC	Well-Graded Sand with Clay; Well-Graded Sand with Clay and Gravel
				SP-SM	Poorly Graded Sand with Silt; Poorly Graded Sand with Silt and Gravel
				SP-SC	Poorly Graded Sand with Clay; Poorly Graded Sand with Clay and Gravel
		Sands with Fines *(>12% fines)*		SM	Silty Sand; Silty Sand with Gravel
				SC	Clayey Sand; Clayey Sand with Gravel
Fine Grained Soils More than 50% of Material Passing No. 200 Sieve	Silts			ML	Silt; Silt with Sand or Gravel; Sandy or Gravelly Silt
				MH	Elastic Silt; Elastic Silt with Sand or Gravel; Sandy or Gravelly Elastic Silt
	Silty Clay *(based on Atterberg Limits)*			CL-ML	Silty Clay; Silty Clay with Sand or Gravel; Gravelly or Sandy Silty Clay
	Clays			CL	Lean Clay; Lean Clay with Sand or Gravel; Sandy or Gravelly Lean Clay
				CH	Fat Clay; Fat Clay with Sand or Gravel; Sandy or Gravelly Fat Clay
	Organics			OL/OH	Organic Soil; Organic Soil with Sand or Gravel; Sandy or Gravelly Organic Soil
Highly Organic *(>50% organic material)*				PT	Peat - Decomposing Vegetation - Fibrous to Amorphous Texture

Minor Constituents

	Estimated Percentage
Sand, Gravel	
Trace	<5
Few	5 - 15
Cobbles, Boulders	
Trace	<5
Few	5 - 10
Little	15 - 25
Some	30 - 45

Soil Test Symbols

%F	Percent Passing No. 200 Sieve
AL	Atterberg Limits (%)



CA	Chemical Analysis
CAUC	Consolidated Anisotropic Undrained Compression
CAUE	Consolidated Anisotropic Undrained Extension
CBR	California Bearing Ratio
CIDC	Consolidated Drained Isotropic Triaxial Compression
CIUC	Consolidated Isotropic Undrained Compression
CK0DC	Consolidated Drained k0 Triaxial Compression
CK0DSS	Consolidated k0 Undrained Direct Simple Shear
CK0UC	Consolidated k0 Undrained Compression
CK0UE	Consolidated k0 Undrained Extension
CRSCN	Constant Rate of Strain Consolidation
DS	Direct Shear
DSS	Direct Simple Shear
DT	In Situ Density
GS	Grain Size Classification
HYD	Hydrometer
ILCN	Incremental Load Consolidation
K0CN	k0 Consolidation
kc	Constant Head Permeability
kf	Falling Head Permeability
MD	Moisture Density Relationship
OC	Organic Content
OT	Tests by Others
P	Pressuremeter
PID	Photoionization Detector Reading
PP	Pocket Penetrometer
SG	Specific Gravity
TRS	Torsional Ring Shear
TV	Torvane
UC	Unconfined Compression
UUC	Unconsolidated Undrained Triaxial Compression
VS	Vane Shear
WC	Water Content (%)

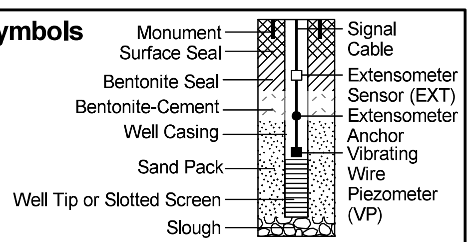
Groundwater Indicators

- Groundwater Level on Date or At Time of Drilling (ATD)
- Groundwater Level on Date Measured in Piezometer
- Groundwater Seepage (Test Pits)

Sample Symbols

- 1.5" I.D. Split Spoon
- Rock Core Run
- Grab
- 3.0" I.D. Split Spoon
- Sonic Core
- Cuttings
- Modified California Sampler
- Thin-walled Sampler
- Push Probe

Well Symbols

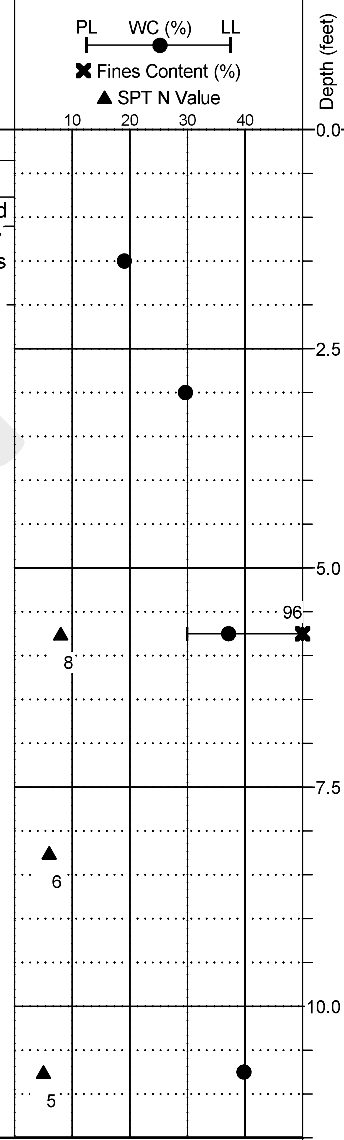


HALEY ALDRICH	Project: Third Street Improvements Location: McMinnville, Oregon Project No.: 0208183-000	**Key to Exploration Logs**	Figure **A-1** Sheet **1 of 8**

Date Started: 05/20/2024	Date Completed: 05/20/2024
Logged by: T. Merlin	Checked by: M. Hintz
Location: Lat: 45.209974 Long: -123.198898 (OR State Plane N, NAD 83, intn'l ft.)	
Ground Surface Elevation: 151.67 feet (NAVD 88)	
Comments: Hand augered to 5 feet bgs	

Drilling Contractor/Crew: Dan J. Fischer Excavating, Inc. / Tyler J.	
Drilling Method: Solid Stem Auger	
Rig Model/Type: Trailer-mounted Little Beaver drill rig	
Hammer Type: Safety-hammer/Cathead	
Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
Measured Hammer Efficiency (%): Not Available	
Hole Diameter: 6 inches	Well Casing Diameter: NA
Total Depth: 11.5 feet	Depth to Groundwater: Not Identified

Elevation (feet)	Depth (feet)	Sample Data: Blow Count	Type	Recovery	Length (inches)	Number / Tests	Material Description
	0.0						Asphalt concrete (4.25-inches thick).
							Portland cement concrete (5-inches thick).
							POORLY GRADED GRAVEL (GP), (dense), moist, gray, up to 3-inch rounded gravel. [FILL]
150.0						G-1 / WC	LEAN CLAY (CL), trace fine sand, (soft), moist, dark brown, trace brick pieces
	2.5					G-2 / WC	ELASTIC SILT (MH), trace fine sand, soft, moist, brown to yellow-brown. [NATIVE] light brown, iron oxide staining
147.5							
	5.0	2, 3, 5		18in.	18	S-1 / AL, GS, PP, TV, WC	medium stiff, medium plasticity, no staining (PP = 1.5 tsf, TV = 900 tsf)
145.0							
	7.5	3, 2, 4		16in.	18	S-2 / PP, TV	brown (PP = 1.25 tsf, TV = 1200 tsf)
142.5							
	10.0	3, 2, 3		18in.	18	S-3 / PP, TV, WC	(PP = 1.6 tsf, TV = 1250 tsf)
140.0							Bottom of Borehole at 11.5 feet.
	12.5						
137.5							



General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HA BORING LOG - \\HALEYALDRICH.COM\SHARE\SEA_DATA\GINT\HC_LIBRARY.GLB - 7/16/24 12:46 - \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\0208183\GINT\PERM GINT FILE\0208183-000_MCMINNVILLE THIRD ST IMPROVEMENTS_GINT.GPJ - kbubel

HALEY ALDRICH	Project: McMinnville Third Street Improvements Location: McMinnville, Oregon Project No.: 0208183-000	Boring Log **A-1**	Figure **A-1** Sheet **2 of 8**

Date Started: 05/20/2024 | Date Completed: 05/20/2024
Logged by: T. Merlin | Checked by: M. Hintz
Location: Lat: 45.209975 Long: -123.197681 (OR State Plane N, NAD 83, intn'l ft.)
Ground Surface Elevation: 154.98 feet (NAVD 88)
Comments: Hand augered to 5 feet bgs

Drilling Contractor/Crew: Dan J. Fischer Excavating, Inc. / Tyler J.
Drilling Method: Solid Stem Auger
Rig Model/Type: Trailer-mounted Little Beaver drill rig
Hammer Type: Safety-hammer/Cathead
Hammer Weight (pounds): 140 | Hammer Drop Height (inches): 30
Measured Hammer Efficiency (%): Not Available
Hole Diameter: 6 inches | Well Casing Diameter: NA
Total Depth: 11.5 feet | Depth to Groundwater: Not Identified

Elevation (feet)	Depth (feet)	Blow Count	Recovery	Length (inches)	Number / Tests	Material Description	PL / WC (%) / LL; Fines Content (%); SPT N Value
	0.0					Asphalt concrete (3-inches thick).	
						Portland cement concrete (4.5-inches thick).	
						POORLY GRADED GRAVEL (SP), (dense), moist, gray, up to 3-inch rounded gravel. [FILL]	
					G-1 / WC	LEAN CLAY (CL), (soft), moist, very dark brown, roots and organics.	
152.5	2.5				G-2 / GS, WC	dark brown, iron oxide staining, trace brick fragments	92
						SILT (ML), trace fine sand, soft, moist, brown to yellow-brown. [NATIVE]	
150.0	5.0	4, 4, 4	18in.	18	S-1 / GS, PP, TV, WC	medium stiff, brown (PP = 2.6 tsf, TV = 1100 tsf)	91; 8
147.5	7.5	2, 2, 3	16in.	18	PP, TV / S-2a / S-2b	(PP = 1.75 tsf, TV = 1400 tsf) gray-brown, iron oxide staining hydrocarbon odor	5
145.0	10.0	2, 2, 3	14in.	18	S-3 / AL, PP, TV, WC	less iron oxide staining (PP = 1.6 tsf, TV = 1200 tsf)	H; 5
						Bottom of Borehole at 11.5 feet.	
142.5	12.5						

DRAFT

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: McMinnville Third Street Improvements
Location: McMinnville, Oregon
Project No.: 0208183-000

Boring Log **A-3**

Figure **A-1**
Sheet **3 of 8**

Date Started: 05/20/2024 | Date Completed: 05/20/2024 | Drilling Contractor/Crew: Dan J. Fischer Excavating, Inc. / Tyler J.

Logged by: T. Merlin | Checked by: M. Hintz | Drilling Method: Solid Stem Auger

Location: Lat: 45.210042 Long: -123.195030 (OR State Plane N, NAD 83, intn'l ft.) | Rig Model/Type: Trailer-mounted Little Beaver drill rig

Ground Surface Elevation: 158.65 feet (NAVD 88) | Hammer Type: Safety-hammer/Cathead

Comments: Hand augered to 5 feet bgs | Hammer Weight (pounds): 140 | Hammer Drop Height (inches): 30

Measured Hammer Efficiency (%): Not Available

Hole Diameter: 6 inches | Well Casing Diameter: NA

Total Depth: 11.5 feet | Depth to Groundwater: Not Identified

Elevation (feet)	Depth (feet)	Blow Count	Type	Recovery	Length (inches)	Number / Tests	Material Description	WC (%) ● / ▲ SPT N Value (10, 20, 30, 40)
	0.0						Asphalt concrete (4-inches thick).	
							Portland cement concrete (3.5-inches thick).	
							POORLY GRADED GRAVEL (GP), (dense), moist, gray, up to 3-inch rounded gravel. [FILL]	
157.5						G-1 / WC	LEAN CLAY (CL), (soft), moist, dark brown. iron oxide staining	●
	2.5					G-2 / WC		●
155.0							SILT (ML), trace fine sand, soft, moist, brown to yellow-brown. [NATIVE]	
	5.0	2, 2, 2		18in.	18	S-1 / PP, TV	(PP = 1.9 tsf, TV = 1000 tsf)	▲ 4
152.5								
	7.5	1, 2, 2		18in.	18	S-2 / PP, TV	(PP = 1.5 tsf, TV = 800 tsf)	▲ 4
150.0								
	10.0	2, 1, 2		18in.	18	S-3 / PP, TV, WC	(PP = 1.5 tsf, TV = 700 tsf)	▲ 3 ●
147.5							Bottom of Borehole at 11.5 feet.	
	12.5							
145.0								

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

Date Started: 05/20/2024	Date Completed: 05/20/2024	Drilling Contractor/Crew: Dan J. Fischer Excavating, Inc. / Tyler J.	
Logged by: T. Merlin	Checked by: M. Hintz	Drilling Method: Solid Stem Auger	
Location: Lat: 45.209988 Long: -123.193660 (OR State Plane N, NAD 83, intn'l ft.)		Rig Model/Type: Trailer-mounted Little Beaver drill rig	
Ground Surface Elevation: 160.38 feet (NAVD 88)		Hammer Type: Safety-hammer/Cathead	
Comments: Hand augered to 5 feet bgs		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 6 inches	Well Casing Diameter: NA
		Total Depth: 11.5 feet	Depth to Groundwater: Not Identified

Elevation (feet)	Depth (feet)	Blow Count	Type	Recovery	Length (inches)	Number / Tests	Material Description	PL / WC (%) / LL; Fines Content (%); SPT N Value
160.0	0.0						Asphalt concrete (4.75-inches thick).	
							Portland cement concrete (3-inches thick).	
							POORLY GRADED GRAVEL (GP), (dense), moist, gray, up to 3-inch rounded gravel. [FILL]	
						G-1 / AL, WC	LEAN CLAY (CL), (soft), moist, dark brown, trace brick fragments	
157.5	2.5					G-2 / WC	SILT (ML), trace fine sand, soft, moist, brown to yellow-brown, trace roots. [NATIVE]	
155.0	5.0	2, 2, 2		15in.	18	S-1 / PP, TV, WC	medium stiff (PP = 1.75 tsf, TV = 800 tsf)	4
152.5	7.5	3, 5, 5		17in.	18	S-2 / GS, PP, TV, WC	stiff (PP = 2.8 tsf, TV = 1250 tsf)	10; 97
150.0	10.0	3, 2, 3		15in.	18	S-3 / PP, TV, WC	medium stiff, hydrocarbon-like odor (PP = 1.3 tsf, TV = 950 tsf)	5
							Bottom of Borehole at 11.5 feet.	
147.5	12.5							

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: McMinnville Third Street Improvements
Location: McMinnville, Oregon
Project No.: 0208183-000

Boring Log **A-8**

Figure **A-1**
Sheet **5 of 8**

Date Started: 05/20/2024	Date Completed: 05/20/2024	Contractor/Crew: Haley & Aldrich, Inc.	
Logged by: T. Merlin	Checked by: M. Hintz	Rig Model/Type: Hand auger	
Location: Lat: 45.209981 Long: -123.191670 (OR State Plane N, NAD 83, intn'l ft.)		Hole Diameter: 3 inches	Well Casing Diameter: NA
Ground Surface Elevation: 162.20 feet (NAVD 88)		Total Depth: 3.0 feet	Depth to Groundwater: Not Identified
Comments: Hand augered to 3 feet bgs; Infiltration test performed at this location			

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number / Tests	Graphic Log	Material Description	WC ● / ✖ Fines Content (%)	Depth (feet)
	0.0					Asphalt concrete (5-inches thick).		0.0
						Portland cement concrete (3-inches thick).		
						POORLY GRADED GRAVEL (GP), (dense), moist, gray, up to 3-inch rounded gravel. [FILL]		
160.0						SILT (ML), trace fine sand, (soft), moist, brown to yellow-brown. [NATIVE]		
	2.5			G-1 GS, WC			88	2.5

Bottom of Borehole at 3.0 feet.

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

Date Started: 05/21/2024	Date Completed: 05/21/2024	Drilling Contractor/Crew: Dan J. Fischer Excavating, Inc. / Tyler J.	
Logged by: T. Merlin	Checked by: M. Hintz	Drilling Method: Solid Stem Auger	
Location: Lat: 45.209980 Long: -123.191212 (OR State Plane N, NAD 83, intn'l ft.)		Rig Model/Type: Trailer-mounted Little Beaver drill rig	
Ground Surface Elevation: 162.05 feet (NAVD 88)		Hammer Type: Safety-hammer/Cathead	
Comments: Hand augered to 5 feet bgs		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 6 inches	Well Casing Diameter: NA
		Total Depth: 11.5 feet	Depth to Groundwater: 9.4 feet

Depth (feet)	Blow Count	Recovery	Length (inches)	Number / Tests	Material Description	Water Level	WC (%) / Fines Content (%) / SPT N Value
0.0					Asphalt concrete (2.5-inches thick).		
					Portland cement concrete (4-inches thick).		
					POORLY GRADED GRAVEL (GP), (dense), moist, gray, up to 3-inch rounded gravel. [FILL]		
				G-1 / WC	LEAN CLAY (CL), (soft), moist, dark brown, trace roots.		
					SILT (ML), trace fine sand, soft, moist, brown to yellow-brown, roots and organics. [NATIVE]		
2.5				G-2 / GS, WC	light brown		Fines 89
5.0	2, 3, 3	18in.	18	S-1 / PP, WC	medium stiff, low plasticity (PP = 2.0 tsf)		SPT N 6
7.5	2, 2, 4	18in.	18	S-2 / GS, PP, TV, WC	(PP = 1.9 tsf, TV = 1000 tsf)	ATD (9.4)	Fines 94; SPT N 6
10.0	2, 2, 2	18in.	18	S-3 / PP, WC	wet (PP = 1.3 tsf)		SPT N 4

Bottom of Borehole at 11.5 feet.

Elevation (feet): 160.0, 157.5, 155.0, 152.5, 150.0, 147.5

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH	Project: McMinnville Third Street Improvements Location: McMinnville, Oregon Project No.: 0208183-000	Boring Log **A-11**	Figure **A-1** Sheet **7 of 8**

Date Started: 05/20/2024	Date Completed: 05/20/2024	Drilling Contractor/Crew: Dan J. Fischer Excavating, Inc. / Tyler J.	
Logged by: T. Merlin	Checked by: M. Hintz	Drilling Method: Solid Stem Auger	
Location: Lat: 45.209988 Long: -123.189608 (OR State Plane N, NAD 83, intn'l ft.)		Rig Model/Type: Trailer-mounted Little Beaver drill rig	
Ground Surface Elevation: 161.03 feet (NAVD 88)		Hammer Type: Safety-hammer/Cathead	
Comments: Hand augered to 5 feet bgs		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 6 inches	Well Casing Diameter: NA
		Total Depth: 11.5 feet	Depth to Groundwater: Not Identified

Elevation (feet)	Depth (feet)	Blow Count	Type	Recovery	Length (inches)	Number / Tests	Material Description	WC (%)	Fines Content (%)	SPT N Value
	0.0						Asphalt concrete (5-inches thick).			
							Portland cement concrete (3.5-inches thick).			
160.0						G-1 / WC	POORLY GRADED GRAVEL (GP), (dense), moist, gray, up to 3-inch rounded gravel. [FILL]			
							trace fine sand, light brown			
							LEAN CLAY (CL), (soft), moist, dark brown.			
							SILT (ML), trace fine sand, soft, moist, brown to yellow-brown, roots and organics. [NATIVE]			
	2.5					G-2 / WC				
157.5										
	5.0	2, 2, 3		18in.	18	S-1 / GS, PP, WC	medium stiff (PP = 1.8 tsf)		90	5
155.0										
	7.5	2, 3, 2		18in.	18	S-2 / AL, PP, WC	(PP = 1.3 tsf)			5
152.5										
	10.0	2, 2, 3		18in.	18	S-3 / GS, PP, WC	(PP = 1.4 tsf)		94	5
150.0										
							Bottom of Borehole at 11.5 feet.			
	12.5									
147.5										

PL WC (%) LL
Fines Content (%)
SPT N Value
10 20 30 40

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

APPENDIX B
Laboratory Test Results

APPENDIX B

Laboratory Test Results

General

This appendix documents the laboratory testing that Haley & Aldrich, Inc. completed on select soil samples collected from the explorations. Soil samples obtained from the explorations were transported to our in-house laboratory and evaluated to confirm or modify field classifications. The specific tests conducted are outlined below. Two samples were transported to Cooper Testing Labs in Palo Alto, California, for consolidation testing. The test results are included in this appendix, and where noted, included on the exploration log in Appendix B.

Visual Classifications

Soil samples obtained from the explorations were visually classified in the field and in our geotechnical laboratory based on the Unified Soil Classification System and ASTM International (ASTM) classification methods. ASTM Test Method D 2488 “Standard Practice for the Classification of Soils (Visual-Manual Procedure)” was used to classify soils using visual and manual methods. ASTM Test Method D 2487 “Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)” was used to classify soils based on laboratory test results.

Laboratory Testing

MOISTURE CONTENT

Moisture contents of soil samples were obtained in general accordance with ASTM Test Method D 2216. The results of the moisture content tests are presented on the exploration logs included in Appendix A and on Figure B-1 in this appendix.

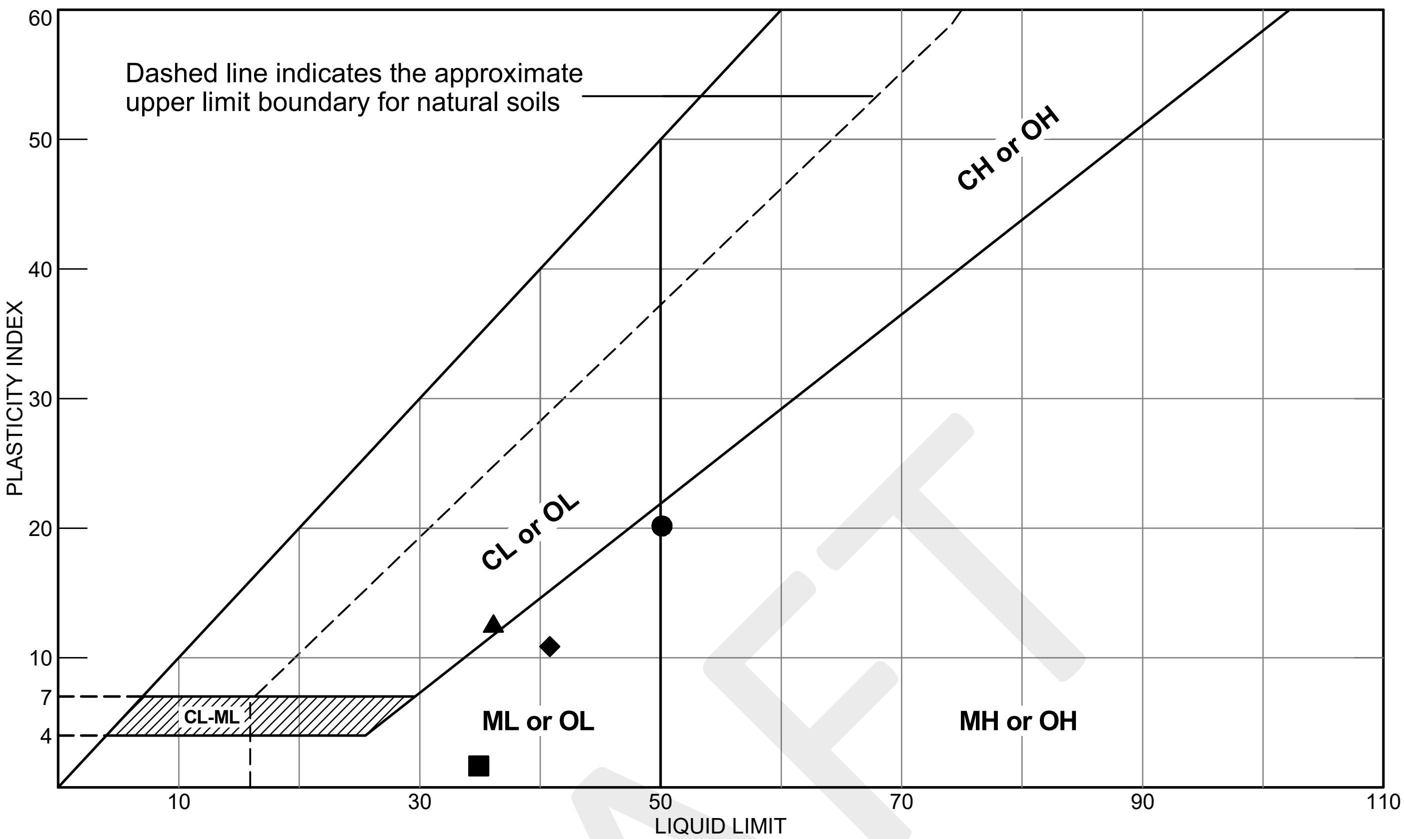
ATTERBERG LIMITS

We determined Atterberg limits for selected fine-grained soil samples. The liquid limit and plastic limit were determined in general accordance with ASTM D 4318-84. The results of the Atterberg limits analyses and the plasticity characteristics are summarized in the Liquid and Plastic Limits Test Report, Figures B-2 and on Figure B-1 in this appendix. This relates the plasticity index (liquid limit minus the plastic limit) to the liquid limit.

GRAIN SIZE DISTRIBUTION

Three samples were subjected to a modified grain size classification known as a No. 200-wash. The samples were "washed" through the U.S. Standard No. 200 mesh sieve to determine the relative percentages of coarse- and fine-grained material in the samples. The tests were performed in general accordance with ASTM D 1140. The results are presented on Figure B-1 in this appendix.

Exploration	Sample ID	Depth	Gravel (%)	Sand (%)	Fines (%)	Liquid Limit	Plastic Limit	Water Content (%)	USCS Group Symbol	Soil Description
A-1	G-1	1.0						19.0		
A-1	G-2	2.5						29.6		
A-1	S-1	5.0	0.0	3.5	96.5	50	30	37.1	MH	ELASTIC SILT
A-1	S-2	7.5								
A-1	S-3	10.0						39.8		
A-3	G-1	1.0						27.3		
A-3	G-2	2.5	0.1	7.9	91.9			21.5	CL	LEAN CLAY
A-3	S-1	5.0	0.0	8.9	91.1			37.8	ML	SILT
A-3	S-2a	7.5								
A-3	S-2b	7.9								
A-3	S-3	10.0				35	33	36.6	ML	SILT
A-6	G-1	1.0						13.1		
A-6	G-2	2.5						26.3		
A-6	S-1	5.0								
A-6	S-2	7.5								
A-6	S-3	10.0						40.8		
A-8	G-1	1.0				36	24	22.5	CL	LEAN CLAY
A-8	G-2	2.5						25.3		
A-8	S-1	5.0						36.6		
A-8	S-2	7.5	0.0	3.3	96.7			37.9	ML	SILT
A-8	S-3	10.0						40.1		
A-10/IT-1	G-1	2.5	0.0	11.8	88.2			32.0	ML	SILT
A-11	G-1	1.0						22.5		
A-11	G-2	2.5	0.0	11.4	88.6			26.3	ML	SILT
A-11	S-1	5.0						36.6		
A-11	S-2	7.5	0.0	5.8	94.2			34.6	ML	SILT
A-11	S-3	10.0						33.6		
A-13	G-1	1.0						34.6		
A-13	G-2	2.5						24.1		
A-13	S-1	5.0	0.0	9.9	90.1			38.3	ML	SILT
A-13	S-2	7.5				41	30	42.2	ML	SILT
A-13	S-3	10.0	0.0	6.1	93.9			36.7	ML	SILT



Location and Description			LL	PL	PI	-#200	MC%	USCS
● **Source:** A-1 ELASTIC SILT	**Sample No.:** S-1	**Depth:** 5.0 to 6.5	50	30	20	96	37	MH
■ **Source:** A-3 SILT	**Sample No.:** S-3	**Depth:** 10.0 to 11.5	35	33	2	NT	37	ML
▲ **Source:** A-8 LEAN CLAY	**Sample No.:** G-1	**Depth:** 1.0 to 2.0	36	24	12	NT	22	CL
◆ **Source:** A-13 SILT	**Sample No.:** S-2	**Depth:** 7.5 to 9.0	41	30	11	NT	42	ML

Remarks:

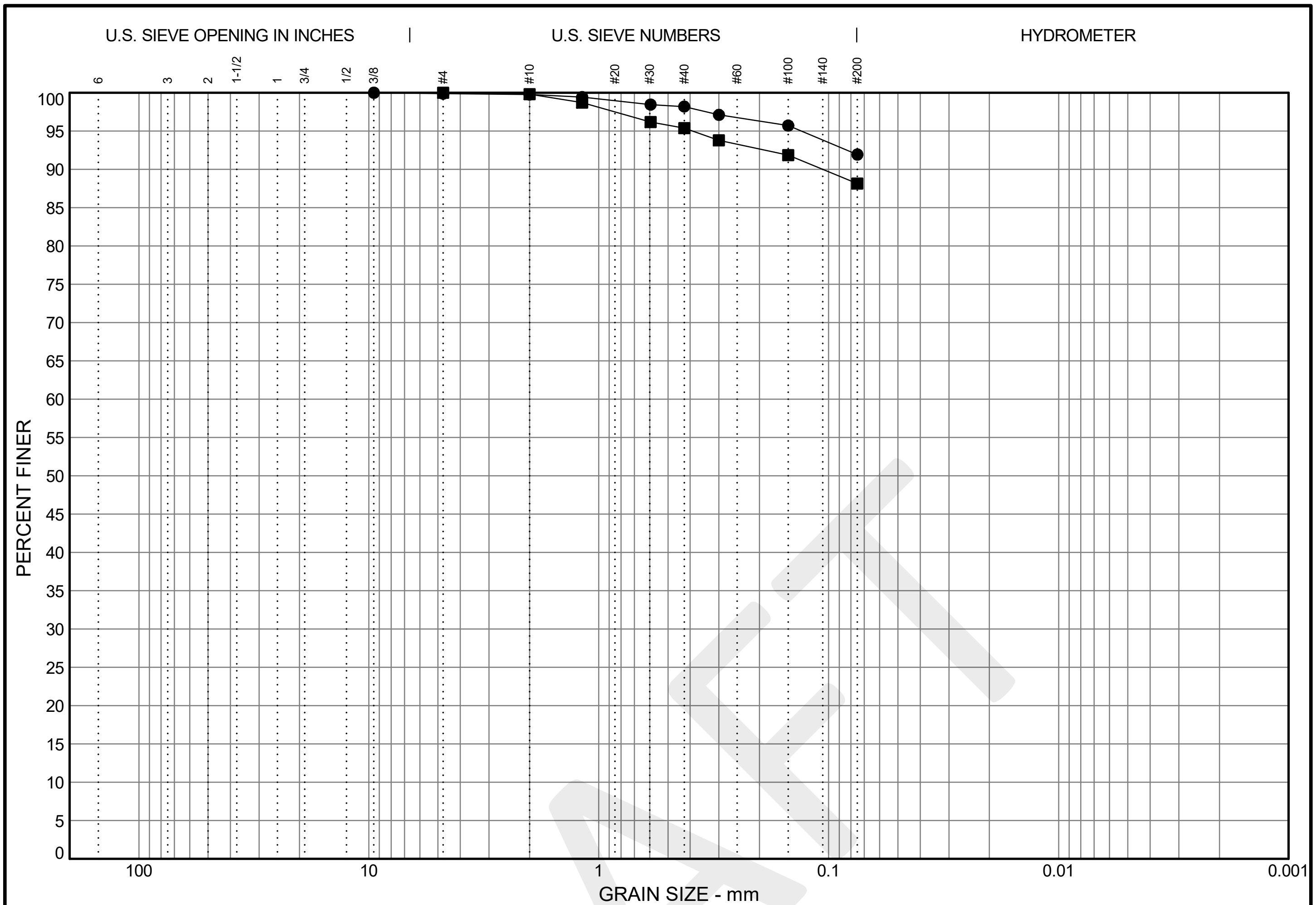
●
■
▲ non-native
◆

HALEY ALDRICH

Project: Third Street Improvements
Location: McMinnville, Oregon
Project No.: 0208183-000

Liquid Limit, Plastic Limit, and Plasticity Index

Figure **B-2**
Sheet **1 of 1**



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Location and Description	% Cobbles	% Gravel	% Sand	% Silt	% Clay	MC%	USCS
● **Source:** A-3 **Sample No.:** G-2 **Depth:** 2.5 to 3.5 LEAN CLAY	0.0	0.1	7.9	91.9		21	CL
■ **Source:** A-10/IT-1 **Sample No.:** G-1 **Depth:** 2.5 to 3.0 SILT	0.0	0.0	11.8	88.2		32	ML

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●										
■										

Remarks:

●

■

HALEY ALDRICH	Project: Third Street Improvements Location: McMinnville, Oregon Project No.: 0208183-000	**Particle-Size Analysis**	Figure **B-3** Sheet **1 of 1**

APPENDIX C
Pavement Core Photo Log and DCP Data

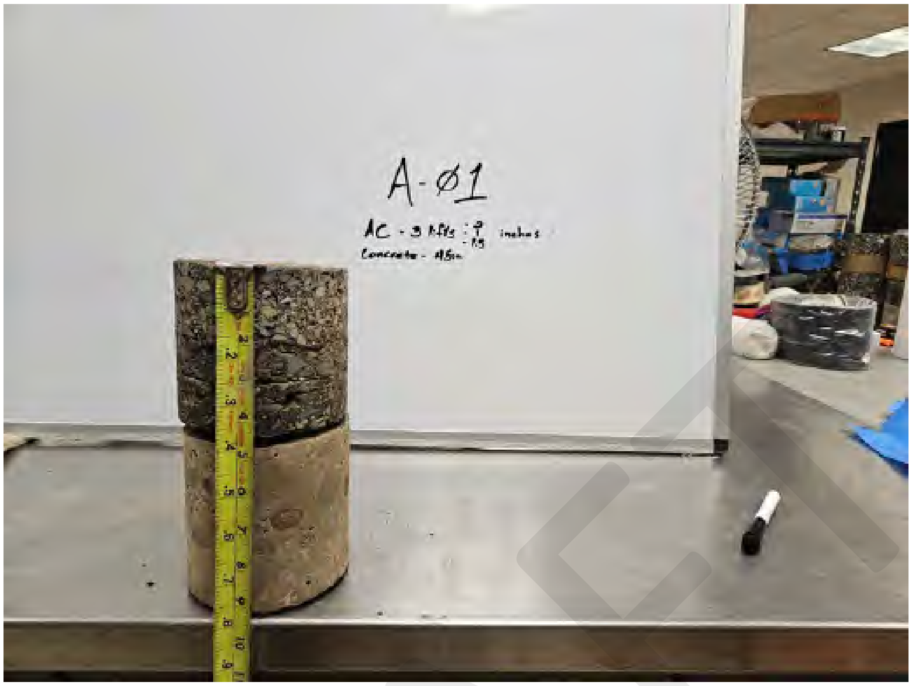


Photo 1: Pavement core from exploration location A-01.

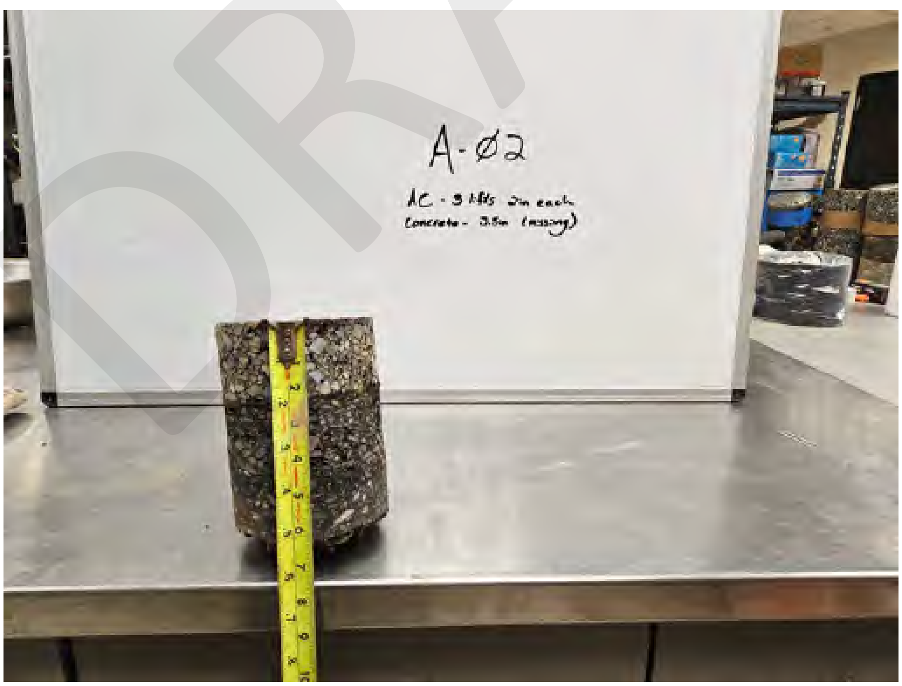


Photo 2: Pavement core from exploration location A-02.

Photo 3: Pavement core from exploration location A-03.

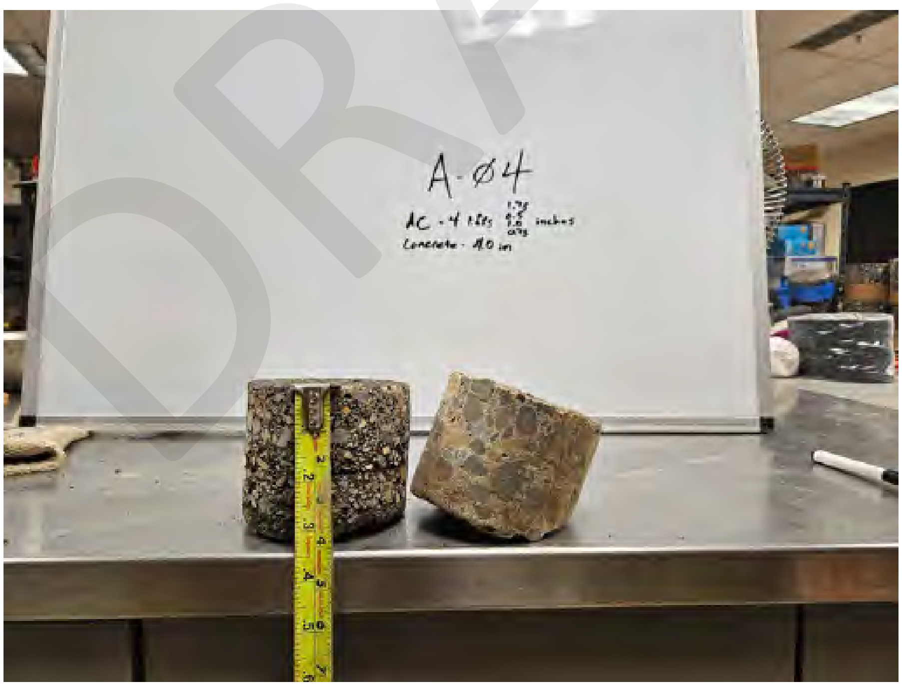


Photo 4: Pavement core from exploration location A-04.

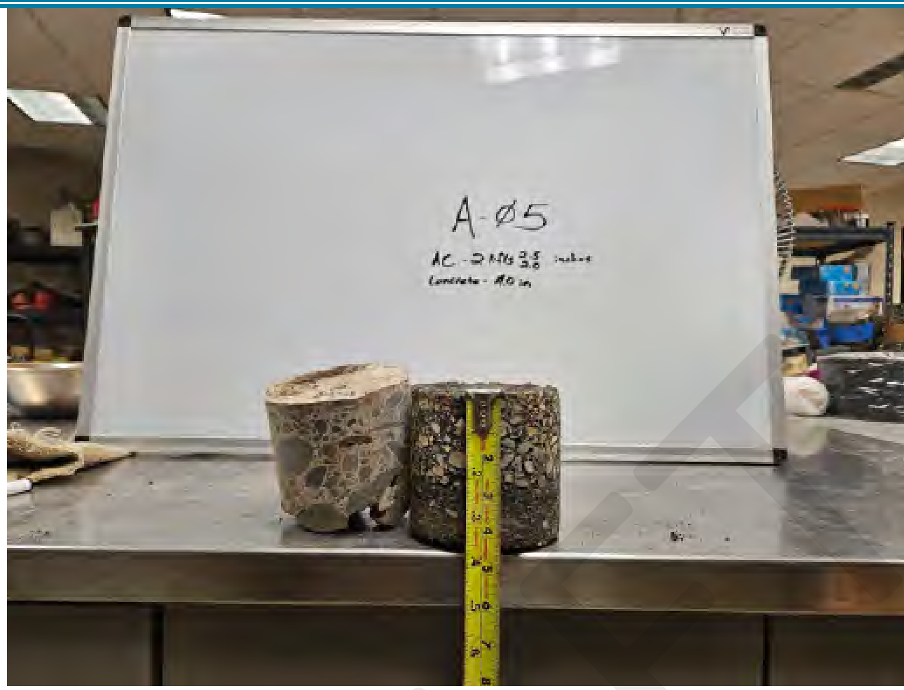


Photo 5: Pavement core from exploration location A-05.

Photo 6: Pavement core from exploration location A-06.

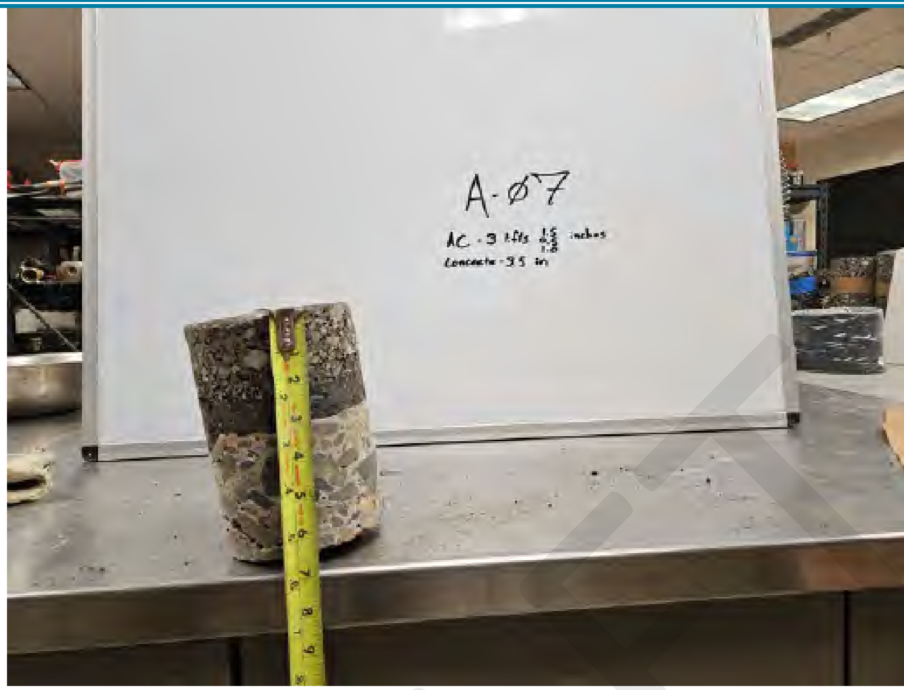


Photo 7: Pavement core from exploration location A-07.

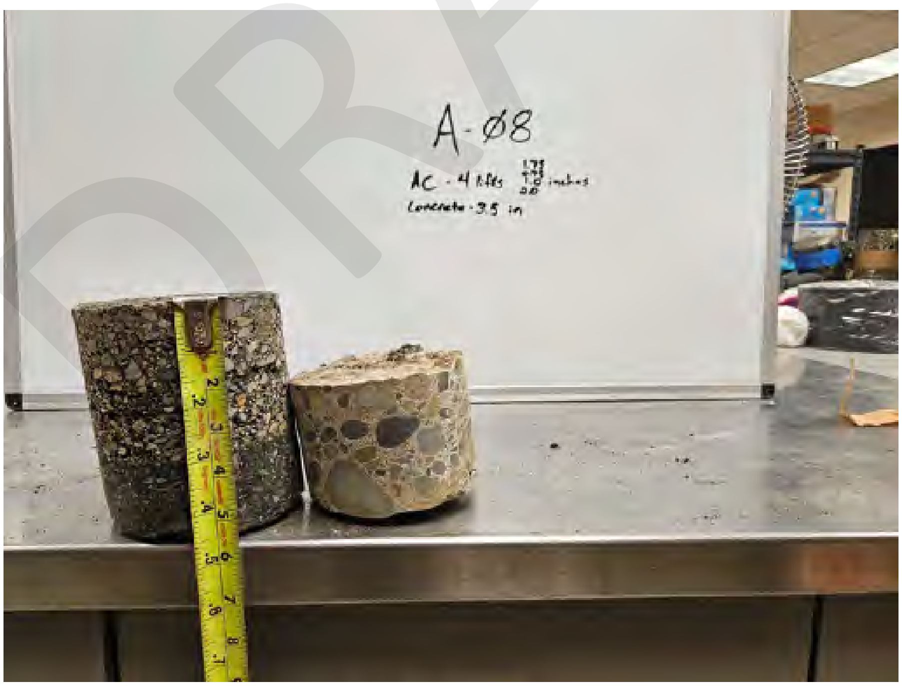


Photo 8: Pavement core from exploration location A-08.

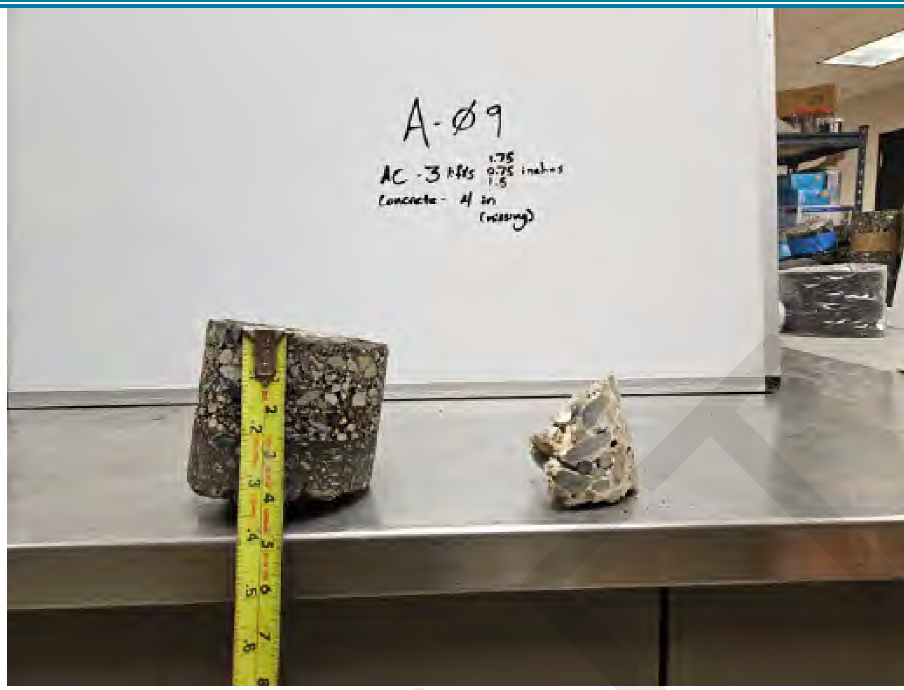


Photo 9: Pavement core from exploration location A-09.

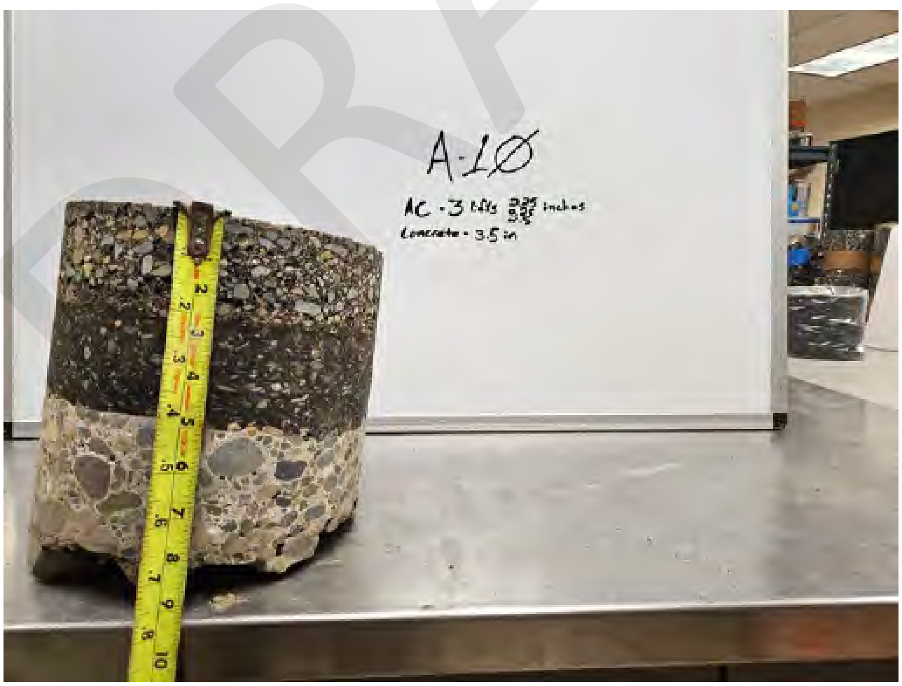


Photo 10: Pavement core from exploration location A-10.

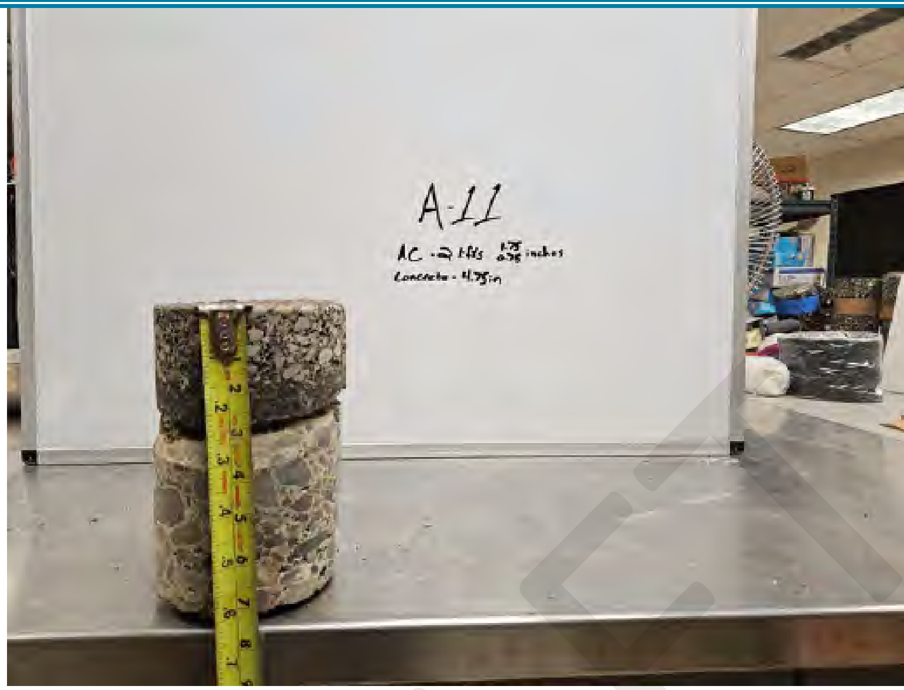


Photo 11: Pavement core from exploration location A-11.

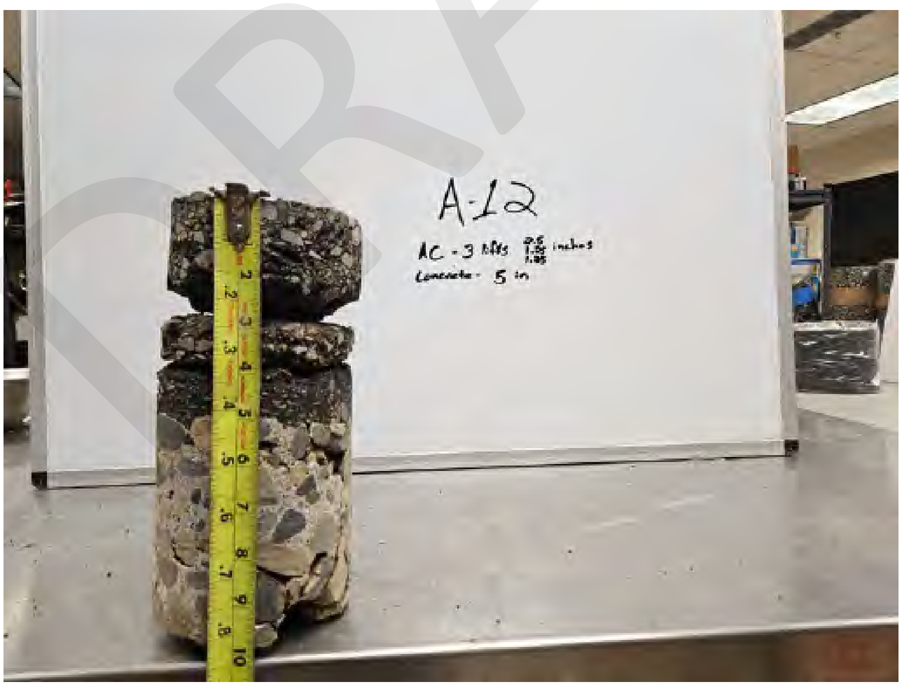


Photo 12: Pavement core from exploration location A-12.

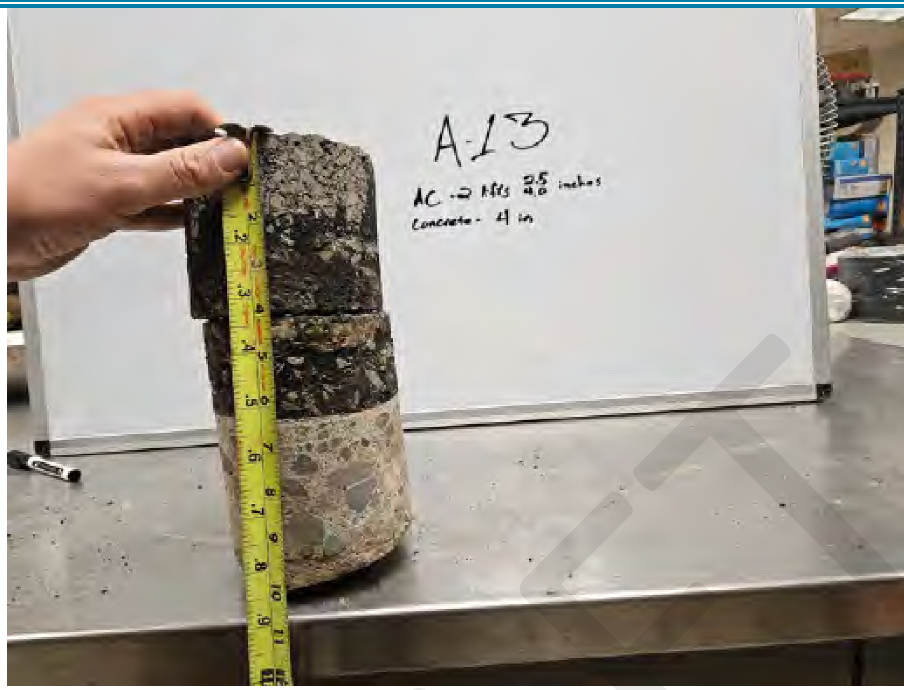


Photo 13: Pavement core from exploration location A-13.

Photo 14: Pavement core from exploration location A-14.

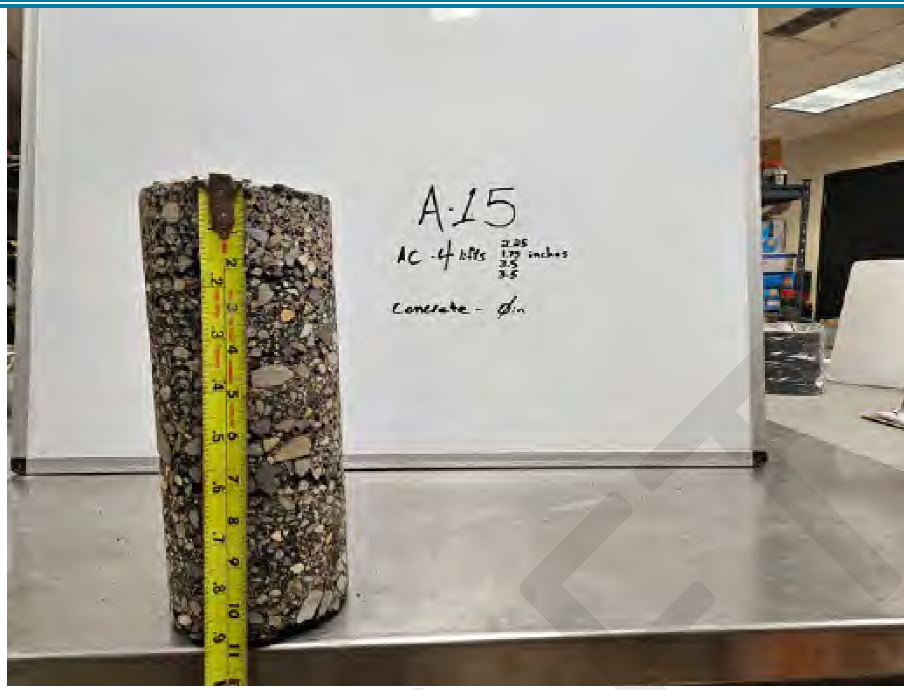


Photo 15: Pavement core from exploration location A-15.

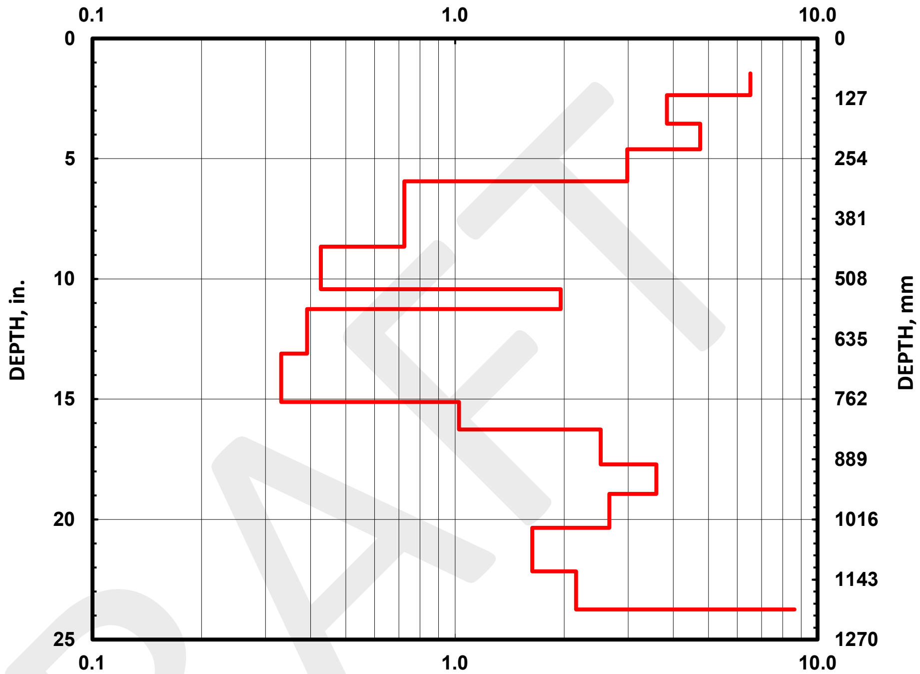
DCP TEST DATA

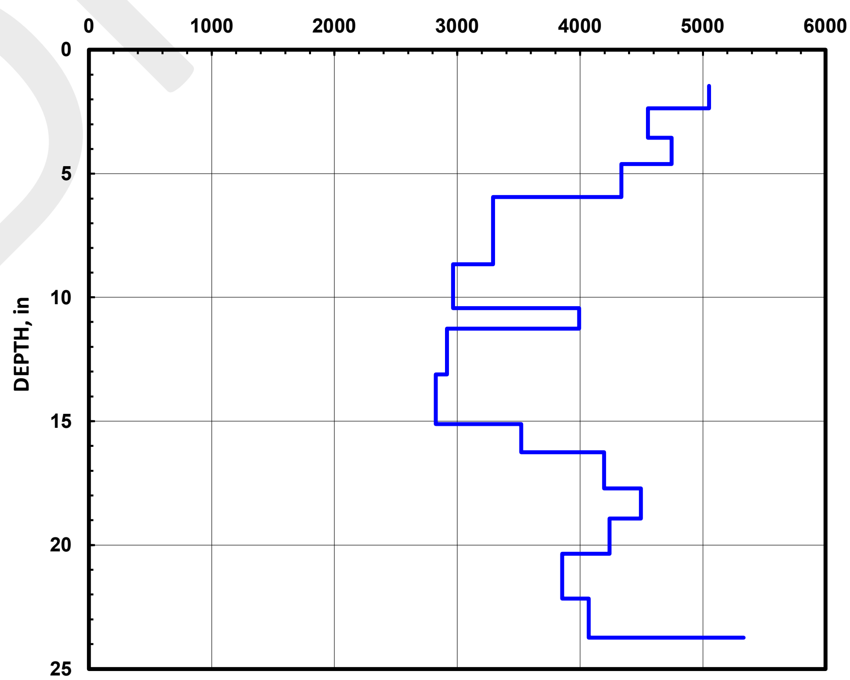
Project: *McMinnville 3rd St*
Location: A1
Date: 22-May-24
Soil Type(s): Lean Clay

Hammer
- (●) 10.1 lbs.
- ( ) 17.6 lbs.
- ( ) Both hammers used

Soil Type
- ( ) CH
- (●) CL
- ( ) All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	37	2
2	60	2
2	90	2
2	117	2
2	151	2
2	220	2
1	265	2
1	286	2
1	333	2
1	384	2
1	413	2
2	450	2
2	481	2
2	517	2
2	563	2
2	603	2





DCP TEST DATA

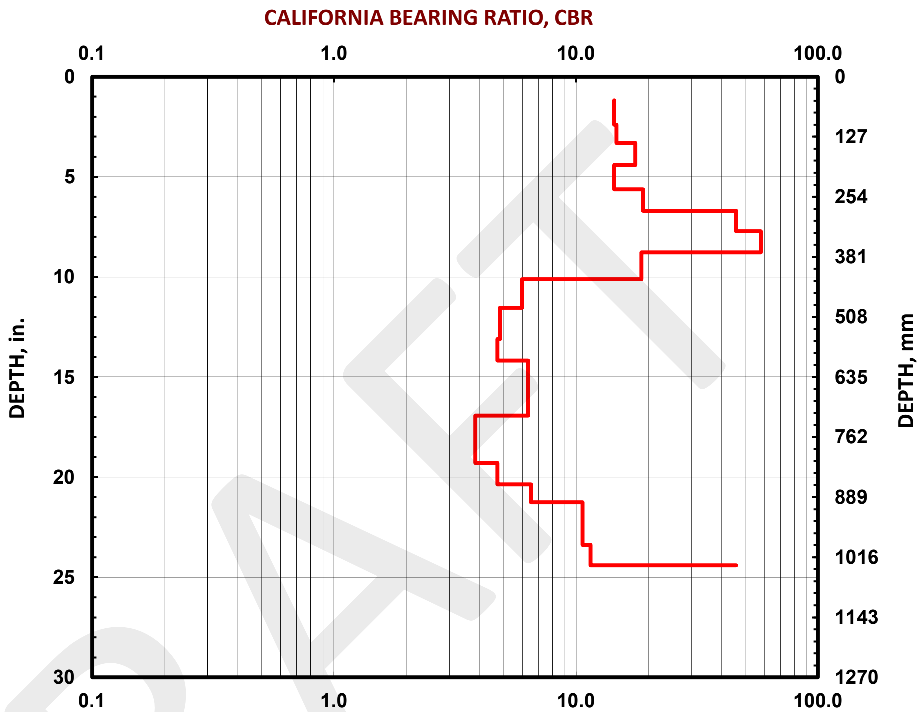
Project: *McMinnville 3rd St*
Location: A2

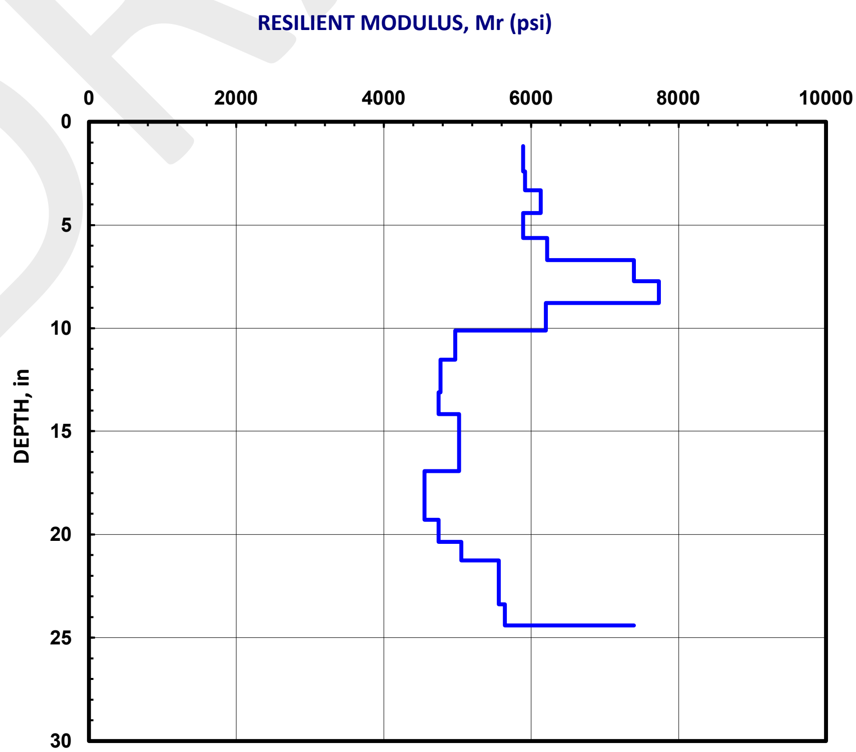
Date: 22-May-24
Soil Type(s): Lean Clay

Hammer
◉ 10.1 lbs.
○ 17.6 lbs.
○ Both hammers used

Soil Type
○ CH
◉ CL
○ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	30	2
4	61	2
3	84	2
4	112	2
4	143	2
4	170	2
6	196	2
7	223	2
5	257	2
3	293	2
3	333	2
2	360	2
3	395	2
3	430	2
2	460	2
2	490	2
2	517	2
2	540	2
3	567	2
3	594	2
3	620	2





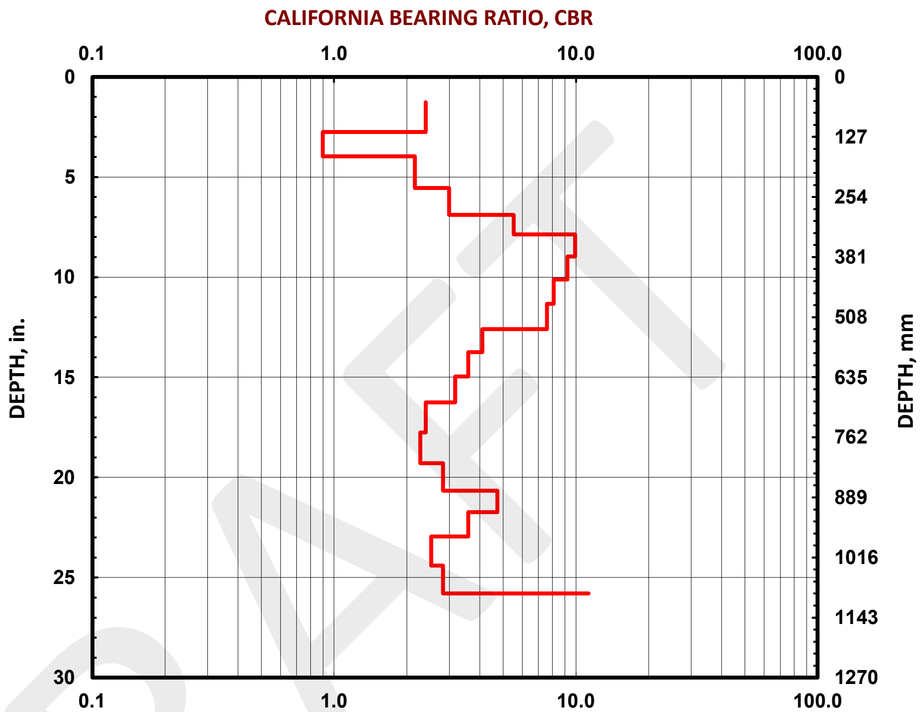
DCP TEST DATA

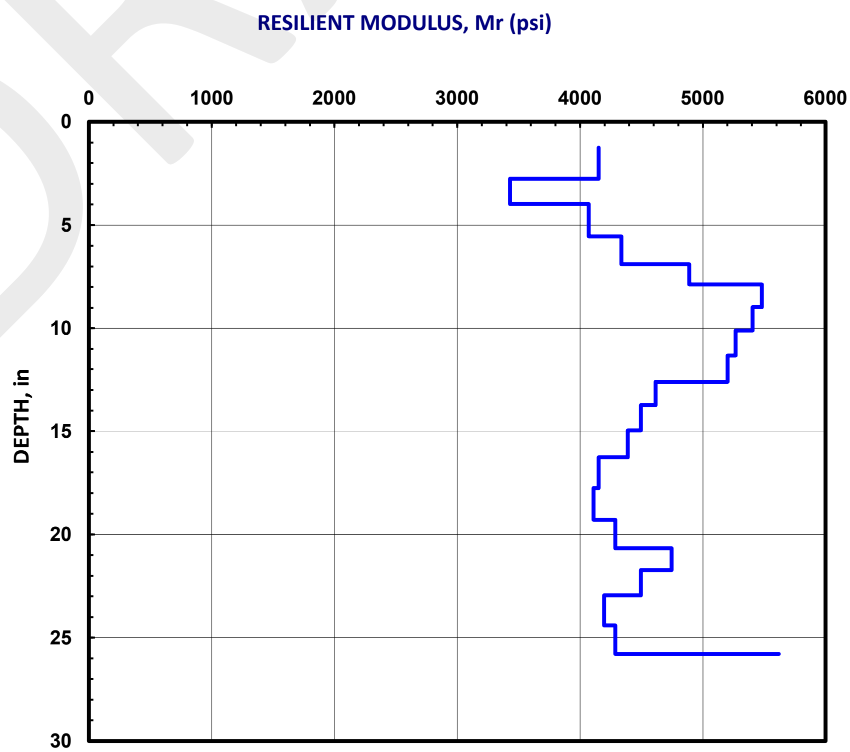
Project: *McMinnville 3rd St* **Date:** 22-May-24
Location: A3 **Soil Type(s):** Lean Clay

Hammer
- (●) 10.1 lbs.
- ( ) 17.6 lbs.
- ( ) Both hammers used

Soil Type
- ( ) CH
- (●) CL
- ( ) All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	32	2
2	70	2
1	101	2
2	141	2
2	175	2
2	200	2
3	228	2
3	257	2
3	288	2
3	320	2
2	349	2
2	380	2
2	413	2
2	451	2
2	490	2
2	525	2
2	552	2
2	583	2
2	620	2
2	655	2





DCP TEST DATA

Project: *McMinnville 3rd St*
Location: A5

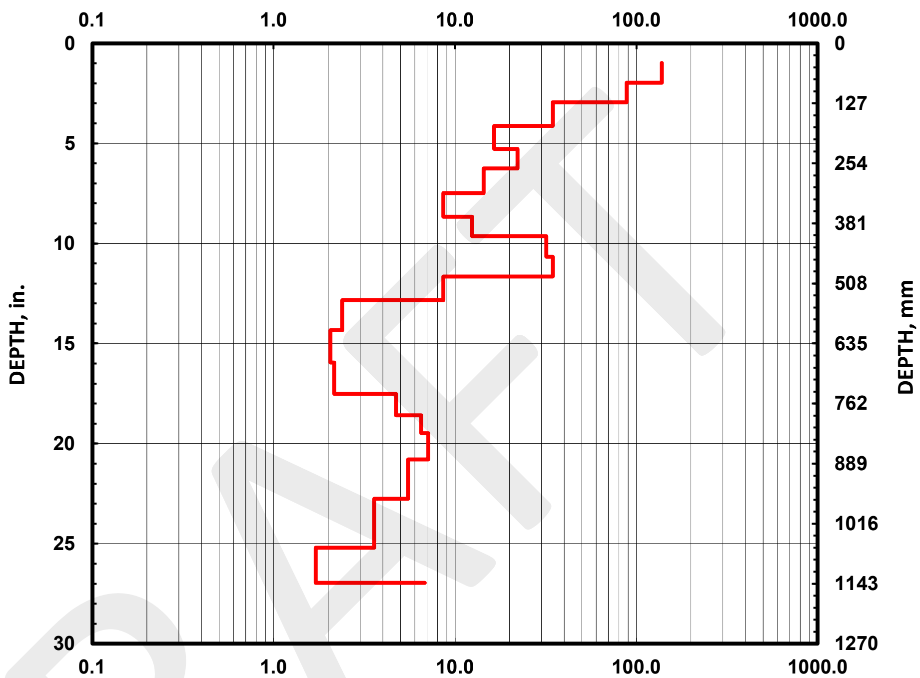
Date: 21-May-24
Soil Type(s): Lean Clay

Hammer
◉ 10.1 lbs.
○ 17.6 lbs.
○ Both hammers used

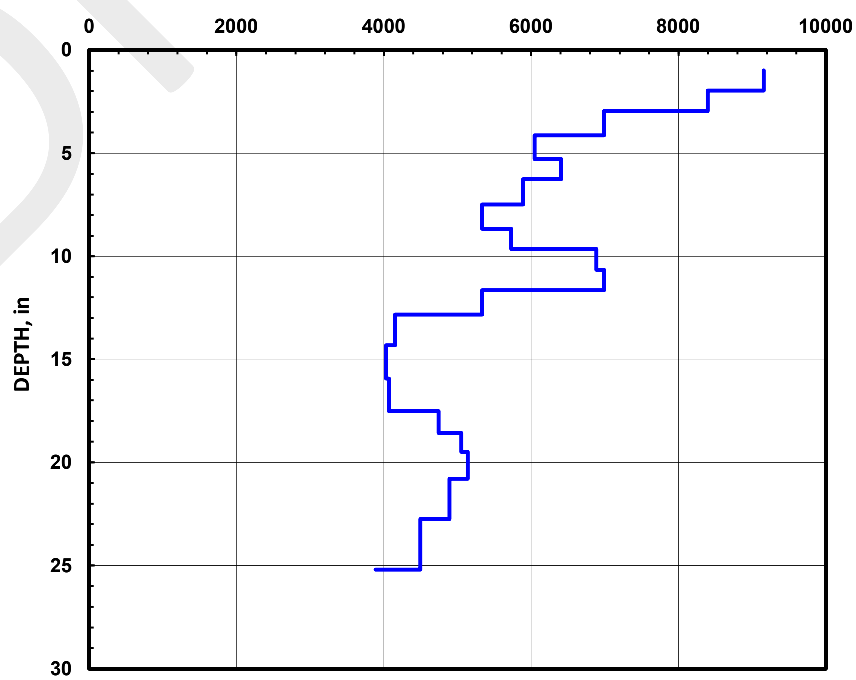
Soil Type
○ CH
◉ CL
○ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	25	2
10	50	2
8	75	2
6	105	2
4	134	2
4	159	2
4	190	2
3	220	2
3	245	2
5	271	2
5	296	2
3	326	2
2	364	2
2	405	2
2	445	2
2	472	2
2	495	2
3	528	2
2	553	2
2	578	2
2	609	2
2	640	2
2	685	2

CALIFORNIA BEARING RATIO, CBR



RESILIENT MODULUS, Mr (psi)



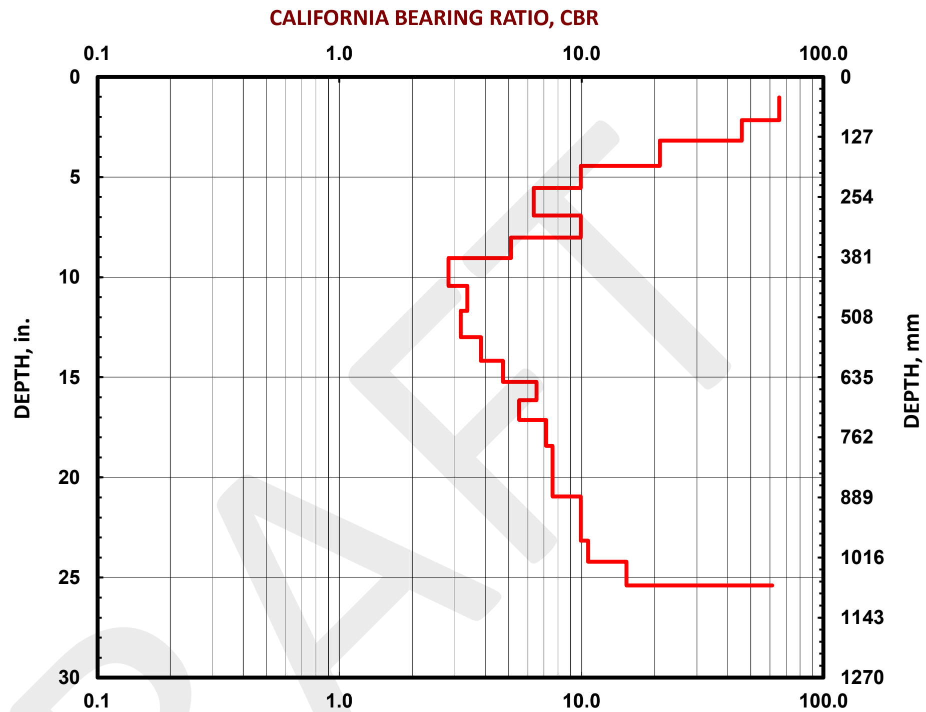
DCP TEST DATA

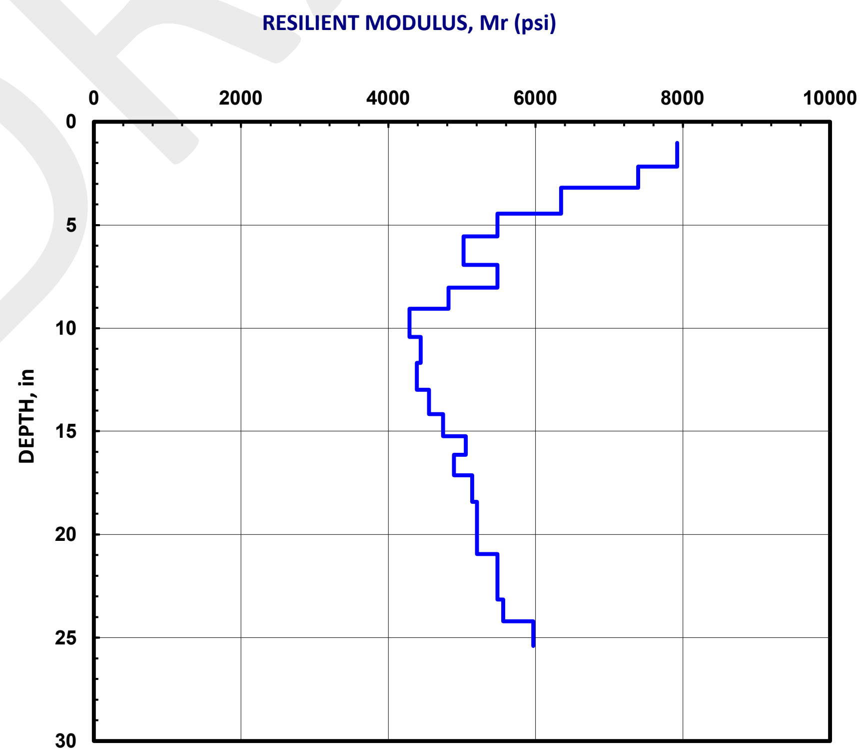
Project: *McMinnville 3rd St*
Date: 20-May-24
Location: A6
Soil Type(s): Lean Clay

Hammer
- ◉ 10.1 lbs.
- ○ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ◉ CL
- ○ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	26	2
8	55	2
6	81	2
5	113	2
3	141	2
3	176	2
3	204	2
2	230	2
2	265	2
2	297	2
2	330	2
2	360	2
2	387	2
2	410	2
2	435	2
3	468	2
3	500	2
3	532	2
3	560	2
3	588	2
3	615	2
4	645	2





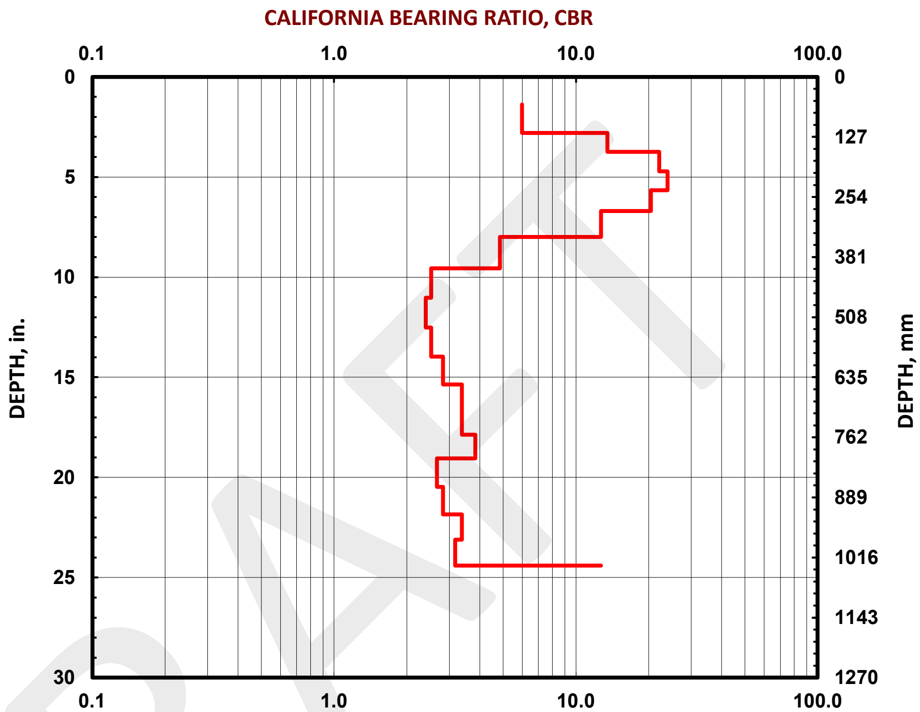
DCP TEST DATA

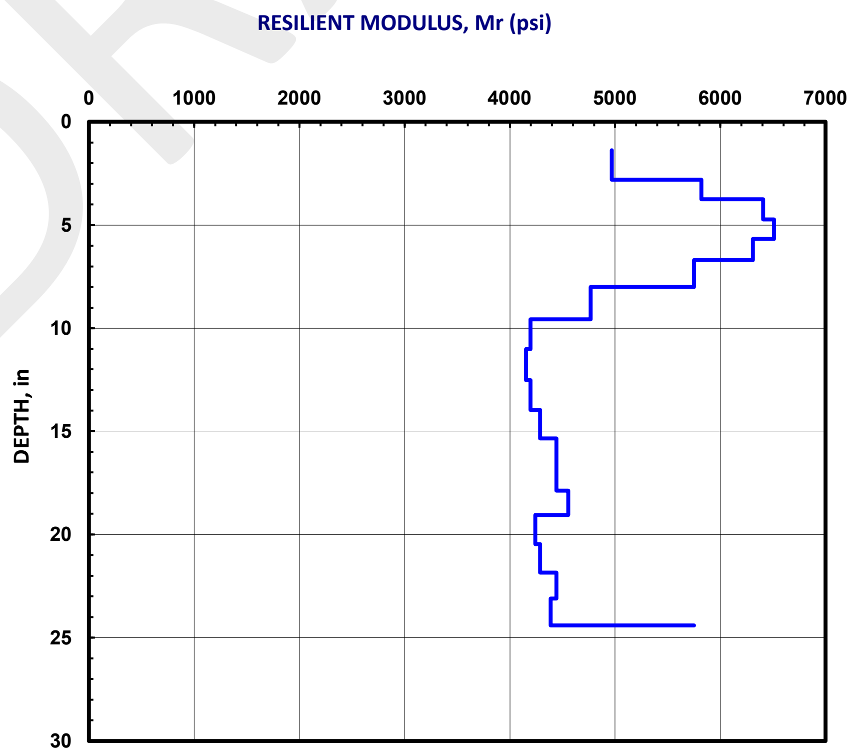
Project: *McMinnville 3rd St*
Location: A8
Date: 22-May-24
Soil Type(s): Lean Clay

Hammer
◉ 10.1 lbs.
○ 17.6 lbs.
○ Both hammers used

Soil Type
○ CH
◉ CL
○ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	35	2
3	71	2
3	95	2
4	120	2
4	144	2
4	170	2
4	203	2
3	243	2
2	280	2
2	318	2
2	355	2
2	390	2
2	422	2
2	454	2
2	484	2
2	520	2
2	555	2
2	587	2
2	620	2





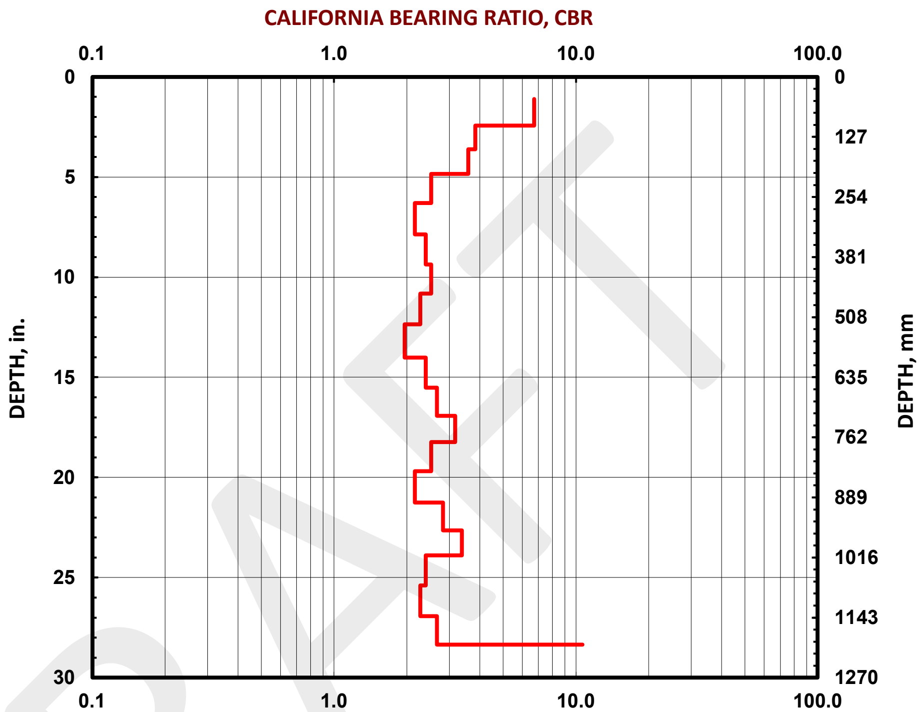
DCP TEST DATA

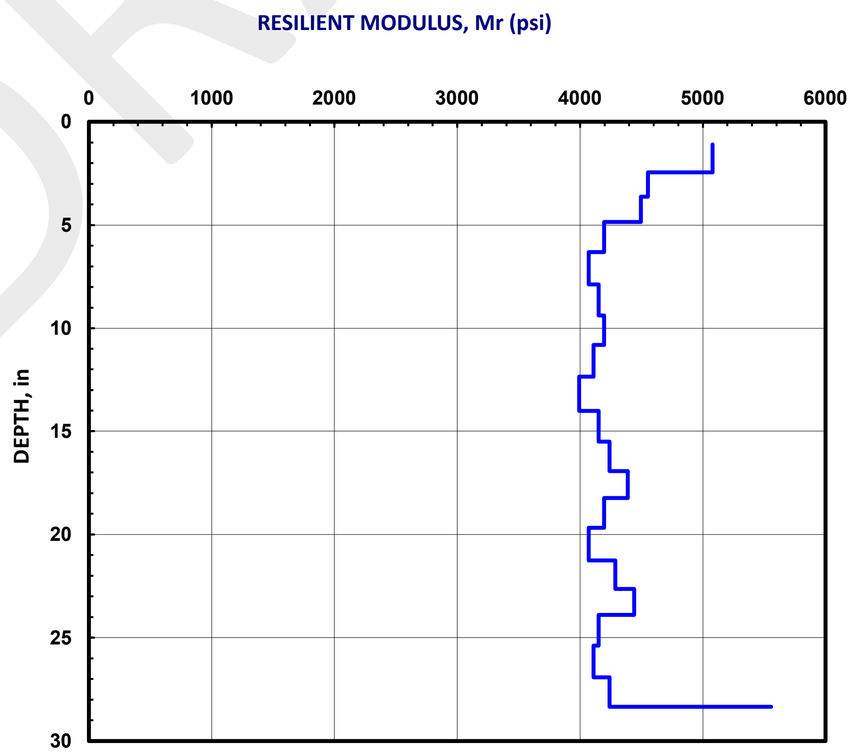
Project: *McMinnville 3rd St* **Date:** 21-May-24
Location: A11 **Soil Type(s):** Lean Clay

Hammer
- ◉ 10.1 lbs.
- ○ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ◉ CL
- ○ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	28	2
3	62	2
2	92	2
2	123	2
2	160	2
2	200	2
2	238	2
2	275	2
2	314	2
2	356	2
2	394	2
2	430	2
2	463	2
2	500	2
2	540	2
2	575	2
2	607	2
2	645	2
2	684	2
2	720	2





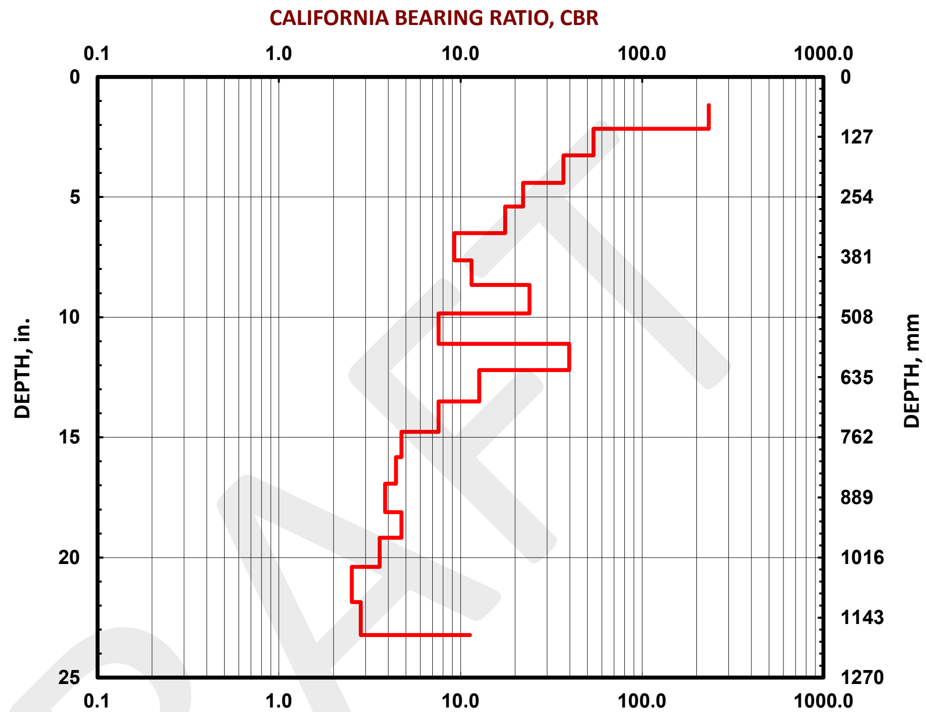
DCP TEST DATA

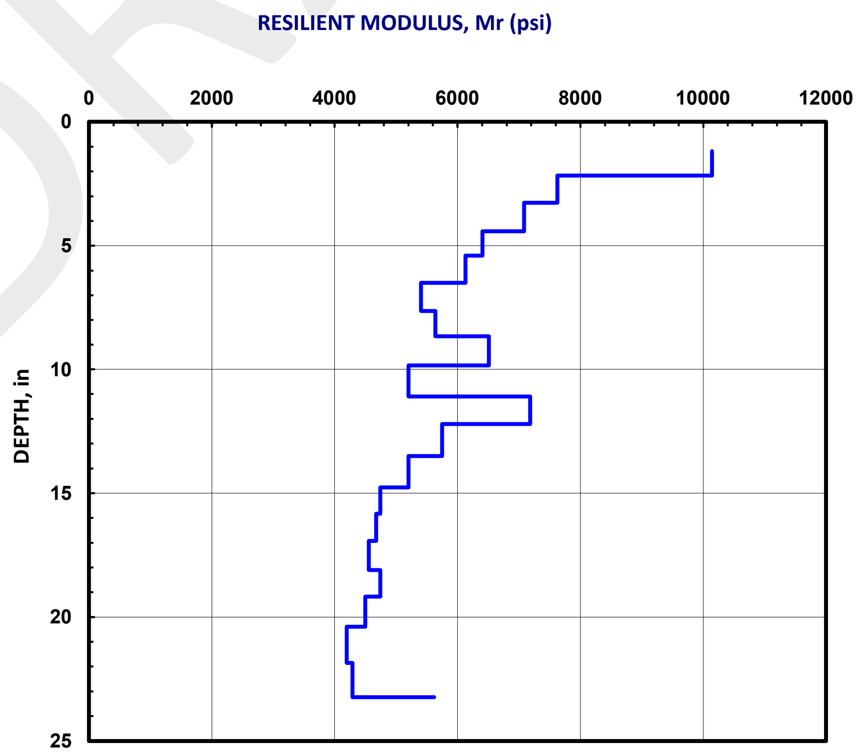
Project: *McMinnville 3rd St* **Date:** 20-May-24
Location: A12 **Soil Type(s):** Lean Clay

Hammer
◉ 10.1 lbs.
○ 17.6 lbs.
○ Both hammers used

Soil Type
○ CH
◉ CL
○ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	30	2
13	55	2
7	83	2
6	112	2
4	137	2
4	165	2
3	194	2
3	220	2
5	250	2
3	282	2
6	310	2
4	343	2
3	375	2
2	402	2
2	430	2
2	460	2
2	487	2
2	518	2
2	555	2
2	590	2





DCP TEST DATA

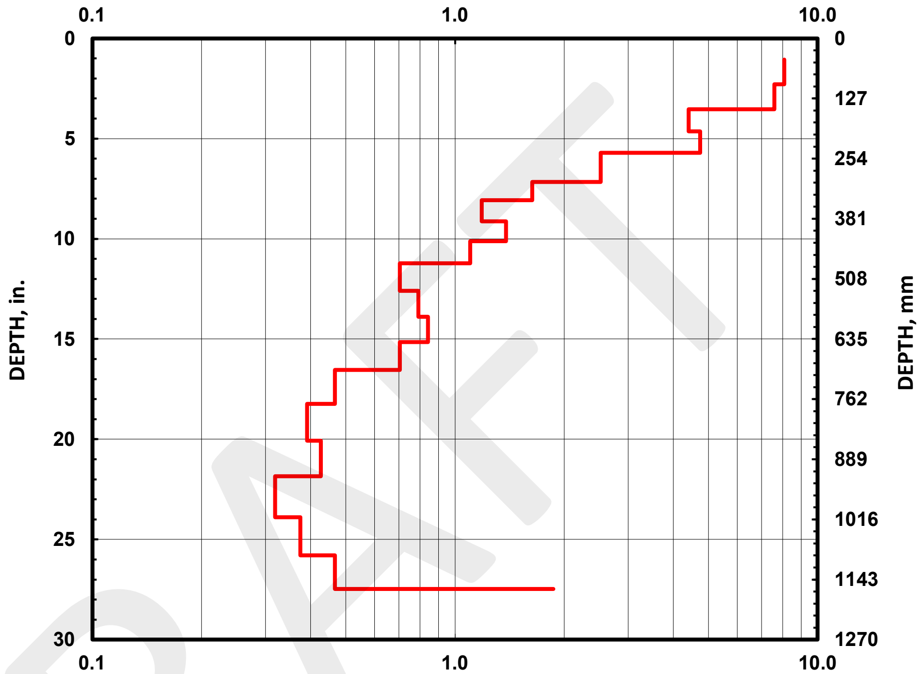
Project: *McMinnville 3rd St*
Location: A13
Date: 20-May-24
Soil Type(s): Lean Clay

Hammer
- ◉ 10.1 lbs.
- ○ 17.6 lbs.
- ○ Both hammers used

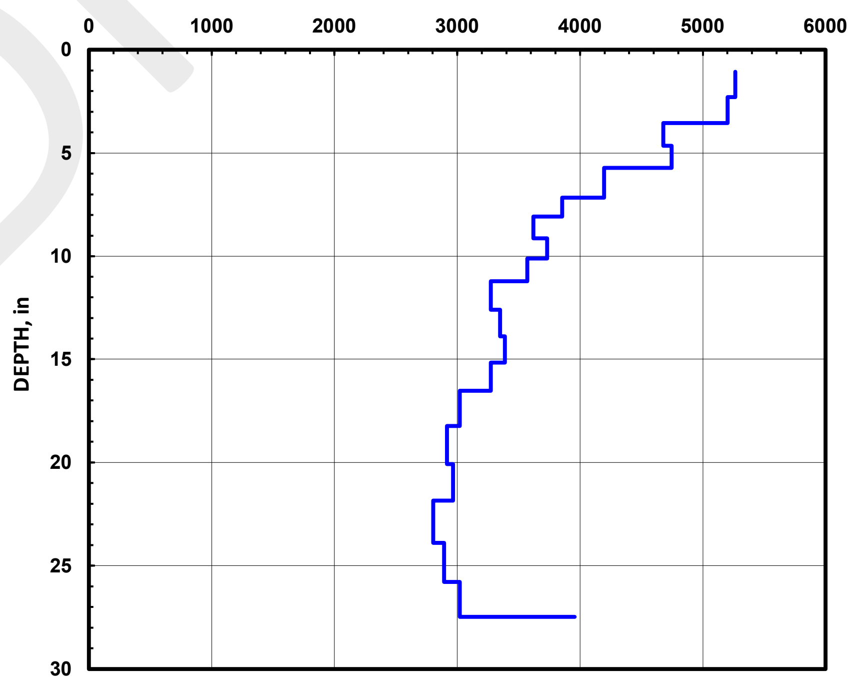
Soil Type
- ○ CH
- ◉ CL
- ○ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	27	2
3	58	2
3	90	2
2	118	2
2	145	2
2	182	2
1	205	2
1	232	2
1	257	2
1	285	2
1	320	2
1	353	2
1	385	2
1	420	2
1	463	2
1	510	2
1	555	2
1	607	2
1	655	2
1	698	2

CALIFORNIA BEARING RATIO, CBR



RESILIENT MODULUS, Mr (psi)



DRAFT

DCP TEST DATA

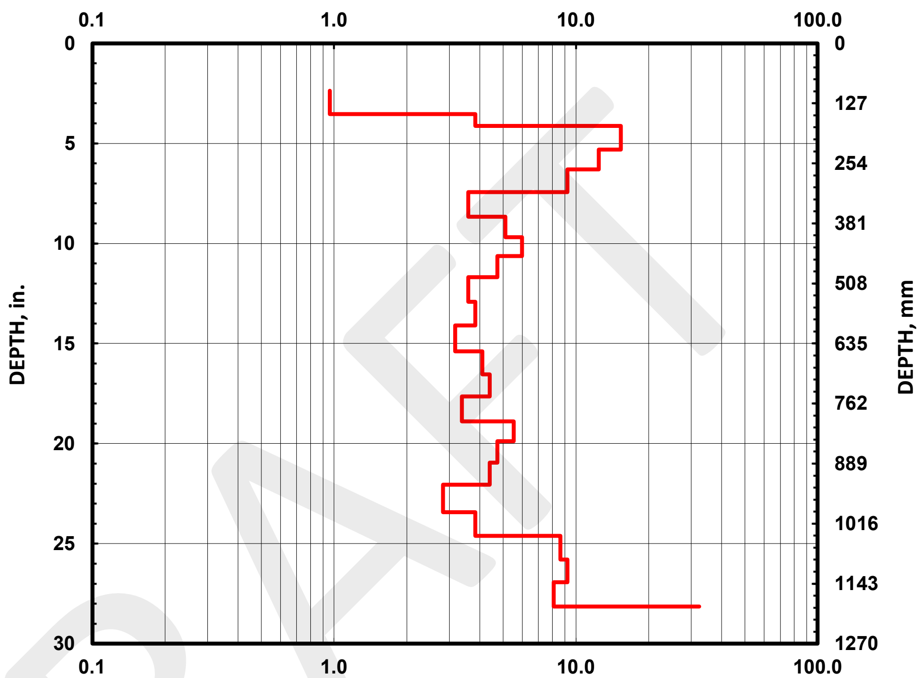
Project: *McMinnville 3rd St*
Location: A14
Date: 20-May-24
Soil Type(s): Lean Clay

Hammer
- (●) 10.1 lbs.
- ( ) 17.6 lbs.
- ( ) Both hammers used

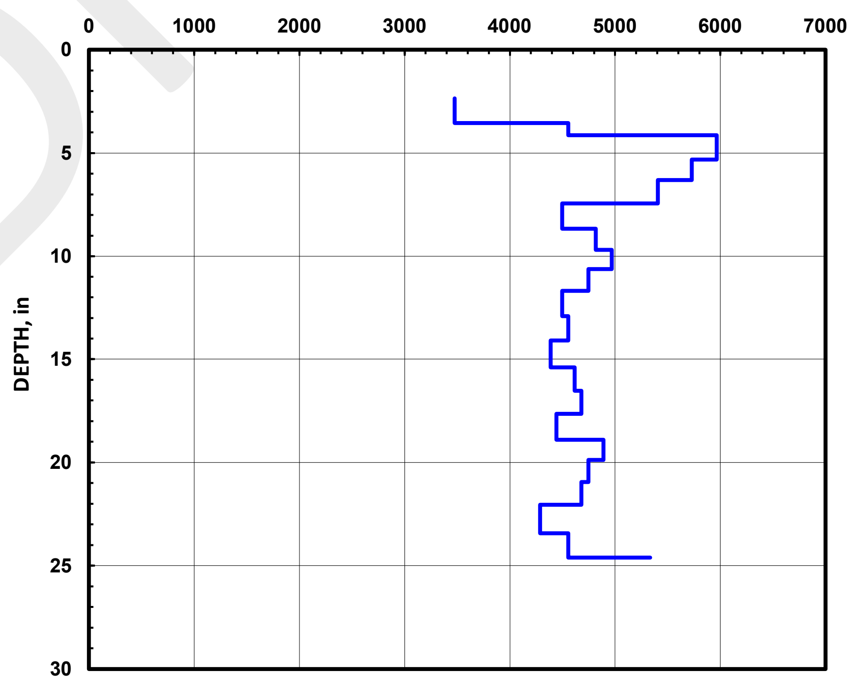
Soil Type
- ( ) CH
- (●) CL
- ( ) All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	60	2
1	90	2
1	105	2
4	135	2
3	160	2
3	189	2
2	220	2
2	246	2
2	270	2
2	297	2
2	328	2
2	358	2
2	391	2
2	420	2
2	448	2
2	448	2
2	480	2
2	505	2
2	532	2
2	560	2
2	595	2
2	625	2
3	655	2
3	684	2
3	715	2

CALIFORNIA BEARING RATIO, CBR



RESILIENT MODULUS, Mr (psi)



The Third Street Improvement Project

VOLUME II: STREETSCAPE PLAN APPENDICES

29 MAY 2025 (DRAFT)

City of McMinnville

City of McMinnville

THIRD STREET IMPROVEMENT PROJECT
CITY OF McMINNVILLE
ADAMS STREET TO JOHNSON STREET
30% ENGINEER'S ESTIMATE

BKF

5/8/2025

PROJECT COMMENCEMENT

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
100	MOBILIZATION	$ 1,830,600	1	LS	$ 1,830,600
101	TRAFFIC CONTROL SYSTEM	$ 500,000	1	LS	$ 500,000
102	CONSTRUCTION STAKING	$ 125,000	1	LS	$ 125,000
103	SURVEY/BENCHMARK MONUMENT PRESERVATION	$ 12,000	6	EA	$ 72,000
104	PROJECT SIGNS	$ 200	6	EA	$ 1,200
105	TEMPORARY BUSINESS OPEN SIGNS	$ 100	100	EA	$ 10,000
106	WATER POLLUTION CONTROL	$ 35,000	1	LS	$ 35,000
				PROJECT COMMENCEMENT SUB TOTAL:	**$ 2,573,800**

DEMOLITION/REMOVAL

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
200	REMOVE TREE AND STUMP & GRATE	$ 2,000	121	EA	$ 242,000
201	REMOVE SIGN, POLE AND FOUNDATION	$ 300	48	EA	$ 14,400
202	REMOVE LIGHT, POLE AND FOUNDATION	$ 12,000	31	EA	$ 372,000
203	REMOVE TRASH RECEPTACLE	$ 200	10	EA	$ 2,000
204	REMOVE BIKE RACK	$ 250	15	EA	$ 3,750
205	REMOVE SANITARY SEWER MANHOLE	$ 2,500	11	EA	$ 27,500
206	REMOVE STORMDRAIN INLET	$ 1,200	38	EA	$ 45,600
207	REMOVE STORMDRAIN MANHOLE	$ 2,500	8	EA	$ 20,000
208	REMOVE WATER VALVE	$ 500	15	EA	$ 7,500
209	REMOVE WATER METER	$ 500	95	EA	$ 47,500
210	REMOVE FIRE HYDRANT	$ 2,500	8	EA	$ 20,000
211	REMOVE SANITARY SEWER LINE	$ 75	1,525	LF	$ 114,375
212	REMOVE STORMDRAIN LINE	$ 75	3,350	LF	$ 251,250
213	REMOVE WATER LINE	$ 75	3,020	LF	$ 226,500
214	REMOVE CONCRETE FLATWORK	$ 114	6,856	SY	$ 781,584
215	REMOVE ASPHALT CONCRETE	$ 25	14,624	SY	$ 365,600
216	REMOVE TANK	$ 13,000	3	EA	$ 39,000
217	SOIL REMEDIATION	$ 410	300	TON	$ 123,000
218	REMOVE ELECTRICAL CONDUIT	$ 5	5,750	LF	$ 28,750
				DEMOLITION/REMOVAL SUB TOTAL:	**$ 2,732,400**

UTILITY AND DRAINAGE IMPROVEMENTS

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
300	DEWATERING (REVOCABLE)	$ 20,000	1	LS	$ 20,000
301	SHORING, EXCAVATIONS, SUPPORT AND PROTECTIVE SYSTEM	$ 45,000	1	LS	$ 45,000
302	SANITARY SEWER CLEANOUT	$ 550	19	EA	$ 10,450
303	SANITARY SEWER MANHOLE (WASTEWATER FUNDED)	$ 12,500	9	EA	$ 112,500
304	SANITARY SEWER MANHOLE (PROJECT FUNDED)	$ 12,500	10	EA	$ 125,000
305	STORMDRAIN MANHOLE	$ 8,500	32	EA	$ 272,000
306	STORMDRAIN INLET	$ 4,500	85	EA	$ 382,500
307	SANITARY SEWER - MAIN 8" (WASTEWATER FUNDED)	$ 200	805	LF	$ 161,000
308	SANITARY SEWER - MAIN 8" (PROJECT FUNDED)	$ 200	725	LF	$ 145,000
309	SANITARY SEWER - LATERAL (WASTEWATER FUNDED)	$ 125	400	LF	$ 50,000
310	SANITARY SEWER - LATERAL (PROJECT FUNDED)	$ 125	100	LF	$ 12,500
310	STORMDRAIN - MAIN 18"	$ 266	2,685	LF	$ 714,210
311	STORMDRAIN - MAIN 24"	$ 300	340	LF	$ 102,000
312	STORMDRAIN - LATERAL	$ 120	1,918	LF	$ 230,160
313	DOMESTIC WATER - MAIN 8"	$ 275	2,416	LF	$ 664,400
314	DOMESTIC WATER - LATERAL	$ 90	1,400	LF	$ 126,000
315	WATER METER	$ 1,890	95	EA	$ 179,550
316	WATER VALVE	$ 1,350	14	EA	$ 18,900
317	FIRE HYDRANT	$ 8,000	6	EA	$ 48,000
318	FIRE LINE	$ 400	175	LF	$ 70,000
319	SOIL CELLS	$ 20	15,525	CF	$ 310,500
				UTILITY AND DRAINAGE IMPROVEMENTS SUB TOTAL:	**$ 3,799,700**

THIRD STREET IMPROVEMENT PROJECT
CITY OF McMINNVILLE
ADAMS STREET TO JOHNSON STREET
30% ENGINEER'S ESTIMATE

5/8/2025

HARDSCAPE IMPROVEMENTS

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
400	STANDARD CONCRETE CURB AND GUTTER	$ 65	1,022	LF	$ 66,430
401	CONCRETE VERTICAL CURB	$ 57	195	LF	$ 11,115
402	CONCRETE VERTICAL CURB - PLANTER WALLS	$ 57	2,733	LF	$ 155,781
403	PEDESTRIAN ACCESS RAMPS	$ 1,750	8	EA	$ 14,000
404	CONCRETE PEDESTRIAN SIDEWALK - STANDARD PAVING	$ 25	53,555	SF	$ 1,338,875
405	CONCRETE DRIVEWAY - 8" PCC	$ 185	452	SY	$ 83,620
406	2" AGGREGATE BASE (3/4"-0)	$ 81	649	TON	$ 52,569
407	6" AGGREGATE BASE (3/4 -2") - PAVERS	$ 81	649	TON	$ 52,569
408	CONCRETE VALLEY GUTTER	$ 60	3,588	LF	$ 215,280
409	PERMEABLE PAVERS AND SETTING BED (CLAY BRICK)	$ 35	8,430	SF	$ 295,050
410	DETECTABLE WARNING SURFACE (DWS) PAVERS (RAW CAST IRON)	$ 70	1,807	SF	$ 126,490
411	DELINEATOR STRIP PAVERS (SPLIT FACED BASALT)	$ 60	6,765	SF	$ 405,900
				HARDSCAPE IMPROVEMENTS SUB TOTAL:	**$ 2,817,700**

PAVEMENT IMPROVEMENTS

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
500	8" PORTLAND CEMENT CONCRETE	$ 185	12,645	SY	$ 2,339,325
501	6" AGGREGATE BASE (3/4"-0)	$ 81	3,842	TON	$ 311,202
502	IMPORT SOIL	$ 85	300	CY	$ 25,500
				PAVEMENT IMPROVEMENTS SUB TOTAL:	**$ 2,676,100**

UTILITY ADJUSTMENTS

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
600	ADJUST TO GRADE (UTILITY BOX - TRAFFIC SIGNAL SERVICE)	$ 500	36	EA	$ 18,000
601	ADJUST TO GRADE (UTILITY BOX - WATER SERVICE METER)	$ 500	77	EA	$ 38,500
602	ADJUST TO GRADE (UTILITY BOX - GAS SERVICE METER)	$ 500	77	EA	$ 38,500
603	ADJUST TO GRADE (UTILITY BOX - ELEC)	$ 500	78	EA	$ 39,000
604	ADJUST TO GRADE (UTILITY VAULT - ELEC)	$ 500	26	EA	$ 13,000
605	ADJUST TO GRADE (UTILITY VAULT - TELE)	$ 500	20	EA	$ 10,000
606	ADJUST TO GRADE (UTILITY VALVE BOX - GAS)	$ 500	77	EA	$ 38,500
607	ADJUST TO GRADE (UTILITY VALVE BOX - WATER)	$ 500	20	EA	$ 10,000
608	ADJUST TO GRADE (UTILITY MANHOLE - SEWER)	$ 2,500	9	EA	$ 22,500
609	ADJUST TO GRADE (UTILITY MANHOLE - STORM)	$ 2,500	22	EA	$ 55,000
610	ADJUST TO GRADE (UTILITY MANHOLE - TELE)	$ 2,500	23	EA	$ 57,500
				UTILITY ADJUSTMENTS SUB TOTAL:	**$ 340,500**

ELECTRICAL IMPROVEMENTS

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
700	ILLUMINATION SYSTEM, COMPLETE	$ 1,183,000	1	LS	$ 1,183,000
701	INTERCONNECT SYSTEM, COMPLETE	$ 160,000	1	LS	$ 160,000
702	TRAFFIC SIGNAL - NE JOHNSON ST & NE 3rd ST	$ 87,000	1	LS	$ 87,000
703	TRAFFIC SIGNAL - NE BAKER ST & NE 3rd ST	$ 366,000	1	LS	$ 366,000
704	TRAFFIC SIGNAL - NE DAVIS ST & NE 3rd ST	$ 395,000	1	LS	$ 395,000
705	TRAFFIC SIGNAL - NE FORD ST & NE 3rd ST	$ 398,000	1	LS	$ 398,000
				ELECTRICAL IMPROVEMENTS SUB TOTAL:	**$ 2,589,000**

SIGNAGE AND STRIPING IMPROVEMENTS

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
800	PAVEMENT MARKINGS, COMPLETE	$ 99,000	1	LS	$ 99,000
801	PERMANENT SIGNAGE, COMPLETE	$ 94,000	1	LS	$ 94,000
				SIGNAGE AND STRIPING IMPROVEMENTS SUB TOTAL:	**$ 193,000**

THIRD STREET IMPROVEMENT PROJECT
CITY OF McMINNVILLE
ADAMS STREET TO JOHNSON STREET
30% ENGINEER'S ESTIMATE

5/8/2025

LANDSCAPE AND IRRIGATION IMPROVEMENTS

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
900	EXISTING TREE MITIGATION	$ 2,500	24	EA	$ 60,000
901	DECIDUOUS TREE - 2.5-INCH CALIPER	$ 700	114	EA	$ 79,800
902	GROUND COVER, 2 GAL CONT.	$ 30	359	EA	$ 10,770
903	GROUND COVER, 1 GAL CONT.	$ 18	2,295	EA	$ 41,310
904	GROUND COVER, 4" POT	$ 12	684	EA	$ 8,208
905	IMPORTED TOPSOIL	$ 90	540	CY	$ 48,600
906	BARK MULCH	$ 100	66	CY	$ 6,600
907	POTTING SOIL	$ 140	14	CY	$ 1,960
908	IRRIGATION SYSTEM	$ 120,000	1	LS	$ 120,000
	LANDSCAPE AND IRRIGATION IMPROVEMENTS SUB TOTAL:				**$ 377,300**

SITE FURNISHINGS

ITEM	DESCRIPTION	UNIT COST	QTY.	UNITS	TOTAL AMOUNT
1001	TREE GRATES (4' X 8')	$ 8,038	62	EA	$ 498,356
1002	BENCHES (8' LONG WITH BACK)	$ 4,736	32	EA	$ 151,552
1003	BIKE RACKS	$ 650	41	EA	$ 26,650
1004	WASTE RECEPTACLES	$ 4,400	18	EA	$ 79,200
1005	TREE PLANTERS WITH BENCHES	$ 25,680	14	EA	$ 359,520
1006	STANDARD PLANTERS	$ 1,620	114	EA	$ 184,680
1007	BOLLARDS (NON-LIGHTED)	$ 4,000	50	EA	$ 200,000
1008	DRINKING FOUNTAIN	$ 15,800	3	EA	$ 47,400
1009	GATEWAY ARCH AT ADAMS AND JOHNSON	$ 200,000	2	EA	$ 400,000
1010	GATEWAY COLUMN AT BAKER	$ 50,000	1	EA	$ 50,000
1011	ART BASE CONCRETE FOOTINGS (4 TOTAL)	$ 3,000	13	CY	$ 39,000
	SITE FURNISHINGS SUB TOTAL:				**$ 2,036,400**

THIRD STREET IMPROVEMENT PROJECT SUB TOTAL:	**$ 20,135,900**
CONTINGENCY (30%)	**$ 6,040,800**
FINAL DESIGN AND BIDDING SUPPORT/ENGINEERING SUPPORT DURING CONSTRUCTION (6%)	**$ 1,208,200**
CONSTRUCTION MANAGEMENT (7.5%)	**$ 1,510,200**
THIRD STREET IMPROVEMENT PROJECT GRAND TOTAL:	**$ 28,895,100**
ESTIMATED PROJECT COST RANGE:	**$28,500,000 to $31,000,000**