CITY HALL 22500 Salamo Rd, West Linn, OR 97068 Telephone: (503) 742-6060 Fax: (503) 742-8655

City of West Linn

Memorandum

Date: March 25, 2026

To: West Linn Planning Commission

From: Darren Wyss, Principal Planner

Subject: Post-public hearing written testimony for CUP-25-03/DR-25-03/VAR-25-02 (New Drive-Through Car Wash at 18850 Willamette Drive)

At the March 18, 2026 public hearing, the Planning Commission closed the public testimony portion of the hearing and

1. left the record open for additional written testimony by 5:00pm, Wednesday, March 25, 2026
2. allow all parties to respond to previously submitted written testimony, but not submit any new evidence by 5:00pm, Wednesday, April 1, 2026
3. allow applicant to submit final written argument by 5:00pm, April 8, 2026
4. reconvene on April 15, 2026, at 6:00pm for final deliberations only.

Attached is additional written testimony submitted by the applicant by 5:00pm on March 25th.

As always, please contact me with any questions at dwyss@westlinnoregon.gov or 503-742-6064.

Wyss, Darren

From: Eric Li <ericl@tvaarchitects.com>
Sent: Wednesday, March 25, 2026 4:12 PM
To: Wyss, Darren; Schroder, Lynn
Cc: Wendie Kellington; Chuck Kaady; erik.mk@tenor-eng.com; mike ard; Evan Eykelbosch (eeykelbosch@froelich-engineers.com); Rachel Bacon
Subject: CUP-25-03 - DR-25-03 Kaady Car Wash Supplementary Information

Darren and Lynn,

Here is the collection of our supplemental information in support of CUP-25-03 / DR-25-03

Kaady Car Wash - LUR 7-7-7 Supplemental Documents

Inside you will find:

- Exhibit 1 – West Linn Police Public Records (Kellington)
- Declaration from Chuck Kaady
- Explanation of Glazing Design Modifications. This includes the Floor Plan and Elevations for the Variance. (TVA)
- Environmental Noise Impact (Tenor Engineering)
- TIA Final Stamped (Ard Engineering)
- Kaady Water Quality Memo (Froelich)
- Letter: Kaady Burnside Site Observations (TVA – the smell issue)
- Letter: Kaady Car Wash – Reciprocal Ingress and Egress (TVA)
- A letter of support from one of the neighboring businesses to the north. (Melani Studios)

Please confirm for us that you were able to access the files provided.

Thanks!

Eric Li
Senior Associate

TVA Architects
1750 SW Yamhill St., Suite 150
Portland, OR 97205
main: 503.220.0668
cell: 971.678.7578

DECLARATION OF CHARLES KAADY

I, Charles Kaady, declare:

1. I am over the age of 18 and competent to make this declaration. I make this declaration based on my personal knowledge, and if called as a witness, I could and would testify truthfully to the facts stated herein.
2. I am familiar with the subject property and the proposed car wash operations at issue in this matter. I am the owner of Kaady Car Washes. I have owned car washes in Oregon since 1976. I now have 19 car washes throughout Oregon, Washington, and California.
3. I am familiar with the design of the proposed West Linn Kaady Car Wash, having been intimately involved in its design and the design of all of my other car washes over the years.
4. The proposed West Linn Kaady Car Wash utilizes a new design that provides a better customer car wash experience, produces less noise, and contains the car washing process in a building totaling 150 feet – 41 feet of which are a right turn acoustic enclosure and covered exit components, designed to mitigate noise.
5. The car wash process will begin approximately 15 feet into the building. At approximately 20 feet into the building, the touch part of the vehicle cleaning process begins. During that stage, shampoos are applied to the vehicle while it is moved through the car wash process on a transport system.
6. At approximately 55 feet into the process, final rinsing occurs and a paint protectant is applied. The shampoo, rinse, and protectant portion of the wash process concludes at approximately 70 feet into the building.
7. At that point, an air-drying system is deployed to dry the vehicle.
8. At approximately 90 feet into the building, the vehicle enters the right turn angle covered exit area and the vehicle ultimately exits at approximately 150 feet.
9. The active car wash process ends at approximately 90 feet, at which point the vehicle proceeds to a right turn into the acoustic enclosure which is an interior space composed of about 41 feet in length, and it is through that exit path that vehicles depart.
10. It is this right turn that prevents any wash spray from being blown outside of the building. It acts as a wind break, preventing strong drafts from disbursing liquids outside of the building.
11. By the time a vehicle departs the car wash building including the acoustic enclosure, it has been thoroughly rinsed and air dried.
12. Any water that remains on vehicles including tires on exiting the car wash, is rinse water. Wash liquids are rinsed off early in the process and are not tracked outside the building.
13. The tires are far cleaner after exiting a Kaady Car Wash than the condition of the tires before the vehicle entered the car wash and is cleaner than the condition tires ordinarily have when vehicles enter this shopping center parking lot to visit other retail businesses.
14. When there is rain, loose vehicle debris on the paint and tires can fall to the ground to be eventually collected in the city storm drain system. Cars washed at Kaady have most or all of this debris removed by our state of the art and effective processes.
15. The proposed car wash does not use employee-deployed manual prep guns to spray vehicles. That is old technology and will not be a part of the Kaady process at the proposed West Linn site.

16. Employees do not yell at one another or at customers in the course of loading vehicles into the wash. Instead, employees use paddles to direct customers as needed for entry into the wash process. Employees use state-of-the-art headsets to communicate with each other.
17. Employees do not enter the wash process area while the equipment is operating.
18. Employees enter the wash process area to clean it only when wash operations are turned off. When employees are cleaning, they are careful to direct materials to the drain which empties into collection tanks located in the building.
19. That drain feeds into a specialized car wash drainage system that filters the water for reuse in the washing process. Solids are separated and collected at the bottom of the specialized waste disposal system for later removal by truck. Any remaining liquids are directed to the sanitary sewer system and not to the stormwater system.
20. The car wash process waste system and the storm water disposal system are entirely separate systems, dealing with fundamentally different kinds of water. The car wash process does not release water into the stormwater system.
21. The wash bay exit into the acoustic enclosure functions as a windbreak and helps prevent drafts from causing spray to leave the wash building.
22. Cleaning liquids are sprayed in the middle portion of the building.
23. Based on the enclosed nature of the system and the location within the wash process where sprays are deployed, it is not plausible that car wash spray would be emitted outside the building during normal operations.
24. The vacuum equipment, including the components that generate noise, are located inside the enclosed building. Only the vacuum hoses are located outside the enclosed building.
25. Because the vacuum equipment is located inside the enclosed building, the vacuums are far quieter than they otherwise would be if that equipment were outside. The only vacuum-related noise outside the enclosed building is associated with the vacuum hoses.
26. When I was first considering the purchase of the subject property, I discussed the prospect with shopping center business owners. All expressed support and relief that the abandoned McDonalds will be torn down and the site reused because of issues with vandalism.
27. One business owner in the shopping center told me that the owner or operator was glad that I would be purchasing the subject property because, in its current condition, the property has been subject to vandalism, attracting problems the shopping center wants to avoid.
28. I own a business called Kaady Chemical Corp which sells chemical products to other businesses. Some of our chemicals are sold to the timber industry, which requires aggressive chemicals to clean their dryer systems which collect hard to remove substances. Kaady Chemical sells to multiple industries, and some of those industries require harsher cleaning products. These harsher chemicals are not used by Kaady Car Washes. The listed chemicals on the Kaady Chemical website are for sale to other businesses. Kaady Car Washes is a separate business entirely, and it does not utilize all of the chemicals listed on that website.
29. Kaady Car Washes are careful to conserve water. While the average amount of water consumed by washing one's car in their driveway at home is 80-140 gallons of water, Kaady Car Washes use computer-controlled metering of precisely the amount of water required for efficient cleaning and so uses only 30-45 gallons of water to wash a car.
30. Using a Kaady Car Wash is better for the environment than washing a car in a driveway. Motor vehicles are exposed to corrosive and toxic substances that get deposited on well-traveled streets, roads and highways, to include asphalt, ferrites, engine and brake residue, antifreeze, grease, oil, rust and asbestos, to name only a few. All these contaminants can collect on tires,

wheels, fenders and other vehicle surfaces, after which runoff from home car washing can eventually reach storm drains designed for rainwater. Even if bio-friendly soap (or no soap at all) is used, hosing off a car's body and wheels dislodges pollutants that can end up in rivers, lakes, and streams.

31. Rather than flush these biohazards into the storm water system, at Kaady Car Wash those deposits are carefully removed and fall into a specialized system located inside the car wash that reclaims and reuses water, drops solids into a tank for solids disposal by truck every 90 days or so and waste water is deposited into the sewer system, not the storm water system.

32. Kaady Car Wash cleaning products use no acids, caustics or phosphates, and are biodegradable. They are safe for your vehicle and for the environment. To guarantee this, they are manufactured to our specifications by a sister company of Kaady Car Washes. They are made exactly to Kaady specifications so that they are the safest, most effective products available.

33. Kaady has designed its own state-of-the-art equipment, and developed its own non-acidic, non-corrosive, non-caustic shampoos and cleaning agents, which Kaady manufactures to the highest standards in a separate company. So dependable are these success-proven, scientifically formulated products that several top automakers use them in the pre-delivery preparation of their new cars, pickups and SUVs.

34. Kaady Car Washes is the proud recipient of a special environmental award from the Pollution Prevention Resource Center, and we were the first car wash in Oregon to receive this award and so far as I know we are still the only car wash in Oregon that is a recipient of the award. Kaady is a recognized "EcoBiz" as a part of this program, which is a certification recognizing businesses in Oregon that adopt best practices and that protect the environment. According to the EcoBiz website: "Certified businesses adhere to high standards to reduce toxics, prevent pollution, and protect the environment." As recognized by the Pollution Prevention Resource Center, it is important to me and to my business Kaady Car Wash to adhere to high environmental standards.

I declare under penalty of perjury under the laws of the State of Oregon that the foregoing is true and correct.

Charles Kaady
Charles Kaady (Mar 24, 2026 15:46:30 PDT)

Charles Kaady

DATED: 3/24/26

DECLARATION OF CHUCK KAADY FINAL

Final Audit Report 2026-03-24

Created:	2026-03-24
By:	Rachel Bacon (rb@klgpc.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAgVn_HTOHq2uFVb_hmcygkz4Fpn6ctgX8

"DECLARATION OF CHUCK KAADY FINAL" History

Document created by Rachel Bacon (rb@klgpc.com)
2026-03-24 - 9:59:12 PM GMT

Document emailed to Charles Kaady (ckaady@kaady.com) for signature
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Email viewed by Charles Kaady (ckaady@kaady.com)
2026-03-24 - 9:59:31 PM GMT

Document e-signed by Charles Kaady (ckaady@kaady.com)
Signature Date: 2026-03-24 - 10:00:30 PM GMT - Time Source: server

Agreement completed.
2026-03-24 - 10:00:30 PM GMT

FROELICH ENGINEERS
CIVIL • STRUCTURAL

CIVIL MEMORANDUM

Client:	TVA
Job Name:	Kaady Car Wash – West Linn
Job # (FE):	25-C007
Date:	March 25, 2026
By:	Evan Eykelbosch, PE

At the Planning Commission meeting on March 18, 2026, our team heard concerns from the Commissioners and the surrounding neighborhood regarding stormwater runoff from the site, particularly related to water quality. In response, we have reviewed the proposed design and applicable regulations to identify opportunities to exceed the code requirements.

1.0 PURPOSE

This memorandum provides supplemental information in response to the Design Commission comments regarding:

1. Applicability of DEQ 1200-Z Industrial Stormwater Permit requirements
2. Proposed stormwater treatment approach for the project

2.0 1200-Z PERMIT APPLICABILITY

The proposed car wash facility was evaluated for applicability under the Oregon Department of Environmental Quality (DEQ) 1200-Z Industrial Stormwater General Permit.

Car wash facilities are not included in the categories of industrial activities regulated under the 1200-Z program. This determination is based on the Standard Industrial Classification (SIC) codes associated with car wash uses, which are not listed among regulated industrial activities requiring permit coverage.

This interpretation was confirmed through coordination with DEQ.

Supporting documentation, including applicable SIC code references and written correspondence with DEQ confirming this determination, is provided in Appendix A.

Conclusion:

The project is not subject to DEQ 1200-Z permitting requirements.

3.0 STORMWATER MANAGEMENT APPROACH

3.1 Applicable Standard
Stormwater management for the project is governed by the West Linn Stormwater Management Manual (or applicable local jurisdictional standard). These standards require basic water quality treatment for new and/or replaced impervious surfaces. These standards are met with our original proposal.

3.2 Proposed Treatment Strategy
Although only basic water quality treatment is required per the West Linn Stormwater Management Manual, the project heard the concerns of the commissioners and public and proposes implementing an enhanced treatment system that meets the Washington Department of Ecology (DOE) General Use Level Designation (GULD) standard for Basic and Metals Treatment.

The proposed enhanced system is the Filterra Bioretention System, which utilizes an engineered media blend designed to meet the DOE GULD standards for pollutant removal.

The West Linn Stormwater Management Manual allows for the use of proprietary treatment devices in meeting water quality standards. The manual in Section 3.10 (Proprietary Devices), references the City of Portland's list of approved stormwater treatment technologies. The Filterra system is included on this approved list.

While the system has been evaluated and approved by the Washington State Department of Ecology for operation at hydraulic loading rates up to approximately 324 inches per hour, the design for this project utilizes a more conservative design loading rate of 100 inches per hour, consistent with the City of Portland Stormwater Management Manual.

The Washington State Department of Ecology has evaluated this technology under its Technology Assessment Protocol – Ecology (TAPE) program and determined that it meets criteria for Metals Treatment.

Measured pollutant removal performance includes:

- **Total Suspended Solids (TSS):** ~87% median removal
- **Total Phosphorus:** ~80% median removal
- **Total Nitrogen:** ~34% median removal
- **Total Copper:** ~79% median removal
- **Dissolved Copper:** ~56% median removal
- **Total Zinc:** ~70% median removal
- **Dissolved Zinc:** ~66% median removal
- **Hydrocarbons:** ~87% median removal

These performance metrics demonstrate effective removal of both particulate-bound pollutants and dissolved metals, which are commonly associated with vehicle-related runoff. Supporting documentation, including TAPE certification and manufacturer data, is provided in Appendix B.

3.3 Rationale for Metals Treatment
The decision to provide metals treatment is voluntary and exceeds minimum code requirements. This approach was selected to:

- Provide improved water quality performance beyond basic treatment standards
- Address community concerns regarding stormwater quality

- Enhance long-term environmental performance of the site

4.0 SUMMARY

- The project has been reviewed in coordination with DEQ and is not subject to 1200-Z or 1200-C permitting requirements.
- Stormwater treatment will meet local code requirements for basic treatment.
- The project will exceed these requirements by implementing a metals treatment system (Filterra) certified by Washington State Ecology and the City of Portland.

5.0 Stormwater Routing

Below is a summary of the stormwater routing through the site:

- All new and modified impervious area within the limits of the proposed development are required to meet the standards of the City of West Linn Stormwater Management Manual.
- The proposed project has been designed to collect exterior roof and pavement runoff through a series of downspouts, catch basins and trench drains. All wash water generated by the car wash operations are collected internal to the building and discharged to the sanitary sewer system. No wash water is connected to or discharged into the stormwater system.
- The catch basins and trench drains will be constructed with a "snout" or turned down elbow to provide a first-pass separation of hydrocarbons from the runoff.
- Following collection, runoff will be routed to the Filterra Vault where the water quality storm will be treated to the enhanced DOE GULD treatment standards
- Following treatment, runoff is managed in a below grade detention facility that will limit site runoff to the code required predevelopment rates for the 2, 10, and 25-year stormwater events. This facility is lined with an impermeable liner to restrict runoff from infiltrating into the soil.
- Thereafter, the runoff will be routed into the existing site stormwater system that currently serves both the McDonalds and the shopping centers runoff. This system was built in the mid 90's with the McDonalds project and was constructed with a Contech Stormfilter treatment facility and detention pond. While this system was designed under previous standards, it continues to provide some additional treatment and detention.
- Runoff from this system routes into the public storm system which discharges into Fern Creek.

Conclusions:

The Kaady Car Wash stormwater system not only meets but exceed the City stormwater standards. The site will be constructed with the enhanced DOE GULD treatment system with an impermeable detention system. The existing treatment and detention system will act as a secondary management system to the Kaady runoff prior to discharge to the City system.

Evan Eykelbosch, PE
Principal
Froelich Engineers

Appendix A:

Evan Eykelbosch

From: RATLIFF Krista * DEQ <Krista.RATLIFF@deq.oregon.gov>
Sent: Monday, March 23, 2026 11:07 AM
To: Evan Eykelbosch
Subject: RE: Stormwater Discharge to Fern Creek - 1200Z Question

Hi Evan,

I am sorry – just a little early Monday miscommunication. A car wash does is not one of the SIC codes required to obtain 1200-Z coverage. Thanks,

Krista Ratliff (she, her), **DEQ Stormwater**
Cell: 503.893.0669

From: Evan Eykelbosch <eeykelbosch@froelich-engineers.com>
Sent: Monday, March 23, 2026 11:02 AM
To: RATLIFF Krista * DEQ <Krista.RATLIFF@deq.oregon.gov>
Subject: RE: Stormwater Discharge to Fern Creek - 1200Z Question

Morning Krista, did you try to respond to my inquiry? If so I did not receive it (I only received the email form Daria saying you had responded). Would you please resend your response?

Thanks

Evan Eykelbosch, PE

Froelich Engineers
Office: 503.624.7005
Direct: 503.924.6321

From: Evan Eykelbosch
Sent: Monday, March 23, 2026 9:07 AM
To: 'GNECKOW Daria * DEQ' <Daria.GNECKOW@deq.oregon.gov>
Subject: RE: Stormwater Discharge to Fern Creek - 1200Z Question

Good morning. I do not have a email from Krista. If she sent it to me, would you please resend?

Thanks

Evan Eykelbosch, PE

Froelich Engineers
Office: 503.624.7005
Direct: 503.924.6321

From: GNECKOW Daria * DEQ <Daria.GNECKOW@deq.oregon.gov>
Sent: Monday, March 23, 2026 8:45 AM
To: Evan Eykelbosch <eeykelbosch@froelich-engineers.com>
Subject: RE: Stormwater Discharge to Fern Creek - 1200Z Question

> You don't often get email from daria.gneckow@deq.oregon.gov. Learn why this is important

Hello Evan,
I understand Krista Ratliff has already responded re: 1200-Z applicability. I want to add that since the project is less than one acre, the 1200-C permit is not applicable either.

Thanks,

Daria Gneckow
Stormwater Program Coordinator
Oregon Department of Environmental Quality
700 NE Multnomah St. Ste 600 Portland, OR 97232 | 503-437-5074

From: RATLIFF Krista * DEQ <Krista.RATLIFF@deq.oregon.gov>
Sent: Monday, March 23, 2026 8:40 AM
To: GNECKOW Daria * DEQ <Daria.GNECKOW@deq.oregon.gov>
Subject: FW: Stormwater Discharge to Fern Creek - 1200Z Question
Importance: High

From: Evan Eykelbosch <eeykelbosch@froelich-engineers.com>
Sent: Friday, March 20, 2026 1:34 PM
To: oregonindustrialstormwater * DEQ <oregonindustrialstormwater@deq.state.or.us>
Subject: Stormwater Discharge to Fern Creek - 1200Z Question
Importance: High

> You don't often get email from eeykelbosch@froelich-engineers.com. Learn why this is important

Good afternoon, I am the civil engineer for a Kaady Car Wash project located at 18814 Willamette Dr, West Linn 97068. Our development will be less than 1 acres in size, and our proposed stormwater system is currently providing standard water quality treatment for both roof and impervious surface runoff in compliance with City standards. We are currently in the design/land use process with the City and have had the City ask us if a 1200Z permit is required for our site discharge. The request has been brought up due to our close proximity to the Fern Creek outfall, located just east of our property (see attached). Our site runoff discharges to the public system, which then discharges into Fern Creek.

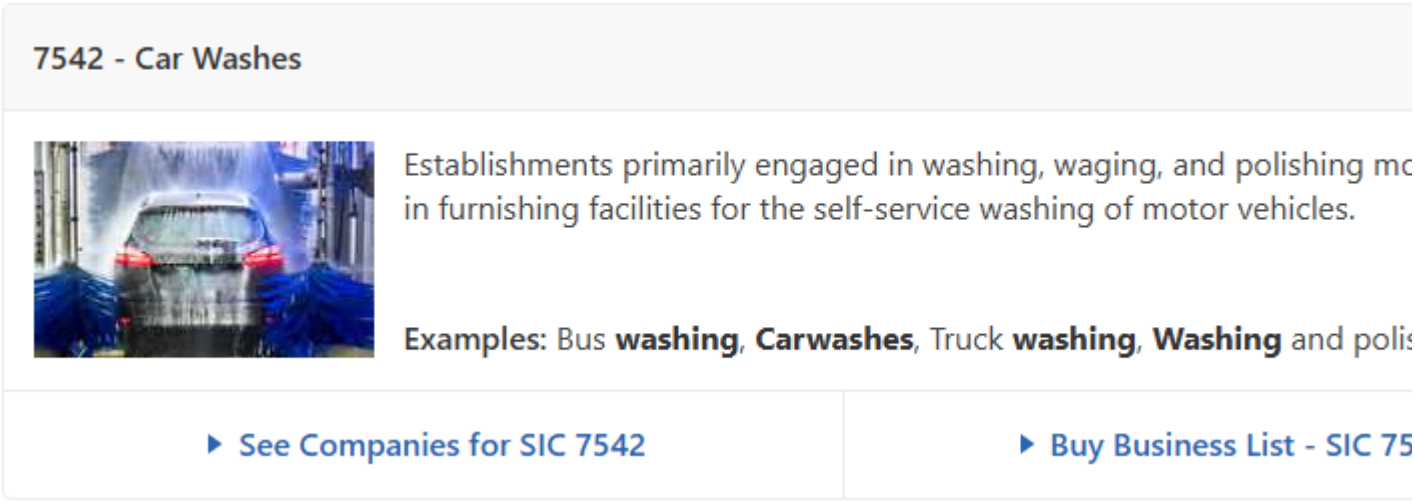
I am looking for clarity from DEQ as to whether our development would require a 1200Z permit or would requires any additional stormwater management approval prior to discharging stormwater.

It is my understanding that the following is the criteria to determine if a 1200z is required:

“Industrial facilities which have the potential to discharge stormwater to surface waters or to conveyance systems that discharge to surface waters and conduct industrial activities identified in Table 1 or Table 2 in 1200-Z permit, are eligible for coverage under the 1200-Z industrial stormwater discharge

general permit." – [1200-Z Industrial Stormwater Discharge General Permit Applying for Permit Coverage and Developing A Stormwater Pollution Control Plan Technical Assistance for Industrial Operators 2021-2026 Permit Revision](#).

I have reviewed Table-1 and Table-2 (attached) and did not find our SIC to be included on that table.



Are we accurate in our understanding that this proposed project would NOT trigger the need for a 1200Z permit?

We need to respond to the city early next week. If you could provide feedback no later than Tuesday at noon, that would be much appreciated.

Thanks

Evan Eykelbosch, PE
Principal, Civil Manager

FROELICH ENGINEERS
CIVIL · STRUCTURAL

17700 SW Upper Boones Ferry Rd. Suite 115; Portland, Oregon 97224
Office: 503.624.7005
Direct: 503.924.6321
www.froelich-engineers.com

GENERAL PERMIT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
INDUSTRIAL STORMWATER DISCHARGE PERMIT No. 1200-Z
Department of Environmental Quality
700 NE Multnomah St., Suite #600 Portland, OR 97232
Telephone: (503) 229-5630 or 1-800-452-4011 toll free in Oregon
Issued pursuant to ORS 468B.050 and the Federal Clean Water Act

REGISTERED TO:

SOURCES COVERED UNDER THIS PERMIT:

A facility that may discharge industrial stormwater to surface waters or to conveyance systems that discharge to surface waters of the state and,

1. The stormwater is associated with an industrial activity identified in Table 1: Sources Covered or listed in Table 2: Additional Industrial Activities Covered; or
2. The facility is notified in writing the Director determines coverage under this permit is required for its stormwater discharges pursuant to 40 CFR 122.26(a)(9)(i)(D).

Note:

1. Facilities may apply for conditional exclusion from the requirement to obtain coverage under this permit if there is no exposure of industrial activities and materials to stormwater pursuant to 40 CFR §122.26(g); see Permit Coverage and Exclusion from Coverage.
2. The following are not eligible to obtain coverage under this permit:
    i. Construction activities. This activity is covered under a separate general permit.
    ii. Any source with primary Standard Industrial Classification codes 2951 and 3273, including mobile asphalt and concrete batch plants; and Standard Industrial Classification code 14, Mining and Quarrying of Nonmetallic Minerals, Except Fuels. These activities are covered under a separate general permit.
    iii. Any source that has obtained an individual NPDES permit for the discharge, unless the source is otherwise eligible for coverage under this permit and DEQ has approved the source's application for coverage under this general permit.
    iv. Any source that discharges to a sanitary sewer system and the discharge is approved by the sanitary sewer operator.

Issuance Date: March 25, 2021

_____

Justin Green, Administrator
Water Quality Division

PERMITTED ACTIVITIES

Until this permit expires, is modified, or revoked, the permit registrant is authorized to construct, install, modify, or operate stormwater treatment or control facilities, and to discharge stormwater and non-stormwater discharges specifically authorized by the permit to surface waters of the state in conformance with all the requirements, limitations, and conditions set forth in the following:

Unless specifically authorized by this permit, by regulation issued by EPA, by another NPDES permit, or by Oregon Administrative Rule or Oregon Revised Statute, any other direct or indirect discharge to waters of the state is prohibited, including non-stormwater discharges to an underground injection control system.

Schedule E contains sector-specific federal requirements. Schedule F contains General Conditions that are included in all general permits issued by DEQ. If conflicts arise between Schedule E or Schedule F and any other schedule of the permit, the requirements in Schedule E or Schedule F may not apply.

Table 1: Sources Covered

Industrial Sources Covered Under this Permit
Facilities with the following primary Standard Industrial Classification (SIC) codes: 10 Metal Mining 12 Coal Mining 13 Oil and Gas Extraction 20 Food and Kindred Products 21 Tobacco Products 22 Textile Mill Products 23 Apparel and Other Finished Products Made From Fabrics and Similar Material 24 Lumber and Wood Products, Except Furniture (Activities with SIC 2411 Logging that are defined in 40 CFR §122.27 as silvicultural point source discharges are covered by this permit.) 25 Furniture and Fixtures 26 Paper and Allied Products 27 Printing, Publishing and Allied Industries 28 Chemicals and Allied Products Manufacturing and Refining (excluding 2874: Phosphatic Fertilizers) 29 Petroleum Refining and Related Industries (excluding 2951, covered by 1200-A) 30 Rubber and Miscellaneous Plastics Products 31 Leather and Leather Products 32 Glass, Clay, Cement, Concrete and Gypsum Products (excluding 3273, covered by 1200-A) 33 Primary Metal Industries 34 Fabricated Metal Products 35 Industrial and Commercial Machinery and Computer Equipment 36 Electronic and Other Electrical Equipment and Components, Except Computer Equipment 37 Transportation Equipment 38 Measuring, Analyzing, and Controlling Instruments; Photographic, Medical and Optical Goods; Watches and Clocks 39 Miscellaneous Manufacturing Industries 4221 Farm Product Warehousing and Storage 4222 Refrigerated Warehousing and Storage 4225 General Warehousing and Storage 5015 Motor Vehicle Parts, Used 5093 Scrap and Waste Materials
Facilities with the following primary SIC codes that have vehicle maintenance shops (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, or airport deicing operations[1]: 40 Railroad Transportation 41 Local and Suburban Transit and Interurban Highway Passenger Transportation 42 Trucking and Courier Services, Except Air (excluding 4221, 4222, and 4225) 43 United States Postal Service 44 Water Transportation 45 Transportation by Air 5171 Petroleum Bulk Stations and Terminals, except petroleum sold via retail method
Steam Electric Power Generation including coal handling sites
Landfills, land application sites and open dumps
Hazardous Waste Treatment, storage and disposal facilities
Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, recycling, and reclamation of municipal or domestic sewage (including land dedicated to the disposal of sewage sludge that are located within the confines of the facility) with the design flow capacity of 1.0 mgd or more, or required to have a pretreatment program under 40 CFR §403

[1]Eligibility based on auxiliary operations; however, once covered all stormwater discharge associated with industrial activities are regulated under this permit.

Facilities that discharge stormwater into the Columbia Slough or Portland Harbor that is exposed to any of the industrial activities listed in Table 2 below, are eligible to obtain permit coverage under the NPDES 1200-Z permit.

Table 2: Additional Industrial Activities Covered

Discharges to Columbia Slough and Portland Harbor
Maintenance of vehicles, machinery, equipment, and trailers (including repairs, servicing, washing, testing and painting)
Storage of vehicles, machinery, equipment (including disposal/refuse containers stored by a disposal/refuse contractor/vendor), and trailers (including rental, sales, wrecked vehicles, fleet, and general storage)
Materials storage (including raw materials; bulk fuels, chemicals, detergents, and plastic pellets; finished materials; lumber and food products; wholesale gravel, sand, and soil stockpiles; and bulk liquids other than water)
Waste handling (including recycled product storage, composting, tires, and bulk hazardous waste)
Commercial animal operations (such as kennels, race tracks, and veterinarians not covered under a Confined Animal Feeding Operation permit)
Fuel distribution and sales (including bulk stations, fuel oil dealers, manned and unmanned retail stations, fleet fueling, mobile fueling, and truck stops)
Any former activity that resulted in significant materials (as defined in Schedule D) remaining on-site

Menu Close

SICCODE.com

SIC Code 7542 - Car Washes

Government Level - SIC 4-Digit

Looking for more companies? See NAICS 754 - Automotive Services, except Repair - 43,692 companies, 25,992 emails.

Description

Establishments primarily engaged in washing, waging, and polishing motor vehicles, or in furnishing facilities for the self-service washing of motor vehicles. Source: OSHA.gov

SIC Code 7542 - Car Washes is a final level code of the "Services" Division. There are 18,561 companies classified in this industry in the USA with an estimated employment of 73138 people.

Parent Category - 3-digit Level (less specific)

754 - Automotive Services, except Repair

Marketing: SIC Codes (6-digit) for Car Washes

Access In-depth Industry Analysis: Reach out to companies and executives within these industries.

Industry	Companies Available

7542-01 - Car Washing & Polishing	10,939
7542-02 - Steam Cleaning-Automotive	7
7542-03 - Automobile Detail & Clean-Up Service	7,062
7542-04 - Automobile Upholstery Cleaning	47
Industry	Companies Available
7542-05 - Car Washing & Polishing-Coin Operated	120
7542-06 - Truck-Washing & Cleaning	384
7542-07 - Livestock Trailers-Washing	2

Industry Executives

Would you like to email executives in SIC Code 7542 - Car Washes? Below are some of the common job titles available to be targeted.

Business Development
Chairman
C-Level
Director
Engineering
Executive Director
Facilities
Finance
Human Resource
IT
Manager
Marketing
Manufacturing
Operations
Owner
Partner
President
Principal
Purchasing
Sales
Vice President

For specific job title targeting, please provide details in the business list request form.

Industry Examples

Common types of examples within SIC Code 7542 - Car Washes are:

Bus washing

Carwashes

Cleaning and polishing (detailing) new autos for dealers on a

Detailing (cleaning and polishing) new autos for dealers on a

Laundries, automotive

Truck washing

Washing and polishing, automotive

Waxing and polishing, automotive

Industry Image

Example photo for industry SIC 7542 - Car Washes. This image represents an activity or product found in this industry.

Companies

SICCODE.com compiles comprehensive business data and executive contact leads for businesses within SIC Code 7542 - Car Washes. Some of the leading and most notable companies are listed below. To order a list of companies within SIC Code 7542 - Car Washes for marketing (postal mailing, telemarketing, emailing) or analytics-use, click on the link below to "Buy Business List". Our data analysts are standing by to assist in your list setup and target marketing.

Splash Management Group

Blue Beacon International Inc

Mermaid Car Wash

Supersonic Car Wash

Zips Car Wash

Car Wash Partners

K O Pressure Supply

Speedy Car Wash

Auto One Glass And Accessories

Ziebart International Corp

- More Companies
- Buy Business List

Alternative SIC Code Categories for SIC 7542

For business marketing and targeting purposes, please refer to the SIC Codes 6-Digit.

7-DIGIT SIC

7542001 Automobile Detail & Clean-Up Services

7542002 Car Washing & Polishing

7542003 Automatic Carwashes

7542004 Self-Service Carwashes

7542005 Truck-Washing & Cleaning

7542006 Steam Cleaning-Automotive

7542007 Automobile Upholstery Cleaning

7542008 Car Washing & Polishing-Coin Operated

8-DIGIT SIC

75420000 Carwashes

75429901 Carwash, Automatic

75429902 Carwash, Self-Service

75429903 Truck Wash

75429904 Washing And Polishing, Automotive

Related Code Systems

There are alternative classification systems to using SIC Codes. A common and highly detailed business classification system can be found with the NAICS Code system. The NAICS Code system is used by the US Government for statistical classification, compilation, and analysis. To explore and search within the NAICS Code system, please use the link(s) below.

NAICS CODES

811192 - Car Washes

ISIC CODES

4520 - Maintenance And Repair Of Motor Vehicles

Questions & Answers

Are there more car washing companies or auto detailers in the USA?

Car washing and auto detailers are both classified under SIC Code 7542 – Car Washes. There are unique classifications for both car washing and auto detail. The Extended SIC Code for car washing is SIC Code 754201 – Car Washing & Polishing and the Extended SIC Code for auto detailers is SIC Code 754203 – Automobile Detail & Clean-Up Service. There are 30% more car washing companies than auto detailers in the USA.

Classification & Data Governance

Industry Intelligence

Industry research, structure, governance alignment, and applied industry classification

Industry Classification Hubs

Sector-level SIC & NAICS classification hubs defining scope, boundaries, examples, and

Classification Research Tools

Code lookups, conversions, and research utilities for SIC, NAICS, ISIC, and related

How
classi
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supp

insights, across marketing, compliance, analytics, and enterprise decision-making.

- Governance & Methodology
- Data Accuracy & Benchmarks

cross-industry distinctions.

classification systems.

- SIC Lookup / Directory
- NAICS Lookup / Directory

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- Bus Co List
- Da Ap & Enr

Authority & Trust Hub

Governed industry classification reference.

Expert-guided methodology · Documented updates & revision history · 2026 Edition

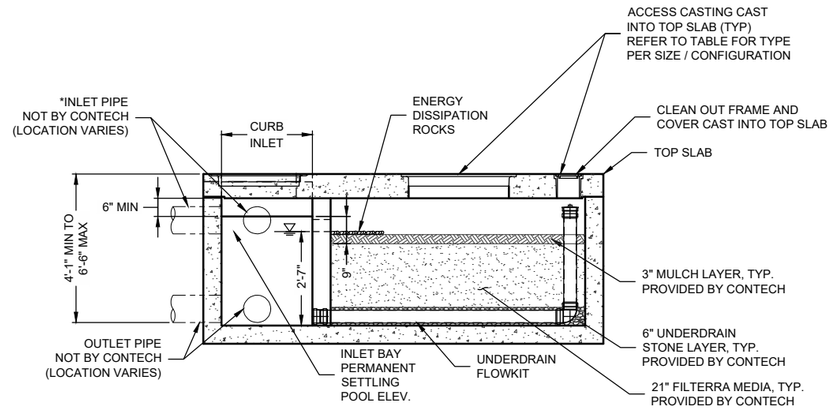
SICCODE.com provides free public access to core SIC and NAICS reference data. Paid services support verified, documented, and enterprise-scale classification needs.

SICCODE.com

Industry Classification Reference

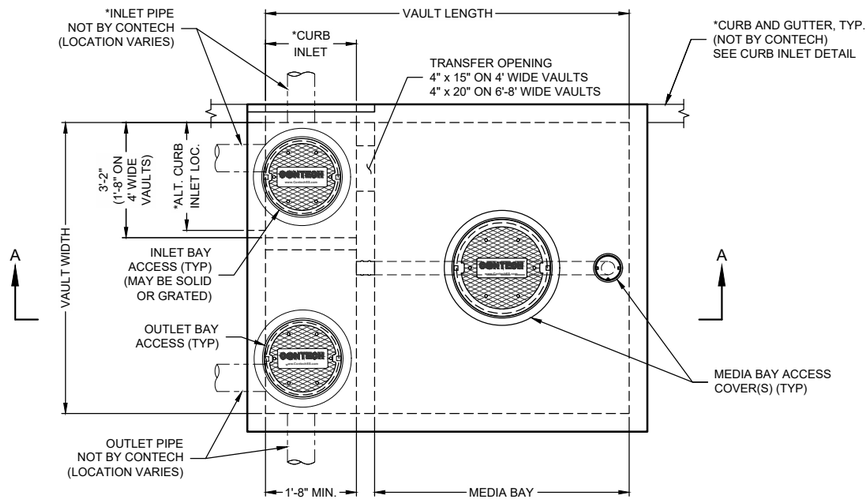
Trusted since 1998

***IF REQUIRED**



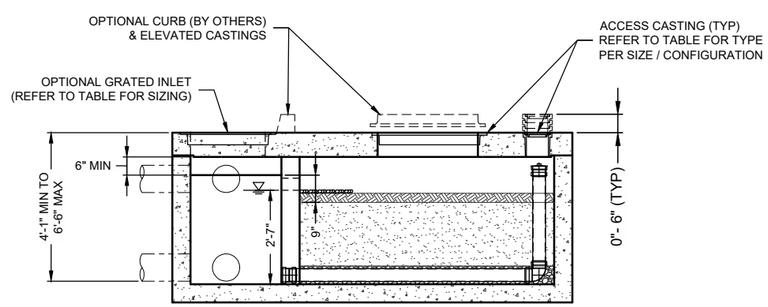
SECTION A-A1

(SHALLOW CONFIGURATION WITH THROAT INLET AND/OR PIPE INLET "-ST")



PLAN VIEW

(SHALLOW CONFIGURATION "-S")



SECTION A-A2

(SHALLOW CONFIGURATION WITH GRATE AND/OR PIPE INLET "-SG")

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION

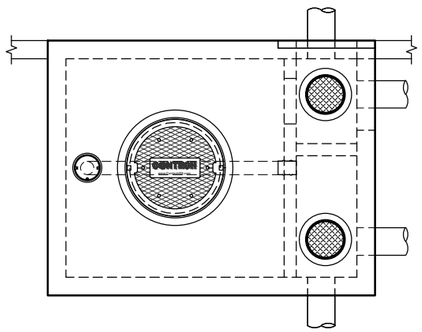
FTPD-UGS CONFIGURATION

(OPTIONS: THROAT INLET "-T", PIPE INLET "-P", GRATE INLET "-G", THROAT & PIPE INLET "-TP', GRATE & PIPE INLET "-GP", ALTERNATE HATCH "-H")

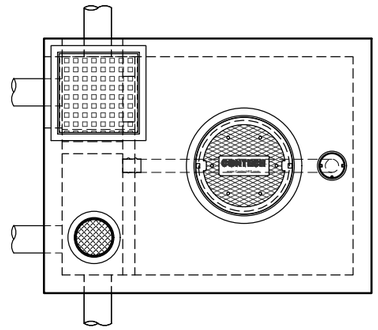
MODEL NAME	PART NUMBER	SHALLOW CONFIG AVAILABILITY	MEDIA AREA (SF)	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR / CURB LENGTH	ACCESS CONFIG IN-OUT BAY / MEDIA BAY†	GRATE SIZE WITH "-G" CONFIG
FTPD-UGS 4x4 (4x6 VAULT)	FTPD0404-UGS	ALL	16	4 x 4	4 x 6	1'-8"	(2) Ø12" / Ø30" & Ø7"	12"
FTPD-UGS 4x6 (4x8 VAULT)	FTPD0406-UGS	ALL (EXCEPT DE, MD, NJ, PA, VA, WV)	24	4 x 6	4 x 8	1'-8"	(2) Ø12" / Ø30" & Ø7"	12"
FTPD-UGS 6x4 (6x6 VAULT)	FTPD0604-UGS	ALL (EXCEPT CA, TX)	24	6 x 4	6 x 6	1'-8"	(2) Ø12" / Ø30" & Ø7"	24"
FTPD-UGS 4.5X5.8 (4.5x7.8 VAULT)	FTPD045058-UGS	DE, MD, NJ, PA, VA, WV ONLY	26	4.5 x 5.83	4.5 x 7.83	1'-8"	(2) Ø12" / Ø30" & Ø7"	24"
FTPD-UGS 6x6 (6x8 VAULT)	FTPD0606-UGS	ALL	36	6 x 6	6 x 8	1'-8"	(2) Ø12" / Ø30" & Ø7"	24"
FTPD-UGS 6x8 (6x10 VAULT)	FTPD0608-UGS	ALL (EXCEPT CA, TX)	48	6 x 8	6 x 10	1'-8"	(2) Ø12" / 3'x3' HATCH & Ø7"	24"
FTPD-UGS 8x7 (8x10 VAULT)	FTPD0807-UGS	ALL (EXCEPT OR, WA)	56	8 x 7	8 x 10	2'-6"	(2) Ø24" / 3'x3' HATCH & Ø7"	24"
FTPD-UGS 6x10 (6x12 VAULT)	FTPD0610-UGS	ALL (EXCEPT CA, TX)	60	6 x 10	6 x 12	1'-8"	(2) Ø12" / 3'x3' HATCH & Ø7"	24"
FTPD-UGS 7x10 (7x13 VAULT)	FTPD0710-UGS	ALL (EXCEPT CA, TX)	70	7 x 10	7 x 13	2'-6"	(2) Ø12" / 3'x3' HATCH & Ø7"	24"
FTPD-UGS 8x9 (8x12 VAULT)	FTPD0809-UGS	ALL (EXCEPT OR, WA)	72	8 x 9	8 x 12	2' -6"	(2) Ø24" / 3'x3' HATCH & Ø7"	24"
FTPD-UGS 8x10.5 (8x14 VAULT)	FTPD08105-UGS	ALL	84	8 x 10.5	8 x 14	3'-0"	(2) Ø24" / 3'x3' HATCH & Ø7"	24"
FTPD-UGS 8x12.5 (8x16 VAULT)	FTPD08125-UGS	ALL (EXCEPT OR, WA)	100	8 x 12.5	8 x 16	3'-0"	(2) Ø24" / (2) 3'x3' HATCH & Ø7"	24"
FTPD-UGS 9x11.5 (9x15 VAULT)	FTPD09115-UGS	OR, WA ONLY	103	9 x 11.5	9 x 15	3'-0"	(2) Ø24" / (2) 3'x3' HATCH & Ø7"	24"

SITE SPECIFIC ANALYSIS IS REQUIRED TO DETERMINE BYPASS CAPACITY.

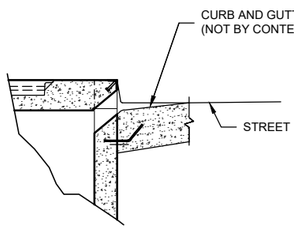
† IF REQUIRED BY LOCAL JURISDICTION, ON SIZES WITHOUT A HATCH AS STANDARD, ACCESS OVER THE MEDIA BAY MAY BE ALTERNATED WITH A 36"x36" HATCH FOR AN ADDITIONAL CHARGE.



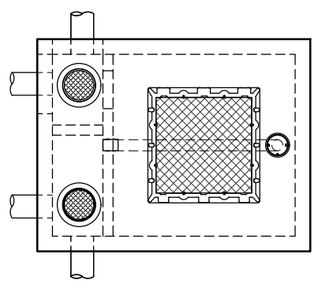
ALTERNATE ORIENTATION



GRATE INLET ORIENTATION "-G"



CURB INLET DETAIL



STANDARD FTPD0608-UGS & LARGER

(HATCH "-H" FOR SMALLER SIZES - ADDITIONAL CHARGE)

filterra®
FOR PATENT INFORMATION, GO TO www.ContechES.com/IP

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

FILTERRA PEAK DIVERSION - UNDERGROUND SHALLOW (FTPD-UGS) 6'-6" OR LESS RIM TO OUTLET CONFIGURATION DETAIL

WASHINGTON STATE DEPARTMENT OF ECOLOGY

April 2025

GENERAL USE LEVEL DESIGNATION FOR BASIC (TSS), METALS, PHOSPHORUS & OIL TREATMENT

For

CONTECH Engineered Solutions Filterra®

Ecology's Decision:

Based on the Contech Engineered Solution's (Contech) submissions for the Filterra® system, Ecology hereby issues the following use level designation:

1. A General Use Level Designation for Basic, Metals, Phosphorus, and Oil Treatment for the Filterra system constructed with a minimum media thickness of 21 inches (1.75 feet), at the following water quality design hydraulic loading rates:

Treatment	Infiltration Rate (in/hr) for use in Sizing
Basic	324
Phosphorus	324
Oils	50
Metals	324

2. The Filterra is not appropriate for oil spill-control purposes.
3. Maintenance data collected during the initial TAPE GULD testing and the post GULD maintenance assessment demonstrated the system was able to treat the following percentage of a water year before needing maintenance:

	Site Location	**Land Use**	**Average TSS (mg/L)**	**D_{50} PSD (µm)**	**Maintenance Cycle[1] (% water year)**
GULD Testing[2]	Hillsboro, OR	Commercial	57	143	72[3]
Maintenance[4] Assessment					

[1] Ecology recommends considering maintenance cycle information when sizing the system. Sizing may need to be increased to meet the project, permit, or jurisdiction maintenance cycle.
[2] GULD Testing data is based on 2021-2023 field evaluation that was done to support an infiltration rate of 324 in/hr.
[3] Percent water year between maintenance events was not reported. On average maintenance was completed every 8.6 months which was estimated as 72% of a water year. Maintenance was performed according to manufacturer's typical recommendation and not due to premature bypass or evidence of system occlusion.
[4] Maintenance assessment data are collected after issuing of the GULD. Maintenance assessment must be completed on a standard precast Filterra or Filterra Bioscape and shall be completed by February 28, 2028.

4. Ecology approves Filterra systems for treatment at the hydraulic loading rates listed above, and sized based on the water quality design flow rate for an off-line system. Calculate the water quality design flow rates using the following procedures:
    - Western Washington: for treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using the latest version of the Western Washington Hydrology Model or other Ecology-approved continuous runoff model and as described in section III-2.6 of the 2024 Stormwater Management Manual for Western Washington (SWMMWW)
    - Eastern Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using one of the three methods described in Chapter 6.5.1 of the 2024 Stormwater Management Manual for Eastern Washington (SWMMEW) or local manual.
    - Entire State: For treatment installed downstream of detention, the water quality design flow rate is the full 2-year release rate of the detention facility.
5. This General Use Level Designation has no expiration date, but Ecology may revoke or amend the designation, and is subject to the conditions specified below.

Ecology's Conditions of Use:

Filterra systems shall comply with these conditions shall comply with the following conditions:

1. Design, assemble, install, operate, and maintain the Filterra systems in accordance with applicable Contech Filterra manuals and this Ecology Decision.
2. The minimum size filter surface-area for use in Washington is determined by using the design water quality flow rate (as determined in this Ecology Decision, Item 3, above) and the Infiltration Rate from the table above (use the lowest applicable Infiltration Rate depending on the level of treatment required). Calculate the required area by dividing the water quality design flow rate (cu-ft/sec) by the Infiltration Rate (converted to ft/sec) to obtain required surface area (sq-ft) of the Filterra unit.
3. Each site plan must undergo Contech Filterra review before Ecology can approve the unit for site installation. This will ensure that design parameters including site grading and slope are appropriate for use of a Filterra unit.
4. Filterra media shall conform to the specifications submitted to and approved by Ecology and shall be sourced from Contech with no substitutions.
5. Contech tested the Filterra with and without plants. The GULD applies to the Filterra whether plants are included in the final product or not.
6. Maintenance: The required maintenance interval for stormwater treatment devices is often dependent upon the degree of pollutant loading from a particular drainage basin. Therefore, Ecology does not endorse or recommend a "one size fits all" maintenance cycle for a particular model/size of manufactured treatment device.
    - Contech designs Filterra systems for a target maintenance interval of 6 months in the Pacific Northwest. Maintenance includes removing and replacing the mulch layer above

the media along with accumulated sediment, trash, and captured organic materials therein, evaluating plant health, and pruning the plant if deemed necessary.

- Owners/operators must inspect the Filterra system for a minimum of twelve months from the start of post-construction operation to determine site-specific inspection/maintenance schedules and requirements. Owners/operators must conduct inspections monthly during the wet season, and every other month during the dry season (According to the SWMMWW, the wet season in western Washington is October 1 to April 30. According to the SWMMEW, the wet season in eastern Washington is October 1 to June 30). After the first year of operation, owners/operators must conduct inspections based on the findings during the first year of inspections.

7. Conduct maintenance following manufacturer's guidelines. Follow maintenance procedures given in the most recent version of the Filterra Operation and Maintenance Manual.
8. Filterra systems come in standard sizes.
9. Install the Filterra in such a manner that flows exceeding the maximum operating rate are conveyed around the mulch and media and will not resuspend captured sediment.
10. Discharges from the Filterra units shall not cause or contribute to water quality standards violations in receiving waters.

Approved Alternate Configurations

Filterra Internal Bypass - Pipe (FTIB-P)

1. The Filterra® Internal Bypass – Pipe allows for piped-in flow from area drains, grated inlets, trench drains, and/or roof drains. Design capture flows and peak flows enter the structure through an internal slotted pipe. Filterra® inverted the slotted pipe to allow design flows to drop through to a series of splash plates that then disperse the design flows over the top surface of the Filterra® planter area. Higher flows continue to bypass the slotted pipe and convey out the structure.
2. To select a FTIB-P unit, the designer must determine the size of the standard unit using the sizing guidance described above.

Filterra Internal Bypass – Curb (FTIB-C)

1. The Filterra® Internal Bypass –Curb model (FTIB-C) incorporates a curb inlet, biofiltration treatment chamber, and internal high flow bypass in one single structure. Filterra® designed the FTIB-C model for use in a "Sag" or "Sump" condition and will accept flows from both directions along a gutter line. An internal flume tray weir component directs treatment flows entering the unit through the curb inlet to the biofiltration treatment chamber. Flows in excess of the water quality treatment flow rise above the flume tray weir and discharge through a standpipe orifice; providing bypass of untreated peak flows. Americast manufactures the FTIB-C model in a variety of sizes and configurations and you may use the unit on a continuous grade when a single structure providing both treatment and high flow bypass is preferred. The FTIB-C model can also incorporate a separate junction box chamber to allow larger diameter discharge pipe connections to the structure.

2. To select a FTIB-C unit, the designer must determine the size of the standard unit using the sizing guidance described above.

Filterra® Shallow

1. The Filterra Shallow provides additional flexibility for design engineers and designers in situations where various elevation constraints prevent application of a standard Filterra configuration. Engineers can design this system up to six inches shallower than any of the previous Filterra unit configurations noted above.
2. Ecology requires that the Filterra Shallow provide a media contact time equivalent to that of the standard unit. This means that with a smaller depth of media, the surface area must increase.
3. To select a Filterra Shallow System unit, the designer must first identify the size of the standard unit using the modeling guidance described above.
4. Once the size of the standard Filterra unit is established using the sizing technique described above, use information from the following table to select the appropriate size Filterra Shallow System unit.

Shallow Unit Basic, Metals, Phosphorus, and Oil Treatment Sizing

Standard Depth	Equivalent Shallow Depth
4x4	4x6 or 6x4
4x6 or 6x4	6x6
4x8 or 8x4	6x8 or 8x6
6x6	6x10 or 10x6
6x8 or 8x6	6x12 or 12x6
6x10 or 10x6	13x7

Notes:
1. Shallow Depth Boxes are less than the standard depth of 3.5 feet but no less than 3.0 feet deep (TC to INV).

Applicant: Contech Engineered Solutions, LLC.

Applicant's Address: 12901 SE 97th Ave, Suite 400
Clackamas, OR 97015

Application Documents:

- State of Washington Department of Ecology Application for Conditional Use Designation, Americast (September 2006)
- Quality Assurance Project Plan Filterra® Bioretention Filtration System Performance Monitoring, Americast (April 2008)
- Quality Assurance Project Plan Addendum Filterra® Bioretention Filtration System Performance Monitoring, Americast (June 2008)

- Draft Technical Evaluation Report Filterra® Bioretention Filtration System Performance Monitoring, Americast (August 2009)
- Final Technical Evaluation Report Filterra® Bioretention Filtration System Performance Monitoring, Americast (December 2009)
- Technical Evaluation Report Appendices Filterra® Bioretention Filtration System Performance Monitoring, Americast, (August 2009)
- Memorandum to Department of Ecology Dated October 9, 2009 from Americast, Inc. and Herrera Environmental Consultants
- Quality Assurance Project Plan Filterra® Bioretention System Phosphorus treatment and Supplemental Basic and Enhanced Treatment Performance Monitoring, Americast (November 2011)
- Filterra® letter August 24, 2012 regarding sizing for the Filterra® Shallow System.
- University of Virginia Engineering Department Memo by Joanna Crowe Curran, Ph. D dated March 16, 2013 concerning capacity analysis of Filterra® internal weir inlet tray.
- Terraphase Engineering letter to Jodi Mills, P.E. dated April 2, 2013 regarding Terraflume Hydraulic Test, Filterra® Bioretention System and attachments.
- Technical Evaluation Report, Filterra® System Phosphorus Treatment and Supplemental Basic Treatment Performance Monitoring. March 27th, 2014.
- State of Washington Department of Ecology Application for Conditional Use Level Designation, Contech Engineered Solutions (May 2015)
- Quality Assurance Project Plan Filterra® Bioretention System, Contech Engineered Solutions (May 2015)
- Filterra Bioretention System Armco Avenue General Use Level Designation Technical Evaluation Report, Contech Engineered Solutions (August 2019)
- NJCAT Technology Verification, Filterra Bioretention System, Contech Engineered Solutions (October 2020)
- Basic Treatment PULD Application for Contech Enhanced Filtration System, Contech Engineered Solutions (November 2020)
- Contech Enhanced Filtration System, Application for Certification, Contech Engineered Solutions (November 2020)
- Quality Assurance Project Plan Contech Enhanced Filtration System (CEFS) Technology Performance Evaluation, Prepared by Contech Engineered Solutions (September 2021)
- Addendum to the Quality Assurance Project Plan – Contech Enhanced Filtration System, Prepared by Contech Engineered Solutions (August 2021)
- Contech Enhanced Filtration System Armco Avenue General Use Level Designation Technical Evaluation Report, Prepared by Contech Engineered Solutions (May 2024)

Applicant's Use Level Request:

General Level Use Designation as a Basic, Metals, Phosphorus, and Oil Treatment device in accordance with Ecology's Stormwater Management Manual for Western Washington.

Applicant's Performance Claims:

Based on field testing, the Filterra is able to meet TAPE performance goals for TSS, dissolved metals, and total phosphorus at an infiltration rate of 324 in/hr, and is able to meet TAPE

performance goals for oil at an infiltration rate of 50 in/hr.

Ecology's Recommendations:

Ecology finds that Contech has shown Ecology, through laboratory and field testing, that the Filterra is capable of attaining Ecology's Basic, Metals, Phosphorus, and Oil treatment goals.

Findings of Fact:

Field Testing 2021-2023

1. Contech completed field testing of a 4 ft. x 3 ft. unvegetated Filterra unit (referred to as a Contech Enhanced Filtration System [CEFS] during testing) in Hillsboro, Oregon between June 2021 and April 2023. Throughout the monitoring period a total of 35 individual storm events were sampled.
2. The CEFS utilized the same media formulation and dimensional layout as a Filterra unit but did not include plants.
3. Contech evaluated the system for basic, metals, and phosphorus treatment against a hydraulic loading rate of 3.36 gpm/sf (324 in/hr).
4. Herrera Environmental Consultants conducted a third-party review of the data and TER to ensure the monitoring complied with the QAPP and met the requirements of the TAPE guidance document.
5. Particle size distribution analysis showed 39% of the influent particulate finer than 62.5 microns (µm) for the samples collected during the 35-event period. Performance analysis based on serial filtration demonstrated that TSS for a majority-silt sediment range met Basic treatment requirements with an upper 95 percent confidence limit (UCL95) effluent concentration of 18.8 mg/L.
6. The similarity of influent and effluent PSD prompted a review of the influence of laboratory procedure on the results. Upon recommendation of Herrera Environmental Consultants, a secondary laboratory was consulted which provided TAPE PSD analysis on multiple previous TAPE testing campaigns, including the Ship Canal test site. Six supplemental events were sampled for PSD between 1/4/24 and 2/16/24, and sample splits were sent for comparative analysis by both laboratories. Results from the second laboratory showed 77% of influent particulate finer than 62.5 microns (µm). Average influent D_{50} results for the six events were 159 µm and 12 µm for the original and secondary laboratories, respectively.
7. Of the 35 sampled events, 21 met requirements for TSS analysis. Influent TSS concentrations ranged from 20 mg/L to 269 mg/L, with a mean concentration of 57 mg/L. For samples with an influent concentration between 20 and 100 mg/L (n=17) the upper 95 percent confidence limit of the mean TSS effluent concentration was 17.5 mg/L. For samples with an influent concentration greater than 100 mg/L (n=4) the lower 95 percent confidence limit of the mean TSS reduction was 83.5%. Influent concentrations greater than 200 mg/L (the upper end of the TAPE influent concentration range) were capped at 200 mg/L before calculating the pollutant removal efficiency.
8. Of the 35 sampled events, 27 met requirements for dissolved copper analysis. Influent dissolved copper concentrations ranged from 7.3 µg/L to 46.0 µg/L, with a mean

concentration of 18.1 µg/L. The lower 95 percent confidence limit of the mean dissolved copper reduction was 39.8%. Influent concentrations greater than 20 µg/L (the upper end of the TAPE influent concentration range) were capped at 20 µg/L before calculating the pollutant removal efficiency.

9. Of the 35 sampled events, 28 met requirements for dissolved zinc analysis. Influent dissolved zinc concentrations ranged from 33.9 µg/L to 178.0 µg/L, with a mean concentration of 74.4 µg/L. The lower 95 percent confidence limit of the mean dissolved zinc reduction was 62.4%.
10. Of the 35 sampled events, 16 met requirements for the total phosphorus analysis. Influent total phosphorus concentrations ranged from 0.101 mg/L to 0.571 mg/L with a mean concentration of 0.298 mg/L. The lower 95 percent confidence limit of the mean total phosphorus reduction was 64.4%.
11. Maintenance was conducted 3 times during the 23-month study period with frequency ranging from every 4 to 9 months. Maintenance performed consisted of replacing the mulch layer.

Field Testing 2015-2019

1. Contech completed field testing of a 4 ft. x 4 ft. Filterra unit at one site in Hillsboro, Oregon from September 2015 to July 2019. Throughout the monitoring period a total of 24 individual storm events were sampled, of which 23 qualified for TAPE sampling criteria.
2. Contech encountered several unanticipated events and challenges that prevented them from collecting continuous flow and rainfall data. An analysis of the flow data from the sampled events, including both the qualifying and non-qualifying events, demonstrated the system treated over 99% of the influent flows. Peak flows during these events ranged from 25% to 250% of the design flow rate of 29 gallons per minute.
3. Of the 23 TAPE qualified sample events, 13 met requirements for TSS analysis. Influent concentrations ranged from 20.8 mg/L to 83 mg/L, with a mean concentration of 46.3 mg/L. The UCL95 mean effluent concentration was 15.9 mg/L, meeting the 20 mg/L performance goal for Basic Treatment.
4. All 23 TAPE qualified sample events met requirements for dissolved zinc analysis. Influent concentrations range from 0.0384 mg/L to 0.2680 mg/L, with a mean concentration of 0.0807 mg/L. The LCL 95 mean percent removal was 62.9%, meeting the 60% performance goal for Metals Treatment.
5. Thirteen of the 23 TAPE qualified sample events met requirements for dissolved copper analysis. Influent concentrations ranged from 0.00543 mg/L to 0.01660 mg/L, with a mean concentration of 0.0103 mg/L. The LCL 95 mean percent removal was 41.2%, meeting the 30% performance goal for Metals Treatment.
6. Total zinc concentrations were analyzed for all 24 sample events. Influent EMCs for total zinc ranged from 0.048 mg/L to 5.290 mg/L with a median of 0.162 mg/L. Corresponding effluent EMCs for total zinc ranged from 0.015 mg/L to 0.067 mg/L with a median of 0.029 mg/L. Total event loadings for the study for total zinc were 316.85 g at the influent and 12.92 g at the effluent sampling location, resulting in a summation of loads removal efficiency of 95.9%.

7. Total copper concentrations were analyzed for all 24 sample events. Influent EMCs for total copper ranged from 0.003 mg/L to 35.600 mg/L with a median value of 0.043 mg/L. Corresponding effluent EMCs for total copper ranged from 0.002 mg/L to 0.015 mg/L with a median of 0.004 mg/L. Total event loadings for total copper for the study were 1,810.06 g at the influent and 1.90 g at the effluent sampling location, resulting in a summation of loads removal efficiency of 99.9%.

Field Testing 2013

1. Filterra completed field-testing of a 6.5 ft x 4 ft. unit at one site in Bellingham, Washington. Continuous flow and rainfall data collected from January 1, 2013 through July 23, 2013 indicated that 59 storm events occurred. Water quality data was obtained from 22 storm events. Not all the sampled storms produced information that met TAPE criteria for storm and/or water quality data.
2. The system treated 98.9% of the total 8-month runoff volume during the testing period. Consequently, the system achieved the goal of treating 91% of the volume from the site. Stormwater runoff bypassed Filterra treatment during four of the 59 storm events.
3. Of the 22 sampled events, 18 qualified for TSS analysis (influent TSS concentrations ranged from 25 to 138 mg/L). The data were segregated into sample pairs with influent concentration greater than and less than 100 mg/L. The UCL95 mean effluent concentration for the data with influent less than 100 mg/L was 5.2 mg/L, below the 20-mg/L threshold. Although the TAPE guidelines do not require an evaluation of TSS removal efficiency for influent concentrations below 100 mg/L, the mean TSS removal for these samples was 90.1%. Average removal of influent TSS concentrations greater than 100 mg/L (three events) was 85%. In addition, the system consistently exhibited TSS removal greater than 80% at flow rates equivalent to a 100 in/hr infiltration rate and was observed at 150 in/hr.
4. Ten of the 22 sampled events qualified for TP analysis. Americast augmented the dataset using two sample pairs from previous monitoring at the site. Influent TP concentrations ranged from 0.11 to 0.52 mg/L. The mean TP removal for these twelve events was 72.6%. The LCL95 mean percent removal was 66.0, well above the TAPE requirement of 50%. Treatment above 50% was evident at 100 in/hr infiltration rate and as high as 150 in/hr. Consequently, the Filterra test system met the TAPE Phosphorus Treatment goal at 100 in/hr. Influent ortho-P concentrations ranged from 0.005 to 0.012 mg/L; effluent ortho-P concentrations ranged from 0.005 to 0.013 mg/L. The reporting limit/resolution for the ortho-P test method is 0.01 mg/L, therefore the influent and effluent ortho-P concentrations were both at and near non-detect concentrations.

Field Testing 2008-2009

1. Filterra completed field-testing at two sites at the Port of Tacoma. Continuous flow and rainfall data collected during the 2008-2009 monitoring period indicated that 89 storm events occurred. The monitoring obtained water quality data from 27 storm events. Not

all the sampled storms produced information that met TAPE criteria for storm and/or water quality data.

2. During the testing at the Port of Tacoma, 98.96 to 99.89% of the annual influent runoff volume passed through the POT1 and POT2 test systems respectively. Stormwater runoff bypassed the POT1 test system during nine storm events and bypassed the POT2 test system during one storm event. Bypass volumes ranged from 0.13% to 15.3% of the influent storm volume. Both test systems achieved the 91% water quality treatment-goal over the 1-year monitoring period.
3. Consultants observed infiltration rates as high as 133 in/hr during the various storms. Filterra did not provide any paired data that identified percent removal of TSS, metals, oil, or phosphorus at an instantaneous observed flow rate.
4. The maximum storm average hydraulic loading rate associated with water quality data is <40 in/hr, with the majority of flow rates < 25 in/hr. The average instantaneous hydraulic loading rate ranged from 8.6 to 53 in/hr.
5. The field data showed a removal rate greater than 80% for TSS with an influent concentration greater than 20 mg/L at an average instantaneous hydraulic loading rate up to 53 in/hr (average influent concentration of 28.8 mg/L, average effluent concentration of 4.3 mg/L).
6. The field data showed a removal rate generally greater than 54% for dissolved zinc at an average instantaneous hydraulic loading rate up to 60 in/hr and an average influent concentration of 0.266 mg/L (average effluent concentration of 0.115 mg/L).
7. The field data showed a removal rate generally greater than 40% for dissolved copper at an average instantaneous hydraulic loading rate up to 35 in/hr and an average influent concentration of 0.0070 mg/L (average effluent concentration of 0.0036 mg/L).
8. The field data showed an average removal rate of 93% for total petroleum hydrocarbon (TPH) at an average instantaneous hydraulic loading rate up to 53 in/hr and an average influent concentration of 52 mg/L (average effluent concentration of 2.3 mg/L). The data also shows achievement of less than 15 mg/L TPH for grab samples. Filterra provided limited visible sheen data due to access limitations at the outlet monitoring location.
9. The field data showed low percentage removals of total phosphorus at all storm flows at an average influent concentration of 0.189 mg/L (average effluent concentration of 0.171 mg/L). We may relate the relatively poor treatment performance of the Filterra system at this location to influent characteristics for total phosphorus that are unique to the Port of Tacoma site. It appears that the Filterra system will not meet the 50% removal performance goal when the majority of phosphorus in the runoff is expected to be in the dissolved form.

<u>Laboratory Testing</u>

1. Contech conducted testing of a 4 ft. x 4 ft. unit in July 2020 at Contech's laboratory in Ashland, Virginia. The unit included the Filterra® HC media blend without the use of any vegetation that is standard in Filterra installations.
   - The laboratory testing was performed in accordance with the New Jersey Department of Environmental Protection (NJDEP) Laboratory Protocol to Assess Total

Suspended Solids Removal by a Filtration Manufactured Treatment Device. Since Contech did the testing, A. Morton Thomas and Associates, inc. performed independent third-party observation.

- The testing evaluated a full-scale 4 ft. x 4 ft. unit at a hydraulic loading rate of 3.12 gpm/sq. ft (300 in/hr). The test sediment used with compliant with the NJDEP particle size distribution requirements, with a d50 particle size of 69 µm.
- Contech evaluated TSS removal efficiency over 15 events. The influent concentration ranged from 182 mg/L to 211 mg/L with a mean concentration of 200.7 mg/L and a mean removal efficiency of 86%.
- Contech evaluated sediment mass loading capacity over an additional 21 events as a continuation of the removal efficiency testing. During the sediment mass loading capacity evaluation Contech increased the target influent concentration to 400 mg/L. The cumulative removal efficiency over the 36 events was 82% and the cumulative mass captured was 110 kg.

2. Filterra performed laboratory testing on a scaled down version of the Filterra unit. The lab data showed an average removal from 83-91% for TSS with influents ranging from 21 to 320 mg/L, 82-84% for total copper with influents ranging from 0.94 to 2.3 mg/L, and 50-61% for orthophosphate with influents ranging from 2.46 to 14.37 mg/L.

    - Filterra conducted permeability tests on the soil media.
    - Lab scale testing using Sil-Co-Sil 106 showed removals ranging from 70.1% to 95.5% with a median removal of 90.7%, for influent concentrations ranging from 8.3 to 260 mg/L. Filterra ran these laboratory tests at an infiltration rate of 50 in/hr.
    - Supplemental lab testing conducted in September 2009 using Sil-Co-Sil 106 showed an average removal of 90.6%. These laboratory tests were run at infiltration rates ranging from 25 to 150 in/hr for influent concentrations ranging from 41.6 to 252.5 mg/L. Regression analysis results indicate that the Filterra system's TSS removal performance is independent of influent concentration in the concentration rage evaluated at hydraulic loading rates of up to 150 in/hr.

Other Filterra Related Issues to be Addressed by the Company:

1. Conduct hydraulic testing on a standard precast Filterra or Filterra Bioscape at one site in the Pacific Northwest as outlined in the 2024 TAPE Guidance Document to obtain additional information about the maintenance longevity and requirements. Complete testing by February 28, 2028.

Technology Description: https://www.conteches.com/stormwater-management/biofiltration-solutions/filterra/

Contact Information:

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jlehman@conteches.com

Applicant's Website: http://www.conteches.com

Ecology web link: http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html

Ecology: Douglas C. Howie, P.E.
Department of Ecology
Water Quality Program
(360) 870-0983
douglas.howie@ecy.wa.gov

Date	**Revision**
December 2009	GULD for Basic, Enhanced, and Oil granted, CULD for Phosphorus
September 2011	Extended CULD for Phosphorus Treatment
September 2012	Revised design storm discussion, added Shallow System.
January 2013	Revised format to match Ecology standards, changed Filterra contact information
February 2013	Added FTIB-P system
March 2013	Added FTIB-C system
April 2013	Modified requirements for identifying appropriate size of unit
June 2013	Modified description of FTIB-C alternate configuration
March 2014	GULD awarded for Phosphorus Treatment. GULD updated for a higher flow-rate for Basic Treatment.
June 2014	Revised sizing calculation methods
March 2015	Revised Contact Information
June 2015	CULD for Basic and Enhanced at 100 in/hr infiltration rate
September 2019	GULD for Basic and Enhanced at 175 in/hr infiltration rate
February 2020	Revised sizing language to note sizing based on off-line calculations
June 2020	Added Phosphorus to Filterra Shallow sizing table
January 2024	Revised Dissolved Metals (Enhanced) to Metals
July 2024	GULD for Basic, Enhanced, and Phosphorus at 324 in/hr infiltration rate for vegetated and unvegetated Filterra systems. Updated Contech address
March 2025	Added requirement for maintenance assessment
April 2025	Updated Findings of Fact for Field Testing 2021-2023

CITY OF PORTLAND
ENVIRONMENTAL SERVICES
1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ▪ Nick Fish, Commissioner ▪ Michael Jordan, Director

February 2019

Stormwater Management Manual
Approved Manufactured Stormwater Treatment Technology

Filterra® Bioretention System

City of Portland Decision:
The Filterra® Bioretention System meets Portland's pollution reduction requirements, per the requirements of the 2014 Stormwater Management Manual, and is approved for use in the City of Portland with the following conditions.

Background:
As part of the application process, Contech Engineered Solutions, LLC (Contech) submitted the Washington State Department of Ecology (DOE) Technology Assessment Protocol (TAPE) Technology Evaluation Report, including all appendices and performance monitoring data, to demonstrate that the Filterra® Bioretention Systems meet the City of Portland's pollution reduction requirements.

Contech gave a technical presentation to City staff, Portland State University students and faculty, and the public on February 26, 2015. The presentation was followed by a technical interview with the City of Portland review committee to discuss water quality performance, maintenance and overall use in the public right-of-way.

The City of Portland contracted with Portland State University's Department of Civil and Environmental Engineering (PSU) to provide third-party review of the submitted water quality performance data. PSU analyzed the provided data and concluded the Filterra® Bioretention Systems meet the pollution reduction requirements of the 2014 Stormwater Management Manual.

Additional information is available online for this system, including:

- Contech Filterra product website
- DOE General Use Level Designation (GULD) for Basic (TSS), Enhanced, Phosphorous, and Oil Treatment for the Filterra® Biorentention Systems.

Conditions of Use:
All configuration options for the Filterra® Bioretention Systems are approved for pollution reduction. Selection of a specific configuration is the responsibility of the project designer.

1. Use of Filterra® Bioretention Systems does not exempt a project or site from required flow control requirements, operations and maintenance requirements, or other applicable requirements of the SWMM.

2. For use in the public right-of-way, the following conditions must be met:

   - Units must meet City of Portland street design requirements, including but not limited to H-20 vehicle load rating, non-slip surface, and American with Disabilities Act tolerances specific to surface grates or vault lids.

   - The O&M Plan must call for an assessment during the two-year warranty period of project-specific maintenance and watering requirements, including frequency.

   - The following Zone 8 or Northwest region plants are allowed:
     - Big -Pod Ceanothus - Ceanothus megacarpus
     - Buttonbush - Cephalanthus occidentalis
     - Cherry, Purpleleaf Sand - Prunus x cisterna
     - Coyote Bush - Baccharis pilularis ssp. Consanquinea
     - Euonymus, Chollipo - Euonymus japonicus 'Chollipo'
     - Euonymus, Winged (Burning Bush)- Alatus 'compactus'
     - Fringe Tree, White - Chionanthus virginicus
     - Hawthorn, Yedda 'Majestic Beauty' - Raphiolepis umbellata
     - Heavenly Bamboo - Nandina domestica (non-fruiting varieties)
     - Holly, Inkberry - Ilex glabra
     - Holly, Meserve - Ilex meservae
     - Holly, Winterberry - Ilex verticillata
     - Lilac, Dwarf - Syringa meyeri
     - Magnolia Star - Magnolia stellate
     - Willow, Japanese tree form - Salix integra 'Hakuro Nisjiki'

3. Contech-certified providers must be utilized for activation, inspection and maintenance of the system.

Project Designer Responsibilities:

1. Ensuring that the conditions of use are met.

2. Ensuring that the project meets all applicable requirements of the Stormwater Management Manual, such as the Stormwater Infiltration and Discharge Hierarchy, in order to use Filterra® Bioretention Systems.

3. Ensuring that the design and installation of the units are appropriate for the project goals, site conditions, long-term maintenance requirements, and any other site-specific design requirements on private property or for use in the public right-of-way.

4. Sizing units to meet the current Stormwater Management Manual presumptive design approach and pollution reduction requirements. The pollution reduction capacity is flow-based and assumes a treatment flow intensity of 0.19 inches per hour and a 0.90 runoff coefficient using the Rational Method with a treatment rate of 100 inches per hour. The treatment capacity for Filterra® units are provided in Table 1.

Table 1. Filterra® Sizing to Meet City of Portland Pollution Reduction Requirements		
Unit size (ft)	Treatment Capacity (cfs)	Maximum Drainage Area (acres)
4 x 4	0.037	0.21
4 x 6	0.056	0.33
4 x 8	0.074	0.43
6 x 6	0.083	0.48
6 x 8	0.111	0.64
6 x 10	0.139	0.81
6 x 12	0.167	0.97

5. Each site plan must undergo Contech review before the City of Portland can approve the unit(s) for site installation. A letter that certifies that the project has been designed to manufacturer's specification must be submitted to BES prior to the appropriate design milestone. For public improvements, including public works permits, the letter must be submitted to BES prior to 60% plan review. For installation on private property, the letter must be submitted prior to building permit plan approval. The project designer is highly encouraged to work with Contech prior to the appropriate review milestone in order to maximize placement and performance of the unit(s).

6. If the project designer wants to use plants in public facilities not approved under the Conditions of Use, the project designer is required to get written approval from the City of Portland Environmental Services Revegetation Program and Contech prior to 90% plan review.

7. If the project designer wishes to vary from these conditions of approval, the project designer must use the Performance Design Approach.

General Conditions:

1. BES may at any time suspend or revoke approval if the performance of the technology does not meet performance criteria, or if the performance criteria change due to the local, state, or federal pollution reduction standards.

2. If any changes, updates, or revisions have occurred to the Filterra® Bioretention Systems, the applicant must obtain DOE TAPE GULD certification and re-apply following submission guidelines in effect at the time of application.

Document Updates:

Date	Action
July 2015	The device was approved for use in the City of Portland
July 2018	Removed the 3-yr expiration date on BES' approval, per a change in BES policy.

CONTECH®
ENGINEERED SOLUTIONS
A QUIKRETE® COMPANY

Filterra®
High Performance Bioretention

The experts you need to solve your stormwater challenges

Contech is the leader in stormwater solutions, helping engineers, contractors and owners with infrastructure and land development projects throughout North America.

With our responsive team of stormwater experts, local regulatory expertise and flexible solutions, Contech is the trusted partner you can count on for stormwater management solutions.

Your Contech Team

STORMWATER CONSULTANT

It's my job to recommend the best solution to meet permitting requirements.

STORMWATER DESIGN ENGINEER

I work with consultants to design the best approved solution to meet your project's needs.

REGULATORY MANAGER

I understand the local stormwater regulations and what solutions will be approved.

SALES ENGINEER

I make sure our solutions meet the needs of the contractor during construction.

Contech is your partner in stormwater management solutions

Low Impact Development in a Small Footprint – Filterra®

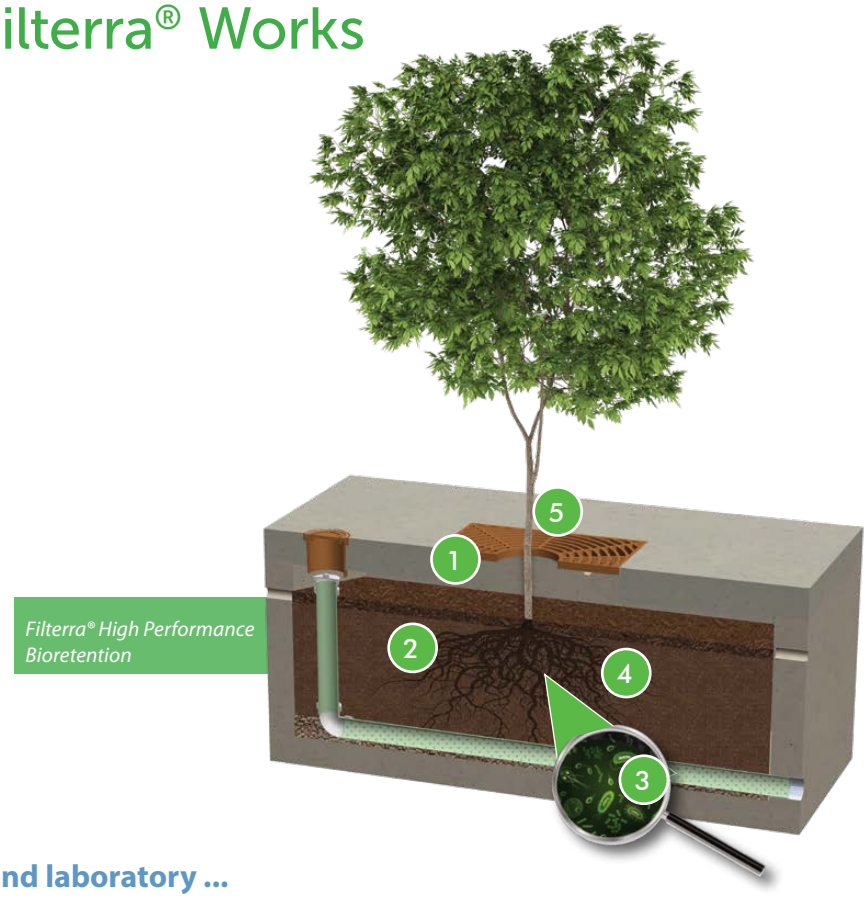
Filterra is an engineered high-performance bioretention system. While it operates similar to traditional bioretention, its high flow media allows for a reduction in footprint of up to 95% versus traditional bioretention practices. Filterra provides a Low Impact Development (LID) solution for tight, highly developed sites such as urban development projects, commercial parking lots, residential streets, and streetscapes. Its small footprint also reduces installation and life cycle costs versus traditional bioretention. Filterra can be configured in many different ways to enhance site aesthetics, integrate with other LID practices, or increase runoff reduction through infiltration below or downstream of the system.

At the Manchester Stormwater Park seen above, the Filterra systems surrounding the central courtyard allowed for the creation of a community space with parking, sidewalks, and benches in a quaint downtown area. A traditional bioretention system treating the same drainage area would have occupied the entire park area leaving no room for these amenities.

filterra® Bioretention Systems

filterra® Bioscape®

How the Filterra® Works



Tested in the field and laboratory ...

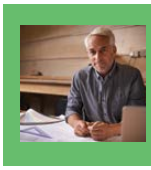
1. Stormwater enters the Filterra through a pipe, curb inlet, or sheet flow and ponds over the pretreatment mulch layer, capturing heavy sediment and debris. Organics and microorganisms within the mulch trap and degrade metals and hydrocarbons. The mulch also provides water retention for the system's vegetation.

2. Stormwater flows through engineered Filterra media which filters fine pollutants and nutrients. Organic material in the media removes dissolved metals and acts as a food source for root-zone microorganisms. Treated water exits through an underdrain pipe or infiltrates (if designed accordingly).

3. Rootzone microorganisms digest and transform pollutants by incorporating them into their own biomass or converting them into forms easily absorbed by plants.

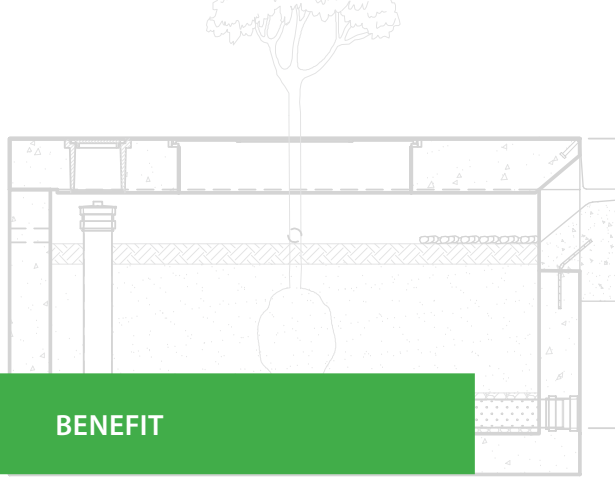
4. Plant roots, where applicable, absorb stormwater and pollutants that were transformed by microorganisms. This can help with regenerating the media's pollutant removal capacity. The roots grow, provide a hospitable environment for the rootzone microorganisms and penetrate the media, helping to maintain hydraulic conductivity.

5. The plant trunk and foliage utilize nutrients such as Nitrogen and Phosphorus for plant health, sequester heavy metals into the biomass, and provide evapotranspiration of residual water within the system.



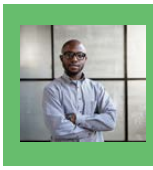
Biological processes within plants and microorganisms in the soil are vital to the long term performance of bioretention systems.

Using nature to facilitate Stormwater Management



Filterra® Features and Benefits

FEATURE	BENEFIT
High biofiltration media flow rate (up to 324"/hr+)	Greatly reduced footprint versus traditional bioretention and LID solutions
Filterra system is packaged, including all components necessary for system performance	Quality control for easy, fast and successful installation
Quick and easy maintenance	Low lifecycle costs
Variety of configurations and aesthetic options	Integrates easily into any site or landscape plan
Natural stormwater management processes featuring organics and vegetation	Meets Low Impact Development requirements and ensures long-term performance



The Filterra system can be configured with many different aesthetic options

Select Filterra® Approvals

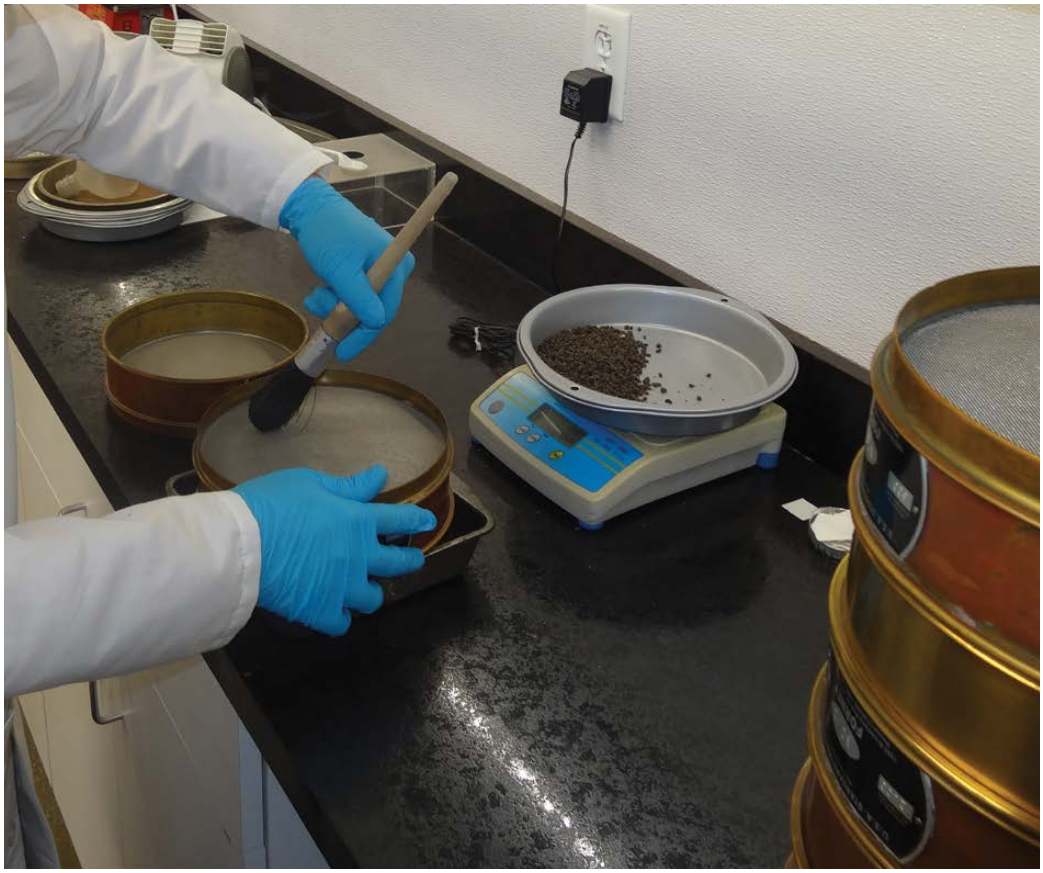
Filterra is approved through numerous local, state and federal verification programs, including:

- New Jersey Department of Environmental Protection (NJ DEP)
- Washington Department of Ecology (GULD) – Basic, Enhanced, Phosphorus, and Oil
- Maryland Department of the Environment - Environmental Site Design (ESD)
- Texas Commission on Environmental Quality (TCEQ)
- Virginia Department of Environmental Quality (VA DEQ)
- Maine Department of Environmental Protection (ME DEP)
- Atlanta, GA Regional Commission
- Los Angeles County, CA - Alternate to Attachment H
- City of Portland, Oregon Bureau of Environmental Services
- North Carolina Department of Environmental Quality (NC DEQ)

Filterra® Performance Testing Results

APPLICATION TIPS

- The Filterra system has been tested under industry standard protocols and has proven its pollutant removal performance and system longevity.
- Contech invests significant resources in media blending calibration and product testing to ensure our media meets our strict performance specifications every time.
- Keep regulators and owners happy by selecting a product with predictable and proven maintenance longevity.



POLLUTANT OF CONCERN	MEDIAN REMOVAL EFFICIENCY	MEDIAN EFFLUENT CONCENTRATION (MG/L)
Total Suspended Solids (TSS)	87%[1]	8.0[2]
Total Phosphorus - TAPE (TP)	80%	0.05
Total Nitrogen (TN)	34%	0.33
Total Copper (TCu)	79%	0.011
Total Dissolved Copper	56%	0.007
Total Zinc (TZn)	70%	0.04
Total Dissolved Zinc	66%	0.02
Hydrocarbons[3]	87%	0.71

Each batch of Filterra® media has been extensively tested to ensure consistent performance every time.

Source: Contech (TAPE) 2024

1. 2024 TAPE Results for influent concentrations 100-200 mg/L

2. 2024 TAPE Results for influent concentrations <100 mg/L

3. Source: Herrera (TAPE) 2009

Note: Some jurisdictions recognize different removal rates. Contact your Contech Stormwater Consultant for performance expectations.

Field tested and performance verified

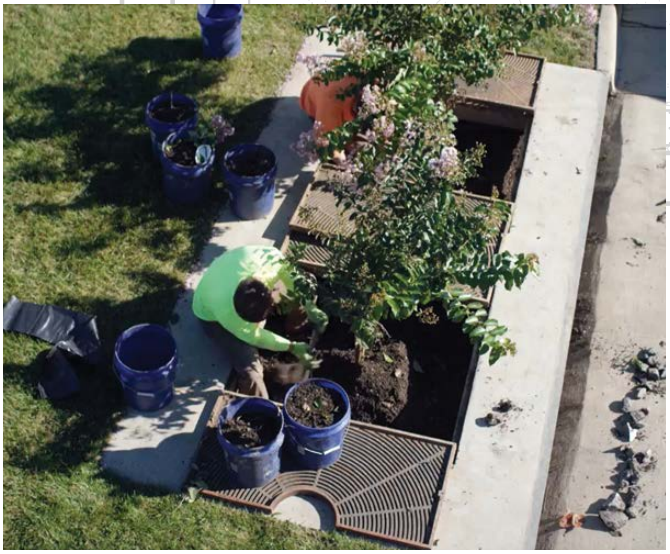
Filterra® Maintenance

Activation and vegetation, where applicable, selection guidance is included with every system.

With proper routine maintenance, the engineered media within the Filterra system should last as long as traditional bioretention media installed in a similar configuration.

Maintenance is low-cost, low-tech and simple:

- Remove trash, sediment, and mulch
- Replace with a fresh 3" layer of mulch
- No confined space entry when vegetation specified
- Easily performed by landscape contractor or facilities maintenance provider



Filterra offers high performance bioretention for advanced pollutant removal with easy maintenance.

Watch the Filterra Maintenance video at www.ContechES.com/filterra

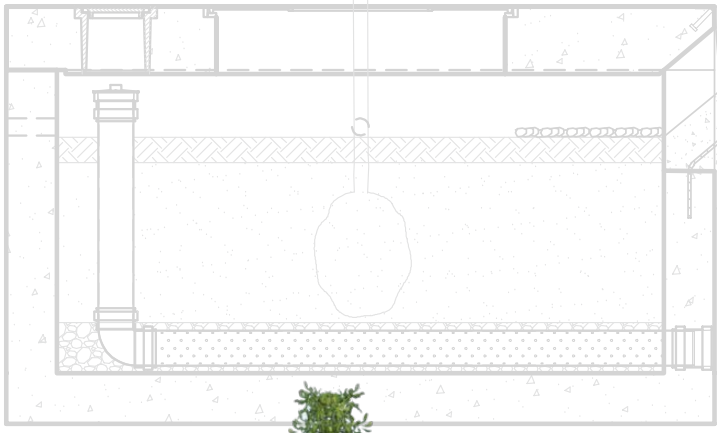
Plant health evaluation and pruning is important to encourage growth.

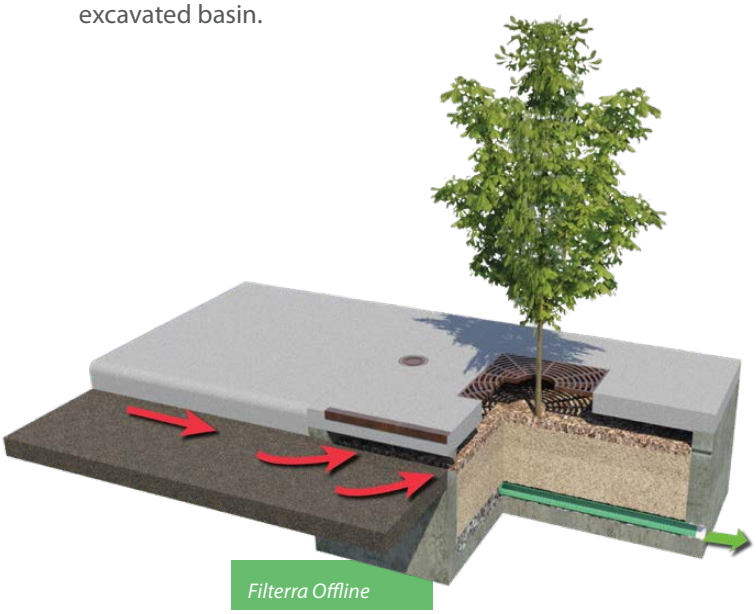
All stormwater treatment systems require maintenance for effective operation.

Filterra® Configurations

Multiple system configurations integrate with site hydraulic design and layout ...

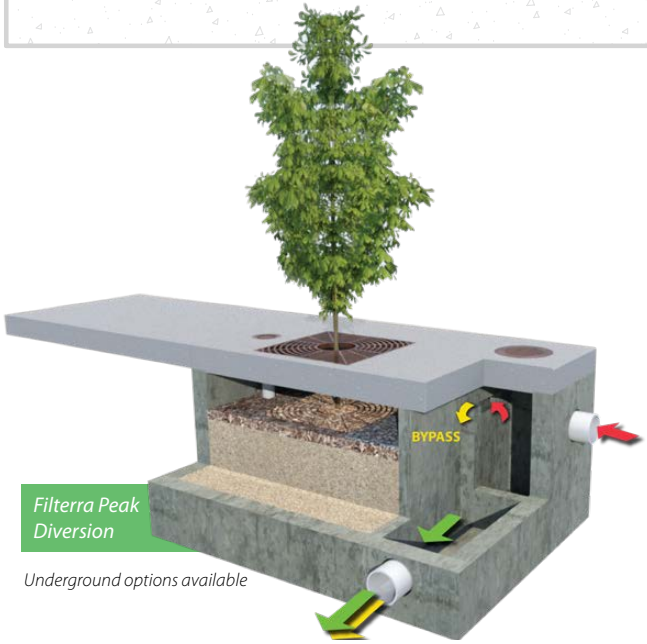
The Filterra is available in a variety of precast configurations as well as Filterra Bioscape, which can be installed directly into an excavated basin.





Filterra Offline

Bypass via downstream catch basin.
Underground options available



Filterra Peak Diversion

Underground options available

Filterra Internal Bypass Curb

Underground options available

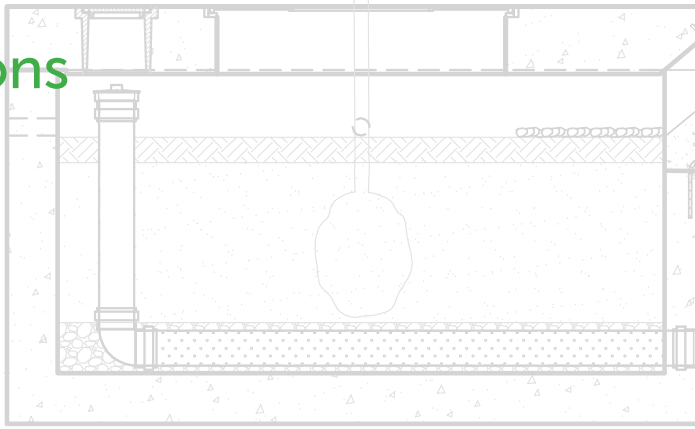
Filterra Sedimentation Chamber (Maryland Only)

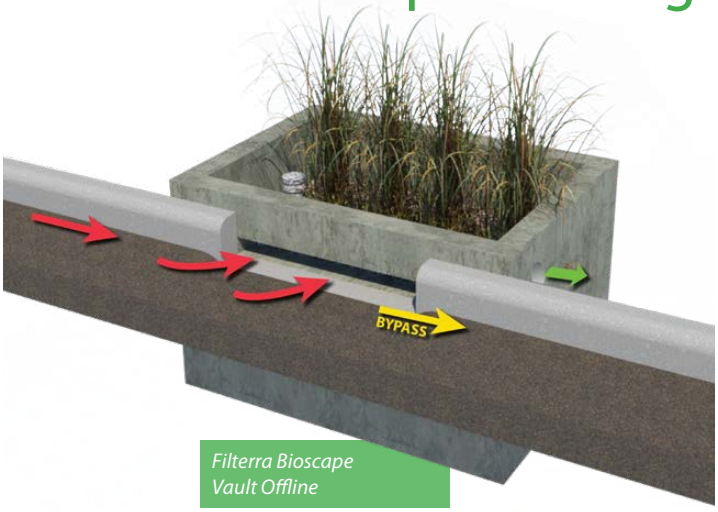
Bypass via downstream catch basin.

**Additional configurations available, including offline - pipe, peak diversion - grate, and internal bypass curb-chamber.*

Multiple configurations allow for easy site integration

Filterra® Bioscape® Configurations



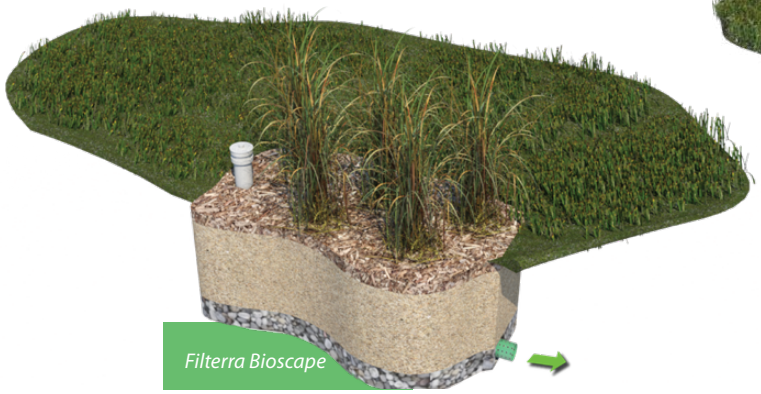


Filterra Bioscape Vault Offline

Bypass via downstream catch basin.

Filterra Bioscape Vault Basin

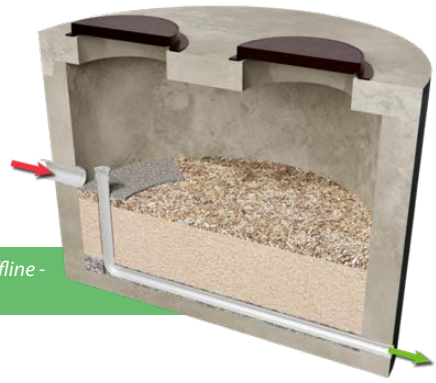
Bypass via upstream structure. Multiple inlet options.



Filterra Bioscape

Bypass via upstream structure. Multiple inlet options.

Filterra® Manhole Configurations



Filterra Offline - Manhole

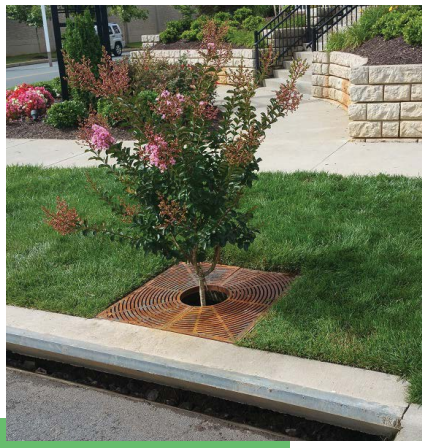
Filterra Peak Diversion- Manhole

**Additional configurations available, including bioscape vault offline pipe.*

Filterra® Aesthetic Options

Multiple aesthetic options to enhance the appearance and integrate with landscaping ...

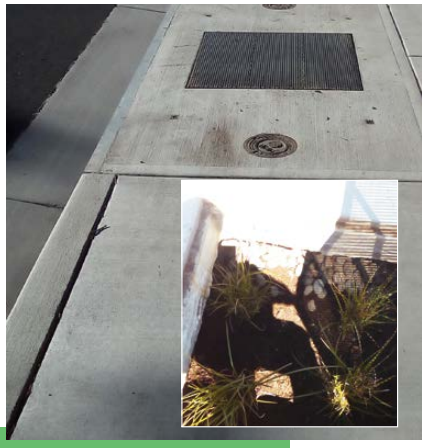
Standard Tree Grate



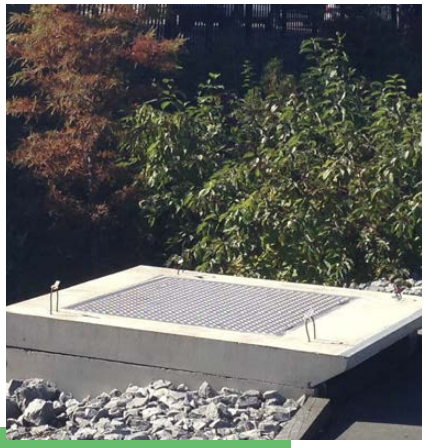
Recessed Top Slab

Open Top Planter - Filterra Bioscape

Street Tree



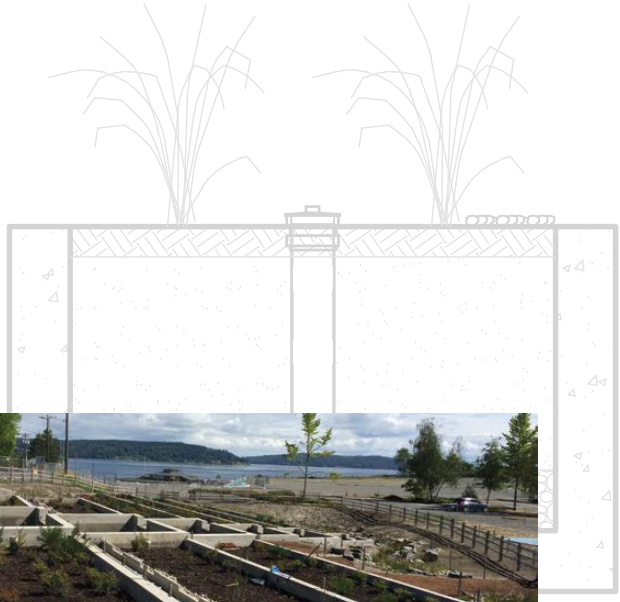
Full Grate with Grasses



Underground

An aesthetic solution to meet your bioretention needs

Filterra® Bioscape®



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WEST LINN – KAADY CAR WASH

ENVIRONMENTAL NOISE IMPACT STUDY

Submitted to:

Kaady Car Washes
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Portland, OR 97219

TVA Architects
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March 25, 2026

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TABLE OF CONTENTS

1 Executive Summary

This report is a summary of the environmental noise impact assessment for the proposed Kaady Car Wash located at 18850 Willamette Drive in West Linn, Oregon. This facility, a one-story, 3,190 square foot automatic drive-through car wash with supplemental vacuum cleaning stations, is proposed for a site previously occupied by a McDonald's drive-through restaurant.

As required by the West Linn Community Development Code (CDC) 5.487, this assessment evaluates potential acoustical impacts by comparing predicted noise emissions from the proposed equipment against pertinent regulations established by the City of West Linn This study also evaluates predicted noise emissions under the administrative rules of the State of Oregon Department of Environmental Quality (DEQ).

The evaluation utilizes ambient sound level data obtained from the existing site as well as acoustic testing performed at three other Kaady Car Washes in the Portland area. This data was then used to create a software model that predicts noise from the proposed car wash to adjacent areas and properties.

As a result of the evaluation, it is determined that:

1. Predicted noise from the proposed facility will meet the West Linn noise ordinance to all sensitive receptors.
2. Predicted noise from the proposed facility will meet the OAR DEQ daytime and nighttime L50 noise limit to all residential receivers, though the business will only operate during daytime hours.
3. Predicted noise impact will make the business operations barely or not perceptible to any residential neighbor.
4. Predicted noise impact to the nearest businesses (to the north) will not be perceptible through the storefront windows and doors, and slightly perceptible above traffic noise at the sidewalk outside the businesses the furthest east from Highway 43.

Based on questions and input from the planning commission meeting, Kaady Car Wash specific vacuum hose noise measurements were completed on March 21, 2026, and integrated into the noise impact predictions; the sound level at the nearest building facades and residences did not change. The sound transmission performance for glass wall/façade panels, in lieu of CMU or metal panels, to the south and west was evaluated to demonstrate no acoustical difference due to the primary paths of noise being at the car wash tunnel exit and entrance.

2 Noise Code

2.1 West Linn Municipal Code (WLMC Section 5.487)

The WLMC Section 5.487 explicitly finds that low and moderate ambient noise levels are a significant City amenity and establishes standards to protect the livability, health, comfort, and welfare of its residents.

2.1.1 General Prohibition and Factors

WLMC 5.487 generally prohibits any unreasonably loud, disturbing, or raucous noise, or any noise that unreasonably annoys, disturbs, or endangers the comfort, repose, health, safety, or peace of reasonable persons of ordinary sensitivity.
Factors considered in judging whether a sound is unreasonably loud, disturbing, and unnecessary include:

1. The proximity of the sound to sleeping facilities, whether residential or commercial.
2. The land use, nature, and zoning of the area where the sound emanates and where it is received or perceived.
3. The time of day or night the sound occurs.
4. The duration of the sound.
5. Whether the sound is recurrent, intermittent, or constant.

2.1.2 Prohibited Hours

The operation of the proposed car wash, running from 8:00 AM to 8:00 PM, falls entirely within the permissible hours for general operational noise in West Linn, which prohibits unreasonably loud and raucous noise between 9:00 PM and 7:00 AM.

2.2 Clackamas County Noise Control (Chapter 6.05)

The Clackamas County noise regulations apply to the unincorporated areas of Clackamas County. The proposed facility will be established within incorporated City of West Linn. Therefore, the Clackamas County noise regulations do not apply. Regardless, it is noted that

County Code section 6.05.060(F) specifies that sounds caused by industrial or commercial organizations or workers during their normal operations are exempted from the provisions of Chapter 6.05. Therefore, the Clackamas County code would not apply in any event because all sound produced by the proposed facility will caused by a commercial organization during normal operations.

2.3 Oregon Administrative Rules (OAR 340-035)

Oregon Administrative Rules (OAR), Department of Environmental Quality (DEQ), Chapter 340, Division 35: Noise Control Regulations dictate overall noise guidelines, while OAR 340-035-0035: Noise Control Regulations for Industry and Commerce more specifically applies to the West Linn car wash site. The proposed car wash facility falls under the classification of a "New Industrial or Commercial Noise Source" per OAR 340-035-0015: Definitions. Because the site was previously utilized commercially (McDonald's drive-through restaurant), the appropriate reference criteria are generally found under the standards for new noise sources located on previously used sites, as defined by 340-035-0035.

Noise levels from industrial or commercial sources are measured at an appropriate measurement point on Noise Sensitive Property. Noise Sensitive Property includes real property normally used for sleeping, or normally used as schools, churches, hospitals, or public libraries. Measurement procedures must conform to the guidelines set forth in the Sound Measurement Procedures Manual (NPCS-1).

2.3.1 New Industrial and Commercial Noise Source Standards

The allowable statistical noise levels for new industrial and commercial noise sources, applicable in any one hour, are detailed below:

OAR 340-035-0035
Table 8
New Industrial and Commercial Noise Source Standards
Allowable Statistical Noise Levels in Any One Hour

7:00 a.m. – 10:00 p.m.	10:00 p.m. – 7:00 a.m.
L_{50} – 55 dBA	L_{50} – 50 dBA
L_{10} – 60 dBA	L_{10} – 55 dBA
L_{1} – 75 dBA	L_{1} – 60 dBA

Note: L50 is the noise level equaled or exceeded 50% of the time, L10 is exceeded 10% of the time (or 6 minutes in any hour), and L1 is exceeded 1% of the time (or 36 seconds in any hour).

3 Environmental Noise Site Assessment

3.1 Proposed Site

The site at 18550 Willamette Dr is a General Commercial (GC) zoned parcel situated on a topographic bench along the east side of Highway 43. The site is characterized by a relatively flat paved surface that terminates at a Concrete Masonry Unit (CMU) wall and a distinct grade break on the eastern boundary, where the terrain slopes steeply downward toward the Willamette River. The CMU wall stands approximately 6 feet tall and serves as the primary acoustic boundary on the site.

To the east and southeast lie the residential properties of Walling Way and Rose Way. These lots are terraced significantly below the commercial grade, placing the residential rooftops and backyards well below the elevation of the parking lot. Notably, the slope and residential lots are covered in dense, mature vegetation and tree canopy, which largely visually screens the CMU wall from the residents below.

. Surrounding properties and areas are zoned as follows:

- **West (across roadway):** Highway 43 and properties immediately west are zoned GC (commercial) with the properties further west up the slope being zoned for Low-Medium Density Residential (R-10 or R-8.5).
- **East (shared property line with CMU wall):** The zoning shifts to Low-Medium Density Residential (R-10/R-15). This boundary is critical for noise ordinances, as it directly borders a noise-sensitive residential zone.
- **North/South:** Commercial/Office strips zoned GC.

Figure 1 below shows the general layout of the existing site, while Figure 3 shows the zoning.

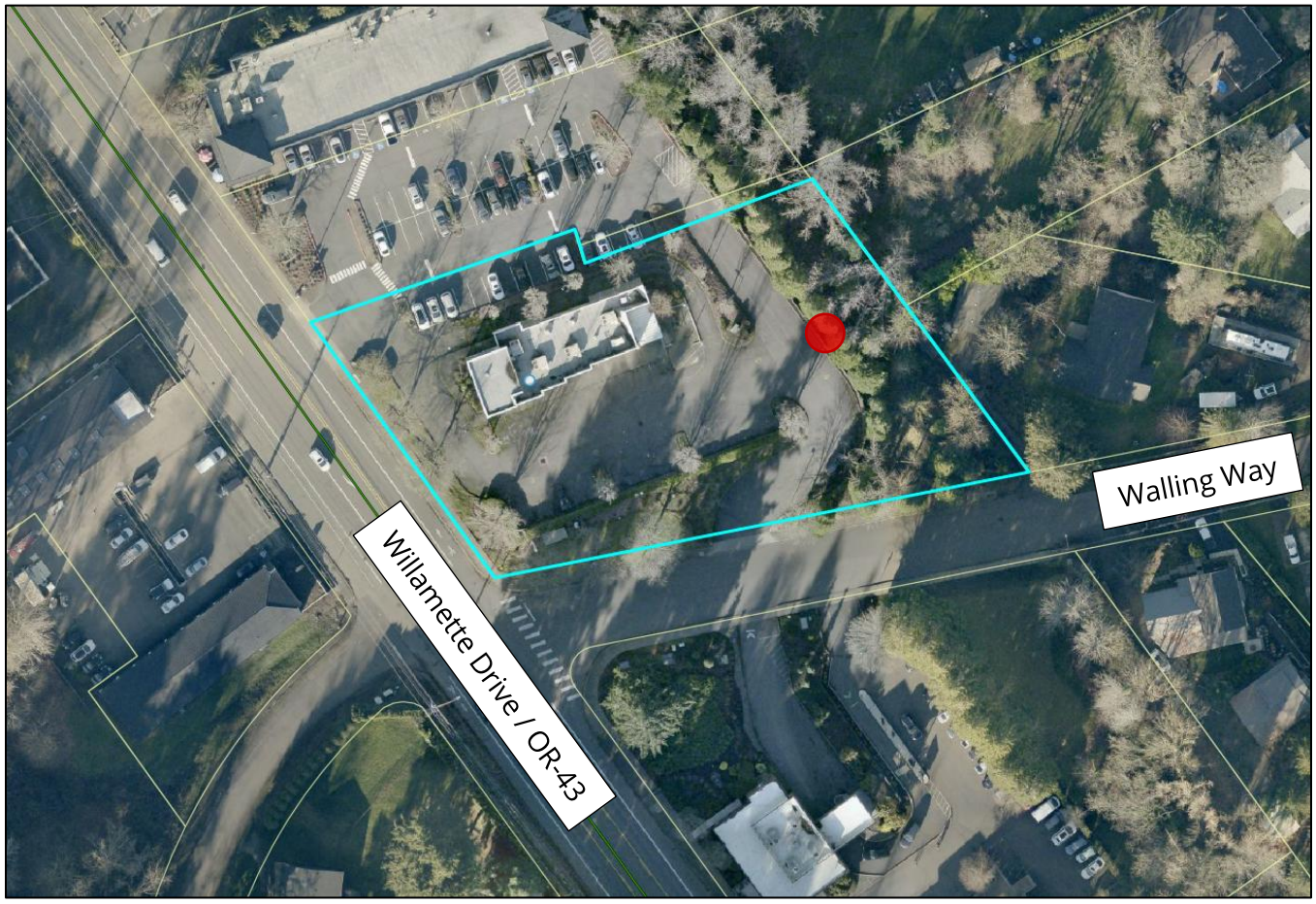


Figure 1: Existing Site and Neighboring Area Layout

Site boundaries

Ambient sound monitoring location

Figure 2: Zoning Boundaries and Types

General Commercial(GC)

Low-Medium Density Residential

From a noise impact standpoint, the CMU wall with the existing topography provides the primary noise reduction from the site to the residential neighbors. The construction of the wall uses high-mass (CMU) and is continuous which blocks the direct line-of-sight between noise sources on the lot and from the west (such as automobile traffic on Highway 43) and the lower-elevation residences. This creates an acoustical shadow immediately behind the wall, preventing direct sound transmission, so that the primary sound energy is diffracted over the barrier based on the source – path – receiver geometry.

While the dense vegetation provides a visual buffer, its acoustic impact is much more limited in comparison to the CMU wall. The effectiveness of vegetation as a barrier is based on the year-round thickness and the overall depth of the foliage the sound energy travels through. In general, it takes more than 100 feet of thick vegetation to reduce sound energy by 15% (~3 dB). The sound reduction of the existing vegetation was not considered in this acoustical impact study due to the limited thickness.

3.2 Ambient Noise Assessment

An environmental noise monitor was deployed on the site of the proposed future car wash tunnel entrance on Monday, November 3, 2025, during daytime business hours (8:00 am - 3:25 pm) above the eastern CMU wall dividing the existing site parking lot from residential properties. The approximate location is shown in Figure 2. Measurements were used to calibrate the ambient traffic noise in the environmental computer noise impact model. The hourly average sound level ranged from 56 to 62 dBA; the primary noise sources were vehicle traffic on Willamette Drive to the west / southwest and Walling Way to the south / southeast. The loudest hourly increment (62 dBA) occurred from 1:00 pm to 2:00 pm.

Additional ambient sound readings were also taken that morning on Walling Way to better understand existing conditions in the residential area to the east of the site. The measurements were taken from the site's south parking lot exit onto Walling and east to the intersection with Rose Way. The sound levels ranged from 57 to 44 dBA as distance from Willamette Drive (the primary noise generator) increased.

Project site looking north

Noise Monitoring location near ladder

Handheld measurements of Highway 43

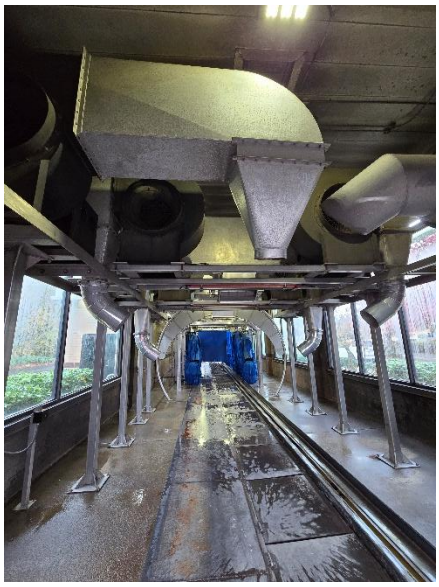
4 Environmental Noise Impact

4.1 Noise Emission from Proposed Equipment

Our 3D computer model of the sound emission and analysis used sound data from measurements at existing Kaady Car Washes and Sonny's Car Washes in Phoenix, Arizona. The measured sound data is shown in the table below.

Measured Equipment and Sources	Sound Pressure Level, Leq (dBA)
Centrifugal Blowers *Source: Kaady, W Burnside St, Portland*	79 dBA @ 36-feet from tunnel exit
Wash Systems (no blowers) *Source: Kaady, W Burnside St, Portland*	68 dBA @ 27-feet from tunnel entrance
Centrifugal Vacuum Producer *Source: Kaady, Hillsboro*	68 dBA @ 5-feet from equipment room louver
Vacuum Hoses *Source: Kaady, Hillsboro*	82 dBA @ 2-ft
Cars and Trucks idling in line *Source: Sonny's Car Wash, Phoenix*	< 55 dBA @ 30-feet

Pictures from testing of comparable Kaady Car Wash systems to integrate into 3D topographical noise impact computer model.



End of Tunnel at Tualatin

Blower equipment at Tualatin

Vacuum Collector Doghouse

Vacuum Collector at Hillsboro

Vacuum Hose (3/21/26)

Tunnel at Hillsboro

4.2 Computer Noise Impact Model and Prediction

Noise from the car wash was modeled using the DataKustik CadnaA noise prediction software and predicted to all adjacent property lines. The predicted car wash noise levels are compared to the predicted daytime average ambient noise levels due to traffic at each of these receiver locations; calibrated from on-site environmental noise monitoring. The modeled noise sources include the entrance and exit of the car wash with blowers inside the tunnel, (2) vacuum producer units, and vacuums at each parking stall.

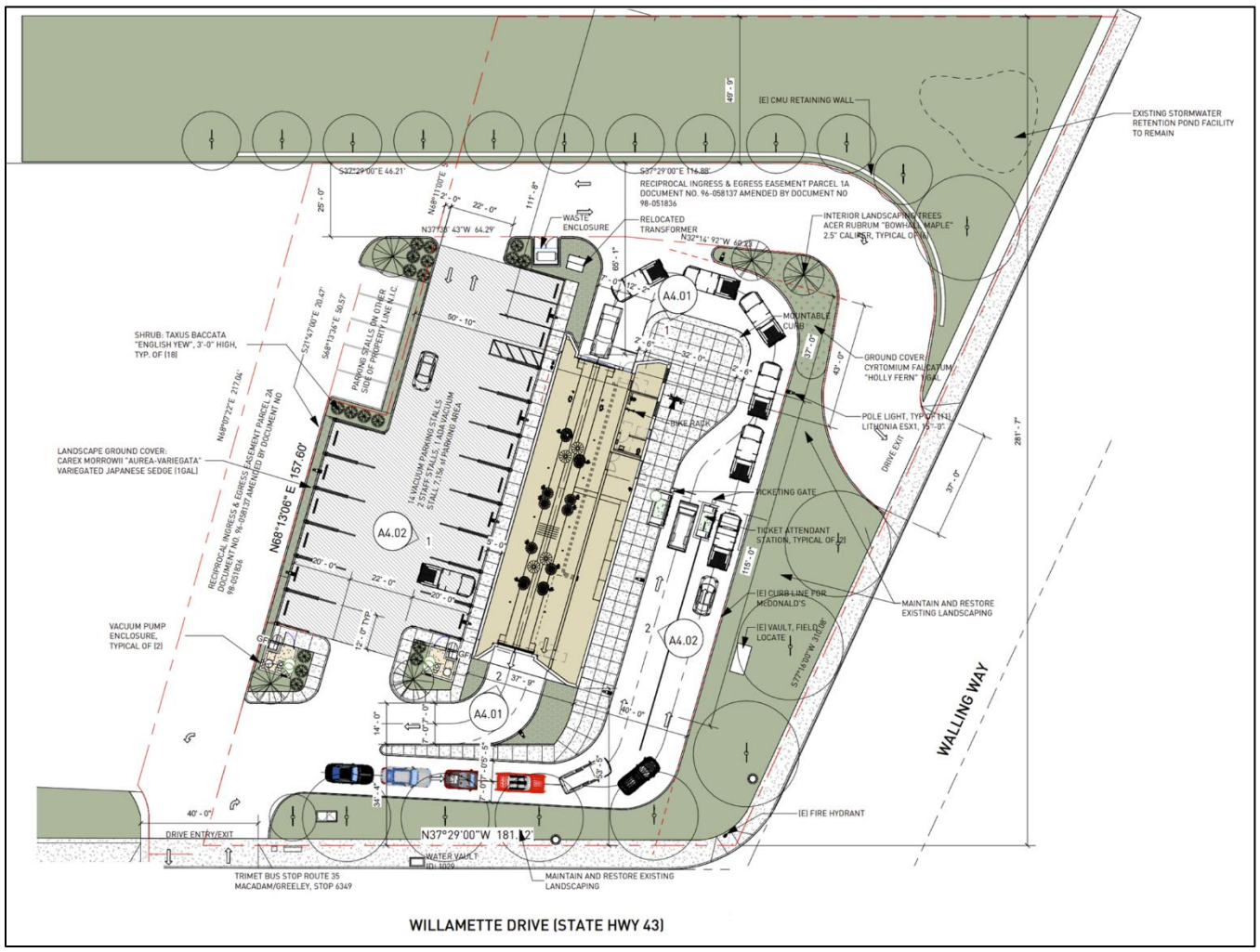


Figure 3: Proposed Car Wash Site Plan

4.3 Initial Design (Without Mitigation)

The following shows the predicted noise impact of the preliminary car wash design without noise mitigation measures.

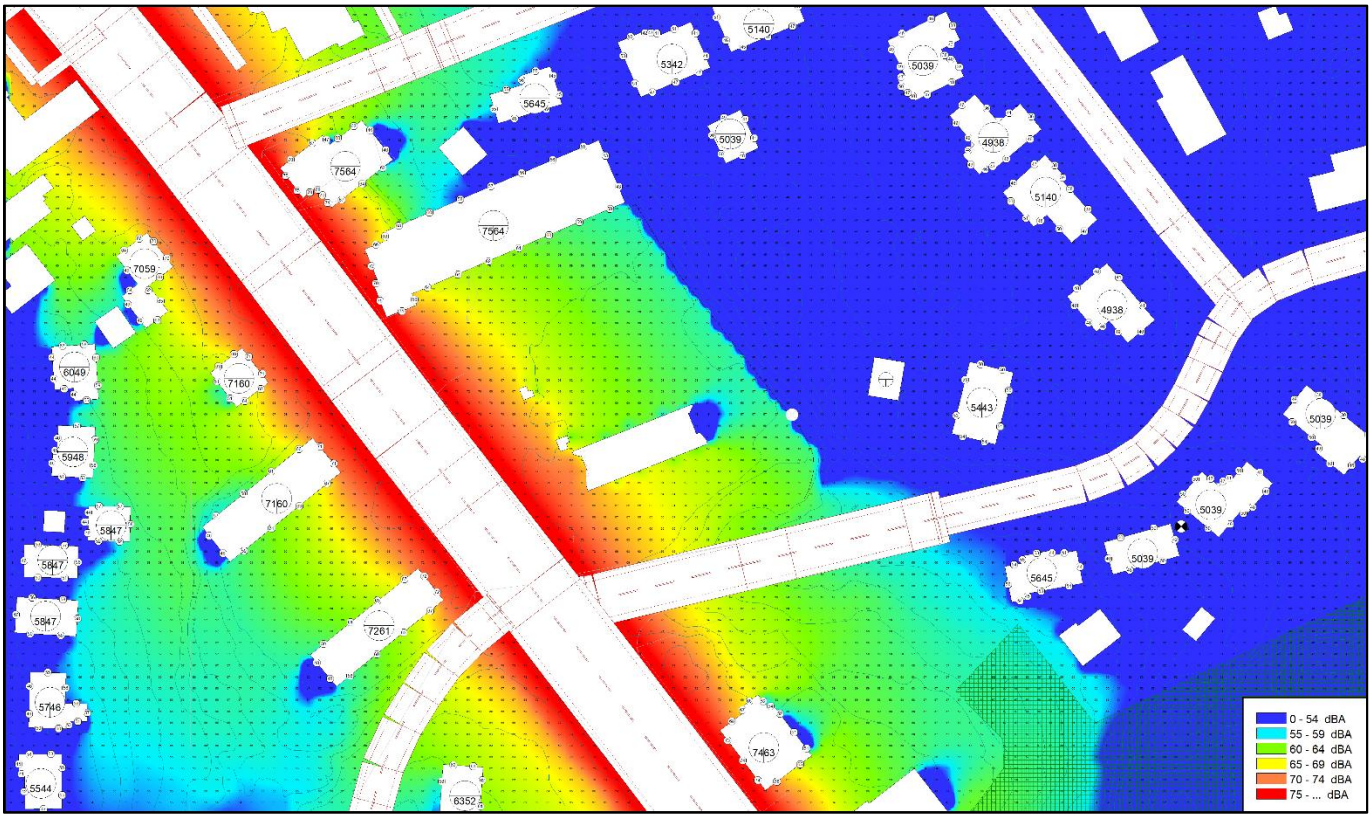


Figure 4: Background Traffic Noise Impact at Proposed Car Wash Site (Car Wash OFF)

Figure 4 shows existing traffic noise impact at the site location. The traffic noise was modeled using traffic data from the Oregon Traffic Monitoring System and calibrated with the daytime sound level measurements taken on the east boundary of the site. Traffic noise was modeled for Willamette Drive / Highway 43, but not for the residential street, Walling Way, due to a lack of available traffic data and observations of less than a few vehicles during the on-site assessment. Traffic noise is most commonly associated with major roadways and arterials.

The predicted noise is color mapped to coded (**red** depicts sound levels greater than 75 dBA, **blue** depicts sound levels less than 54 dBA). Buildings may have a circle two numbers inside. The left number is the loudest predicted daytime hourly noise level at any point on the building's facade. The right number is the loudest predicted hourly nighttime noise level at any point on the building's facade.

Existing background noise is predicted to be around 70 dBA at the proposed exit to the car wash site from traffic from Willamette Drive / Highway 43 before operating any car wash equipment.

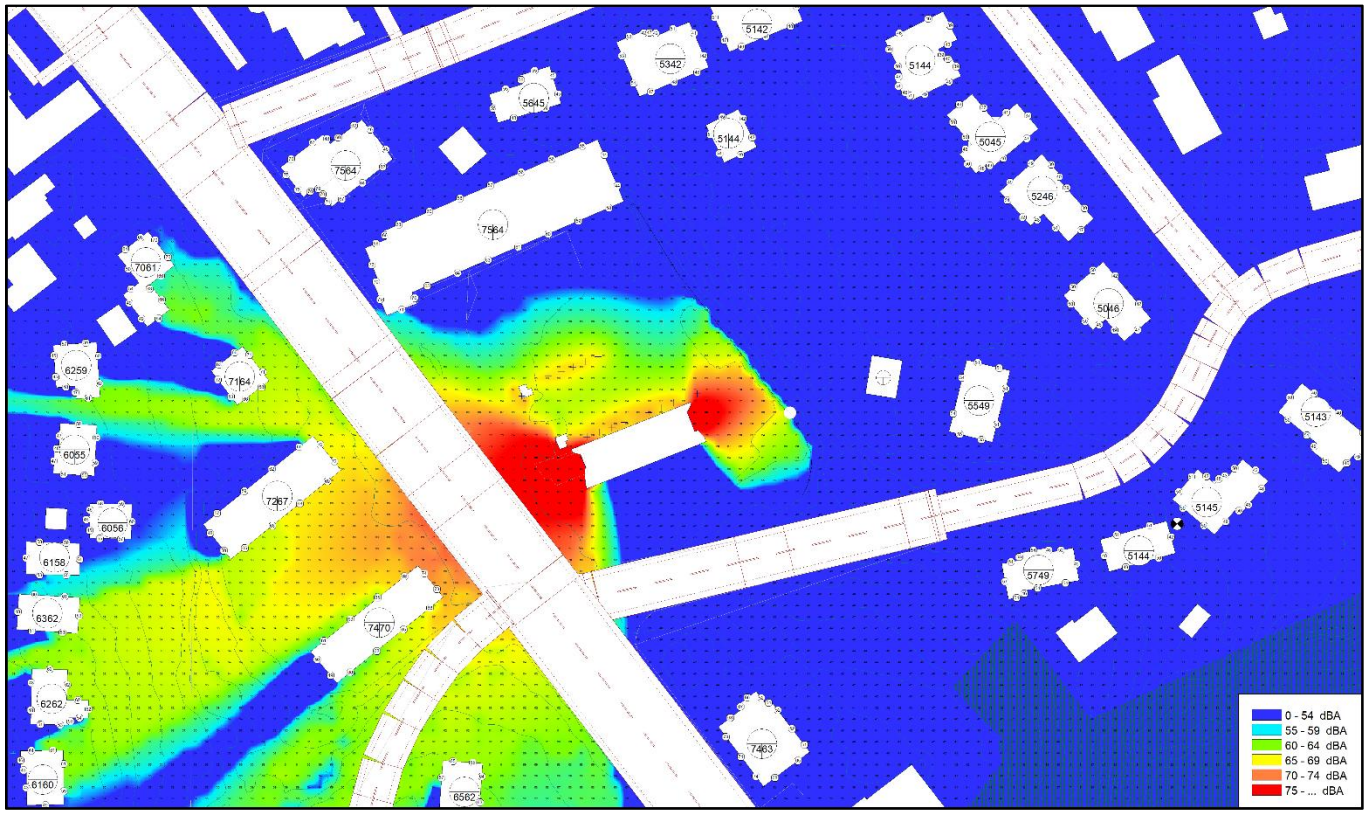


Figure 5: Predicted Noise Impact from Car Wash Activities Without Mitigation (not including traffic noise)

Figure 5 shows the predicted sound impact from the car wash system (including blowers) and enclosed vacuum collectors, excluding traffic noise. This noise impact model assumes sound levels coming from the tunnel are comparable to those measured at the existing Kaady Car Wash locations used as reference and include the continuous operation of two (2) vacuum producers and fifteen (15) vacuum hoses running simultaneously.

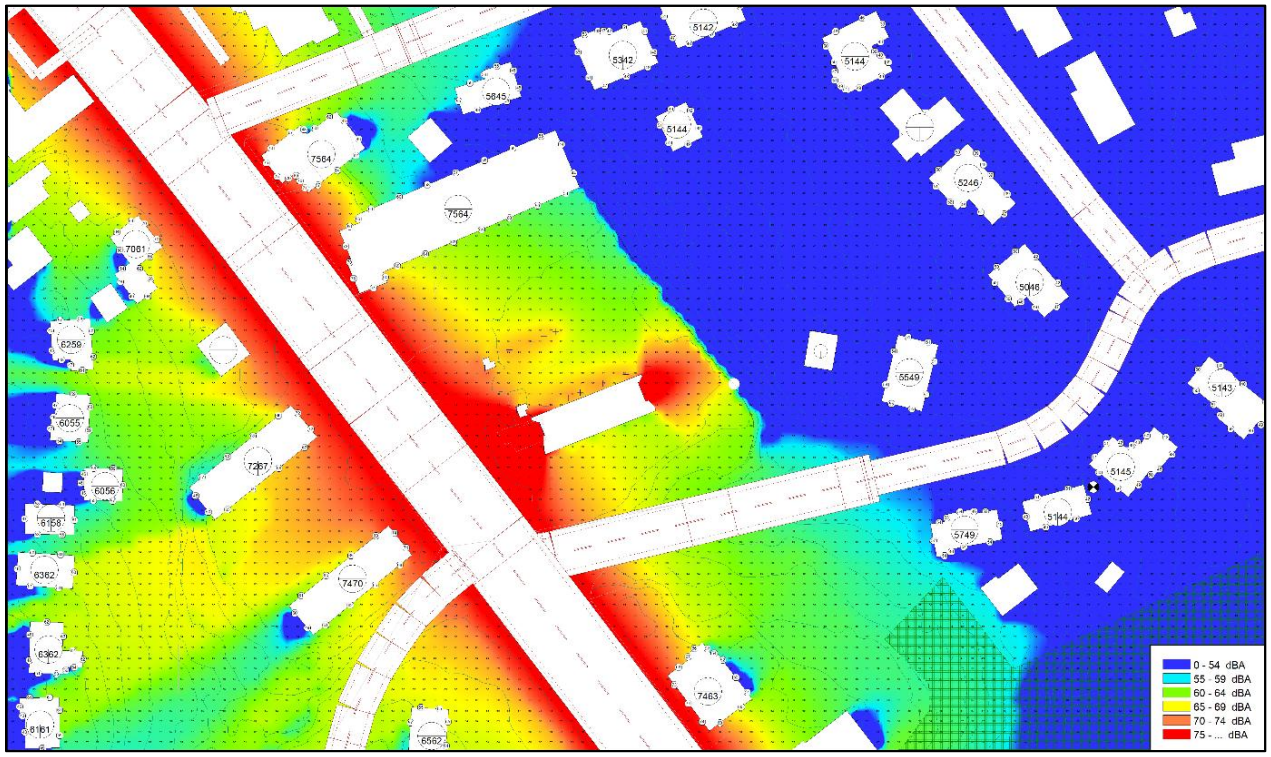


Figure 6: Predicted Noise Impact from Car Wash Activities Without Mitigation, Including Traffic Noise

Figure 6 shows the combined predicted noise impact of car wash activities and traffic noise. This noise impact model sums the car wash operations with daytime traffic noise.

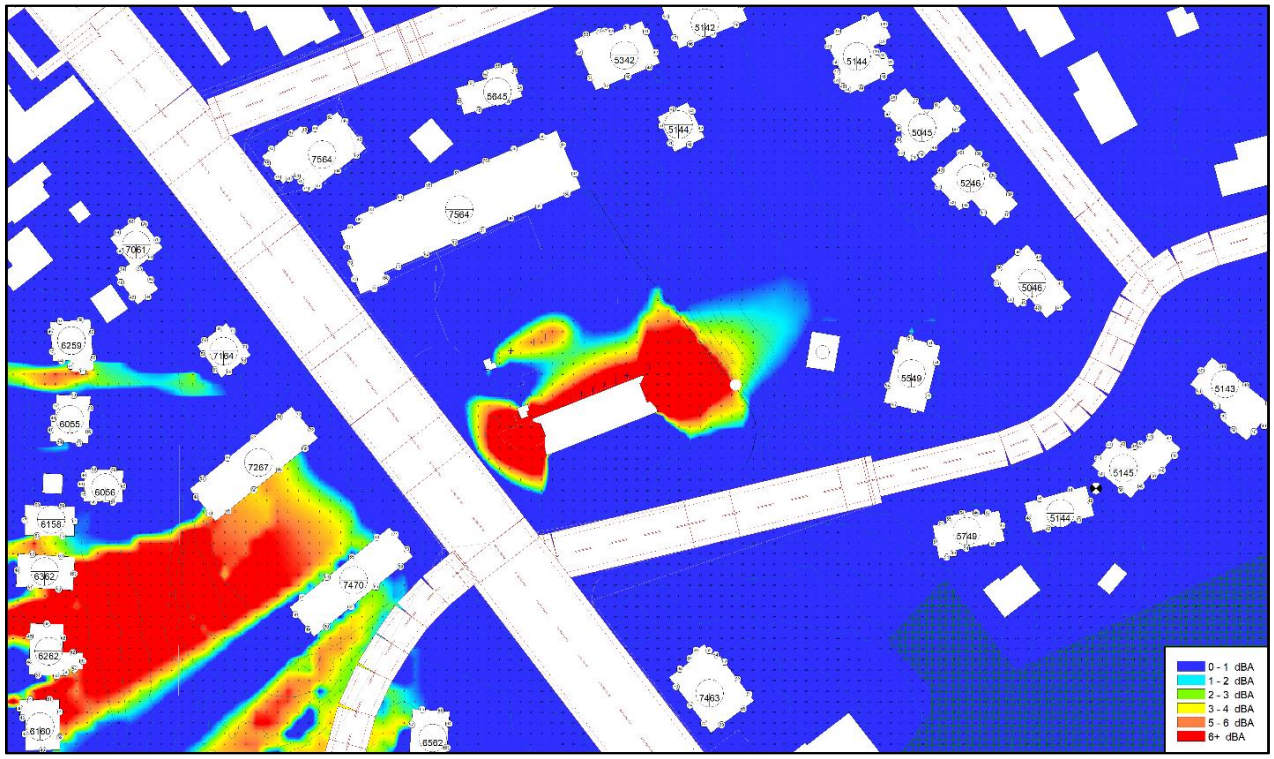


Figure 7: Predicted Noise Level Difference with Addition of Car Wash Without Mitigation to Existing Traffic Noise

Figure 7 shows the predicted overall change in noise with the addition of the car wash to the existing traffic noise before additional mitigation. The yellow, orange, and red colors on the map represent decibel level increases of 3 to more than 6 dB, which might be perceptible to these property owners and users when the car wash systems are operating at 100% without noise controls.

4.4 Noise Control Plan

The following noise control plan has been engineered to further reduce the noise impact shown on the above figures to meet the Oregon Administrative Rules L50 statistical noise levels for new commercial noise sources.

4.4.1 Redesigned Tunnel Exit

To address the noise impact to the residences to the west up the hill, an enclosed turn to the west end of the car wash tunnel was engineered. The following is the proposed coordinated design by TVA Architects.

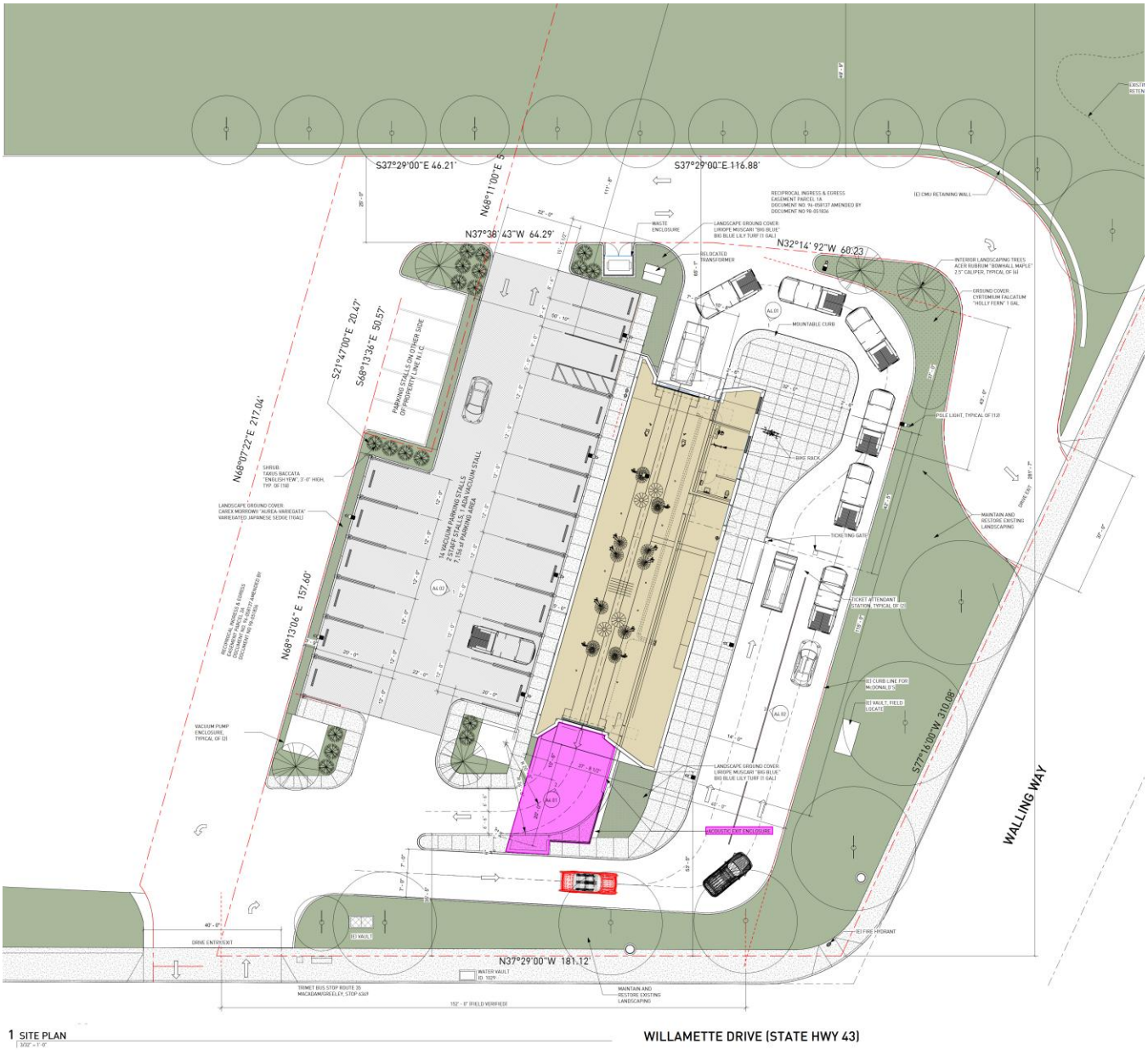


Figure 8: Updated Site Plan

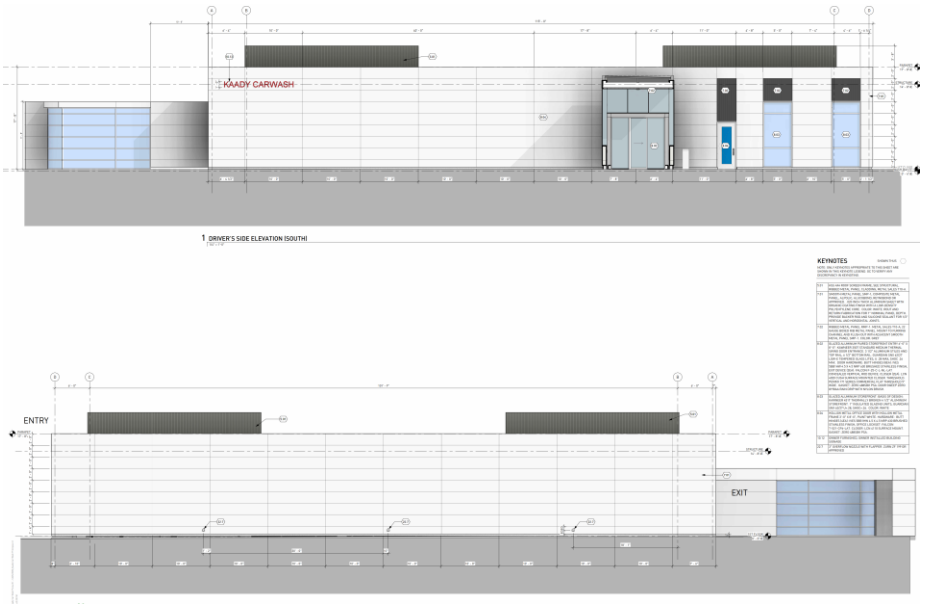


Figure 9: Exterior Elevation Drawings (TVA Architects)

Figure 10 shows the predicted noise impact from the tunnel exit modification to the surrounding properties without traffic noise. Noise from the tunnel exit modification is predicted to be less than 55 dBA at the western residences, less than 60 dBA at the commercial properties across the street, and up to 65 dBA at the sidewalk outside the nearest north commercial storefronts.

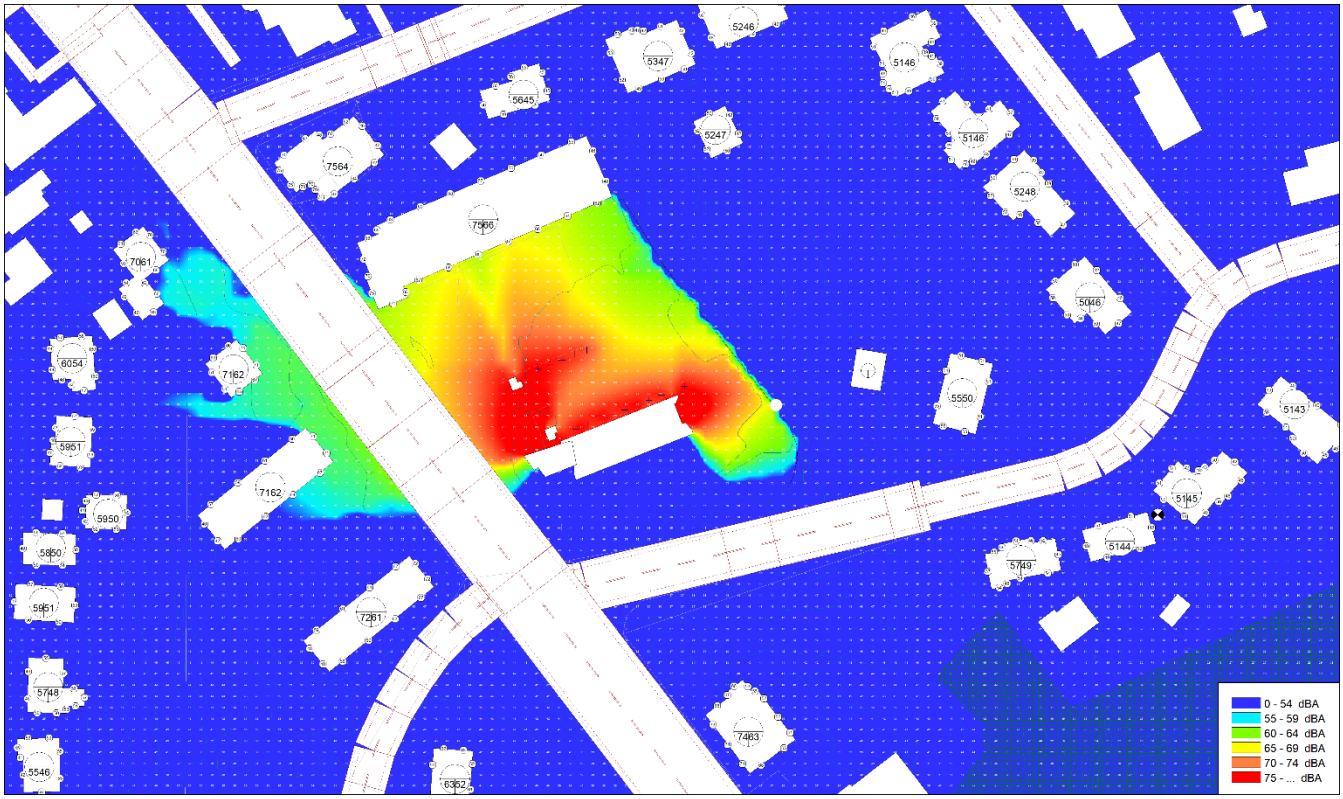


Figure 10: Predicted Noise Level Impact with Tunnel Exit Modification

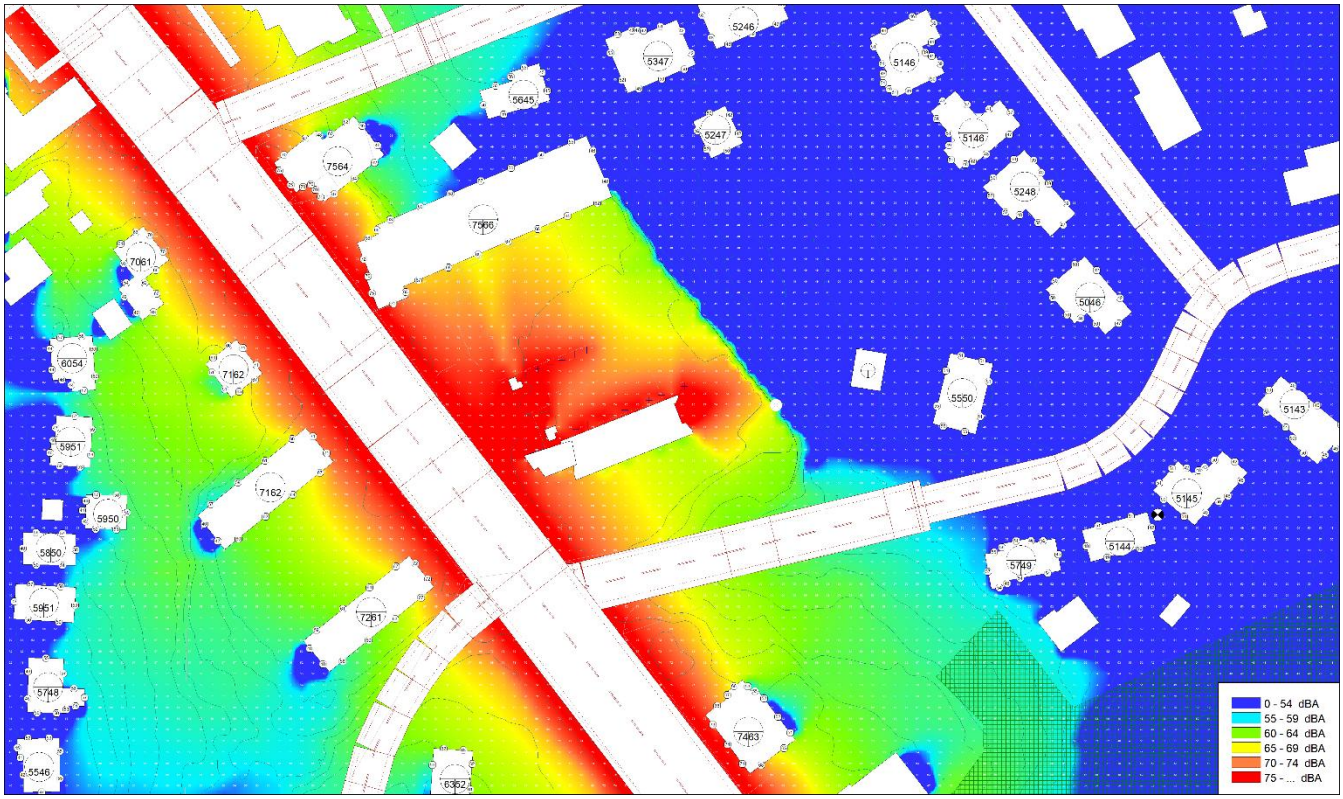


Figure 11: Predicted Noise Impact from Car Wash Activities, Including Traffic Noise, with Tunnel Exit Modification

Figure 11 shows the combined predicted noise impact from the tunnel exit modification to the surrounding properties and traffic noise. The following provides a description of the expected noise impact based on the modeling results of the noise control plan.

4.4.1.1 North, Northwest, South, and Southeast - General Commercial Zones

The noise impact model predicts that the sound level at the nearest commercial properties around the proposed car wash will be not perceptible (western portion of strip mall, and all properties across a roadway from the site) to somewhat perceptible (eastern portion of the strip mall) with respect to existing traffic noise based on the traffic volumes and the planned orientation of the car wash tunnel.

4.4.1.2 East / Northeast Residential Zone

The noise impact model predicts that the sound level at the nearest residential properties to the east, northeast, and southeast are predicted to be less than 55 dBA, which meets the OAR 340-035-0035 limit of 55 dBA (L_{50}) to noise-sensitive properties. Pre-construction ambient levels in this area were modeled in the 48–52 dBA range. The car wash operations might be barely perceptible in the furthest west portions of the yards for the residential properties to the east, but will not be perceptible at any residential building, or within a residence with the windows open.

4.4.1.3 West / Southwest Commercial and Residential Zones

The noise impact model predicts that the sound level at the nearest commercial properties will not exceed traffic noise.

The noise impact model predicts that the sound level at the nearest residential properties to the west up the hill are predicted to be less than 55 dBA, which meets the OAR 340-035-0035 limit of 55 dBA (L_{50}) to noise-sensitive properties, and are predicted to be equal to or less than existing traffic noise.

The noise control plan was required to reduce the noise impact to the west due to the lack of visible and acoustic screens; the terrain elevation increases to the west (note topographic lines toward the lower left of the figures). The modeling did not include any noise reduction factors from the existing foliage and the modeling showed that the shape of the commercial buildings on the west side of Willamette Drive did not provide effective noise reduction to these residences.

4.4.2 Alternative Tunnel Blowers

This option was modeled for comparison, but is not planned for the site

No Noise Impact at West Residences (1 dBA or less of increase above traffic noise without altering the tunnel design)

1) Install a blower system inside the tunnel that does not exceed a total sound pressure level of 69 dBA at 30-feet.
    a. Suggested System: International Drying Corporation Stealth Predator Dryer System (80 HP), 69 dBA at 30-feet

Figure 12 shows the predicted noise impact with International Dryer Corporation's Stealth Predator 120 HP dryer system. The proposed system meets the noise code at all adjacent properties and is predicted to not exceed 54 dBA at the western residential property lines.

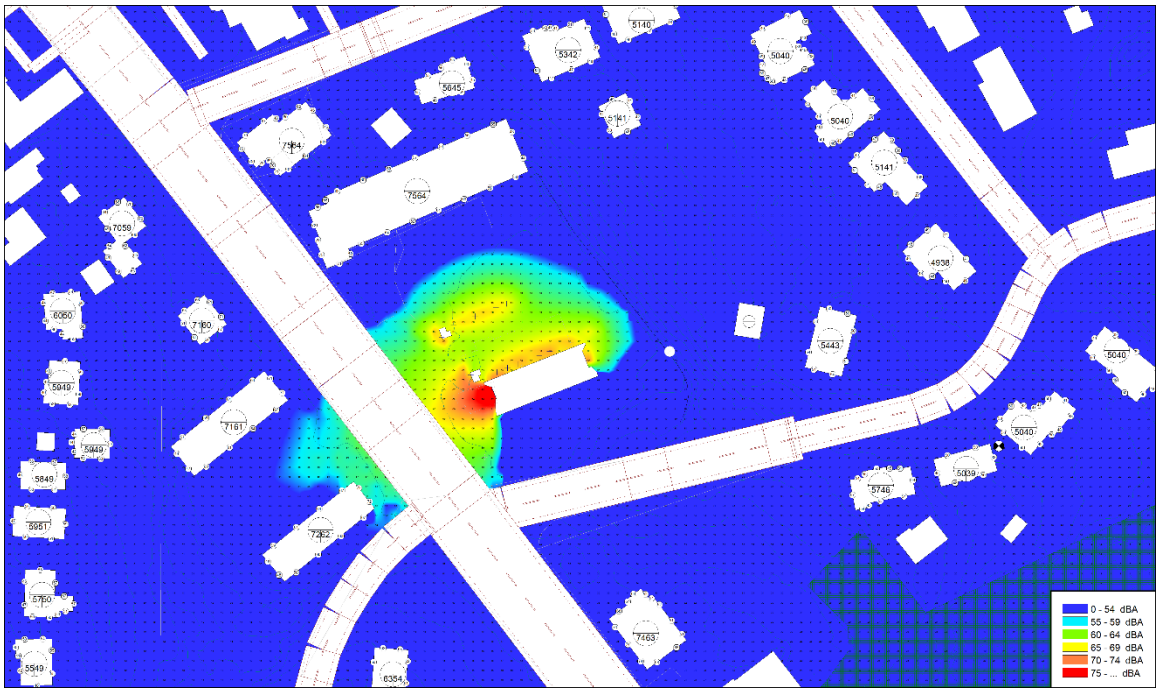


Figure 12: Predicted Noise Impact with International Dryer Corp Stealth Predator Dryer system

5 Conclusion

The proposed noise control plan with the modified tunnel will meet the noise ordinance and not be a noise impact in comparison to Willamette Drive / Highway 43 at this site.

With the level of background noise associated with traffic from Willamette Drive / Highway 43 it is not feasible to measure the independent contributing sound from the car wash without stopping traffic. This means the measured sound level at the nearest property lines will always be a combination of traffic noise and the car wash activity noise (e.g., 52 dBA, traffic + 53 dBA, car wash = 56 dBA measured).

Please contact us with any questions or additional coordination.

All the best,

Drew Lodarek
Acoustical Consultant

Grant Scheffner
Staff Consultant

Erik Miller-Klein, PE, INCE Bd. Cert.
Principal of Acoustical Engineering

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RENEWAL DATE: 12/31/2026

Appendix A. Descriptors

To better understand the relevant acoustics, here is a brief overview of sound and vibration properties, descriptors, and terms.

Both Interior and exterior noise, or sound, is often measured as an A-weighted sound level in units of decibels, symbolized as dBA. The A-weighting is a specific weighting filter in a sound level meter that corresponds approximately to the sensitivity of human hearing at the various frequencies for quiet levels near the human threshold of hearing. The terms “noise” and “sound” are more descriptions of perceived quality and are the same fundamental quantity.

Sound levels vary significantly, depending on location and activities. People normally experience sound levels between about 30 and 90 dBA, depending on their activity. For example, a nearby noisy vehicle, loud stereo, or power tool may produce 90 dBA; normal conversation is about 55 to 65 dBA; and a bedroom or quiet office is about 30 to 40 dBA when no one is talking or playing music.

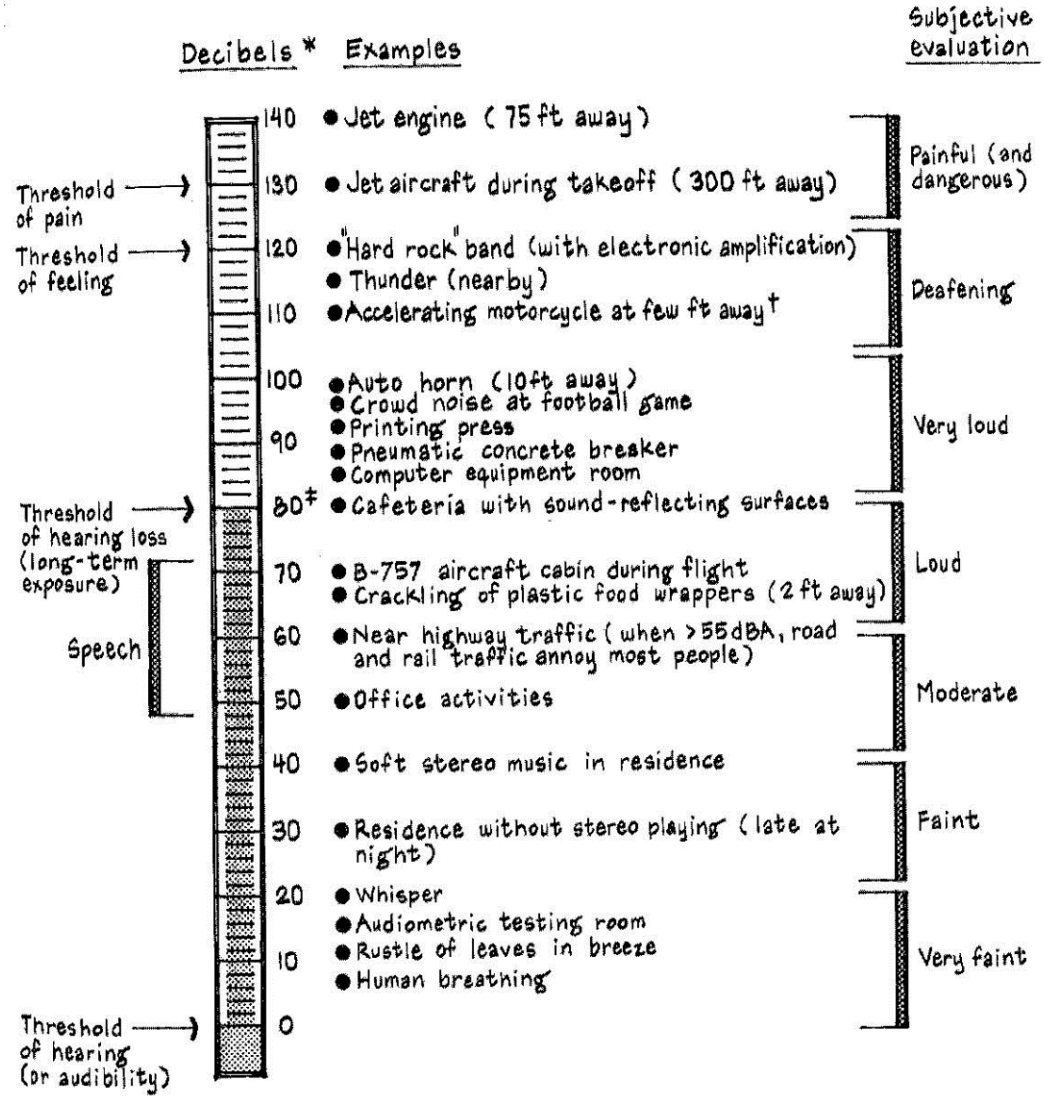


Figure 13: Architectural Acoustics, Egan © 1988

Sound – is vibration in an elastic medium, and the one more commonly measured and perceived is through air. That is defined by both amplitude (pressure change) and frequency (hertz / cycles per second). The term noise often refers to the perception of sound described as disruptive, a nuisance, or potentially harmful to health and well-being.

Decibel (dB) – Logarithmic quantity of sound amplitude proportional to human perception of sound energy. This is the human scale of pressure changes associated with sound and the unit of measurement for sound and noise. The normal human threshold is 20 micro-Pascals, which is equivalent to 0 dB.

A-Weighting (dBA) – is the summed sound level that weighs for the sensitivity of the human ear as a function of frequency for relatively quiet levels of sound. In effect, the A-weighting is based on the 40-phon Fletcher–Munson curves which represented an early determination of the equal-loudness contour for human hearing.

C-Weighting (dBC) – is the summed sound level that weighs for the sensitivity of human hearing for loud sound levels. This weighting follows the inverted shape of the equal-loudness contour passing through 100 dB at 1 kHz. It effectively describes the contribution of low-frequency noise with a single summed value.

Z-Weighting / Unweighted (dBZ) – is the non-weighted summed sound level and is usually used for sound level reporting for one-third and single octave bands.

Sound Pressure Level, L_p – specifies the perceived sound at a receiver or measurement location that is dependent on distance and environmental conditions. This is what a person hears or microphone measures in a location in space, referenced to 20 micro-Pascals.

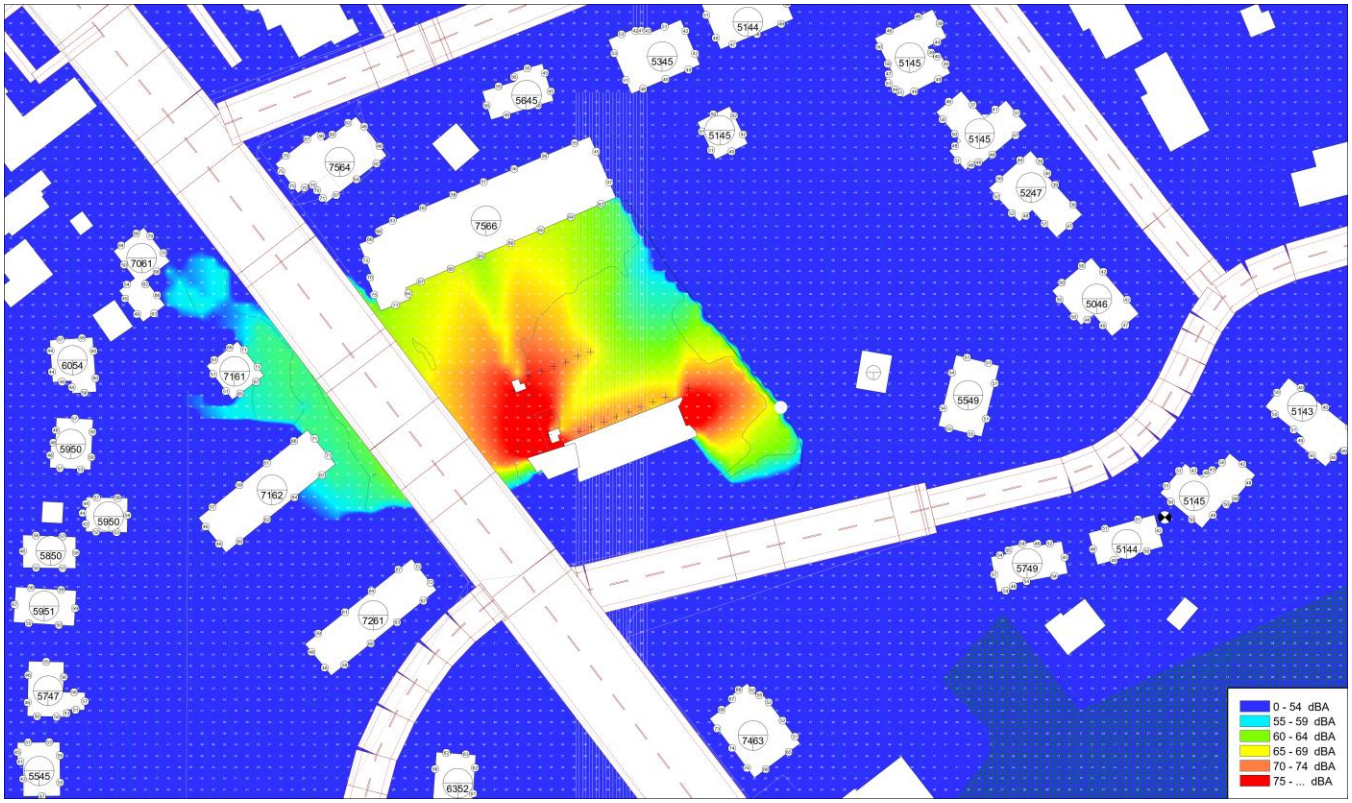
Sound Power Level, L_w – specifies the sound emission from a source independent of distance and environmental conditions. It is the potential acoustic energy of a source that is calculated and measured based on sound emission and emitting area, referenced to one picowatt.

Average Noise Level (Leq) – is the time-average sound level documented in decibels that is noted with the measured time interval.

Maximum Sound Level (Lmax) – is the highest sound level measured during a single noise event and is documented with the time response (Slow – 1 second, Fast – 0.125 second, Impulse – 0.035 second). Lmin is the quietest sound level measured during a single time interval of measurement.

Sound waves, similar to light waves, will expand hemispherically from a point source above the ground, losing 6 dB per doubling of distance—referred to as the inverse square law. Other effects that are considered in the acoustical computer modeling software include ground absorption, air absorption, barrier effects (diffraction, reflection, and diffusion). The amount of these affects are based on the geometry from the source to the listener and the type of materials (i.e., sound reflective vs. sound absorptive).

APPENDIX B. Model Output Explanation



The CadnaA environmental noise emission model estimates the noise impact to the adjacent properties using international calculation standards. The colors represent the predicted noise level range in the areas around the building emitting the noise; areas in **royal blue** are below the daytime OAR DEQ limit of 55 dBA. The small circles around the envelope of each building show the predicted noise level from the noise sources being assessed (for the example above, only the car wash) to this location on the building façade. The larger circles in the center of each building use a European environmental noise standard to show the predicted loudest position on the envelope from all noise emission sources in the model; the bottom left is the daytime noise level based on traffic volumes and daytime noise sources, and the bottom right is the nighttime noise level based on traffic volumes.

West Linn Police Department
1800 8TH AVE | WEST LINN, OR 97068 | P: 503.655.6214

Case # 25-004995 - Offense/Incident Report Cover Sheet

REPORT DATE / TIME	INCORP/UNINCORP / DISTRICT/CITY / BEAT CITY / NEIGHBORHOOD / SUBDIVISION 5	EVENT START DATE / TIME - EVENT END DATE / TIME
Aug 19, 2025 10:15	PS / PS2 / PS204 / Robinwood	Aug 19, 2025 08:43 - 09:29

OFFENSE-1

OFFENSE CODE

CRIMINAL MISCHIEF III | 164.345

OFFENSE LOCATION	OFFENSE START DATE	OFFENSE END DATE
18850 WILLAMETTE DR, WEST LINN, OR 97068	Aug 19, 2025 08:43	Aug 19, 2025 09:29

INVOLVED PERSONS

INVOLVEMENT	NAME	HOME ADDRESS	DOB / ESTIMATED AGE RANGE	RACE	SEX
S-1	UNKNOWN UNKNOWN			Unknown	Unknown
V-1	Rob Farrell	80 HAYDEN AVE LEXINGTON, MA 02421	[redacted]	White	Male

INVOLVED ORGANIZATIONS

INVOLVEMENT	NAME	ADDRESS
R-1	SOCIETY	

INVOLVED PROPERTY

STATUS	ITEM CATEGORY	DESCRIPTION
Destroyed/Damaged /Vandalized	Structures - Other Commercial/ Business	Two Broken windows

REPORTING OFFICER SIGNATURE / DATE	SUPERVISOR SIGNATURE / DATE
CHANNA THOL #50191 Aug 19, 2025 12:02 (e-signature)	RONALD HOESLY #21282 Aug 19, 2025 13:17 (e-signature)
PRINT NAME	PRINT NAME
CHANNA THOL #50191	RONALD HOESLY #21282

NOTE: Summarized report. More data regarding this report may exist in the RMS.
Mark43 RMS Form v2.0 generated by J. SORENSEN #47355 on Mar 23, 2026 14:26.

Case # 25-004995 - Offense/Incident Report

REPORT DATE / TIME	INCORP/UNINCORP / DISTRICT/CITY / BEAT CITY / NEIGHBORHOOD / SUBDIVISION 5	EVENT START DATE / TIME - EVENT END DATE / TIME
Aug 19, 2025 10:15	PS / PS2 / PS204 / Robinwood	Aug 19, 2025 08:43 - 09:29

PRIMARY REPORTER

CHANNA THOL #50191

ASSISTING PERSONNEL / TYPE(S)

TAYLOR NEIL #44174 (Field Training Officer)

REPORT TAKEN LOCATION

18850 WILLAMETTE DR, WEST LINN, OR 97068

EMS / FIRE / OTHER LE AGENCIES ON SCENE

☐ YES ■ NO

NARRATIVE

This incident was recorded on a West Linn Police Department (WLPD) body worn camera (BWC).This report is a summarization of the incident. Any statements documented in this report should be viewed as generalized or summarized and not verbatim unless documented by the use of quotation marks. For verbatim statements, the BWC footage should be viewed in its entirety. The BWC has a built-in 60 second pre-record buffer and any video footage captured during that time will not contain audio. The BWC footage was later uploaded to the Axon storage cloud.

On 8/19/25, at approximately 0846 hours, I was dispatched to a premises check of the old McDonald's located at 18850 Willamette Dr. LOCOM told me a passerby drove by the location and saw windows busted out on the property.

When I arrived at the above location, I conducted a walk around the building and found all doors secured. I observed on the south side of the building that two windows of the property were broken, and green graffiti was inside the building. Upon closer observation, I saw a rock on the ground next to the bike rack, a rock inside the property, and broken pieces of glass inside the property.

At the property, I saw a number posted for the property manager. I called the number on my department-issued phone, and spoke to a receptionist. I told the receptionist about the incident, and the receptionist told me the property manager is in a meeting. I provided the receptionist with my information. I asked LOCOM for a case number.

I took photos of the area, and I attached them to this report.

When I returned to the WLPD. I received a call from Rob FARRELL, the property manager. I informed FARRELL what happened to the property. I told FARRELL what I observed at the property. FARRELL told me the property had been vandalized many times. FARRELL told me he has someone on the way to board the broken windows. I asked FARRELL what the cost would be, and he said about $300 to $500. I provided FARRELL with a case number.

Action Recommended:

Suspend due to lack of investigative leads.

REPORTING PARTY-1

REPORTING PARTY-1 (ORGANIZATION)

R-1 SOCIETY

OFFENSE-1

OFFENSE CODE

CRIMINAL MISCHIEF III | 164.345

OFFENSE START DATE	OFFENSE END DATE	SUSPECTED COMPUTER/ HANDHELD DEVICE USE
Aug 19, 2025 08:43	Aug 19, 2025 09:29	☐ YES ■ NO

SUSPECTED ALCOHOL CONSUMPTION	SUSPECTED DRUG USE
☐ YES ■ NO	☐ YES ■ NO

OFFENSE LOCATION

REPORTING OFFICER SIGNATURE / DATE	SUPERVISOR SIGNATURE / DATE
CHANNA THOL #50191 Aug 19, 2025 12:02 (e-signature)	RONALD HOESLY #21282 Aug 19, 2025 13:17 (e-signature)
PRINT NAME	PRINT NAME
CHANNA THOL #50191	RONALD HOESLY #21282

LOCATION NAME / STREET ADDRESS/LOCATION NAME / APT, UNIT, STE / DESCRIPTION
18850 WILLAMETTE DR

CITY	STATE	ZIP	COUNTRY CODE
WEST LINN	OR	97068	US

LOCATION CATEGORY	INCORP/UNINCORP / DISTRICT/CITY / BEAT CITY / NEIGHBORHOOD / SUBDIVISION 5
Commercial/ Office Building	PS / PS2 / PS204 / Robinwood

VICTIMS-1

VICTIMS-1 NAME (LAST, FIRST MIDDLE)	DOB / ESTIMATED AGE RANGE
V-1 Farrell, Rob	[redacted]

SEX	RACE / ETHNICITY	PHONE NUMBER
Male	White / Not Hispanic Or Latino	(978) 604-6642 (primary, Mobile Phone)

HOME ADDRESS
80 HAYDEN AVE, LEXINGTON, MA 02421

SUSPECTS-1

SUSPECTS-1 NAME (LAST, FIRST MIDDLE)	SEX	RACE / ETHNICITY
S-1 UNKNOWN, UNKNOWN	Unknown	Unknown / Unknown

VEHICLE / PROPERTY & ITEMS SUMMARY

DESCRIPTION / MAKE / MODEL / COLOR	STATUS / DATE / REASON FOR CUSTODY	VIN # / SERIAL #	QTY.	TOTAL ($) VALUE
Two Broken windows / LIGHT	Destroyed/Damaged/Vandalized / Aug 19, 2025		2	UNKNOWN

RELATIONSHIPS ADDENDUM

NAME	RELATIONSHIP	SUBJECT
Rob Farrell	RELATIONSHIP UNKNOWN	UNKNOWN UNKNOWN

PROPERTY & ITEMS ADDENDUM

25-004995-1 OTHER ITEM - TWO BROKEN WINDOWS

ITEM CATEGORY	BIOHAZARD
Structures - Other Commercial/ Business	☐ YES ■ NO

DESCRIPTION
Two Broken windows

COLOR
LIGHT

OWNER
Rob Farrell

STATUS	STATUS DATE	TOTAL ($) VALUE	QUANTITY
Destroyed/Damaged/Vandalized	Aug 19, 2025	UNKNOWN	2

IN POLICE CUSTODY
No

ATTACHMENTS ADDENDUM

FILE NAME	UPLOAD DATE/TIME	UPLOADED BY
IMG_0400.jpeg	Aug 19, 2025 10:34	C. THOL #50191
IMG_0401.jpeg	Aug 19, 2025 10:34	C. THOL #50191
IMG_0402.jpeg	Aug 19, 2025 10:34	C. THOL #50191
IMG_0403.jpeg	Aug 19, 2025 10:34	C. THOL #50191

REPORTING OFFICER SIGNATURE / DATE	SUPERVISOR SIGNATURE / DATE
CHANNA THOL #50191 Aug 19, 2025 12:02 (e-signature)	RONALD HOESLY #21282 Aug 19, 2025 13:17 (e-signature)
PRINT NAME	PRINT NAME
CHANNA THOL #50191	RONALD HOESLY #21282

IMG_0404.jpeg	Aug 19, 2025 10:34	C. THOL #50191
IMG_0405.jpeg	Aug 19, 2025 10:34	C. THOL #50191
IMG_0406.jpeg	Aug 19, 2025 10:34	C. THOL #50191

REPORTING OFFICER SIGNATURE / DATE	SUPERVISOR SIGNATURE / DATE
CHANNA THOL #50191 Aug 19, 2025 12:02 (e-signature)	RONALD HOESLY #21282 Aug 19, 2025 13:17 (e-signature)
PRINT NAME	PRINT NAME
CHANNA THOL #50191	RONALD HOESLY #21282


Excess
Property Group
888-830-1393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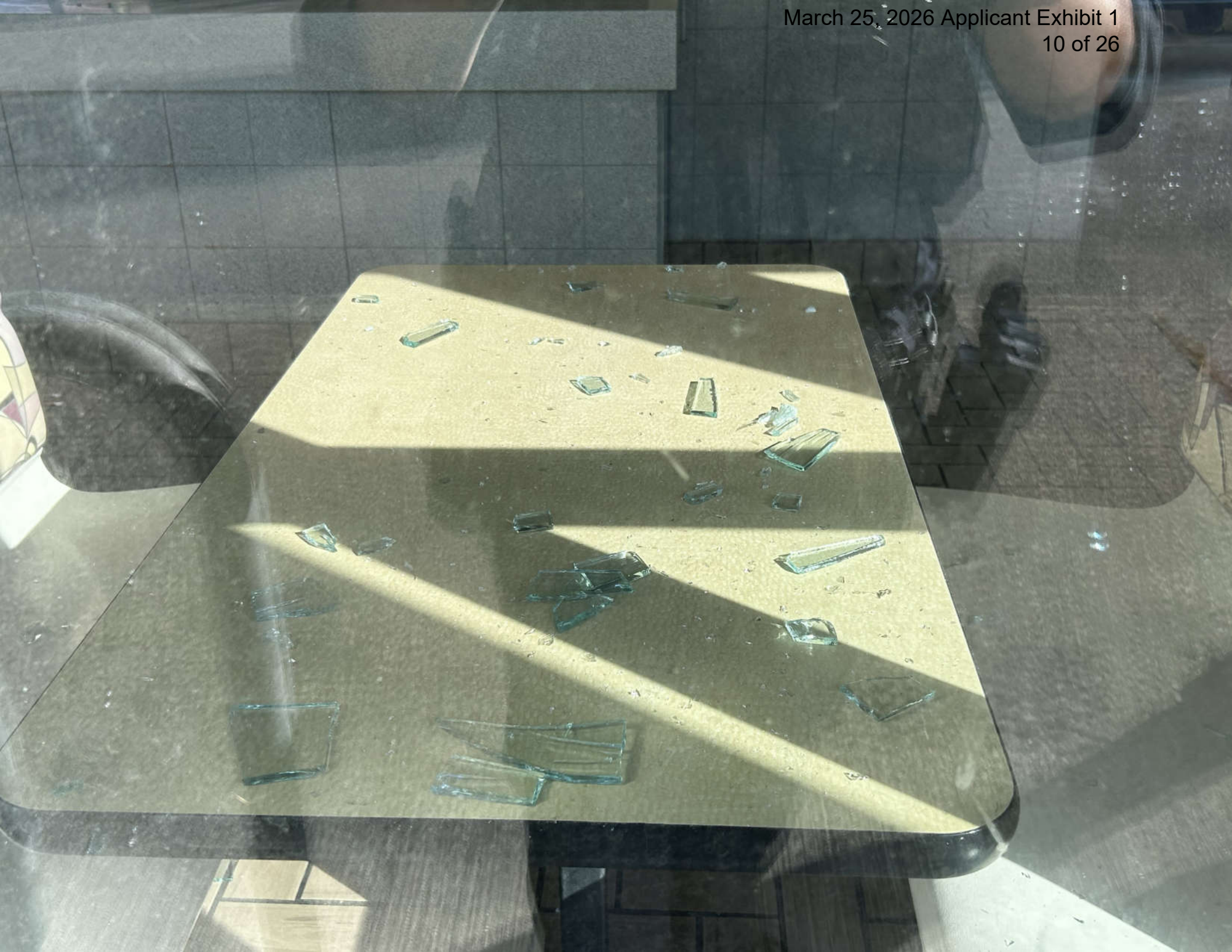
th Court
inn, OR
ALARM SYSTEMS
503-266-4121


Thank You
For Your Business
ase Visit Ou Other Location at
2100 8th Court
West Linn, OR
Excess
Property Group
888-830-1393


Thank You
For Your Business
Please Visit Our Other Location at
2100 8th Court
West Linn, OR
Excess
888-830-139



Incident Detail Report

Data Source: **Data Warehouse**
Incident Status: **Closed**
Incident number: **LP23012803**
Case Numbers:
Incident Date: **3/28/2023 10:34:09**
Report Generated: **3/23/2026 14:07:52**

Incident Type:	SERVICE	**Alarm Level:**	
Priority:	P5	**Problem:**	ORD - ORDINANCE VIOL
Determinant:		**Agency:**	PD
Base Response#:		**Jurisdiction:**	LOCOM PD
Confirmation#:		**Division:**	West Linn PD
Taken By:	CHILD, TARA	**Battalion:**	West Linn PD
Response Area:	L WLP PS2 | W TVF U | 2	**Response Plan:**	WLPD D2 CSO
Disposition:	W3 - PERSON ADVISED/REFERRED	**Command Ch:**	
Cancel Reason:		**Primary TAC:**	
Incident Status:	Closed	**Secondary TAC:**	
Certification:	PD Call	**Delay Reason (if any):**	
Longitude:	122643714	**Latitude:**	45389823
Location Name:	MCDONALDS (closed) (L WES WILLAMETTE)	**County:**	CLACKAMAS CLW
Address:	18850 Willamette Dr	**Location Type:**	Food
Apartment:		**Cross Street:**	FAIRVIEW WAY/WALLING CIR
Building:		**Map Reference:**	6295D
City, State, Zip:	WEST LINN OR		
Caller Name:	DIANE KORAN		
Method Received:		**Call Back Phone:**	503-349-0471
Caller Type:		**Caller Location:**	
Caller Address:		**Caller Location Phone:**	
Caller Building:		**Caller Apartment:**	
Caller City, State, Zip:		**Caller County:**	

Time Stamps

Description	Date	Time	User
Phone Pickup	3/28/2023	10:34:05	
1st Key Stroke	3/28/2023	10:34:09	
In Waiting Queue	3/28/2023	10:35:12	
Call Taking Complete	3/28/2023	10:41:16	CHILD, TARA
1st Unit Assigned	3/28/2023	12:18:27	
1st Unit Enroute	3/28/2023	12:18:27	
1st Unit Arrived			
Closed	3/28/2023	12:57:51	Mobile1

Elapsed Times

Description	Time
Received to In Queue	00:01:03
Call Taking	00:07:07
In Queue to 1st Assign	01:43:15.0
Call Received to 1st Assign	01:44:22.0
Assigned to 1st Enroute	-00:00:00.
Enroute to 1st Arrived	
Incident Duration	02:23:46

Unit	Primary Flag	Assigned	Disposition	Enroute	Staged	Arrived	At Patient	Delay Avail	Complete	Odm. Enroute	Odm. Arrived	Cancel Reason
2S66	Y	12:18:27	W3 - PERSON ADVISED/REFERRED	12:18:27					12:57:51			

Unit	Name
2S66	HIGBEE, NICHOLA (WL071921)

No Caution Notes found

No Permit Information

No Pre-Scheduled Information

No Transports Information

No Transports Information

Date	Time	User	Type	Conf.	Comments
3/28/2023	10:35:12	LP28132	Response		[1] TRASHCAN BY THE BUS STOP IS OVERFLOWING , BEEN THAT WAY FOR A WEEK, WAS REFERED BY THE CITY TO CODE ENFORECMENT
3/28/2023	12:57:38	HIGBEE, NICHOLA	Response	Y	[2] 2S66 - wlp00004 - City will call Metro for removal. I called and left a VM the old Mcdonald property owner for removal of the trash can.

No Address Changes

No Priority Changes

No Alarm Level Changes

Date	Time	Radio	Activity	Location	Log Entry	User
3/28/2023	10:35:11		Incident Priority Change		Incident priority changed from P5 to P5	LP28132
3/28/2023	10:35:11		Problem Nature		Incident problem nature changed from <Blank> to ORD - ORDINANCE VIOL~PD	LP28132
3/28/2023	10:35:11		Incident Transfer	18850 Willamette Dr	Incident has been has been transferred, fusion ID 6423254d5d0fdaff89ca70e0	C2C1
3/28/2023	10:35:22		Read Incident		Incident 563 was Marked as Read.	LP52666
3/28/2023	10:35:46		UserAction		User clicked Initial Assign	LP52666
3/28/2023	10:35:47		Initial Assignment		The following unit(s) is (are) recommended for assignment: 2S2 (00:07:57)	LP52666
3/28/2023	10:41:16		UserAction		User clicked Exit/Save	LP28132
3/28/2023	11:46:38		UserAction		User clicked Exit/Save	LP52666
3/28/2023	12:18:27	2S66	Dispatched	1800 8th Ave [WEST LINN POLICE NEW STATION (L WES 8TH)]		2S66
3/28/2023	12:18:27	2S66	Enroute	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Responding From = 1800 8th Ave [WEST LINN POLICE NEW STATION (L WES 8TH)].	2S66

3/28/2023	12:57:38	2S66	Response Closed	MCDONALDS (closed) (L WES WILLAMETTE)	Response Disposition: W3 - PERSON ADVISED/REFERRED	2S66
3/28/2023	12:57:38		Read Comment	18850 Willamette Dr	Comment for Incident 363 was marked as read.	M1
3/28/2023	12:57:51	2S66	Disposition	MCDONALDS (closed) (L WES WILLAMETTE)	W3 - PERSON ADVISED/REFERRED	2S66
3/28/2023	12:57:51	2S66	Available	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Unit Cleared From Incident LP23012803	2S66

Date	Time	Field	Changed From	Changed To	Reason	Table	Workstation	User
3/28/2023	10:34:05	Agency Name		PD	(Response Viewer)	Incident	LC6	LP28132
3/28/2023	10:34:11	Address	(Blank)	MCDONA	New Entry	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:22	Jurisdiction	LOCOM PD	LOCOM PD	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:22	Division	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:22	Battalion	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:22	Response_Area	L WLP PS2 | W TVF U | 2	L WLP PS2 | W TVF U | 2	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:22	ResponsePlanType	0	0	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:22	Address	MCDONA	18850 WILLAMETTE DR	Premise Verified	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:22	City		WEST LINN	Updated City	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:22	Latitude	0	45389823	Premise Verified	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:22	Longitude	0	122643714	Premise Verified	Response_Master_Incident	LC6	LP28132
3/28/2023	10:34:55	Call Back Phone		503-349-0471	(Response Viewer)	Incident	LC6	LP28132
3/28/2023	10:35:11	DispatchLevel		PD ROUTINE	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:35:11	Problem		ORD - ORDINANCE VIOL	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:35:11	Response_Plan		WLPD D2 CSO	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:35:11	ResponsePlanType	0	1	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:35:11	Priority_Description	P5	P5		Response_Master_Incident	LC6	LP28132
3/28/2023	10:35:11	Priority_Number	0	5		Response_Master_Incident	LC6	LP28132
3/28/2023	10:35:11	Incident_Type	SERVICE	SERVICE	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:35:11	Certification_Level	PD Call	PD Call	(Response Viewer)	Response_Master_Incident	LC6	LP28132
3/28/2023	10:35:13	Pickup_Map_Info		6295D		Response_Transports	LC6	LP28132
3/28/2023	10:35:13	Map_Info		6295D		Response_Master_Incident	LC6	LP28132
3/28/2023	10:35:22	Read Call	False	True	(Response Viewer)	Response_Master_Incident	LC5	LP52666
3/28/2023	12:57:38	Unread Comment	False	True	(Response Viewer)	Incident	MOBILESQLEXP01	Mobile1

No Custom Time Stamps

No Custom Data Fields

No Attachment

Incident Detail Report

Data Source: **Data Warehouse**
Incident Status: **Closed**
Incident number: **LP23047326**
Case Numbers:
Incident Date: **10/14/2023 19:50:23**
Report Generated: **3/23/2026 14:08:53**

Incident Type:	1 OFFICER BEAT	**Alarm Level:**	1
Priority:	P3	**Problem:**	SSC - SUSPICIOUS CIRC
Determinant:		**Agency:**	PD
Base Response#:		**Jurisdiction:**	LOCOM PD
Confirmation#:		**Division:**	West Linn PD
Taken By:	MISHLER, RYAN	**Battalion:**	West Linn PD
Response Area:	L WLP PS2 | W TVF U | 2	**Response Plan:**	WLPD D2 PA
Disposition:	X1 - PERSON CHECKED	**Command Ch:**	
Cancel Reason:		**Primary TAC:**	
Incident Status:	Closed	**Secondary TAC:**	
Certification:	PD Call	**Delay Reason (if any):**	
Longitude:	122643714	**Latitude:**	45389823
Location Name:	MCDONALDS (closed) (L WES WILLAMETTE)	**County:**	CLACKAMAS CLW
Address:	18850 Willamette Dr	**Location Type:**	Food
Apartment:		**Cross Street:**	FAIRVIEW WAY/WALLING CIR
Building:		**Map Reference:**	6295D
City, State, Zip:	WEST LINN OR		
Caller Name:	STEVE SCHWARTZ		
Method Received:		**Call Back Phone:**	503-312-5457
Caller Type:		**Caller Location:**	BACKYARD BURGER CO
Caller Address:		**Caller Location Phone:**	
Caller Building:		**Caller Apartment:**	
Caller City, State, Zip:		**Caller County:**	

Time Stamps

Description	Date	Time	User
Phone Pickup	10/14/2023	19:50:18	
1st Key Stroke	10/14/2023	19:50:19	
In Waiting Queue	10/14/2023	19:51:54	
Call Taking Complete	10/14/2023	19:52:11	MISHLER, RYAN
1st Unit Assigned	10/14/2023	19:52:16	
1st Unit Enroute	10/14/2023	19:53:59	
1st Unit Arrived	10/14/2023	19:56:19	
Closed	10/14/2023	20:05:50	COX, JESSICA

Elapsed Times

Description	Time
Received to In Queue	00:01:31
Call Taking	00:01:48
In Queue to 1st Assign	00:00:22
Call Received to 1st Assign	00:01:58
Assigned to 1st Enroute	00:01:43.3
Enroute to 1st Arrived	00:02:19.7
Incident Duration	00:15:32

Unit	Primary Flag	Assigned	Disposition	Enroute	Staged	Arrived	At Patient	Delay Avail	Complete	Odm. Enroute	Odm. Arrived	Cancel Reason
3S2	Y	19:52:16	X1 - PERSON CHECKED	19:53:59		19:56:19			20:05:50			
3S1	N	19:52:16		19:54:14		19:56:19			20:03:52			

Unit	Name
3S2	ZZZCORDRY, ETHAN (WL61025)
3S1	LAMOTTE, JOSHUA (WL63165)

No Caution Notes found

No Permit Information

No Pre-Scheduled Information

No Transports Information

No Transports Information

Date	Time	User	Type	Conf.	Comments
10/14/2023	19:51:14	LP56061	Response		[1] AT OLD MCDOANLDS / 2-3 JUVS TRYING TO BREAK THE WINDOWS W/ FLASHLIGHTS
10/14/2023	19:51:52	LP56061	Response		[2] CALLER DOESN'T HAVE DESCRIPTION / DIDN'T SEE A VEH
10/14/2023	19:57:00	LP64010	Response		[3] 3S1 no seeing anyone might be inside
10/14/2023	19:57:47	LP64010	Response		[4] 3S2 no seeing or hearing anything
10/14/2023	19:59:14	LP64010	Response		[5] 3S2 cd 4 not seeing any broken windows just an open window not sure if it was already like that
10/14/2023	20:05:27	LP64010	Response		[6] 3s2 no damage and appears no one has entered the building
10/14/2023	20:05:32	LP64010	Response		[7] [Notification] [PD]-Problem changed from CRMP - CRIM MISCHIEF IN PROGRE to SSC - SUSPICIOUS CIRC by PD

No Address Changes

Date	Time	Changed from Priority	Reason	User
10/14/2023	20:05:32	P2	Call Update	JC

Date	Time	User	Change to Alarm
10/14/2023	19:52:16	JC	1

Date	Time	Radio	Activity	Location	Log Entry	User
10/14/2023	19:50:19		RapidSOS		Location found 45.39023/-122.64434	RSOS
10/14/2023	19:51:48		Incident Priority Change		Incident priority changed from P2 to P2	LP56061
10/14/2023	19:51:48		Problem Nature		Incident problem nature changed from <Blank> to CRMP - CRIM MISCHIEF IN PROGRE~PD	LP56061
10/14/2023	19:51:54		ANI/ALI Statistics		INT Insert:Oct 14 2023 19:50:18 / INT SendNP:Oct 14 2023 19:50:18 / WS RecvNP:Oct 14 2023 19:50:18 / WS Process:Oct	LP56061

10/14/2023	19:51:54		Incident Transfer	18850 Willamette Dr	14 2023 19:51:54 Incident has been has been transferred, fusion ID 652b53caaa7b0b0829bffba7	C2C1
10/14/2023	19:52:01		Read Incident		Incident 380 was Marked as Read.	LP64010
10/14/2023	19:52:09		UserAction		User clicked Initial Assign	LP64010
10/14/2023	19:52:10		Initial Assignment		The following unit(s) is (are) recommended for assignment: 3S2 (00:03:29),3S1 (00:03:19)	LP64010
10/14/2023	19:52:11		UserAction		User clicked Exit/Save	LP56061
10/14/2023	19:52:16	3S1	Dispatched	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]		LP64010
10/14/2023	19:52:16	3S2	Dispatched	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]		LP64010
10/14/2023	19:52:55		UserAction		User clicked Exit/Save	LP64010
10/14/2023	19:53:59	3S2	Enroute	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Responding From = MARK\MUNGER.	3S2
10/14/2023	19:54:14	3S1	Enroute	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Responding From = MARK\MUNGER.	3S1
10/14/2023	19:56:19	3S2	Arrived	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]		LP64010
10/14/2023	19:56:19	3S1	Arrived	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]		LP64010
10/14/2023	19:59:18		UserAction		User clicked Exit/Save	LP63098
10/14/2023	20:01:19		Incident Late		Active incident marked as late	
10/14/2023	20:02:28	3S2	Reset System Timer	WILLAMETTE\WALLING	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 10/14/2023 20:22:28	LP64010
10/14/2023	20:02:28	3S1	Reset System Timer	WILLAMETTE\WALLING	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 10/14/2023 20:22:28	LP64010
10/14/2023	20:02:39	3S2	Reset System Timer	WILLAMETTE\WALLING	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 10/14/2023 20:22:39	LP64010
10/14/2023	20:02:42	3S1	Reset System Timer	WILLAMETTE\WALLING	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 10/14/2023 20:22:42	LP64010
10/14/2023	20:02:50		UserAction		User clicked Exit/Save	LP64010
10/14/2023	20:03:52	3S1	Available	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Unit Cleared From Incident LP23047326	3S1
10/14/2023	20:05:32		Incident Priority Change		Incident priority changed from P2 to P3 due to Call Update	LP64010
10/14/2023	20:05:32		Problem Nature	18850 Willamette Dr	Incident problem nature changed from <Blank> to SSC - SUSPICIOUS CIRC	LP64010
10/14/2023	20:05:33		UserAction		User clicked Exit/Save	LP64010
10/14/2023	20:05:50	3S2	Disposition	MCDONALDS (closed) (L WES WILLAMETTE)	X1 - PERSON CHECKED	LP64010
10/14/2023	20:05:50	3S2	Available	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Unit Cleared From Incident LP23047326	LP64010
10/14/2023	20:05:51	3S2	Response Closed	MCDONALDS (closed) (L WES WILLAMETTE)	Response Disposition: X1 - PERSON CHECKED	LP64010
10/14/2023	20:06:35		UserAction		User clicked Exit/Save	LP61728

Date	Time	Field	Changed From	Changed To	Reason	Table	Workstation	User
10/14/2023	19:50:18	Agency Name		PD	(Response Viewer)	Incident	LC6	LP56061
10/14/2023	19:50:19	Call Back Phone		503-312-5457	(Response Viewer)	Incident	LC6	LP56061
10/14/2023	19:50:27	Address	(Blank)	MCDONALDS	New Entry	Response_Master_Incident	LC6	LP56061
10/14/2023	19:50:59	Jurisdiction	LOCOM PD	LOCOM PD	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:50:59	Division	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:50:59	Battalion	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:50:59	Response_Area	L WLP PS2 | W TVF U | 2	L WLP PS2 | W TVF U | 2	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:50:59	ResponsePlanType	0	0	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:50:59	Address	MCDONALDS	18750 WILLAMETTE DR	Entry Selected/Returned from GeoLocator	Response_Master_Incident	LC6	LP56061
10/14/2023	19:50:59	City		WEST LINN	Updated City	Response_Master_Incident	LC6	LP56061
10/14/2023	19:50:59	Latitude	0	45390170	Entry Selected/Returned from GeoLocator	Response_Master_Incident	LC6	LP56061
10/14/2023	19:50:59	Longitude	0	122644323	Entry Selected/Returned from GeoLocator	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:40	Address	18750 WILLAMETTE DR	18850 WILLAMETTE DR	Address Change	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	Jurisdiction	LOCOM PD	LOCOM PD	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	Division	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	Battalion	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	Response_Area	L WLP PS2 | W TVF U | 2	L WLP PS2 | W TVF U | 2	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	ResponsePlanType	0	0	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	ResponsePlanType	0	0	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	Address	18850 WILLAMETTE DR	18850 WILLAMETTE DR	Premise Verified	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	City		WEST LINN	Updated City	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	Latitude	45390170	45389823	Premise Verified	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:43	Longitude	122644323	122643714	Premise Verified	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:48	DispatchLevel		PD ROUTINE	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:48	Problem		CRMP - CRIM MISCHIEF IN PROGRE	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:48	Response_Plan		WLPD D2 PAPA	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:48	ResponsePlanType	0	1	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:48	Priority_Description	P2	P2		Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:48	Priority_Number	0	2		Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:48	Incident_Type	HIGH PRIORITY BEAT	HIGH PRIORITY BEAT	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:48	Certification_Level	PD Call	PD Call	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	19:51:55	Pickup_Map_Info		6295D		Response_Transports	LC6	LP56061
10/14/2023	19:51:55	Map_Info		6295D		Response_Master_Incident	LC6	LP56061
10/14/2023	19:52:01	Read Call	False	True	(Response Viewer)	Response_Master_Incident	LC5	LP64010
10/14/2023	19:52:09	Caller_Location_Name		BACKYARD BURGER CO	(Response Viewer)	Response_Master_Incident	LC6	LP56061
10/14/2023	20:05:32	Problem	CRMP - CRIM MISCHIEF IN PROGRE	SSC - SUSPICIOUS CIRC	(Response Viewer)	Response_Master_Incident	LC5	LP64010
10/14/2023	20:05:32	RespReconfigState	0	1	Response reconfigure needed	Response_Master_Incident	LC5	LP64010
10/14/2023	20:05:32	Response_Plan	WLPD D2 PAPA	WLPD D2 PA	(Response Viewer)	Response_Master_Incident	LC5	LP64010
10/14/2023	20:05:32	Priority_Description	P2	P3	Call Update	Response_Master_Incident	LC5	LP64010
10/14/2023	20:05:32	Priority_Number	2	3	Call Update	Response_Master_Incident	LC5	LP64010
10/14/2023	20:05:32	Incident_Type	HIGH PRIORITY BEAT	1 OFFICER BEAT	(Response Viewer)	Response_Master_Incident	LC5	LP64010

No Custom Time Stamps

No Custom Data Fields

No Attachment

Incident Detail Report

Data Source: **Data Warehouse**
Incident Status: **Closed**
Incident number: **LP23049429**
Case Numbers:
Incident Date: **10/27/2023 14:37:30**
Report Generated: **3/23/2026 14:09:40**

Incident Type:	1 OFFICER BEAT	**Alarm Level:**	
Priority:	P4	**Problem:**	PRM - PREMISE CHECK
Determinant:		**Agency:**	PD
Base Response#:		**Jurisdiction:**	LOCOM PD
Confirmation#:		**Division:**	West Linn PD
Taken By:	WARD, DEANNA	**Battalion:**	West Linn PD
Response Area:	L WLP PS2 | W TVF U | 2	**Response Plan:**	WLPD D2 PA
Disposition:	W1 - ASSIGNMENT COMPLETED	**Command Ch:**	
Cancel Reason:		**Primary TAC:**	
Incident Status:	Closed	**Secondary TAC:**	
Certification:	PD Call	**Delay Reason (if any):**	
Longitude:	122643714	**Latitude:**	45389823

Location Name:	MCDONALDS (closed) (L WES WILLAMETTE)	**County:**	CLACKAMAS CLW
Address:	18850 Willamette Dr	**Location Type:**	Food
Apartment:		**Cross Street:**	FAIRVIEW WAY/WALLING CIR
Building:		**Map Reference:**	6295D
City, State, Zip:	WEST LINN OR		

Caller Name:	donna collins// property manager		
Method Received:		**Call Back Phone:**	781-413-4806
Caller Type:		**Caller Location:**	
Caller Address:		**Caller Location Phone:**	
Caller Building:		**Caller Apartment:**	
Caller City, State, Zip:		**Caller County:**	

Time Stamps

Description	Date	Time	User
Phone Pickup	10/27/2023	14:37:28	
1st Key Stroke	10/27/2023	14:37:30	
In Waiting Queue	10/27/2023	14:39:23	
Call Taking Complete	10/27/2023	14:39:25	WARD, DEANNA
1st Unit Assigned	10/27/2023	14:56:13	
1st Unit Enroute	10/27/2023	14:58:50	
1st Unit Arrived	10/27/2023	15:00:26	
Closed	10/27/2023	15:05:37	Mobile1

Elapsed Times

Description	Time
Received to In Queue	00:01:53
Call Taking	00:01:55
In Queue to 1st Assign	00:16:50.7
Call Received to 1st Assign	00:18:45.7
Assigned to 1st Enroute	00:00:43.7
Enroute to 1st Arrived	00:01:36.8
Incident Duration	00:28:09

Unit	Primary Flag	Assigned	Disposition	Enroute	Staged	Arrived	At Patient	Delay Avail	Complete	Odm. Enroute	Odm. Arrived	Cancel Reason
3L2	N	14:56:13	Q1 - CANCEL						14:56:21			OPD - Other
3S2	Y	14:58:06	W1 - ASSIGNMENT COMPLETED	14:58:50		15:00:26			15:05:37			

Unit	Name
3L2	SWARTZ, CODY (59518)
3S2	ZZZCORDRY, ETHAN (WL61025)

No Caution Notes found

No Permit Information

No Pre-Scheduled Information

No Transports Information

No Transports Information

Date	Time	User	Type	Conf.	Comments
10/27/2023	14:39:21	LP64168	Response		[1] passerby called rp saying the drive thru window appeared to be broken wants to verfiy locn secure

No Address Changes

No Priority Changes

No Alarm Level Changes

Date	Time	Radio	Activity	Location	Log Entry	User
10/27/2023	14:37:59		Incident Priority Change		Incident priority changed from P4 to P4	LP64168
10/27/2023	14:37:59		Problem Nature		Incident problem nature changed from <Blank> to PRM - PREMISE CHECK~PD	LP64168
10/27/2023	14:39:25		UserAction		User clicked Exit/Save	LP64168
10/27/2023	14:39:25		Incident Transfer	18850 Willamette Dr	Incident has been has been transferred, fusion ID 653c2e0daa7b0b0829831557	C2C1
10/27/2023	14:43:22		Read Incident		Incident 383 was Marked as Read.	LP53099
10/27/2023	14:45:35		UserAction		User clicked Exit/Save	LP57155
10/27/2023	14:47:33		UserAction		User clicked Exit/Save	LP57155
10/27/2023	14:54:05		UserAction		User clicked Exit/Save	LP56061
10/27/2023	14:56:13	3L2	Dispatched	EVERGREEN RD\4TH ST		LP56061
10/27/2023	14:56:13	3L2	Update Sector	18850 Willamette Dr	From Sector LP to WP	LP56061
10/27/2023	14:56:18		UserAction		User clicked Exit/Save	LP53099
10/27/2023	14:56:21	3L2	Disposition	MCDONALDS (closed) (L WES WILLAMETTE)	Q1 - CANCEL	LP56061

10/27/2023	14:56:21	3L2	Available	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Unit Cleared From Incident LP23049429	LP56061
10/27/2023	14:56:21	3L2	Reassign Vehicle	EVERGREEN RD\4TH ST	ReAssign Reason: OPD - Other	LP56061
10/27/2023	14:56:21	3L2	Reassign Response	EVERGREEN RD\4TH ST	ReAssign Reason: OPD - Other	LP56061
10/27/2023	14:56:21	3L2	Reassign Response	EVERGREEN RD\4TH ST	Clearing Primary Vehicle Flag	LP56061
10/27/2023	14:56:21	3L2	Incident Stacking	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Incident stacked to unit.	LP56061
10/27/2023	14:58:06	3L2	Incident Stacking	MCDONALDS (closed) (L WES WILLAMETTE)	Stacked Incident Assigned	LP56061
10/27/2023	14:58:06	3S2	Dispatched	CEDAROAK\TERRA VISTA		LP56061
10/27/2023	14:58:50	3S2	Enroute	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Responding From = CEDAROAK\RIDGEWOOD.	3S2
10/27/2023	15:00:26	3S2	Arrived	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]		3S2
10/27/2023	15:05:37	3S2	Disposition	MCDONALDS (closed) (L WES WILLAMETTE)	W1 - ASSIGNMENT COMPLETED	3S2
10/27/2023	15:05:37	3S2	Available	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Unit Cleared From Incident LP23049429	3S2
10/27/2023	15:05:37	3S2	Response Closed	MCDONALDS (closed) (L WES WILLAMETTE)	Response Disposition: W1 - ASSIGNMENT COMPLETED	3S2

Date	Time	Field	Changed From	Changed To	Reason	Table	Workstation	User
10/27/2023	14:31:12	Address	(Blank)	lopd	New Entry	Response_Master_Incident	LC4	LP64168
10/27/2023	14:31:15	Jurisdiction	LOCOM PD	LOCOM PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:31:15	Division	Lake Oswego PD	Lake Oswego PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:31:15	Battalion	Lake Oswego PD	Lake Oswego PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:31:15	Response_Area	L LOP PL1 | L LOFD |	L LOP PL1 | L LOFD |	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:31:15	ResponsePlanType	0	0	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:31:15	Address	lopd	380 A AVE	Premise Verified	Response_Master_Incident	LC4	LP64168
10/27/2023	14:31:15	City		LAKE OSWEGO	Updated City	Response_Master_Incident	LC4	LP64168
10/27/2023	14:31:15	Latitude	0	45419489	Premise Verified	Response_Master_Incident	LC4	LP64168
10/27/2023	14:31:15	Longitude	0	122667665	Premise Verified	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:22	Address	(Blank)	18500 wil	New Entry	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:25	Jurisdiction	LOCOM PD	LOCOM PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:25	Division	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:25	Battalion	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:25	Response_Area	L WLP PS2 | W TVF U | 2	L WLP PS2 | W TVF U | 2	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:25	ResponsePlanType	0	0	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:25	Address	18500 wil	18500 WILLAMETTE DR	Entry Selected/Returned from GeoLocator	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:25	City		WEST LINN	Updated City	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:25	Latitude	0	45391717	Entry Selected/Returned from GeoLocator	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:25	Longitude	0	122646358	Entry Selected/Returned from GeoLocator	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	Address	18500 WILLAMETTE DR	18550 WILLAMETTE DR	Address Change	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	Jurisdiction	LOCOM PD	LOCOM PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	Division	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	Battalion	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	Response_Area	L WLP PS2 | W TVF U | 2	L WLP PS2 | W TVF U | 2	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	ResponsePlanType	0	0	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	ResponsePlanType	0	0	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	Address	18550 WILLAMETTE DR	18550 WILLAMETTE DR	Change Verified	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	City		WEST LINN	Updated City	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	Latitude	45391717	45391425	Change Verified	Response_Master_Incident	LC4	LP64168
10/27/2023	14:36:42	Longitude	122646358	122646024	Change Verified	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:28	Agency Name		PD	(Response Viewer)	Incident	LC4	LP64168
10/27/2023	14:37:31	Address	(Blank)	mcdonalds	New Entry	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:50	Address	mcdonalds	18850 WILLAMETTE DR	Premise Verified	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:50	Latitude	0	45389823	Premise Verified	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:50	Longitude	0	122643714	Premise Verified	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:51	City		WEST LINN	Updated City	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:51	Jurisdiction	LOCOM PD	LOCOM PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:51	Division	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:51	Battalion	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:51	Response_Area	L WLP PS2 | W TVF U | 2	L WLP PS2 | W TVF U | 2	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:51	ResponsePlanType	0	0	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:59	DispatchLevel		PD ROUTINE	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:59	Problem		PRM - PREMISE CHECK	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:59	Response_Plan		WLPD D2 PA	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:59	ResponsePlanType	0	1	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:59	Priority_Description	P4	P4		Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:59	Priority_Number	0	4		Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:59	Incident_Type	1 OFFICER BEAT	1 OFFICER BEAT	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:37:59	Certification_Level	PD Call	PD Call	(Response Viewer)	Response_Master_Incident	LC4	LP64168
10/27/2023	14:38:30	Call Back Phone		781-413-4806	(Response Viewer)	Incident	LC4	LP64168
10/27/2023	14:39:24	Pickup_Map_Info		6295D		Response_Transports	LC4	LP64168
10/27/2023	14:39:24	Map_Info		6295D		Response_Master_Incident	LC4	LP64168
10/27/2023	14:43:22	Read Call	False	True	(Response Viewer)	Response_Master_Incident	LC3	LP53099

No Custom Time Stamps

No Custom Data Fields

No Attachment

Incident Detail Report

Data Source: **Data Warehouse**
Incident Status: **Closed**
Incident number: **LP23049622**
Case Numbers:
Incident Date: **10/28/2023 17:14:42**
Report Generated: **3/23/2026 14:11:03**

Incident Information

Incident Type:	1 OFFICER BEAT	**Alarm Level:**	
Priority:	P5	**Problem:**	EXP - EXTRA PATROL
Determinant:		**Agency:**	PD
Base Response#:		**Jurisdiction:**	LOCOM PD
Confirmation#:		**Division:**	West Linn PD
Taken By:	JOHNSON, WHITNEY	**Battalion:**	West Linn PD
Response Area:	L WLP PS2 | W TVF U | 2	**Response Plan:**	WLPD D2 PA
Disposition:	W1 - ASSIGNMENT COMPLETED	**Command Ch:**	
Cancel Reason:		**Primary TAC:**	
Incident Status:	Closed	**Secondary TAC:**	
Certification:	PD Call	**Delay Reason (if any):**	
Longitude:	122643714	**Latitude:**	45389823

Incident Location

Location Name:	MCDONALDS (closed) (L WES WILLAMETTE)	**County:**	CLACKAMAS CLW
Address:	18850 Willamette Dr	**Location Type:**	Food
Apartment:		**Cross Street:**	FAIRVIEW WAY/WALLING CIR
Building:		**Map Reference:**	6295D
City, State, Zip:	WEST LINN OR		

Call Receipt

Caller Name:			
Method Received:		**Call Back Phone:**	
Caller Type:		**Caller Location:**	
Caller Address:		**Caller Location Phone:**	
Caller Building:		**Caller Apartment:**	
Caller City, State, Zip:		**Caller County:**	

Time Stamps

Description	Date	Time	User
Phone Pickup	10/28/2023	17:14:42	
1st Key Stroke	10/28/2023	17:14:42	
In Waiting Queue	10/28/2023	17:14:42	
Call Taking Complete	10/28/2023	17:14:42	JOHNSON, WHITNEY
1st Unit Assigned	10/28/2023	17:14:42	
1st Unit Enroute	10/28/2023	17:14:42	
1st Unit Arrived	10/28/2023	17:14:42	
Closed	10/28/2023	17:33:12	Mobile1

Elapsed Times

Description	Time
Received to In Queue	00:00:00
Call Taking	00:00:00
In Queue to 1st Assign	00:00:00
Call Received to 1st Assign	00:00:00
Assigned to 1st Enroute	00:00:00
Enroute to 1st Arrived	00:00:00
Incident Duration	00:18:30

Resources Assigned

Unit	Primary Flag	Assigned	Disposition	Enroute	Staged	Arrived	At Patient	Delay Avail	Complete	Odm. Enroute	Odm. Arrived	Cancel Reason
3S2	Y	17:14:42	W1 - ASSIGNMENT COMPLETED	17:14:42		17:14:42			17:33:12			

Personnel Assigned

Unit	Name
3S2	LAMOTTE, JOSHUA (WL63165)

Caution Notes

No Caution Notes found

Permits

No Permit Information

Pre-Scheduled Information

No Pre-Scheduled Information

Transports

No Transports Information

Transport Legs

No Transports Information

Comments

Date	Time	User	Type	Conf.	Comments
10/28/2023	17:33:14	LAMOTTE, JOSHUA	Response	Y	[1] 3S2 - wlp00008 - noticed what looked to be wet paint inside walked the perimeter and found an unsecrue drive thru window.

Called the property managment company who said they would come out to secure the building.

Address Changes
No Address Changes

Priority Changes
No Priority Changes

Alarm Level Changes
No Alarm Level Changes

Activity Log

Date	Time	Radio	Activity	Location	Log Entry	User
10/28/2023	17:14:43	3S2	Arrived	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]		LP60330
10/28/2023	17:14:43		Incident Transfer	18850 Willamette Dr	Incident has been has been transferred, fusion ID 653da3f32f3298facfd24549	C2C1
10/28/2023	17:24:43		Incident Late		Active incident marked as late	
10/28/2023	17:27:42	3S2	Reset System Timer	WALLING\WILLAMETTE	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 10/28/2023 17:32:42	LP60330
10/28/2023	17:32:42		Incident Late		Active incident marked as late	
10/28/2023	17:33:12	3S2	Disposition	MCDONALDS (closed) (L WES WILLAMETTE)	W1 - ASSIGNMENT COMPLETED	3S2
10/28/2023	17:33:12	3S2	Available	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Unit Cleared From Incident LP23049622	3S2
10/28/2023	17:33:14		Incident Timer Clear	18850 Willamette Dr	Incident Late Timer cleared for LP23049622	M1
10/28/2023	17:33:14		Read Comment	18850 Willamette Dr	Comment for Incident 895 was marked as read.	M1
10/28/2023	17:33:14	3S2	Response Closed	MCDONALDS (closed) (L WES WILLAMETTE)	Response Disposition: W1 - ASSIGNMENT COMPLETED	3S2

Edit Log

Date	Time	Field	Changed From	Changed To	Reason	Table	Workstation	User
10/28/2023	17:14:42	Pickup_Map_Info		6295D		Response_Transports	LC5	LP60330
10/28/2023	17:14:42	Map_Info		6295D		Response_Master_Incident	LC5	LP60330
10/28/2023	17:33:14	Unread Comment	False	True	(Response Viewer)	Incident	PRODMOBILE	Mobile1

Custom Time Stamps
No Custom Time Stamps

Custom Data Fields
No Custom Data Fields

Attachments
No Attachment

Incident Detail Report

Data Source: **Data Warehouse**
Incident Status: **Closed**
Incident number: **LP24044562**
Case Numbers:
Incident Date: **9/22/2024 16:56:12**
Report Generated: **3/23/2026 14:11:41**

Incident Information

Incident Type:	1 OFFICER BEAT	**Alarm Level:**	
Priority:	P5	**Problem:**	EXP - EXTRA PATROL
Determinant:		**Agency:**	PD
Base Response#:		**Jurisdiction:**	LOCOM PD
Confirmation#:		**Division:**	West Linn PD
Taken By:	GOODE, MATTHEW	**Battalion:**	
Response Area:		**Response Plan:**	
Disposition:	W1 - ASSIGNMENT COMPLETED	**Command Ch:**	
Cancel Reason:		**Primary TAC:**	
Incident Status:	Closed	**Secondary TAC:**	
Certification:	PD Call	**Delay Reason (if any):**	
Longitude:	0	**Latitude:**	0

Incident Location

Location Name:		**County:**	
Address:	18850 willamette drive	**Location Type:**	
Apartment:		**Cross Street:**	
Building:		**Map Reference:**	
City, State, Zip:	west linn		

Call Receipt

Caller Name:			
Method Received:	ON VIEW	**Call Back Phone:**	
Caller Type:		**Caller Location:**	
Caller Address:		**Caller Location Phone:**	
Caller Building:		**Caller Apartment:**	
Caller City, State, Zip:		**Caller County:**	

Time Stamps

Description	Date	Time	User
Phone Pickup	9/22/2024	16:56:12	
1st Key Stroke	9/22/2024	16:56:12	
In Waiting Queue	9/22/2024	16:56:12	
Call Taking Complete	9/22/2024	16:56:12	GOODE, MATTHEW
1st Unit Assigned	9/22/2024	16:56:12	
1st Unit Enroute	9/22/2024	16:56:12	
1st Unit Arrived	9/22/2024	16:56:12	
Closed	9/22/2024	16:57:08	Mobile1

Elapsed Times

Description	Time
Received to In Queue	00:00:01
Call Taking	
In Queue to 1st Assign	00:00:00
Call Received to 1st Assign	00:00:00
Assigned to 1st Enroute	00:00:00
Enroute to 1st Arrived	00:00:00
Incident Duration	00:00:56

Resources Assigned

Unit	Primary Flag	Assigned	Disposition	Enroute	Staged	Arrived	At Patient	Delay Avail	Complete	Odm. Enroute	Odm. Arrived	Cancel Reason
3S1	Y	16:56:12	W1 - ASSIGNMENT COMPLETED	16:56:12		16:56:12			16:57:08			

Personnel Assigned

Unit	Name
3S1	GOODE, MATTHEW (WL59707)

Caution Notes

No Caution Notes found

Permits

No Permit Information

Pre-Scheduled Information

No Pre-Scheduled Information

Transports

No Transports Information

Transport Legs

No Transports Information

Comments

Date	Time	User	Type	Conf.	Comments
9/22/2024	16:56:12	GOODE, MATTHEW	Response	Y	[1] 3S1 - wlp00023 - extra patrol

Address Changes
No Address Changes

Priority Changes
No Priority Changes

Alarm Level Changes
No Alarm Level Changes

Activity Log

Date	Time	Radio	Activity	Location	Log Entry	User
9/22/2024	16:56:12	3S1	Dispatched	WILLAMETTE\WALLING		3S1
9/22/2024	16:56:12	3S1	Enroute	18850 willamette drive	Responding From = WILLAMETTE\WALLING.	3S1
9/22/2024	16:56:12	3S1	Arrived	18850 willamette drive		3S1
9/22/2024	16:56:12		Problem Nature	18850 willamette drive	Incident problem nature changed from <Blank> to EXP - EXTRA PATROL	M1
9/22/2024	16:56:12		Read Comment	18850 willamette drive	Comment for Incident 598 was marked as read.	M1
9/22/2024	16:56:12	3S1	OnSite incident created	18850 willamette drive	Incident Created Successfully from unit 3S1 by GOODE, MATTHEW	3S1
9/22/2024	16:56:12		Incident Transfer	18850 willamette drive	Incident has been has been transferred, fusion ID 66f0ae9c7e0a079f7edca1e3	C2C1
9/22/2024	16:56:12		Incident Transfer	18850 willamette drive	Incident has been has been transferred, fusion ID 66f0ae9c7e0a079f7edca1e3	C2C1
9/22/2024	16:57:08	3S1	Disposition	18850 willamette drive	W1 - ASSIGNMENT COMPLETED	3S1
9/22/2024	16:57:08	3S1	Available	18850 willamette drive	Unit Cleared From Incident LP24044562	3S1
9/22/2024	16:57:08	3S1	Response Closed	18850 willamette drive	Response Disposition: W1 - ASSIGNMENT COMPLETED	3S1

Edit Log

Date	Time	Field	Changed From	Changed To	Reason	Table	Workstation	User
9/22/2024	16:56:12	Agency Name		PD	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Address		18850 willamette drive	New Entry	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	City		west linn	New Entry	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Latitude	0		New Entry	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Longitude	0		New Entry	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Division			New Entry	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Battalion			New Entry	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Jurisdiction			New Entry	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	House Number		0	New Entry	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Jurisdiction Name		LOCOM PD	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Division Name		West Linn PD	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Current Division Name		West Linn PD	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Current Sector ID		6	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Problem Name		EXP - EXTRA PATROL	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Certification Level		PD Call	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Priority Name		6	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Certification Level		PD Call	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Incident Type Name		1 OFFICER BEAT	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Method Of Call Received Name		ON VIEW	(Response Viewer)	Incident	PRODMOBILE	Mobile1
9/22/2024	16:56:12	Unread Comment	False	True	(Response Viewer)	Incident	PRODMOBILE	Mobile1

Custom Time Stamps
No Custom Time Stamps

Custom Data Fields
No Custom Data Fields

Attachments
No Attachment

Incident Detail Report

Data Source: **Data Warehouse**
Incident Status: **Closed**
Incident number: **LP25037555**
Case Numbers: **WLP25-004995**
Incident Date: **8/19/2025 08:43:51**
Report Generated: **3/23/2026 14:13:05**

Incident Information

Incident Type:	1 OFFICER BEAT	**Alarm Level:**	
Priority:	P4	**Problem:**	PRM - PREMISE CHECK
Determinant:		**Agency:**	PD
Base Response#:		**Jurisdiction:**	LOCOM PD
Confirmation#:		**Division:**	West Linn PD
Taken By:	BORDEN, VIRGINIA	**Battalion:**	West Linn PD
Response Area:	L WLP PS2 | W TVF U | 2	**Response Plan:**	WLPD D2 PA
Disposition:	R1 - ORIGINAL REPORT	**Command Ch:**	
Cancel Reason:		**Primary TAC:**	
Incident Status:	Closed	**Secondary TAC:**	
Certification:	PD Call	**Delay Reason (if any):**	
Longitude:	122643714	**Latitude:**	45389823

Incident Location

Location Name:	MCDONALDS (closed) (L WES WILLAMETTE)	**County:**	CLACKAMAS CLW
Address:	18850 Willamette Dr	**Location Type:**	Food
Apartment:		**Cross Street:**	FAIRVIEW WAY/WALLING CIR
Building:		**Map Reference:**	6295D
City, State, Zip:	WEST LINN OR		

Call Receipt

Caller Name:	PETER WATTS		
Method Received:		**Call Back Phone:**	971-506-8570
Caller Type:		**Caller Location:**	
Caller Address:		**Caller Location Phone:**	
Caller Building:		**Caller Apartment:**	
Caller City, State, Zip:		**Caller County:**	

Time Stamps

Description	Date	Time	User
Phone Pickup	8/19/2025	08:43:49	
1st Key Stroke	8/19/2025	08:43:51	
In Waiting Queue	8/19/2025	08:46:40	
Call Taking Complete	8/19/2025	08:51:03	BORDEN, VIRGINIA
1st Unit Assigned	8/19/2025	08:53:02	
1st Unit Enroute	8/19/2025	09:08:59	
1st Unit Arrived	8/19/2025	09:08:59	
Closed	8/19/2025	09:29:21	VIERRA, MADISON

Elapsed Times

Description	Time
Received to In Queue	00:02:49
Call Taking	00:07:12
In Queue to 1st Assign	00:06:22.3
Call Received to 1st Assign	00:09:13.3
Assigned to 1st Enroute	00:15:57.3
Enroute to 1st Arrived	00:00:00
Incident Duration	00:45:32

Resources Assigned

Unit	Primary Flag	Assigned	Disposition	Enroute	Staged	Arrived	At Patient	Delay Avail	Complete	Odm. Enroute	Odm. Arrived	Cancel Reason
2S1	Y	08:53:02	R1 - ORIGINAL REPORT	09:08:59		09:08:59			09:29:21			

Personnel Assigned

Unit	Name
2S1	NEIL, TAYLOR J (WL44174); ZZZTHOL, CHANNA (WL50191)

Caution Notes

No Caution Notes found

Permits

No Permit Information

Pre-Scheduled Information

No Pre-Scheduled Information

Transports

No Transports Information

Transport Legs

No Transports Information

Comments

Date	Time	User	Type	Conf.	Comments

8/19/2025	08:46:40	LP52165	Response	[1] CLOSED MCDONALDS, RP IS PSBY DRVR. SEES WINDOWS BUSTED OUT OF CLOSED MCDONALDS BUSINESS. UNK TIME FRAME OF VAND/BURG. UNK IF LRG ENOUGH FOR ENTRY. NOT SEEING ANY MOVMENT I/S OR ANY PPL OR SUSP VEHS AROUND. RP MOVING ALONG. .
8/19/2025	09:29:05	LP65813	Response	[2] Requested Case Number(s) issued for Incident #[LP25037555], Jurisdiction: LOCOM PD. Case Number(s): WLP25-004995. requested by 2S1.

Address Changes
No Address Changes

Priority Changes
No Priority Changes

Alarm Level Changes
No Alarm Level Changes

Activity Log

Date	Time	Radio	Activity	Location	Log Entry	User
8/19/2025	08:44:14		Sector Change		From Sector No Sector to Sector WP	LP52165
8/19/2025	08:46:35		Incident Priority Change		Incident priority changed from P4 to P4	LP52165
8/19/2025	08:46:35		Problem Nature	18850 WILLAMETTE DR	Incident problem nature changed from <Blank> to PRM - PREMISE CHECK~PD	LP52165
8/19/2025	08:46:40		Incident Transfer	18850 Willamette Dr	Incident has been has been transferred, fusion ID 68a49c60de0875931407ff75	C2C1
8/19/2025	08:46:43		Read Incident		Incident 688 was Marked as Read.	LP53099
8/19/2025	08:51:03		UserAction		User clicked Exit/Save	LP52165
8/19/2025	08:51:16		UserAction		User clicked Exit/Save	LP52165
8/19/2025	08:51:23		UserAction		User clicked Exit/Save	LP65813
8/19/2025	08:51:33		UserAction		User clicked Exit/Save	LP65813
8/19/2025	08:53:02	2S1	Dispatched	8TH\10TH		LP65813
8/19/2025	08:53:46		UserAction		User clicked Exit/Save	LP65813
8/19/2025	08:59:23		UserAction		User clicked Exit/Save	LP57155
8/19/2025	09:08:59	2S1	Enroute	18850 Willamette Dr [MCDONALDS (closed) (LWES WILLAMETTE)]	Status bypassed by user due to allowable status change	LP57155
8/19/2025	09:08:59	2S1	Enroute	18850 Willamette Dr [MCDONALDS (closed) (LWES WILLAMETTE)]	Responding From = WILLAMETTE\WALLING.	LP57155
8/19/2025	09:08:59	2S1	Arrived	18850 Willamette Dr [MCDONALDS (closed) (LWES WILLAMETTE)]		LP57155
8/19/2025	09:12:07		Premise History Access		Premise History Viewed	LP57155
8/19/2025	09:12:12		Premise Info. Access		Premise Note Viewed	LP57155
8/19/2025	09:12:15		Premise History Access		Premise History Viewed	LP53099
8/19/2025	09:12:18		UserAction		User clicked Exit/Save	LP57155
8/19/2025	09:12:18		Premise Info. Access		Premise Note Viewed	LP53099
8/19/2025	09:12:22		UserAction		User clicked Exit/Save	LP57155
8/19/2025	09:14:17		UserAction		User clicked Exit/Save	LP52165
8/19/2025	09:19:56		UserAction		User clicked Exit/Save	LP53099
8/19/2025	09:20:09		Incident Late		Active incident marked as late	
8/19/2025	09:20:35	2S1	Reset System Timer	WALLING\WILLAMETTE	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 8/19/2025 09:30:35	LP65813
8/19/2025	09:20:52		Premise History Access		Premise History Viewed	LP57155
8/19/2025	09:20:53		Premise History Access		Premise History Viewed	LP65813
8/19/2025	09:21:16		Premise History Access		Premise History Viewed	LP65813
8/19/2025	09:21:19		UserAction		User clicked Exit/Save	LP65813
8/19/2025	09:29:04		UserAction		User clicked Exit/Save	LP57155
8/19/2025	09:29:05	2S1	Requested Case Number	WALLING\WILLAMETTE	Requested Case Number(s) issued for Incident #[LP25037555], Jurisdiction: LOCOM PD. Case Number(s): WLP25-004995.	LP65813
8/19/2025	09:29:21	2S1	Disposition	MCDONALDS (closed) (LWES WILLAMETTE)	R1 - ORIGINAL REPORT	LP65813
8/19/2025	09:29:21	2S1	Available	18850 Willamette Dr [MCDONALDS (closed) (LWES WILLAMETTE)]	Unit Cleared From Incident LP25037555	LP65813
8/19/2025	09:29:21	2S1	Response Closed	MCDONALDS (closed) (LWES WILLAMETTE)	Response Disposition: R1 - ORIGINAL REPORT	LP65813
8/19/2025	10:06:58		UserAction		User clicked Exit/Save	LP53099

Edit Log

Date	Time	Field	Changed From	Changed To	Reason	Table	Workstation	User
8/19/2025	08:43:40	Latitude	0	45407910	Premise Verified	Response_Master_Incident	LC3	LP52165
8/19/2025	08:43:40	Longitude	0	122624953	Premise Verified	Response_Master_Incident	LC3	LP52165

8/19/2025	08:43:40	Address	MCDONALDS	15870 SE MCLOUGHLIN BLVD	Premise Verified	Response_Master_Incident	LC3	LP52165
8/19/2025	08:43:41	City		MILWAUKIE	Updated City	Response_Master_Incident	LC3	LP52165
8/19/2025	08:43:50	Agency Name		PD	(Response Viewer)	Incident	LC3	LP52165
8/19/2025	08:43:52	Address	(Blank)	MCDONALDS	New Entry	Response_Master_Incident	LC3	LP52165
8/19/2025	08:44:14	Jurisdiction	LOCOM PD	LOCOM PD	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:44:14	Division	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:44:14	Battalion	West Linn PD	West Linn PD	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:44:14	Response_Area	L WLP PS2 | W TVF U | 2	L WLP PS2 | W TVF U | 2	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:44:14	Address	MCDONALDS	18850 WILLAMETTE DR	Premise Verified	Response_Master_Incident	LC3	LP52165
8/19/2025	08:44:14	Latitude	0	45389823	Premise Verified	Response_Master_Incident	LC3	LP52165
8/19/2025	08:44:14	Longitude	0	122643714	Premise Verified	Response_Master_Incident	LC3	LP52165
8/19/2025	08:44:15	City		WEST LINN	Updated City	Response_Master_Incident	LC3	LP52165
8/19/2025	08:44:15	Address		18850 WILLAMETTE DR	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	City		WEST LINN	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	County		CLACKAMAS CLW	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	State		OR	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	PremiseID	0	59639	Premise Verified	Incident	LC3	LP52165
8/19/2025	08:44:15	StreetID	0	366132	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Location Name		MCDONALDS (closed) (L WES WILLAMETTE)	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Location Type		Food	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Latitude	0	45389823	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Longitude	0	122643714	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Division		West Linn PD	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Battalion		West Linn PD	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Jurisdiction		LOCOM PD	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Home Sector	0	6	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Current Sector	0	6	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Cross Street		FAIRVIEW WAY/WALLING CIR	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	House Number		0	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Response Area		L WLP PS2 | W TVF U | 2	New Entry	Incident	LC3	LP52165
8/19/2025	08:44:15	Map Info		6295D	(Response Viewer)	Incident	LC3	LP52165
8/19/2025	08:44:15	Map_Info		6295D	Polygon Lookup		LC3	LP52165
8/19/2025	08:44:52	Call Back Phone		971-506-8570	(Response Viewer)	Incident	LC3	LP52165
8/19/2025	08:46:35	DispatchLevel		PD ROUTINE	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:46:35	Problem		PRM - PREMISE CHECK	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:46:35	Response_Plan		WLPD D2 PA	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:46:35	ResponsePlanType	0	1	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:46:35	Priority_Description	P4	P4		Response_Master_Incident	LC3	LP52165
8/19/2025	08:46:35	Priority_Number	0	4		Response_Master_Incident	LC3	LP52165
8/19/2025	08:46:35	Incident_Type	1 OFFICER BEAT	1 OFFICER BEAT	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:46:35	Certification_Level	PD Call	PD Call	(Response Viewer)	Response_Master_Incident	LC3	LP52165
8/19/2025	08:46:41	Pickup_Map_Info		6295D		Response_Transports	PRODAPP01	LP52165
8/19/2025	08:46:41	Map_Info	6295D	6295D		Response_Master_Incident	PRODAPP01	LP52165
8/19/2025	08:46:43	Read Call	False	True	(Response Viewer)	Response_Master_Incident	LC6	LP53099

Custom Time Stamps
No Custom Time Stamps

Custom Data Fields
No Custom Data Fields

Attachments
No Attachment

Incident Detail Report

Data Source: **Data Warehouse**
Incident Status: **Closed**
Incident number: **LP25044450**
Case Numbers:
Incident Date: **9/27/2025 09:08:37**
Report Generated: **3/23/2026 14:12:38**

Incident Information

Incident Type:	1 OFFICER BEAT	**Alarm Level:**	
Priority:	P3	**Problem:**	SSC - SUSPICIOUS CIRC
Determinant:		**Agency:**	PD
Base Response#:		**Jurisdiction:**	LOCOM PD
Confirmation#:		**Division:**	West Linn PD
Taken By:	WARD, DEANNA	**Battalion:**	West Linn PD
Response Area:	L WLP PS2 | W TVF U | 2	**Response Plan:**	WLPD D2 PA
Disposition:	X3 - SUSP SITUATION CHKD OK	**Command Ch:**	
Cancel Reason:		**Primary TAC:**	
Incident Status:	Closed	**Secondary TAC:**	
Certification:	PD Call	**Delay Reason (if any):**	
Longitude:	122643714	**Latitude:**	45389823

Incident Location

Location Name:	MCDONALDS (closed) (L WES WILLAMETTE)	**County:**	CLACKAMAS CLW
Address:	18850 Willamette Dr	**Location Type:**	Food
Apartment:		**Cross Street:**	FAIRVIEW WAY/WALLING CIR
Building:		**Map Reference:**	6295D
City, State, Zip:	WEST LINN OR		

Call Receipt

Caller Name:			
Method Received:		**Call Back Phone:**	
Caller Type:		**Caller Location:**	
Caller Address:		**Caller Location Phone:**	
Caller Building:		**Caller Apartment:**	
Caller City, State, Zip:		**Caller County:**	

Time Stamps

Description	Date	Time	User
Phone Pickup	9/27/2025	09:08:37	
1st Key Stroke	9/27/2025	09:08:37	
In Waiting Queue	9/27/2025	09:08:37	
Call Taking Complete	9/27/2025	09:08:37	WARD, DEANNA
1st Unit Assigned	9/27/2025	09:08:37	
1st Unit Enroute	9/27/2025	09:08:37	
1st Unit Arrived	9/27/2025	09:08:37	
Closed	9/27/2025	09:32:38	Mobile1

Elapsed Times

Description	Time
Received to In Queue	00:00:00
Call Taking	00:00:00
In Queue to 1st Assign	00:00:00
Call Received to 1st Assign	00:00:00
Assigned to 1st Enroute	00:00:00
Enroute to 1st Arrived	00:00:00
Incident Duration	00:24:01

Resources Assigned

Unit	Primary Flag	Assigned	Disposition	Enroute	Staged	Arrived	At Patient	Delay Avail	Complete	Odm. Enroute	Odm. Arrived	Cancel Reason
2S2	Y	09:08:37	X3 - SUSP SITUATION CHKD OK	09:08:37		09:08:37			09:32:38			
2S1	N	09:10:52		09:10:52		09:24:37			09:31:36			

Personnel Assigned

Unit	Name
2S2	LAMOTTE, JOSHUA (WL63165)
2S1	NELSON, ZACHARY (WL62710)

Caution Notes

No Caution Notes found

Permits

No Permit Information

Pre-Scheduled Information

No Pre-Scheduled Information

Transports

No Transports Information

Transport Legs

No Transports Information

Comments

Date	Time	User	Type	Conf.	Comments

9/27/2025	09:08:46	LP64168	Response		[1] 2S2 OPEN DOOR
9/27/2025	09:26:06	LP64168	Response		[2] 2S2 CLEARING BLDG
9/27/2025	09:32:38	LAMOTTE, JOSHUA	Response	Y	[3] 2S2 - wlp00022 - I was able to resecure the door and notify the property manager.

Address Changes
No Address Changes

Priority Changes
No Priority Changes

Alarm Level Changes
No Alarm Level Changes

Activity Log

Date	Time	Radio	Activity	Location	Log Entry	User
9/27/2025	09:08:38	2S2	Arrived	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]		LP64168
9/27/2025	09:08:38		Incident Transfer	18850 Willamette Dr	Incident has been has been transferred, fusion ID 68d80c061c573140683a91cc	C2C1
9/27/2025	09:10:52	2S1	Dispatched	13TH ST\CHRISTY CT		2S1
9/27/2025	09:10:52	2S1	Enroute	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Responding From = 13TH ST\CHRISTY CT.	2S1
9/27/2025	09:13:38		Incident Late		Active incident marked as late	
9/27/2025	09:14:54	2S2	Reset System Timer	WALLING WAY\WILLAMETTE DR	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 9/27/2025 09:24:54	LP64168
9/27/2025	09:15:09		Read Incident		Incident 304 was Marked as Read.	LP63810
9/27/2025	09:15:13		UserAction		User clicked Exit/Save	LP63810
9/27/2025	09:24:37	2S1	Arrived	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]		2S1
9/27/2025	09:24:54		Incident Late		Active incident marked as late	
9/27/2025	09:25:16	2S2	Reset System Timer	WALLING WAY\WILLAMETTE DR	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 9/27/2025 09:30:16	LP64168
9/27/2025	09:25:59	2S2	Reset System Timer	WALLING WAY\WILLAMETTE DR	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 9/27/2025 09:35:59	LP64168
9/27/2025	09:26:02	2S1	Reset System Timer	WALLING WAY\WILLAMETTE DR	[Timer] Reset System Timer [Reset Reason] Status Check [Next Late Check Time] 9/27/2025 09:36:02	LP64168
9/27/2025	09:31:36	2S1	Available	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Unit Cleared From Incident LP25044450	2S1
9/27/2025	09:32:38	2S2	Disposition	MCDONALDS (closed) (L WES WILLAMETTE)	X3 - SUSP SITUATION CHKD OK	2S2
9/27/2025	09:32:38	2S2	Available	18850 Willamette Dr [MCDONALDS (closed) (L WES WILLAMETTE)]	Unit Cleared From Incident LP25044450	2S2
9/27/2025	09:32:38	2S2	Response Closed	MCDONALDS (closed) (L WES WILLAMETTE)	Response Disposition: X3 - SUSP SITUATION CHKD OK	2S2
9/27/2025	09:32:38		Read Comment	18850 Willamette Dr	Comment for Incident 304 was marked as read.	M1

Edit Log

Date	Time	Field	Changed From	Changed To	Reason	Table	Workstation	User
9/27/2025	09:08:38	Pickup_Map_Info		6295D		Response_Transports	PRODAPP01	LP64168
9/27/2025	09:08:38	Map_Info		6295D		Response_Master_Incident	PRODAPP01	LP64168
9/27/2025	09:15:09	Read Call	False	True	(Response Viewer)	Response_Master_Incident	LC3	LP63810
9/27/2025	09:32:38	Unread Comment	False	True	(Response Viewer)	Incident	PRODMOBILE	Mobile1

Custom Time Stamps
No Custom Time Stamps

Custom Data Fields
No Custom Data Fields

Attachments
No Attachment

March 24, 2026

Re: CUP-25-03 / DR-25-03 / VAR-25-02 Kaady Car Wash
18850 Willamette Drive – Alternative Glazing Proposal

Chair and Commissioners:

On behalf of the applicant, Kaady Car Wash and its owner Charles (Chuck) Kaady, please find attached alternative glazing plans for the proposed car wash at 18850 Willamette Drive. These revised plans are intended to provide a straightforward alternative path to approval of the proposal that does not require variance approval, in light of comments made at the public hearing.

At the time of the original application the building did not comply with Municipal Code Design Review 55.100 6 4 e, Architecture, regarding the percentage of transparent glazing on the building.

THE CODE STATES:

"The main front elevation of commercial and office buildings shall provide at least 60 percent windows or transparency at the pedestrian level to create more interesting streetscape and window shopping opportunities. One side elevation shall provide at least 30 percent transparency. Any additional side or rear elevation, which is visible from a collector road or greater classification, shall also have at least 30 percent transparency. Transparency on other elevations is optional. The transparency is measured in lineal fashion. For example, a 100-foot-long building elevation shall have at least 60 feet (60 percent of 100 feet) in length of windows. The window height shall be, at minimum, three feet tall. The exception to transparency would be cases where demonstrated functional constraints or topography restrict that elevation from being used. When this exemption is applied to the main front elevation, the square footage of transparency that would ordinarily be required by the above formula shall be installed on the remaining elevations at pedestrian level in addition to any transparency required by a side elevation, and vice versa. The rear of the building is not required to include transparency. The transparency must be flush with the building elevation."

Originally, the main front elevation facing Willamette Drive had the car wash exit, which is an open aperture, but not windows that would meet the code. Windows on the Walling Way side were less than 30% of the linear façade, required by the code provision. Therefor a Variance was requested for compliance with this provision.

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phone: 503 220 0668 | www.tvaarchitects.com

Tim Wybenga, LEED AP | Pamela Saftler, AIA, IIDA | Mandy Butler, AIA, LEED AP, CSI CDT

As the record already reflects, the variance request was not made casually. It was driven by the functional realities of a drive-through car wash. The building is not a conventional retail or office use. While an allowed conditional use in the zone, most of the structure is occupied by wash-bay, equipment, and operational areas that do not lend themselves to public-facing windows in the same way as a pedestrian-oriented storefront.

Though some car washes provide visible wash bays, providing windows along the passenger side elevations would not explicitly solve the requirement for a street visible elevation for glazing, though an argument could be made that vehicles driving south along Willamette Drive would view the elevation through the parking lot. Also, some neighborhood residents dislike the United Car Wash's "disco" light show which is part of their wash process, and our proposal would be more visibly restrained than that car wash's flamboyant display.

The applicant's narrative explained that additional glazing was originally disfavored because it does not materially improve the functioning of the facility and can interfere with internal equipment layouts. The staff report likewise recognized that the applicant sought the variance because of the nature of the car wash use, and that windows are provided for staff areas even though most of the enclosure serves the wash operation itself.

That said, at the public hearing, multiple members of the public objected to the variance and expressed a preference that the building include code-compliant glazing regardless of the operational drawbacks. In response, the applicant prepared the attached alternative plans so that the Commission has a clean option before it. Those plans are expressly designed to satisfy the glazing requirement without the need for a variance.

THE MODIFICATION:

As part of a design adjustment to improve the noise from the car wash from disturbing the residential neighbors to the west, an acoustic exit enclosure was added. This provided an opportunity to provide the necessary windows to meet the 60% linear take-off required by the code. Recognizing that the main elevation could be brought into compliance, the Walling Way facing South elevation was modified to fully glaze all of the employee areas. This brings the requisite second elevation to 35%. Not only do these moves bring the building into code compliance, but is a net positive benefit to the employees of the car wash.

Calculations:
Main (Exit) Elevation: Glazed Dimension 22'-10" / total width 37'-8" = 61% Glass
Side (Driver's Side) Elevation: Glazed Dimension 52'-3"/ total Width 150'-0" = 35% Glass

See attached modified drawings A1.00 Floor Plan and A4.01 Exterior Elevations.

This modification has been made subsequent to the Land Use Hearing on 3/18/26.

ACCORDINGLY, THE COMMISSION NOW HAS TWO LEGALLY SUPPORTABLE PATHS:

First, the Commission may approve the variance and approve the car wash as proposed, based on the existing record showing that the variance is justified by the functional characteristics of the use and that the project otherwise satisfies the applicable criteria. Staff's report confirms that, subject to Commission action on the variance, the relevant design-review criteria are met.

Second, if the Commission is not inclined to approve the variance, it may instead adopt the attached glazing-compliance plans, deny the variance as unnecessary, and still approve the proposed car wash. That approach would directly address the concerns voiced by members of the public while allowing the underlying project to move forward.

In short, denial of the variance does not require denial of the car wash. The Commission can approve the use and design review with the attached glazing-compliance plans as the controlling approved plans.

We respectfully request that the Commission approve the proposed car wash, and either:

approve the variance and the original design; or
deny the variance as unnecessary and approve the attached glazing-compliance plans in its place.

Thank you for your consideration

Sincerely,

Eric Li, Senior Associate
TVA Architects

KEYNOTES

SHOWN THUS ⬡

NOTE: ONLY KEYNOTES APPROPRIATE TO THIS SHEET ARE SHOWN IN THIS KEYNOTE LEGEND. GC TO VERIFY ANY DISCREPANCY IN KEYNOTING.

3.01	8" POURED-IN-PLACE CONCRETE WASH BAY SLAB. SEE STRUCTURAL FOR REINFORCING. HARD TROWEL FINISH. SLOPE 1" OVER 30'-0" FROM ENTRANCE TO EXIT. (100'-0"). COUNTER-SLOPE TO DRAIN TO CONVEYOR SHELF. PROVIDE MASTERPOLYHEED 980 MID-RANGE WATER-REDUCING CONCRETE ADMIXTURE AND FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND.
3.02	8" POURED-IN-PLACE CONCRETE CONVEYOR SHELF SLAB. SEE STRUCTURAL FOR REINFORCING. HARD TROWEL FINISH. SLOPE IS PARALLEL TO WASH BAY SLAB. COUNTER SLOPE TO DRAINAGE TRENCH. PROVIDE MASTERPOLYHEED 980 MID-RANGE WATER-REDUCING CONCRETE ADMIXTURE. FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND. COORDINATE INSTALLATION OF CONVEYOR SYSTEM WITH OWNER. PROVIDE STEEL ANGLES FOR OWNER PROVIDED FIBERGLASS TRENCH GRATING.
3.03	6" POURED-IN-PLACE CONCRETE DRAINAGE TRENCH SLAB. SEE STRUCTURAL FOR REINFORCING. HARD TROWEL FINISH SMOOTH. PROVIDE MASTERPOLYHEED 980 WATER-REDUCING ADMIXTURE. FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND. SLOPE TOWARDS CROSS-TRENCH, SEE PLAN FOR SLOPE. COORDINATE APPLICATION OF OWNER PROVIDED TRENCH COVER PLATING.
3.04	4" POURED-IN-PLACE CONCRETE OFFICE SLAB. SEE STRUCTURAL FOR REINFORCING. SLOPE PARALLEL TO MATCH BAY FLOOR SLAB. NO CROSS SLOPE. HARD TROWEL SMOOTH FINISH. PROVIDE MASTERPOLYHEED 980 MID-RANGE WATER-REDUCING CONCRETE ADMIXTURE. FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND.
3.05	FILTRATION PIT: 6" POURED-IN-PLACE CONCRETE SLAB ON GRADE, WITH 6" THICK CONCRETE BAFFLE PARTITIONS STAGGERED AS INDICATED ON DRAWINGS. HARD TROWEL FINISH. PROVIDE MASTERPOLYHEED 980 MID-RANGE WATER-REDUCING CONCRETE ADMIXTURE. FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND.
3.06	L3X3X1/4" EMBEDDED ANGLE WITH 3/8" DIA. X 3" SHEAR ANCHORS @ 16" O.C.
8.01	GLAZED ALUMINUM STOREFRONT ENTRY 3'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE: FALCON F-25-R-L-NL-LAT RIM DEVICE, CLOSER: LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 488SBK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.

KEYNOTES

SHOWN THUS ⬡

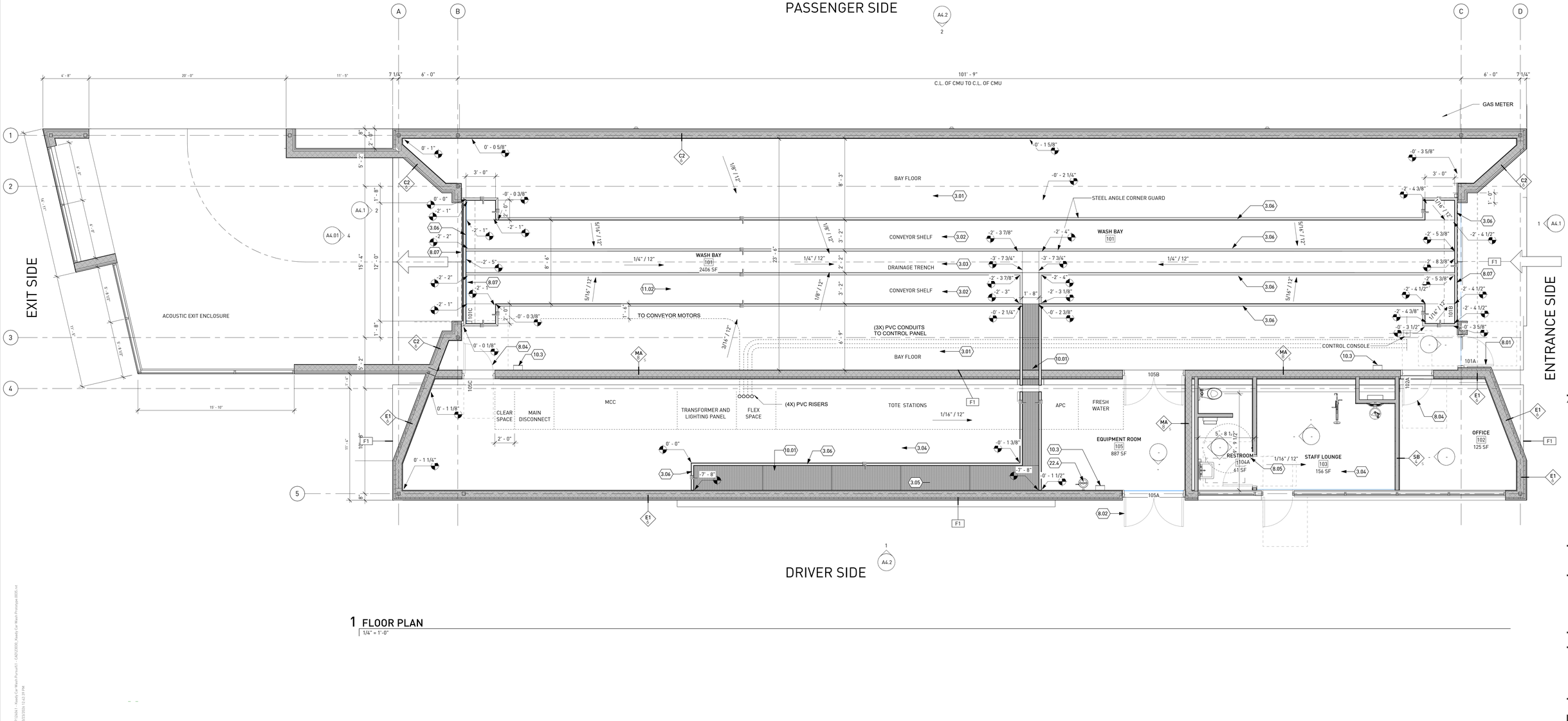
NOTE: ONLY KEYNOTES APPROPRIATE TO THIS SHEET ARE SHOWN IN THIS KEYNOTE LEGEND. GC TO VERIFY ANY DISCREPANCY IN KEYNOTING.

8.02	GLAZED ALUMINUM PAIRED STOREFRONT ENTRY 6'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (8EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE (2EA): FALCON F-25-C-L-NL-LAT CONCEALED VERTICAL ROD DEVICE. CLOSER (2EA): LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 488SBK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.
8.04	HOLLOW METAL OFFICE DOOR WITH HOLLOW METAL FRAME 3'-0" X 8'-0", PAINT WHITE. HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, OFFICE LOCKSET: FALCON T-521-CP6-LAT. CLOSER: LCN 4110 SURFACE MOUNT. GASKET: ZERO 488SBK PSA.
8.05	HOLLOW METAL RESTROOM DOOR IN HOLLOW METAL FRAME 3'-0" X 8'-0", PAINT WHITE. HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, BATHROOM PRIVACY LOCKSET WITH OCCUPANCY INDICATOR: FALCON H2171-610-LAT. CLOSER: LCN 4020 SURFACE MOUNT (PUSH SIDE)
8.07	OVERHEAD COILING DOOR: COOKSON MODEL ESD10 MOTORIZED ROLLING SERVICE DOOR. 20 GAUGE PAINTED GALVANIZED STEEL, PAINT WHITE. 12'-0" WIDE X 9'-0" HIGH.
10.01	OWNER FURNISHED 1 1/2" THICK FIBERGLASS TRENCH GRATE. SET ON L2X2X1/8" CONTINUOUS STEEL ANGLES.
10.3	FIRE EXTINGUISHER AND FEC: FIRE EXTINGUISHER: POTTER ROEMER 3010 (OR FIRE MARSHAL APPROVED ALTERNATE) MULTIPURPOSE DRY-CHEMICAL TYPE IN STEEL CONTAINER. UL RATED 4A:60BC, 10 LB NOMINCAL CPACITY WITH MONAMMONIUM PHOSPHATE BASED DRY CHEMICAL, IN ENAMELED STEEL CONTAINER. CABINET: POTTER ROEMER MODEL 7024 SURFACE MOUNTED GALVANNEALED STEEL WITH RECOATABLE WHITE POLYESTER FINISH. ROLLED RADIUS WITH GLASS PANEL DOOR.
11.02	CAR WASH EQUIPMENT PROVIDED BY OWNER, SHOWN FOR REFERENCE ONLY. FINAL LOCATION OF EQUIPMENT TO BE DETERMINED BY OWNER.
22.4	EYE WASH STATION: BRADLEY MODEL S19224BPT HALO EYEWASH WITH STAINLESSS STEEL BOWL, TAILPIECE & P-TRAP. COMPLIES WITH ANSI/ISEA STANDARD Z358.1. BARRIER FREE DESIGN. MINIMUM FLOW .4 GPM AT 30 PSI.

GENERAL NOTES

1. SITE INFORMATION SHOWN FOR REFERENCE ONLY. SEE SITE PLANS.
2. SEE G SERIES SHEETS FOR CODE COMPLIANCE INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF FINISH, CENTERLINE OF COLUMN, OR GRID LINE, UNO, EXTERIOR DIMENSIONS ARE TO FACE OF FINISH; DIMENSIONS INDICATED AS "CLR MIN" ARE TO FACE OF FINISH
4. ALL DOOR OPENINGS PERPENDICULAR TO A WALL ARE 5" TO THE WALL UNO.
5. SEE G1.XX FOR TYPICAL WALL TYPES, OTHER ASSEMBLY TYPES, STEEL COLUMN FIRE PROTECTION, UNO.
6. SEE EXTERIOR ELEVATIONS FOR WINDOW TYPES NOT SHOWN HERE.
7. DOOR CLEARANCES ARE SHOWN DASHED AND ARE FOR REFERENCE ONLY .
8. PROVIDE SOLID FRT BLOCKING AT ALL GRAB BARS AND WHERE INDICATED ON INTERIOR ELEVATIONS.
9. THE WASH BAY SLAB AND CONVEYOR SHELF SLAB RUN PARALLEL TO EACH OTHER, 25" APART VERTICALLY. SEE STRUCTURAL FOR POUR SEQUENCE.
10. THE WASH BAY SLAB AND OFFICE SLAB RUN PARALLEL TO AND FLUSH WITH EACH OTHER. THE WASH BAY SLAB IS 8" THICK, AND THE OFFICE BAY SLAB IS 4" THICK. SEE STRUCTURAL. THE WASH BAY SLAB ALSO HAS A CROSS SLOPE THAT DRAINS TO THE CONVEYOR/DRAINAGE TRENCH, WHILE THE OFFICE SLAB DOES NOT HAVE A CROSS SLOPE.
11. ELECTRICAL AND PLUMBING CONDUITS ARE SHOWN FOR REFERENCE ONLY. SEE ELECTRICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS AND ADDITIONAL INFORMATION.
12. SINCE SITE CONDITIONS WILL VARY, THE DIRECTIONAL INFORMATION IS DESCRIBED BY FUNCTION: ENTRANCE, EXIT, DRIVER'S SIDE, AND PASSENGER'S SIDE. CARDINAL DIRECTIONS WILL BE REFERENCED ON SITE PLANS AND CIVIL DOCUMENTS.
13. CAR WASH EQUIPMENT IS SHOWN FOR REFERENCE ONLY EXACT COMPONENTS TO BE OWNER FURNISHED AND LOCATED.

PASSENGER SIDE



1 FLOOR PLAN

1/4" = 1'-0"

tva architects inc.
1750 sw yamhill st. suite 150
portland, oregon 97205
phone: 503 220 0668
www.tvaarchitects.com

NOT FOR CONSTRUCTION

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

△ Revisions

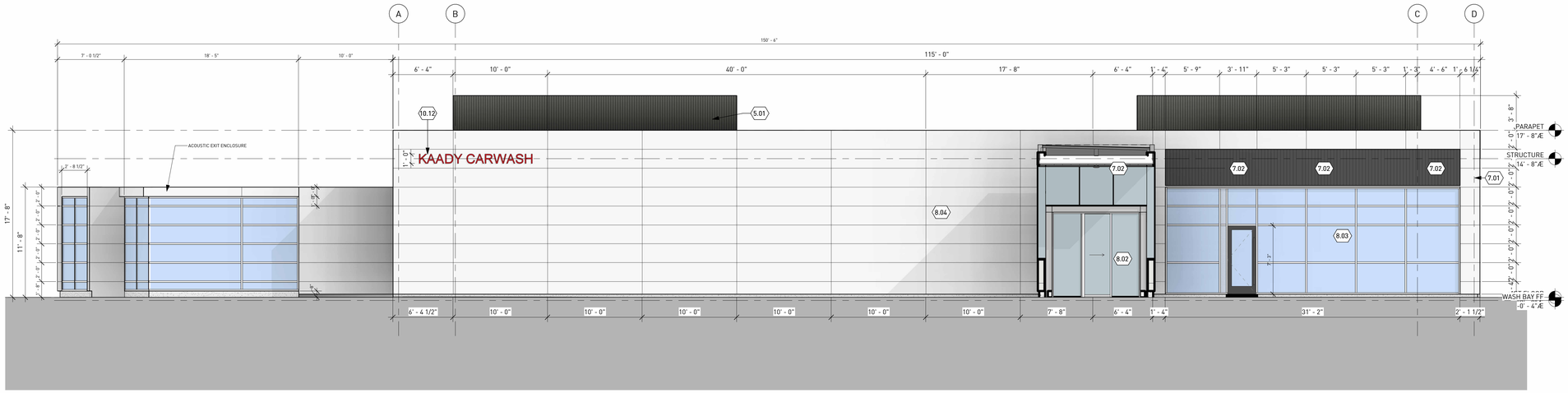
CONDITIONAL USE PERMIT

FLOOR PLAN LEVEL 01

Project # 22005

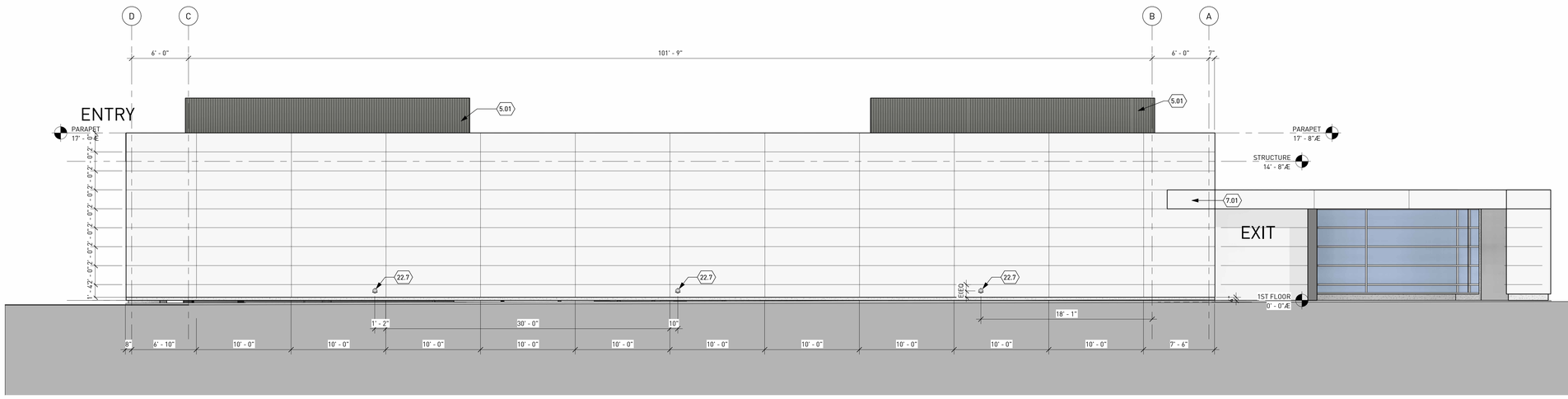
A1.00

Date: 7.23.25



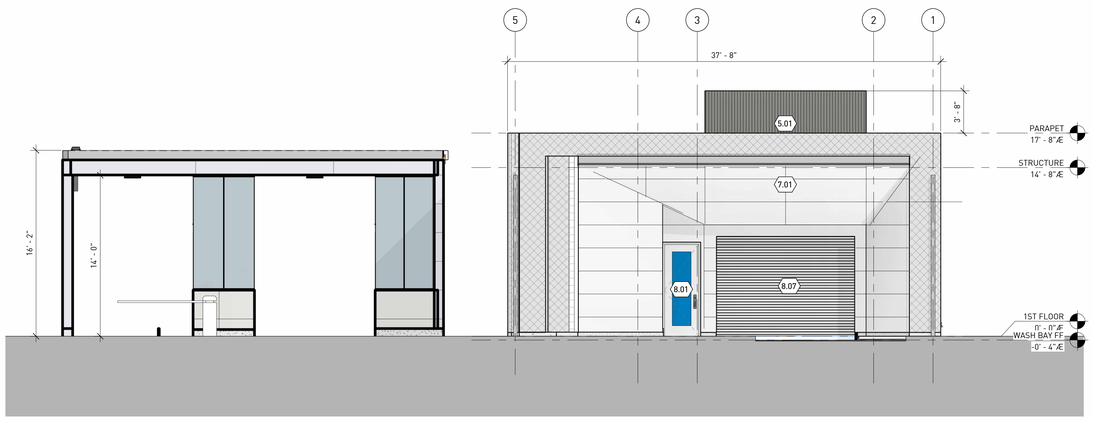
1 DRIVER'S SIDE ELEVATION (SOUTH)

3/16" = 1'-0"



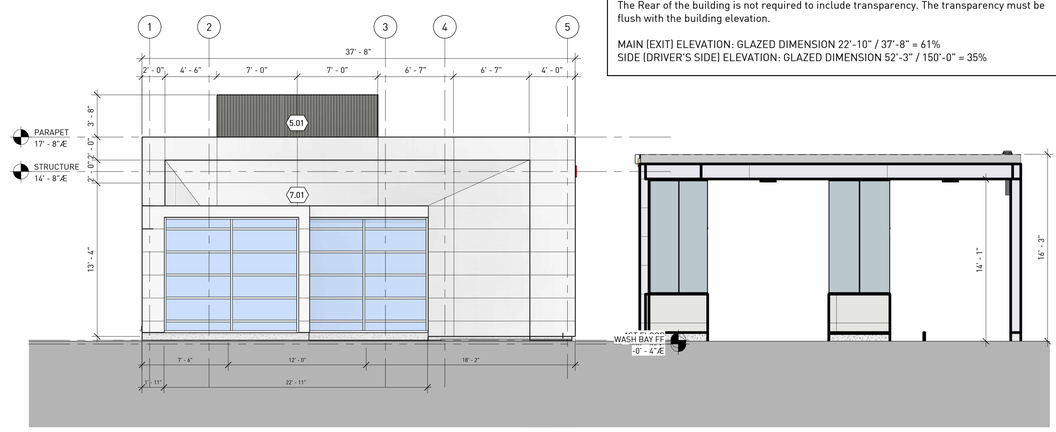
2 PASSENGER'S SIDE ELEVATION (NORTH)

3/16" = 1'-0"



3 ENTRANCE ELEVATION

3/16" = 1'-0"



4 EXIT ELEVATION

3/16" = 1'-0"

GENERAL NOTES

1. PAINT ALL NON-NOTED MISCELLANEOUS ITEMS TO MATCH ADJACENT REFERENCE FINISH COLOR UNO.
2. LOUVER COLOR TO BE COORDINATED / SELECTED WITH SUBMITTALS.
3. SEE FLOOR PLAN FOR DOOR AND WINDOW TAGS,TYP.
4. WINDOW TYPES NOT SHOWN ON FLOOR PLANS ARE SHOWN ON THESE ELEVATIONS.
5. SEE EXTERIOR COMPOSITE SHEETS FOR EXTERIOR FINISHES AND GLAZING.
6. SEE WALL SECTIONS FOR ADDITIONAL ELEVATED AREAS.
7. ALIGN CENTERLINE OF PANEL JOINTS ON SOFFITS AND PROJECTING FRAME ELEMENTS WITH CENTERLINE OF PANEL JOINTS ON WALLS, TYP.

KEYNOTES

SHOWN THUS ⬡

NOTE: ONLY KEYNOTES APPROPRIATE TO THIS SHEET ARE SHOWN IN THIS KEYNOTE LEGEND. GC TO VERIFY ANY DISCREPANCY IN KEYNOTING.

5.01	HSS 4X4 ROOF SCREEN FRAME, SEE STRUCTURAL. RIBBED METAL PANEL CLADDING, METAL SALES T10-A.
7.01	SMOOTH METAL PANEL SMP-1, COMPOSITE METAL PANEL, ALPOLIC, ALUCOBOND, REYNOBOND OR APPROVED. .020 INCH THICK ALUMINUM SHEET WITH ORGANIC COATING FINISH WITH A LOW-DENSITY POLYEHTYLENE CORE. COLOR: WHITE. ROUT AND RETURN FABRICATION FOR 1" NOMINAL PANEL DEPTH. PROVIDE BACKER ROD AND SILICONE SEALANT FOR 1/2" VERTICAL AND HORIZONTAL JOINTS.
7.02	RIBBED METAL PANEL RMP-1. METAL SALES T10-A, 22 GAUGE BOXED RIB METAL PANEL. MOUNT TO FURRING CHANNEL AND FLUSH OUT WITH ADJACENT SMOOTH METAL PANEL SMP-1. COLOR: GREY
8.01	GLAZED ALUMINUM STOREFRONT ENTRY 3'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE: FALCON F-25-R-L-NL-LAT RIM DEVICE, CLOSER: LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 488SBK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.
8.02	GLAZED ALUMINUM PAIRED STOREFRONT ENTRY 6'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (8EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE (2EA): FALCON F-25-C-L-NL-LAT CONCEALED VERTICAL ROD DEVICE. CLOSER (2EA): LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 488SBK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.
8.03	GLAZED ALUMINUM STOREFRONT: BASIS OF DESIGN: KAWNEER 451T THERMALLY BROKEN 4 1/2" ALUMINUM STOREFRONT. 1" INSULATED GLAZING UNITS, GUARDIAN SNX 62/27 U=.28, SHGC=.26. COLOR: WHITE
8.04	HOLLOW METAL OFFICE DOOR WITH HOLLOW METAL FRAME 3'-0" X 8'-0", PAINT WHITE. HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, OFFICE LOCKSET: FALCON T-521-CP6-LAT. CLOSER: LCN 4110 SURFACE MOUNT. GASKET: ZERO 488SBK PSA.
8.07	OVERHEAD COILING DOOR: COOKSON MODEL ESD10 MOTORIZED ROLLING SERVICE DOOR. 20 GAUGE PAINTED GALVANIZED STEEL, PAINT WHITE. 12'-0" WIDE X 9'-0" HIGH.
10.12	OWNER FURNISHED, OWNER INSTALLED BUILDING SIGNAGE
22.7	3" OVERFLOW NOZZLE WITH FLAPPER. ZURN ZF 199 OR APPROVED

COMPLIANCE WITH WEST LINN MUNICIPAL CODE 55.100 6 4

"The main front elevation of commercial and office buildings shall provide at least 60 percent windows or transparencey at the pedestrian level to create more interesting streetscape and window shopping opportunities. One side elevation shall provide at least 30 percent transparency. Transparency on other elevations is optional. The transparency is measured in lineal fashion.

The window height shall be at minimum, three feet tall.

The Rear of the building is not required to include transparency. The transparency must be flush with the building elevation.

MAIN (EXIT) ELEVATION: GLAZED DIMENSION 22'-10" / 37'-8" = 61%
SIDE (DRIVER'S SIDE) ELEVATION: GLAZED DIMENSION 52'-3" / 150'-0" = 35%

tva architects inc.
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NOT FOR CONSTRUCTION

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

△ Revisions

CONDITIONAL USE PERMIT

EXTERIOR ELEVATIONS

Project # 22005

A4.01

Date: 7.23.25

March 25, 2026

Via Electronic Mail
dwyss@westlinnoregon.gov
& Hand Delivery
West Linn Planning Commission
22500 Salamo Road
West Linn, OR 97068
RE: CUP-25-03/DR-25-03/VAR-25-02 / DR-25-03 / VAR-25-02
Kaady Car Wash, 18850 Willamette Drive

Re: Observations at Burnside Car Wash

Dear Members of the Planning Commission:

This letter is written to you to respond to assertions at the hearing that the proposed Kaady Car Wash will have malodor that transcends the car wash property line and track noticeable quantities of car wash liquids outside the tunnel. Both claims are mistaken. Herein, I describe my personal observations from taking my personal Honda vehicle to the Kaady Burnside Car Wash, which functions similarly to the proposed car wash.

When I arrived at the Burnside Kaady Car Wash, I did not detect any odor. As I approached the entry to the wash, approximately ten feet from the entrance, I noticed a slight and pleasant lemon-like scent. Once inside the wash, that scent was more prominent.

After the wash, I pulled over to reattach my antenna and then walked toward the exit area. From the sidewalk on the public street, I did not smell anything. As I moved closer to the wash exit, I still did not detect any odor until I was within approximately five feet of the exit and smelled the slight lemon scent. To me, the lemon scent was pleasant, and I would describe myself as having an ordinary sense of smell. But regardless of how a person might perceive the smell at about 10 feet from the entrance and 5 feet from the exit of the car wash, it is not detectable beyond that distance and so a person who did not like the smell, can easily avoid it. The proposed car wash entrance is less than 10 feet and the exit is more than 5 feet, from any non-Kaady property line or any public area like a sidewalk.

I also observed no evidence of water at the entrance to the car wash and no evidence of car wash spray outside of the tunnel. Similarly, there was no evidence of car wash spray at the exit. At the exit, I could see wet tire marks coming out of the tunnel.

These statements are based on my own personal observations.

Sincerely,

Eric Li

March 25, 2026

Re: CUP-25-03 / DR-25-03 / VAR-25-02 Kaady Car Wash
18850 Willamette Drive – An Existing Reciprocal Ingress and Egress Easement

Chair and Commissioners:

A clarification:

At the Land Use Hearing on March 18, 2026, some petitioner comments suggested that the Walling Way Drive exit was problematic due to the Starbucks drive access across the street. It needs to be noted that the driveway that provides access to the proposed Kaady Car Wash is not part of the proposed scope of work, as it is a dedicated reciprocal ingress and egress easement. (Parcel 1A, Document No. 96-058137 amended by Document No 98-051836.)

The reciprocal access easement is provided for the use of all It is utilized for fire truck access, as well as garbage and delivery trucks to the site. Construction or modification to this drive aisle would not be allowed without a revision to the easement agreement.

Please see our revised Traffic Impact Analysis (TIA) that has been updated by Ard Engineering. In that study, Ard studied the Walling Way intersection load for v/c and Level of Service (LOS) for the intersections, including anticipating future growth, and has determined that Walling Way is well within safety standards for the location, and that having the driveway directly across from the Starbucks is safer because drivers can directly see each other. Removing the Walling Way driveway could adversely change the vehicular loading properties of the main exit, and given that this back exit has little impact on the intersection at Walling Way and Willamette Drive, we do not see a need to change the reciprocal ingress and egress easement conditions.

Thank you for your consideration

Sincerely,

Eric Li, Senior Associate
TVA Architects

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phone: 503 220 0668 | www.tvaarchitects.com

Tim Wybenga, LEED AP | Pamela Saftler, AIA, IIDA | Mandy Butler, AIA, LEED AP, CSI CDT

KAADY CAR WASH
TRANSPORTATION IMPACT ANALYSIS

WEST LINN, OREGON

PREPARED FOR:
Chuck Kaady

PREPARED BY:
Michael Ard, PE
Ard Engineering

DATE:
March 25, 2026

21370 SW Langer Farms Parkway, Suite 142, Sherwood, OR 97140 - (503)862-6960

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EXECUTIVE SUMMARY

1. The property at 18850 Willamette Drive in West Linn, Oregon is proposed for development with an automated car wash facility. The subject property was previously occupied by a McDonalds restaurant with a drive-through window; however, the site has been unoccupied for several years. The site takes access via a driveway on Willamette Drive as well as a driveway on Walling Way.

2. The proposed car wash facility is projected to generate 30 trips during the morning peak hour, 78 trips during the evening peak hour, and 96 trips during the Saturday mid-day peak hour. These volumes are significantly lower than the traffic volumes that were previously generated by the McDonalds restaurant that operated within the site.

3. As demonstrated by the operational analysis the affected roadways and intersections currently operate acceptably per City of West Linn and ODOT standards and are projected to continue to operate acceptably either with or without the addition of site trips from the proposed automated car wash facility. No operational mitigations are necessary or recommended in conjunction with development within the subject property.

4. Based on the analysis and the proposed site plan, the projected vehicle queues waiting to enter the car wash tunnel can safely be accommodated within the project site. Since the car wash queues are not projected to extend to the driveway entrance, they will not impede the movement of vehicles entering and exiting the Cedar Oaks Shopping Center and are not projected to impact operation of either Willamette Drive or Walling Way.

5. Crash data for the most recent five years shows that the study intersections are currently operating acceptably with respect to safety. No specific safety improvements are recommended based on the crash data.

6. Based on the access and circulation analysis, the proposed site plan can safely accommodate the projected queues entering the site without queues backing up into the entrance driveway or onto Highway 43. The on-site circulation plan also accommodates vehicles maneuvering between the car wash tunnel and the vacuum parking stalls without crossing or obstructing the shared access driveway. Exiting queues are projected to be easily accommodated within the site, and the secondary driveway access on Walling Way is appropriately located directly opposite the exit for the Starbucks so that drivers turning onto Walling Way from the two driveways can see each other and navigate safely. The City of West Linn may, however, want to consider prohibiting parking along both side of the segment of Walling Way between Highway 43 and the Starbucks entrance driveway in order to ensure than vehicles parked on the street do not narrow the effective road width to less than what is needed to accommodate Starbucks queues and two effective travel lanes. This potential parking restriction would be appropriate either with or without operation of the proposed automated car wash facility. No other access and circulation mitigations are recommended in conjunction with the proposed development.

PROJECT DESCRIPTION & LOCATION

INTRODUCTION

A property located on the east side of Willamette Drive north of Walling Way in West Linn, Oregon is proposed for development with an automated car wash facility.

Under the proposed development plan, the building that previously housed a fast-food restaurant with a drive-through window will be removed from the site, and an automated car wash facility will be constructed in its place. The car wash building will have a gross floor area of 3,190 square feet and will be centered within the site. A parking area will be provided on the north side of the building, with two staff parking spaces, 14 vacuum parking stalls, and one ADA vacuum parking stall. The ticketing and entry queue area will be at the south side of the site.

SITE LOCATION AND STUDY AREA DESCRIPTION

The subject property is a 1.29-acre site that was previously home to a 3,948 square foot fast food restaurant with a drive-through window. However, the restaurant is no longer operational, and the site has been unoccupied for several years. The property takes access via two driveways with one on Willamette Drive (OR Highway 43) and the other on Walling Way. These access driveways serve the Cedar Oaks Shopping Center, which includes the Backyard Burger Company, Kartcade, Smile Linn Dental clinic, Melani Studios Tattooing, Body&Brain Yoga/Tai Chi studio, and Umai Teriyaki restaurant.

Willamette Drive (Oregon Hwy. 43) is classified by the City of West Linn as a Major Arterial roadway. It is also classified by the Oregon Department of Transportation as a Statewide Highway. It has one through lane in each direction in the immediate site vicinity, with turn lanes added at intersections. It has a posted speed limit of 35 mph. Sidewalks and bike lanes are in place on both sides of the roadway.

Walling Way is classified by the City of West Linn as a Local Street. It has a two-lane cross-section with one through lane in each direction and a posted speed limit of 25 mph. Existing sidewalks are in place on both sides of the roadway.

EXISTING CONDITIONS

The intersection of Willamette Drive at the site access is a four-way intersection formed by Willamette Drive and two driveways, with the driveway on the northeast side of the highway serving the subject property and the other existing commercial uses adjacent to the site, and the driveway on the southwest side of the highway serving other service/office uses. The intersection operates under stop control for the driveway approaches, while the highway approaches are free-flowing. Each highway approach has a center left-turn lane and a shared through/right lane, while the driveway approaches each have a single, shared lane for all turning movements.

The intersection of Willamette Drive at Walling Way/Walling Circle is also a four-way intersection which operates under stop control for the Walling Way and Walling Circle approaches. Again, the

Willamette Drive approaches are free-flowing. The highway approaches each have a left-turn lane and a shared through/right lane, and the side-street approaches each have a single, shared lane for all turning movements.

Tri-Met Route 35, *Macadam/Greeley* provides service in the site vicinity, with stops on both sides of Willamette Drive north of Walling Way. This route provides service between the University of Portland and the Oregon City Transit Center, with stops in downtown Portland. Service is from about 5:00 AM to 1:00 AM every day, with buses running every 30 minutes during most of the day.

A vicinity map displaying the project site, vicinity streets, and study intersections including lane configurations is provided in Figure 1 on page 6.

TRAFFIC COUNT DATA

Traffic counts were conducted at the study intersections on Tuesday March 17th 2026 from 4:00 to 6:00 PM and on Wednesday Match 18th from 8:00 to 9:00 AM. Typically, morning data is collected from 7:00 to 9:00 AM; however, in this instance the proposed use will not be open until 8:00 AM and will not materially impact operation of the study intersections until after 8:00 AM. Accordingly, the morning data collection was limited to the relevant time period. Data was used from the highest-volume hour during the evening peak hour analysis period.

Figure 2 on page 7 shows the existing year 2026 traffic volumes for the morning and evening peak hours at the study intersections.

FIGURE 1: Study Area Lane Configurations and Traffic Control Devices

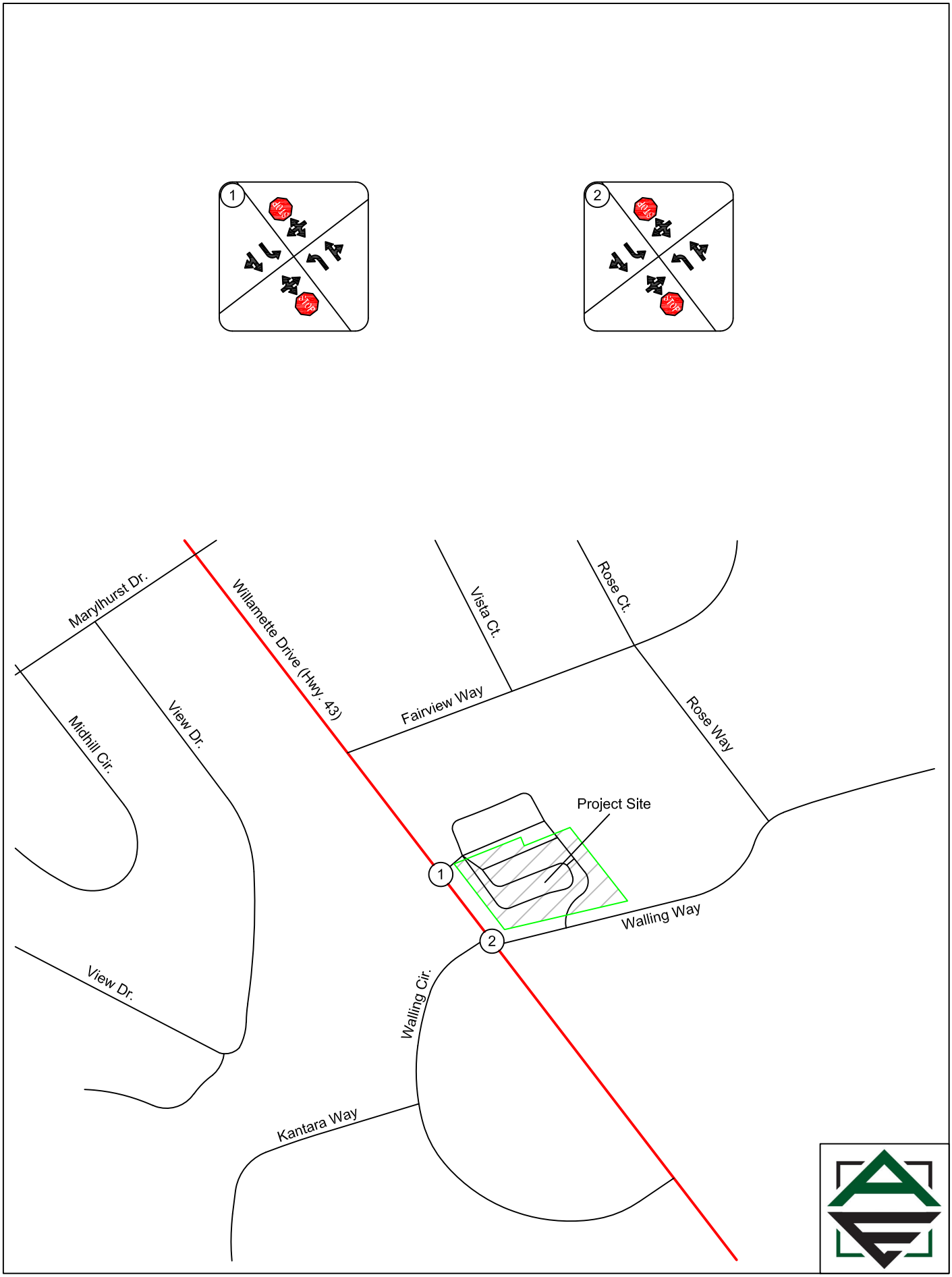
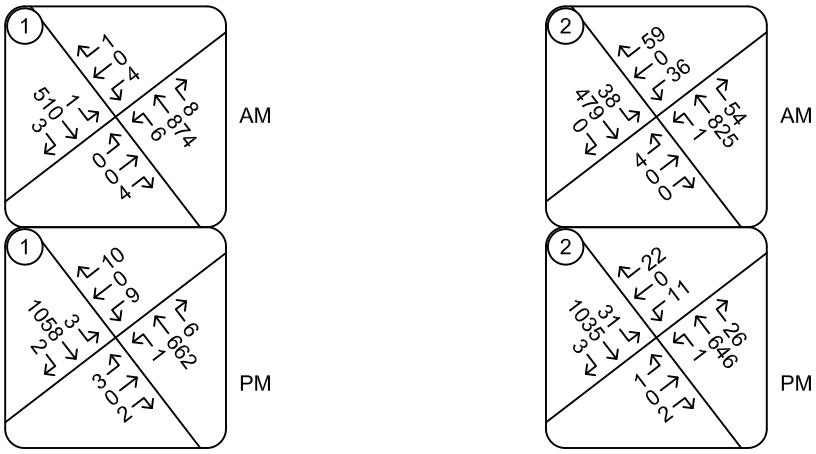
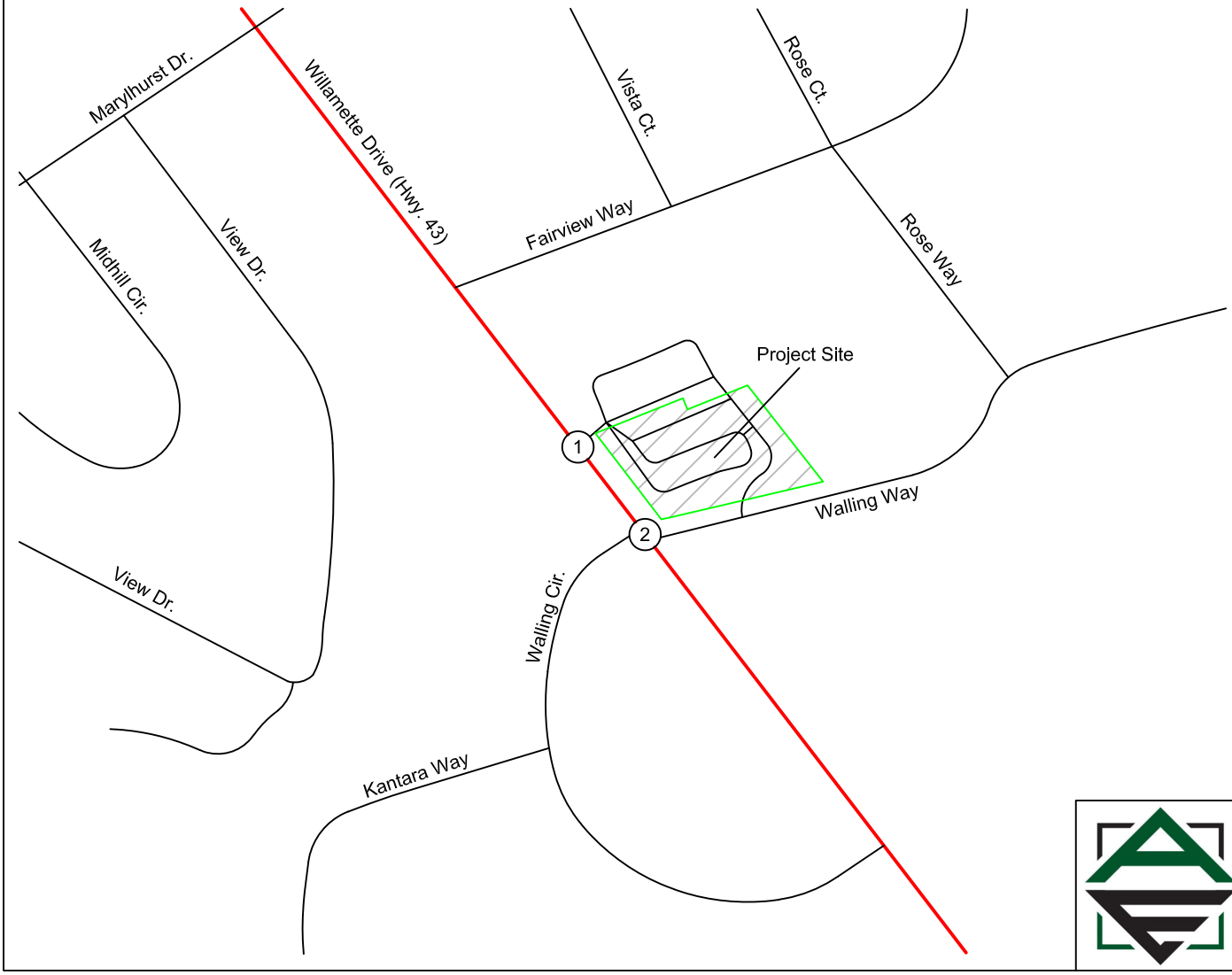


FIGURE 2: Existing Turning Movement Volumes (AM and PM Peak Hours)





OPERATIONAL ANALYSIS

An operational analysis was conducted for the study intersections using Synchro software, with outputs based on the *Highway Capacity Manual, 7th Edition*. The analysis was conducted for the weekday morning and evening peak hours.

Willamette Drive has a center turn lane in the site vicinity that can accommodate two-stage left-turns. These occur when a driver waits for a gap in the near travel lane, turns into the center lane, then waits for a gap in the far travel lane before merging to complete the turn. During the existing morning and evening peak hours, only 3 (6.4%) of the 47 left-turning drivers explicitly waited for a single-stage left-turn gap. The analysis was therefore adjusted to reflect this observed percentage of two-stage left turns.

The purpose of the existing conditions analysis is to establish how the study area intersections operate currently and allow for calibration of the operational analysis if required.

The results of the operational analysis are reported based on delay, Level of Service (LOS), and volume-to-capacity ratio (v/c). Delays are reported in seconds. Level of service is reported as a letter grade and can range from A to F, with level of service A representing nearly free-flow conditions and level of service F representing high delays and severe congestion. A report of level of service D generally indicates moderately high but tolerable delays, and typically occurs prior to reaching intersection capacity. The reported v/c ratios represent the portion of the available intersection capacity that is being utilized on the worst intersection approach. A v/c ratio of 1.0 would indicate that the approach is operating at capacity.

The study intersections operate under the jurisdiction of the Oregon Department of Transportation and are required to operate with a v/c of 0.99 or less. Per the city's Transportation System Plan, "*The minimum operational standard specified in the City of West Linn Comprehensive Plan (April 2006) is LOS D for all facilities except major arterials where the minimum is LOS E.*" As previously noted, Willamette Drive is classified as a Major Arterial.

A summary of the existing conditions operational analysis is provided in Table 1 below.

Table 1 - Operational Analysis Summary: 2026 Existing Conditions

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c	Delay	LOS	v/c
Highway 43 at Site Access	22.1	C	0.03	26.9	D	0.10
Highway 43 at Walling Way	27.9	D	0.38	25.5	D	0.15

Based on the analysis, the study intersections are currently operating well within capacity and with acceptable delays and levels of service during the morning and evening peak hours. Detailed capacity analysis worksheets are provided in the attached technical appendix.

SITE TRIPS

The proposed development will consist of an automated car wash facility with a gross floor area of 3,190 square feet and one wash tunnel.

To estimate the number of trips generated by the proposed use, data from the *ITE Trip Generation Manual, 11th Edition*, published by the Institute of Transportation Engineers was used. The data referenced was for land use code 948, Automated Car Wash. The ITE manual contains trip projections based on either the gross floor area of the facility and the number of car wash tunnels. A comparison of the two metrics revealed that using the number of car wash tunnels (i.e., one) results in a higher trip projection for the weekday evening peak hour, while using the gross floor area (i.e., 3,190 square feet) results in a higher trip projection for the Saturday peak hour. To maintain a conservative analysis, the higher trip generation estimates were used for both analysis periods.

Based on the calculations, the proposed car wash would be projected to generate 78 trips during the weekday evening peak hour and 96 trips during the Saturday peak hour.

The ITE Trip Generation Manual does not contain data for morning peak hour trips for car wash facilities. Accordingly, the estimate of morning peak hour trip generation was based on observations taken from two Kaady Car Wash facilities in the Portland Metro area, with one located on Tualatin Sherwood Road in Tualatin, and the other on Burnside Road in Portland. Based on the observations at these sites, the average trip generation during the morning peak hour was 30 trips, with half entering and half exiting the site.

A summary of the trip generation calculations is provided in Table 1 below. Detailed trip generation calculation worksheets are also included in the attached technical appendix.

Table 1 - Trip Generation: Automated Car Wash

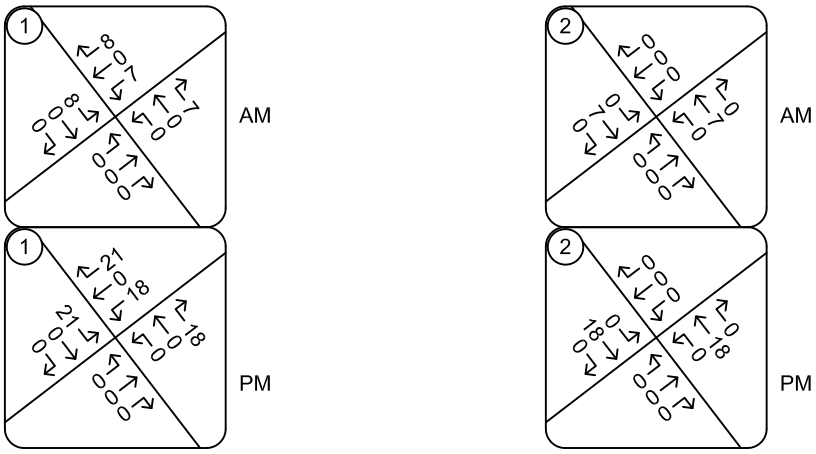
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
3,190 sf or 1 tunnel	15	15	30	39	39	78

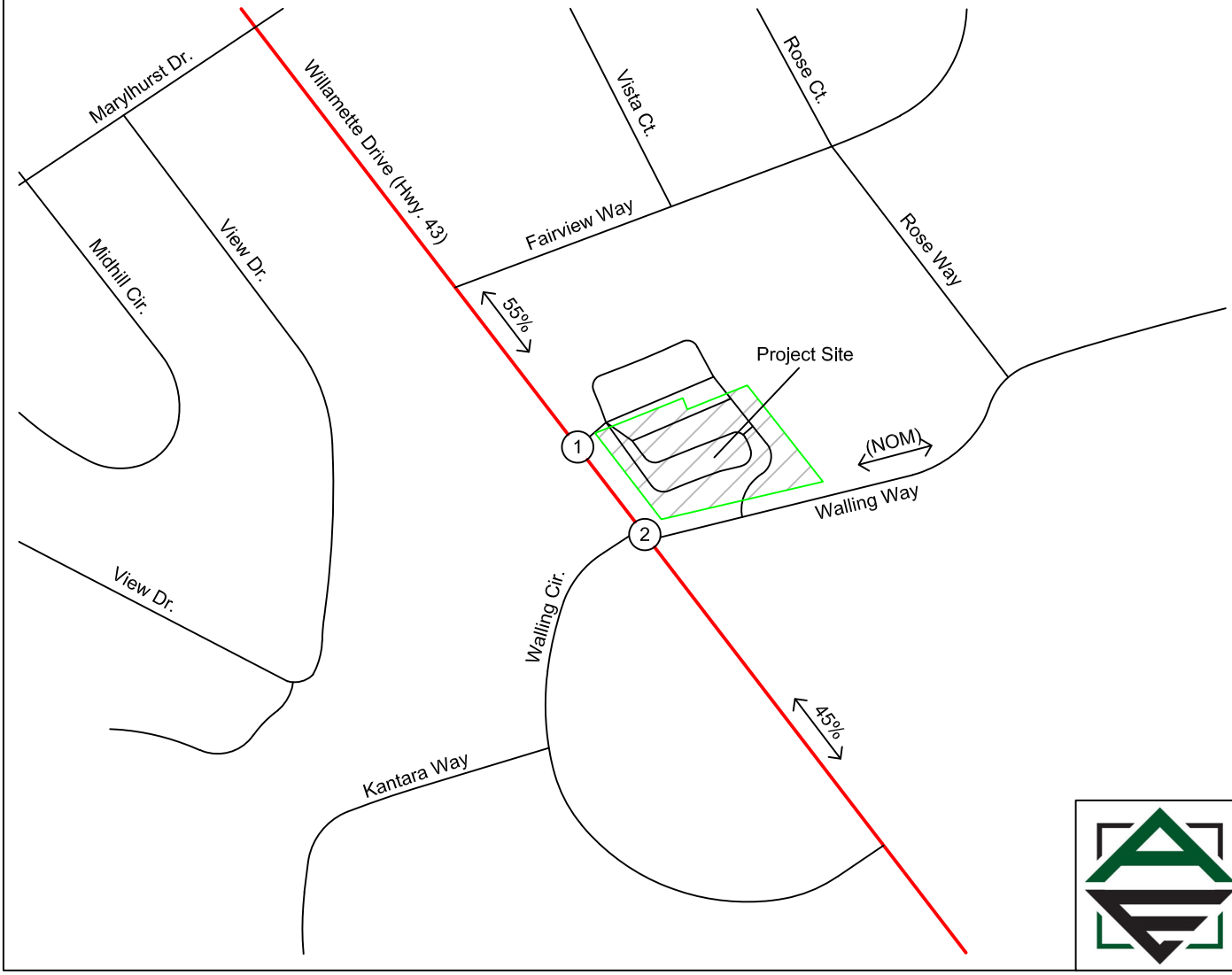
TRIP DISTRIBUTION

The directional distribution of primary site trips to and from the project site was estimated based on existing travel patterns as well as the locations of trip destinations and major transportation facilities in the site vicinity. Overall, 55 percent of site trips are projected to travel to and from the north on Highway 43, while 45 percent are projected to travel to and from the south.

The detailed trip distribution and assignment for the proposed development is shown in Figure 3 on page 10.

FIGURE 3: Site Trips - Turning Movement Volumes (AM and PM Peak Hours)





FUTURE CONDITIONS ANALYSIS

BACKGROUND VOLUMES

To determine the expected impact of site trips on the study area intersections, it is necessary to compare traffic conditions both with and without the addition of the projected traffic from the proposed development. Since the proposed development cannot be constructed and occupied immediately, the comparison is made for future traffic conditions at the time of expected project completion. It is anticipated that the proposed car wash facility can be completed and fully occupied within two years. Accordingly, the analysis was conducted for year 2028 traffic conditions.

Prior to adding the projected site trips to the study intersections, the existing traffic volumes were adjusted to account for background traffic growth over the intervening two-year period.

Background growth is expected to occur regardless of whether the proposed development is approved and constructed, and accounts for other developments outside the immediate project area. Based on data from ODOT's Future Volume Tables, highway volumes are projected to increase at a rate of 1.43 percent per year (linear). This growth rate was applied over a period of two years to generate the future highway through traffic volumes. An assumed growth rate of 2.0 percent per year (exponential) was also applied to the side-street turning movements at Walling Way. Individual land uses are not subject to volume growth over time, so the existing driveway volumes at the site access were not adjusted for growth.

Figure 4 on page 12 shows the projected year 2028 background traffic volumes at the study intersections during the morning and evening peak hours.

BACKGROUND VOLUMES PLUS SITE TRIPS

Peak hour trips calculated to be generated by the proposed development were added to the projected year 2028 background traffic volumes to obtain the year 2028 total traffic volumes following completion of the proposed development.

Figure 5 on page 13 shows the projected year 2028 peak hour volumes including both background growth and the increase in site trips associated with completion of the proposed car wash facility.

FIGURE 4: Year 2028 Background Traffic Volumes (AM and PM Peak Hours)

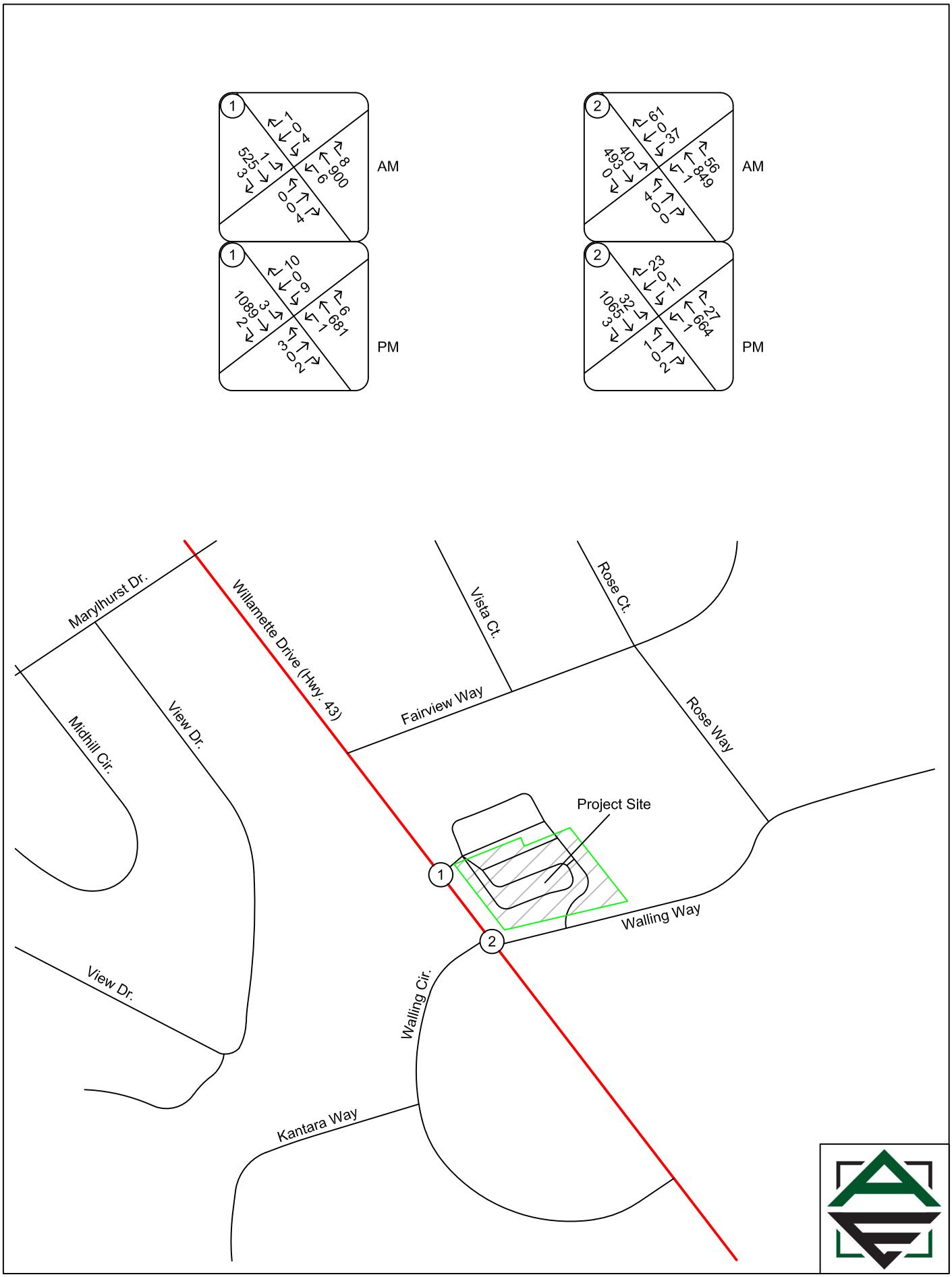
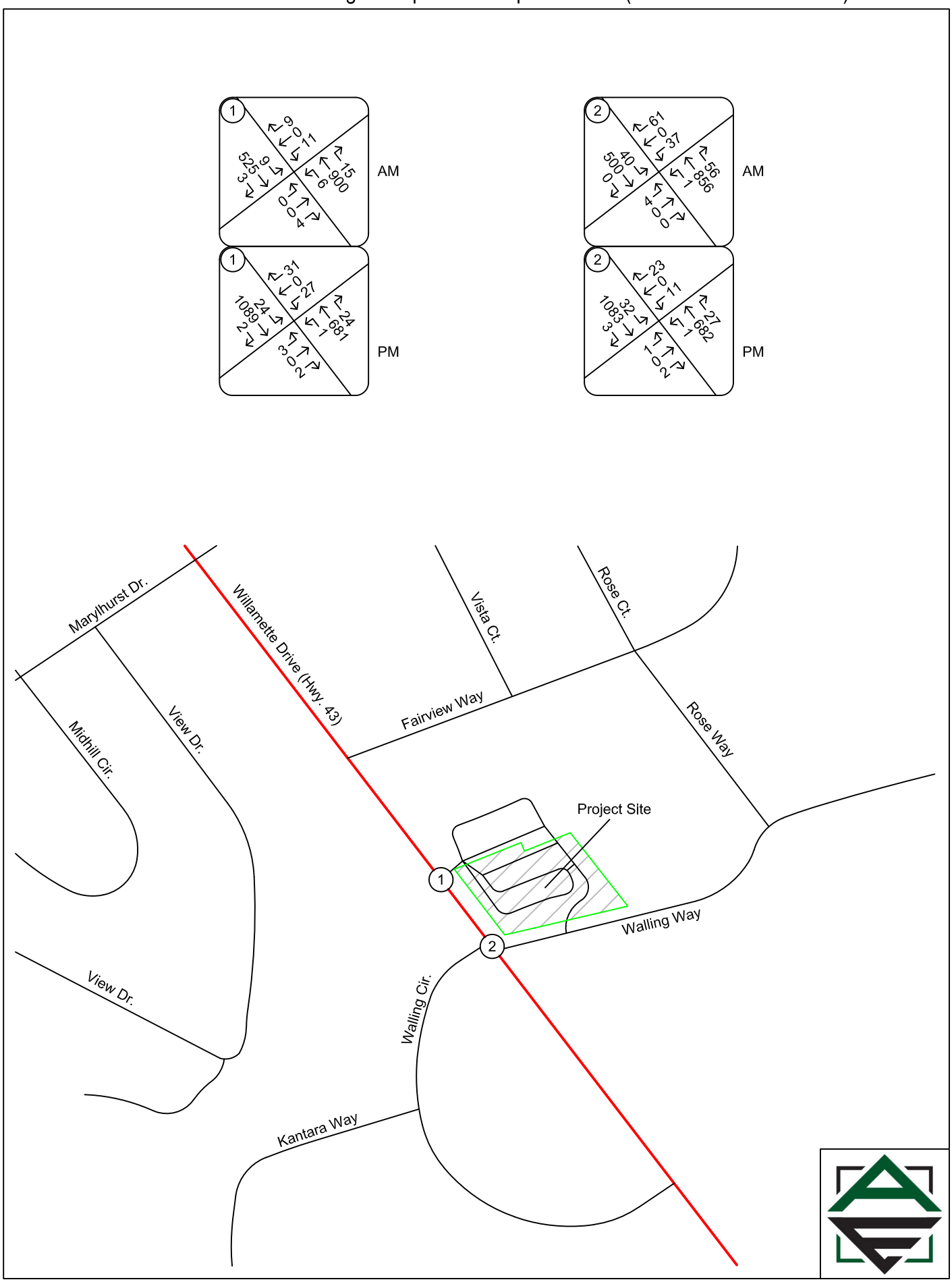


FIGURE 5: Year 2028 Background plus Site Trips Volumes (AM and PM Peak Hours)



OPERATIONAL ANALYSIS

The future conditions operational analysis was again conducted using Synchro software, with outputs based on the analysis methodologies contained in the *HIGHWAY CAPACITY MANUAL, 7th Edition*. The analysis was prepared for each intersection's morning and evening peak hours, with weighted average results based on 6.4 percent two-stage left turns, matching the existing conditions analysis.

The results of the future conditions operational analysis are summarized in Table 3 below. Detailed analysis worksheets are included in the technical appendix.

Table 3 - Operational Analysis Summary: Year 2028 Future Conditions

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c	Delay	LOS	v/c
Highway 43 at Site Access						
2028 Background Conditions	22.9	C	0.03	28.0	D	0.10
2028 Background plus Site	22.7	C	0.10	34.8	D	0.32
Highway 43 at Walling Way						
2028 Background Conditions	29.8	D	0.41	25.9	D	0.16
2028 Background plus Site	30.3	D	0.42	26.6	D	0.16

Based on the future conditions analysis, the study intersections are projected to continue to meet City of West Linn and ODOT standards, operating well within capacity and with acceptable delays and levels of service during the morning and evening peak hours through 2028 either with or without the addition of site trips from the proposed development. Detailed capacity analysis worksheets for all future conditions analysis scenarios are again provided in the attached technical appendix.

QUEUING ANALYSIS

Since the proposed car wash use requires on-site queuing, it is also appropriate to evaluate whether there is sufficient space to accommodate lines of vehicles waiting to enter the car wash tunnel. The potential site queues were analyzed using a review of prior studies of car wash facilities, direct observation of comparable Kaady Car Wash sites in the Portland Metro area, and using a mathematical model based on peak-hour service demands in conjunction with actual service times, assuming arrival of individual vehicles occurs at random times within the peak hour.

A search for prior studies yielded a 2012 study of various drive-through queues for facilities including banks, car washes, coffee shops, fast food restaurants, and pharmacies prepared by Mike Spack, PE in Minnesota. That study collected data for 6 car wash facilities, with a total of 12 days of observations. The study reported the maximum queues observed over the course of each examined day. The average maximum queue length was 4.42 vehicles, with a standard deviation of 2.31 vehicles. From the study, a high estimate of the maximum queue (85th percentile) was 6.2 vehicles. The longest queue ever observed during the study was 10 vehicles. Notably, these observed car wash queue lengths were less than those reported for fast food restaurants. Fast food restaurants experienced average maximum queues of 8.5 vehicles, an 85th percentile of 12 vehicles, and a maximum observed queue of 13 vehicles.

For local data, cameras were installed to observe one mid-week day and one weekend day at two Kaady Car Wash sites in the Portland metro area. The selected sites were at 9614 SW Tualatin Sherwood Road in Tualatin, Oregon and at 1909 W Burnside Street in Portland, Oregon. However, since there was rain during part of the weekend observations at the Tualatin Sherwood Road site, a second weekend of data was collected at that location. The maximum queue observed during a midweek day was 4 vehicles at the location in Tualatin (the maximum mid-week queue at the Burnside site was 2 vehicles). During weekend operation, the maximum observed queue was also 4 vehicles at the location in Tualatin (the maximum weekend queue at the Burnside location was 3 vehicles).

The mathematical queuing model used was a Poisson distribution queuing model that used designated hourly arrival rates and service times to calculate the projected queue length. To provide for a very conservative analysis, the arrival rate used for the calculations was based on the highest trip generation data point contained in the ITE Trip Generation manual rather than the average trip generation rate. This trip rate was 37.75 trips per thousand square feet during the Saturday peak hour, which equates to 120 trips for the 3,190 square foot car wash, with half entering and half exiting the site (i.e., 60 vehicles arriving and 60 vehicles departing during the peak hour.) Additionally, the service rate was conservatively assumed to be 40 seconds per vehicle. Actual observation of car wash operations at the two Kaady Car Wash sites showed service times of as little as 30 seconds between vehicles when queues were present. Based on the calculations, the projected 95th percentile queue length for the very high estimated arrival rate was 7.4 vehicles.

Overall, the calculated queue length for the proposed car wash was 7.4 vehicles, and the maximum queue length observed at any car wash location among the data sets was 10 vehicles.

Under the proposed site plan, drivers will typically enter via the driveway on Willamette Drive and immediately turn right to enter the car wash queue. The entry splits into two lanes, each of which feeds into a ticket attendant station. The site layout provides a total of 300 feet of storage space for queueing vehicles between the ticket attendant stations and the site access, which is sufficient space for approximately 13 vehicles without queues extending into the site access driveway on Willamette Drive. Six additional vehicles can queue in the 140 feet between the ticketing stations and the car wash entrance, providing a total queue storage of 19 vehicles entering the car wash tunnel.

Based on the analysis and the proposed site plan, the projected vehicle queues waiting to enter the car wash tunnel can safely be accommodated within the project site. Since the car wash queues are not projected to extend to the driveway entrance, they will not impede the movement of vehicles entering and exiting the Cedar Oaks Shopping Center and are not projected to impact operation of either Willamette Drive or Walling Way.

SAFETY ANALYSIS

CRASH DATA ANALYSIS

Using data obtained from the Oregon Department of Transportation, a review of the five most recent years of available crash history (from January 2020 through December 2024) was performed for the study intersections. The crash data was evaluated based on the number, type, and severity of collisions, as well as the intersection crash rate. Crash rates allow comparison of relative safety risks at intersections with different lane configurations, volumes, and traffic control devices by accounting for both the number of crashes that occur during the study period and the number of vehicles that traveled through the intersection during that period. Crash rates are calculated using the standard assumption that evening peak hour volumes are approximately 10 percent of the average daily traffic volume at an intersection. The crash rates were compared to statewide crash rates for similar intersection types to identify any locations with crash rates above the 90th percentile.

Highway 43 at Walling Way had six reported crashes in the most recent five years for which data is available (January 2000 through December 2024). These included three rear-end collisions, one turning-movement collision, one pedestrian collision, and one fixed-object collision. The pedestrian collision occurred when a driver made a northbound left turn from Highway 43 onto Walling Circle (opposite Walling Way) without yielding to a pedestrian crossing on the west side of the roadway. The collision occurred at 8:00 PM on March 21, 2021, well after the 7:24 PM sunset, and the notes indicate that the "non-motorist clothing [was] not visible." The crash resulted in a report of a "possible injury/complaint of pain" for the pedestrian.

One additional crash was noted north of the intersection of Willamette Drive at Walling Way between southbound vehicles, which may also have been related to a queue developing behind a vehicle slowing or stopping to turn at Walling Way/Walling Circle. The crash resulted in property damage only.

In total, the seven reported crashes resulted in one non-incapacitating injury and five reports of a "possible injury/complaint of pain." Based on the count data collected on March 17th and 18th 2026, the crash rate was calculated to be 0.216 crashes per million entering vehicles. This is well below the 90th percentile crash rate of 0.408 for four-way urban stop-controlled intersections in Oregon that would indicate a significant safety hazard exists at this location. Based on the analysis, this intersection is operating acceptably with respect to safety.

The segment of Willamette Drive north of Walling Way also had one reported northbound rear end crash north of Walling Way which may have been related to a vehicle slowing or stopping prior to turning into the site access driveway. The crash resulted in property damage only. Assuming that the crash was intersection related, the crash rate for the site access driveway was calculated to be 0.031 crashes per million entering vehicles. This is again well below the 90th percentile crash rate for urban stop-controlled four-way intersections in Oregon.

Based on the historical crash data the study intersections are currently operating acceptably with respect to safety. No specific safety improvements are recommended based on the crash data.

SITE ACCESS AND CIRCULATION

A site access and circulation diagram depicting the locations of the site access driveways, the proposed car wash tunnel, the parking area, and the queueing area is provided in Figure 6 below.

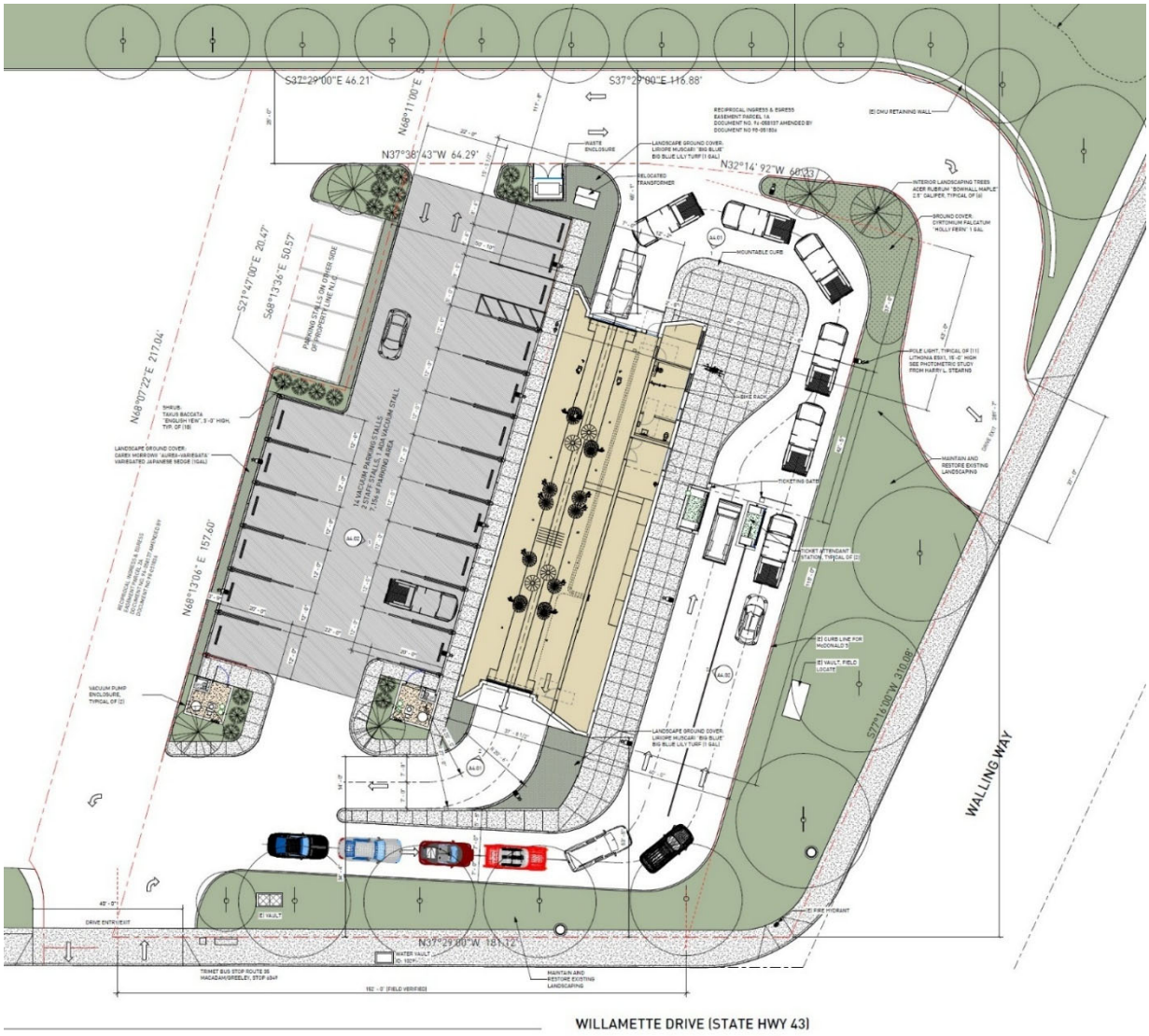


Figure 6: Site Access and Circulation Diagram

The site plan illustrates that vehicles entering the proposed car wash facility will enter via the driveway on Willamette Drive, turning right immediately to enter the car wash queue. Upon exiting the car wash tunnel raised curb channelization forces drivers to turn to the right where the exit lane meets the vacuum stall drive aisle. Since the exit lane meets the vacuum stall drive aisle prior to reaching the site access driveway, vehicles exiting from the car wash tunnel and maneuvering into the vacuum stalls will not interfere with vehicles entering or exiting via the shared site access driveway on Willamette Drive.

Based on the Highway Capacity Manual operational analysis results data, the projected 95th percentile exiting queue from the site access onto Highway 43 with completion of the proposed car wash facility was 1 vehicle during the morning peak hour and 2-3 vehicles during the evening peak hour. These cumulative queues approach the driveway throat from three directions, similar to the way on-site circulation and access worked when the prior McDonalds restaurant was in operation.

With one exiting vehicle waiting within the driveway throat, the 95th percentile queue during the morning peak hour would end at the driveway throat. During the evening peak hour, the 95th percentile queue (which occurs during 3 minutes of the peak hour) would include one vehicle waiting in the driveway throat and one to two vehicles waiting within the three approach aisles. This equates to one vehicle or less waiting within each of the three on-site driveway approach aisles. Approaching drivers have sufficient sight lines to see each other and safely navigate to the site exit. The very short queues can easily be accommodated within the approach drive aisles in the site without interfering with ingress to the site, and the anticipated queues are expected to be shorter than those that would have been experienced during the time when the McDonalds restaurant was operating, since the car wash facility generates substantially fewer site trips.

Based on the operational analysis, the average projected exiting delays at the site access driveway on Willamette Drive are shorter than those on Walling Way at Willamette Drive during the morning peak hour. Accordingly, drivers would not be expected to divert out the back side of the proposed development to reach Highway 43, since doing so would result in a longer travel path with higher delays. During the evening peak hour, the average projected exiting delays at the site access are 8.2 seconds greater at the site access than for Walling Way at Willamette Drive. However, the need to travel away from Highway 43 behind the car wash facility and turn onto Walling Way takes more than 8.2 seconds, meaning that diverting drivers would be subject to longer travel distances and travel times if they choose to exit onto Walling Way. Accordingly, very little traffic is expected to enter or exit the site via the shared access driveway on Walling Way. It should also be noted that this driveway is subject to a reciprocal access agreement benefitting all shopping center tenants and users, and serves as garbage truck and fire/emergency access for the site.

One nearby resident has raised a concern regarding the alignment and safety of the existing site access driveway on Walling Way. He noted that the city requires driveways to be aligned opposite each other and pointed out that the driveway is aligned opposite the exit for the existing Starbucks driveway on the opposite side of Walling Way, but is not aligned with the Starbucks entrance driveway located approximately 50 feet farther to the east. Notably, alignment of access driveways primarily refers to alignment of exit points. By aligning the exit points of the driveways opposite each other, drivers exiting from the driveway have a clear line of sight to the opposing approach and can see when it is safe to enter the public street. This alignment also allows drivers to take turns if queues develop at the exit points.

Some consideration is also given to entering movements when analyzing driveway alignment. The primary goal here is to ensure that left-turning movements of major-street vehicles do not cross paths with each other prior to entering the driveways. If the paths cross, it can cause opposing left turns (and their following vehicle queues) to obstruct each other, and traffic on the through street cannot progress until one or more vehicles backs up to create space for one of the vehicles to complete their left turn. Based on the direction of offset between the driveway entrances for the site access on Walling Way and the Starbucks entry, these left-turn conflicts cannot occur.

Based on the analysis, the existing site access driveway on Walling Way is properly aligned with the driveway on the opposite side of roadway.

Notably, during the morning peak hour, eastbound queues entering the existing Starbucks drive-through on the south side of Walling Way have been observed to extend along Walling Way all the way to Highway 43. These queues extend along the segment of Walling Way on which the subject property has an existing, shared driveway access.

Drivers exiting from the subject property are not projected to use the Walling Way access, particularly during the morning peak hour since the projected delays are shorter for the direct site access to Willamette Drive than for the indirect access via Walling Way. Regardless, drivers turning from the site access onto Walling Way westbound (toward Highway 43) would not be obstructed by eastbound Starbucks queues. Eastbound Starbucks queues could theoretically interfere with drivers exiting onto Walling Way and turning left to travel eastbound into the immediate neighborhood; however, based on the photos and video provided into the public record, even with the Starbucks queues present on the south side of the street there remains ample width within the 36-foot paved cross-section on Walling Way to accommodate a through travel lane in each direction. Due to the location of the driveways, left-turning vehicles exiting from the shared driveway on the north side of Walling Way only need to travel 50 feet to the east to get past the Starbucks queue entirely, there are sufficient sight lines to see oncoming westbound vehicles on Walling Way prior to exiting from the shared driveway, and there is sufficient space within the 50-foot segment where queues exist to navigate eastbound from the shared driveway even when there is westbound traffic on Walling Way. Accordingly, there are no significant safety or operational hazards associated with the Starbucks queues. The City of West Linn may, however, want to consider prohibiting parking along both side of the segment of Walling Way between Highway 43 and the Starbucks entrance driveway in order to ensure than vehicles parked on the street do not narrow the effective road width to less than what is needed to accommodate Starbucks queues and two effective travel lanes. This potential parking restriction would be appropriate either with or without operation of the proposed automated car wash facility. No other access and circulation mitigations are recommended in conjunction with the proposed development.

Based on the access and circulation analysis, the proposed site plan can safely accommodate the projected queues entering the site without queues backing up into the entrance driveway or onto Highway 43. The on-site circulation plan also accommodates vehicles maneuvering between the car wash tunnel and the vacuum parking stalls without crossing or obstructing the shared access driveway. Exiting queues are projected to be easily accommodated within the site, and the secondary driveway access on Walling Way is appropriately located directly opposite the exit for the Starbucks so that drivers turning onto Walling Way from the two driveways can see each other and navigate safely.

CONCLUSIONS

As demonstrated by the operational analysis the affected roadways and intersections currently operate acceptably per City of West Linn and ODOT standards and are projected to continue to operate acceptably either with or without the addition of site trips from the proposed automated car wash facility. No operational mitigations are necessary or recommended in conjunction with development within the subject property.

Based on the analysis and the proposed site plan, the projected vehicle queues waiting to enter the car wash tunnel can safely be accommodated within the project site. Since the car wash queues are not projected to extend to the driveway entrance, they will not impede the movement of vehicles entering and exiting the Cedar Oaks Shopping Center and are not projected to impact operation of either Willamette Drive or Walling Way.

Crash data for the most recent five years shows that the study intersections are currently operating acceptably with respect to safety. No specific safety improvements are recommended based on the crash data.

Based on the access and circulation analysis, the proposed site plan can safely accommodate the projected queues entering the site without queues backing up into the entrance driveway or onto Highway 43. The on-site circulation plan also accommodates vehicles maneuvering between the car wash tunnel and the vacuum parking stalls without crossing or obstructing the shared access driveway. Exiting queues are projected to be easily accommodated within the site, and the secondary driveway access on Walling Way is appropriately located directly opposite the exit for the Starbucks so that drivers turning onto Walling Way from the two driveways can see each other and navigate safely. The City of West Linn may, however, want to consider prohibiting parking along both side of the segment of Walling Way between Highway 43 and the Starbucks entrance driveway in order to ensure than vehicles parked on the street do not narrow the effective road width to less than what is needed to accommodate Starbucks queues and two effective travel lanes. This potential parking restriction would be appropriate either with or without operation of the proposed automated car wash facility. No other access and circulation mitigations are recommended in conjunction with the proposed development.

APPENDIX

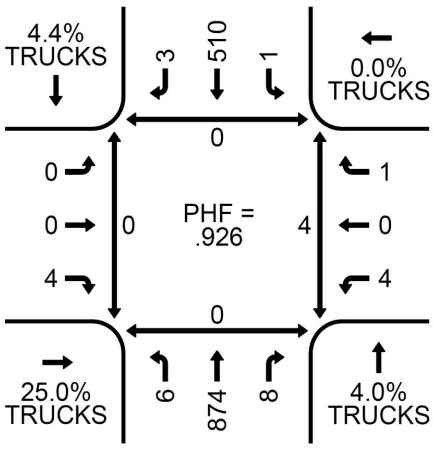
Intersection Count Summary (1-Hour Count)

Ard Engineering, LLC

Intersection: Highway 43 at Site Access

Date: 3/18/2026 Time: 8:00 to 9:00 AM

Weather: Overcast, Dry



PEAK HOUR DIAGRAM: 8:00 - 9:00 AM

Count Data: 5-Minute Intervals

Start Time	Northbound				Southbound				Eastbound				Westbound				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00:00																	0				
7:05:00																	0				
7:10:00																	0				
7:15:00																	0				
7:20:00																	0				
7:25:00																	0				
7:30:00																	0				
7:35:00																	0				
7:40:00																	0				
7:45:00																	0				
7:50:00																	0				
7:55:00																	0				
8:00:00	0	81	2	0	0	40	0	0	0	0	0	0	0	0	0	0	123	0	0	1	0
8:05:00	0	85	0	0	0	37	0	0	0	0	0	0	1	0	0	0	123	0	0	0	0
8:10:00	0	84	0	0	0	50	0	0	0	0	1	0	0	0	0	0	135	0	0	1	0
8:15:00	1	69	1	0	0	38	1	0	0	0	0	0	0	0	0	0	110	0	0	0	0
8:20:00	0	70	0	0	0	52	0	0	0	0	1	0	0	0	0	0	123	0	0	1	0
8:25:00	3	64	1	0	0	54	0	0	0	0	0	0	1	0	0	0	123	0	0	0	0
8:30:00	1	73	0	0	0	33	0	0	0	0	0	0	0	0	0	0	107	0	0	0	0
8:35:00	1	76	1	0	0	50	0	0	0	0	1	0	0	0	0	0	129	0	0	0	0
8:40:00	0	71	0	0	0	44	1	0	0	0	0	0	0	0	1	0	117	0	0	0	0
8:45:00	0	71	0	0	1	41	0	0	0	0	0	0	1	0	0	0	114	0	0	0	0
8:50:00	0	64	1	0	0	30	1	0	0	0	1	0	1	0	0	0	98	0	0	1	0
8:55:00	0	66	2	0	0	41	0	0	0	0	0	0	0	0	0	0	109	0	0	0	0
Total	6	874	8	0	1	510	3	0	0	0	4	0	4	0	1	0	1411	0	0	4	0

Peak Hour Summary: 8:00-9:00 AM PHF = 0.926

	Northbound				Southbound				Eastbound				Westbound				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	6	874	8	0	1	510	3	0	0	0	4	0	4	0	1	0	491	0	0	4	0
% Trucks	4.0%				4.4%				25.0%				0.0%								

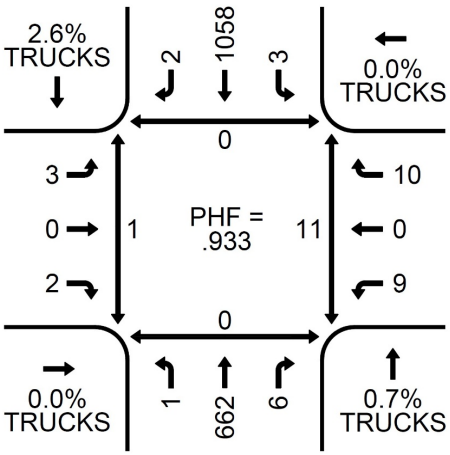
Intersection Count Summary (2-Hour Count)

Ard Engineering, LLC

Intersection: Highway 43 at Site Access

Date: 8/17/2026 Time: 4:00 PM to 6:00 PM

Weather: Overcast, Dry



PEAK HOUR DIAGRAM: 4:30 - 5:30 PM

Count Data: 5-Minute Intervals

Start Time	Northbound				Southbound				Eastbound				Westbound				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	1	46	2	0	0	88	0	0	0	0	0	0	1	0	2	0	140	0	0	1	0
4:05 PM	1	53	1	0	0	83	0	0	0	0	1	0	3	0	0	0	142	0	0	0	0
4:10 PM	0	56	0	0	0	83	0	0	0	0	0	0	1	0	3	0	143	0	0	0	0
4:15 PM	0	47	0	1	0	93	0	0	0	0	1	0	1	0	0	0	142	0	0	3	0
4:20 PM	0	55	1	0	0	95	0	1	0	0	0	0	1	0	0	0	152	0	0	0	0
4:25 PM	0	36	1	0	0	100	0	0	0	0	0	0	0	0	0	0	137	0	0	0	0
4:30 PM	0	48	2	0	0	95	0	0	0	0	0	0	0	0	0	0	145	0	0	0	0
4:35 PM	0	44	1	0	0	95	0	0	0	0	0	0	0	0	1	0	141	0	0	3	0
4:40 PM	1	64	1	0	1	79	0	0	0	0	0	0	0	0	0	0	146	0	0	2	0
4:45 PM	0	53	0	0	0	93	0	0	0	0	0	0	1	0	1	0	148	0	0	0	0
4:50 PM	0	57	0	0	0	81	1	1	0	0	0	0	0	0	0	0	139	0	0	1	0
4:55 PM	0	63	0	0	0	87	0	0	1	0	1	0	2	0	2	0	156	0	0	0	1
5:00 PM	0	56	0	0	0	80	0	0	0	0	1	0	0	0	1	0	138	0	0	0	0
5:05 PM	0	47	0	0	0	78	0	0	1	0	0	0	0	0	1	0	127	0	0	3	0
5:10 PM	0	51	0	0	1	95	1	0	0	0	0	0	1	0	2	0	151	0	0	0	0
5:15 PM	0	67	1	0	0	82	0	0	1	0	0	0	2	0	2	0	155	0	0	0	0
5:20 PM	0	47	1	0	1	98	0	0	0	0	0	0	2	0	0	0	149	0	0	0	0
5:25 PM	0	65	0	0	0	95	0	0	0	0	0	0	1	0	0	0	161	0	0	2	0
5:30 PM	0	33	0	0	1	95	0	0	0	0	0	0	1	0	1	0	131	0	0	0	0
5:35 PM	1	62	2	0	0	77	0	0	0	0	0	0	0	0	0	0	142	0	0	0	0
5:40 PM	0	51	1	0	0	79	0	0	0	0	0	0	0	0	1	0	132	0	0	0	0
5:45 PM	0	47	3	0	0	77	0	0	0	0	0	0	2	0	0	0	129	0	0	1	0
5:50 PM	1	56	0	0	1	71	0	0	0	0	0	0	2	0	1	0	132	0	0	0	0
5:55 PM	0	48	0	0	1	52	0	1	0	0	1	0	0	0	0	0	102	0	0	1	0
Total	5	1252	17	1	6	2051	2	3	3	0	5	0	21	0	18	0	3380	0	0	17	1

Peak Hour Summary: 4:30-5:30 PM PHF = 0.933

	Northbound				Southbound				Eastbound				Westbound				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	1	662	6	0	3	1058	2	1	3	0	2	0	9	0	10	0	1735	0	0	11	1
% Trucks	0.7%				2.6%				0.0%				0.0%								

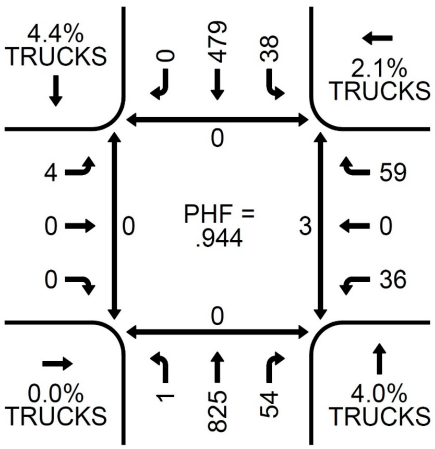
Intersection Count Summary (1-Hour Count)

Ard Engineering, LLC

Intersection: Highway 43 at Walling Way

Date: 3/18/2026 Time: 8:00 to 9:00 AM

Weather: Overcast, Dry



PEAK HOUR DIAGRAM: 8:00 - 9:00 AM

Count Data: 5-Minute Intervals

Start Time	Northbound				Southbound				Eastbound				Westbound				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00:00																	0				
7:05:00																	0				
7:10:00																	0				
7:15:00																	0				
7:20:00																	0				
7:25:00																	0				
7:30:00																	0				
7:35:00																	0				
7:40:00																	0				
7:45:00																	0				
7:50:00																	0				
7:55:00																	0				
8:00:00	0	75	2	0	2	38	0	0	0	0	0	0	1	0	8	0	126	0	0	1	0
8:05:00	0	78	4	0	1	37	0	0	2	0	0	0	3	0	5	0	130	0	0	0	0
8:10:00	0	81	4	0	5	46	0	0	0	0	0	0	1	0	3	0	140	0	0	1	0
8:15:00	0	66	6	0	2	36	0	0	0	0	0	0	4	0	5	0	119	0	0	0	0
8:20:00	0	64	5	0	4	48	0	0	0	0	0	0	1	0	6	0	128	0	0	0	0
8:25:00	1	63	6	0	6	49	0	0	1	0	0	0	5	0	4	0	135	0	0	0	0
8:30:00	0	71	5	0	2	31	0	0	0	0	0	0	4	0	3	0	116	0	0	0	0
8:35:00	0	73	2	0	7	44	0	0	0	0	0	0	6	0	5	0	137	0	0	0	0
8:40:00	0	67	5	0	4	40	0	0	0	0	0	0	3	0	4	0	123	0	0	0	0
8:45:00	0	65	4	0	3	39	0	0	1	0	0	0	1	0	5	0	118	0	0	0	0
8:50:00	0	63	6	0	1	31	0	0	0	0	0	0	2	0	2	0	105	0	0	1	0
8:55:00	0	59	5	0	1	40	0	0	0	0	0	0	5	0	9	0	119	0	0	0	0
Total	1	825	54	0	38	479	0	0	4	0	0	0	36	0	59	0	1496	0	0	3	0

Peak Hour Summary: 8:00-9:00 AM PHF = 0.944

	Northbound				Southbound				Eastbound				Westbound				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	1	825	54	0	38	479	0	0	4	0	0	0	36	0	59	0	515	0	0	3	0
% Trucks	4.0%				4.4%				0.0%				2.1%								

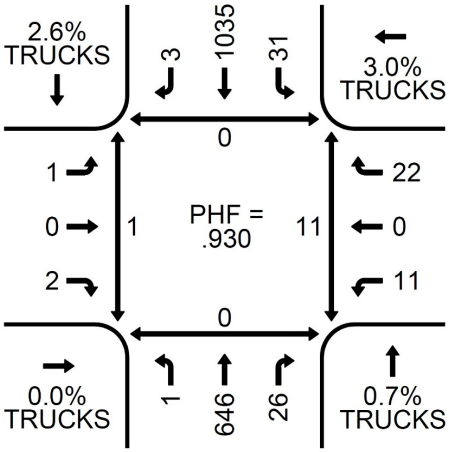
Intersection Count Summary (2-Hour Count)

Ard Engineering, LLC

Intersection: Highway 43 at Walling Way

Date: 8/17/2026 Time: 4:00 PM to 6:00 PM

Weather: Overcast, Dry



PEAK HOUR DIAGRAM: 4:30 - 5:30 PM

Count Data: 5-Minute Intervals

Start Time	Northbound				Southbound				Eastbound				Westbound				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	47	0	0	3	85	1	0	0	0	0	0	1	0	2	0	139	0	0	0	0
4:05 PM	0	55	2	0	4	83	0	0	0	0	0	0	2	0	0	0	146	0	0	1	0
4:10 PM	0	56	0	0	5	78	1	0	0	0	2	0	0	0	0	0	142	0	0	0	0
4:15 PM	0	46	0	0	0	94	1	1	0	0	0	0	0	0	1	0	142	0	0	3	0
4:20 PM	0	56	2	0	1	94	1	1	0	0	1	0	1	0	0	0	156	0	0	0	0
4:25 PM	0	32	2	0	1	99	0	0	0	1	0	0	2	0	3	0	140	0	0	0	0
4:30 PM	0	49	1	0	4	90	1	0	0	0	0	0	2	0	1	0	148	0	0	0	0
4:35 PM	0	45	1	0	3	91	1	0	0	0	0	0	0	0	0	0	141	0	0	4	0
4:40 PM	0	61	3	0	0	79	0	0	0	0	0	0	0	0	5	0	148	0	0	1	0
4:45 PM	0	52	2	0	1	92	1	0	0	0	2	0	2	0	1	0	153	0	0	0	0
4:50 PM	0	56	1	0	2	79	0	1	1	0	0	0	2	0	0	0	141	0	0	1	1
4:55 PM	0	61	4	0	4	86	0	0	0	0	0	0	0	0	2	0	157	0	0	0	0
5:00 PM	0	52	2	0	2	79	0	0	0	0	0	0	0	0	4	0	139	0	0	1	0
5:05 PM	1	43	3	0	2	76	0	0	0	0	0	0	0	0	4	0	129	0	0	0	0
5:10 PM	0	48	1	0	4	92	0	0	0	0	0	0	1	0	3	0	149	0	0	2	0
5:15 PM	0	67	2	0	1	83	0	0	0	0	0	0	4	0	1	0	158	0	0	0	0
5:20 PM	0	48	5	0	4	96	0	0	0	0	0	0	0	0	0	0	153	0	0	2	0
5:25 PM	0	64	1	0	4	92	0	0	0	0	0	0	0	0	1	0	162	0	0	0	0
5:30 PM	0	30	1	0	3	92	1	0	0	0	0	0	0	0	3	0	130	0	0	0	0
5:35 PM	1	64	1	0	5	72	0	0	0	0	0	0	1	0	1	0	145	0	0	0	0
5:40 PM	0	50	1	0	5	72	2	0	1	0	0	0	1	0	1	0	133	0	0	0	0
5:45 PM	0	44	1	0	1	78	0	0	0	0	0	0	2	0	3	0	129	0	0	1	0
5:50 PM	0	55	0	0	0	73	0	0	0	0	0	0	0	0	2	0	130	0	0	0	0
5:55 PM	0	48	4	0	3	50	0	1	0	0	0	0	1	0	0	0	106	0	0	1	0
Total	2	1229	40	0	62	2005	10	4	2	1	5	0	22	0	38	0	3416	0	0	17	1

Peak Hour Summary: 4:30-5:30 PM PHF = 0.930

	Northbound				Southbound				Eastbound				Westbound				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	1	646	26	0	31	1035	3	1	1	0	2	0	11	0	22	0	1759	0	0	11	1
% Trucks	0.7%				2.6%				0.0%				3.0%								

Trip Generation Calculation Worksheet

Land Use Description: Automated Car Wash
ITE Land Use Code: 948
Independent Variable: Car Wash Tunnels
Quantity: 1 Car Wash Tunnel

Summary of ITE Trip Generation Data

PM Peak Hour of Adjacent Street Traffic
Trip Rate: 77.50 trips per car wash tunnel
Directional Distribution: 50% Entering 50% Exiting

Saturday Peak Hour of Generator
Trip Rate: 41.00 trips per car wash tunnel
Directional Distribution: 50% Entering 50% Exiting

Site Trip Generation Calculations

1 Car Wash Tunnel

	Entering	Exiting	Total
PM Peak Hour	39	39	78
Saturday Hour	21	21	42

Data Source: *Trip Generation Manual, 11th Edition* , Institute of Transportation Engineers, 2021

Trip Generation Calculation Worksheet

Land Use Description: Automated Car Wash
ITE Land Use Code: 948
Independent Variable: Gross Floor Area
Quantity: 3.19 Thousand Square Feet

Summary of ITE Trip Generation Data

PM Peak Hour of Adjacent Street Traffic
Trip Rate: 14.20 trips per ksf
Directional Distribution: 50% Entering 50% Exiting

Saturday Peak Hour of Generator
Trip Rate: 30.40 trips per ksf
Directional Distribution: 50% Entering 50% Exiting

Site Trip Generation Calculations

3.19 ksf Automated Car Wash

	Entering	Exiting	Total
PM Peak Hour	23	23	46
Saturday Hour	48	48	96

Data Source: *Trip Generation Manual, 11th Edition* , Institute of Transportation Engineers, 2021

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	0	0	4	4	0	1	1	510	3	6	874	8
Future Vol, veh/h	0	0	4	4	0	1	1	510	3	6	874	8
Conflicting Peds, #/hr	0	0	0	4	0	4	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	25	25	0	0	0	4	4	4	4	4	4
Mvmt Flow	0	0	4	4	0	1	1	548	3	6	940	9

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1509	1517	554	1516	1515	952	952	0	0	552	0	0
Stage 1	552	552	-	961	961	-	-	-	-	-	-	-
Stage 2	957	965	-	555	554	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.75	6.45	7.1	6.5	6.2	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4.225	3.525	3.5	4	3.3	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	88	106	490	99	121	317	713	-	-	1008	-	-
Stage 1	479	479	-	311	337	-	-	-	-	-	-	-
Stage 2	282	305	-	520	517	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	86	105	489	97	119	315	711	-	-	1008	-	-
Mov Cap-2 Maneuver	196	213	-	215	235	-	-	-	-	-	-	-
Stage 1	478	479	-	307	334	-	-	-	-	-	-	-
Stage 2	278	302	-	513	516	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	12.43	21.04	0.02	0.06
HCM LOS	B	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	1008	-	-	489	230	711	-	-
HCM Lane V/C Ratio	0.006	-	-	0.009	0.023	0.002	-	-
HCM Ctrl Dly (s/v)	8.6	-	-	12.4	21	10.1	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	36	0	59	38	479	0	1	825	54
Future Vol, veh/h	4	0	0	36	0	59	38	479	0	1	825	54
Conflicting Peds, #/hr	0	0	0	3	0	3	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	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	4	4	4
Mvmt Flow	4	0	0	38	0	63	40	510	0	1	878	57

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1473	1531	513	1505	1502	912	938	0	0	510	0	0
Stage 1	590	590	-	912	912	-	-	-	-	-	-	-
Stage 2	883	940	-	593	590	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	106	118	566	100	122	332	722	-	-	1045	-	-
Stage 1	497	498	-	328	353	-	-	-	-	-	-	-
Stage 2	343	345	-	492	495	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	81	111	564	93	114	330	720	-	-	1045	-	-
Mov Cap-2 Maneuver	175	216	-	216	234	-	-	-	-	-	-	-
Stage 1	469	470	-	327	352	-	-	-	-	-	-	-
Stage 2	277	344	-	463	467	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	26.07	25.54	0.76	0.01
HCM LOS	D	D		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	1045	-	-	175	275	720	-	-
HCM Lane V/C Ratio	0.001	-	-	0.024	0.368	0.056	-	-
HCM Ctrl Dly (s/v)	8.4	-	-	26.1	25.5	10.3	-	-
HCM Lane LOS	A	-	-	D	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.6	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	3	0	2	9	0	10	3	1058	2	1	662	6
Future Vol, veh/h	3	0	2	9	0	10	3	1058	2	1	662	6
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	3	0	2	10	0	11	3	1138	2	1	712	6

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1871	1878	1151	1883	1875	737	729	0	0	1141	0	0
Stage 1	1146	1146	-	728	728	-	-	-	-	-	-	-
Stage 2	725	731	-	1155	1147	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	56	72	243	55	72	422	870	-	-	616	-	-
Stage 1	245	276	-	418	432	-	-	-	-	-	-	-
Stage 2	420	430	-	242	276	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	53	71	241	53	71	413	861	-	-	616	-	-
Mov Cap-2 Maneuver	161	183	-	159	183	-	-	-	-	-	-	-
Stage 1	243	275	-	413	426	-	-	-	-	-	-	-
Stage 2	404	425	-	236	275	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	24.99	21.79	0.03	0.02
HCM LOS	C	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	616	-	-	185	235	861	-	-
HCM Lane V/C Ratio	0.002	-	-	0.029	0.087	0.004	-	-
HCM Ctrl Dly (s/v)	10.9	-	-	25	21.8	9.2	-	-
HCM Lane LOS	B	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↑			↑	
Traffic Vol, veh/h	1	0	2	11	0	22	31	1035	3	1	646	26
Future Vol, veh/h	1	0	2	11	0	22	31	1035	3	1	646	26
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	3	3	3	3	3	3	1	1	1
Mvmt Flow	1	0	2	12	0	24	33	1113	3	1	695	28

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1890	1918	1127	1912	1906	731	734	0	0	1117	0	0
Stage 1	1182	1182	-	722	722	-	-	-	-	-	-	-
Stage 2	708	736	-	1191	1184	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	54	68	251	51	68	420	867	-	-	629	-	-
Stage 1	233	266	-	417	430	-	-	-	-	-	-	-
Stage 2	429	428	-	228	262	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	48	65	249	48	65	412	858	-	-	628	-	-
Mov Cap-2 Maneuver	147	169	-	148	171	-	-	-	-	-	-	-
Stage 1	224	255	-	412	425	-	-	-	-	-	-	-
Stage 2	399	423	-	215	251	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	23.09	21.18	0.27	0.02
HCM LOS	C	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	628	-	-	202	258	858	-	-
HCM Lane V/C Ratio	0.002	-	-	0.016	0.138	0.039	-	-
HCM Ctrl Dly (s/v)	10.7	-	-	23.1	21.2	9.4	-	-
HCM Lane LOS	B	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Traffic Vol, veh/h	0	0	4	4	0	1	1	510	3	6	874	8
Future Vol, veh/h	0	0	4	4	0	1	1	510	3	6	874	8
Conflicting Peds, #/hr	0	0	0	4	0	4	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	25	25	0	0	0	4	4	4	4	4	4
Mvmt Flow	0	0	4	4	0	1	1	548	3	6	940	9

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1509	1517	554	1516	1515	952	952	0	0	552	0	0
Stage 1	552	552	-	961	961	-	-	-	-	-	-	-
Stage 2	957	965	-	555	554	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.75	6.45	7.1	6.5	6.2	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4.225	3.525	3.5	4	3.3	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	88	106	490	99	121	317	713	-	-	1008	-	-
Stage 1	479	479	-	311	337	-	-	-	-	-	-	-
Stage 2	282	305	-	520	517	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	86	105	489	97	119	315	711	-	-	1008	-	-
Mov Cap-2 Maneuver	86	105	-	97	119	-	-	-	-	-	-	-
Stage 1	478	479	-	307	334	-	-	-	-	-	-	-
Stage 2	278	302	-	513	516	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	12.43	38.72	0.02	0.06
HCM LOS	B	E		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	1008	-	-	489	112	711	-	-
HCM Lane V/C Ratio	0.006	-	-	0.009	0.048	0.002	-	-
HCM Ctrl Dly (s/v)	8.6	-	-	12.4	38.7	10.1	-	-
HCM Lane LOS	A	-	-	B	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	36	0	59	38	479	0	1	825	54
Future Vol, veh/h	4	0	0	36	0	59	38	479	0	1	825	54
Conflicting Peds, #/hr	0	0	0	3	0	3	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	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	4	4	4
Mvmt Flow	4	0	0	38	0	63	40	510	0	1	878	57

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1473	1531	513	1505	1502	912	938	0	0	510	0	0
Stage 1	590	590	-	912	912	-	-	-	-	-	-	-
Stage 2	883	940	-	593	590	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	106	118	566	100	122	332	722	-	-	1045	-	-
Stage 1	497	498	-	328	353	-	-	-	-	-	-	-
Stage 2	343	345	-	492	495	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	81	111	564	93	114	330	720	-	-	1045	-	-
Mov Cap-2 Maneuver	81	111	-	93	114	-	-	-	-	-	-	-
Stage 1	469	470	-	327	352	-	-	-	-	-	-	-
Stage 2	277	344	-	463	467	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	52.13	54.23	0.76	0.01
HCM LOS	F	F		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	1045	-	-	81	168	720	-	-
HCM Lane V/C Ratio	0.001	-	-	0.053	0.6	0.056	-	-
HCM Ctrl Dly (s/v)	8.4	-	-	52.1	54.2	10.3	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	3.3	0.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	3	0	2	9	0	10	3	1058	2	1	662	6
Future Vol, veh/h	3	0	2	9	0	10	3	1058	2	1	662	6
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	3	0	2	10	0	11	3	1138	2	1	712	6

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1871	1878	1151	1883	1875	737	729	0	0	1141	0	0
Stage 1	1146	1146	-	728	728	-	-	-	-	-	-	-
Stage 2	725	731	-	1155	1147	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	56	72	243	55	72	422	870	-	-	616	-	-
Stage 1	245	276	-	418	432	-	-	-	-	-	-	-
Stage 2	420	430	-	242	276	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	53	71	241	53	71	413	861	-	-	616	-	-
Mov Cap-2 Maneuver	53	71	-	53	71	-	-	-	-	-	-	-
Stage 1	243	275	-	413	426	-	-	-	-	-	-	-
Stage 2	404	425	-	236	275	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	54.88	51.44	0.03	0.02
HCM LOS	F	F		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	616	-	-	78	98	861	-	-
HCM Lane V/C Ratio	0.002	-	-	0.069	0.209	0.004	-	-
HCM Ctrl Dly (s/v)	10.9	-	-	54.9	51.4	9.2	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.7	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	1	0	2	11	0	22	31	1035	3	1	646	26
Future Vol, veh/h	1	0	2	11	0	22	31	1035	3	1	646	26
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	3	3	3	3	3	3	1	1	1
Mvmt Flow	1	0	2	12	0	24	33	1113	3	1	695	28

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1890	1918	1127	1912	1906	731	734	0	0	1117	0	0
Stage 1	1182	1182	-	722	722	-	-	-	-	-	-	-
Stage 2	708	736	-	1191	1184	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	54	68	251	51	68	420	867	-	-	629	-	-
Stage 1	233	266	-	417	430	-	-	-	-	-	-	-
Stage 2	429	428	-	228	262	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	48	65	249	48	65	412	858	-	-	628	-	-
Mov Cap-2 Maneuver	48	65	-	48	65	-	-	-	-	-	-	-
Stage 1	224	255	-	412	425	-	-	-	-	-	-	-
Stage 2	399	423	-	215	251	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	40.58	49.1	0.27	0.02
HCM LOS	E	E		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	628	-	-	104	116	858	-	-
HCM Lane V/C Ratio	0.002	-	-	0.031	0.306	0.039	-	-
HCM Ctrl Dly (s/v)	10.7	-	-	40.6	49.1	9.4	-	-
HCM Lane LOS	B	-	-	E	E	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.2	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	0	0	4	4	0	1	1	525	3	6	900	8
Future Vol, veh/h	0	0	4	4	0	1	1	525	3	6	900	8
Conflicting Peds, #/hr	0	0	0	4	0	4	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	25	25	0	0	0	4	4	4	4	4	4
Mvmt Flow	0	0	4	4	0	1	1	565	3	6	968	9

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1553	1562	570	1560	1559	980	980	0	0	568	0	0
Stage 1	568	568	-	989	989	-	-	-	-	-	-	-
Stage 2	985	993	-	571	570	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.75	6.45	7.1	6.5	6.2	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4.225	3.525	3.5	4	3.3	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	82	99	480	92	114	306	696	-	-	994	-	-
Stage 1	469	471	-	300	327	-	-	-	-	-	-	-
Stage 2	271	295	-	510	509	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	80	98	478	90	112	303	694	-	-	994	-	-
Mov Cap-2 Maneuver	188	206	-	207	228	-	-	-	-	-	-	-
Stage 1	468	470	-	297	324	-	-	-	-	-	-	-
Stage 2	268	292	-	502	508	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	12.6	21.68	0.02	0.06
HCM LOS	B	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	994	-	-	478	221	694	-	-
HCM Lane V/C Ratio	0.006	-	-	0.009	0.024	0.002	-	-
HCM Ctrl Dly (s/v)	8.6	-	-	12.6	21.7	10.2	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	37	0	61	40	493	0	1	849	56
Future Vol, veh/h	4	0	0	37	0	61	40	493	0	1	849	56
Conflicting Peds, #/hr	0	0	0	3	0	3	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	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	4	4	4
Mvmt Flow	4	0	0	39	0	65	43	524	0	1	903	60

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1518	1577	527	1551	1548	939	966	0	0	524	0	0
Stage 1	610	610	-	938	938	-	-	-	-	-	-	-
Stage 2	908	968	-	613	610	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	99	111	555	93	114	320	705	-	-	1032	-	-
Stage 1	485	488	-	317	343	-	-	-	-	-	-	-
Stage 2	332	335	-	480	485	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	103	553	86	107	318	703	-	-	1032	-	-
Mov Cap-2 Maneuver	164	206	-	207	225	-	-	-	-	-	-	-
Stage 1	456	459	-	316	342	-	-	-	-	-	-	-
Stage 2	264	334	-	450	456	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	27.5	27.17	0.78	0.01
HCM LOS	D	D		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	1032	-	-	164	265	703	-	-
HCM Lane V/C Ratio	0.001	-	-	0.026	0.394	0.061	-	-
HCM Ctrl Dly (s/v)	8.5	-	-	27.5	27.2	10.4	-	-
HCM Lane LOS	A	-	-	D	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.8	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	3	0	2	9	0	10	3	1089	2	1	681	6
Future Vol, veh/h	3	0	2	9	0	10	3	1089	2	1	681	6
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	3	0	2	10	0	11	3	1171	2	1	732	6

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1925	1931	1184	1937	1929	757	750	0	0	1174	0	0
Stage 1	1179	1179	-	749	749	-	-	-	-	-	-	-
Stage 2	745	752	-	1188	1181	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	51	67	233	50	67	411	855	-	-	598	-	-
Stage 1	234	266	-	407	422	-	-	-	-	-	-	-
Stage 2	409	421	-	232	266	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	49	66	230	48	66	402	846	-	-	598	-	-
Mov Cap-2 Maneuver	154	176	-	152	176	-	-	-	-	-	-	-
Stage 1	233	265	-	402	417	-	-	-	-	-	-	-
Stage 2	393	416	-	226	265	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	25.94	22.54	0.03	0.02
HCM LOS	D	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	598	-	-	177	226	846	-	-
HCM Lane V/C Ratio	0.002	-	-	0.03	0.091	0.004	-	-
HCM Ctrl Dly (s/v)	11	-	-	25.9	22.5	9.3	-	-
HCM Lane LOS	B	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↑			↑	
Traffic Vol, veh/h	1	0	2	11	0	23	32	1065	3	1	664	27
Future Vol, veh/h	1	0	2	11	0	23	32	1065	3	1	664	27
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	3	3	3	3	3	3	1	1	1
Mvmt Flow	1	0	2	12	0	25	34	1145	3	1	714	29

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1944	1973	1159	1967	1960	750	754	0	0	1149	0	0
Stage 1	1217	1217	-	742	742	-	-	-	-	-	-	-
Stage 2	727	756	-	1225	1218	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	50	63	241	47	63	409	852	-	-	612	-	-
Stage 1	223	256	-	406	421	-	-	-	-	-	-	-
Stage 2	418	419	-	218	252	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	60	238	44	60	401	843	-	-	611	-	-
Mov Cap-2 Maneuver	140	162	-	141	164	-	-	-	-	-	-	-
Stage 1	214	245	-	401	416	-	-	-	-	-	-	-
Stage 2	388	414	-	205	242	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	23.96	21.79	0.28	0.02
HCM LOS	C	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	611	-	-	193	251	843	-	-
HCM Lane V/C Ratio	0.002	-	-	0.017	0.146	0.041	-	-
HCM Ctrl Dly (s/v)	10.9	-	-	24	21.8	9.5	-	-
HCM Lane LOS	B	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	0	0	4	4	0	1	1	525	3	6	900	8
Future Vol, veh/h	0	0	4	4	0	1	1	525	3	6	900	8
Conflicting Peds, #/hr	0	0	0	4	0	4	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	25	25	0	0	0	4	4	4	4	4	4
Mvmt Flow	0	0	4	4	0	1	1	565	3	6	968	9

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1553	1562	570	1560	1559	980	980	0	0	568	0	0
Stage 1	568	568	-	989	989	-	-	-	-	-	-	-
Stage 2	985	993	-	571	570	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.75	6.45	7.1	6.5	6.2	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4.225	3.525	3.5	4	3.3	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	82	99	480	92	114	306	696	-	-	994	-	-
Stage 1	469	471	-	300	327	-	-	-	-	-	-	-
Stage 2	271	295	-	510	509	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	80	98	478	90	112	303	694	-	-	994	-	-
Mov Cap-2 Maneuver	80	98	-	90	112	-	-	-	-	-	-	-
Stage 1	468	470	-	297	324	-	-	-	-	-	-	-
Stage 2	268	292	-	502	508	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	12.6	41.24	0.02	0.06
HCM LOS	B	E		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	994	-	-	478	105	694	-	-
HCM Lane V/C Ratio	0.006	-	-	0.009	0.051	0.002	-	-
HCM Ctrl Dly (s/v)	8.6	-	-	12.6	41.2	10.2	-	-
HCM Lane LOS	A	-	-	B	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	37	0	61	40	493	0	1	849	56
Future Vol, veh/h	4	0	0	37	0	61	40	493	0	1	849	56
Conflicting Peds, #/hr	0	0	0	3	0	3	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	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	4	4	4
Mvmt Flow	4	0	0	39	0	65	43	524	0	1	903	60

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1518	1577	527	1551	1548	939	966	0	0	524	0	0
Stage 1	610	610	-	938	938	-	-	-	-	-	-	-
Stage 2	908	968	-	613	610	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	99	111	555	93	114	320	705	-	-	1032	-	-
Stage 1	485	488	-	317	343	-	-	-	-	-	-	-
Stage 2	332	335	-	480	485	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	103	553	86	107	318	703	-	-	1032	-	-
Mov Cap-2 Maneuver	73	103	-	86	107	-	-	-	-	-	-	-
Stage 1	456	459	-	316	342	-	-	-	-	-	-	-
Stage 2	264	334	-	450	456	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	57	63.57	0.78	0.01
HCM LOS	F	F		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	1032	-	-	73	158	703	-	-
HCM Lane V/C Ratio	0.001	-	-	0.058	0.66	0.061	-	-
HCM Ctrl Dly (s/v)	8.5	-	-	57	63.6	10.4	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	3.7	0.2	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	3	0	2	9	0	10	3	1089	2	1	681	6
Future Vol, veh/h	3	0	2	9	0	10	3	1089	2	1	681	6
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	3	0	2	10	0	11	3	1171	2	1	732	6

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1925	1931	1184	1937	1929	757	750	0	0	1174	0	0
Stage 1	1179	1179	-	749	749	-	-	-	-	-	-	-
Stage 2	745	752	-	1188	1181	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	51	67	233	50	67	411	855	-	-	598	-	-
Stage 1	234	266	-	407	422	-	-	-	-	-	-	-
Stage 2	409	421	-	232	266	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	49	66	230	48	66	402	846	-	-	598	-	-
Mov Cap-2 Maneuver	49	66	-	48	66	-	-	-	-	-	-	-
Stage 1	233	265	-	402	417	-	-	-	-	-	-	-
Stage 2	393	416	-	226	265	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	59.53	56.4	0.03	0.02
HCM LOS	F	F		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	598	-	-	71	90	846	-	-
HCM Lane V/C Ratio	0.002	-	-	0.075	0.227	0.004	-	-
HCM Ctrl Dly (s/v)	11	-	-	59.5	56.4	9.3	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.8	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	1	0	2	11	0	23	32	1065	3	1	664	27
Future Vol, veh/h	1	0	2	11	0	23	32	1065	3	1	664	27
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	3	3	3	3	3	3	1	1	1
Mvmt Flow	1	0	2	12	0	25	34	1145	3	1	714	29

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1944	1973	1159	1967	1960	750	754	0	0	1149	0	0
Stage 1	1217	1217	-	742	742	-	-	-	-	-	-	-
Stage 2	727	756	-	1225	1218	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	50	63	241	47	63	409	852	-	-	612	-	-
Stage 1	223	256	-	406	421	-	-	-	-	-	-	-
Stage 2	418	419	-	218	252	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	60	238	44	60	401	843	-	-	611	-	-
Mov Cap-2 Maneuver	44	60	-	44	60	-	-	-	-	-	-	-
Stage 1	214	245	-	401	416	-	-	-	-	-	-	-
Stage 2	388	414	-	205	242	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	43.65	53.47	0.28	0.02
HCM LOS	E	F		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	611	-	-	96	110	843	-	-
HCM Lane V/C Ratio	0.002	-	-	0.033	0.334	0.041	-	-
HCM Ctrl Dly (s/v)	10.9	-	-	43.6	53.5	9.5	-	-
HCM Lane LOS	B	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.3	0.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	0	0	4	11	0	9	9	525	3	6	900	15
Future Vol, veh/h	0	0	4	11	0	9	9	525	3	6	900	15
Conflicting Peds, #/hr	0	0	0	4	0	4	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	25	25	0	0	0	4	4	4	4	4	4
Mvmt Flow	0	0	4	12	0	10	10	565	3	6	968	16

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1570	1586	570	1581	1580	984	988	0	0	568	0	0
Stage 1	585	585	-	993	993	-	-	-	-	-	-	-
Stage 2	985	1001	-	588	587	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.75	6.45	7.1	6.5	6.2	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4.225	3.525	3.5	4	3.3	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	79	96	480	89	110	304	692	-	-	994	-	-
Stage 1	459	462	-	298	326	-	-	-	-	-	-	-
Stage 2	271	293	-	499	500	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	94	478	86	108	302	689	-	-	994	-	-
Mov Cap-2 Maneuver	178	198	-	203	223	-	-	-	-	-	-	-
Stage 1	452	456	-	295	323	-	-	-	-	-	-	-
Stage 2	260	290	-	485	493	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	12.6	21.61	0.17	0.06
HCM LOS	B	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	994	-	-	478	238	689	-	-
HCM Lane V/C Ratio	0.006	-	-	0.009	0.09	0.014	-	-
HCM Ctrl Dly (s/v)	8.6	-	-	12.6	21.6	10.3	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	37	0	61	40	500	0	1	856	56
Future Vol, veh/h	4	0	0	37	0	61	40	500	0	1	856	56
Conflicting Peds, #/hr	0	0	0	3	0	3	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	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	4	4	4
Mvmt Flow	4	0	0	39	0	65	43	532	0	1	911	60

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1533	1592	535	1566	1563	946	973	0	0	532	0	0
Stage 1	617	617	-	946	946	-	-	-	-	-	-	-
Stage 2	916	975	-	620	617	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	96	108	549	90	112	317	701	-	-	1026	-	-
Stage 1	481	484	-	314	340	-	-	-	-	-	-	-
Stage 2	329	332	-	476	481	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	72	101	548	84	105	315	699	-	-	1026	-	-
Mov Cap-2 Maneuver	162	204	-	205	223	-	-	-	-	-	-	-
Stage 1	451	455	-	313	339	-	-	-	-	-	-	-
Stage 2	260	331	-	445	452	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	27.87	27.57	0.78	0.01
HCM LOS	D	D		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	1026	-	-	162	262	699	-	-
HCM Lane V/C Ratio	0.001	-	-	0.026	0.398	0.061	-	-
HCM Ctrl Dly (s/v)	8.5	-	-	27.9	27.6	10.5	-	-
HCM Lane LOS	A	-	-	D	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.8	0.2	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	3	0	2	27	0	31	24	1089	2	1	681	24
Future Vol, veh/h	3	0	2	27	0	31	24	1089	2	1	681	24
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	3	0	2	29	0	33	26	1171	2	1	732	26

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1970	1996	1184	1992	1984	767	769	0	0	1174	0	0
Stage 1	1225	1225	-	758	758	-	-	-	-	-	-	-
Stage 2	745	771	-	1234	1226	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	47	61	233	46	62	405	841	-	-	598	-	-
Stage 1	221	254	-	402	418	-	-	-	-	-	-	-
Stage 2	409	412	-	218	253	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	42	58	230	43	59	397	832	-	-	598	-	-
Mov Cap-2 Maneuver	138	161	-	141	165	-	-	-	-	-	-	-
Stage 1	214	246	-	397	413	-	-	-	-	-	-	-
Stage 2	370	407	-	207	245	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	27.64	28.38	0.2	0.02
HCM LOS	D	D		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	598	-	-	164	215	832	-	-
HCM Lane V/C Ratio	0.002	-	-	0.033	0.289	0.031	-	-
HCM Ctrl Dly (s/v)	11	-	-	27.6	28.4	9.5	-	-
HCM Lane LOS	B	-	-	D	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.2	0.1	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	1	0	2	11	0	23	32	1083	3	1	682	27
Future Vol, veh/h	1	0	2	11	0	23	32	1083	3	1	682	27
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	3	3	3	3	3	3	1	1	1
Mvmt Flow	1	0	2	12	0	25	34	1165	3	1	733	29

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1982	2011	1178	2005	1999	770	773	0	0	1169	0	0
Stage 1	1236	1236	-	761	761	-	-	-	-	-	-	-
Stage 2	746	776	-	1244	1238	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	47	60	235	44	60	399	838	-	-	601	-	-
Stage 1	218	250	-	396	413	-	-	-	-	-	-	-
Stage 2	408	411	-	212	247	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	41	56	232	41	56	391	829	-	-	601	-	-
Mov Cap-2 Maneuver	136	157	-	136	160	-	-	-	-	-	-	-
Stage 1	208	240	-	391	407	-	-	-	-	-	-	-
Stage 2	378	406	-	199	236	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	24.52	22.35	0.27	0.02
HCM LOS	C	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	601	-	-	188	244	829	-	-
HCM Lane V/C Ratio	0.002	-	-	0.017	0.15	0.042	-	-
HCM Ctrl Dly (s/v)	11	-	-	24.5	22.4	9.5	-	-
HCM Lane LOS	B	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	0	0	4	11	0	9	9	525	3	6	900	15
Future Vol, veh/h	0	0	4	11	0	9	9	525	3	6	900	15
Conflicting Peds, #/hr	0	0	0	4	0	4	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	25	25	25	0	0	0	4	4	4	4	4	4
Mvmt Flow	0	0	4	12	0	10	10	565	3	6	968	16

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1570	1586	570	1581	1580	984	988	0	0	568	0	0
Stage 1	585	585	-	993	993	-	-	-	-	-	-	-
Stage 2	985	1001	-	588	587	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.75	6.45	7.1	6.5	6.2	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.75	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4.225	3.525	3.5	4	3.3	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	79	96	480	89	110	304	692	-	-	994	-	-
Stage 1	459	462	-	298	326	-	-	-	-	-	-	-
Stage 2	271	293	-	499	500	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	94	478	86	108	302	689	-	-	994	-	-
Mov Cap-2 Maneuver	75	94	-	86	108	-	-	-	-	-	-	-
Stage 1	452	456	-	295	323	-	-	-	-	-	-	-
Stage 2	260	290	-	485	493	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	12.6	39.14	0.17	0.06
HCM LOS	B	E		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	994	-	-	478	127	689	-	-
HCM Lane V/C Ratio	0.006	-	-	0.009	0.17	0.014	-	-
HCM Ctrl Dly (s/v)	8.6	-	-	12.6	39.1	10.3	-	-
HCM Lane LOS	A	-	-	B	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.6	0	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	37	0	61	40	500	0	1	856	56
Future Vol, veh/h	4	0	0	37	0	61	40	500	0	1	856	56
Conflicting Peds, #/hr	0	0	0	3	0	3	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	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	2	2	4	4	4	4	4	4
Mvmt Flow	4	0	0	39	0	65	43	532	0	1	911	60

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1533	1592	535	1566	1563	946	973	0	0	532	0	0
Stage 1	617	617	-	946	946	-	-	-	-	-	-	-
Stage 2	916	975	-	620	617	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	96	108	549	90	112	317	701	-	-	1026	-	-
Stage 1	481	484	-	314	340	-	-	-	-	-	-	-
Stage 2	329	332	-	476	481	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	72	101	548	84	105	315	699	-	-	1026	-	-
Mov Cap-2 Maneuver	72	101	-	84	105	-	-	-	-	-	-	-
Stage 1	451	455	-	313	339	-	-	-	-	-	-	-
Stage 2	260	331	-	445	452	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	58.5	66.24	0.78	0.01
HCM LOS	F	F		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	1026	-	-	72	155	699	-	-
HCM Lane V/C Ratio	0.001	-	-	0.06	0.673	0.061	-	-
HCM Ctrl Dly (s/v)	8.5	-	-	58.5	66.2	10.5	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	3.8	0.2	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	3	0	2	27	0	31	24	1089	2	1	681	24
Future Vol, veh/h	3	0	2	27	0	31	24	1089	2	1	681	24
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	3	0	2	29	0	33	26	1171	2	1	732	26

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1970	1996	1184	1992	1984	767	769	0	0	1174	0	0
Stage 1	1225	1225	-	758	758	-	-	-	-	-	-	-
Stage 2	745	771	-	1234	1226	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	47	61	233	46	62	405	841	-	-	598	-	-
Stage 1	221	254	-	402	418	-	-	-	-	-	-	-
Stage 2	409	412	-	218	253	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	42	58	230	43	59	397	832	-	-	598	-	-
Mov Cap-2 Maneuver	42	58	-	43	59	-	-	-	-	-	-	-
Stage 1	214	246	-	397	413	-	-	-	-	-	-	-
Stage 2	370	407	-	207	245	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	68.7	128.65	0.2	0.02
HCM LOS	F	F		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	598	-	-	62	82	832	-	-
HCM Lane V/C Ratio	0.002	-	-	0.087	0.76	0.031	-	-
HCM Ctrl Dly (s/v)	11	-	-	68.7	128.6	9.5	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	3.8	0.1	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	1	0	2	11	0	23	32	1083	3	1	682	27
Future Vol, veh/h	1	0	2	11	0	23	32	1083	3	1	682	27
Conflicting Peds, #/hr	1	0	1	11	0	11	11	0	1	1	0	11
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	3	3	3	3	3	3	1	1	1
Mvmt Flow	1	0	2	12	0	25	34	1165	3	1	733	29

Major/Minor	Minor1			Minor2			Major1			Major2		
Conflicting Flow All	1982	2011	1178	2005	1999	770	773	0	0	1169	0	0
Stage 1	1236	1236	-	761	761	-	-	-	-	-	-	-
Stage 2	746	776	-	1244	1238	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	47	60	235	44	60	399	838	-	-	601	-	-
Stage 1	218	250	-	396	413	-	-	-	-	-	-	-
Stage 2	408	411	-	212	247	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	41	56	232	41	56	391	829	-	-	601	-	-
Mov Cap-2 Maneuver	41	56	-	41	56	-	-	-	-	-	-	-
Stage 1	208	240	-	391	407	-	-	-	-	-	-	-
Stage 2	378	406	-	199	236	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Ctrl Dly, s/v	45.92	57.69	0.27	0.02
HCM LOS	E	F		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	601	-	-	91	103	829	-	-
HCM Lane V/C Ratio	0.002	-	-	0.035	0.353	0.042	-	-
HCM Ctrl Dly (s/v)	11	-	-	45.9	57.7	9.5	-	-
HCM Lane LOS	B	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.4	0.1	-	-

CITY OF WEST LINN, CLACKAMAS COUNTY **WILLAMETTE DR at WALLING WAY, City of West Linn, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2020 to 12/31/2024**

1- 3 of 4 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	D R E C	M J A L	S U G S	W I N V	C H L	O R K	DATE / DAY / TIME / LAT	CLASS / DIST / 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	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01369	N	N	N	N	N	N	N	05/03/2023	14	WILLAMETTE DR	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
CITY			WE							WALLING WAY	SE		NONE	N	DRY	REAR		PRVTE	NW-SE								000		00
N			4P								05	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		043	000		07
N			45 23 21.88		-122 38 37.99			000300100S00																	OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NW-SE									011		00
																		PSNGR CAR		01	DRVR	NONE	42	F	OR-Y		000	000		00
																									OR>25					
																	02	NONE 0	STOP											
																		PRVTE	NW-SE									011		00
																		PSNGR CAR		02	PSNG	INJC	33	F			000	000		00
00722	N	N	N	N				03/21/2021	14	WILLAMETTE DR	INTER	3-LEG	N	N	RAIN	PED	01	NONE 0	TURN-L											19,02
CITY			SU							WALLING WAY	NW		NONE	N	WET	PED		PRVTE	SE-SW								000		00
N			8P								06	0		N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	77	M	OR-Y		029	000		02
N			45 23 21.9		-122 38 38.02			000300100S00																	OR<25					
																			- STRGHT	01	PED	INJC	60	M		I XWK?	000	000		19
																			NE SW											
04154	N	N	N	N	N	N	N	11/29/2023	14	WILLAMETTE DR	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	27,07,29
CITY			WE							WALLING WAY	NW		NONE	N	DRY	REAR		PRVTE	NW-SE								000		00
N			5P								06	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	44	M	OR-Y		016,043,026	038		27,07,29
N			45 23 21.88		-122 38 37.99			000300100S00																	OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NW-SE									011	013	00
																		PSNGR CAR		01	DRVR	INJC	34	F	OR-Y		000	000		00
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NW-SE									011	013	00
																		PSNGR CAR		02	PSNG	INJB	01	F			000	000		00
																	03	NONE 0	STOP											
																		PRVTE	NW-SE									022		00
																		PSNGR CAR		01	DRVR	INJC	37	M	OR-Y		000	000		00
																									OR<25					
03452	N	N	N	N	N	N	N	10/28/2022	14	WILLAMETTE DR	INTER	3-LEG	N	N	CLD	ANGL-OTH	01	NONE 9	STRGHT											02
NO RPT			FR							WALLING WAY	CN		STOP SIGN	N	DRY	TURN		N/A	SE-NW								000		00
N			7A								02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 23 21.88		-122 38 37.99			000300100S00																	UNK					

CITY OF WEST LINN, CLACKAMAS COUNTY **WILLAMETTE DR at WALLING WAY, City of West Linn, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2020 to 12/31/2024**

4 - 4 of 4 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	R J S W DATE A L G N H R TIME D C S V L K 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	A G E	S X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
											02	NONE 9	TURN-L											
												N/A	NE-SE									000		00
												PSNGR CAR		01	DRVR	NONE	00	Unk	UNK UNK		000	000		00

CITY OF WEST LINN, CLACKAMAS COUNTY **WILLAMETTE DR at WALLING CIR, City of West Linn, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2020 to 12/31/2024**

1- 2 of 2 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	D R E C	M J A L	S U G S	W I N V	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	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03797	N	N	N	N	N	11/03/2023	14	WILLAMETTE DR	INTER	CROSS	N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										062,010	10
NO RPT						FR		WALLING CIR	SE		UNKNOWN	N	WET	FIX		PRVTE	NW-SE									000	062,010	00
N						10A			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	51	M	OR-Y		081	017		10
N						45 23 21.88	-122 38 37.99	000300100S00															OR<25					
00354	N	N	N	N	N	02/03/2022	14	WILLAMETTE DR	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE						TH		WALLING CIR	NW		UNKNOWN	N	WET	REAR		N/A	NW-SE									000		00
N						7A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 23 21.88	-122 38 37.99	000300100S00															UNK					
															02	NONE 9	STOP											
																N/A	NW-SE									011		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					

ARD ENGINEERING
21370 SW Langer Farms Pkwy
Suite 142, Sherwood, OR 97140

February 12, 2026

REGISTERED PROFESSIONAL ENGINEER
54983PE
JULY 10, 2002
MICHAEL T. ARD
RENEWS: 12/31/2027

Chris Myers, Associate Planner
City of West Linn
22500 Salamo Road
West Linn, OR 97068

RE: 18850 Willamette Drive Car Wash: Transportation Impact Analysis Letter

Dear Mr. Myers,

This letter is written to provide information related to the transportation impacts of a proposed car wash facility at 18850 Willamette Drive in West Linn, Oregon. The purpose of this analysis is to provide information about the proposed use, make comparisons to the prior use of the site, examine expected queue lengths within the site, and provide information related to compatibility of the proposed conditional use with the surrounding environment.

Project and Location Description

The subject property is a 1.29-acre site that was previously home to a 3,948 square foot fast food restaurant with a drive-through window. However, the restaurant is no longer operational and the site has been unoccupied for several years. The property takes access via two driveways with one on Willamette Drive (OR Highway 43) and the other on Walling Way. These access driveways serve the Cedar Oaks Shopping Center, which includes the Backyard Burger Company, Kartcade, Smile Linn Dental clinic, Melani Studios Tattooing, Body&Brain Yoga/Tai Chi studio, and Umai Teriyaki restaurant.

Under the current proposal, the building that housed the prior restaurant will be removed, and an automated car wash facility will be constructed on the site. The car wash building will have a gross floor area of 3,190 square feet and will be centered within the site. A parking area will be provided on the north side of the building, with two staff parking spaces, 14 vacuum parking stalls, and one ADA vacuum parking stall. The ticketing and entry queue area will be at the south side of the site. Drivers will typically enter via the driveway on Willamette Drive and immediately turn right to enter the car wash queue. The entry splits into two lanes, each of which feeds into a ticket attendant station. The site layout provides a total of 300 feet of storage space for queueing vehicles between the ticket attendant stations and the site access, which is sufficient space for approximately 13 vehicles without queues extending into the site access driveway on Willamette Drive. Six additional vehicles can queue in the 140 feet between the ticketing stations and the car wash entrance, providing a total queue storage of 19 vehicles entering the car wash tunnel.

A site access and circulation diagram depicting the locations of the site access driveways, the proposed car wash tunnel, the parking area, and the queueing area is provided in Figure 1 below.

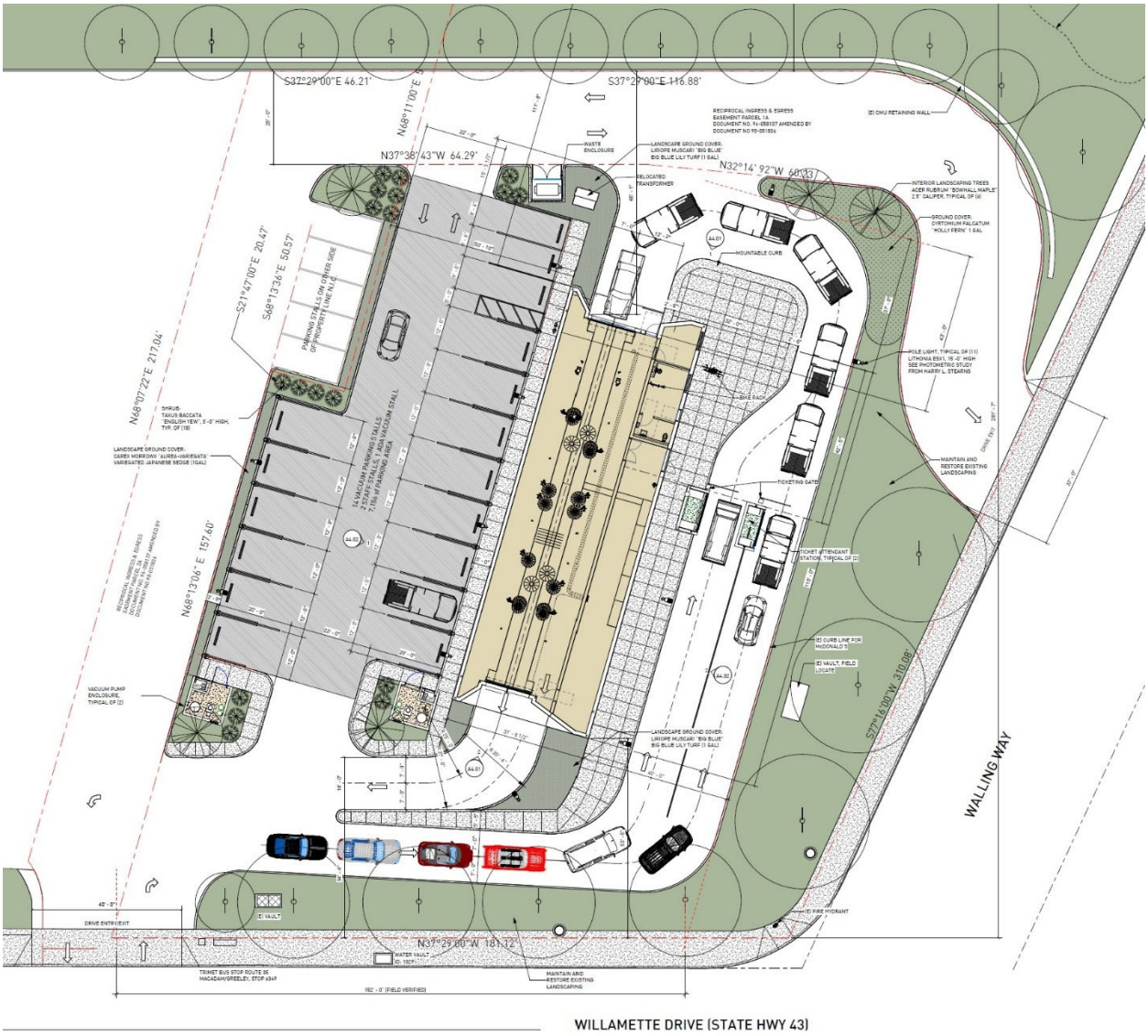


Figure 1: Site Access and Circulation Diagram

Willamette Drive (Oregon Hwy. 43) is classified by the City of West Linn as a Major Arterial roadway. It is also classified by the Oregon Department of Transportation as a Statewide Highway. It has one through lane in each direction in the immediate site vicinity, with turn lanes added at intersections. It has a posted speed limit of 35 mph. Sidewalks and bike lanes are in place on both sides of the roadway.

Walling Way is classified by the City of West Linn as a Local Street. It has a two-lane cross-section with one through lane in each direction and a posted speed limit of 25 mph. Existing sidewalks are in place on both sides of the roadway.

Trip Generation

To estimate the number of trips generated by the proposed use, data from the *ITE Trip Generation Manual, 11th Edition*, published by the Institute of Transportation Engineers was used. The data referenced was for land use code 948, Automated Car Wash. The ITE manual contains trip projections based on either the gross floor area of the facility and the number of car wash tunnels. A comparison of the two metrics revealed that using the number of car wash tunnels (i.e., one) results in a higher trip projection for the weekday evening peak hour, while using the gross floor area (i.e., 3,190 square feet) results in a higher trip projection for the Saturday peak hour. To maintain a conservative analysis, the higher trip generation estimates were used for both analysis periods.

Based on the calculations, the proposed car wash would be projected to generate 78 trips during the weekday evening peak hour and 96 trips during the Saturday peak hour. A summary of the trip generation calculations is provided in Table 1 below. Detailed trip generation calculation worksheets are also included in the attached technical appendix.

Table 1 - Trip Generation: Automated Car Wash

	PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total
3,190 sf or 1 tunnel	39	39	78	48	48	96

Since the proposed conditional may result in a change in operation as compared to the uses that are outright permitted within the site, one purpose of the trip generation estimate is to quantify how the trip generation characteristics of the site will change if the site is used for an automated car wash rather than other uses that are permitted outright within the underlying zone.

Uses permitted outright in the General Commercial (GC) zone include restaurants, general retail services, medical and dental offices, convenience stores, indoor recreation facilities, and community centers. Of the permitted uses, the highest traffic volumes would be generated by a convenience store or a fast-food restaurant with a drive-through window.

Re-occupancy of the existing 3,948 square-foot fast-food restaurant with a drive-through window would be projected to generate 130 trips during the weekday evening peak hour, and 218 Saturday peak hour trips. The comparison to this outright permitted land use shows that the proposed car wash would generate 47

percent fewer site trips during the evening peak hour and 60 percent fewer Saturday peak hour trips than a fast-food restaurant on the site (which also uses a drive-through window).

Alternatively, redevelopment of the site with a 3,000 square foot convenience store would be projected to generate 147 trips during the weekday evening peak hour, and 238 Saturday peak hour trips. The proposed car wash facility would generate 47 percent fewer weekday evening peak hour trips and 60 percent fewer Saturday peak hour trips than a 3,000 square foot convenience store within the site.

Based on the above comparisons, the proposed car wash facility is projected to have transportation impacts well below the levels associated with other outright permitted uses in the General Commercial zone. Notably, since the existing fast food restaurant with drive-through window on the site could be re-occupied, approval of the proposed car wash facility also represents a decrease in trip generation as compared to a use that is permitted without going through a land use approval process.

Queuing Analysis

Since the proposed car wash use requires on-site queuing, it is also appropriate to evaluate whether there is sufficient space to accommodate lines of vehicles waiting to enter the car wash tunnel. The potential site queues were analyzed using a review of prior studies of car wash facilities, direct observation of comparable Kaady Car Wash sites in the Portland Metro area, and using a mathematical model based on peak-hour service demands in conjunction with actual service times, assuming arrival of individual vehicles occurs at random times within the peak hour.

A search for prior studies yielded a 2012 study of various drive-through queues for facilities including banks, car washes, coffee shops, fast food restaurants, and pharmacies prepared by Mike Spack, PE in Minnesota. That study collected data for 6 car wash facilities, with a total of 12 days of observations. The study reported the maximum queues observed over the course of each examined day. The average maximum queue length was 4.42 vehicles, with a standard deviation of 2.31 vehicles. From the study, a high estimate of the maximum queue (85^{th} percentile) was 6.2 vehicles. The longest queue ever observed during the study was 10 vehicles. Notably, these observed car wash queue lengths were less than those reported for fast food restaurants. Fast food restaurants experienced average maximum queues of 8.5 vehicles, an 85^{th} percentile of 12 vehicles, and a maximum observed queue of 13 vehicles.

For local data, cameras were installed to observe one mid-week day and one weekend day at two Kaady Car Wash sites in the Portland metro area. The selected sites were at 9614 SW Tualatin Sherwood Road in Tualatin, Oregon and at 1909 W Burnside Street in Portland, Oregon. However, since there was rain during part of the weekend observations at the Tualatin Sherwood Road site, a second weekend of data was collected at that location. The maximum queue observed during a midweek day was 4 vehicles at the location in Tualatin (the maximum mid-week queue at the Burnside site was 2 vehicles). During weekend

operation, the maximum observed queue was also 4 vehicles at the location in Tualatin (the maximum weekend queue at the Burnside location was 3 vehicles).

The mathematical queuing model used was a Poisson distribution queuing model that used designated hourly arrival rates and service times to calculate the projected queue length. In order to provide for a very conservative analysis, the arrival rate used for the calculations was based on the highest trip generation data point contained in the ITE Trip Generation manual rather than the average trip generation rate. This trip rate was 37.75 trips per thousand square feet during the Saturday peak hour, which equates to 120 trips for the 3,190 square foot car wash, with half entering and half exiting the site (i.e., 60 vehicles arriving and 60 vehicles departing during the peak hour.) Additionally, the service rate was conservatively assumed to be 40 seconds per vehicle. Actual observation of car wash operations at the two Kaady Car Wash sites showed service times of as little as 30 seconds between vehicles when queues were present. Based on the calculations, the projected 95th percentile queue length for the very high estimated arrival rate was 7.4 vehicles.

Overall, the calculated queue length for the proposed car wash was 7.4 vehicles, and the maximum queue length observed at any car wash location among the data sets was 10 vehicles.

The proposed site plan provides sufficient space for 19 vehicles to queue prior to entering the wash tunnel.

Based on the analysis and the proposed site plan, the projected vehicle queues waiting to enter the car wash tunnel can safely be accommodated within the project site. Since the car wash queues are not projected to extend to the driveway, they will not impede the movement of vehicles entering and exiting the Cedar Oaks Shopping Center and are not projected to impact operation of either Willamette Drive or Walling Way.

CONCLUSIONS

Based on the transportation analysis, approval of the proposed automated car wash facility at 18850 Willamette Drive in West Linn, Oregon will not result in increases in traffic or degradation of operation of area roadways and intersections as compared to either the prior use of the site or other uses which are permitted outright in the General Commercial zone. Since the existing fast food restaurant with drive-through window on the site could be re-occupied, approval of the proposed car wash facility also represents a decrease in trip generation as compared to a use that is permitted without going through a land use approval process.

Based on the queuing analysis, the proposed site plan includes adequate space to accommodate the projected maximum queues without interfering with operation of the site access driveways or the adjacent public streets.

No additional travel demand, circulation, or queueing mitigation measures are recommended in conjunction with implementation of the proposed site plan for this conditional use.

If you have any questions regarding this analysis or if you need any further assistance, please don't hesitate to contact me.

Sincerely,

Michael Ard, PE
Principal Engineer

Appendix

Trip Generation Calculation Worksheet

Land Use Description: Automated Car Wash
ITE Land Use Code: 948
Independent Variable: Gross Floor Area
Quantity: 3.19 Thousand Square Feet

Summary of ITE Trip Generation Data

PM Peak Hour of Adjacent Street Traffic
Trip Rate: 14.20 trips per ksf
Directional Distribution: 50% Entering 50% Exiting

Saturday Peak Hour of Generator
Trip Rate: 30.40 trips per ksf
Directional Distribution: 50% Entering 50% Exiting

Site Trip Generation Calculations

3.19 ksf Automated Car Wash

	Entering	Exiting	Total
PM Peak Hour	23	23	46
Saturday Hour	48	48	96

Data Source: *Trip Generation Manual, 11th Edition* , Institute of Transportation Engineers, 2021

Trip Generation Calculation Worksheet

Land Use Description: Automated Car Wash
ITE Land Use Code: 948
Independent Variable: Car Wash Tunnels
Quantity: 1 Car Wash Tunnel

Summary of ITE Trip Generation Data

PM Peak Hour of Adjacent Street Traffic
Trip Rate: 77.50 trips per car wash tunnel
Directional Distribution: 50% Entering 50% Exiting

Saturday Peak Hour of Generator
Trip Rate: 41.00 trips per car wash tunnel
Directional Distribution: 50% Entering 50% Exiting

Site Trip Generation Calculations

1 Car Wash Tunnel

	Entering	Exiting	Total
PM Peak Hour	39	39	78
Saturday Hour	21	21	42

Data Source: *Trip Generation Manual, 11th Edition* , Institute of Transportation Engineers, 2021

Trip Generation Calculation Worksheet

Land Use Description: Fast-Food Restaurant with Drive-Through
ITE Land Use Code: 934
Independent Variable: Gross Floor Area
Quantity: 3.948 Thousand Square Feet

Summary of ITE Trip Generation Data

AM Peak Hour of Adjacent Street Traffic
Trip Rate: 44.61 trips per ksf
Directional Distribution: 51% Entering 49% Exiting

PM Peak Hour of Adjacent Street Traffic
Trip Rate: 33.03 trips per ksf
Directional Distribution: 52% Entering 48% Exiting

Total Weekday Traffic
Trip Rate: 467.48 trips per ksf
Directional Distribution: 50% Entering 50% Exiting

Saturday Peak Hour
Trip Rate: 55.25 trips per ksf
Directional Distribution: 51% Entering 50% Exiting

Site Trip Generation Calculations

3.9 ksf Fast-Food Restaurant w/ Drive Thru

	Entering	Exiting	Total
AM Peak Hour	90	86	176
PM Peak Hour	68	62	130
Weekday	923	923	1846
Saturday Peak	111	107	218

Data Source: *Trip Generation Manual, 11th Edition* , Institute of Transportation Engineers, 2021

Trip Generation Calculation Worksheet

Land Use Description: Convenience Store
ITE Land Use Code: 851
Independent Variable: Gross Floor Area
Quantity: 3.00 Thousand Square Feet

Summary of ITE Trip Generation Data

AM Peak Hour of Adjacent Street Traffic
Trip Rate: 62.54 trips per ksf
Directional Distribution: 50% Entering 50% Exiting

PM Peak Hour of Adjacent Street Traffic
Trip Rate: 49.11 trips per ksf
Directional Distribution: 51% Entering 49% Exiting

Total Weekday Traffic
Trip Rate: 762.28 trips per ksf
Directional Distribution: 50% Entering 50% Exiting

Saturday Peak Hour Traffic
Trip Rate: 79.12 trips per ksf
Directional Distribution: 50% Entering 50% Exiting

Site Trip Generation Calculations

3.00 ksf Convenience Store

	Entering	Exiting	Total
AM Peak Hour	94	94	188
PM Peak Hour	75	72	147
Weekday	1143	1143	2286
Saturday Peak	119	119	238

Data Source: *Trip Generation Manual, 11th Edition* , Institute of Transportation Engineers, 2021

The data for Kansas banks was collected between 4:30pm and 6:00pm. While many of the maximum queues for the data collected in Minnesota were between these times, maximum queues occurred between 8:30am and 5:30pm so it is possible that some of the Kansas data does not capture the actual maximum queues for the day.

The number of available lanes at banks, not including the ATM lane, ranged from two to seven lanes (though the most open at one time was five lanes). Even though plenty of lanes were available, cars often stacked at the lane closest to the building, thus additional lanes may not result in shorter queues. With an 85th percentile maximum queue of eight vehicles, the data suggests that banks with drive-through lanes should be able to accommodate 160 feet of vehicle stacking.

3.2 Car Washes

Data collection was done at six car washes with drive-through services (including one full-service car wash) in February 2012. Twelve days of data were collected. The car washes were located in the cities of Falcon Heights, Hopkins, Minneapolis, Roseville and St. Louis Park, MN. Five of the six car washes (excluding the full-service car wash) were located at gas stations. Only the vehicles waiting in line were counted; vehicles being washed were not added to the queue.

Table 3.2 – Drive-Through Car Wash Maximum Queue Statistics

Number of Data Points	**12**
Average Maximum Queue (Vehicles)	**4.42**
Standard Deviation (Vehicles)	**2.31**
Coefficient of Variation	**52%**
Range (Vehicles)	**1 to 10**
85th Percentile (Vehicles)	**6.20**
33rd Percentile (Vehicles)	**3.00**

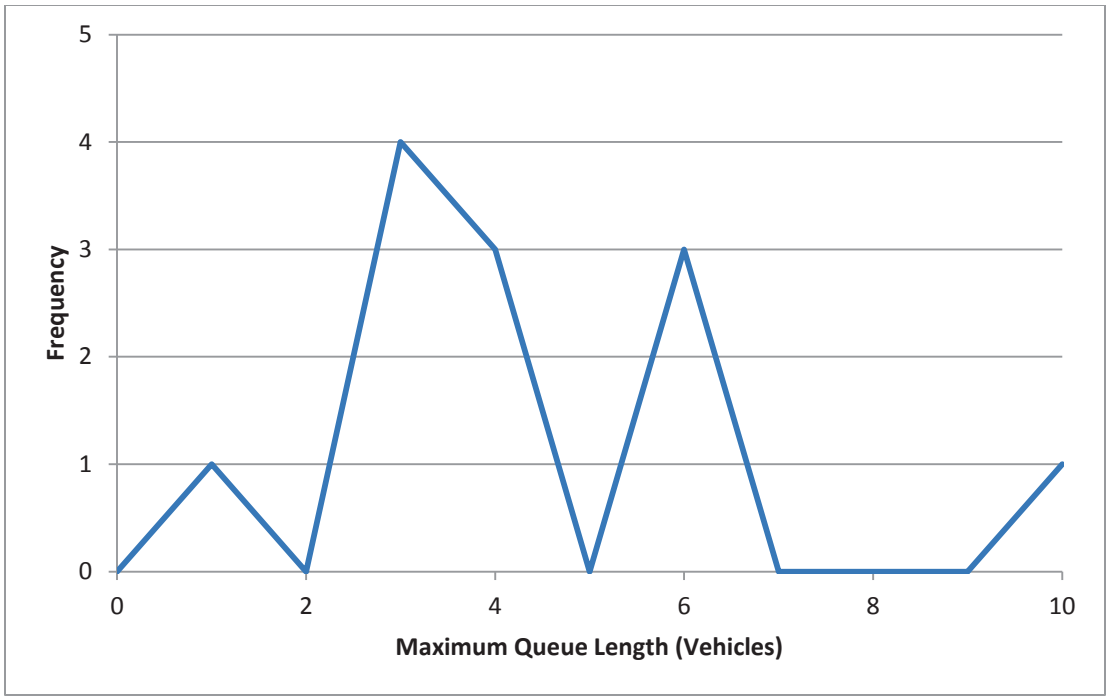


Figure 3.2 – Drive-Through Car Wash Maximum Queue Frequency

Two of the car washes had two lanes while the other four were one lane car washes. The full-service car wash had two lanes and also produced the highest maximum queue of 10 vehicles. The maximum queues for car washes were spread throughout the afternoon from 12:30pm to 8:30pm. With an 85th percentile maximum queue of more than six vehicles, the data suggests that car washes with drive-through lanes should be able to accommodate 140 feet of vehicle stacking throughout the day.

3.3 Coffee Shops

Data collection was done at six coffee shops with drive-through services in November 2010, August 2011 and February 2012. Fourteen days of data were collected. The coffee shops were located in the cities of Edina, Hopkins, Minneapolis, Roseville and St. Louis Park, MN. Vehicles being served were counted as being in the queue. Twelve days of data from the Kansas City, Kansas area is also included.

Table 3.3 – Drive-Through Coffee Shop Maximum Queue Statistics

	Minnesota Data	Minnesota + Kansas Data
Number of Data Points	14	26
Average Maximum Queue (Vehicles)	11.00	10.23
Standard Deviation (Vehicles)	2.25	2.76
Coefficient of Variation	20%	27%
Range (Vehicles)	7 to 16	3 to 16
85th Percentile (Vehicles)	13.50	13.00
33rd Percentile (Vehicles)	10.00	9.91

Queuing Video Observations - Burnside Kaady Car Wash 11/18/2025 (Tuesday)

Time	Patrons	Max Queue
8:00 AM	14	1
9:00 AM	16	1
10:00 AM	19	2
11:00 AM	17	2
12:00 PM	8	1
1:00 PM	21	2
2:00 PM	13	2
3:00 PM	19	2
4:00 PM	7	1
5:00 PM	14	2
6:00 PM	6	2
7:00 PM	3	1

Queuing Video Observations - Burnside Kaady Car Wash 11/22/2025 (Saturday)

Time	Patrons	Max Queue
8:00 AM	8	1
9:00 AM	20	3
10:00 AM	21	2
11:00 AM	14	2
12:00 PM	14	2
1:00 PM	19	3
2:00 PM	21	2
3:00 PM	20	2
4:00 PM	15	3
5:00 PM	4	1
6:00 PM	5	1
7:00 PM	7	1

Queuing Video Observations - Tualatin Sherwood Rd Kaady Car Wash 11/15/2025-11/16/2025 (Sat/Sun)

Time	Patrons	Max Queue	Notes
11/15/025			
1:00 PM	43	4	
2:00 PM	21	3	
3:00 PM	28	3	
4:00 PM	18	2	
5:00 PM	5	1	
6:00 PM	8	2	
7:00 PM	3	1	
11/16/2025			
8:00 AM	3	1	Rain
9:00 AM	2	1	Rain
10:00 AM	3	1	Rain
11:00 AM	2	1	Rain
12:00 PM	14	2	Rain

Queuing Video Observations - Tualatin Sherwood Rd Kaady Car Wash 11/18/2025 (Tuesday)

Time	Patrons	Max Queue
8:00 AM	16	2
9:00 AM	13	2
10:00 AM	13	3
11:00 AM	15	2
12:00 PM	29	4
1:00 PM	19	4
2:00 PM	30	4
3:00 PM	28	3
4:00 PM	17	3
5:00 PM	11	2
6:00 PM	3	1
7:00 PM	3	1
Total	**197**	

Queuing Video Observations - Tualatin Sherwood Rd Kaady Car Wash 11/22/2025 (Saturday)

Time	Patrons	Max Queue
8:00 AM	11	2
9:00 AM	12	2
10:00 AM	14	3
11:00 AM	19	3
12:00 PM	28	3
1:00 PM	18	2
2:00 PM	16	2
3:00 PM	12	3
4:00 PM	7	2
5:00 PM	7	1
6:00 PM	8	1
7:00 PM	3	1

18850 Willamette Drive Car Wash

Queue Calculation Worksheet (Assumes Poisson Distrubution of Arrivals)

Average Arrival Rate (λ)	60	veh/hour
Service Time	40	seconds/vehicle
Service Rate (μ)	90	veh/hour

Utilization (ρ)

= (λ)/(μ) 0.666667

Average Queue Length*

= (ρ^2)/(1-ρ) 1.3 vehicles

95th Percentile Queue*

= (log .05) / log (ρ) 7.4 vehicles

*The queue length calculations reflect a high estimate of Saturday peak demand.
Typical queue lengths are projected to be less than those calculated here.

Eric Li

From: Chuck Kaady <ckaady@kaady.com>
Sent: Monday, March 23, 2026 4:23 PM
To: Wendie Kellington; Eric Li
Subject: Fw: West Linn - Vacant McDonald's Lot

Positive support from our neighbors in the center to the north.

From: Meláni Studios <melanistudios.pdx@gmail.com>
Sent: Monday, March 23, 2026 2:44 PM
To: Chuck Kaady <ckaady@kaady.com>
Subject: West Linn - Vacant McDonald's Lot

To whom it may concern,
We are the owners of Meláni Studios in West Linn, located across from the vacant McDonald's property. We understand you may be considering developing the site into a new car wash, and we wanted to share our support for that idea.
The area tends to attract a considerable amount of loitering and we've occasionally seen people causing damage to the building. We feel that a well-maintained business, such as a car wash, could greatly improve the environment and safety for neighboring businesses and the community.
Thank you very much,
Emily Hamilton & Maddison Pitzl
Meláni Studios
18750 Willamette Dr, Suite F
West Linn, OR 97068
(503) 451-5943