Section III

Environmental Checklist and Determination of Environmental Nonsignificance

City of Tacoma

Preliminary Determination of Environmental Nonsignificance

2022 Annual Amendment to the One Tacoma Comprehensive Plan and Land Use Regulatory Code

SEPA File Number: LU22-0041

TO: All Departments and Agencies with Jurisdiction

SUBJECT: Preliminary Determination of Environmental Nonsignificance

In accordance with WAC 197-11-340, a copy of the Preliminary Determination of Environmental Nonsignificance for the project described below is transmitted:

Applicant: City of Tacoma
Planning and Development Services Department
747 Market Street, Room 345
Tacoma, WA 98402

Proposal:
2022 Annual Amendment to the One Tacoma Comprehensive Plan and the Land Use Regulatory Code (2022 Amendment), which includes the following four applications (or subjects):

(1) NewCold Land Use Designation Change
(2) South Sound Christian Schools Land Use Designation Change
(3) Work Plan for South Tacoma Groundwater Protection District Code Amendments
(4) Minor Plan and Code Amendments

The complete text of the proposed amendments and the associated staff analysis reports are available for review on the website at www.cityoftacoma.org/2022Amendment. No hard copies are available for review at the office due to the COVID-19 pandemic.

Location: City of Tacoma

Lead Agency: City of Tacoma

City Contact: Lihuang Wung
Planning and Development Services Department
747 Market Street, Room 345
Tacoma, WA 98402
(253) 591-5682 or lwung@cityoftacoma.org

The lead agency for this proposal has made a preliminary determination that this project does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030 (2) (c). This decision was made after review of an environmental checklist and other information on file with the lead agency. This information is available to the public upon request. This Preliminary Determination of Nonsignificance (DNS) is issued under WAC 197-11-340(2). **Comments must be submitted by 5:00 p.m. on April 8, 2022**. The Responsible Official will reconsider the DNS based on timely comments and may retain, modify, or, if significant adverse impacts are likely, withdraw the DNS. **Unless modified by the City, this determination will become final on**

April 15, 2022. There is no administrative appeal for this determination. Appeals must be filed in conjunction with appeals of the adopted amendments to the Growth Management Hearings Board; appeals shall be taken in accordance with procedures and limitations set forth in RCW 43.21C.075 and WAC 242-02. In addition to Growth Management Hearings Board requirements, a copy of the appeal shall be filed with the Planning and Development Services Department, 747 Market Street, Room 345, Tacoma, Washington 98402.

The Puyallup Tribe is notified that this initiates the consultation process.

Responsible Official: Peter Huffman
Position/Title: Director, Planning and Development Services Department

Signature: (Peter Huffman)

SEPA Officer Signature: (Shirley Schultz)

Issue Date: March 15, 2022
Comment Deadline: April 8, 2022, 5:00 p.m.

NOTE: The issuance of this Preliminary DNS does not constitute project approval. Future project applicants must comply with all other applicable requirements of the City of Tacoma and other agencies with jurisdiction prior to receiving development permits.

c: Puyallup Tribe of Indians, Planning and Land Use Department, 3009 E. Portland Ave., Tacoma, WA 98404 (U.S. mail only)
Puyallup Tribe of Indians, David Duenas, Building Official, David.Duenas@PuyallupTribe-nsn.gov
Puyallup Tribe of Indians, Brandon Reynon, Tribal Archeologist, Brandon.Reynon@PuyallupTribe-nsn.gov
Puyallup Tribe of Indians, Jeffrey Thomas, TFW Program Director, Jeffrey.Thomas@puyalluptribe-nsn.gov
Puyallup Tribe of Indians, Russ Ladley, Fisheries Program Director, Russ.Ladley@PuyallupTribe-nsn.gov
Puyallup Tribe of Indians, Andrew Strobel, Planning and Land Use Director, Andrew.Strobel@PuyallupTribe-nsn.gov
Puyallup Tribe of Indians, Jennifer Messenger, Land Use Planner, Jennifer.Messenger@PuyallupTribe-nsn.gov
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Puyallup Tribe of Indians, Carol Ann Hawks, Historic Preservation Director, CarolAnn.Hawks@PuyallupTribe-nsn.gov
Puyallup Tribe of Indians, Charlene Matheson, Special Project Planner, Charlene.Matheson@Puyalluptribe-nsn.gov
Puyallup Tribe of Indians, Char Naylor, Assistant Director Fisheries/Water Quality, Char.Naylor@puyalluptribe-nsn.gov
Puyallup Tribe of Indians, Lisa A. Anderson, Environmental Attorney, Lisa.Anderson@PuyallupTribe-nsn.gov
Tacoma Public School District 10, Robert Sawatzky, Planning & Construction Director, planning@tacoma.k12.wa.us
Tacoma Planning and Development Services Department, Shirley Schultz, Shirley.schultz@cityoftacoma.org
Tacoma Planning and Development Services Department, Reuben McKnight, reuben.mcknight@cityoftacoma.org
Tacoma Pierce County Health Department, SEPA Review Team, sepa@tpchd.org
Port of Tacoma, Jason Jordan, jjordan@portoftacoma.com
Metro Parks Tacoma, Matthew F. Keough, matthewke@tacomaparks.com
Metro Parks Tacoma, Joe Brady, joeb@tacomaparks.com
Pierce Transit, Bus Stop Program, Tina Vaslet, tvaslet@piercetransit.org
Puget Sound Clean Air Agency, Steve Van Slyke, stevev@pscleanair.org
Department of Ecology, separegister@ecy.wa.gov
Department of Natural Resources, SEPA Center, sepacenter@dnr.wa.gov
Department of Transportation, Olympia Region Development Services Team, OR-SEPA-REVIEW@wsdot.wa.gov

File: Planning and Development Services

SEPA ENVIRONMENTAL CHECKLIST

SEPA File Number: LU22-0041

A. BACKGROUND

1. Name of proposed project, if applicable:

2022 Annual Amendment to the One Tacoma Comprehensive Plan and the Land Use Regulatory Code (2022 Amendment), which includes the following four applications (or subjects):

(1) NewCold Land Use Designation Change
(2) South Sound Christian Schools Land Use Designation Change
(3) Work Plan for South Tacoma Groundwater Protection District Code Amendments
(4) Minor Plan and Code Amendments

2. Proponent/applicant:

City of Tacoma
Planning and Development Services Department
747 Market Street, Room 345
Tacoma, WA 98402-3701

3. Contact:

Lihuang Wung
Planning and Development Services Department
747 Market Street, Room 345
Tacoma, WA 98402-3701
Phone: (253) 591-5682
E-mail: lwung@cityoftacoma.org

4. Date checklist prepared:

March 11, 2022

5. Agency requesting checklist:

City of Tacoma, Planning and Development Services Department

6. Proposed timing or schedule (including phasing, if applicable):

Timeline	Activity
January-March 2021	Applications accepted (submittal deadline March 31, 2021)
May-July 2021	Assessment of applications by the Planning Commission (including a Public Scoping Hearing on June 16, 2021)
July 2021 – March 2022	Technical analysis of applications by the Planning Commission and planning staff, including community outreach and engagement
April 6, 2022	Planning Commission Public Hearing
April-May 2022	Planning Commission making recommendations to the City Council
May-June 2022	City Council review and adoption

7. **Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

The One Tacoma Comprehensive Plan and the Land Use Regulatory Code are amended on an annual basis consistent with the State Growth Management Act (GMA). The proposed changes to the text, maps and policies of the One Tacoma Plan will apply to future land use and development. Proposed changes to the Land Use Regulatory Code and the Official Zoning Map will provide the basis to evaluate and regulate future development proposals.

Concerning Subject #1, NewCold Land Use Designation Change (hereinafter referred to as NewCold), the proposed Heavy Industrial land use designation would allow the subject parcel, with appropriate site rezone, to accommodate future expansion of the adjacent existing cold storage facility (a heavy industrial use). Impacts resulted from future project-specific development proposals would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code.

Concerning Subject #2, South Sound Christian Schools Land Use Designation Change (hereinafter referred to as Christian Schools), the proposed Mid-Scale Residential designation for the western 4 parcels would allow future multi-family development and the proposed General Commercial designation for the eastern 4 parcels would allow future commercial use. Impacts resulted from future project-specific development proposals would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code.

Subject #3, Work Plan for South Tacoma Groundwater Protection District (STGPD) Code Amendments (hereinafter referred to as Work Plan), in itself is not connected with any future additions, expansions or further related activity. However, future implementation of the Work Plan, i.e., the code amendments endeavors prescribed therein, will have to coordinate with or factor in various development projects/activities and groundwater related enforcement/monitoring programs within the STGPD area.

Subject #4, Minor Plan and Code Amendments (hereinafter referred to as Minor Amendments), compiles 15 minor and non-policy amendments to the One Tacoma Comprehensive Plan and the Land Use Regulatory Code. One of the 15 amendments is connected with a future expansion activity. This amendment pertains to Manitou Annexation Area Land Use and would modify the future land use designations and zoning districts established for the Manitou Potential Annexation Area, to be effective upon the area's annexation to the City of Tacoma. The annexation, anticipated to occur in late 2022, is considered a future expansion activity.

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

In addition to this checklist for the 2022 Amendment, some environmental analyses have been conducted for Subject #1 (NewCold) (including a traffic impact analysis and a noise and light study) and Subject #2 (Christian Schools) (including a traffic assessment, an east-west connection feasibility analysis, and a habitat assessment).

Similar SEPA analyses have also been prepared for all past annual amendments. Listed below are those for the last three years, with the rest on file and available for review upon request:

- 2020 Annual Amendment, SEPA #LU20-0179
- 2019 Annual Amendment, SEPA #LU19-0068
- 2018 Annual Amendment, SEPA #LU18-0068

9. **Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

Of noteworthy is the Bridge BNSF Warehouse Project (Land Use Permit #LU21-0125) that is going through the permit review process. Bridge Industrial has proposed the development of an approximately 150 acre site with a multi-building development (about 2.5 million square feet of

buildings) and associated site work improvements, utility extensions, access roadway improvements and franchise utilities. The site (primary address at 5024 S. Madison) is located in the South Tacoma Manufacturing/Industrial Overlay District and the South Tacoma Groundwater Protection District.

10. List any government approvals or permits that will be needed for your proposal, if known.

The proposed amendments are subject to the following governmental approvals:

- Adoption by Tacoma City Council
- Verification of GMA compliance by Washington State Department of Commerce
- Plan Certification by Puget Sound Regional Council

Future development applications will be subject to the One Tacoma Plan, regulations, and zoning classifications and be approved through issuance of various permits and approvals as required.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site.

The 2022 Amendment includes four subjects, as described below. The complete text of the proposed amendments and the associated staff analysis reports are available for review on the website at www.cityoftacoma.org/2022Amendment.

Proposal (Subject)	Description (Scope of Work and Intent)
(1) NewCold Land Use Designation Change	NewCold, LLC requests for changing the Comprehensive Plan Land Use Designation for a 3-acre parcel from Light Industrial to Heavy Industrial. The parcel is located directly to the east of the existing 140-foot tall cold storage building sitting on approximately 34 acres. If granted, the Heavy Industrial designation would enable NewCold to apply for a rezone to an M-2 Heavy Industrial Zoning District to allow for future expansion of the existing facility.
(2) South Sound Christian Schools Land Use Designation Change	The South Sound Christian Schools and the CenterPoint Christian Fellowship request changing the Comprehensive Plan Land Use Designation for a 16-acre area consisting of 8 parcels. The proposal is to change the designation from Low-Scale Residential to: (a) Mid-Scale Residential for the western 4 parcels to allow for future sale and/or multi-family development, and (b) General Commercial for the eastern 4 parcels to allow for a future site rezoning application with the intention of developing the site with a general commercial use.
(3) Work Plan for STGPD Code Amendments	The Work Plan for STGPD Code Amendments, as one of the applications (or subjects) of the 2022 Amendment, is part of the first-phase response to the South Tacoma Economic Green Zone application submitted by the South Tacoma Neighborhood Council. The original application seeks to (1) improve current regulations and standards applicable to the STGPD and the aquifer recharge areas, so they are more effective in addressing environmental and health risks; and (2) transform the South Tacoma Manufacturing/Industrial Center into an Economic Green Zone that fosters environmentally sustainable industry specifically within South Tacoma. Due to its complexity, the original application will be addressed with a two-phased approach, i.e., (1) STGPD Code Amendments, and (2) Economic Green Zone Designation. This Work Plan for STGPD Code Amendments provides an outline for how the first phase is to be carried out.

Proposal (Subject)	Description (Scope of Work and Intent)
(4) Minor Plan and Code Amendments	Proposed by the Planning and Development Services Department, this application compiles 15 minor and non-policy amendments to the One Tacoma Comprehensive Plan and the Land Use Regulatory Code, intended to update information, correct errors, address inconsistencies, improve clarity, and enhance applicability of the plan and the code.

12. Location of the Proposal: (Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any. If a proposal would occur over a range of area, provide the range or boundaries of the site(s).)

Proposal (Subject)	Location of the Proposal (Area of Applicability)
(1) NewCold Land Use Designation Change	4601 S. Orchard Street
(2) South Sound Christian Schools Land Use Designation Change	Tacoma Mall Boulevard and S. 64th Street
(3) Work Plan for South Tacoma Groundwater Protection District Code Amendments	South Tacoma Groundwater Protection District
(4) Minor Plan and Code Amendments	Citywide

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee: Lihuang Wung

Position and Agency/Organization: Senior Planner, City of Tacoma

Date Submitted: Mach 11, 2022

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment. When answering these questions, be aware of the extent the proposal or the types of activities likely to result from the proposal that would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

All subjects of the 2022 Amendment are non-project actions and as such would not directly impact water and air quality, release hazardous substances, or produce noise.

Concerning Subject #1 (NewCold), the proposal could further facilitate the possible development of the subject site with the expansion of an industrial cold storage facility. If the site were to be developed with such a complex, vehicular traffic to and from the site could increase and there could be an increase in impervious service on the site. These could result in an increase in discharge to water and an increase in vehicle emissions to air. There is also potentially increase production of noise, however preliminary studies indicate that such impacts would be within allowable limitations and there are mitigations.

Development of an industrial cold storage facility at the site, or heavy industrial uses, could generate more vehicle trips to the site. Based on preliminary traffic studies conducted by a consultant, a net increase of approximately 386 vehicle trips per day to the site would likely be generated. (See Exhibit A)

A heavy industrial cold storage facility on the site would also potentially increase noise. The applicant, NewCold, LLC, engaged a consultant to evaluate potential noise impacts of such a project. That evaluation found that, preliminarily, there would be an increase in nose; however, noise levels would be within legal limits, compliant with all local, state and federal requirements. (See Exhibit B)

The potential for release of toxic or hazardous substance would be contingent upon proposed development, however, the applicant states that their intention is to expand the existing heavy cold storage facility. The storage, use, disposal of any hazardous material or toxic substance is subject to federal, state and local regulation and oversight. The current facility is at the time of this evaluation not known to be subject to any action or proceeding that would indicate that the facility is exceeding any law, rule or regulation relating to toxic or hazardous substances.

While not specifically required as part of this SEPA Checklist, the applicant, at the request of the Planning Commission, has engaged a consultant to conduct a preliminary lighting study. This study has found that light impact from the site could potentially increase; however, that with the use of best available LED, shielding and downward directed lighting that off sight impacts could be mitigated. (See Exhibit B)

As mentioned, there is not a specific development proposal at this time and such a proposal would almost certainly trigger further SEPA evaluation based on several possible SEPA thresholds and criteria. With a specific development proposal much more accurate estimates could be given of impacts and evaluated. SEPA will be required at the rezoning phase and at the development phase and the above-mentioned impacts, and any others that might be found given specifics of future applications, will be thoroughly evaluated as part of those future SEPA evaluations.

Concerning Subject #2 (Christian Schools), the proposal could lead to eventual development of 4 parcels with low scale multi-family development and a portion of the site with general commercial development. Subsequent rezoning approvals and development permits would be required, and SEPA evaluations would be required. There would be potentially a minor increase to

development density potential on these sites and therefore possible impacts to surrounding area in terms of increased traffic impact. At the request of the Planning Commission, the applicant conducted a preliminary traffic analysis. It was found that the existing street grid due to steep topography of the surrounding sites could not be viably extended and meet the City of Tacoma traffic design manual requirements. Also, it has been found that likely traffic increases would be on the order of 135-198 PM peak hour trips and that level of increase would not pose a significant impact to area roadways. An update to the traffic impact analysis will be performed as part of any subsequent rezoning action and future major development proposals. (See Exhibit C)

Proposed measures to avoid or reduce such increases are:

Impacts resulted from future project-specific development proposals would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code.

Concerning Subject #1 (NewCold), as any future development project for the site undergo permitting evaluation, current development standards would be implemented through building and site development permits that would likewise mitigate the impacts of new impervious surfaces. These include the City's landscaping and tree canopy standards, design requirements, setback standards, as well as the implementation of updated stormwater standards in the City's Stormwater Management Manual. The site is also subject to all the requirements of the STGPD.

At the time of development, it is possible that other traffic mitigations would be imposed to enhance traffic safety and flow, and these could help reduce traffic impact and vehicle emissions, and even noise impacts. These will be a focus of SEPA at subsequent rezoning requests and again the time of an actual development proposal and permitting request.

Concerning Subject #2 (Christian Schools), after further evaluation at a subsequent rezoning request, which would also trigger further SEPA review, the subject sites would be required to undergo evaluation as part of permitting activities. The city has environmental codes, manuals and requirements, and development regulations that must be met to receive necessary permits to develop these sites. These include the City's landscaping and tree canopy standards, minimum parking reductions for projects located near transit facilities, yard space requirements and setback standards, as well as the implementation of updated stormwater standards in the City's Stormwater Management Manual. These sites are subject to the STGPD as well. Furthermore, the proposed rezones are generally located in areas that are already urbanized, with existing area roadway and sidewalk improvement, and are generally supported by transit and walkable urban amenities, reducing the footprint of new development and reducing dependence on single occupancy vehicles. In the long-term, it is anticipated that increased transit will be provided to the area.

Subject #3 (Work Plan) outlines the approach to amending the land use code pertaining to the STGPD. The intent of the code amendments is to increase the effectiveness of the enforcement/monitoring programs in addressing discharge to water, emissions to air, and production, storage or release of toxic or hazardous substances within the STGPD area.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

All subjects of the 2022 Amendment are non-project actions and as such would not directly impact plants, animals, fish, or marine life.

Concerning Subject #1 (NewCold), preliminarily, possible impact from light and sound have been identified and examined (see Exhibit B), however those impacts would likely be able to be mitigated. Outlining specific mitigations without a specific development proposal is not possible, but generally placement of lights, configuration, and placement of equipment, etc. may be required to help keep impacts to a minimum.

Concerning Subject #2 (Christian Schools), the Planning Commission also requested that the applicant conduct a preliminary environmental analysis of the site and that was completed. (See Exhibit D). The analysis found no presence of wetlands and did not make a finding that the site is a biodiversity corridor. However, the site has been found to contain Oregon White Oaks (Garry Oaks) which are protected under the City's Critical Area Ordinance (Tacoma Municipal Code 13.11). Guidance for their protection can be found in Washington State Department of Fish and Wildlife's "Management Recommendations for Washington's Priority Habitats – Oregon White Oak Woodlands". In addition, Garry Oak-Conifer habitat is a forest community habitat that provides contiguous aerial pathways for the state threatened western gray squirrel, and important roosting, nesting, and feeding habitat for birds and mammals found within the urban environment. It is also noted that conifers were included in the data sheets and additional information such as a tree survey is likely to be required to further assess habitat.

Priority Oregon White Oak (Quercus garryana) woodlands consist of stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is greater than or equal to 25%; or where total canopy coverage of the stand is greater than 25%, but oak accounts for at least 50% of the canopy coverage present. The latter is often referred to as an oak savanna. In urban or urbanizing areas, single oaks, or stands of oaks less than 1 acre may also be considered a priority when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height [dbh], are used by priority species, or have a large canopy).

A Critical Area Verification permit process will likely be required prior to any rezone process to determine the extent of protected areas on site. This will include verification of the non-wetland and no-Biodiversity Area/Corridor determinations in the report. At the time of any development proposal of the subject sites, further evaluation will also be required, and the sites are all subject to SEPA evaluation if trigger thresholds are exceeded.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

Impacts resulted from future project-specific development proposals would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code.

Regarding Subject #2 (Christian Schools), see above; critical area permitting will be required in advance of a rezoning application for the portions of the subject sites which have been shown to have critical area features.

3. How would the proposal be likely to deplete energy or natural resources?

All subjects of the 2022 Amendment are non-project actions and as such would not directly impact energy or natural resources.

Concerning Subject #1 (NewCold), the potential expansion to an existing heavy industrial cold storage facility would increase the use of power on the site. The applicant has high incentive to utilize the most efficient machinery and refrigeration technology as energy consumption is a key cost driver for their operation. Overall, the use is a critical link in supply chain, and an asset to the City of Tacoma's overall portfolio of industry and business, in that it allows food producers to place their product in storage near the Port of Tacoma and in an area that is proximate to the greater Puget Sound population center. Longer term, more efficient food preservation represents conservation of energy and resources as it encourages less food waste and thus helps build in efficiency to the food system.

Proposed measures to protect or conserve energy and natural resources are:

Impacts resulted from future project-specific development proposals would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code as well as all Tacoma Power and utility requirements which encourage energy and resource conservation.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

All subjects of the 2022 Amendment are non-project actions and as such would not directly impact environmentally sensitive areas or areas designated for governmental protection.

Concerning Subject #1 (NewCold), it is possible that more intense development of the subject site could have impacts on the designated open space site directly to the east, however, that site is the City of Tacoma landfill site and it does not presently contain any public open space, programed recreational space, or known critical area near the subject site. Further evaluation of possible impacts to that will be considered again at any subsequent rezoning action, and then likely at time of development as a large expansion of the existing heavy industrial cold storage facility. Such a proposal would be of a sufficient scale to trigger SEPA. That review will occur and if any changes have occurred on the City landfill site in the intervening time, then it will be considered under the subsequent evaluations. The site is also within the STGPD and subject to those additional requirements and regulations.

Concerning Subject #2 (Christian Schools), no anticipated positive or negative impact is expected as a result of this proposal on 4 of the 8 subject parcels. On those parcels that are adjacent to or have been found to possibly contain/contain known critical area features, critical area permitting will be required in advance of a rezoning application for the portions of the subject sites which have been shown to have critical area features.

Proposed measures to protect such resources or to avoid or reduce impacts are:

Impacts resulted from future project-specific development proposals would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

All subjects of the 2022 Amendment are non-project actions and as such would not directly impact the compatibility of land or shoreline uses with the Comprehensive Plan.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Impacts resulted from future project-specific development proposals would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code.

Relating to Subjects #1 (NewCold) and #2 (Christian Schools), future project-specific development proposals that may result in these impacts would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code, design manuals and regulations.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

All subjects of the 2022 Amendment are non-project actions and as such would not directly impact the transportation system or public services and utilities.

Concerning Subject #1(NewCold), the applicant engaged a consultant who did preliminary traffic studies that indicated a net increase of approximately 382 vehicle trips per day to the site would likely be generated. This level of increase would be considered minor, however, added traffic mitigations may be necessary. This will continue to be evaluated at the subsequent rezoning request, and then again at the time of development.

There could be an increased impact to area utilities, sewer, power and water, however without a specific proposal, it is not possible to determine what level of impact that might be. Future project-specific development proposals that may result in these impacts would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code.

Concerning Subject #2 (Christian Schools), the applicant engaged a consultant who did preliminary traffic studies that indicated a net increase of approximately 135-198 vehicle trips per day to the site would likely be generated. This level of increase would be considered minor, however, added traffic mitigations may be necessary. This will continue to be evaluated at the subsequent rezoning request, and then again at the time of development.

Proposed measures to reduce or respond to such demand(s) are:

Impacts resulted from future project-specific development proposals would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code.

Concerning Subjects #1 (NewCold) and #2 (Christian Schools), without a specific proposal, measures and mitigations cannot be outlined. Future project-specific development proposals that may result in impacts would be reviewed, and properly mitigated, at the permitting level consistent with the applicable provisions of the Tacoma Municipal Code. Possible mitigations in the future may include specific requirements for equipment placement locations, traffic control additions including signals, installation of other traffic calming devices, additional tree canopy/landscape buffering, protection of known critical areas, etc. These will all be considered in greater detail under subsequent rezoning requests and then again at the time of request for developmental permits.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

No conflicts with local, state or federal laws for the protection of the environment are anticipated. The 2022 Amendment proposal package is also being reviewed for consistency with the State Growth Management Act, the Puget Sound Regional Council Vision 2050 and the Pierce County Countywide Planning Policies. If conflicts with local, state or federal laws for the protection of the environment are identified, they will be rectified prior to adoption.

Exhibits:

- Exhibit A: NewCold Preliminary Traffic Impact Analysis
- Exhibit B: NewCold Light/Noise Study
- Exhibit C: South Sound Christian Schools Preliminary Traffic Impact Analysis
- Exhibit D: South Sound Christian Schools Preliminary Environmental Analysis

Exhibit A

NEWCOLD TACOMA
TRAFFIC IMPACT ANALYSIS

City of Tacoma, WA

Prepared for: Sarah Remington
NewCold Seattle, LLC
4601 S Orchard St
Tacoma, WA 98466

February 2022

NEWCOLD TACOMA
TRAFFIC IMPACT ANALYSIS

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NEWCOLD TACOMA
TRAFFIC IMPACT ANALYSIS

1. INTRODUCTION

The main goals of this study focus on the assessment of existing roadway conditions and forecasts of newly generated project traffic. The first task includes the review of general roadway information on the adjacent streets serving the subject site and gathering existing vehicular volumes within a defined study area. Forecasts of future traffic and dispersion patterns on the street system are then determined using established trip generation and distribution techniques. As a final step, appropriate conclusions and mitigation measures are defined, if needed.

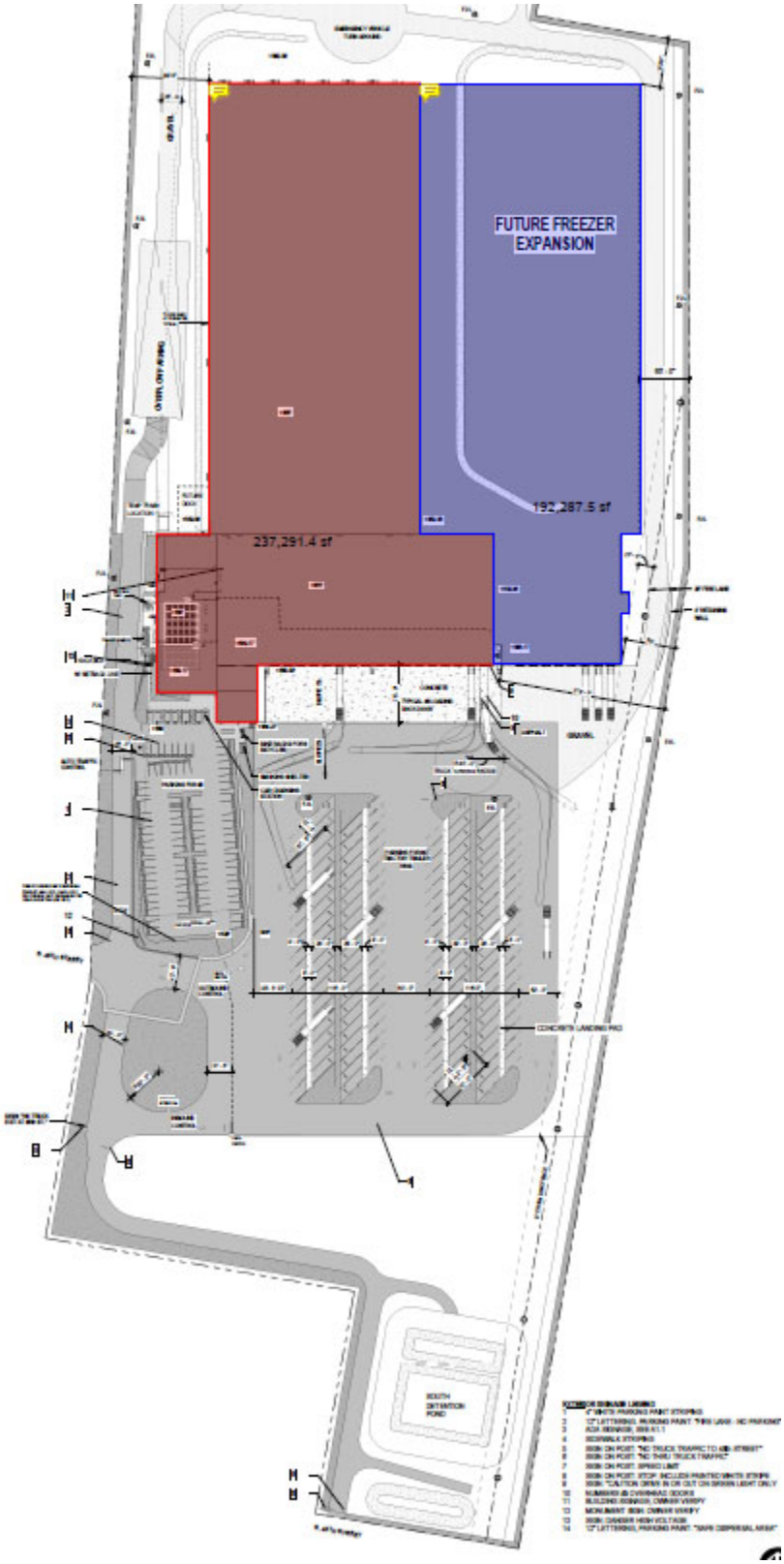
2. PROJECT DESCRIPTION

NewCold Tacoma proposes for a future expansion of an existing cold storage warehouse facility located in the city of Tacoma. The subject site is located within 33.79-acre tax parcel #: 0220133049 and is east of S Orchard Street and accessed primarily by way of S 46th Street. The existing building comprises approximately 237,291 square feet. An expansion, as predicated of a proposed rezone for the subject parcel from M1 to M2 could expand the building or construct a new building comprised of an estimated up to 200,000 square feet. This evaluation examines the existing activity occurring at the facility to derive future traffic estimates for a future project expansion. A vicinity map of the surrounding roadway network is provided below. Figure 2 illustrates a conceptual site plan with the area of expansion.

Figure 1: Vicinity Aerial

Figure 2: Conceptual Site Layout

Illustrated in red is the existing building footprint. In purple is the subject expansion area.



3. EXISTING CONDITIONS

3.1 Existing Street System

The street network serving the proposed project consists of a variety of roadways. The major roadways and arterials defined in the study area are listed and described below.

S Orchard Street: is a multi-lane, north-south, principal arterial west pf the subject site. Travel lanes are approximately 10-11 feet in width. The roadway cross-section consists of two travel lanes in either direction and a center two-way left-turn lane or left-turn lane. Sidewalk is generally provided along the east side of the roadway. The posted speed limit is 35-mph.

S 46th Street: is a two-way local roadway providing access to the subject property. As part of the NewCold Phase 1 development, the roadway at its intersection with S Orchard Street was constructed to include separate left- and right-turn lanes. No non-motorist facilities are present.

3.2 Transit Service

A review of Pierce Transit's service system indicates that transit is readily provided in the vicinity of the subject site. The nearest bus stops in relation to the subject site are provided at the intersection of S Orchard Street & S 46th Street Route 53 (~640' east of the subject parcel), serving Route 53. Route 53 – University Place provides service from the TCC Transit Center to the Tacoma Mall Transit Center. Weekday service is provided from 5:50 AM – 10:45 PM with approximately 30-minute headways. Saturday service is provided from 9:25 AM – 6:00 PM with approximately 60-minute headways. Sunday service is provided from 8:16 AM – 6:37 PM with approximately 120-minute headways. Refer to Pierce Transit's Routes & Schedules for more details.

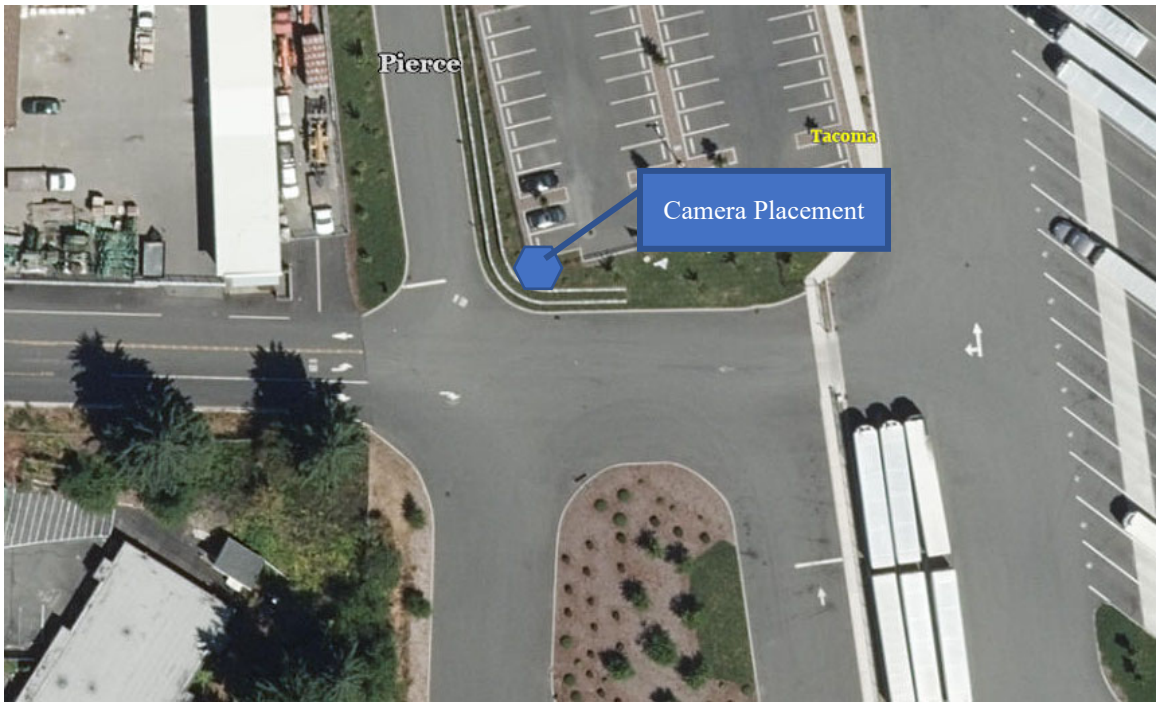
3.3 Roadway Improvements

A review of the City of Tacoma Six-Year (2022-2027) Transportation Improvement Program indicates no improvements are planned in the subject site's vicinity.

3.4 Existing Peak Hour Volumes and Travel Patterns

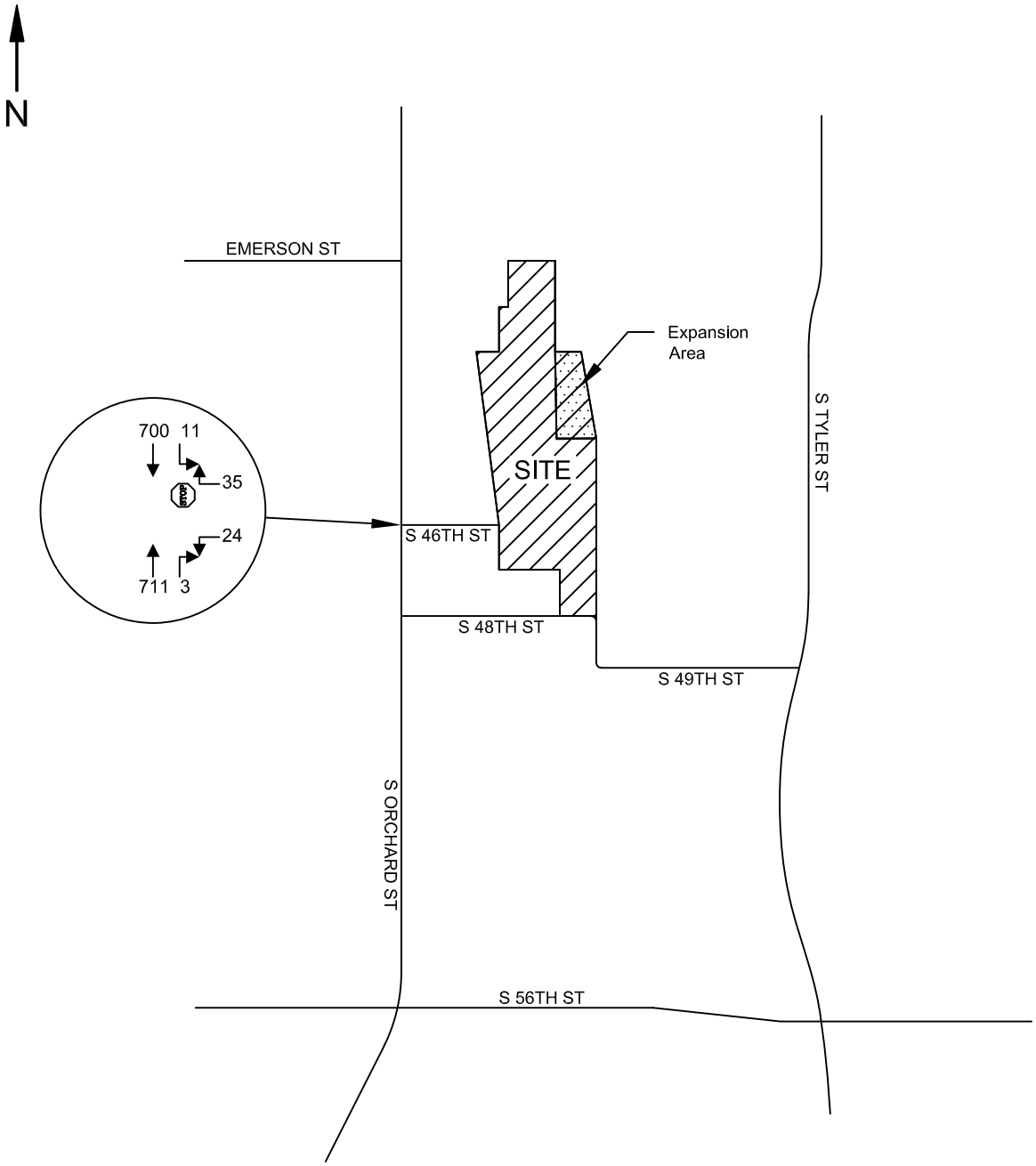
Field data for this study was obtained and collected in January of 2022. Traffic counts were performed at the study intersection of S Orchard Street & S 46th Street between the typical study period of 4:00-6:00 PM which generally represents peak conditions of the adjacent street. See Figure 3 on the following page for peak existing peak hour volumes.

In addition, a camera was placed at the location illustrated below so as to capture all arriving and departing traffic associated with NewCold operations. Counts were conducted over two 24-hour periods to obtain average daily trip and peak hour activity. Counts were administered on January 5th and 6th of 2022. More detailed data is provided in the following sections. Count sheets are provided in the appendix.



3.5 Non-Motorist Traffic

During field observations, only one bicycle was observed leaving/arriving on the site. Given the industrial nature of the development, most traffic is in the form of employees or trucks. No significant increase in non-motorist transport would be expected with a potential site expansion.



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NEWCOLD STORAGE

EXISTING PM PEAK HOUR VOLUMES
FIGURE 3

4. FORECAST TRAFFIC DEMAND AND ANALYSIS

4.1 Project Trip Generation

As previously mentioned, traffic counts were performed at the existing NewCold facility to observe existing travel patterns and demands. A trip rate could then be derived to apply against any future expansion for traffic volume estimates.

Data collection at the existing cold storage facility on-site analyzed by our firm was gathered via physical field counts and consisted of tracking each inbound/outbound movement. Cameras were deployed and captured peak period samples over two 24-hour weekdays. The peak period AM (7:00-9:00) midday (9:00 AM-4:00 PM) and PM (4:00-6:00) timeframes were then examined from each 24-hour count. From these peak timeframes, the one-hour reflecting the highest observed total inbound and outbound movements was then used for calculations and is considered the “peak hour.” Full-count sheets for each day and timeframe have been attached to the appendix for reference.

Table 1 below illustrates the calculated inbound and outbound trip generation rates for the average daily (ADT), AM, midday, and PM peak hours for either day. Rates are expressed in terms of vehicles per thousand square feet.

Table 1: Existing NewCold Storage Facility Trip Generation Rates

Size	Date	Vehicle Class	ADT	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
237,291 Sq. Ft.	Wed. 1/5/2022	Passenger	233	9	3	12	11	5	16	2	8	10
		Truck	240	8	9	17	16	13	29	6	5	11
		Total	**473**	17	12	**29**	27	18	**45**	8	13	**21**
	Thurs. 1/6/2022	Passenger	229	13	1	14	10	13	23	4	12	16
		Truck	213	3	8	11	12	10	22	10	12	22
		Total	**442**	16	9	**25**	22	23	**45**	14	24	**38**
Average Trips			**458**	17	10	**27**	24	21	**45**	11	19	**30**
Average Trip Rate per 1,000 sq. ft.			**1.93**	**63%**	**37%**	**0.11**	**53%**	**47%**	**0.19**	**37%**	**63%**	**0.13**

The results indicate an average daily rate of 1.93 vehicle per 1,000 square feet, an AM peak hour rate of 0.11, midday peak hour rate of 0.19, and a PM peak hour rate of 0.13 trips per 1,000 square feet. These trip rates can then be applied to any future expansion of the similar type of use.

To further corroborate the observed trip rates, data were compared to the Institute of Transportation Engineer's *Trip Generation Manual,* 11th Edition. In review, the most comparable designation would be Land Use Code (LUC) of *157 – High-Cube Cold Storage.* See table below for trip rate comparison of the observed activity compared to ITE data.

Table 2: Trip Generation Rate Comparison

Building Size	ADT Trip Rate	AM Trip Rate	Midday Trip Rate	PM Trip Rate
NewCold	1.93	0.11	0.19	0.13
ITE	2.12	0.11	N/A	0.12

As shown in the table, NewCold trip rates are shown to have a strong correlation with respect to ITE data. The NewCold specific trip rates will be applied for trip forecasts as summarized in the below table.

Table 3: Project Trip Generation

Land Use	Size	ADT	AM Peak-Hour			Midday Peak-Hour			PM Peak-Hour		
			In (63%)	Out (37%)	Total	In (53%)	Out (47%)	Total	In (37%)	Out (63%)	Total
NewCold	~200,000 sq. ft.	**386**	14	8	**22**	20	18	**38**	10	16	**26**

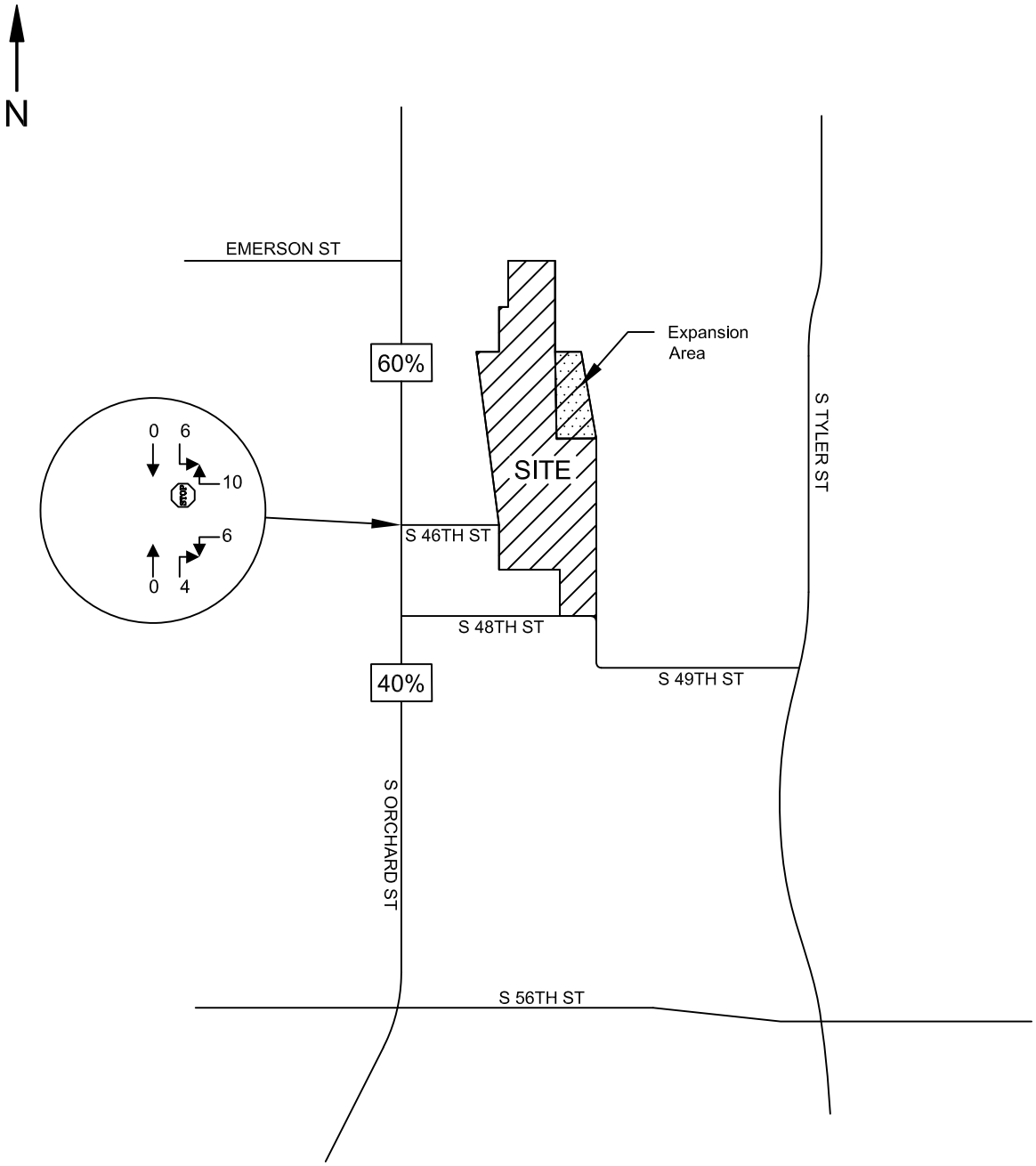
Based on the derived trip generation rates, the proposed expansion of up to 200,000 square feet of the existing use can be expected to generate 386 new average daily trips, 22 new AM peak hour trips, 38 midday peak hour trips, and 26 new PM peak hour trips. Approximately half of the traffic could be in the form of trucks based on existing observations of heavy vehicle composition.

4.2 Distribution & Assignment

Trip distribution describes the anticipated travel routes for inbound and outbound project traffic during the peak hour study period. Traffic to and from the subject site was assigned with a 60/40 north/south split on S Orchard Street based on existing travel patterns identified from the intersection. Figure 4 illustrates the PM peak hour trip distribution and assignment.

4.3 Future Peak Hour Volumes

A 6-year horizon of 2028 was used for future traffic delay analysis. Forecast 2028 background traffic volumes were derived by applying a 2.0 percent compound annual growth rate to the existing volumes shown in Figure 3. This growth rate is higher than the typical City growth rate of 1.2 percent to remain conservative. Forecast 2028 PM peak hour volumes without and with a future expansion are shown in Figure 5.



NEW PM PEAK HOUR TRIPS
INBOUND: 10 VPH
OUTBOUND: 16 VPH

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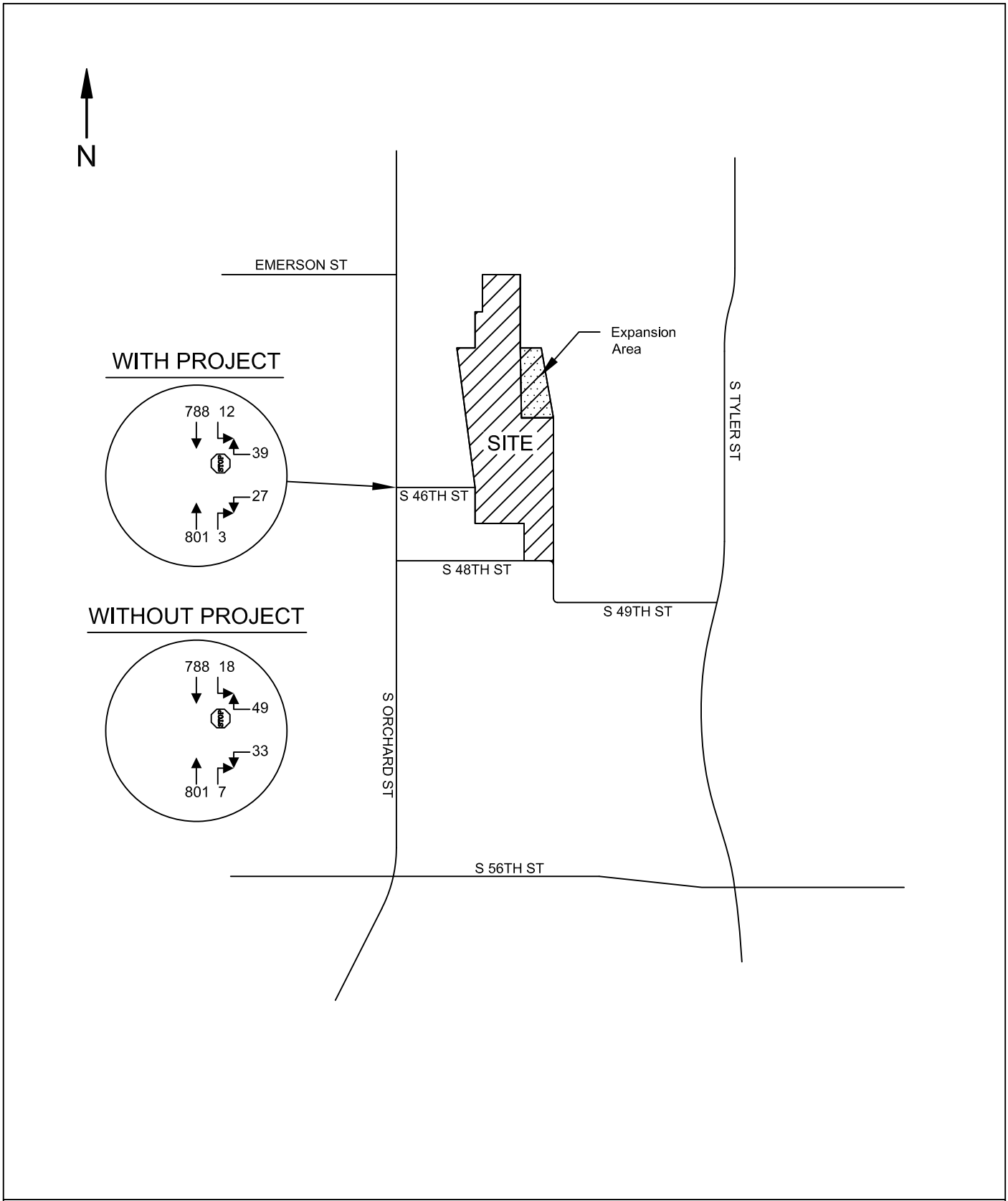
NEWCOLD STORAGE
TRIP DISTRIBUTION & ASSIGNMENT - PM PEAK HOUR
FIGURE 4



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NEWCOLD STORAGE

FORECAST 2028 PM PEAK HOUR VOLUMES
FIGURE 5

4.4 Future Level of Service

Peak hour delays were determined through the use of the *Highway Capacity Manual* 6th Edition. Capacity analysis is used to determine level of service (LOS) which is an established measure of congestion for transportation facilities. The range[1] for intersection level of service is LOS A to LOS F with the former indicating the best operating conditions with low control delays and the latter indicating the worst conditions with heavy control delays. Detailed descriptions of intersection LOS are given in the 2016 Highway Capacity Manual. Level of service calculations were made through the use of the *Synchro 11* analysis program. Table 4 summarizes existing and forecast 2028 PM peak hour delays without and with the proposed NewCold Tacoma development.

Table 4: Forecast 2028 PM Peak Hour Level of Service

Delays given in Seconds Per Vehicle

			Existing		*2028 Background*		*2028 w/ Expansion*	
Intersection	**Control**	**Approach**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
S Orchard Street & S 46th Street	Stop	Westbound	B	14.4	C	15.7	C	16.0

As summarized in the above table, the primary study intersection receiving project-generated traffic is shown to operate with acceptable LOS C conditions with or without the proposed expansion under the forecast 2028 PM peak hour. The project's additional traffic demands with a potential expansion are not shown to create a significant impact to the study area.

---

[1] *Signalized Intersections - Level of Service*

Level of Service	Control Delay per Vehicle (sec)
A	≤10
B	＞10 and ≤20
C	＞20 and ≤35
D	＞35 and ≤55
E	＞55 and ≤80
F	＞80

Stop Controlled Intersections – Level of Service

Level of Service	Control Delay per Vehicle (sec)
A	≤10
B	＞10 and ≤15
C	＞15 and ≤25
D	＞25 and ≤35
E	＞35 and ≤50
F	＞50

Highway Capacity Manual, 6th Edition

5. CONCLUSIONS AND MITIGATION MEASURES

The intent of this impact study was to examine the impacts from a potential expansion of up to 200,000 square feet of cold storage warehouse. Existing on-site is an approximate 237,291 square foot building occupied by NewCold. A portion of the site is proposed to be rezoned from M1 to M2 which could then allow a building expansion and/or new building. Traffic counts and observations were performed at the existing facility so as to develop a trip rate than can be applied to a future expansion for traffic estimates.

Based on the two 24-hour counts, an expansion of around 200,000 square feet could produce an additional 386 daily trips with 22 trips occurring in the AM peak hour, 38 trips in the midday peak hour, and 26 trips in the PM peak hour. These trip projections are also consistent with ITE data for cold storage warehouse. Approximately half of the traffic coming to and from NewCold were observed as truck traffic. Observations indicated the majority of site-generated traffic to enter through the study intersection of S Orchard Street & S 46th Street. Currently, the intersection was shown to operate with LOS B conditions in the PM peak hour. Under the six-year horizon of 2026, service levels were shown to operate at LOS C with or without a future NewCold expansion. Overall, no significant impact was identified as a result of a potential 200,000 square foot expansion.

Please feel free to contact should there be any questions.

NEW COLD TACOMA
TRAFFIC IMPACT ANALYSIS

APPENDIX

LEVEL OF SERVICE

The following are excerpts from the *2016 Highway Capacity Manual - Transportation Research Board Special Report 209.*

Six LOS are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions.

Level-of-Service definitions

Level of service A represents primarily free-flow operations at average travel speeds, usually about 90 percent of the free-flow speed for the arterial classification. Vehicles are seldom impeded in their ability to maneuver in the traffic stream. Delay at signalized intersections is minimal.

Level of service B represents reasonably unimpeded operations at average travel speeds, usually about 70 percent of the free-flow speed for the arterial classification. The ability to maneuver in the traffic stream is only slightly restricted and delays are not bothersome.

Level of service C represents stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than in LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the average free-flow speed for the arterial classification.

Level of service D borders on a range in which small increases in flow may cause substantial increases in approach delay and hence decreases in arterial speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40 percent of free-flow speed.

Level of service E is characterized by significant delays and average travel speeds of one-third the free-flow speed or less. Such operations are caused by some combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.

Level of service F characterizes arterial flow at extremely low speeds, from less than one-third to one-quarter of the free-flow speed. Intersection congestion is likely at critical signalized locations, with long delays and extensive queuing.

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File Name : 4807a
Site Code : 00004807
Start Date : 1/4/2022
Page No : 1

Groups Printed- Passenger + - Heavy

	S Orchard Street From North			S 46th St From East			S Orchard St From South			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
04:00 PM	192	4	196	10	6	16	0	153	153	365
04:15 PM	162	5	167	5	5	10	1	184	185	362
04:30 PM	155	2	157	16	16	32	2	170	172	361
04:45 PM	203	3	206	8	2	10	0	178	178	394
Total	712	14	726	39	29	68	3	685	688	1482
05:00 PM	180	1	181	6	1	7	0	179	179	367
05:15 PM	201	3	204	5	1	6	0	144	144	354
05:30 PM	188	1	189	8	3	11	0	153	153	353
05:45 PM	164	3	167	7	1	8	0	149	149	324
Total	733	8	741	26	6	32	0	625	625	1398
Grand Total	1445	22	1467	65	35	100	3	1310	1313	2880
Apprch %	98.5	1.5		65	35		0.2	99.8		
Total %	50.2	0.8	50.9	2.3	1.2	3.5	0.1	45.5	45.6	
Passenger +	1428	11	1439	52	32	84	3	1295	1298	2821
% Passenger +	98.8	50	98.1	80	91.4	84	100	98.9	98.9	98
Heavy	17	11	28	13	3	16	0	15	15	59
% Heavy	1.2	50	1.9	20	8.6	16	0	1.1	1.1	2

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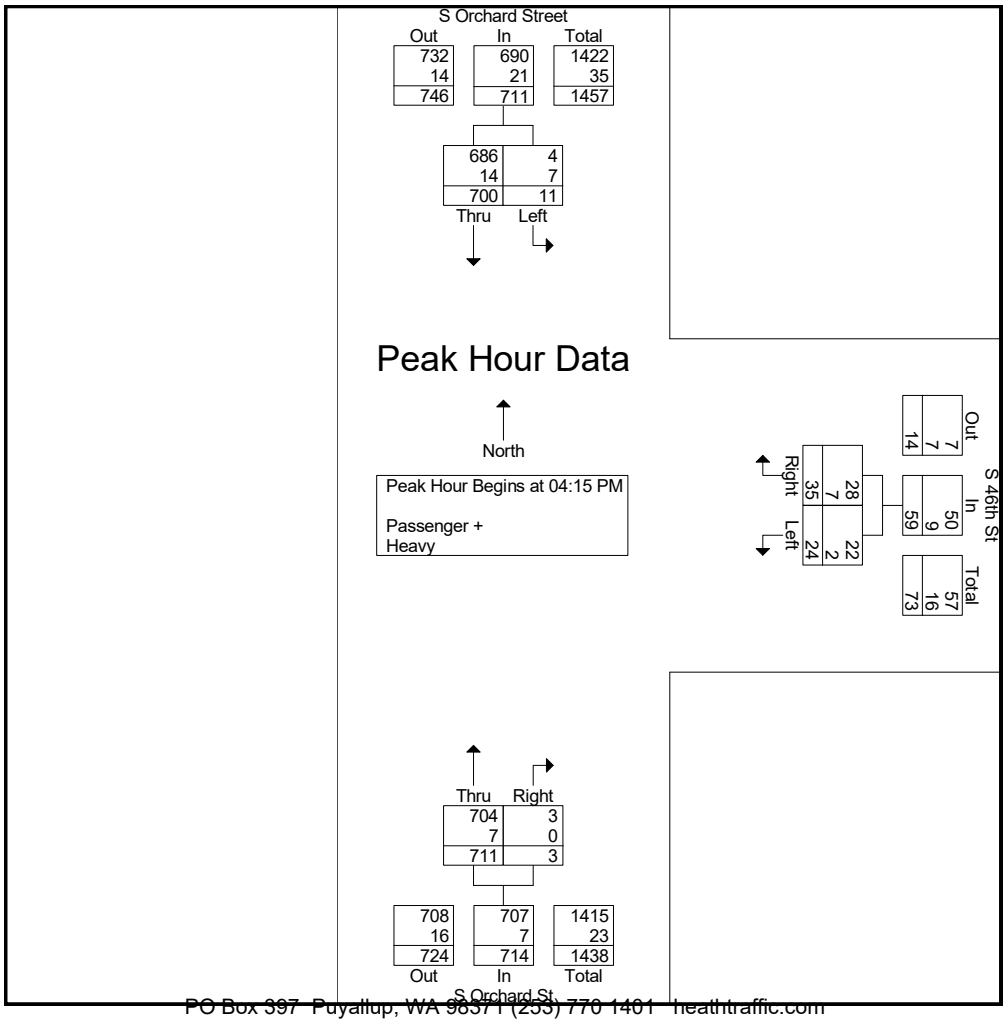
File Name : 4807a
Site Code : 00004807
Start Date : 1/4/2022
Page No : 2

	S Orchard Street From North			S 46th St From East			S Orchard St From South			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	162	**5**	167	5	5	10	1	**184**	**185**	362
04:30 PM	155	2	157	**16**	**16**	**32**	**2**	170	172	361
04:45 PM	**203**	3	**206**	8	2	10	0	178	178	**394**
05:00 PM	180	1	181	6	1	7	0	179	179	367
Total Volume	700	11	711	35	24	59	3	711	714	1484
% App. Total	98.5	1.5		59.3	40.7		0.4	99.6		
PHF	.862	.550	.863	.547	.375	.461	.375	.966	.965	.942
Passenger +	686	4	690	28	22	50	3	704	707	1447
% Passenger +	98.0	36.4	97.0	80.0	91.7	84.7	100	99.0	99.0	97.5
Heavy	14	7	21	7	2	9	0	7	7	37
% Heavy	2.0	63.6	3.0	20.0	8.3	15.3	0	1.0	1.0	2.5



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File Name : 4807b2
Site Code : 00004807
Start Date : 1/5/2022
Page No : 1

Groups Printed- Passenger + - Heavy

	Outbound From North	Inbound From South	
Start Time	Thru	Thru	Int. Total
12:00 AM	0	0	0
12:15 AM	0	0	0
12:30 AM	0	0	0
12:45 AM	0	0	0
Total	0	0	0
01:00 AM	0	0	0
01:15 AM	0	0	0
01:30 AM	0	0	0
01:45 AM	0	0	0
Total	0	0	0
02:00 AM	0	0	0
02:15 AM	0	0	0
02:30 AM	0	0	0
02:45 AM	0	2	2
Total	0	2	2
03:00 AM	0	1	1
03:15 AM	1	0	1
03:30 AM	0	1	1
03:45 AM	0	1	1
Total	1	3	4
04:00 AM	0	1	1
04:15 AM	2	2	4
04:30 AM	2	5	7
04:45 AM	3	5	8
Total	7	13	20
05:00 AM	3	4	7
05:15 AM	1	7	8
05:30 AM	4	6	10
05:45 AM	3	11	14
Total	11	28	39
06:00 AM	1	4	5
06:15 AM	4	4	8
06:30 AM	7	2	9
06:45 AM	0	4	4
Total	12	14	26
07:00 AM	3	6	9
07:15 AM	3	2	5
07:30 AM	4	6	10
07:45 AM	0	3	3
Total	10	17	27

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File Name : 4807b2
Site Code : 00004807
Start Date : 1/5/2022
Page No : 2

Groups Printed- Passenger + - Heavy

	Outbound From North	Inbound From South	
Start Time	Thru	Thru	Int. Total
08:00 AM	6	3	9
08:15 AM	2	5	7
08:30 AM	0	1	1
08:45 AM	4	2	6
Total	12	11	23
09:00 AM	1	3	4
09:15 AM	2	8	10
09:30 AM	3	5	8
09:45 AM	2	5	7
Total	8	21	29
10:00 AM	8	2	10
10:15 AM	5	7	12
10:30 AM	4	5	9
10:45 AM	3	3	6
Total	20	17	37
11:00 AM	7	2	9
11:15 AM	5	8	13
11:30 AM	5	7	12
11:45 AM	3	4	7
Total	20	21	41
12:00 PM	5	8	13
12:15 PM	4	5	9
12:30 PM	4	1	5
12:45 PM	4	1	5
Total	17	15	32
01:00 PM	9	8	17
01:15 PM	6	2	8
01:30 PM	2	6	8
01:45 PM	4	3	7
Total	21	19	40
02:00 PM	5	0	5
02:15 PM	7	2	9
02:30 PM	3	4	7
02:45 PM	4	3	7
Total	19	9	28
03:00 PM	5	1	6
03:15 PM	3	5	8
03:30 PM	2	4	6
03:45 PM	5	0	5
Total	15	10	25
04:00 PM	7	1	8
04:15 PM	3	1	4

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File Name : 4807b2
Site Code : 00004807
Start Date : 1/5/2022
Page No : 3

Groups Printed- Passenger + - Heavy

	Outbound From North	Inbound From South	
Start Time	Thru	Thru	Int. Total
04:30 PM	2	2	4
04:45 PM	1	4	5
Total	13	8	21
05:00 PM	5	1	6
05:15 PM	4	1	5
05:30 PM	4	1	5
05:45 PM	0	1	1
Total	13	4	17
06:00 PM	4	2	6
06:15 PM	0	2	2
06:30 PM	4	1	5
06:45 PM	0	1	1
Total	8	6	14
07:00 PM	0	3	3
07:15 PM	0	0	0
07:30 PM	2	2	4
07:45 PM	1	0	1
Total	3	5	8
08:00 PM	2	0	2
08:15 PM	1	1	2
08:30 PM	1	2	3
08:45 PM	2	0	2
Total	6	3	9
09:00 PM	1	3	4
09:15 PM	1	0	1
09:30 PM	0	1	1
09:45 PM	1	2	3
Total	3	6	9
10:00 PM	2	0	2
10:15 PM	2	3	5
10:30 PM	4	1	5
10:45 PM	4	1	5
Total	12	5	17
11:00 PM	1	1	2
11:15 PM	1	1	2
11:30 PM	1	0	1
11:45 PM	0	0	0
Total	3	2	5
12:00 AM	0	0	0
Grand Total	234	239	473
Apprch %	100	100	
Total %	49.5	50.5	
Passenger +	115	118	233
% Passenger +	49.1	49.4	49.3
Heavy	119	121	240
% Heavy	50.9	50.6	50.7

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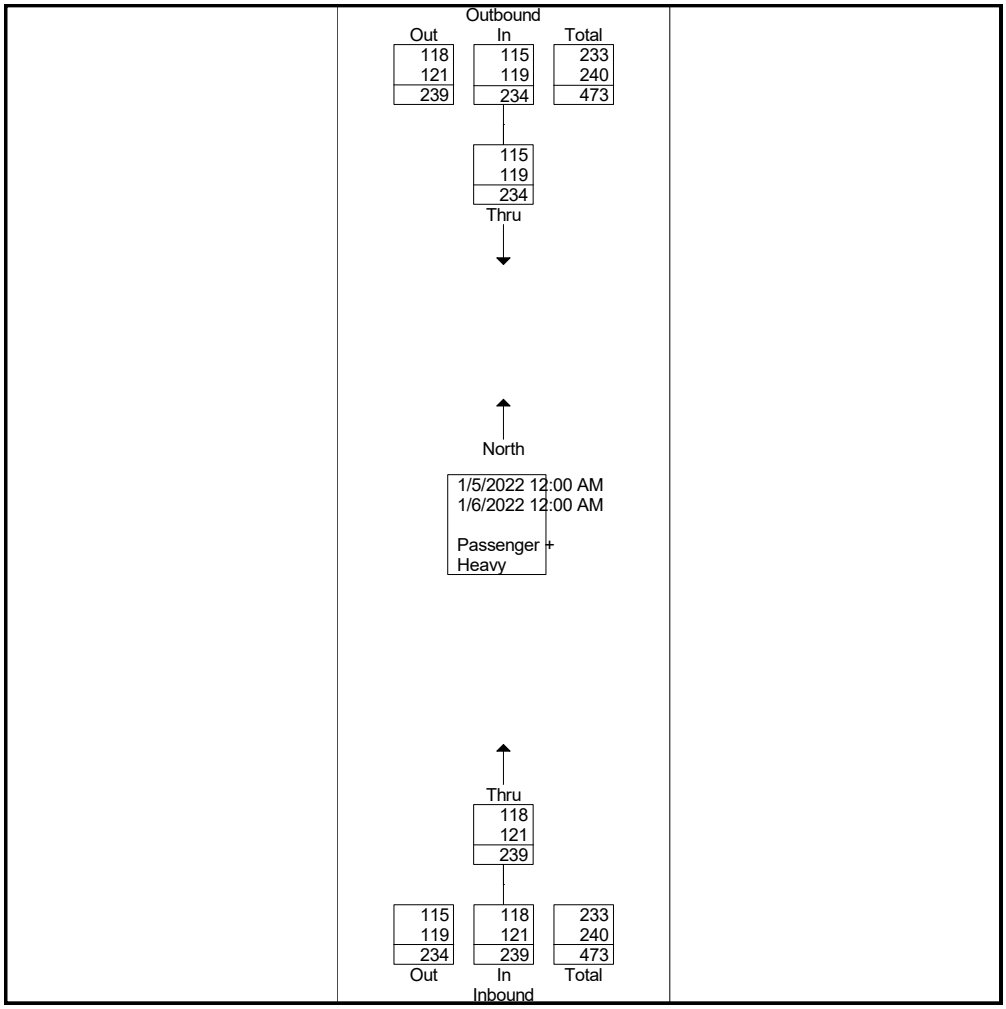

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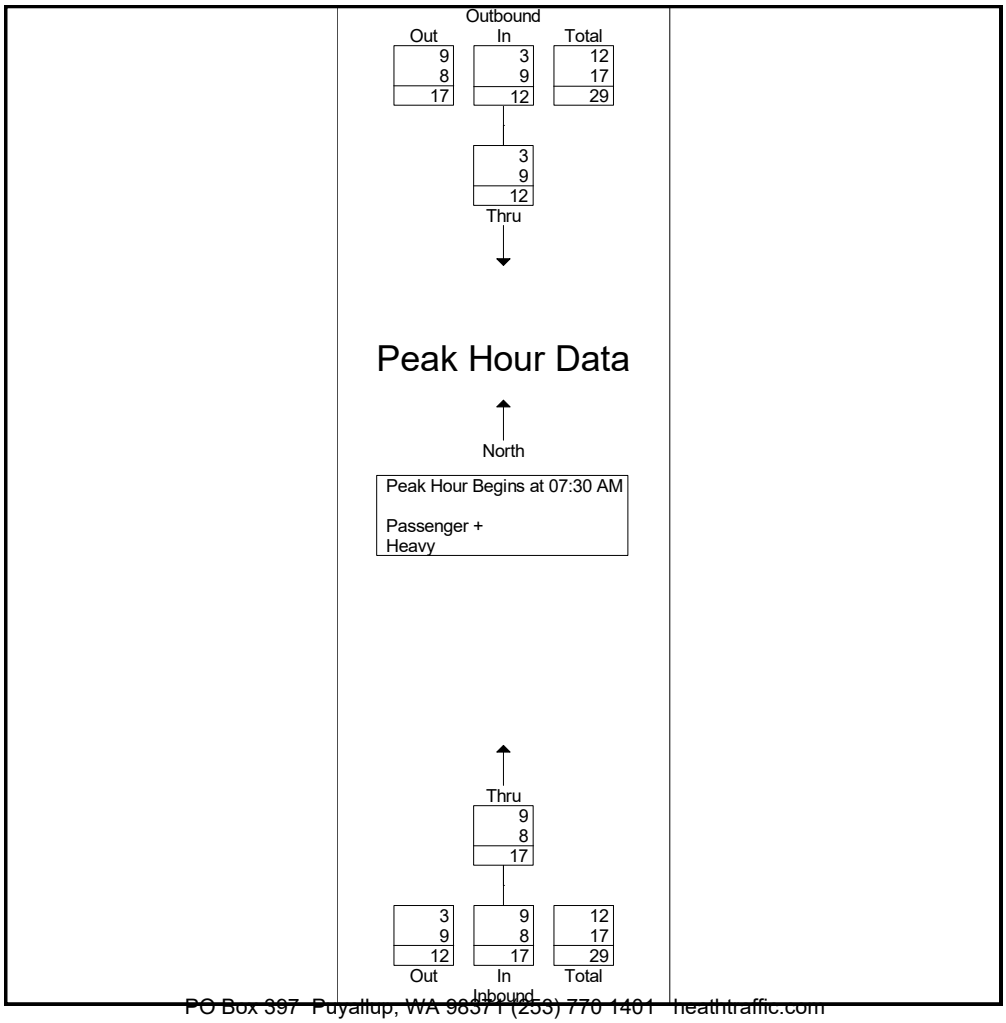
File Name : 4807b2
Site Code : 00004807
Start Date : 1/5/2022
Page No : 5

	Outbound From North		Inbound From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 07:30 AM					
07:30 AM	4	4	**6**	**6**	**10**
07:45 AM	0	0	3	3	3
08:00 AM	**6**	**6**	3	3	9
08:15 AM	2	2	5	5	7
Total Volume	12	12	17	17	29
% App. Total	100		100		
PHF	.500	.500	.708	.708	.725
Passenger +	3	3	9	9	12
% Passenger +	25.0	25.0	52.9	52.9	41.4
Heavy	9	9	8	8	17
% Heavy	75.0	75.0	47.1	47.1	58.6



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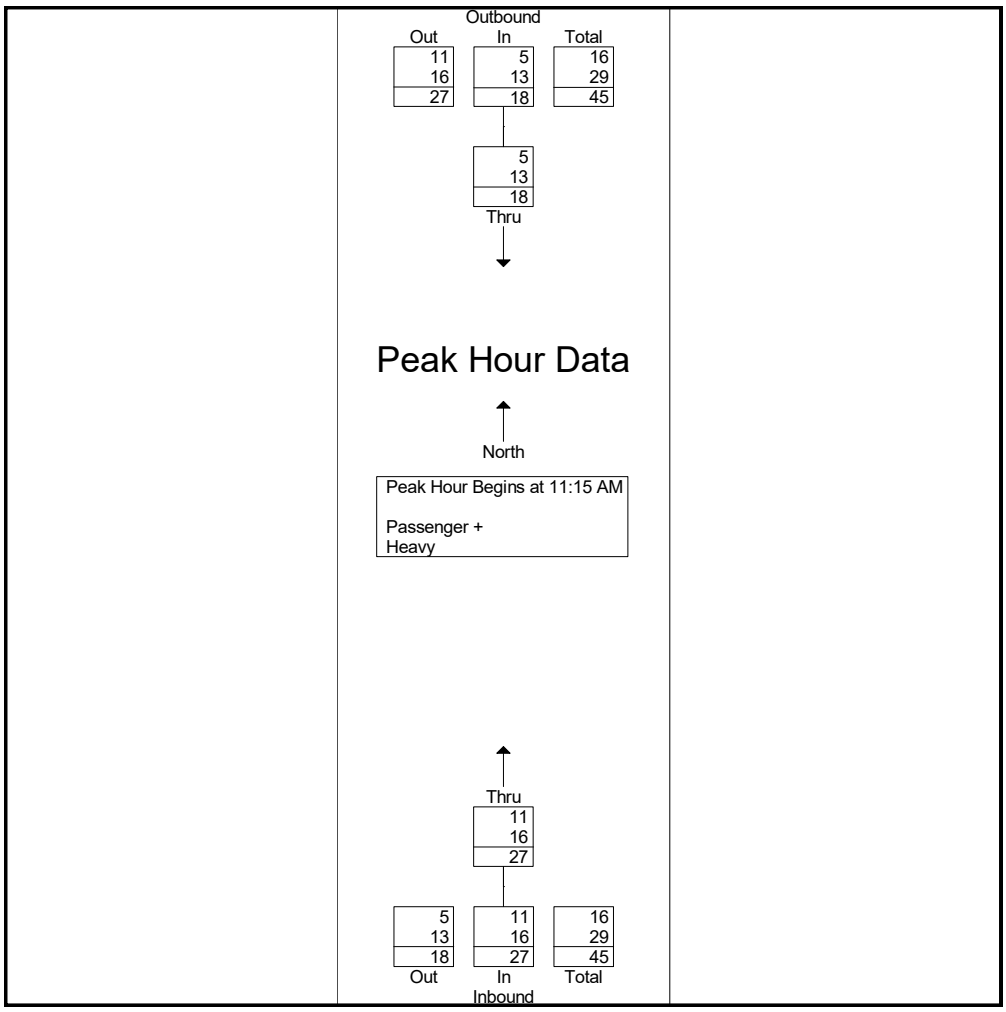
File Name : 4807b2
Site Code : 00004807
Start Date : 1/5/2022
Page No : 6

	Outbound From North		Inbound From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 09:00 AM to 03:45 PM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 11:15 AM					
11:15 AM	**5**	**5**	**8**	**8**	**13**
11:30 AM	5	5	7	7	12
11:45 AM	3	3	4	4	7
12:00 PM	5	5	8	8	13
Total Volume	18	18	27	27	45
% App. Total	100		100		
PHF	.900	.900	.844	.844	.865
Passenger +	5	5	11	11	16
% Passenger +	27.8	27.8	40.7	40.7	35.6
Heavy	13	13	16	16	29
% Heavy	72.2	72.2	59.3	59.3	64.4



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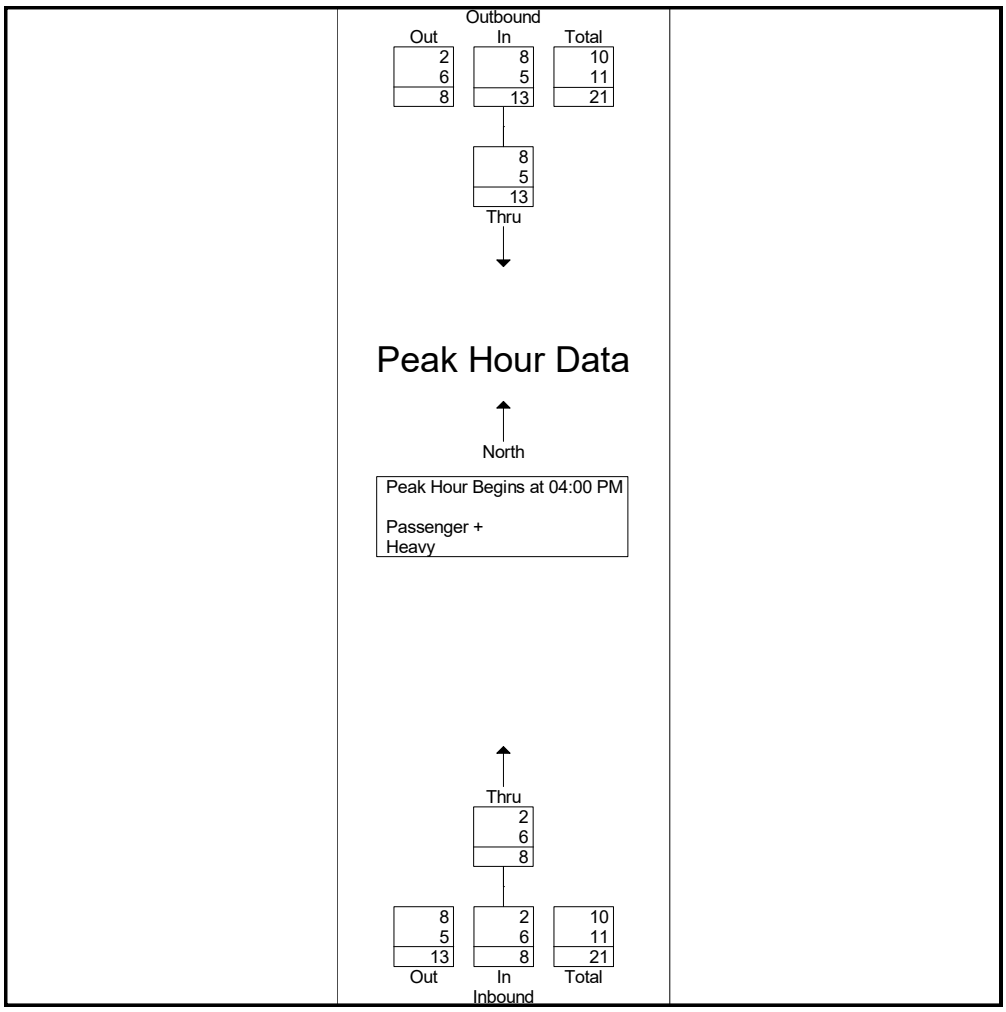
File Name : 4807b2
Site Code : 00004807
Start Date : 1/5/2022
Page No : 7

	Outbound From North		Inbound From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 04:00 PM					
04:00 PM	**7**	**7**	1	1	**8**
04:15 PM	3	3	1	1	4
04:30 PM	2	2	2	2	4
04:45 PM	1	1	**4**	**4**	5
Total Volume	13	13	8	8	21
% App. Total	100		100		
PHF	.464	.464	.500	.500	.656
Passenger +	8	8	2	2	10
% Passenger +	61.5	61.5	25.0	25.0	47.6
Heavy	5	5	6	6	11
% Heavy	38.5	38.5	75.0	75.0	52.4



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File Name : 4807c2
Site Code : 00004807
Start Date : 1/6/2022
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Groups Printed- Passenger + - Heavy

	Outbound From North	Inbound From South	
Start Time	Thru	Thru	Int. Total
12:00 AM	0	0	0
12:15 AM	0	0	0
12:30 AM	0	0	0
12:45 AM	0	0	0
Total	0	0	0
01:00 AM	0	0	0
01:15 AM	0	0	0
01:30 AM	0	0	0
01:45 AM	0	0	0
Total	0	0	0
02:00 AM	0	0	0
02:15 AM	0	0	0
02:30 AM	0	0	0
02:45 AM	0	0	0
Total	0	0	0
03:00 AM	0	0	0
03:15 AM	0	0	0
03:30 AM	0	0	0
03:45 AM	0	0	0
Total	0	0	0
04:00 AM	0	0	0
04:15 AM	0	0	0
04:30 AM	1	3	4
04:45 AM	3	4	7
Total	4	7	11
05:00 AM	1	6	7
05:15 AM	3	2	5
05:30 AM	0	11	11
05:45 AM	0	6	6
Total	4	25	29
06:00 AM	1	6	7
06:15 AM	3	0	3
06:30 AM	3	3	6
06:45 AM	4	4	8
Total	11	13	24
07:00 AM	5	2	7
07:15 AM	4	3	7
07:30 AM	1	6	7
07:45 AM	1	2	3
Total	11	13	24

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File Name : 4807c2
Site Code : 00004807
Start Date : 1/6/2022
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Groups Printed- Passenger + - Heavy

	Outbound From North	Inbound From South	
Start Time	Thru	Thru	Int. Total
08:00 AM	3	5	8
08:15 AM	2	2	4
08:30 AM	1	2	3
08:45 AM	3	4	7
Total	9	13	22
09:00 AM	4	1	5
09:15 AM	2	2	4
09:30 AM	2	4	6
09:45 AM	4	1	5
Total	12	8	20
10:00 AM	0	3	3
10:15 AM	5	3	8
10:30 AM	1	2	3
10:45 AM	3	1	4
Total	9	9	18
11:00 AM	4	1	5
11:15 AM	5	4	9
11:30 AM	3	6	9
11:45 AM	5	7	12
Total	17	18	35
12:00 PM	5	3	8
12:15 PM	2	4	6
12:30 PM	3	5	8
12:45 PM	1	1	2
Total	11	13	24
01:00 PM	3	5	8
01:15 PM	3	1	4
01:30 PM	6	10	16
01:45 PM	6	7	13
Total	18	23	41
02:00 PM	6	2	8
02:15 PM	5	3	8
02:30 PM	7	5	12
02:45 PM	5	3	8
Total	23	13	36
03:00 PM	4	3	7
03:15 PM	7	5	12
03:30 PM	5	5	10
03:45 PM	5	3	8
Total	21	16	37
04:00 PM	6	3	9
04:15 PM	7	4	11

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File Name : 4807c2
Site Code : 00004807
Start Date : 1/6/2022
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Groups Printed- Passenger + - Heavy

	Outbound From North	Inbound From South	
Start Time	Thru	Thru	Int. Total
04:30 PM	5	3	8
04:45 PM	6	4	10
Total	24	14	38
05:00 PM	6	3	9
05:15 PM	5	3	8
05:30 PM	6	2	8
05:45 PM	6	4	10
Total	23	12	35
06:00 PM	3	4	7
06:15 PM	3	2	5
06:30 PM	2	1	3
06:45 PM	3	3	6
Total	11	10	21
07:00 PM	1	0	1
07:15 PM	1	0	1
07:30 PM	0	1	1
07:45 PM	1	2	3
Total	3	3	6
08:00 PM	1	2	3
08:15 PM	0	0	0
08:30 PM	1	0	1
08:45 PM	0	1	1
Total	2	3	5
09:00 PM	0	3	3
09:15 PM	0	1	1
09:30 PM	0	0	0
09:45 PM	1	4	5
Total	1	8	9
10:00 PM	0	0	0
10:15 PM	0	0	0
10:30 PM	6	1	7
10:45 PM	0	0	0
Total	6	1	7
11:00 PM	0	0	0
11:15 PM	0	0	0
11:30 PM	0	0	0
11:45 PM	0	0	0
Total	0	0	0
12:00 AM	0	0	0
Grand Total	220	222	442
Apprch %	100	100	
Total %	49.8	50.2	
Passenger +	112	117	229
% Passenger +	50.9	52.7	51.8
Heavy	108	105	213
% Heavy	49.1	47.3	48.2

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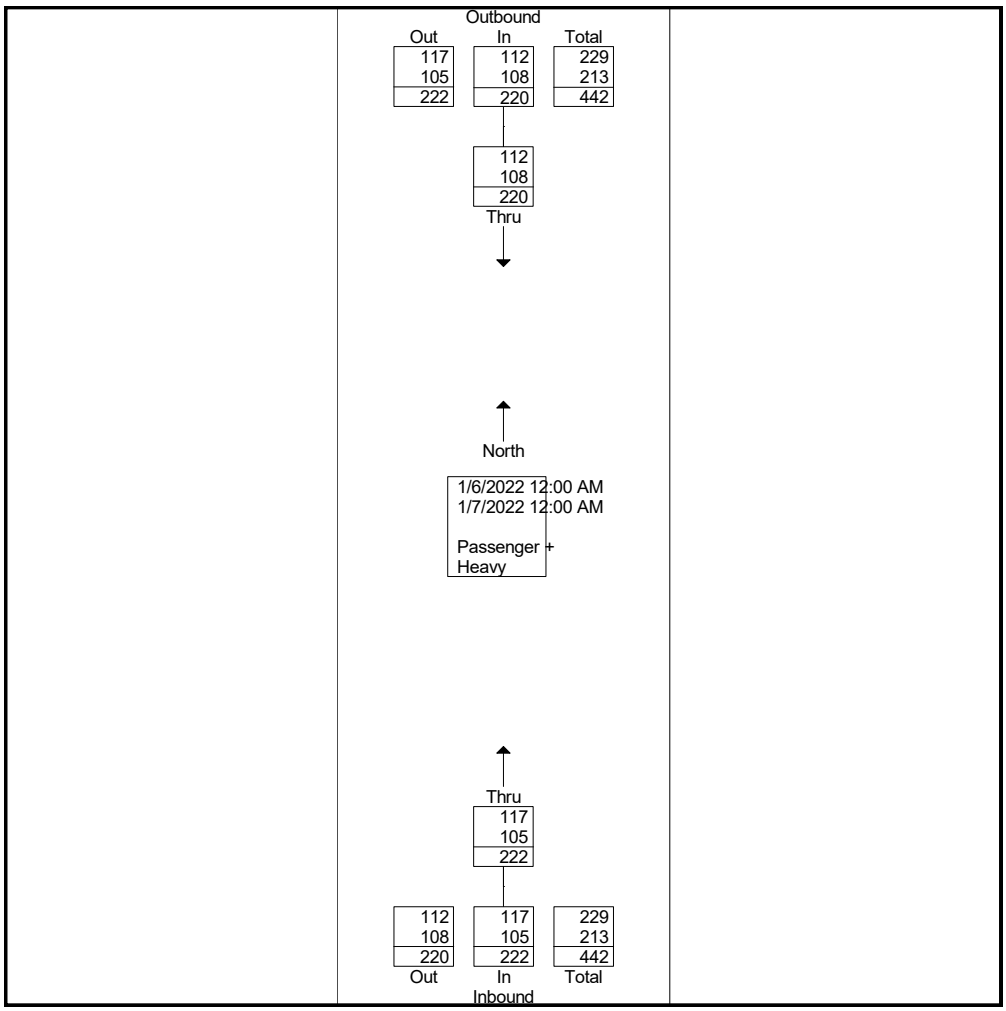

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File Name : 4807c2
Site Code : 00004807
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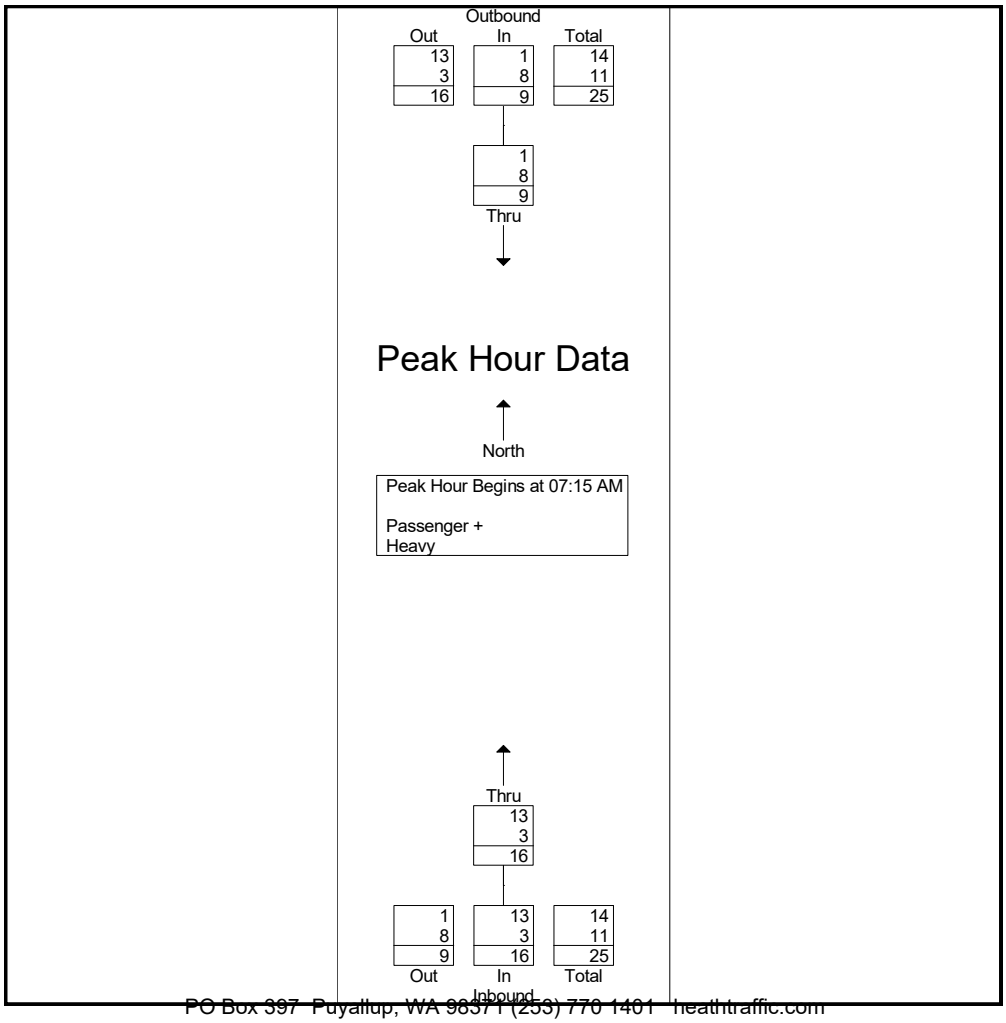
	Outbound From North		Inbound From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 07:15 AM					
07:15 AM	**4**	**4**	3	3	7
07:30 AM	1	1	**6**	**6**	7
07:45 AM	1	1	2	2	3
08:00 AM	3	3	5	5	**8**
Total Volume	9	9	16	16	25
% App. Total	100		100		
PHF	.563	.563	.667	.667	.781
Passenger +	1	1	13	13	14
% Passenger +	11.1	11.1	81.3	81.3	56.0
Heavy	8	8	3	3	11
% Heavy	88.9	88.9	18.8	18.8	44.0



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Site Code : 00004807
Start Date : 1/6/2022
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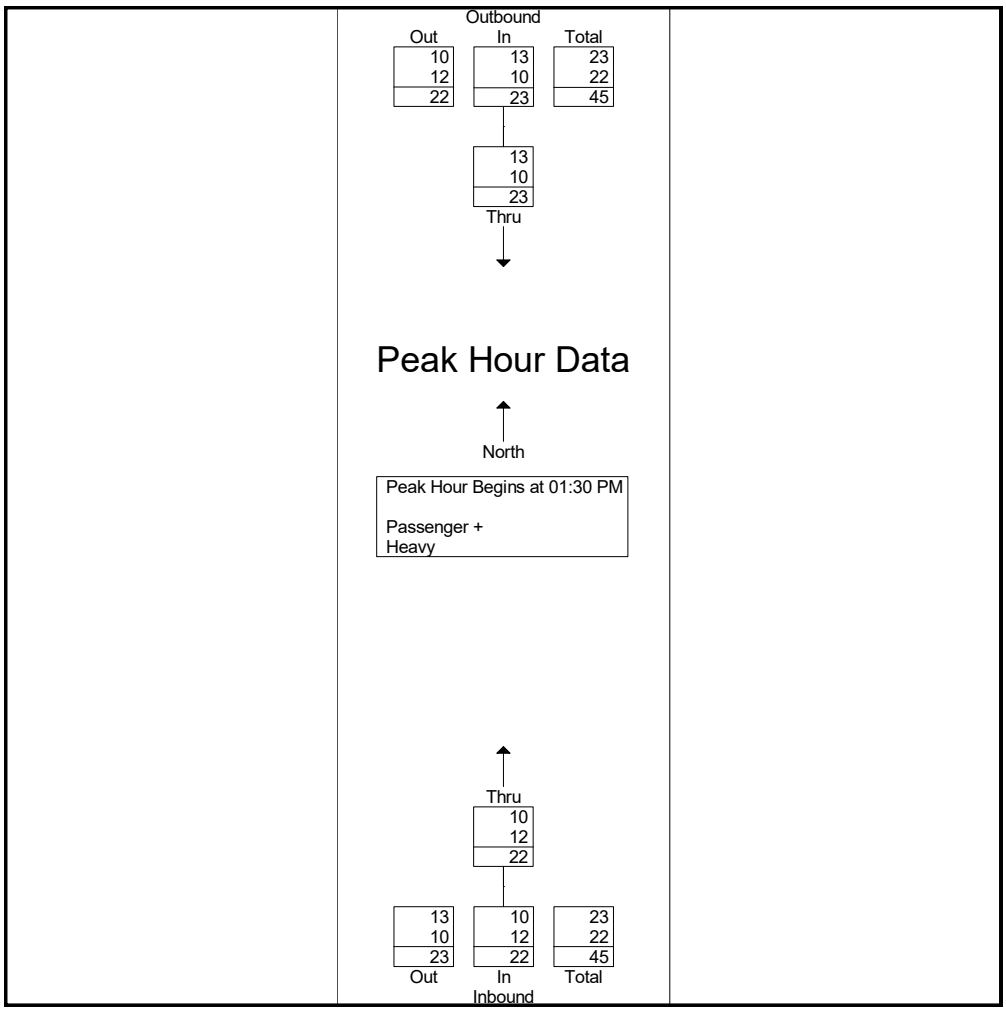
	Outbound From North		Inbound From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 09:00 AM to 03:45 PM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 01:30 PM					
01:30 PM	**6**	**6**	**10**	**10**	**16**
01:45 PM	6	6	7	7	13
02:00 PM	6	6	2	2	8
02:15 PM	5	5	3	3	8
Total Volume	23	23	22	22	45
% App. Total	100		100		
PHF	.958	.958	.550	.550	.703
Passenger +	13	13	10	10	23
% Passenger +	56.5	56.5	45.5	45.5	51.1
Heavy	10	10	12	12	22
% Heavy	43.5	43.5	54.5	54.5	48.9



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File Name : 4807c2
Site Code : 00004807
Start Date : 1/6/2022
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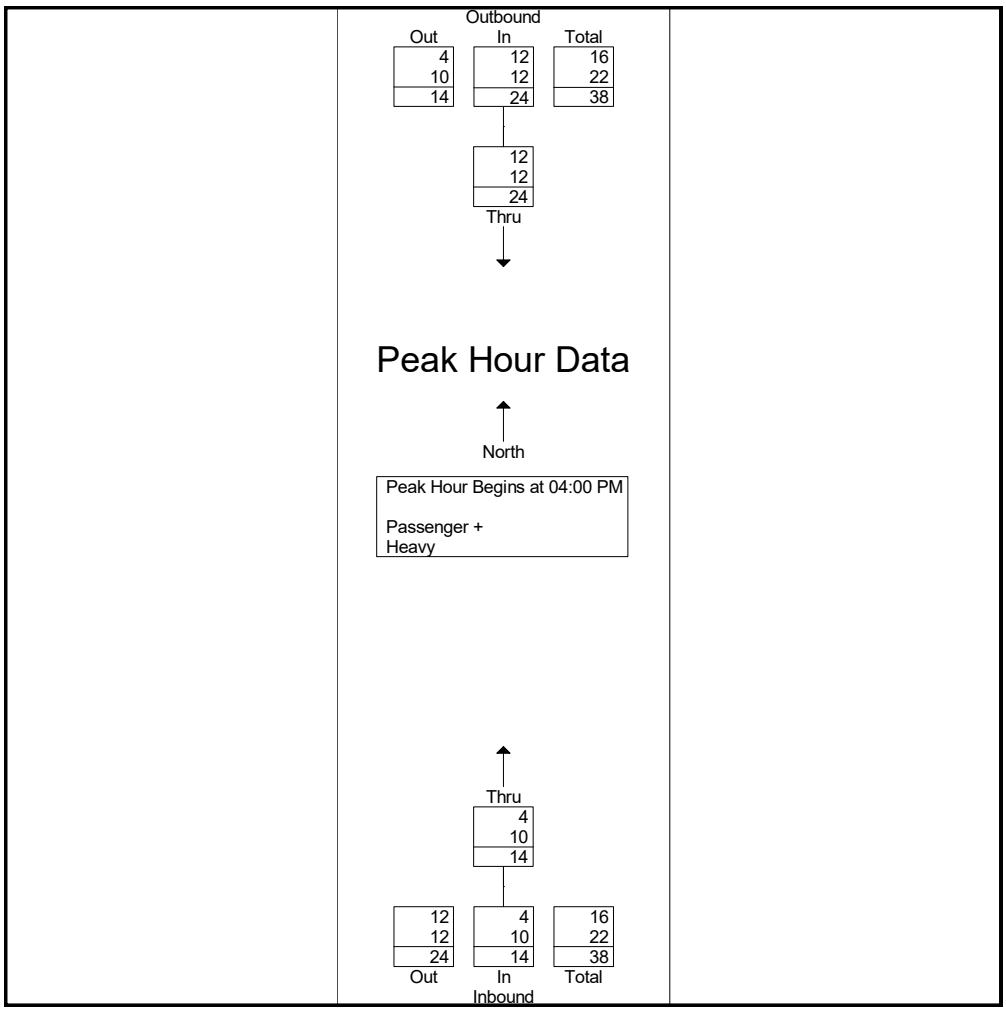
	Outbound From North		Inbound From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 04:00 PM					
04:00 PM	6	6	3	3	9
04:15 PM	**7**	**7**	**4**	**4**	**11**
04:30 PM	5	5	3	3	8
04:45 PM	6	6	4	4	10
Total Volume	24	24	14	14	38
% App. Total	100		100		
PHF	.857	.857	.875	.875	.864
Passenger +	12	12	4	4	16
% Passenger +	50.0	50.0	28.6	28.6	42.1
Heavy	12	12	10	10	22
% Heavy	50.0	50.0	71.4	71.4	57.9



Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	35	711	3	11	700
Future Vol, veh/h	24	35	711	3	11	700
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	20	1	1	64	2
Mvmt Flow	26	37	756	3	12	745

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1155	380	0	0	759	0
Stage 1	758	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Critical Hdwy	6.96	7.3	-	-	5.38	-
Critical Hdwy Stg 1	5.96	-	-	-	-	-
Critical Hdwy Stg 2	5.96	-	-	-	-	-
Follow-up Hdwy	3.58	3.5	-	-	2.84	-
Pot Cap-1 Maneuver	181	569	-	-	542	-
Stage 1	408	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	177	569	-	-	542	-
Mov Cap-2 Maneuver	300	-	-	-	-	-
Stage 1	408	-	-	-	-	-
Stage 2	617	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	300	569	542	-
HCM Lane V/C Ratio	-	-	0.085	0.065	0.022	-
HCM Control Delay (s)	-	-	18.1	11.8	11.8	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	39	801	3	12	788
Future Vol, veh/h	27	39	801	3	12	788
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	20	1	1	64	2
Mvmt Flow	29	41	852	3	13	838

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1299	428	0	0	855	0
Stage 1	854	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Critical Hdwy	6.96	7.3	-	-	5.38	-
Critical Hdwy Stg 1	5.96	-	-	-	-	-
Critical Hdwy Stg 2	5.96	-	-	-	-	-
Follow-up Hdwy	3.58	3.5	-	-	2.84	-
Pot Cap-1 Maneuver	145	528	-	-	486	-
Stage 1	363	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	141	528	-	-	486	-
Mov Cap-2 Maneuver	263	-	-	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	580	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	263	528	486	-
HCM Lane V/C Ratio	-	-	0.109	0.079	0.026	-
HCM Control Delay (s)	-	-	20.4	12.4	12.6	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.3	0.1	-

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Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	49	801	7	18	788
Future Vol, veh/h	33	49	801	7	18	788
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	20	1	1	64	2
Mvmt Flow	35	52	852	7	19	838

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1313	430	0	0	859	0
Stage 1	856	-	-	-	-	-
Stage 2	457	-	-	-	-	-
Critical Hdwy	6.96	7.3	-	-	5.38	-
Critical Hdwy Stg 1	5.96	-	-	-	-	-
Critical Hdwy Stg 2	5.96	-	-	-	-	-
Follow-up Hdwy	3.58	3.5	-	-	2.84	-
Pot Cap-1 Maneuver	142	526	-	-	483	-
Stage 1	362	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	136	526	-	-	483	-
Mov Cap-2 Maneuver	259	-	-	-	-	-
Stage 1	362	-	-	-	-	-
Stage 2	564	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	259	526	483	-
HCM Lane V/C Ratio	-	-	0.136	0.099	0.04	-
HCM Control Delay (s)	-	-	21.1	12.6	12.8	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.3	0.1	-

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Exhibit B

February 16, 2022

NewCold Seattle, LLC
4601 South Orchard Street
Tacoma, WA 98466

Attn: Sarah Remington

Transmitted via email to: *sarah.remington@newcold.com*

Re: Results of Noise and Light/Glare Study
NewCold Facility
Tacoma, Washington
Landau Project No. 2042001.010

Dear Ms. Remington:

At the request of NewCold Seattle, LLC (NewCold) and the City of Tacoma (City), Landau Associates, Inc. (Landau) conducted a noise impacts study and light and glare evaluation to inform NewCold's application for a comprehensive plan land-use designation amendment. This report describes the existing regulatory environment, existing land-use designation and development of the property, and potential changes associated with the requested amendment. Additional details on the characteristics of sound and noise used to support this evaluation are provided in Attachment 1.

Background

NewCold currently owns an approximately 34-acre property located at 4601 South Orchard Street (Pierce County Parcel No. 0220133049), in Tacoma, Washington (NewCold Facility), which includes an existing cold-storage warehouse. The center of the parcel is designated heavy industrial (M-2) with the exception of an approximately 3-acre area east of the existing building, which is designated light industrial (M-1). NewCold is requesting a land-use designation change of this light industrial portion of the parcel (Site; see Figure 1) to heavy industrial to allow construction of a second high-cube refrigerated distribution warehouse building adjacent to the east of the existing building. The comprehensive plan land-use designation amendment is the first of several steps before approval would be granted to NewCold. Future steps include review of project-specific designs and consideration of project-specific impacts.

The City's Planning and Development Services has requested that NewCold provide a noise and light/glare study to document potential changes in noise or light impacts to surrounding properties.

Nearby Land Use

Land adjacent to the Site that is to the north, east, and southeast is currently part of the Tacoma Recovery and Transfer Center (landfill, designated "parks and open space"). NewCold owns the

adjacent property to the northwest, west, southwest, and south, which is designated M-2 and developed with NewCold's existing cold storage facility.

The nearest properties with residential land-use designations are located as follows (see Figure 1):

- Orchard Park Health and Rehabilitation Center, designated neighborhood commercial and developed with a nursing home, is located approximately 800 feet to the southwest of the Site. The existing NewCold Facility blocks the line-of-site between the Orchard Park property and the Site.
- Forest Hill Village Apartments, designated low-density multi-family, is located approximately 800 feet east of the Site, on the opposite side of the landfill.
- Orchard Terrace, designated low-density multi-family, is located approximately 1,000 feet northwest of the Site, opposite property designated light-industrial and developed with a stormwater pond, storage and towing facilities.
- A neighborhood designated single-family residential is located approximately 1,400 feet south of the Site (see Figure 1), separated from the Site by the existing NewCold Facility, light industrial property, the landfill, and undeveloped land designated as parks and open space. The northern boundary of the neighborhood is approximately 550 feet south of the existing truck trailer staging area.

Topography

Land on the west side of the NewCold Facility slopes steeply downward to the adjacent properties to the west. The elevation difference between the NewCold Facility and the adjacent properties to the west is approximately 20 feet, so that the roofs of the adjacent buildings are approximately at ground level compared to the operational areas at NewCold. As shown in Attachment 1, this creates a partial barrier, reducing noise and light impacts at the adjacent properties to the west.

To the north and east of the NewCold Facility, the ground surface of the landfill is approximately 20 feet higher than the ground surface of the NewCold Facility, creating a natural barrier to light and noise for adjacent properties to the north and west.

Land Use Regulatory Code

The proposed land-use designation change would apply to any potential future use of the Site, including but not limited to NewCold's proposed expansion. The Tacoma Land Use Regulatory Code, Title 13 of the Tacoma Municipal Code (TMC), establishes the requirements for an M-1 Light Industrial District and an M-2 Heavy Industrial District. Table 1 outlines the difference between light and heavy industrial land use as applicable to potential noise and light/glare impacts.

Table 1: Comparison of Light Industrial and Heavy Industrial Land Use

Characteristic	Light Industrial (M-1)	Heavy Industrial (M-2)
Intended use types	Light manufacturing, warehousing, commercial or civic uses.	Heavy industrial and manufacturing uses that can reasonably be accommodated without adverse impacts on the public's health, welfare, or safety.
Potential impacts on surrounding properties	Complementary and not detrimental to existing or proposed neighboring industrial, commercial, or residential uses. Transition between industrial operations and existing activities and character of the community in which the district is located.	Potential for extended operating hours, heavy truck traffic, and higher levels of outdoor noise.
Development Standards	No difference in lot area or setbacks. Height limit of 75 feet in M-1 and 100 feet in M-2 (with exceptions).	

As shown in the table above and addressed in the Noise and Light/Glare sections below, Title 13 of the TMC does not provide quantitative regulatory differences between M-1 and M-2 for noise or light impacts. All future development would be required to comply with City and Washington State noise limits (described below). Changing the land-use designation of the Site would not change the applicable noise limits.

Noise

The following subsections address potential noise impacts to surrounding properties based on the proposed change in land-use designation.

Tacoma Municipal Code

Chapter 8.122 of the TMC governs noise impacts within the city limits. The TMC does not provide absolute maximum permissible sound levels, rather TMC 8.122.060 specifies maximum permissible sound levels in excess of the ambient sound level (Table 1), applicable to continuous sound measured within a receiving property. These sound levels are not dependent on the land use or zoning of the property; therefore, the proposed change in land-use designation of the Site would not change the maximum permissible sound levels, as shown in Table 2.

Table 2: Maximum Permissible Sound Levels in Excess of Ambient Sound Level

	Outdoors	Indoors
7:00 a.m. to 10:00 p.m. (daytime)	10 dBA	6 dBC
10:00 p.m. to 7:00 a.m. (nighttime)	5 dBA	3 dBC

dBA – A-weighted decibels

dBC – C-weighted decibels

dBA and dBC are sound level weighting systems based on human sensitivity to sound. A-weighting discriminates against low frequencies (similar to human hearing) while C-weighting measures uniformly over the frequency range audible to humans.

Impulsive sounds[1] may increase the total sound level by less than 15 dBA above the ambient sound level when there are fewer than 10 impulses within 1 hour during daytime hours or fewer than 4 impulses within 1 hour during nighttime hours. If the number of impulses exceeds the allowable number, the maximum permissible sound levels shown in Table 2 apply.

Washington Administrative Code

Chapter 173-60-040 of the Washington Administrative Code provides maximum permissible environmental noise levels by the environmental designation for noise abatement (EDNA) of the noise source and receiver, as defined below.

- Class A EDNAs are lands where human beings reside and sleep, generally including residences (single- and multi-family) and other living facilities.
- Class B EDNAs are lands involving uses requiring protection against noise interference with speech such as commercial services and recreational facilities not intended for human habitation (parks and open space, for example).
- Class C EDNAs are lands involving economic activities of such a nature that higher noise levels may be anticipated, such as industrial or agricultural lands.

Heavy industry and light industrial properties both fall under EDNA Class C; therefore, the proposed change in land-use designation would not change the maximum permissible environmental noise levels, as shown in Table 3.

Table 3: Maximum Permissible Environmental Noise Levels

EDNA of Noise Source	EDNA of Receiving Property		
	Class A	Class B	Class C
Class A (Residential)	55 dBA	57 dBA	60 dBA
Class B (Commercial)	57 dBA	60 dBA	65 dBA
Class C (Industrial)	60 dBA	65 dBA	70 dBA

Between the hours of 10 p.m. and 7 a.m., the noise limitations described in Table 2 are reduced by 10 dBA for receiving properties within Class A EDNAs. At any hour of the day or night the applicable noise limitations may be exceeded for any receiving property by no more than:

- 5 dBA for a total of 15 minutes in any 1-hour period; or
- 10 dBA for a total of 5 minutes in any 1-hour period; or
- 15 dBA for a total of 1.5 minutes in any 1-hour period.

[1] "Impulsive sound" is sound that is of short duration where each peak of sound lasts 1 second or less. The sound is characterized by abrupt onset and rapid decay (TMC 8.122.010).

Existing Noise Environment

Existing noise sources within the NewCold Facility include operation of rooftop compressors and oxygen reduction systems associated with the refrigeration system (southwestern portion of the existing NewCold building), truck traffic entering and leaving the NewCold Facility, noise associated with unloading of materials in the loading bays (primarily inside the loading bays), and operation of refrigeration equipment on truck trailers parked in the staging area. Trucks do not use air brakes while in the NewCold Facility. The staging area is equipped with hookups allowing refrigerated trucks to operate without the need for trucks to idle.

Landau conducted baseline noise monitoring at the existing NewCold Facility to establish existing conditions for the Site. Prior to arriving on Site, Landau requested information regarding the timing of operations at the NewCold and adjacent facilities from a NewCold representative. The noise study was planned for mid-day (11:00 a.m. through 2:30 p.m.) on Tuesday, February 1 to measure noise levels at full operational load.

Each measurement included a recorded 15-minute L_{eq} (equivalent continuous sound level) and L_{max} (maximum sound level) in A-weighted decibels using a Norsonic Model 118 noise meter, set on “fast” mode. Landau personnel also observed ambient noise during each measurement in order to note noises (e.g., passing vehicles, alarms, etc.) that contribute to overall noise measurements. Weather conditions were ideal for noise monitoring, overcast to clear with no precipitation and little to no wind.

Measurements 1 and 2 (the same physical location) were taken at the property line closest to the rooftop compressors and oxygen reduction systems located in the southwestern portion of the existing building. NewCold personnel informed Landau staff that during especially warm weather, noise associated with rooftop compressors and oxygen reduction systems is louder than observed during the Site visit. NewCold briefly activated the compressors to operate at higher load to allow Landau to conduct a brief measurement; however, due to the low ambient temperature, operating for an extended time and at a higher load was not possible without risking damage to the equipment. Measurement 1 represents this brief period of compressor operation.

Measurements were taken near property lines to approximate existing noise levels at neighboring properties, with the exception of the following:

- Location 6: The measurement was taken as close as safely possible to the loading dock activities to capture the highest noise levels on Site.
- Location 7: The measurement was taken between the truck trailer staging area and the vegetated area to the south of the NewCold Facility. This location was selected to measure noise associated with the NewCold Facility without excessive contribution from vehicles driving on South 48th Street.

Measurement locations are shown on Figure 1. Equivalent continuous sound level (L_{eq}), maximum sound level (L_{max}), and a description of observed noise sources for each location are shown in Table 4.

Table 4: Baseline Noise Levels

#	Measurement Location (Adjacent Property Type)	Time and Predominant Observed Noise Sources	15-minute Continuous Sound Level (L_{eq})	Maximum Sound Level (L_{max})
1	West of rooftop cooling equipment, with compressors[a] (light industrial)	11:48 a.m. Compressors starting up, operating and shutting down. Background traffic noise, and adjacent business operations.	57.5	77.1
2	West of rooftop cooling equipment without compressors (light industrial)	11:53 a.m. Noise from inside NewCold building, vehicle traffic on South Orchard Street and other nearby roads, backup alarms from offsite, other adjacent business operations.	55.3	66.4
3	Northwest corner of NewCold Facility (light industrial)	12:15 p.m. Vehicle traffic on nearby roads, generator engine running at adjacent business to the west, other adjacent business operations.	56.1	62.1
4	Northern NewCold boundary near communications tower (parks and open space)	12:39 p.m. Maintenance work and vehicle operating at landfill, traffic on nearby roads, equipment associated with communications tower, airplanes.	47.3	64.8
5	Eastern Site boundary near landfill (parks and open space)	1:00 p.m. Truck engines and truck trailer refrigeration equipment in NewCold loading area, noise associated with unloading trucks.	45.8	64.7
6	East side of loading dock area between dock and staged trucks (interior of NewCold Facility)	1:19 p.m. Idling trucks, trucks entering loading area, truck trailer refrigeration equipment.	73.2	90.4
7	Southeast of truck trailer staging area (interior of NewCold Facility)	1:39 p.m. Trucks moving within loading area, truck trailer refrigeration equipment.	54.2	69.3
8	Southwest corner of NewCold Facility (residential)	2:00 p.m. Trucks entering NewCold Facility on South 46th Street, truck trailer refrigeration equipment.	54.3	68.7

a. Measurement 1 was 3 minutes 11 seconds in duration, corresponding with the amount of time the compressors were able to be operated. All other measurements were conducted for 15 minutes.

With the exception of the brief period of compressor operation, observed predominant noise sources along the northwestern and northern portions of the property consisted of operations at adjacent properties, traffic on surrounding roadways, and airplanes. In the southern and central-eastern portions of the property, truck traffic and trailer refrigeration equipment were the primary observed

noise sources. Continuous noise levels at all property line locations were well below Washington's maximum permissible continuous noise levels for industrial operations when compared to the limit for residential receiving properties (60 dBA). As described in Attachment 1, noise attenuates at a rate of approximately 6 to 7.5 dBA per doubling of distance; therefore, noise levels at the nearest residential receiving properties would be well below typical residential background noise levels (50 to 60 dBA) without accounting for intervening topography and vegetation, which would further attenuate noise. No impulse noises were noted from NewCold operations.

Proposed Future Use

NewCold plans to expand the existing refrigerated storage facility to the east, adding a second high-cube warehouse adjacent to the existing structure. The design of the new structure has not been finalized, but current plans include incorporating more energy-efficient and quieter compressor equipment than the equipment used to cool the existing warehouse.

Noise from increased truck and employee traffic serving the expanded facility would also contribute to the local noise environment. However, traffic volume associated with light industrial use of the Site (current designation, which includes warehouses or light manufacturing) would not differ from NewCold's proposed expansion. Traffic impacts associated with the proposed amendment are addressed in the traffic impacts analysis completed by others.

Although NewCold does not intend to sell the property, changing the land-use designation of the Site from M-1 to M-2 could allow for more intensive use of the Site in the future, potentially allowing for more intensive manufacturing processes. Any future development would be required to comply with City and Washington State noise limits for all adjacent and nearby properties. As described above, nearby properties include industrial properties to the northwest, west and south, park or open space to the north and east (currently landfill), and non-adjacent residential properties described above and shown on Figure 1. Changing the land-use designation of the Site would not change the applicable noise limits.

Light and Glare

The following subsections address potential light and glare impacts to surrounding properties based on the proposed change in comprehensive plan land-use designation.

Regulations and Standards

The City does not have lighting regulations specific to industrial operations; however, anyone developing the Site would be required to obtain land-use and building permits prior to development and would be required to comply with all relevant design standards.

The City's Land Use Regulatory Code, Title 13 of the TMC, contains outdoor lighting regulations for off-street parking areas and for transitional areas between non-residential and residential uses.

Standards include use of indirect illumination or floodlighting directed away from adjacent properties to minimize spillover light on surrounding properties.

Joint Base Lewis-McChord Lighting Study Report

In 2019, the Joint Base Lewis-McChord (JBLM) Lighting Study Report[2] was published to assess and improve regional lighting equipment and practices within and in the regions surrounding JBLM (including Tacoma). The report addresses light pollution prevention and mitigation measures and suggests that communities adopt lighting standards to improve aesthetics; minimize glare and light trespass; improve safety for drivers, cyclists, and pedestrians; and improve visibility of the night sky.

The basic principles of light pollution prevention include shielding light so that it is directed only to the intended area, use only the amount of light necessary to the task, and employ light sources with warm-toned light.

The Lighting Study Report makes the following recommendations applicable to the NewCold facility:

- Street lights should be fully shielded to direct light downward with no opaque or reflective elements facing upward. The light source (bulb) should not extend below the shielding. Lights should not be angled, but should be directed directly toward the ground. Modern light-emitting diode (LED) lighting should be the appropriate brightness for the application and should use a warm white light (2,700 Kelvin [K] to 3,000K color temperature).
- Like street lights, wall-mounted lights should be fully shielded to direct light downward toward the area to be illuminated. The light source should not extend below the shielding. Modern LED lighting should be the appropriate brightness for the application and should use a warm white light.

Existing Lighting

Fixtures currently installed at the NewCold Facility consist of highly energy-efficient directional LED lighting. Exterior lighting includes fully shielded street lamp-type lighting in the passenger vehicle and truck parking areas in the southern portion of the property and along an access roadway following the perimeter of the NewCold Facility, including the eastern portion of the Site. Wall-mounted, fully shielded directional LED light fixtures are mounted on the south side of the building to illuminate the employee entrances and above the large loading bay doors. Additional wall-mounted directional light fixtures are present above each human-scale door on the north side of the building. All existing light fixtures are downward-directional with opaque, non-reflective housings that extend below the light source and reduce spillover to adjacent areas. Lighting is located at an appropriate height for the application. See Attachment 2 for photographs of existing light fixtures.

[2] MEI. 2019. Draft: Joint Base Lewis-McChord Lighting Study Report. Monrad Engineering, Inc. April 5.

Proposed Future Lighting

NewCold intends to expand into the Site through construction of a second high-cube refrigerated warehouse building adjacent to the existing building. The proposed building is expected to be the same height and dimensions as the existing high-cube building. No additional street lighting is currently planned as part of the proposed expansion. Lighting would include wall-mounted fixtures over any human-scale doors along the north and east sides of the new building. No new loading bays are currently planned, but if additional loading bays are added in the future, they would be equipped with shielded directional lighting similar to the existing lighting.

The specific light fixtures to be used in the proposed expansion have not been identified, but NewCold is committed to using lighting fixtures and placement that minimize light pollution and light encroachment into surrounding properties. This includes, but is not limited to, use of the newest available LED-type light fixtures allowing precise control of lighting color and brightness compared to legacy light sources, and use of external shielding on all fixtures to prevent light trespass.

While little to no light encroachment is expected due to the use of appropriate lighting, the existing NewCold structure would provide an additional barrier to the west and south. The uphill slope to the landfill would obscure light and glare to the north and east of the Site. The nearest properties designated for residential use are located a minimum of 800 feet from the Site; therefore, no light impacts to nearby residences would be expected due to NewCold's planned use of the Site.

While NewCold has no intention of selling the Site, the proposed designation change would apply to any future development. However, as described under Land Use Regulatory Code above, a change from M-1 to M-2 would not allow for more intrinsically light-intensive uses or result in any changes to regulations regarding lighting on the Site.

LANDAU ASSOCIATES, INC.

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AEM/MWB/RAS/ccy
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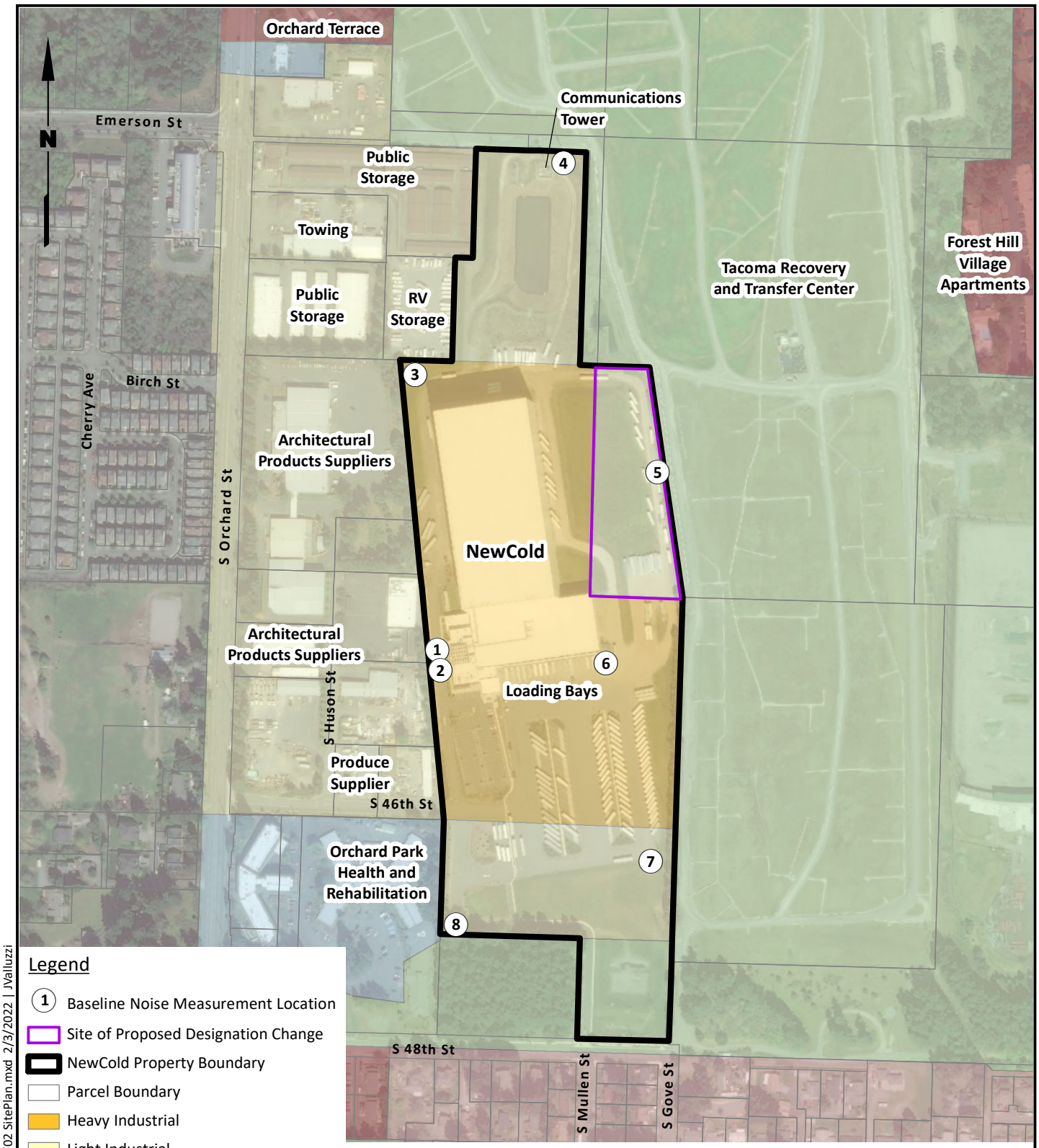
Attachments

Figure 1: Site Plan
Attachment 1: Characteristics of Sound and Noise
Attachment 2: Photographs of Existing Lighting at NewCold Facility



Legend

- (1) Baseline Noise Measurement Location
- Site of Proposed Designation Change
- NewCold Property Boundary
- Parcel Boundary
- Heavy Industrial
- Light Industrial
- Multi-Family (Low Density)
- Single Family Residential
- Neighborhood Commercial
- Parks and Open Space

0 400 800

Scale in Feet

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Source: ESRI World Imagery; Pierce County GIS

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NewCold Noise and Light/Glare Study Tacoma, Washington	**Site Plan**	Figure 1

ATTACHMENT 1

Characteristics of Sound and Noise

Attachment 1
Characteristics of Sound and Noise

Definition of Sound

Sound is created when objects vibrate, resulting in a minute variation in surrounding atmospheric pressure, called sound pressure. The human response to sound depends on the magnitude of a sound as a function of its frequency and time pattern (EPA 1974). Magnitude is a measure of the physical sound energy in the air. The range of magnitude the ear can hear, from the faintest to the loudest sound, is so large that sound pressure is expressed on a logarithmic scale in units called decibels (dB). Loudness refers to how people subjectively judge a sound and varies between people.

Sound is measured using the logarithmic decibel scale, so doubling the number of noise sources, such as the number of cars on a roadway, increases noise levels by 3 A-weighted decibels (dBA). A-weighted decibels are noise level measurements that account for relative loudness perceived by human hearing because humans are less sensitive to very low-pitch or high-pitch noises. Therefore, when you combine two noise sources emitting 60 dBA, the combined noise level is 63 dBA, not 120 dBA. The human ear can barely perceive a 3 dBA increase, while a 5 dBA increase is about one and one-half times as loud. A 10 dBA increase appears to be a doubling in noise level to most listeners. A tenfold increase in the number of noise sources will add 10 dBA.

In addition to magnitude, humans also respond to a sound's frequency or pitch. The human ear is very effective at perceiving frequencies between 1,000 and 5,000 hertz (Hz), with less efficiency outside this range. Environmental noise is composed of many frequencies. A-weighting (dBA) of sound levels is applied electronically by a sound level meter and combines the many frequencies into one sound level that simulates how an average person hears sounds of low to moderate magnitude.

Definition of Noise

Noise is unwanted or unpleasant sound. Noise is a subjective term because, as described above, sound levels are perceived differently by different people. Magnitudes of typical noise levels are shown in Table 1.1.

Table 1.1: Typical Noise Levels

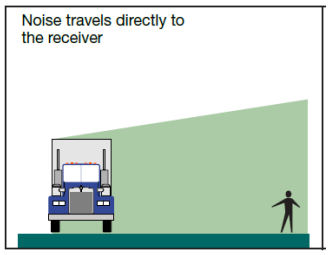
Noise Source	Decibel Level	Effect/Perception	Relative Loudness (human judgement of sound levels)
Jet aircraft takeoff from carrier (50 feet)	140 dBA	Threshold of pain	64 times as loud
Loud rock concert near stage	120 dBA	Uncomfortably loud	16 times as loud
Power lawn mower, motorcycle, garbage truck	100 dBA	Very loud; serious damage possible in 8-hr exposure	4 times as loud
Motorcycle or heavy truck at 25 ft	90 dBA	Likely damage in 8-hr exposure	2 times as loud
Garbage disposal, dishwasher	80 dBA	Moderately loud; possible damage in 8-hr exposure.	Reference loudness
Radio or TV-audio, vacuum cleaner	70 dBA	Upper 70s are annoyingly loud to some people.	½ as loud
Conversation in restaurant, office, background music	60 dBA	Fairly quiet	¼ as loud
Quiet suburb, conversation at home	50 dBA		⅛ as loud
Library, bird calls, lowest limit of urban ambient sound	40 dBA		
Quiet rural area	30 dBA	Very Quiet	
Whisper, rustling leaves	20 dBA		
Breathing	10 dBA	Barely audible	

Sources: Beranek (1988) and EPA (1974).

Sound Propagation

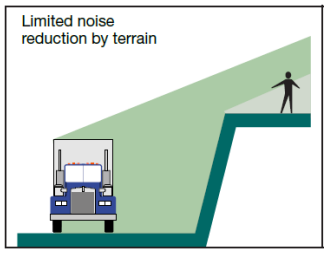
Sound propagation, or how far the sound travels, is affected by the terrain and the elevation of the receiver relative to the noise source. Noise levels can be reduced by breaking the line of sight between the receiver and the noise source.

- Level ground: noise travels in a straight path between the source and receiver.



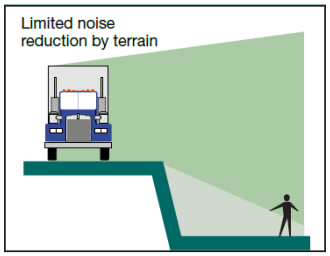
Level Ground

- Depressed source/elevated receiver: terrain may act like a partial noise barrier and reduce noise levels if it crests between the source and receiver.



Depressed source/elevated receiver

- Elevated source/depressed receiver: the edge of the roadway acts as a partial noise barrier. Even a short barrier, like a concrete safety barrier, can reduce noise levels at the subgrade receiver.



Elevated source/depressed receiver

Line and Point Sources

Noise levels decrease with distance from the noise source. For a line source, like a highway, noise levels decrease 3 dBA for every doubling of distance, e.g., from 50 feet to 100 feet, between the source and the receiver over hard ground (concrete, pavement) or 4.5 dBA over soft ground (grass). For point source, like most construction noise, the levels decrease between 6 and 7.5 dBA for every doubling of distance.

Effects of Noise

The Federal Highway Administration noise abatement criteria are based on speech interference, which is a well-documented impact that is relatively reproducible in human response studies. Environmental noise indirectly affects human welfare by interfering with sleep, thought, and conversation. Prolonged exposure to very high levels of environmental noise can cause hearing loss and the US Environmental Protection Agency (EPA) has established a protective level 70 dBA $L_{eq}(24)$ for hearing loss (EPA 1974). Noise also can affect some types of wildlife during certain activities.

Noise Level Descriptors

The equivalent sound level (L_{eq}) is a measure of the average noise level during a specified period of time. A 1-hour period, or hourly L_{eq} [$L_{eq}(h)$], is used to measure highway noise. L_{eq} is a measure of total noise during a time period that places more emphasis on occasional high noise levels that accompany

general background noise levels. For example, if you have two different sounds, and one contains twice as much energy, but lasts only half as long as the other, the two would have the same L_{eq} noise levels.

Either the total noise energy or the highest instantaneous noise level can describe short-term noise levels, such as those from a single truck passing by. The sound exposure level is a measure of total sound energy from an event and is useful in determining what the L_{eq} would be over a period when several noise events occur. L_{max} is the maximum sound level that occurs during a single event and is related to impacts on speech interference and sleep disruption. L_{min} is the minimum sound level during a period of time.

With L_n, "n" is the percent of time that a sound level is exceeded and is used to describe the range of sound levels recorded during the measurement period. For example, the $L_{8.3}$ is the noise level that is exceeded 8.3 percent of the time, or 5 minutes in any hour, and the $L_{2.5}$ is the noise level that is exceeded 2.5 percent of the time, or 1.5 minutes in any hour. Sound varies in the environment and people will generally find a higher, but constant, sound level more tolerable than a quiet background level interrupted by higher sound level events. For example, steady traffic noise from a highway is normally less bothersome than loud alarms or occasional impact noises in an otherwise quiet area.

References

Beranek, Leo L., ed. 1988. Noise and Vibration Control, rev ed. Washington, DC: Institute of Noise Control Engineering.

EPA. 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Publication No. 550/9-74-004. US Environmental Protection Agency. March.

ATTACHMENT 2

Photographs of Existing Lighting at NewCold Facility

1. Street lamp-style light fixture.

2. Street lamp-style light fixture.

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NewCold
Noise and Light/Glare Study
Tacoma, Washington

Photographs of Existing Lighting at NewCold Facility

Figure
2-1

3. Light fixture over human-scale door.

4. Light fixture over human-scale door.

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NewCold
Noise and Light/Glare Study
Tacoma, Washington

Photographs of Existing Lighting at NewCold Facility

Figure
2-2

5. Light fixture over loading bays.

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LANDAU ASSOCIATES

NewCold Noise and Light/Glare Study Tacoma, Washington	**Photographs of Existing Lighting at NewCold Facility**	Figure 2-3

Exhibit C

SOUTH SOUND COMPREHENSIVE PLAN AMENDMENT
TRAFFIC ASSESSMENT

City of Tacoma, WA

Prepared for: Ron Nelson
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January 2022

SOUTH SOUND COMPREHENSIVE PLAN AMENDMENT
TRAFFIC IMPACT ANALYSIS

1. INTRODUCTION

The main goals of this study focus on the assessment of roadway/non-motorist conditions and forecasts of newly generated project traffic in relation to a proposed comprehensive plan zoning amendment for the tax parcel #'s: 032030-1024; -1189; -1073; -1075; -1193; -1194; & -1159. The first task includes the review of existing parcel characteristics, permissible land use development and general roadway information on the adjacent street system. Forecasts of future traffic and dispersion patterns on the street system are then determined using established trip generation and distribution techniques for two alternatives. The first includes a forecast analysis encompassing site trip generation under existing zoning ordinances. The second alternative accounts for a zoning amendment, permitting the development of multi-family and commercial uses. As a final step, appropriate conclusions and mitigation measures are defined.

2. PROJECT DESCRIPTION

This report summarizes anticipated traffic impacts related to a comprehensive plan amendment request for tax parcel #'s: 032030-1024; -1189; -1073; -1075; -1193; -1194; & -1159 in the city of Tacoma. The subject site is located south of S 64th Street, east of S Wapato Street and west of S Tacoma Boulevard on a cumulative 15.96-acres. The subject site is currently designated as Single-Family Residential (R2) zoning. The primary aspect of this proposal is to seek a comprehensive plan amendment from the above designation to permit the development of multi-family (western 4 parcels) and commercial (eastern 4 parcels) uses. Surrounding roadway descriptions and additional subject site parcel characteristics are provided in the following section. Figure 1 below shows the vicinity map of the area.

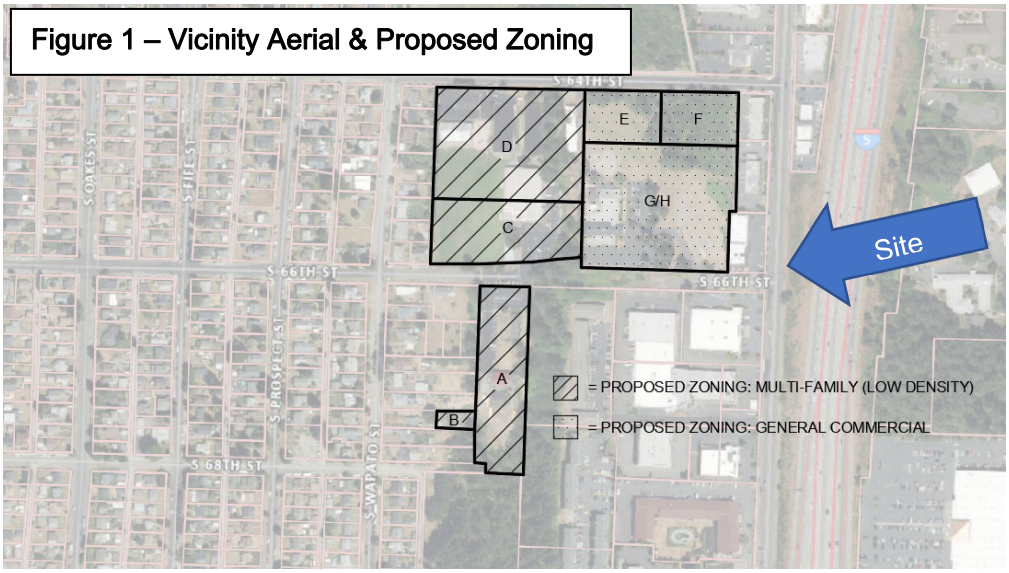


Figure 1 – Vicinity Aerial & Proposed Zoning

3. EXISTING CONDITIONS

3.1 Existing Street System

The street network serving the proposed project consists of a variety of roadways. The major roadways and arterials defined in the study area are listed and described below.

Table 1: Roadway Network

Functional Classification	Roadway	Speed Limit	Lanes	Street Parking	Sidewalk	Bike Facilities
Collector	Tacoma Mall Blvd	35 mph	2-3	Yes	Yes	No
Local	S 64th St	25 mph*	2	Yes	Some	No
	S 66th St	25 mph*	2	Yes	Some	No
	S Wapato St	25 mph*	2	Yes	Some	No

* No posted speed limit observed so the City standard 25 mph applies.

3.2 Roadway Improvement Projects

A review of the current City of Tacoma Six-Year Transportation Improvement Program (2022-2027) indicates projects are planned in the study area. Capacity-related projects and improvements affecting the study intersections are included below:

LID 8668: S 66th St & Wapato (WBS: $LID--8668R): This project includes alley and street asphalt paving and new curb and gutter. The project has a total estimated cost of $923,300.

South 74th Street: Tacoma Mall Blvd to West City Limits (WBS: $PWKS-00005): The project will construct grind and overlay improvements and install ADA compliant curb ramps where needed. Total project cost is estimated at $4,400,000.

56th Street South and Cirque Drive Corridor Improvements: S Washington St to Tacoma Mall Blvd (WBS: PWK-G0006): This project will replace pavement along the corridor, upgrade curb ramps and sidewalks to meet ADA requirements, install traffic signal upgrades and install bike facilities on a parallel route connecting the South Tacoma Sounder Station with the Tacoma Mall Transit Center. Total project cost is estimated at $11,637,651.

3.3 Active Transport

Non-Motorist Facilities:

School-aged children residing in the subject site would attend either Arlington Elementary (0.70-miles walking distance southwest of the subject site) or Gray Middle School (1.30-miles walking distance west). Tacoma Mall Boulevard and the north side of S 66th Street provide curb and sidewalk. Elsewhere, non-motorist infrastructure is discontinuous. It should be noted that Sound Christian Academy, a private pre-k through 12th grade school, is located on-site. Signage alerting drivers of pedestrian crossings associated with the school is available on S 66th Street and S 64th Street in the vicinity of the subject site. Mini-traffic circles are provided at S 66th Street's nearby intersections with S Wapato Street and S Fife Street. Moreover, speed humps reducing driver speed are provided are provided along S Wapato Street in the subject site vicinity.

Transit Service

A review of the Pierce Transit service schedule indicates Route 53 – University Place provides transit service in close proximity to the subject site. The nearest stops are provided at S Oakes Street's intersections with S 64th Street and S 66th Street (~0.30-miles walking distance west of the subject site). The route provides connections between the TCC Transit Center and Tacoma Mall Transit Center with stops provided in University Place along 27th Street W/40th Street W/Grandview Drive W and in South Tacoma. Weekday service is provided from 5:50 AM – 10:45 PM with approximately 30-minute headways during peak travel hours. Saturday service is provided from approximately 8:25 AM – 6:00 PM with approximately 60-minute headways. Sunday service is provided from approximately 8:16 AM – 6:37 PM with approximately 120-minute headways.

Moreover, Route 202 – S 72nd Street provides bus stops 0.60-miles walking distance south of the subject site at S 74th Street & S Wapato Street. The route services the 72nd Street corridor providing connection between the Lakewood Transit Center and the 72nd Street Transit Center. Weekday service is provided from 6:00 AM – 10:18 PM with approximately 30-minute headways during peak travel hours. Saturday service is provided from approximately 8:45 AM – 9:58 PM with approximately 30-minute headways. Sunday service is provided from approximately 9:20 AM – 9:18 PM with approximately 30-minute headways.

Refer to Pierce Transit's routes & schedules for further details.

4. ZONING & DEVELOPMENT POTENTIAL

Under existing zoning regulations, the subject site could be developed via single-family land use. To calculate approximately how many structures could be constructed in accordance with City standards, the total area of each parcel was measured (acreage/feet^2). Values were derived from the Pierce County Assessor. It should be noted that by taking the total site area, assumptions include all existing structures to be demolished and the site redeveloped to maximum single-family potential. While this scenario is not anticipated to occur, it presents a conservative trip generation analysis.

Per Tacoma Municipal Code 13-191, single-family structures within R-2 zoning require a standard minimum lot size of 5,000 square feet. Multi-family development within the proposed Comprehensive Plan Amendment scenario requires a minimum lot size of 6,000 square feet plus 1,500 square feet/unit in excess of 4 units. Lastly, approximately 70% of the total land area was assumed to be developable for the proposed commercial space (C2 zoning). This 30% reduction accounts for building setbacks, parking and more. Table 2 summarizes the permissible number of developable units within each parcel under existing zoning and proposed comprehensive plan amendment conditions.

Table 2: Permissible Development Estimates

Existing Zoning	Parcel	Available Developable Area	Existing Zoning Dev. Estimate (Single-Family)	Proposed Comp. Plan Amend. Dev. Estimate (Multi-Family: A-D / Commercial: E-H)
Single-Family (R-2)	A	2.38-acres / ~103,455 SF	20 S-F DU's	69 M-F DU's
	B	0.18-acres / ~7,840 SF	1 S-F DU's	5 M-F DU's
	C	2.58-acres / ~112,500 SF	22 S-F DU's	75 M-F DU's
	D	4.76-acres / ~207,346 SF	41 S-F DU's	138 M-F DU's
	E	1.00-acres / ~43,560 SF	8 S-F DU's	~215,300 SF of commercial space
	F	1.06-acres / ~46,211 SF	9 S-F DU's	
	G/H	5.00-acres / ~217,800 SF	43 S-F DU's	
Total Subject Site Development Potential			144 S-F DU's	287 M-F DU's; ~215,300 SF Comm.

As illustrated in Table 2, approximately 144 single-family dwelling units may be constructed on-site should the entire site be redeveloped with single-family land use. Under the proposed comprehensive plan amendment estimates, approximately 287 multi-family dwelling units and ~215,300 square feet of commercial space may be constructed should the entire subject site be redeveloped under the proposed comprehensive plan amendment. This estimate assumes a maximum redevelopment of the subject parcels currently occupied by CenterPoint Christian Fellowship church. Therefore, these are conservative estimates as redevelopment of the entire subject site is not planned.

5. FUTURE TRAFFIC CONDITIONS

5.1 Project Trip Generation

Trip generation is defined as the number of vehicle movements that enter or exit a site during a designated time period such as a specific peak hour or an entire day. Data presented in this analysis was derived from the Institute of Transportation Engineer's (ITE) publication *Trip Generation,* 11th Edition. If development were to occur under existing zoning regulations, the designated land use would be classified as Single-Family Detached Housing (LUC 210). Should the comprehensive plan amendment be approved, proposed development could consist of multi-family and commercial development. It should be noted that a tenant is identified should the C2 comprehensive plan amendment become enacted. One development option for parcels E, F G and H could comprise a warehouse use by Bargreen Ellingson, a restaurant supply company. As such, the designated land uses would be classified as Multi-Family Housing Mid-Rise (LUC 220) and Warehousing (LUC 150) under the proposed comprehensive plan amendment development scenario.

ITE average rates were used to determine trip ends with dwelling units used as the input variable for the existing and comprehensive plan amendment residential land uses. Equations and square footage, which comprise more conservative trip estimates when compared with rates, were used for LUC 150. Table 3 below summarizes anticipated vehicular movements for the average weekday daily trips (AWDT), AM peak hour and PM peak hour. ITE Trip Generation sheets have been attached to the appendix for reference.

Table 3: Project Trip Generation

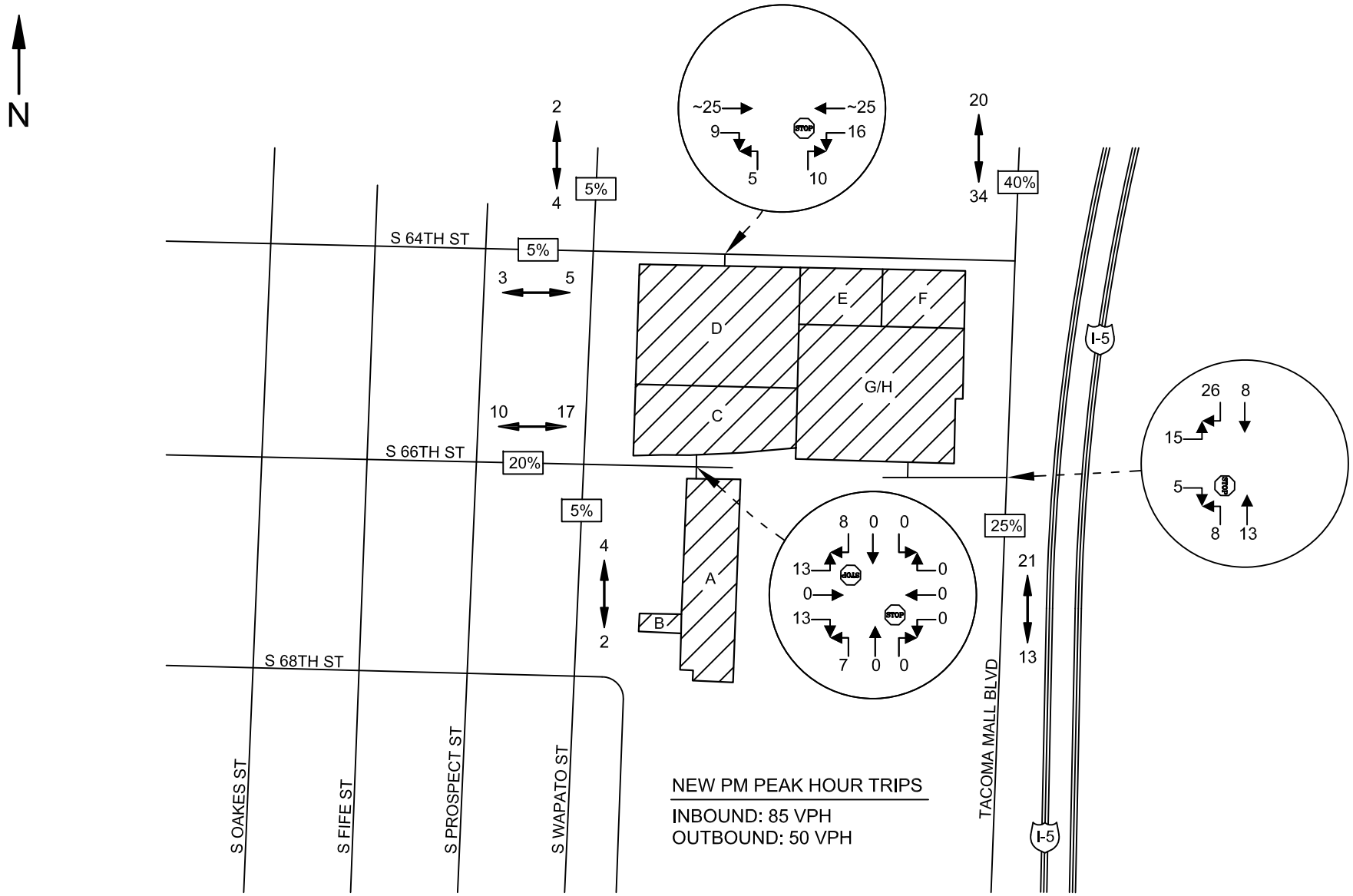
Land Use	Units	AWDT	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
Existing Zoning:								
Single-Family Detached – LUC 210	144 DU's	1358	26	75	**101**	85	50	**135**
Proposed Comp. Plan Amendment:								
Multi-Family (Low-Rise) – LUC 220	287 DU's	1934	28	87	**115**	92	54	**146**
Warehousing – LUC 150	215.3 KSF	378	38	11	**49**	14	38	**52**
Proposed Comp. Plan Amendment Total		2312	66	98	**164**	106	92	**198**

Based on the data presented in Table 3, site redevelopment under existing single-family zoning conditions is anticipated to generate approximately 1358 average weekday trips with 101 trips (26 in/75 out) occurring during the AM peak hour and 135 trips (85 in/50 out) occurring during the PM peak hour.

Proposed comprehensive plan amendment site redevelopment is anticipated to generate 2312 average weekday trips with 164 trips (66 in/98 out) occurring during the AM peak hour and 198 trips (106 in/92 out) occurring during the PM peak hour.

5.2 Trip Distribution and Assignment

Trip distribution describes the process by which project generated trips are dispersed on the street network surrounding the site. Figure 2 illustrates PM peak hour trip distribution & assignment under Scenario 1: forecast site redevelopment under existing single-family zoning conditions. Figure 3 illustrates PM peak hour trip generation and distribution under Scenario 2: forecast site redevelopment given proposed comprehensive plan amendment conditions. Percentages and assignments of project-generated traffic are based on proximity to major arterial routes and destinations. Subject parcels A-C are anticipated to access the site via S 66th Street from the west. Parcel D is anticipated to continue access via S 64th Street and parcels E-H are anticipated to be accessed via S 66th Street by way of Tacoma Mall Boulevard.



HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

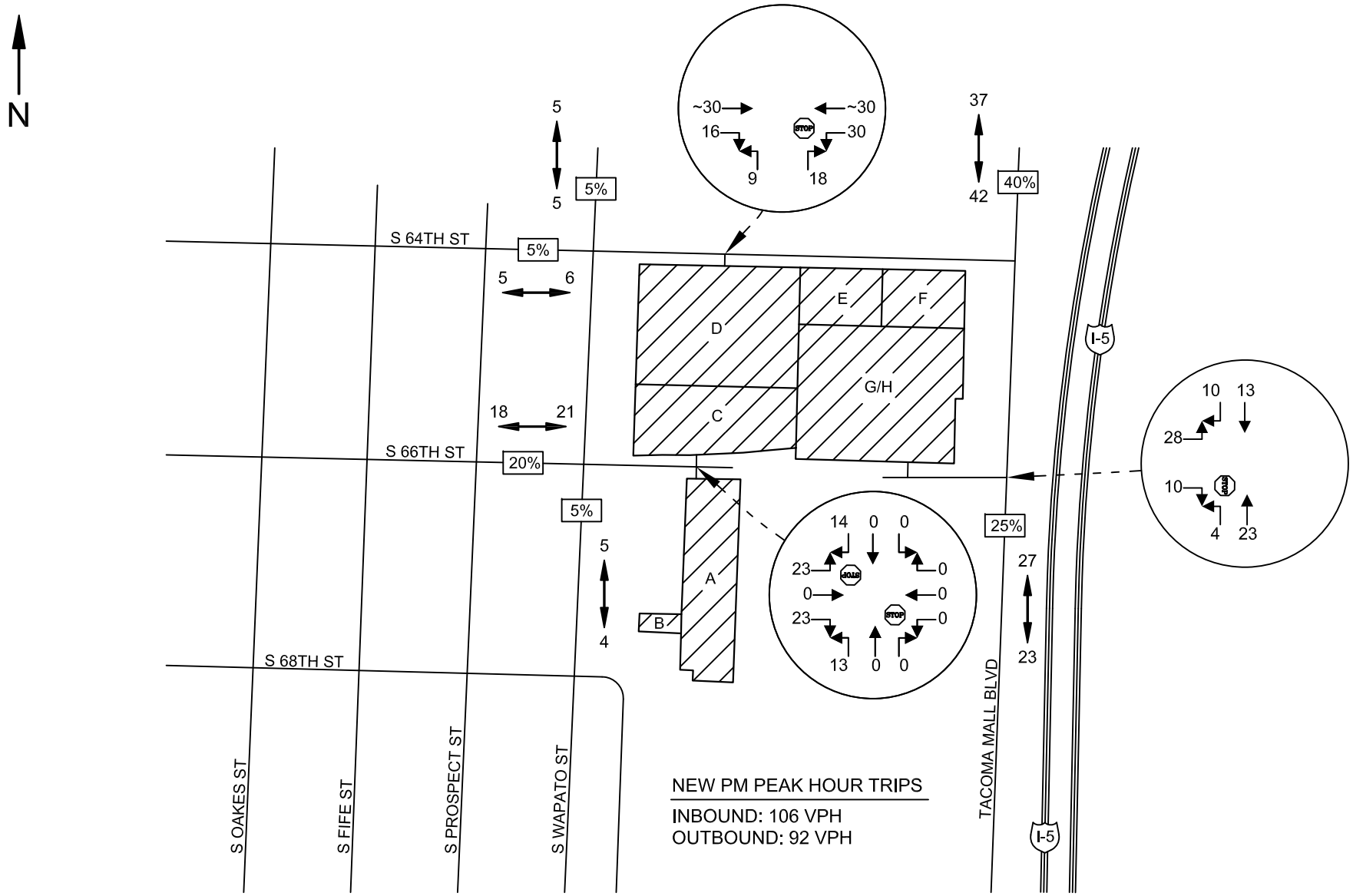
SOUTH SOUND COMPREHENSIVE PLAN AMENDMENT

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT

SCENARIO 1: SITE REDEVELOPMENT UNDER EXISTING ZONING (SINGLE-FAMILY)

FIGURE 2

PO Box 397 Puyallup, WA 98371 (253) 770 1401 heathtraffic.com



HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

SOUTH SOUND COMPREHENSIVE PLAN AMENDMENT

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT

SCENARIO 2: SITE REDEVELOPMENT UNDER PROPOSED REZONE (MULTI-FAMILY/COMMERCIAL)

FIGURE 3

PO Box 397 Puyallup, WA 98371 (253) 770 1401 heathtraffic.com

6. SUMMARY

The South Sound Comprehensive Plan Amendment project proposes a future amendment to existing zoning. The comprehensive plan amendment request encompasses tax parcel #'s: 032030-1024; -1189; -1073; -1075; -1193; -1194; & -1159 (15.96-acres), located in the city of Tacoma. The subject site is currently zoned as Single-Family Residential (R2) zoning. The proposed comprehensive plan amendment and future associated rezone would permit the development of multi-family in the western 4 parcels and a commercial use in the eastern 4 parcels.

Future buildout assumptions encompassed two trip generation and distribution scenarios. Scenario 1 assumes the entire subject site be redeveloped under existing single-family zoning. Scenario 2 assumed the entire subject site to be redeveloped under the proposed comprehensive plan amendment, permitting multi-family and commercial development. Based on trip generation estimates derived from approximate development potential, Scenario 1 is anticipated to generate approximately 135 PM peak hour trips (85 in / 50 out). Moreover, Scenario 2 is anticipated to generate approximately 198 PM peak hour trips (106 in / 92 out). Approximate PM peak hour trip distribution and assignment for each development scenario are outlined in Figures 2 and 3. It should again be noted that these are conservative estimates as the future assumptions encompassed complete redevelopment of every subject site parcel.

The majority of trips would be traveling to/from Tacoma Mall Boulevard. Under either analysis scenario, less than 100 PM peak hour trips would be traveling along any local roadway segment in the vicinity of the subject site. Therefore, the proposed comprehensive plan amendment and future associated rezone is not found to have a significant impact to surrounding local roadway operations. Should the proposal differ from the land use assumptions evaluated herein, an additional study may be required at such time. It should be noted that speed reduction strategies such as speed humps and neighborhood traffic circles are provided on the surrounding roadway system. To mitigate potential impacts as a result of the proposed comprehensive plan amendment and future associated rezone, additional infrastructure may be required as a part of site development.

Please feel free to contact should you require additional information.

Single-Family Detached Housing
(210)

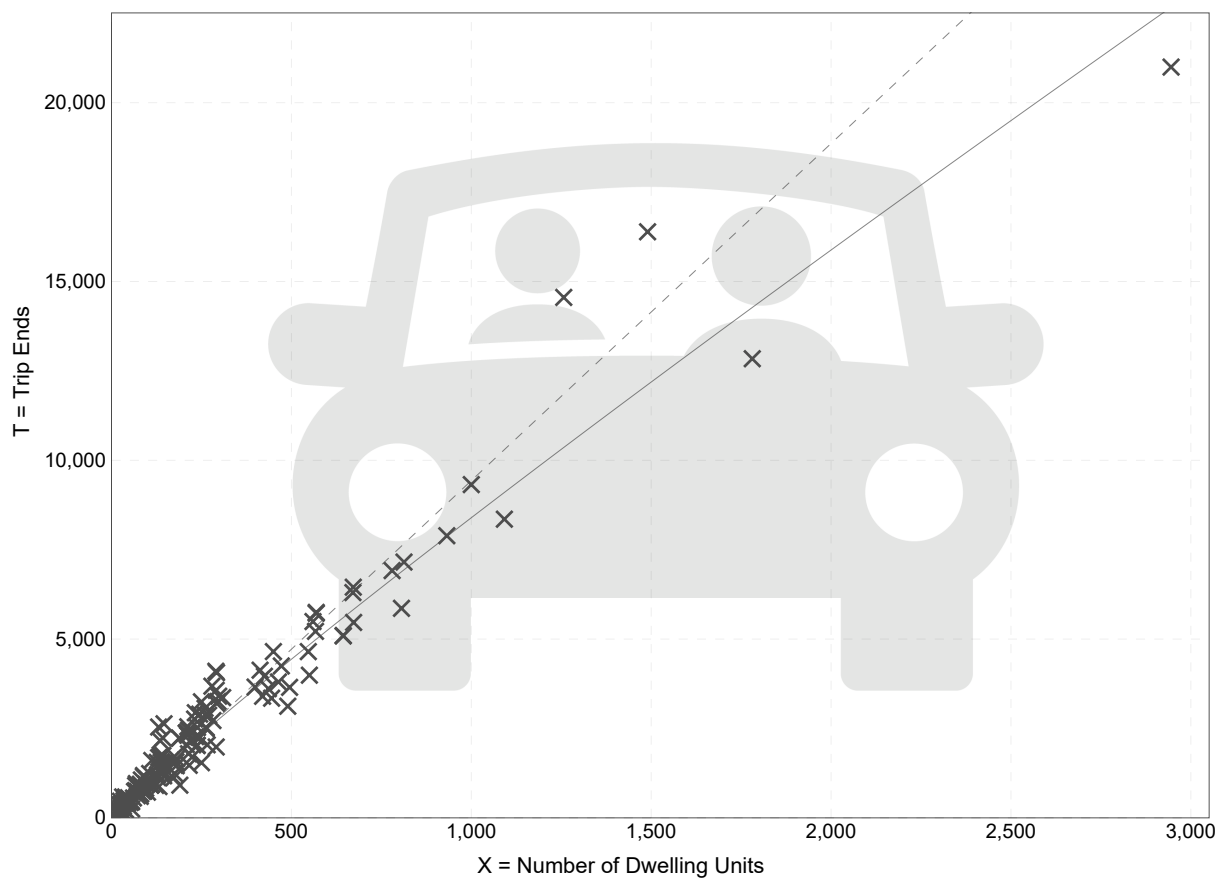
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 174
Avg. Num. of Dwelling Units: 246
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.68 **R^2= 0.95**

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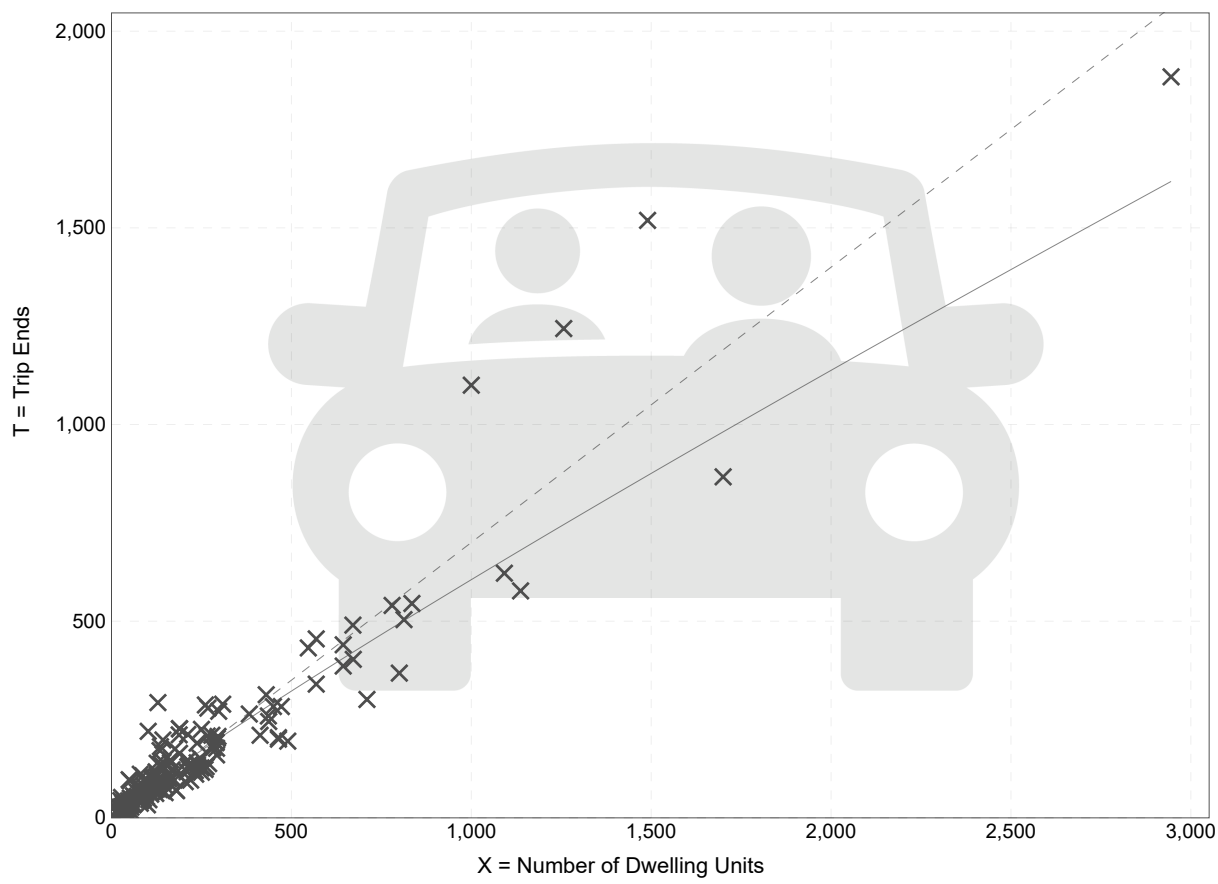
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	192
Avg. Num. of Dwelling Units:	226
Directional Distribution:	26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.91 Ln(X) + 0.12 **R^2= 0.90**

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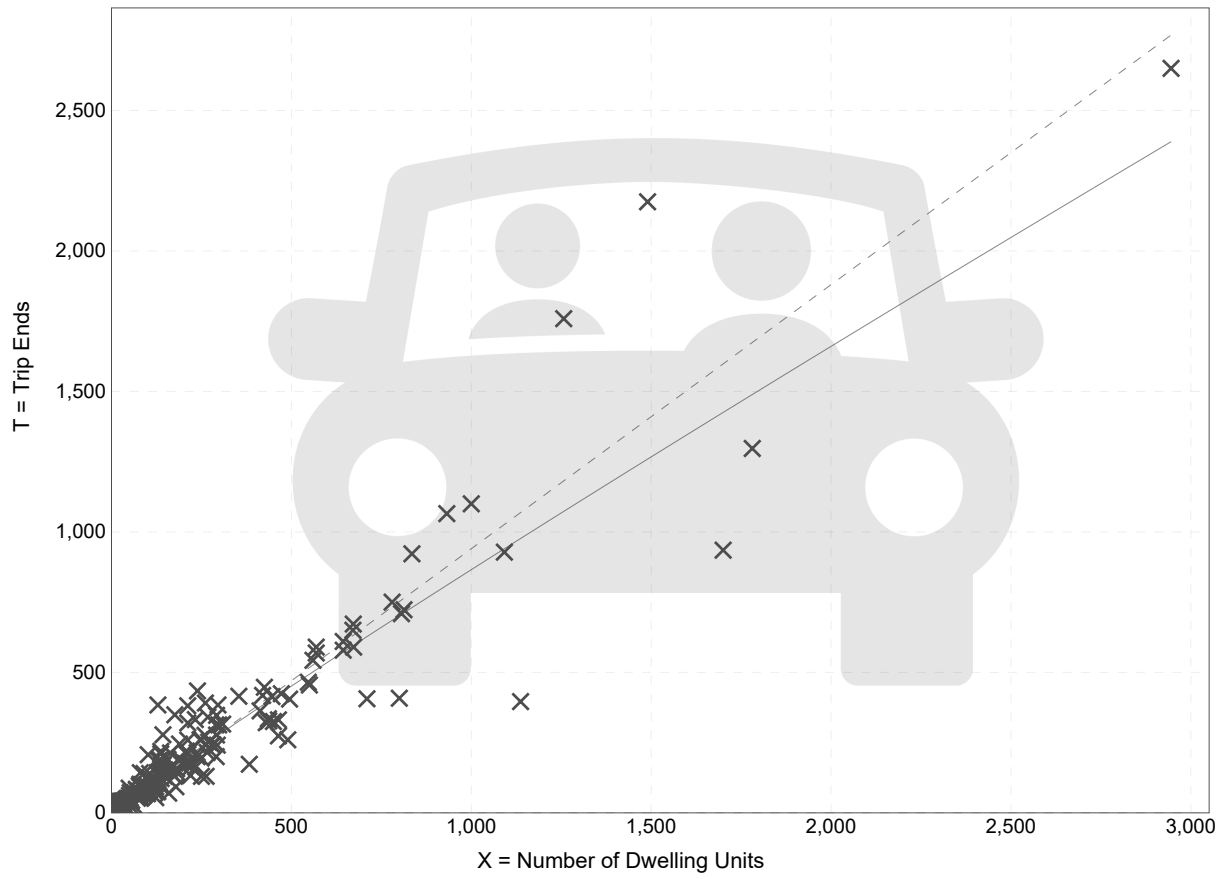
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	208
Avg. Num. of Dwelling Units:	248
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



× **Study Site** ——— **Fitted Curve** - - - - **Average Rate**

Fitted Curve Equation: Ln(T) = 0.94 Ln(X) + 0.27 **R^2= 0.92**

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Warehousing
(150)

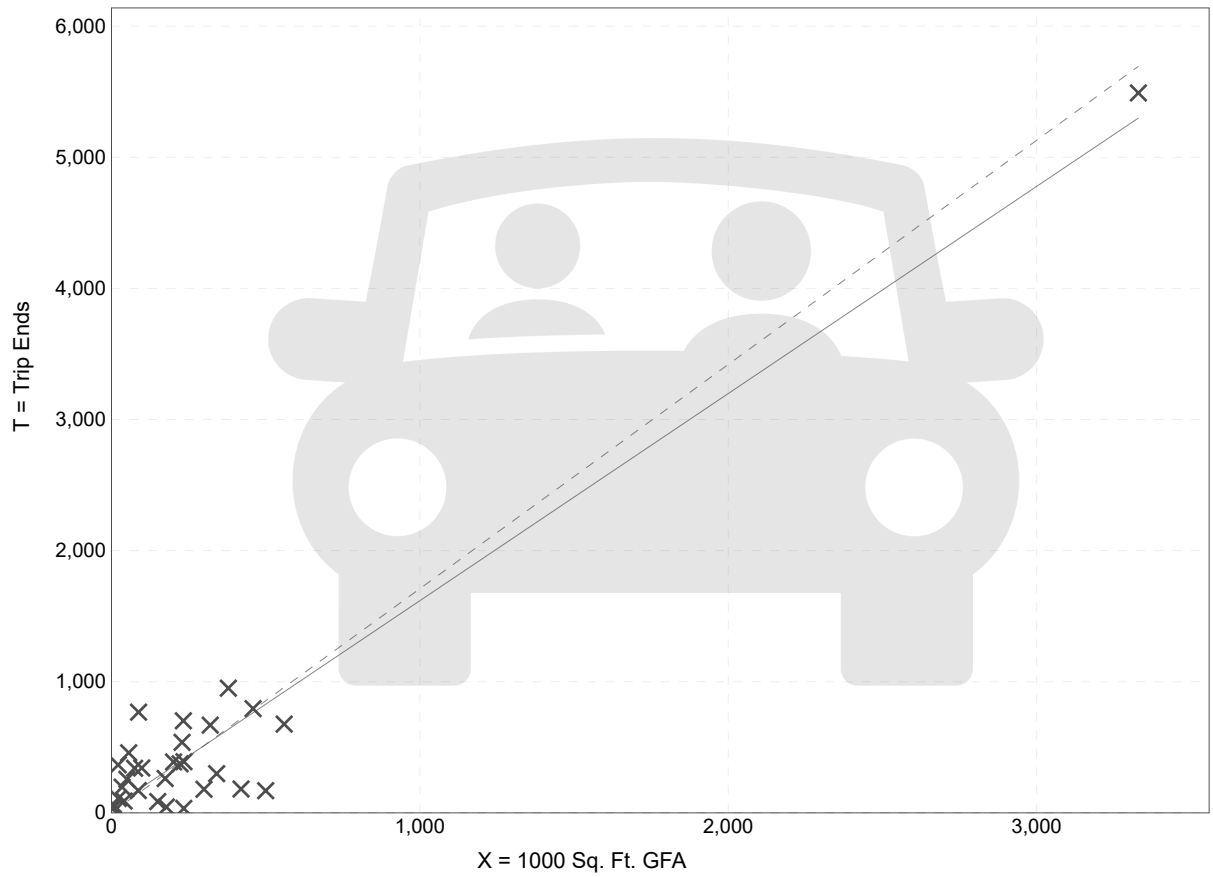
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 31
Avg. 1000 Sq. Ft. GFA: 292
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.71	0.15 - 16.93	1.48

Data Plot and Equation



× **Study Site** ——— **Fitted Curve** - - - - **Average Rate**

Fitted Curve Equation: T = 1.58(X) + 38.29 **R^2= 0.92**

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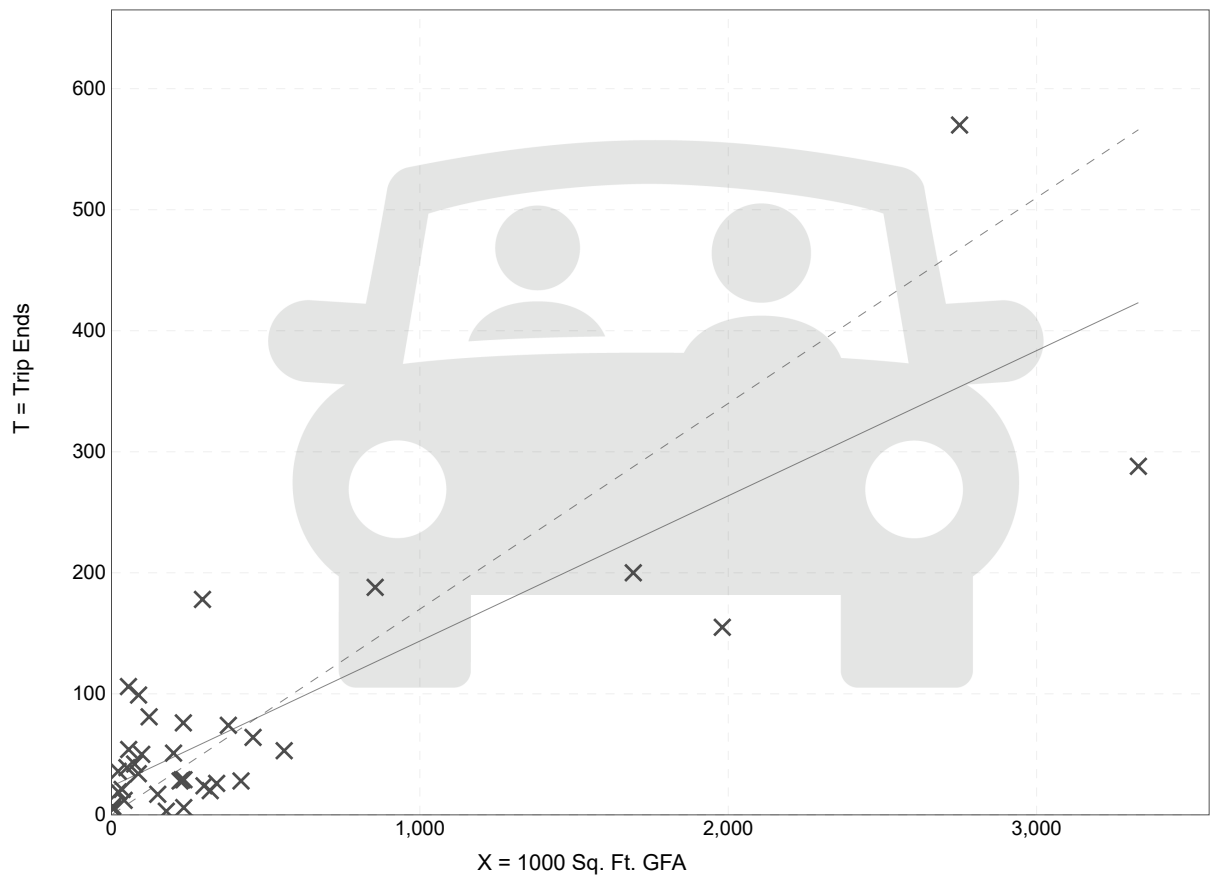
Warehousing
(150)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	36
Avg. 1000 Sq. Ft. GFA:	448
Directional Distribution:	77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.19

Data Plot and Equation



× **Study Site** ——— **Fitted Curve** - - - - **Average Rate**

Fitted Curve Equation: T = 0.12(X) + 23.62 **R^2= 0.69**

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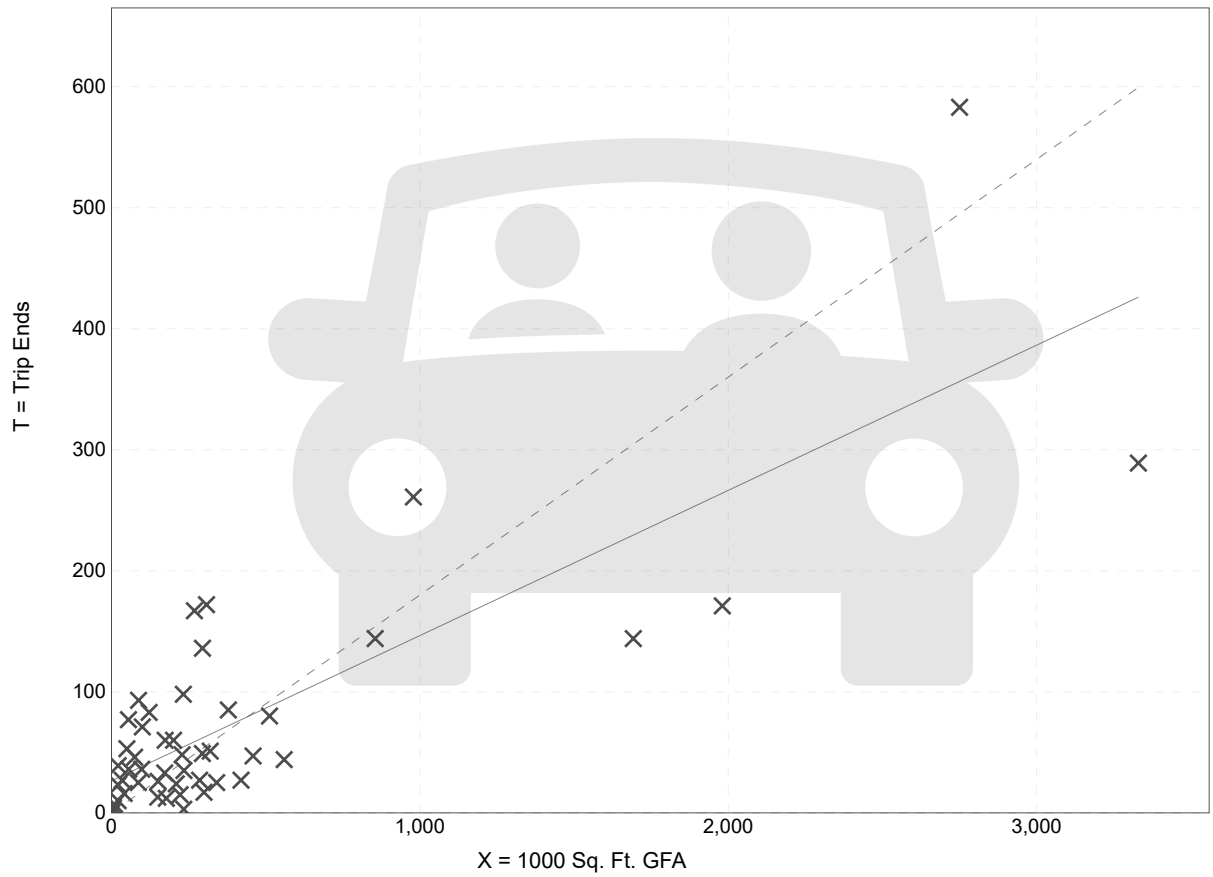
Warehousing
(150)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	49
Avg. 1000 Sq. Ft. GFA:	400
Directional Distribution:	28% entering, 72% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.18	0.01 - 1.80	0.18

Data Plot and Equation



× **Study Site** ——— **Fitted Curve** - - - - **Average Rate**

Fitted Curve Equation: T = 0.12(X) + 26.48 **R^2= 0.65**

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Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

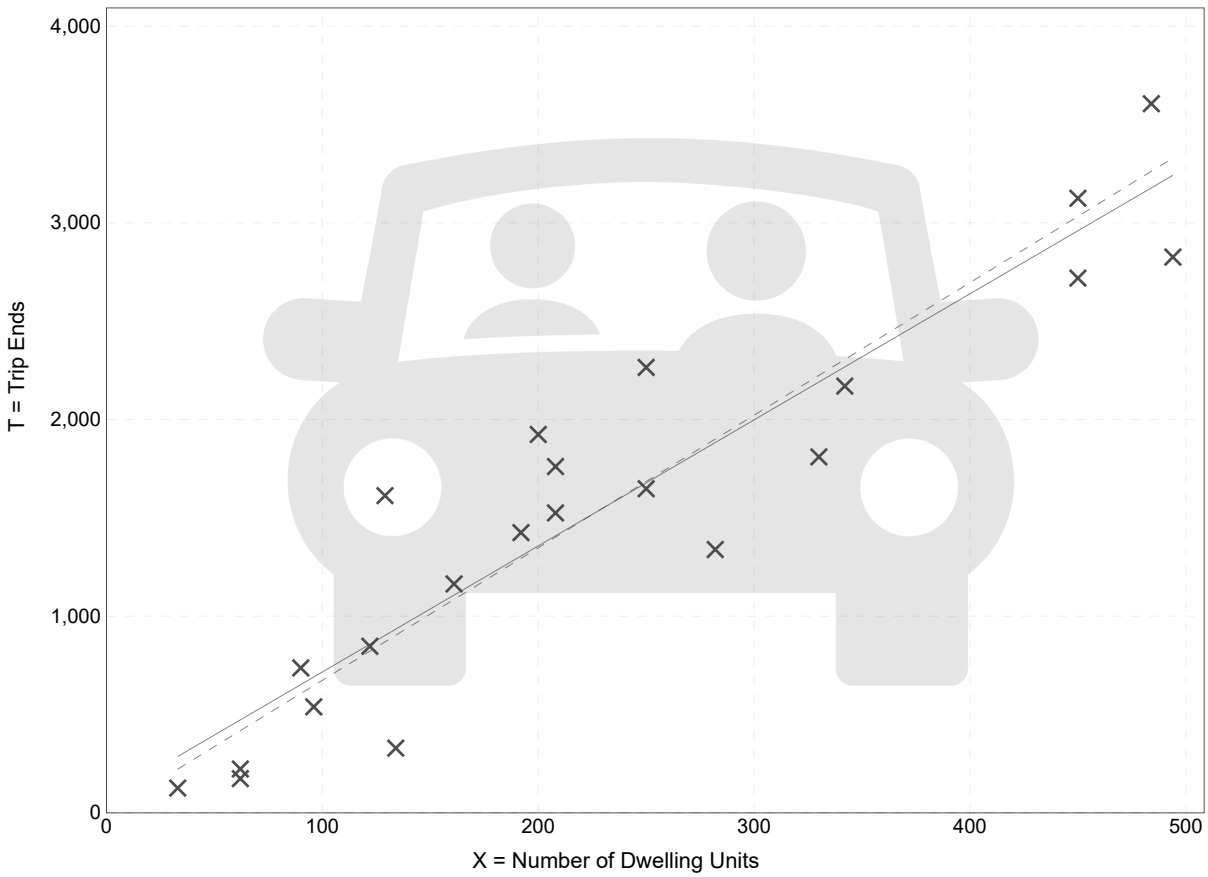
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



Fitted Curve Equation: T = 6.41(X) + 75.31 **R^2= 0.86**

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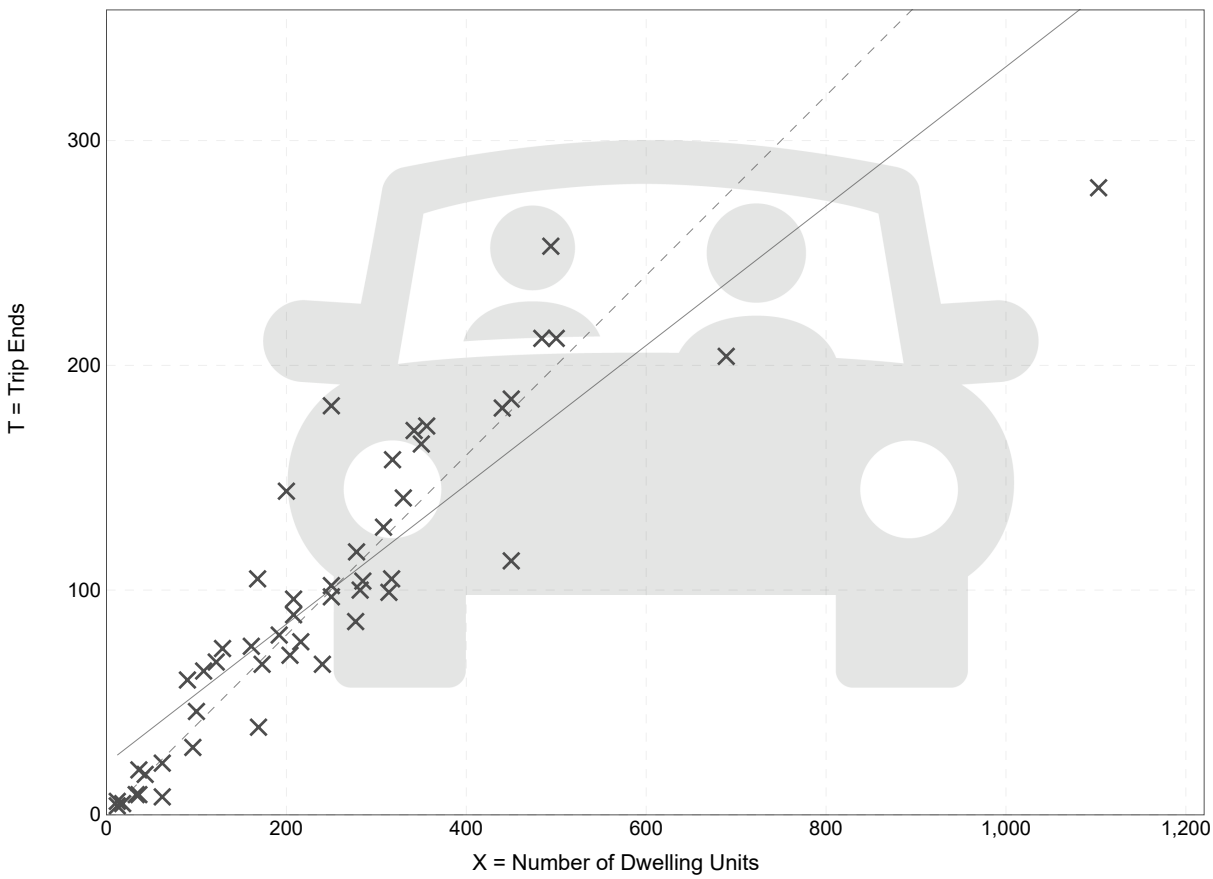
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	49
Avg. Num. of Dwelling Units:	249
Directional Distribution:	24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Fitted Curve Equation: T = 0.31(X) + 22.85 **R^2= 0.79**

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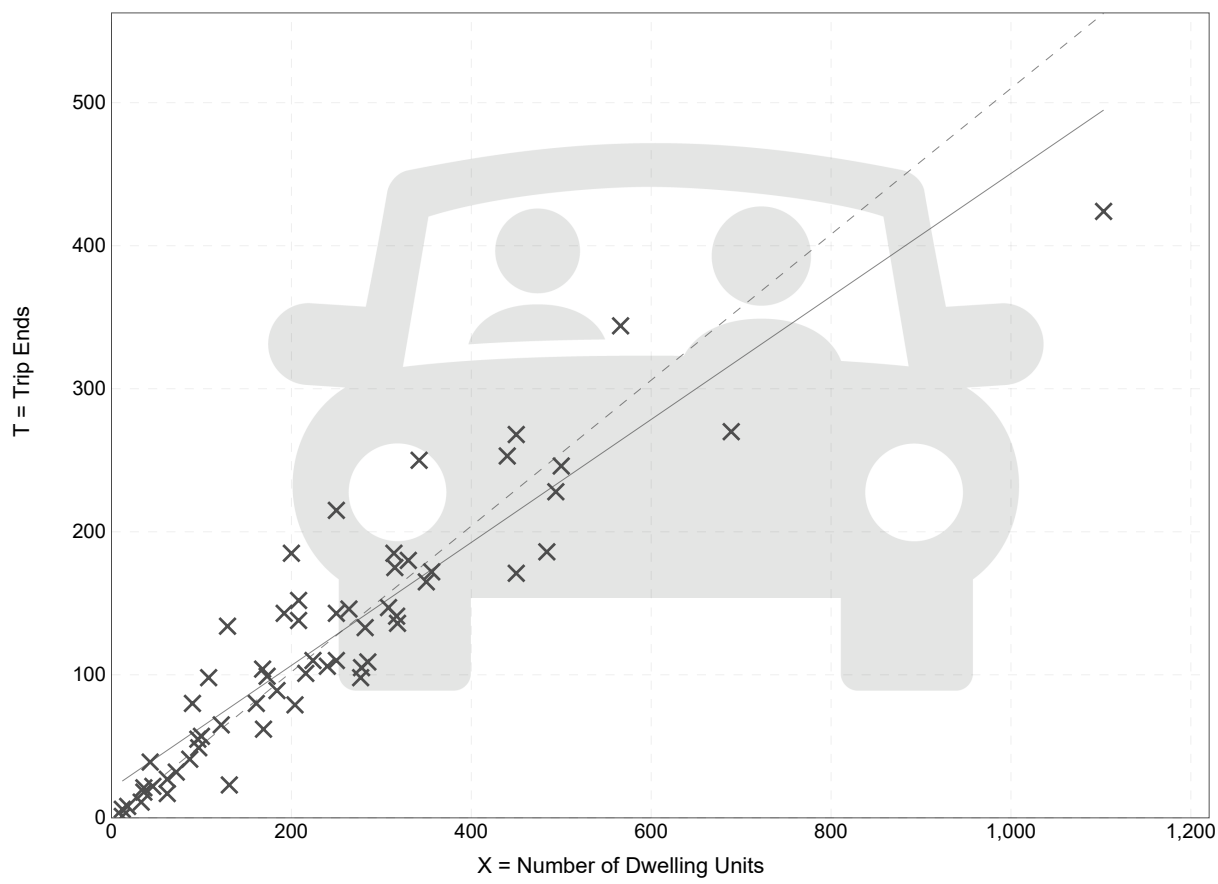
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	59
Avg. Num. of Dwelling Units:	241
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Fitted Curve Equation: T = 0.43(X) + 20.55 **R^2= 0.84**

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Exhibit D

CENTERPOINT CHRISTIAN SCHOOL/SOUTH SOUND CHRISTIAN SCHOOLS

HABITAT ASSESSMENT

PREPARED BY:

GRETTE ASSOCIATES LLC
2102 NORTH 30TH STREET, SUITE A
TACOMA, WASHINGTON 98403
(253) 573-9300

JANUARY 2022

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS

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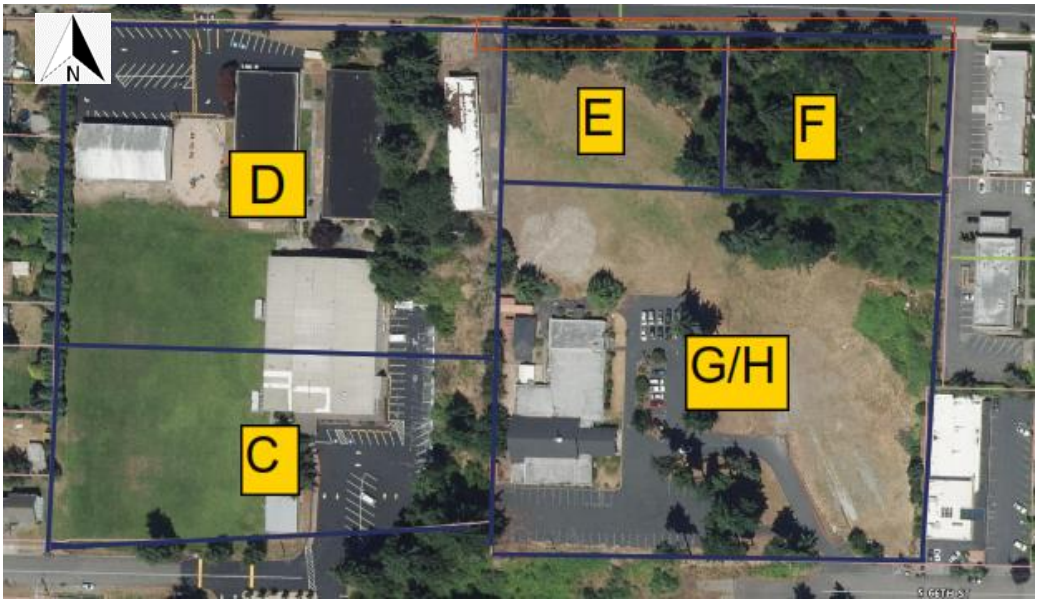
1.1 INTRODUCTION

Grette Associates is under contract with CenterPoint Christian Fellowship and South Sound Christian Schools to visit the site located at 2041 S. 66th St. (Pierce County parcels 0320301073, 0320301075, 3020301193, 0320301194, 0320301159, and 0320301158) in Tacoma, WA, and perform reconnaissance for the presence of wetlands, natural water features and fish and wildlife habitat conservation areas (FWHCAs) situated on and within 300 feet of the properties. The Pierce County tax parcels previously described will be further referred to in this report as the "subject parcels" and are individually described as sites C, D, E, F, and G/H (Figure 1). The subject parcels encompass a total area of 13.4 acres and are situated between S.66th St and S64th St in the City of Tacoma, Washington (Attachment A). This report is intended to satisfy the City of Tacoma's request for a habitat assessment on the subject parcels and is prepared using Chapter 13.11 of the City of Tacoma Municipal Code (TMC) guidance. The following report does not include the assessment of slopes or geologically hazardous areas.

Figure 1. Subject Parcels



2.1 DATABASE REVIEW

Critical Areas are regulated by agencies at the local, state, and federal levels. The appropriate jurisdictional databases were queried to ascertain if any critical areas or their buffers exist on or within 300 feet of the subject parcels.

2.1.1 Local Critical Area Inventory

A review of the City of Tacoma's GIS DART Map was conducted to identify any known critical areas located within the subject parcels (COT, 2022). According to DART, there are no wetlands, streams, floodways, flood hazard areas, or FWHCAs on or within 300 feet of the subject parcels. The City of Tacoma does map the entire area and subject parcels as being in an aquifer recharge

area. North of the subject parcels, approximately 71' across South 64th Street, Tacoma DART GIS maps a Biodiversity Area/Corridor (BAC) known as the Wapato Hills Urban Wildlife Habitat.

2.1.2 National Wetlands Inventory

The U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI) was queried to determine if any aquatic features have been previously identified within the subject parcels. The search of the USFWS GIS database shows no wetlands or other aquatic features mapped on or within 300 feet of the subject parcels.

2.2 WDFW PRIORITY SPECIES AND HABITAT

The WDFW Priority Species and Habitat Mapper was queried to determine if any known locations of priority habitat and species exist on the subject parcels. The PHS data mapper on the web shows that the Western Pond Turtle and Little Brown Bat have the potential to exist on the subject parcels.

2.2.1 Western Pond Turtle - *Actinemys marmorata*

The PHS on the Web mapper designates the general area of the subject parcels to be a potential area of occurrence of Western Pond Turtle. The Western Pond Turtle is listed as endangered in the State of Washington but is not listed federally. The closest aquatic habitat and listed occurrence of the Western Pond Turtle is over 1200 feet away across Interstate 5 at Wapato Park.

2.2.2 Big Brown Bat - *Eptesicus fuscus*

The species is present throughout Washington and roosting primarily occurs in dilapidated buildings or large live or dead trees in the early stages of decay. The Big Brown Bat is listed by PHS on the web to potentially occur near the subject parcels but has no listed occurrence on the subject parcels.

3.1 METHODS AND RESULTS

Grette Associates completed a site visit on January 13, 2022, to identify any wetlands, streams, or FWHCAs within the subject parcels. The subject parcels were traversed, and data was collected and assessed according to the wetland criteria defined in the U.S. Army Corps of Engineers (USACE) *Federal Wetland Delineation Manual* (1987) and the Corps' *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010). The subject parcels were also evaluated to identify any natural water feature that would be classified as a stream according to WAC 222-16-030 and Chapter 13.11 of the Tacoma Municipal Code (TMC). Potential Biodiversity Areas/Corridor within the subject parcels were evaluated based on the requirements defined in TMC 13.11.510

3.1.1 Wetland Results

No wetland features were identified on the subject parcels during Grette Associates' site assessment. Parcel C is developed and consists of a school classroom building and the southern portion of a soccer field with an approximate 70 stall parking lot. Parcel D is developed with the northern portion of the soccer field and contains school administrative buildings as well as an approximately 40 stall parking facility and two school classroom buildings. Parcels E and F are vacant lots containing a field and forested areas covered in Himalayan Blackberry (*Rubus armeniacus*) and native trees. Parcels G/H consists of the CenterPoint Christian School building facility with an approximately 70 stall parking lot and vacant field to the east of the buildings. The parcels contain infrastructure generally associated with school facilities (driveways, walkways, outside seating, etc.). During the site assessment, Grette Associates did not observe any indication of seasonal hydrology that would meet wetland hydrology indicators defined in the USACE's *Regional Supplement* (2010). More specifically, surface water, surface saturation, water-stained leaves, watermarks, or algal mats were not observed. Furthermore, no vegetation that would suggest a potential wetland feature was observed.

Figure 2. Vacant Field on Parcel G/H

Figure 3. Facing North from Parcel G/H to Parcel F

Figure 4. Vacant Field Parcel E

During the site visit, Grette Biologists assessed areas to evaluate soils and hydrology on each parcel. No hydric soil indicators were identified in the assessed areas (Figures 5 and 6). Datasheets are provided at the end of the report in Attachment B.

Figure 5. Soil Test Pit Locations

Figure 6. Soil Test Pit Photos

Test Pit C

Test Pit D

Test Pit F

Test Pit G/H

3.1.2 Stream Results

No streams were identified on the subject parcels. These findings are further backed up by the data gathered from queried databases summarized above.

3.1.3 Biodiversity Areas/Corridors Results

Per TMC 13.11.510, BACs are those areas that provide quality functions and habitat for wildlife access and/or movement across the landscape. In general, BACs are undeveloped areas with a vertically diverse assemblage of ***native*** vegetation containing multiply canopy layers and/or areas that are horizontally diverse with a mosaic of habitats and microhabitats (TMC 13.11.510).

North of the subject parcels is an undeveloped forested area that is mapped as a BAC from data gathered from Tacoma DART GIS data. The area is labeled as Wapato Hills Urban Wildlife Habitat and is separated from the subject parcels by South 64th Street. The parcels to the south, east, and west of the subject parcels are largely developed. Parcels E and F are largely comprised of a vegetative community consisting of a mix of native and nonnative vegetation dominated by Himalayan blackberry, English ivy (*Hedera helix*), and sword fern (*Polystichum munitum*).

Based on a rapid coverage assessment utilizing the guidance defined in the USACE's Regional Supplement (2010), coverage of nonnative species is approximately 60-65 percent of the total sub-canopy. Given the dominance of nonnative vegetation within the sub-canopy and parcel size, the parcels do not meet the definition of a Biodiversity Area due to the lack of a vertically diverse assemblage of native vegetation. Furthermore, given the existing development and lack connectivity to adjacent undeveloped forested areas, the subject parcels do not provide suitable habitat to be considered a corridor.

Figure 7. Vegetation Community in Parcels E and F



4.1 SUMMARY

In summary, Grette Associates did not identify any wetlands, streams, or FWHCAs, per TMC 13.01.110, within 300 feet of the subject parcels. The results summarized in this technical memorandum have fulfilled the critical areas evaluation requirements requested by the city.

If you have any questions on this wetland reconnaissance, please contact me at (253) 573-9300 or by email at donnyn@gretteassociates.com.

Regards,

Donny Neel

Donny Neel
Biologist

References

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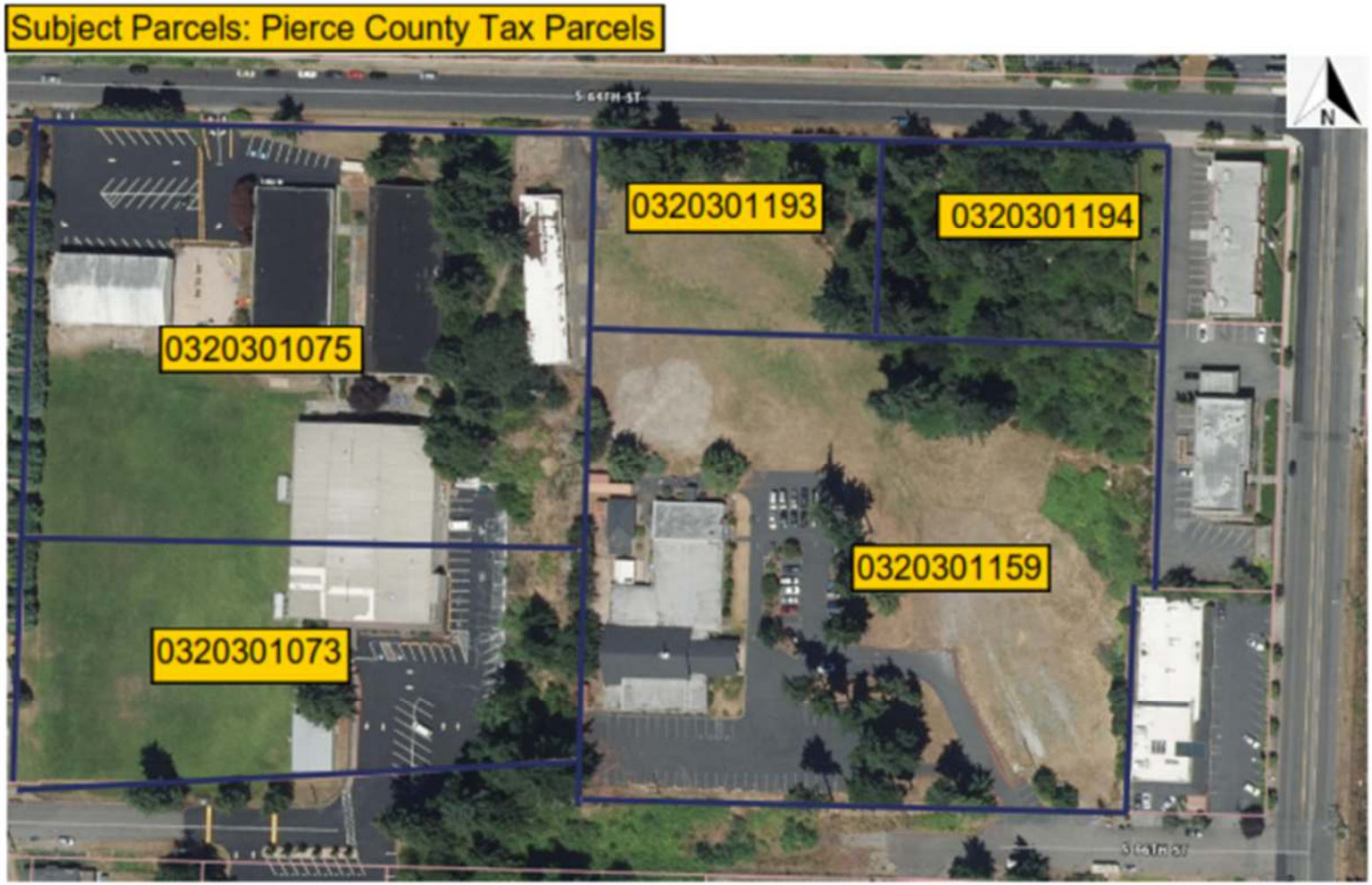
APPENDIX A: SITE MAP


Subject Parcels: Pierce County Tax Parcels
0320301193
0320301194
0320301075
0320301159
0320301073
N

CENTERPOINT CHRISTIAN SCHOOL/SOUTH SOUND CHRISTIAN SCHOOLS

HABITAT ASSESSMENT

APPENDIX B: DATA SHEETS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Center Point G/H City/County: Tacoma / Pierce Sampling Date: 1/13/22

Applicant/Owner: State: WA Sampling Point: SP1

Investigator(s): JD, DW Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ✓	No ___	
Wetland Hydrology Present?	Yes ___	No ✓	

Remarks:
The site has been developed and a large portion has been leveled with gravel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Rhododendron	5		FACU
2. Black Berry	10	Y	FAC
3. Eastern Red Cedar	15	Y	FACU
4. Scotch Broom	5		UPL
5.			
	35 = Total Cover		

30: 17.5
20: 7

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Plantain	25		FACU
2. Field grass	75	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

30: 50
20: 20

Woody Vine Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 3P1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	10YR 4/3	90	2.5YR 4/6	5%	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Rock layer

Depth (inches): 8"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Consistant

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No NO Depth (inches): ___

Water Table Present? Yes ___ No NO Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No NO Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Consistant rain within the last week

Did not reach water table Did

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Center Point F City/County: Tacoma / Pierce Sampling Date: 1/13/22

Applicant/Owner: State: WA Sampling Point: SP 2

Investigator(s): DN, SLD Section, Township, Range:

Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): Convex Slope (%): 1/10%

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Majority of the property is on a hill
Largely undisturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Madrona	30	Y	FACU
2. Oak Oregon white	50		UPL
3. Red Alder	10		FAC
4.			
	110	= Total Cover	

50 55
20 22

Sapling/Shrub Stratum (Plot size: 15')			
1. Evergreen Black	15		FACU
2. Him BB	45	Y	FACU
3. Beaked hazelnut	25	Y	FACU
4. Salal	40	Y	FACU
5.			
	125	= Total Cover	

50 62.5
20 25

Herb Stratum (Plot size: 5')			
1. Salal	40		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	Ø	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: Ø (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: Ø (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

95
25
15
125

SOIL

Sampling Point: SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	100					Silt loam	
7-18	10YR 4/2	100					Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

No Redox observed

Soil were not observed to be Saturated

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators seen

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Center Point E City/County: Tacoma / Pierce Sampling Date: 1/13/22

Applicant/Owner: State: WA Sampling Point: SP 3

Investigator(s): JLD, DN Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): Ø

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Regularly mowed field

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Hemlock WR	30	Y	FACU
2. Madrone	5		UPL
3.			
4.			
	30 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	Ø = Total Cover		

Herb Stratum (Plot size: 3')			
1. Plantain English	45%	Y	FACU
2. Grass Field (Poa Annua)	75%	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: Ø (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

12

90: 60
20: 24

SOIL

Sampling Point: SP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y 3/2	100					Silt Loam	
3-11+	10YR 3/2	100					Sandy Loam	Restrict by rock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Cobbel Rock

Depth (inches): 11"

Hydric Soil Present? Yes ___ No ✓

Remarks:

No Redox observed soils were not observed as Saturated

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Consistent

No Field Indicators observed

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Tacoma Baptist School D/C City/County: Tacoma / Pierce Sampling Date: 1/13/22

Applicant/Owner: State: WA Sampling Point: SP4

Investigator(s): DLD, DN Section, Township, Range:

Landform (hillslope, terrace, etc.): minor SLOPE Local relief (concave, convex, none): Convex Slope (%): 3 ±

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology — significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
The SP was taken in a maintained sports field across form western Red cedars hedge low present + maintained 10 yr +

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. W. R. Cedar	65	Y	FAC
2.			
3.			
4.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. N/A ∅			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Ryegrass Field Grass	100	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	∅ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: SP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2	100	Ø					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): 7"

Hydric Soil Present? Yes ___ No ✓

Remarks:

No Redox observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No Field indicators observed.