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Technical Memo

To	Mary Heather Ames, PE, Transportation Manager City of Tumwater Public Works
From:	Ryan Shea, PTP, Senior Transportation Planner
Date:	November 22, 2023
Project:	City of Tumwater Public Works Facility
Subject:	Traffic Scoping Analysis

Introduction:

The City of Tumwater is proposing to construct a new Public Works Facility on two undeveloped parcels along 79th Avenue and Trails End Road in Tumwater, Washington. The proposed project includes constructing seven new buildings for an approximate total of 49,000-square feet. This Traffic Scoping Analysis estimates the trip generation, distribution, and assignment for the proposed development. **Figure 1** illustrates the site vicinity and the transportation network serving the project area.

Figure 1. Site Vicinity

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Proposed Development

This project includes two parcels on the west and east side of Trails End Road SE. The west parcel includes a seven-building campus consisting of an approximate 9,000 square foot Administration building (Building A) for Public Works Staff and visitors and six secure maintenance buildings (Buildings B-G), providing approximately 40,500 square feet for shop facilities, material and equipment storage, vehicle maintenance including enclosed canopies for vehicle storage and secure crew parking. It should be noted that building G is not expected to be a fully enclosed space but for purposes of trip generation the building size is being included. The west parcel also includes a paved public plaza, paved parking for forty-four vehicles. The east parcel includes paved parking for forty-four cars and reserves space for fifty-two future parking stalls. The remainder of the east parcel will be set aside for a future park.

Access to the project will be provided by three driveways, one along 79th Avenue and two along Trails End Road. The driveway on 79th Avenue, and the northern driveway on Trails End Road SE will be gated for secure access to the vehicle storage and maintenance shop areas.. The southern driveway on Trails End Road will provide access to the parking lots located on the east and west sides of Trails End Road SE. While employee traffic will be allowed at all of these driveways, it is understood that staff will be directed to use the driveway on 79th Avenue. Visitor traffic will use the southern driveway on Trails End Road SE. The project is anticipated to open in 2024. The preliminary site plan is attached.

Project Traffic Characteristics

The two project-related characteristics having the most effect on area traffic conditions are peak hour trip generation and the directional distribution of traffic volumes on the surrounding roadway network.

Site-Generated Traffic Volumes

Vehicle trip generation was calculated using the trip generation rates contained in the 11th edition of the Trip Generation Manual by the *Institute of Transportation Engineers (ITE)*. The land use category Government Office Building (land use code 730) was used to calculate trips generated by building A, which provides administrative space. Industrial Park (land use code 130) was used to calculate trips for Buildings B through G, which provide vehicle storage and maintenance shop space. Buildings B through G also provide small portions of office space, which is accommodated by the Industrial Park land use category.

Table 1 shows the trip generation characteristics for the proposed Public Works Facility project.

Table 1. AM Peak Hour, PM Peak Hour and Daily Trip Generation Rates

Land Use	Time Period	Land Use Code (LUC)	Unit	Trip Rate	Enter %	Exit %
Government Office Building	AM Peak Hour	730	1,000 sf	3.34	75%	25%
Industrial Park	AM Peak Hour	130	1,000 sf	0.34	81%	19%
Government Office Building	PM Peak Hour	730	1,000 sf	1.71	25%	75%
Industrial Park	PM Peak Hour	130	1,000 sf	0.34	22%	78%
Government Office Building	Daily	730	1,000 sf	22.59	50%	50%
Industrial Park	Daily	130	1,000 sf	3.37	50%	50%

The total trip generation expected from this project is calculated by applying the unit measure for each land use category to the appropriate trip generation rate. The AM peak hour trip generation calculations are shown in **Table 2,** PM peak hour in **Table 3** and Daily in **Table 4**.

Table 2. AM Peak Hour Project Trip Generation

		New-To-Network Trips		
Land Use	**Size**	**Enter**	**Exit**	**Total**
Government Office Building	9.0	22	8	30
Industrial Park	40.5	11	3	14
Total	**-**	**33**	**11**	**44**

Table 3. PM Peak Hour Project Trip Generation

		New-To-Network Trips		
Land Use	**Size**	**Enter**	**Exit**	**Total**
Government Office Building	9.0	4	11	15
Industrial Park	40.5	3	11	14
Total	**-**	**7**	**22**	**29**

Table 4. Daily Project Trip Generation

		New-To-Network Trips		
Land Use	**Size**	**Enter**	**Exit**	**Total**
Government Office Building	9.0	101	102	203
Industrial Park	40.5	68	68	136
Total	**-**	**169**	**170**	**339**

Site Traffic Distribution and Assignment

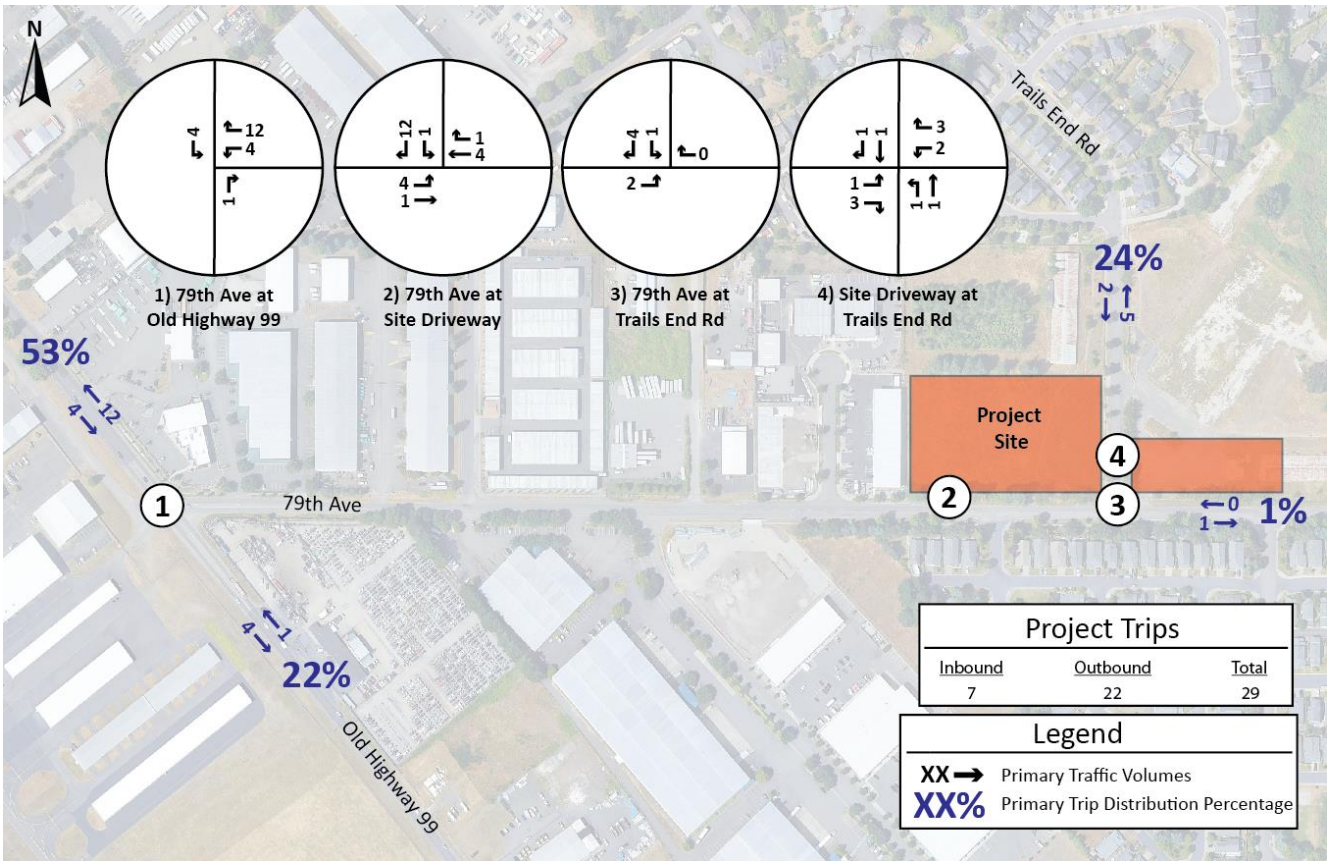
We have prepared a trip distribution and assignment for the proposed development. The directional distribution of traffic to and from the proposed project was estimated using the regional transportation model. The Thurston Regional Planning Council (TRPC) created the area-wide transportation model with cooperation from local jurisdictions within the county. The model, developed using the Emme/4 software package, has been calibrated to represent the existing vehicle travel patterns throughout the entire county.

The proposed Public Works Facility project is located within TAZ 228 of the regional transportation model. A distribution analysis was performed for this project by conducting a “Select Zone Analysis” for this TAZ. This feature of the Emme/4 software package allows all of the traffic into and out of a particular zone to be isolated and shown separately from the rest of the traffic on the network. This graphically shows the percentage of

vehicles currently using each of the available routes into and out of the area (Old Highway 99/Capitol Blvd, Tumwater Blvd, etc.). From this information, regional distribution percentages were calculated for future traffic traveling to and from the Public Works Facility project.

The resultant traffic distribution percentages and traffic assignments are shown on **Figure 2** for the PM peak hour. A copy of the Emme/4 select zone analysis model plot is attached.

Figure 2. Site-Generated Traffic Volumes – PM Peak Hour



Old Highway 99 Corridor Study

The city recently completed a corridor study for Old Highway 99 that includes the portion adjacent to the proposed Public Works Facility project. That corridor study evaluated the long-term needs of Old Highway 99 and included an evaluation of specific land use intensity along the corridor. The additional land use growth documented in the corridor study did not include the subject property.

Thank you for reviewing the enclosed materials. We have presented this information for the City's use in determining if additional analysis is required.

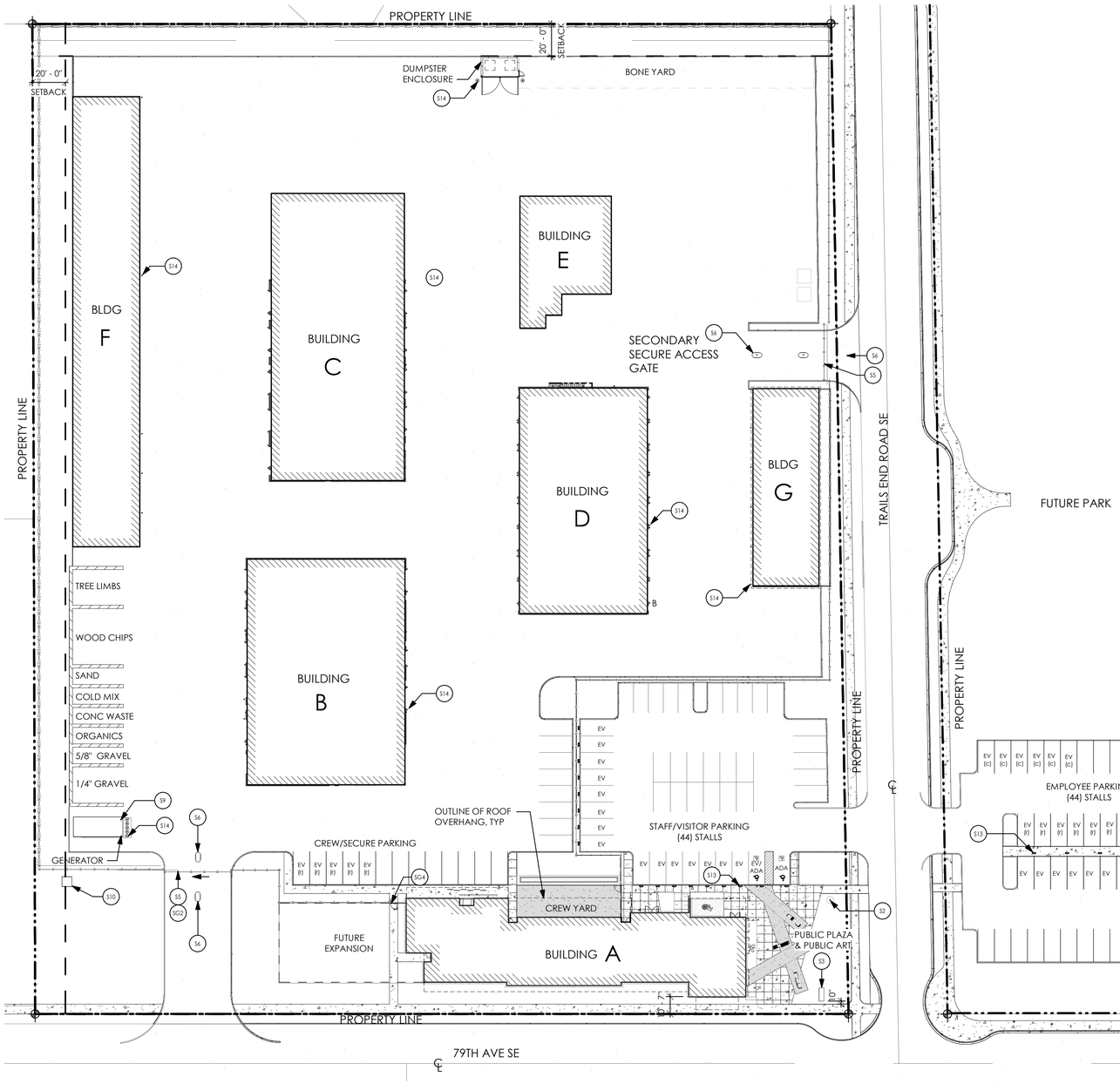
If you have any questions or need additional information, please call me at 360.352.1465.

Respectfully,
SCJ Alliance

Ryan Shea, PTP
Senior Transportation Planner

Enclosures: Preliminary Site Plan
TRPC Model Select Zone Analysis

N:\Projects\1822 TCF Architecture\23-000908 Tumwater Public Works Facility Design Additional Services\Design\Traffic\2023-1122 Tumwater M&O Facility Traffic Scoping.docx



1 SITE PLAN
1" = 40'-0"

PLAN NORTH

LEGEND

EV - EV CHARGING PARKING STALL

EV(r) - EV READY FOR FUTURE PARKING STALL

EV(c) - EV CAPABLE FOR FUTURE PARKING STALL

8'H CHAIN LINK FENCING, TYP

8'H ORNAMENTAL WROUGHT IRON SECURITY FENCING AT STREET-FACE SIDES, TYP

PROPERTY LINE

REQUIRED PARKING

PER TUMWATER MUNICIPAL CODE (TMC) FIGURE 18.50.070(A), COMMERICAL GOVERNMENT OFFICES REQUIRE 3.5 PARKING STALLS PER 1,000 SF OF OFFICE SPACE. THEREFORE:

BUILDING **A** SQUARE FOOTAGE (A & B OCCUPANCIES) = 8,942 SF

BUILDING **B**, **C**, AND **E** OFFICE SQUARE FOOTAGE (B OCCUPANCY) = 2,540 SF

TOTAL SQUARE FOOTAGE OF HEATED OFFICE SPACE (A & B OCCUPANCIES) = **11,482 SF**

11.5 X 3.5 = 40.3, THEREFORE 41 PARKING STALLS ARE REQUIRED

THE REMAINING HEATED SPACE IN BLDGS B-F CONSISTS OF S-1 STORAGE/SHOP SPACE, ENCLOSED S-2 PARKING AND F-2 WELDING SHOP WHICH TOTAL 32,830 SF. PER TMC FIGURE 18.50.070, "WAREHOUSE/STORAGE" SPACES REQUIRE THE FOLLOWING:
OVER 20,000 SF = 18 STALLS PLUS 0.5 SPACE FOR EACH ADDITIONAL 2,000 SF. THEREFORE:

18 SPACES (FOR FIRST 20,000 SF + 6 ADDITIONAL STALLS FOR THE REMAINING 12,830 SF)

GRAND TOTAL REQUIRED PARKING:
41 + 18 + 6 = 65 PARKING STALLS REQUIRED

STALLS PROVIDED: 44 ON WEST PARCEL; 44 ON EAST PARCEL = 88 STALLS

SITE NOTES:

WEST SITE ADDRESS: 7842 TRAILS END DR SE TUMWATER, WA 98501

WEST PARCEL IDENTIFICATION #: 12712320400

EAST SITE ADDRESS: 1500 79TH AVE SE TUMWATER, WA 98501

EAST PARCEL INDENTIFICATION #: 12712320300
LOT NUMBER:

WEST PARCEL SIZE: 302,450 SF (6.94 ACRES)
EAST PARCEL SIZE: 28,460 SF (.65 ACRES)

GENERAL COMMERCIAL ZONE: 18.22
PERMITTED USE: 18.22.020E

LOT COVERAGE: 84%

MAXIMUM STRUCTURE HEIGHT: 65'

NEW DEVELOPMENTS WITH NON-RESIDENTIAL USES ON SITES WITH A TOTAL SITE AREA GREATER THAN 1 ACRE MUST PROVIDE OPEN SPACE EQUAL TO AT LEAST 1% OF THE GROUND FLOOR NON-RESIDENTIAL BUILDING FOOTPRINT PLUS 1% OF THE "SITE AREA".

SIGNAGE REQUIRES SEPARATE PERMIT

KEYNOTES

S2	30' TALL FLAG POLE WITH DOWNLIGHTING, EXACT LOCATION TBD
S3	8' x 3' CAST-IN-PLACE MONUMENT SIGN WITH CAST BRONZE LETTERS AND LIGHTING ON TWO SIDES
S5	OPERABLE SLIDE GATE
S6	CONCRETE ISLAND W/PEDESTAL FOR GATE OPERATION, SEE CIVIL AND ELECTRICAL DRAWINGS
S9	GENERATOR, SEE ELECTRICAL DRAWINGS
S10	PAD MOUNTED TRANSFORMER, SEE ELECTRICAL PLANS
S13	VEHICLE CHARGING STATION, SEE CIVIL AND ELECTRICAL DRAWINGS
S14	BOLLARD TYPE 'B42' ADJACENT TO BUILDINGS, SEE DIMENSION FLOOR PLANS FOR LOCATIONS. REFERENCE SITE DETAILS

GATE SCHEDULE

SG2	16'-0"x7'-0" PAIR OF CANTILEVERED SWING VEHICLE GATES (DECORATIVE TYPE 1), AUTOMATIC OPERATION (HYDRAULIC W/REMOTE ELEC PUMP), W/CARD READER
SG4	3'-0"x7'-0" SINGLE SWING GATE (DECORATIVE TYPE 1), MANUAL OPERATION W/ELECTRIC STRIKE CARD READER & PANIC HARDWARE

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Tacoma, Washington98403
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CITY OF TUMWATER

Project Title
M&O FACILITY
7842 TRAILS END DR SE
TUMWATER, WA 98501

Project Numbers
2023-012

Issue & Revision Dates

50% SD	August 31, 2023
75% SD	September 14, 2023
100% SD	September 28, 2023
50% DD	November 17, 2023

DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION

Sheet Title
SITE PLAN

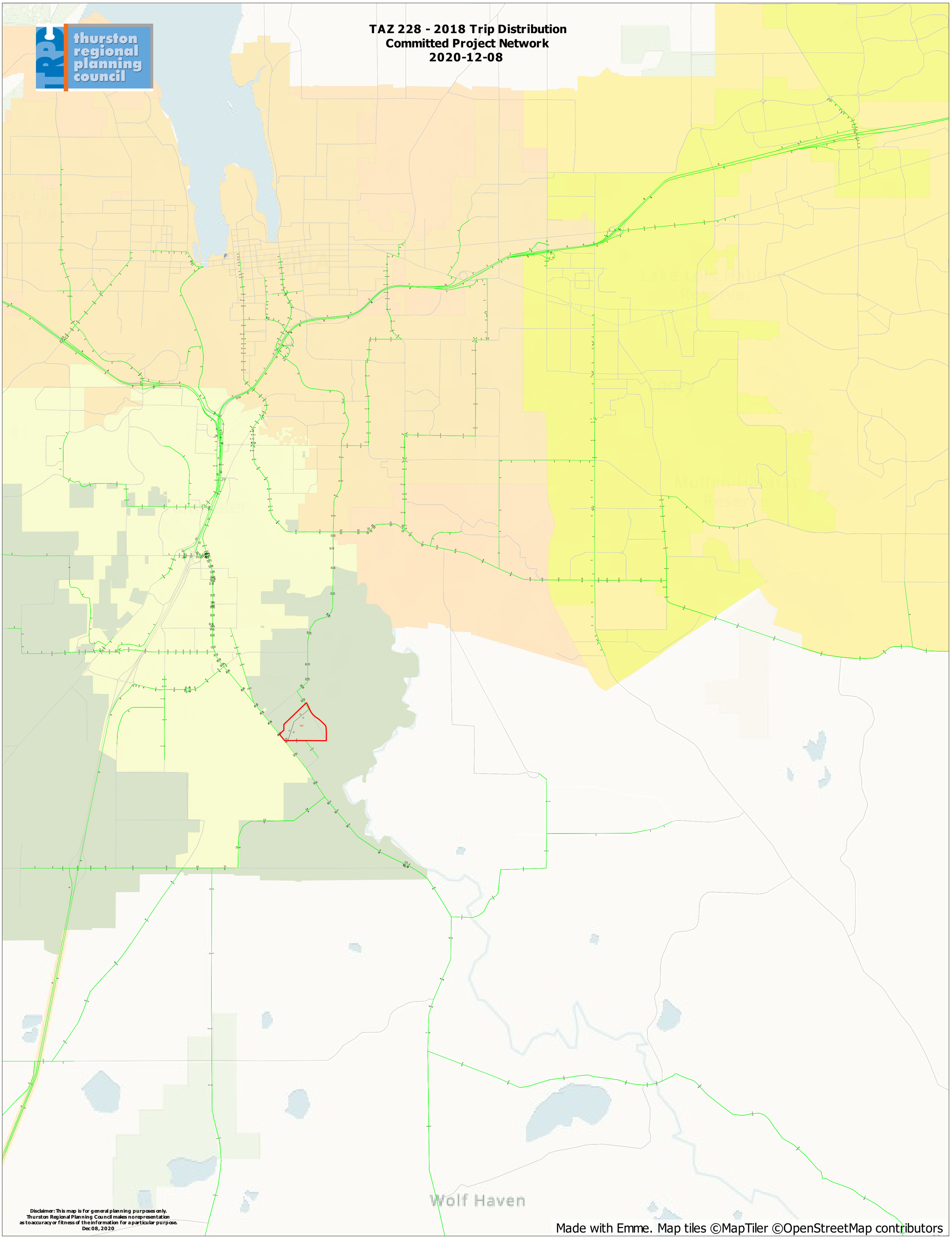
Drawn By MM | Checked By MP

Sheet Number
A1.01

Sheet Number Of

11/8/2023 2:52:46 PM C:\Users\Jessica\Documents\CTPW Arch_SITE_DD_jessica@tcfarchitecture.com.rvt

TAZ 228 - 2018 Trip Distribution
Committed Project Network
2020-12-08



Disclaimer: This map is for general planning purposes only.
Thurston Regional Planning Council makes no representation
as to accuracy or fitness of the information for a particular purpose.
Dec 08, 2020