



AGENDA ITEM SUMMARY FORM

MEETING DATE: 09/12/22

PREPARED BY: Matt Lonnerstater, AICP

AGENDA ITEM CONTENT: Special Approval Request PSP 22-09 'Costco Fuel Expansion' - 30550 Stephenson Hwy.

AGENDA ITEM SECTION: Public Hearings

BUDGETED AMOUNT: N/A

FUNDS REQUESTED: N/A

FUND: N/A

EXECUTIVE SUMMARY:

The applicant, Costco Wholesale c/o Barghausen Consulting Engineers, requests special use approval for the expansion of an existing fuel station at Costco Wholesale, 30550 Stephenson Highway (PIN 44-25-11-127-024). The property is zoned M-1, Light Industrial.

RECOMMENDATION:

Staff recommends that City Council approve PSP 22-09 based on the findings listed within the staff report after the required public hearing.



MEMORANDUM

Date: August 29th, 2022
CC Meeting: September 12th, 2022
To: City of Madison Heights City Council
From: Matt Lonnerstater, AICP – City Planner
Subject: Special Approval Request PSP 22-09 – 30550 Stephenson Hwy. – ‘Costco Fuel Expansion’

Introduction

The applicant, Costco Wholesale c/o Barghausen Consulting Engineers, requests special use approval for the expansion of an existing fuel station at Costco Wholesale, 30550 Stephenson Highway (PIN 44-25-11-127-024). The property is zoned M-1, Light Industrial.

Background and Application

The applicant proposes an expansion to the existing Costco fuel station at 30550 Stephenson Highway. The existing fuel station is located at the northeast corner of the site and consists of four (4) islands which contain eight (8) fuel dispensers and a total of sixteen (16) fueling positions. The image below depicts the layout of the existing fuel station.

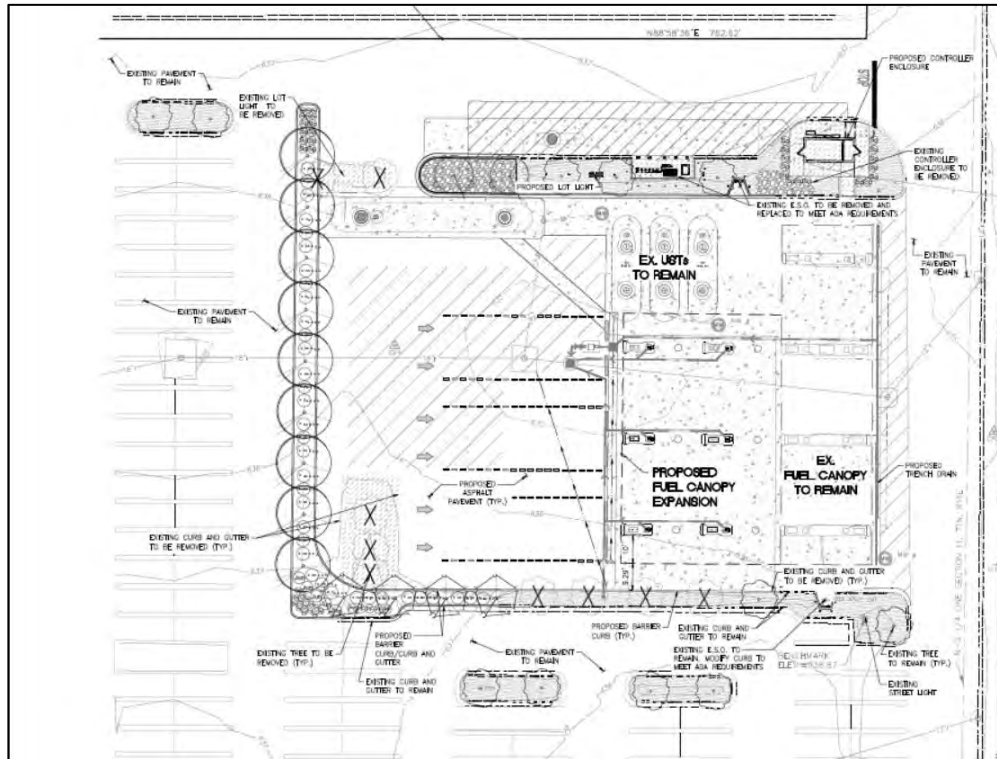
Existing Costco Fuel Station



The applicant proposes to add six (6) new dispensers and twelve (12) new fueling positions, providing a new total of twenty-eight (28) fueling positions. In addition, the applicant proposes a 4,957 square-foot

canopy expansion, a 40,000-gallon underground storage tank, a new controller enclosure, and improvements to site circulation and landscaping. The existing underground storage tank will be decommissioned and removed from the site. The proposed expansion/site improvements are depicted in the image below.

Proposed Fuel Station Expansion



The subject property is zoned M-1, Light Industrial. Per Section **10.329(4)** fuel stations may be permitted as a special land use in the M-1 district as an *'other use of a similar and no more objectionable character.'* City Council granted special approval for the original fuel station on January 11th, 1999.

The applicant has submitted a preliminary site plan and concept color renderings for the project. In addition to the fuel canopy expansion, the applicant proposes to extend the existing southern curbed landscape island to the west and north to allow for proper circulation and vehicle queuing. The canopy expansion will match the design and appearance of the existing canopy.

Requests for special approval are subject to the following criteria, as outlined in Section **10.201(4)**:

The use shall be designed and located so that it is compatible with the surrounding properties, neighborhood and vicinity. At a minimum, this shall include:

1. *Location of use(s) on site;*
2. *Height of all improvements and structures;*
3. *Adjacent conforming land uses;*
4. *Need for proposed use in specified areas of the city;*
5. *Conformance with future land use plans for the area as adopted by the planning commission;*
6. *Compatibility with the permitted principal uses allowed in the zoning district where the special approval use is requested.*

Additional criteria for reviewing special uses are contained at the end of this report.

Existing Zoning and Land Use

The table below denotes existing adjacent land uses and zoning designations.

	Existing Land Use	Existing Zoning
Site	Costco Wholesale	M-1, Light Industrial
North	Industrial	M-1, Light Industrial
South	Industrial/Office	M-1, Light Industrial
East	I-75	-
West (across Stephenson Hwy)	Industrial/Office	M-1, Light Industrial

The subject site is zoned M-1, Light Industrial, which is, *“designed so as to primarily accommodate wholesale activities, warehouses, and industrial operations whose external, physical effects are restricted to the area of the district and in no manner affects in a detrimental way any of the surrounding districts.”*

The site is located along the Stephenson Industrial corridor and immediately abuts I-75 to the east. Adjacent land uses primarily consist of light industrial and office uses.

Existing Fuel Station (looking east)



Future Land Use and Master Plan

The table below denotes adjacent future land use designations as contained within the 2021 Madison Heights Master Plan.

	Future Land Use
Site	Industrial
North	Industrial
South	Industrial
East	I-75
West (across Stephenson Hwy)	Industrial

The future land use designation of the subject site and adjacent properties is ‘Industrial.’ Per the Master Plan, the Industrial designation is intended to, *“accommodate manufacturing, processing, warehousing, storage of raw materials and intermediate and finished products, industrial service providers, industrial parks, and industrial research activities [...]. Some ancillary commercial uses would help improve walkability in these areas and support workers in these industrial areas.”*

Staff Analysis

While a new stand-alone fuel station would likely not be an appropriate use along the Stephenson Highway industrial corridor, staff notes that the existing Costco fuel station has been in existence since 1999. The fuel station is tucked away toward the northeast corner of the site and is not easily visible from Stephenson Highway. The project narrative states that the improvements will result in shorter queue wait times for customers and will improve efficiency at the pumps. Further, staff believes that the proposed circulation improvements will eliminate vehicular conflict points in the parking lot, while the additional landscaping will help to break up the expanse of concrete.

Findings and Recommendation

Staff offers the following findings for City Council consideration:

1. The applicant requests special use approval for the expansion of an existing fuel station at Costco, 30550 Stephenson Highway. The site is zoned M-1, Light Industrial.
2. The proposed fuel station expansion is compatible with existing adjacent uses, which include industrial and office uses. In the M-1 zoning district, the expanded use can be considered an *“other use of a similar and no more objectionable character,”* per section 10.329(4).
3. The proposed fuel station expansion can be considered an *“ancillary commercial use”* within the Industrial future land use classification.
4. The proposed fuel station expansion is consistent with the special use criteria of Section 10.201(4).
5. The Site Plan Review Committee (SPRC) reviewed the proposed special approval request at their August 10th, 2022 meeting and did not cite concerns regarding the expanded use. Separate SPRC approval will be required for the site plan.

Based on these findings, staff recommends that City Council approve special use request PSP 22-09.

Next Step

After the public hearing and discussion, City Council may take action on the requested special use. **Any motion shall include concise findings based upon the special approval review standards and criteria, Section 10.201(4).**

Pertinent Zoning Ordinance Sections

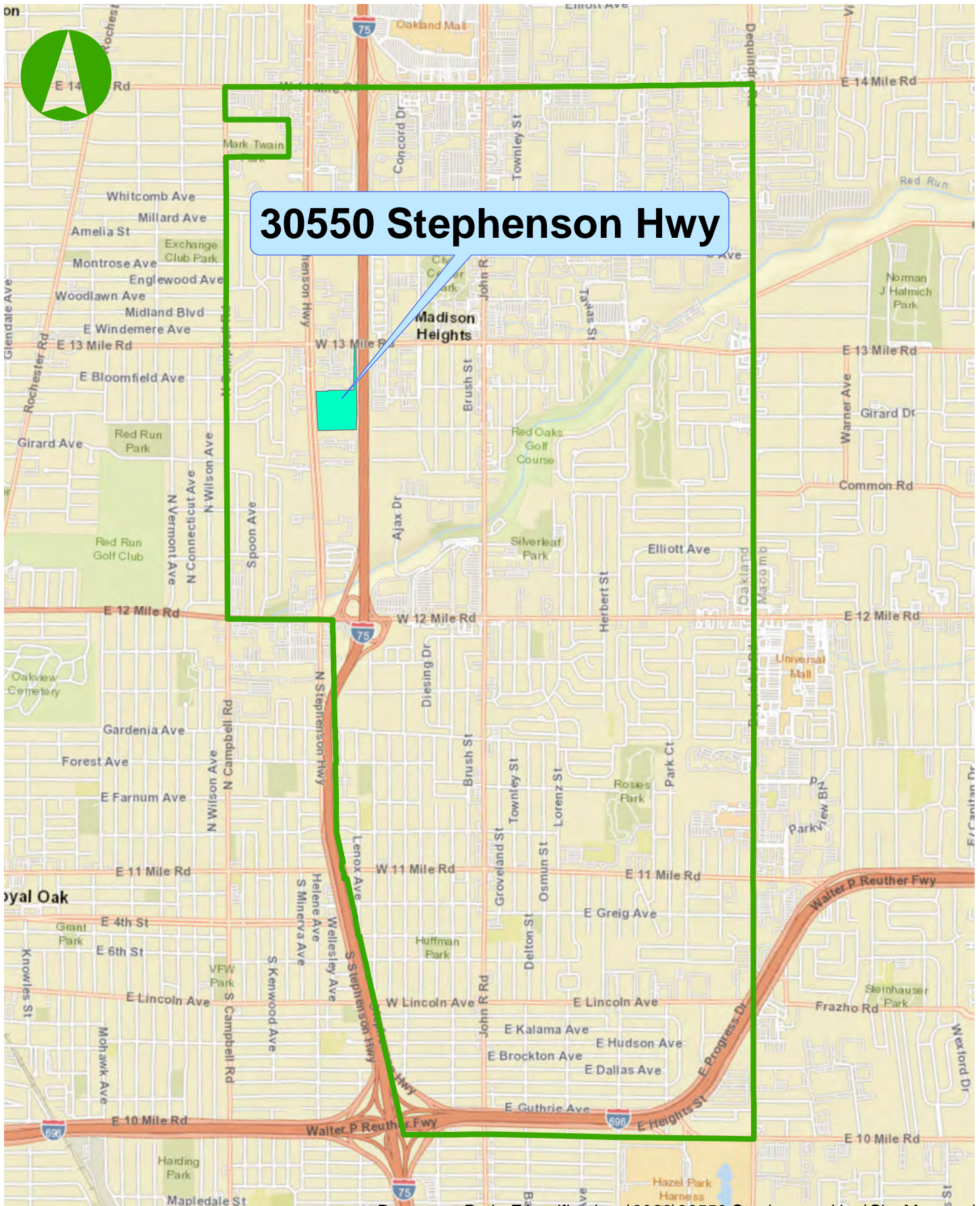
Section 10.201 – *Special Approval Use Review Procedures and Requirements*

- (4) *Review standards and criteria.* The city council shall consider the following standards and criteria in their review of all special approval use requests:
- (a) Site plans submitted for special approval uses shall be prepared in conformance with and contain all information as outlined in Section 10.514. Site Plan Review.
 - (b) All design standards or criteria imposed on specific special approval uses elsewhere in this Ordinance shall be met.
 - (c) The use shall be designed and located so that it is compatible with the surrounding properties, neighborhood and vicinity. At a minimum, this shall include:
 - 1. Location of use(s) on site;
 - 2. Height of all improvements and structures;
 - 3. Adjacent conforming land uses;
 - 4. Need for proposed use in specified areas of the city;
 - 5. Conformance with future land use plans for the area as adopted by the planning commission; and
 - 6. Compatibility with the permitted principal uses allowed in the zoning district where the special approval use is requested.
 - (d) Ingress/egress to the use shall be controlled to assure maximum vehicular and pedestrian safety, convenience and minimum traffic impact on adjacent roads, drives and uses including, but not limited to:
 - 1. Reduction in the number of ingress/egress points through elimination, minimization and/or consolidation of drives and/or curb cuts;
 - 2. Proximity and relation to intersections, specifically with regard to distance from drive(s) to intersection(s);
 - 3. Reduction/elimination of pedestrian/vehicular traffic conflicts;
 - 4. Adequacy of sight distances;
 - 5. Location and access of off-street parking;
 - 6. Location and/or potential use of service drives to access multiple parcels, reducing the number of access points necessary to serve the parcels.
 - (e) Screening shall be provided along all property lines, where council determines such screening is necessary to minimize impact of the use on adjacent properties or uses.
 - (f) The use shall be properly served by utilities.
 - (g) The use shall not have an adverse effect on the environment beyond the normal effects of permitted principal uses in the same zoning district and shall not result in an impairment, pollution, and/or destruction of the air, water, and natural resources.
 - (h) The use shall be specifically scrutinized for conformance with the performance standards outlined in section 10.509 of this Ordinance.
 - (i) The proposed use shall be designed as to location, size, intensity, site layout, and periods of operation to eliminate any possible nuisances which might be noxious to the occupants of any other nearby properties. The use shall not involve uses, activities, processes, materials, equipment and conditions of

operation that will be detrimental to any persons, property, or the general welfare by reason of excessive smoke, fumes, glare, noise, vibration, odors, and adverse environmental impacts.

- (j) The proposed use does not impose an unreasonable burden upon public services and utilities in relation to the burden imposed by permitted principal uses in the same zoning district.
- (k) The city council may impose conditions in granting special approval that it deems necessary to fulfill the spirit and purpose of this Ordinance. The conditions may include those necessary to ensure that public services and facilities affected by a proposed land use or activity will be capable of accommodating increased service and facility loads caused by the land use or activity, to protect the natural environment and conserve natural resources and energy, to ensure compatibility with adjacent uses of land, and to promote the use of land in a socially and economically desirable manner. Conditions imposed shall:
 - 1. Be designed to protect natural resources, the health, safety and welfare, as well as the social and economic well-being of those who will use the land use or activity under consideration, residents and landowners immediately adjacent to the proposed land use or activity, and the community as a whole.
 - 2. Be related to the valid exercise of the police power and purposes that are affected by the proposed use or activity.
 - 3. Be necessary to meet the intent and purpose of the zoning regulations; be related to the standards established in this Ordinance for the land use or activity under consideration (if applicable); and be necessary to ensure compliance with those standards.
 - 4. Provide adequate safeguards as deemed necessary for the protection of the general welfare and individual property rights, and for ensuring that the intent and objectives of this Ordinance will be observed. The breach of any condition, safeguard or requirement, and the failure to correct such breach within 30 days after an order to correct is issued by the city shall be reason for immediate revocation of the special approval. Conditions and requirements stated as a part of special use permit authorizations shall be continuing obligations of the holders of such permits and are binding upon their heirs and assigns and upon any persons taking title to the affected property while such special use permit is in effect.
- (l) The discontinuance of a special use after a specified time may be a condition to the issuance of the permit. Renewal of a special use permit may be granted after a review and determination by the city council that continuing private need and public benefit will be served by such renewal. Renewal applications shall be in accord with standards and requirements in effect at the time that the renewal is requested.

SA CASE: 22 - 09

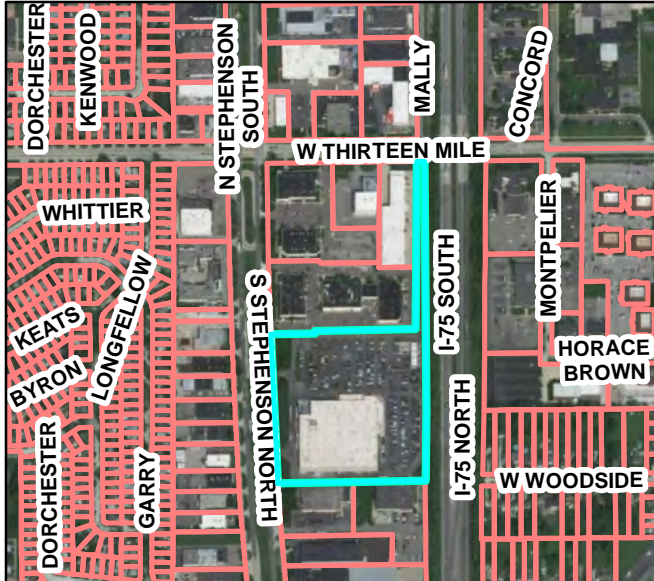


Site Address: 30550 Stephenson Hwy



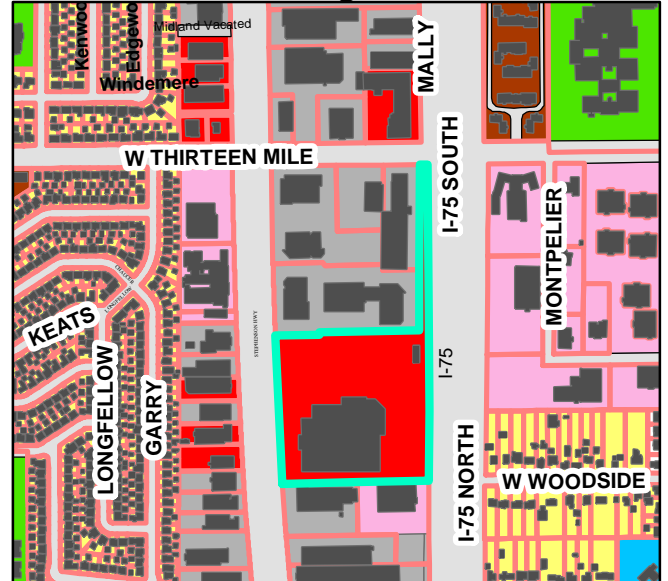
Click for maps

Aerial



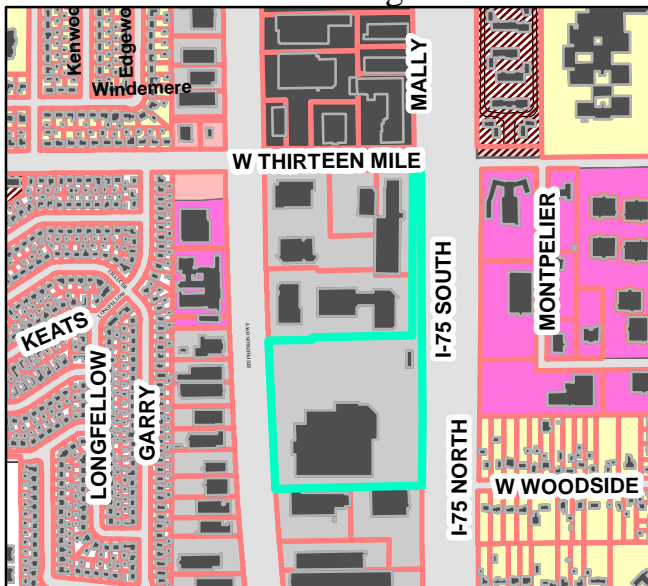
- 30550 Stephenson Hwy
- Parcels

Existing Land Use



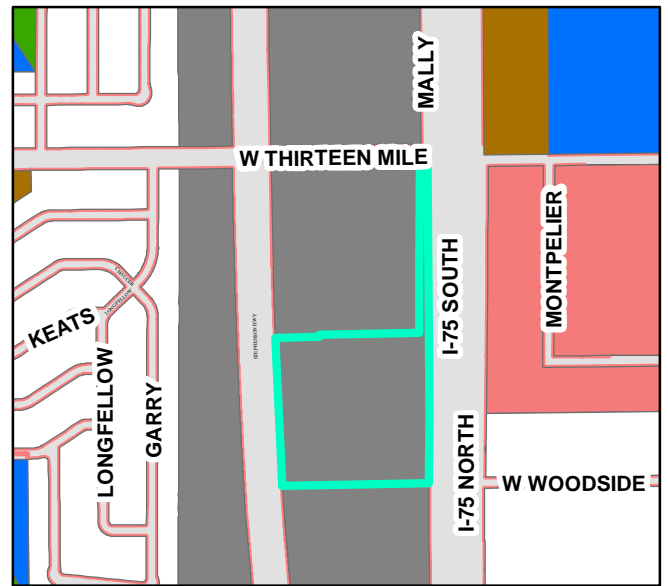
- 30550 Stephenson Hwy
- Buildings
- Parcels
- Single And Two Family
- Multiple Family
- Office
- Commercial
- Industrial
- School
- Quasi-public

Zoning



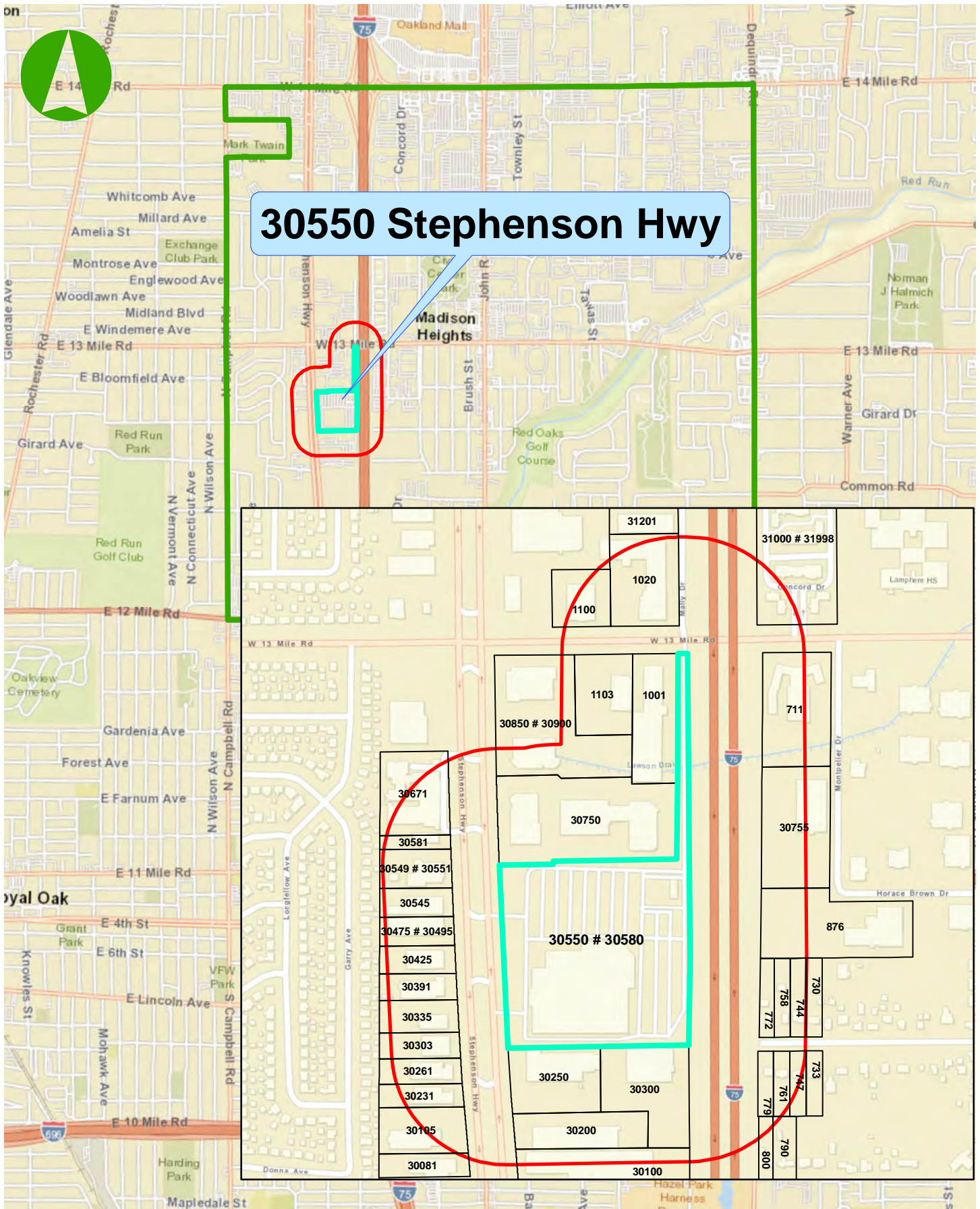
- 30550 Stephenson Hwy
- Buildings
- Parcels
- R-2 Residential
- R-3 Residential
- R-M Multiple Family Res.
- O-1 Office
- B-1 Local Business
- M-1 Light Industrial
- M-2 Heavy Industrial

Future Land Use



- 30550 Stephenson Hwy
- Single Family
- Multiple Family
- Office
- Commercial
- Industrial
- Public and Schools
- Recreation
- Conservation
- Mixed Use Innovation

SA CASE: 22 - 09
BUFFER 500 FT



NOTICE OF PUBLIC HEARING

Notice is hereby given that the City Council for the City of Madison Heights will hold a public hearing on **Monday, September 12th, 2022 at 7:30 p.m. in the Training Room at Fire Station #1 located at 31313 Brush Street, Madison Heights, Michigan 48071** to consider the following special approval request:

Case # PSP 22-09

The applicant, Costco Wholesale c/o Barghausen Consulting Engineers, Inc., requests Special Approval from City Council under Section 10.332A of the Madison Heights Zoning Ordinance for an expanded fuel facility (*'other uses of a similar and no more objectionable character'*) at 30550 Stephenson Highway, PIN 44-25-11-127-024. The property is currently zoned M-1, Light Industrial.

The application and any supporting documents can be viewed during regular business hours at the Community and Economic Development Department. In addition, the agenda item can be viewed online after 4:00 p.m. on the Friday prior to the meeting at www.madison-heights.org in the Agenda Center.

For further information, please contact the Community and Economic Development Department at (248) 583-0831.

Cheryl Rottmann, CMC
City Clerk
(248) 583-0826



**CITY OF MADISON HEIGHTS
COMMUNITY DEVELOPMENT DEPARTMENT
PETITION FOR USE PERMITTED BY
SPECIAL APPROVAL**

FOR OFFICE USE ONLY	
Request	No.
Date	Filed
Approved	by CDD:
Approved for Hearing: _____	

I (we) the under signed, do hereby apply and petition the City of Madison Heights for a Special Approval Use Permit and provide the following information.

(Application must be typed)

44-25-11-127-024

Building Address: 30550 Stephenson Highway Madison Heights, MI 48071 Tax ID No.: ~~44-25-511-127-001~~

APPLICANT INFORMATION

Name: Costco Wholesale, Kayleen Burnett c/o Barghausen Consulting Engineers, Inc., Julie Anderson
Phone No.: 425-656-7403 Fax No.: _____
Mailing Address: 18215 72nd Ave S City, State, Zip: Kent, WA 98032
(Notices will be mailed to this address)
Driver's License No.: n/a Date of Birth: n/a
Interest in Property: Owner Representative

BUILDING & BUSINESS INFORMATION

Zoning District: M-1 Use Requested Pursuant to Section 10.328 of the Zoning Ordinance
Explain Requested Use in Detail: Please see enclosed Project Narrative.

The above referenced parcel is known as: (Lots(s) Acreage Parcel (s)) 11 of Supervisor's Plat of Royal Acres
Subdivision (if platted lot(s)) and is located on the N S E (W) (Circle One) side of I-75 Freeway Street/Road between
Stephenson Hwy Street/Road and W 13 Mile Street / Road.

Hours of Operation: Same as existing.
Property Frontage: 789' Width/Depth: 813' No. of Parking Spaces: 642 Private Lot ☒ Shared Lot _____
No. of Floors: 1 Max. No. of Employees: n/a Male n/a Female n/a No. on Largest Single Shift: n/a
No. of Seats for Restaurant or Assembly Uses: n/a Capacity of Waiting Area: n/a
Building: New _____ or Existing ☒ Will Additions or Alterations to the Building be Required? Yes
Explain: Please see enclosed Project Narrative.
Describe Any Other Site Improvements to be Made: Please see enclosed Project Narrative.

Building Owner Name: Costco Wholesale c/o Kayleen Burnett Phone No.: 425-313-8100 Fax No.: _____
Mailing Address: 999 Lake Drive City: Issaquah, WA Zip: 98027
(Notices will be mailed to this address)

**Note: All blanks and boxes above must be completed. Use N/A where appropriate.
CONTINUED ON REVERSE SIDE**



**PETITION FOR USE PERMITTED BY
SPECIAL APPROVAL (Continued)**

Include one (1) copies of a site plan, no larger than 11 x 17 inches, which meets the requirements of Section 10.514 of the Zoning Ordinance of Madison Heights and the required seven hundred and fifty dollar fee (\$750.00) plus a site plan application.

This petition / application must be signed by both the Owner in Fee of the property and the Applicant prior to submittal. Applicant(s) and property owner(s) hereby consent to city staff, board and commission members, and contractors to access the property for purposes of evaluating the site for the requested action(s).

FOR THE OWNER:

Signature Kayleen Burnett
Printed KAYLEEN BURNETT Name
Date 5/11/22

FOR THE APPLICANT IF NOT THE OWNER:

Signature _____
Printed _____ Name
Date _____

NOTARY:

On this 11 day of May, 2022
Before me personally appeared
Kayleen Burnett to me known to be the
person who executed the forgoing instrument, and
acknowledged that he executed the same as his free act
and deed.

Notary's
Signature S. Gardner
Notary's
Printed Name S. Gardner

Notary public, State of Michigan, Washington
County of King

My commission expires 5-6-25
Acting in the County of King

NOTARY:

On this _____ day of _____
Before me personally appeared
_____ to me known to be the
person who executed the forgoing instrument, and
acknowledged that he executed the same as his free act
and deed.

Notary's
Signature _____
Notary's
Printed Name _____

Notary public, State of Michigan,
County of _____

My commission expires _____
Acting in the County of _____



OFFICE USE ONLY

\$750.00 Fee Paid 7-27-22 Receipt Number 111958 By JS Date: 7-27-22
One Site Plan Attached no larger than 11 x 17 inches ☒ Yes ☐ No
Site Plan Application: SPR22-0014 Date: 7-27-22
Copies to C.D.D. _____
Notices Mailed to Properties Within 500 Feet _____
Council Action _____
Meeting Date _____



BARGHAUSEN

May 27, 2022

Email: MattLonnerstater@Madison-Heights.org

Mr. Matt Lonnerstater, City Planner
City of Madison Heights
Planning Division
300 West Thirteen Mile Road
Madison Heights, MI 48071

RE: **Special Use Permit and Site Plan Review**
Costco Gasoline - Expansion
30550 Stephenson Highway, Madison Heights, Michigan 48071
Costco Loc. No. 393 / Our Job No. 6319

Dear Mr. Lonnerstater:

On behalf of Costco Wholesale (Costco), Barghausen Consulting Engineers Inc. is submitting the required application forms, plans, and supporting documents for a Special Use Permit and Site Plan Review for the above-referenced project.

The project includes a 4,957-square-foot canopy expansion (8,808 square feet total), the installation of six (6) new multi-product dispensers (MPDs), four (4) remote fills, one (1) 40,000-gallon underground storage tank, one (1) 1,500-gallon fuel additive UST, a new controller enclosure, and associated site improvements. Specific site improvements include directional ground painting and modifications to the surrounding drive lanes, landscaping, and parking areas. In addition, the existing additive tank will be decommissioned and removed from the site.

The following items are enclosed for your review:

1. One (1) PDF copy of the signed Special Approval Application Form
2. One (1) PDF copy of the signed Site Plan Review Application Form
3. One (1) PDF copy of the Project Narrative
4. One (1) PDF copy of the Trip Generation and Queueing Summary Memorandum prepared by Kittelson & Associates, Inc., dated May 2, 2022
5. One (1) check issued by Costco Wholesale in the amount of \$1,661 for the Special Use Permit (\$750) and Site Plan Review (\$911) Fee (to be submitted separately)
6. One (1) 24- by 36-inch PDF copy of the Site Plan package, including:
 - a. Overall Site Plan (Sheet DD-1) prepared by Barghausen Consulting Engineers, Inc. dated, May 26, 2022
 - b. Detailed Site Plan (Sheet DD-2) prepared by Barghausen Consulting Engineers, Inc. dated, May 26, 2022
 - c. Fuel Facility Elevations (Sheet PG:1) prepared by MG2, dated May 20, 2022
 - d. Preliminary Site Plan (Sheet C1) prepared by Barghausen Consulting Engineers, Inc. dated, May 24, 2022
 - e. Preliminary Grading and Utility Plan (Sheet C2) prepared by Barghausen Consulting Engineers, Inc., dated May 24, 2022

BARGHAUSEN CONSULTING ENGINEERS, INC.

18215 72ND AVENUE SOUTH KENT, WA 98032 P) 425.251.6222 F) 425.251.8782
BRANCH OFFICES: CHEHALIS, WA KLAMATH FALLS, OR LONG BEACH, CA RICHLAND, WA ROSEVILLE, CA
barghausen.com

Mr. Matt Lonnerstater, City Planner
City of Madison Heights
Planning Division

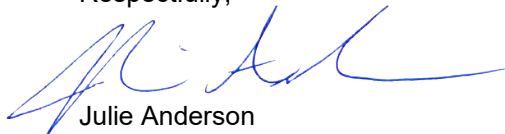
-2-

May 27, 2022

- f. Conceptual Landscape Exhibit (Sheets L-1 and L-2) prepared by Barghausen Consulting Engineers, Inc., dated May 10, 2022
- g. Site Lighting Plan (Sheet E-1) prepared by T.E., Inc., dated May 2022
- 7. One (1) 11- by 17-inch PDF copy of the Site Plan package

Should you have any questions or require any additional documentation, please contact me at (425) 656-7403 or by email at janderson@barghausen.com. Thank you for your assistance with this project.

Respectfully,



Julie Anderson
Senior Planner

JA/ps

6319c.060.docx

enc: As Noted

cc: Ms. Kim Katz, Costco Wholesale (Costco Google Drive w/enc)
Ms. Kayleen Burnett, Costco Wholesale (Costco Google Drive w/enc)
Mr. Jared Bassetti, MG2 (email w/enc)
Mr. Jay S. Grubb, Barghausen Consulting Engineers, Inc.
Mr. Chris S. Ferko, Barghausen Consulting Engineers, Inc.
Mr. Sean Anderson, Barghausen Consulting Engineers, Inc.
Ms. Erin Bang, Barghausen Consulting Engineers, Inc.



B A R G H A U S E N

LAND USE NARRATIVE

SPECIAL USE PERMIT & SITE PLAN REVIEW

Costco Wholesale Retail Fueling Facility Expansion

30550 Stephenson Highway
Madison Heights, MI 48071

CW No. 21-0597

Costco Loc. No. 393

Prepared for:
Costco Wholesale
999 Lake Drive
Issaquah, Washington 98027

May 26, 2022
Our Job No. 6319

Project Location:

The project site for the fueling facility expansion includes the queue area for the existing fueling facility and the surrounding parking area. The overall project disturbance area is approximately 26,740 square feet. The subject site is zoned Light Industrial District (M-1), and the fueling facility is a specially allowed use. The existing fueling facility was previously approved under Site Plan Approval PSPR 13-0007.

Project Description:

Overview

In consultation with City staff, Costco is seeking a Special Use Permit and Site Plan Review to allow for the expansion of the existing Costco Gasoline fueling facility. The project will include a 4,957 square-foot canopy expansion (8,808 square feet total), the installation of six (6) new multi-product dispensers (MPDs), four (4) remote fills, one (1) 40,000-gallon underground storage tank, one (1) 1,500-gallon fuel additive UST, a new controller enclosure, and associated site improvements. Specific site improvements include directional ground painting, and modifications to the surrounding drive lanes, landscaping, and parking areas. In addition, the existing underground fuel additive storage tank will be decommissioned and removed from the site. The expansion will result in shorter queue wait times and provide a more efficient fuel purchasing experience for Costco members.

Grading

Site grading will generally be limited to the vicinity of the existing fuel facility, and modified parking area adjacent to the fuel facility area. Site grading activities will include installation of canopy footings, fuel product piping, stormwater improvements associated with the under-canopy area, and new landscape islands. The project requires approximately 100 cubic yards of cut and 80 cubic yards of fill.

Parking and Circulation

The project will remove 23 parking spaces for an overall total of 642 parking spaces for the site. City parking standards require a minimum of one (1) parking space for every 250 square feet of gross retail floor area. The existing warehouse measures 135,622 square feet in size and, therefore, a minimum of 542 parking spaces is required for the Costco development. The site will continue to meet City minimum parking requirements after the fueling facility is expanded.

Transportation

The expansion is not anticipated to generate a significant number of new trips, and it will provide a more efficient fuel-purchasing experience for Costco members. Please see the attached Trip Generation and Queueing Summary Memorandum prepared by Kittelson & Associates, Inc. dated May 2, 2022, for additional information.

Architectural Design

The canopy expansion is designed to match the existing structure and includes a metal canopy fascia and metal wrapped canopy columns. The new controller enclosure is also designed to match the existing enclosure and includes a metal wrapped building with a flat roof.

Lighting and Signage

Under-canopy lighting fixtures and sign lighting fixtures will be updated to LED light fixtures for the existing canopy and expansion. Sign lighting will also be LED. The existing canopy signs are approximately 20 square-feet in size and will be replaced with in-kind 20 square-foot "Costco Wholesale" signs located and centered on each façade of the canopy.

Landscaping

The project will add approximately 80 square feet of landscape area, for an overall total of 5.21% of interior landscaping for the site and approximately 22,900 square feet of landscape area for the parking lot. City landscape standards require a minimum of five percent (5%) of interior landscape area and five (5) square feet of parking lot landscaping for every parking stall. Based on this ratio, approximately 3,210 square feet of parking lot landscaping is required for the site. The overall Costco development will continue to meet the City's minimum landscape standards after the fuel facility is expanded.

Construction

Construction of the fueling facility expansion and site improvements will be completed in a single phase and will commence after approval of the applicable permits. The existing fuel facility may remain open during construction, depending on construction sequencing.

Purpose of Request:

Site Plan Review

Pursuant to Madison Heights Municipal Code of Ordinances No. 252 Sec. 10.514, the approving body shall consider and require compliance with the following:

1. *All application and site plan review submittal criteria have been met.*

Response: The enclosed Site Plan and application includes all required submittal information and criteria as outlined in City Code Section 10.514 - Site Plan Review.

2. *The final site plan is in full conformance with all applicable Zoning Ordinance requirements;*

Response: The project site is zoned Light Industrial (M-1), in which fueling facilities are a specially approved use. The project will comply with the development standards of the Zoning Ordinance, as indicated in the table below:

Development Standard	Requirement	Response
Building Setback	Min. Front Setback: 50ft Min. Rear Setback: 0ft Min. Side Yard Setback: 20ft	The project will not encroach within the setback area.
Maximum Height	Maximum Building Height: 40ft	The maximum fuel canopy height is 17 feet 6 inches.
Landscaping	Minimum of 5% landscaping for the parking lot area. Minimum 5 square feet of parking lot landscaping for every parking stall (642 stalls x 5 sq. ft. = 3,210 sq. ft.).	The project will add approximately 80 square feet of landscape area, for an overall total of 5.21% of interior landscaping and approximately 22,900 square feet of landscape area for the development.
Parking	City Parking standards require a minimum of one (1) parking stall for every 250 square feet of retail space. (135,682/250 = 542 stalls)	The project will remove 23 parking stalls for a new total of 642 parking stalls for the site.

Development Standard	Requirement	Response
Signs	City sign standards allow a maximum sign area of 1 ½ square feet for each lineal foot of building frontage up to a maximum of 100 square feet. Based on this ratio, a maximum aggregate sign area of approximately 100 square feet is allowed for the fuel facility.	The project will include one (1) 20 square-foot "Costco Wholesale" sign located and centered on each façade of the canopy.
Lighting	City lighting standards require lighting to be recessed into the canopy and prevent glare.	The under-canopy lighting will be updated to LED lighting fixtures and will be directed so there is no direct glare source from the property.
Design Criteria	City design guidelines require the canopy design to be compatible with the Costco warehouse and adjacent properties.	The fuel canopy will be designed to match the existing Fuel Facility and includes a metal canopy fascia and metal wrapped canopy columns.

3. *The location of development features, including principal and accessory buildings, open spaces, parking areas, driveways, and sidewalks minimize possible adverse effects on adjacent properties and promote pedestrian and vehicular traffic safety.*

Response: The project will not impact any principal buildings, driveways, sidewalks, or pedestrian pathways, and will improve the processing capacity of the existing fuel facility and surrounding site circulation. As a result, the project will provide shorter queue wait times, a more efficient fuel purchasing experience for Costco members and the promotion of vehicular traffic safety. Please see the enclosed Trip Generation and Queueing Memorandum prepared by Kittelson & Associates, Inc. for further information.

4. *On-site and off-site circulation of both vehicular and pedestrian traffic will achieve both safety and convenience of persons and vehicles using the site.*

Response: The expansion will result in shorter fuel facility queues and will allow for the fuel truck to deliver fuel to the site outside of the queue area, resulting in a more efficient fuel purchasing experience for Costco members and improved on-site circulation. The project will not impact any off-site circulation and will achieve both safety and convenience of persons and vehicles using the site.

5. *Landscaping, earth berms, fencing, signs, and obscuring walls are of such a design and location that the proposed development's impact on existing and future uses in the immediate area and vicinity and on residents and occupants is minimized and harmonious.*

Response: The project will not change the current use of the site and the nature of the expansion will remain consistent with the existing fueling facility. The new landscaping will be designed to match the surrounding site landscaping and the new canopy signs will remain consistent with the general design of the existing signage. The project will not provide or impact any earth berms, fencing, or obscuring walls. The fueling facility will continue to be compatible

with the existing and future land uses in the vicinity, which consist of a variety of retail and commercial uses.

6. *Utility service, including proposed water, sanitary sewer and the development and the recommendation of the city's consulting engineer. Approvals required from any state or county department having jurisdiction, such as the department of health, drain commission or road commission, are a prerequisite to approval.*

Response: The project does not require the provision of water or sanitary sewer and will not impact existing water or sanitary sewer service for the site. The project will comply with all local, state, and federal regulations and will obtain all required permits or approvals.

7. *Notwithstanding any other provisions of this Ordinance, the city may require as a condition of final site plan approval, landscaping, berming, fencing, walls, drives or other appurtenances as necessary to promote the health, safety, and welfare of the community and achieve compliance with the standards of this Ordinance.*

Response: The project will not change the existing use of the facility which was found to comply with the provisions of the Ordinance under Site Plan Approval PSPR 13-0007. In addition, the expansion will comply with all local, state, and federal permitting requirements required to protect the public health, safety, and welfare.

Special Use Approval

Pursuant to Madison Heights Municipal Code of Ordinances No. 252 Sec. 10.201, the approving body shall consider the following standards and criteria in their review of all special approval use requests:

1. *Site plans submitted for Special Approval uses shall be prepared in conformance with and contain all information as outlined in Section 10.514-Site Plan Review;*

Response: The enclosed Site Plan has been prepared in conformance with and contains all required, applicable information as outlined in City Code Section 10.514 - Site Plan Review.

2. *All design standards or criteria imposed on Special Approval uses elsewhere in this ordinance shall be met.*

Response: The canopy expansion is designed to match the existing fueling canopy which includes a metal wrapped canopy fascia with metal wrapped canopy columns. The canopy will continue to meet City Design Standards as indicated in the table above.

3. *The use shall be design and located so that it is compatible with the surrounding properties, neighborhood and vicinity.*

Response: The expansion will not change the current use of the site and the nature and design of the expansion will remain consistent with the existing fueling facility. The fueling facility will continue to be compatible with the existing and future land uses in the vicinity, which consist of a variety of retail and commercial uses.

4. *Ingress/Egress to the use shall be controlled to assure maximum vehicular and pedestrian safety, convenience and minimum traffic impact on adjacent roads, drives and uses.*

Response: The project will not impact the existing ingress and egress to the site and is not anticipated to generate a significant increase in vehicle trips to the site. The project will reduce queue wait times and improve site circulation, resulting in a minimum traffic impact on adjacent

roads, drives, and uses. Please see the enclosed Trip Generation and Queueing Memorandum prepared by Kittelson and Associates, Inc. for further information.

5. *Screening shall be provided along all property lines, where Council determines such screening is necessary to minimize impact of the use on adjacent property or uses;*

Response: The project will not impact existing site screening and will remain compatible with surrounding development, which consists of a variety of commercial and retail uses.

6. *The use shall be properly served by utilities;*

Response: The project does not require any new water or sewer service and will not impact any existing water or sewer services for the site. The existing power service to the site will be upgraded to serve the expansion and the appropriate approvals will be obtained from the power purveyor prior to any utility work. The site will continue to be properly served by existing utilities after the expansion.

7. *The use shall not have an adverse effect on the environment beyond the normal effects of permitted principal uses in the same zoning district and shall not result in an impairment, pollution, and/or destruction of the air, water, and natural resources;*

Response: The project will comply with all local, state, and federal regulations required to not have an adverse effect on the environment beyond the normal effects of permitted principal uses in the same zoning district.

8. *The use shall be specifically scrutinized for conformance with the performance standards outlined in Section 10.509 of this ordinance;*

Response: The expansion will not change the existing use of the site and the site will continue to meet the performance standards outlined in Section 10.509 of the City Zoning Ordinance.

9. *The proposed use shall be designed as to location, size, intensity, site layout, and periods of operation to eliminate any possible nuisances which might be noxious to the occupants of any other nearby properties. The use shall not involve uses, activities, processes, materials, equipment and conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive smoke, fumes, glare, noise, vibration, odors, and adverse environmental impacts.*

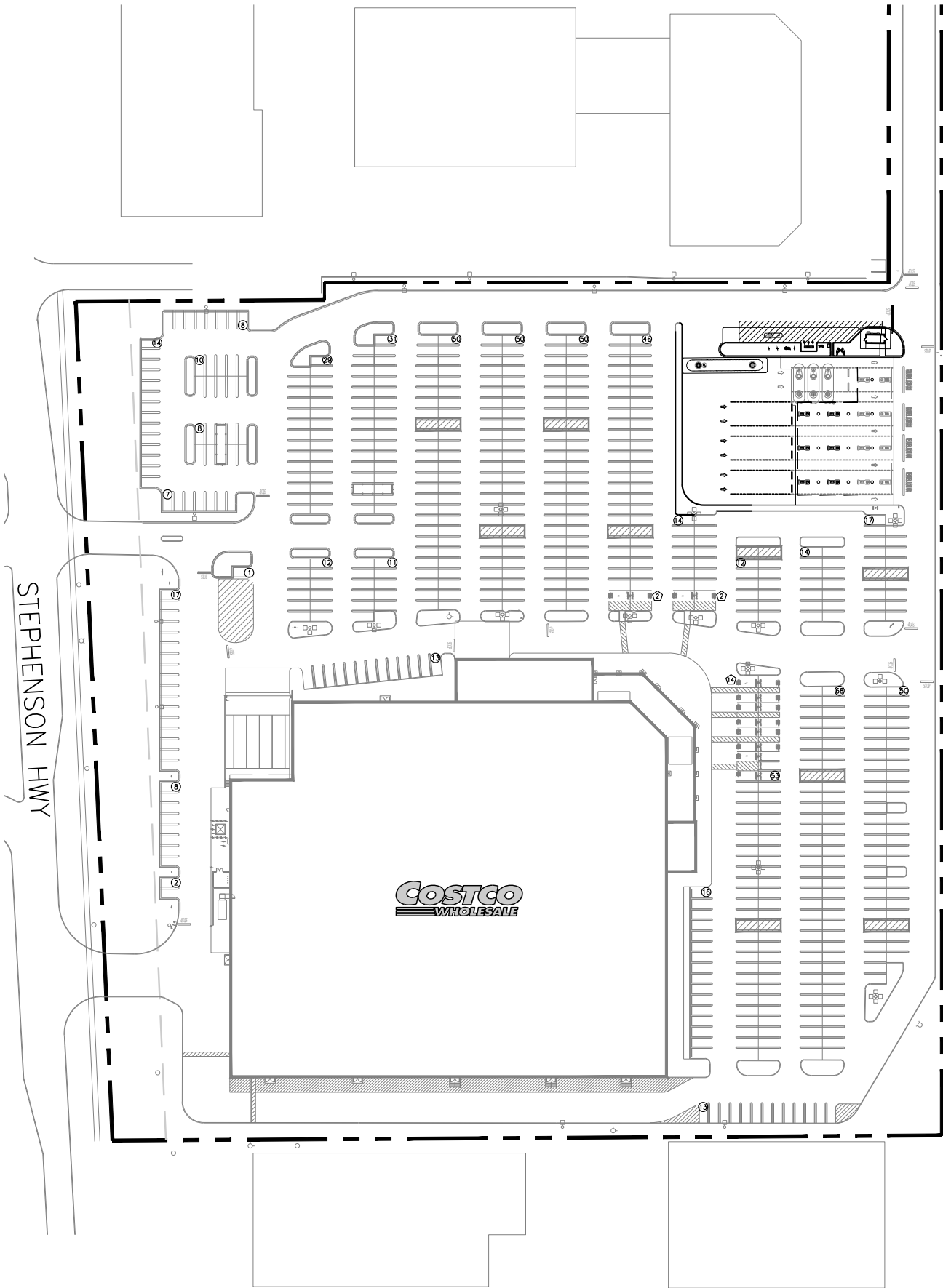
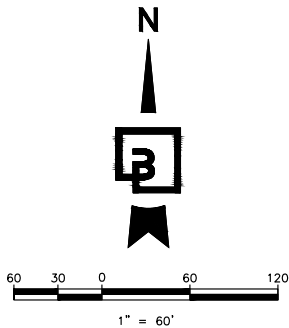
Response: The project will not change the existing use of the site, which was designed to avoid any nuisances to surrounding properties. The project will comply with all local, state, and federal regulations and permitting requirements required to protect persons, property or the general public welfare.

10. *The proposed use does not impose unreasonable burden upon public services and utilities in relation the burden imposed by permitted principal uses in the same zoning district.*

Response: The project will be adequately served by existing public services and utilities and does not require any new public services or utilities.

Conclusion:

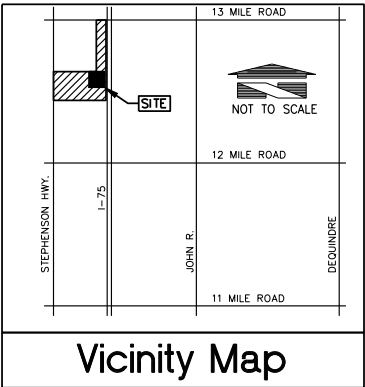
The responses above and application materials demonstrate that the expansion meets the approval criteria for a Special Use Permit and Site Plan Review. The City's approval of this application is respectfully requested.



NOTES

1. THIS PRELIMINARY SITE PLAN IS BASED ON A SITE PLAN BY MULVANNY G2 ARCHITECTURE DATED, 3/3/11. THIS PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CURRENT LAND SURVEY.
2. THE BUILDING SQUARE FOOTAGE AND PARKING SHOWN ON THIS PLAN IS BASED ON INFORMATION PROVIDED BY THE OWNER AND/OR OTHERS AND HAS NOT BEEN VERIFIED.

CHRYSLER FWY



PROJECT DATA

CLIENT:	COSTCO WHOLESALE 999 LAKE DRIVE ISSAQUAH, WA 98027
PROJECT ADDRESS:	30550 STEPHENSON HWY. MADISON HEIGHTS, MI 48071
ZONING:	TO BE DETERMINED
SITE AREA:	15.33 ACRES (667,579 S.F.)
BOUNDARIES INFORMATION:	THIS PLAN HAS BEEN PREPARED BY USING A SITE PLAN BY MULVANNY G2 ARCHITECTURE DATED 3/3/11.

BUILDING DATA:	
BUILDING AREA	130,422 S.F.
TIRE CENTER	5,200 S.F.
TOTAL BUILDING	135,622 S.F.


EXISTING PARKING DATA:	
EXISTING PARKING PROVIDED:	
① 10' WIDE STALLS	647 STALLS
①ac ACCESSIBLE STALLS	18 STALLS
TOTAL PROPOSED PARKING	665 STALLS
NO. OF STALLS PER 1000 S.F. OF BUILDING AREA:	4.90 STALLS

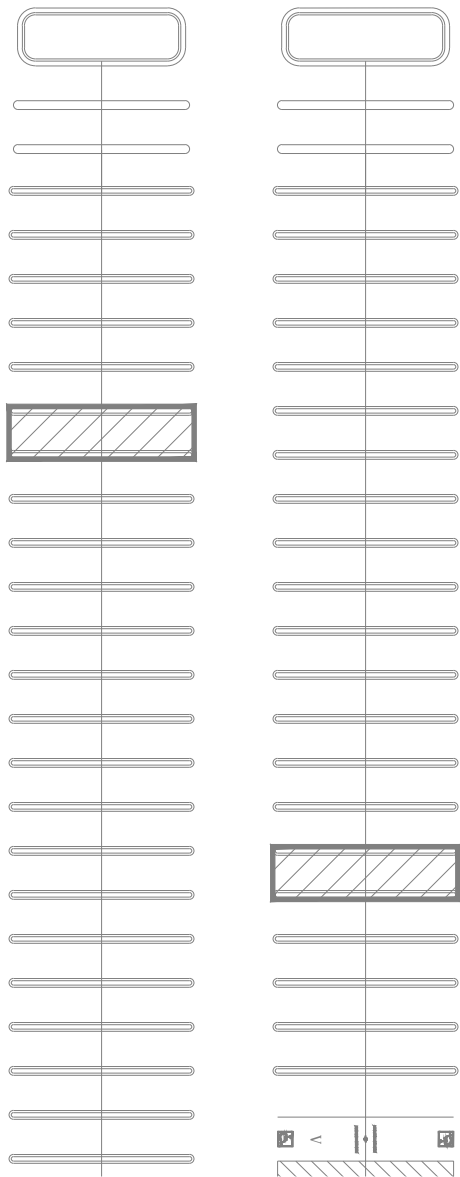
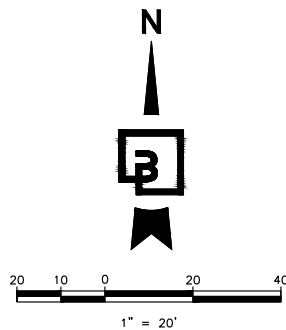
PROPOSED PARKING DATA:	
PROPOSED PARKING PROVIDED:	
① 10' WIDE STALLS	624 STALLS
①ac ACCESSIBLE STALLS	18 STALLS
TOTAL PROPOSED PARKING	642 STALLS
NO. OF STALLS PER 1000 S.F. OF BUILDING AREA:	4.73 STALLS

NOTES:
EXISTING CONDITIONS TO BE FIELD VERIFIED.

OVERALL SITE PLAN
30550 STEPHENSON HIGHWAY
MADISON HEIGHTS, MI 48071
LOCATION #393

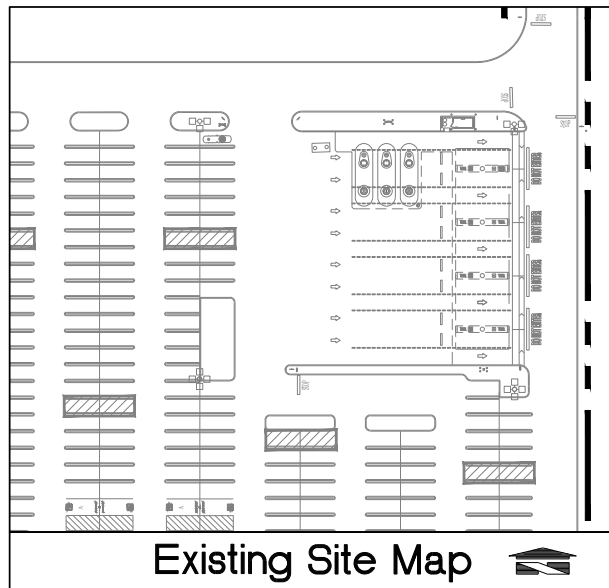
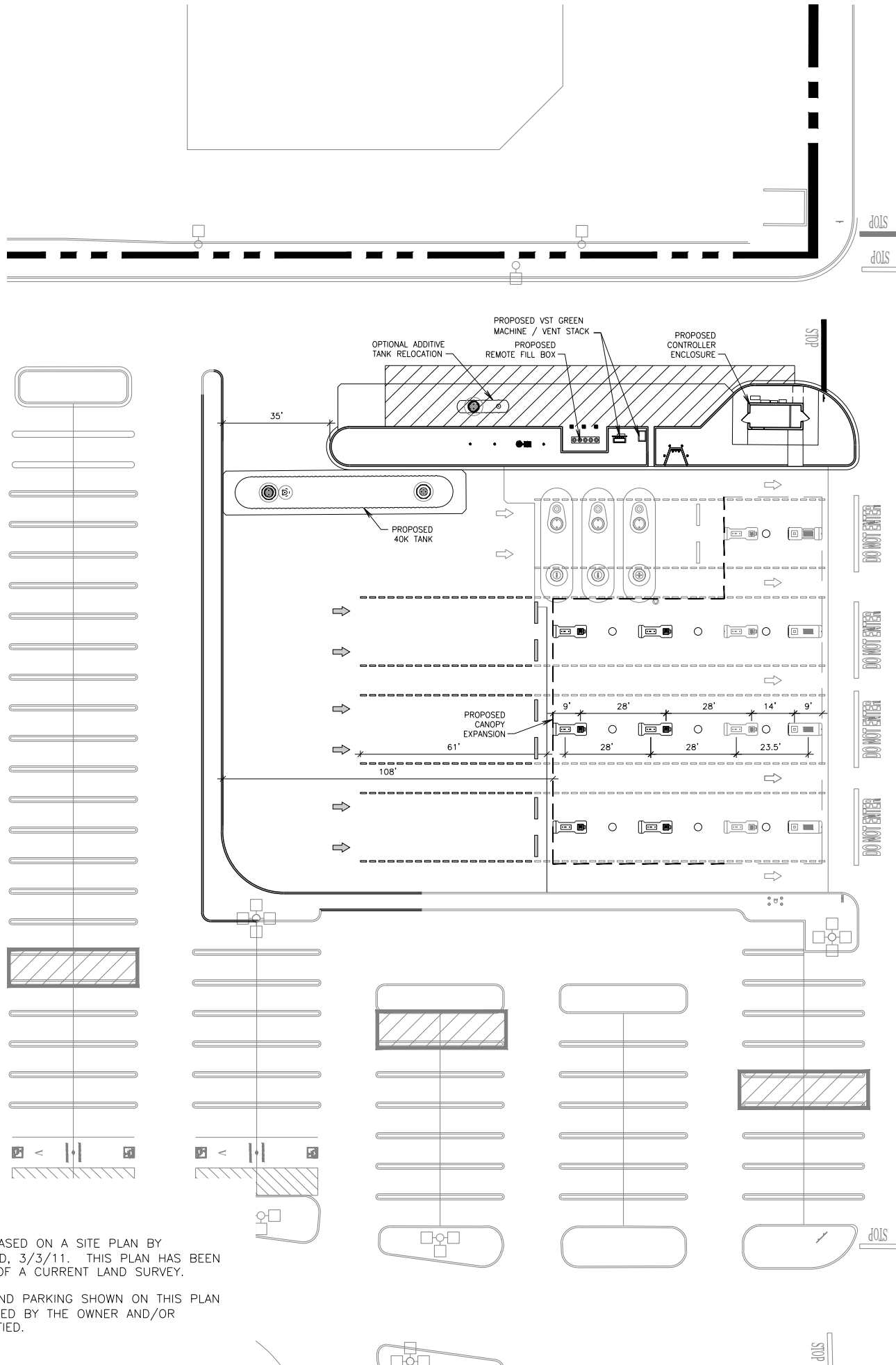
Costco GASOLINE
COSTCO WHOLESALE GAS STATION ADDITION
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

Job Number 6319	Sheet DD-1	 Barghausen Consulting Engineers, Inc. 18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com	Designed — Drawn — Checked — Approved — Date 04/26/22	Scale: Horizontal — Vertical —	Revision				
					No.	Date	By	Cd.	Appr.



NOTES

1. THIS PRELIMINARY SITE PLAN IS BASED ON A SITE PLAN BY MULVANNY G2 ARCHITECTURE DATED, 3/3/11. THIS PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CURRENT LAND SURVEY.
2. THE BUILDING SQUARE FOOTAGE AND PARKING SHOWN ON THIS PLAN IS BASED ON INFORMATION PROVIDED BY THE OWNER AND/OR OTHERS AND HAS NOT BEEN VERIFIED.



PROJECT DATA

CLIENT:	COSTCO WHOLESALE 999 LAKE DRIVE ISSAQUAH, WA 98027
PROJECT ADDRESS:	30550 STEPHENSON HWY. MADISON HEIGHTS, MI 48071
ZONING:	TO BE DETERMINED
SITE AREA:	15.33 ACRES (667,579 S.F.)
BOUNDARIES INFORMATION:	THIS PLAN HAS BEEN PREPARED BY USING A SITE PLAN BY MULVANNY G2 ARCHITECTURE DATED 3/3/11.

BUILDING DATA:	
BUILDING AREA	130,422 S.F.
TIRE CENTER	5,200 S.F.
TOTAL BUILDING	135,622 S.F.

EXISTING PARKING DATA:	
EXISTING PARKING PROVIDED:	
① 10' WIDE STALLS	647 STALLS
① _{ac} ACCESSIBLE STALLS	18 STALLS
TOTAL PROPOSED PARKING	665 STALLS
NO. OF STALLS PER 1000 S.F. OF BUILDING AREA:	4.90 STALLS

PROPOSED PARKING DATA:	
PROPOSED PARKING PROVIDED:	
① 10' WIDE STALLS	624 STALLS
① _{ac} ACCESSIBLE STALLS	18 STALLS
TOTAL PROPOSED PARKING	642 STALLS
NO. OF STALLS PER 1000 S.F. OF BUILDING AREA:	4.73 STALLS

NOTES:
EXISTING CONDITIONS TO BE FIELD VERIFIED.

Job Number
6319

Sheet
DD-2

For: **COSTCO GASOLINE**
COSTCO WHOLESALE GAS STATION ADDITION
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

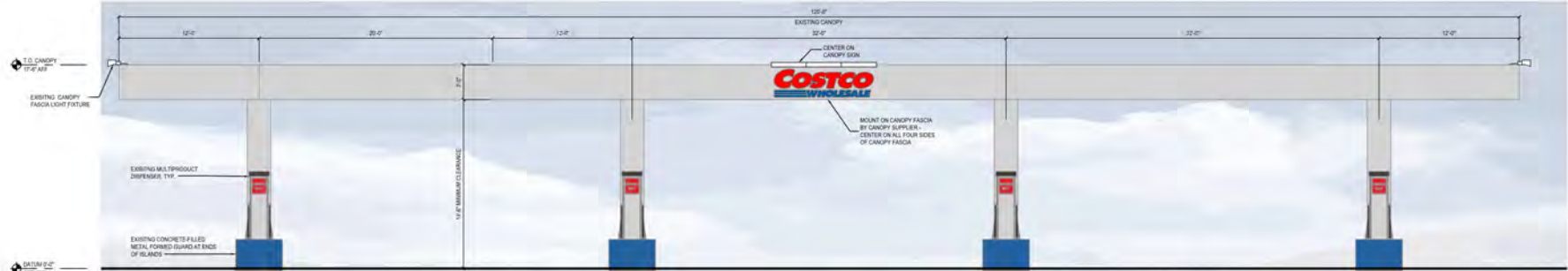
Scale:
Horizontal
Vertical

Designed
Drawn
Checked
Approved
Date 04/26/22

Barghausen
Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Revision
No. Date By Ccd. Appr.

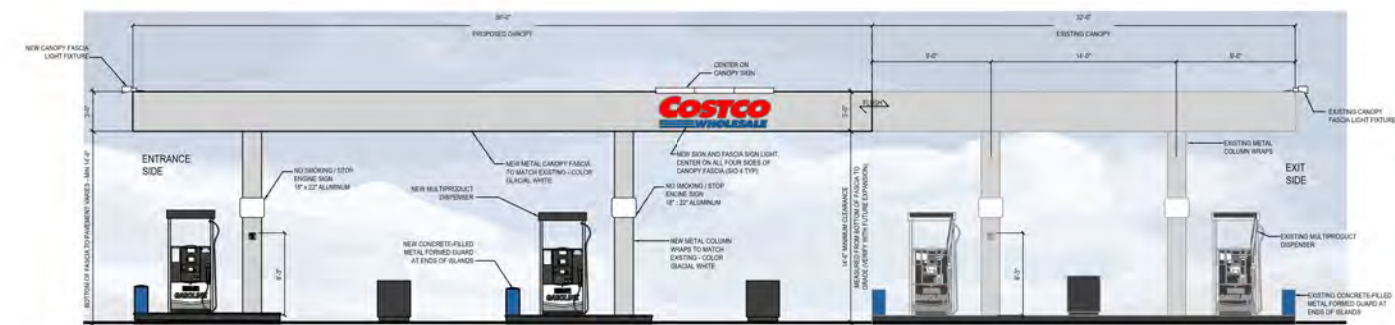
Title:
DETAILED SITE PLAN
30550 STEPHENSON HIGHWAY
MADISON HEIGHTS, MI 48071
LOCATION #393



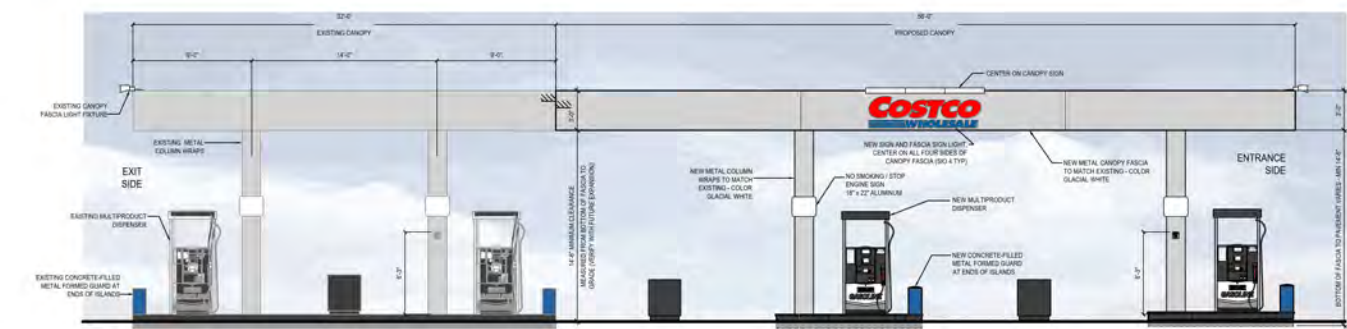
1 CANOPY & DISPENSER ISLANDS - EAST ELEVATION
SCALE: 1/4" = 1'-0"



2 CANOPY & DISPENSER ISLANDS - WEST ELEVATION
SCALE: 1/4" = 1'-0"



3 CANOPY & DISPENSER ISLANDS - SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

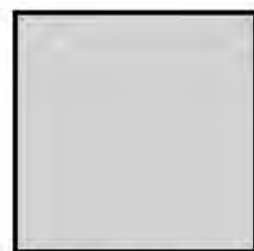


4 CANOPY & DISPENSER ISLANDS - NORTH ELEVATION
SCALE: 1/4" = 1'-0"

SIGNAGE AREA TABULATION (WALL SIGNS)			
SIGN	SIZE	AREA (S.F.) EA.	TOTAL S.F.
COSTCO WHOLESALE	2'-5 1/4" x 8'-6 5/8"	20.89 S.F.	82.32 S.F.
TOTAL SIGNAGE AREA			246.96 S.F.



19 CANOPY SIGNAGE
SCALE: 1/2" = 1'-0"



METAL FASCIA
& COLUMNS
GLACIAL WHITE

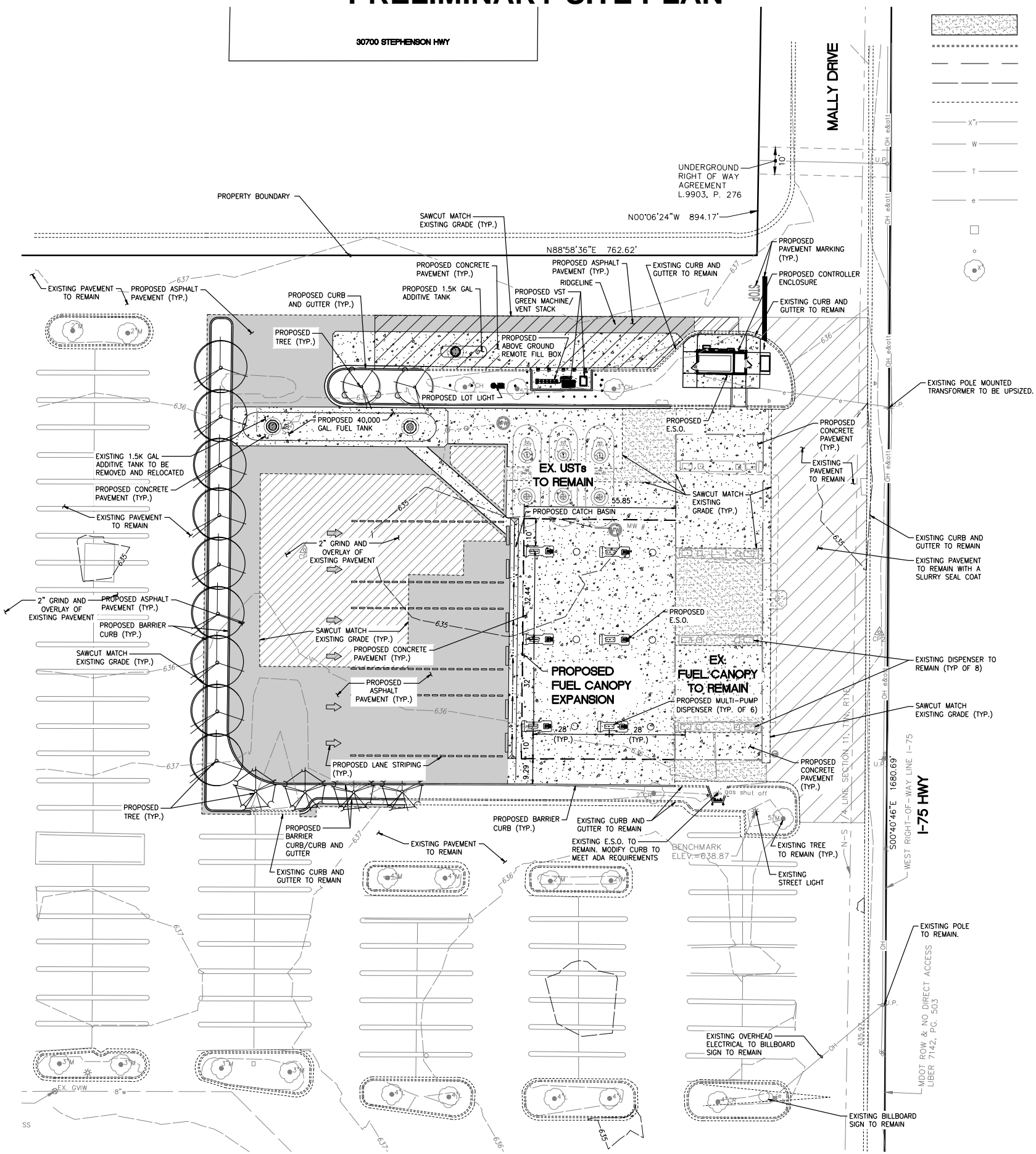
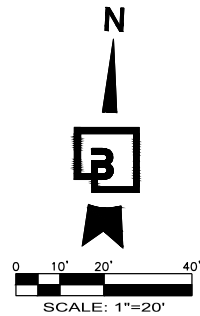


SIGNAGE
COSTCO BLUE



SIGNAGE
COSTCO RED

PRELIMINARY SITE PLAN



	EXISTING CONCRETE		SLURRY SEAL
	EXISTING CURB		2" PAVEMENT GRIND AND OVERLAY
	EXISTING CANOPY DRIPLINE		PROPOSED ASPHALT
	EXISTING EASEMENT		PROPOSED CONCRETE
	EXISTING EDGE OF PAVEMENT		PROPOSED CURB AND GUTTER
	EXISTING STORM DRAIN		SAWCUT LINE
	EXISTING UNDERGROUND WATER LINE		PROPOSED STORM PIPE
	EXISTING UNDERGROUND TELEPHONE LINE		PROPOSED CANOPY
	EXISTING UNDERGROUND POWER		PROPOSED CLEANOUT
	EXISTING STORM DRAIN CATCH BASIN		FLOW PATH
	EXISTING STORM CLEANOUT		PROPOSED GRADING SLOPE
	EXISTING TREE TO REMAIN		PROPOSED MULTI-PRODUCT DISPENSER

- NOTES:**
- EXISTING UNDISTURBED ASPHALT PAVING AREAS IN THE VICINITY OF THE FUELING FACILITY ARE TO BE SLURRY SEALED AND RE-STRIPED.
 - EXISTING CONDITIONS SHOWN ARE FROM TOPOGRAPHIC SURVEY PREPARED BY MIDWESTERN CONSULTING DATED 01/31/2022. THE EXISTING RECORD CONDITIONS SHOWN ARE BASED ON ORIGINAL DESIGN PDF FILES PREPARED BY BARGHAUSEN DATED 03/26/1999 AND DESIGN PDF FILES PREPARED BY CEC DATED 05/2013. THE PROPOSED IMPROVEMENTS SHOWN ARE BASED ON DRAWINGS PREPARED BY BARGHAUSEN DATED ON 12/10/2021.

CANOPY COVERAGE AREA:

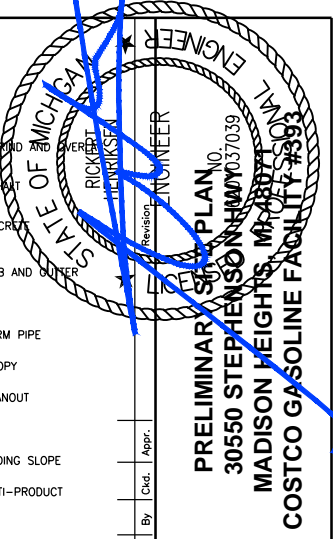
EXISTING AREA:	3,851 SF
PROPOSED ADDITIONAL AREA:	4,957 SF
TOTAL AREA AFTER EXPANSION:	8,808 SF

DISTURBED AREA SUMMARY:

TOTAL AREA =	26,740 SF
IMPERVIOUS:	EXISTING 24,890 SF PROPOSED 24,600 SF
PERVIOUS:	1,850 SF 2,140 SF

PROJECT DATA:

PROJECT ADDRESS:	30550 STEPHENSON HIGHWAY
JURISDICTION:	MADISON HEIGHTS
APN:	44-25-11-127-024
ZONING:	LIGHT INDUSTRIAL DISTRICT (M-1)



Title: PRELIMINARY SITE PLAN
30550 STEPHENSON HWY
MADISON HEIGHTS, MI 48061
COSTCO GASOLINE FACILITY #393

For: **COSTCO WHOLESALE**
999 LAKE DRIVE
ISSAQUAH, WA 98027

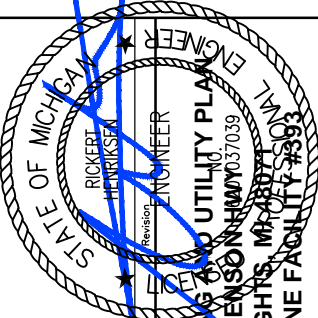
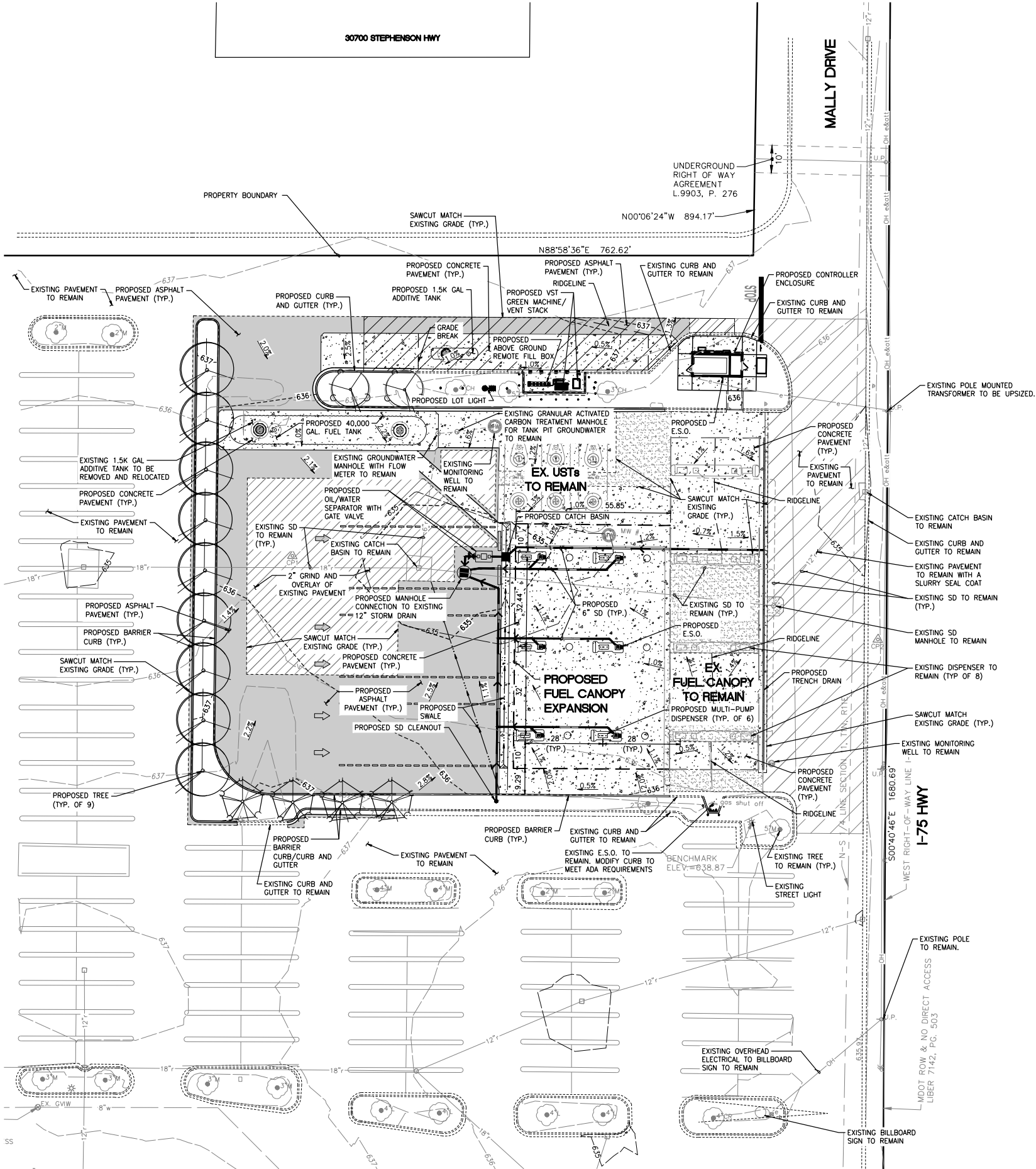
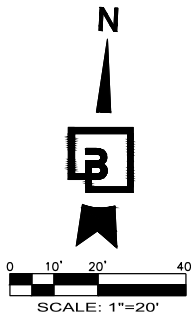
PRELIMINARY

Scale:	Horizontal 1" = 20'	Vertical N/A
Designed	Drawn	Checked
MESE	CEC	CEC
Approved	Date	12/17/21

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com



PRELIMINARY GRADING AND UTILITY PLAN



Title: PRELIMINARY GRADING AND UTILITY PLAN
30550 STEPHENSON HWY
MADISON HEIGHTS, MI 48061
COSTCO GASOLINE FACILITY #393

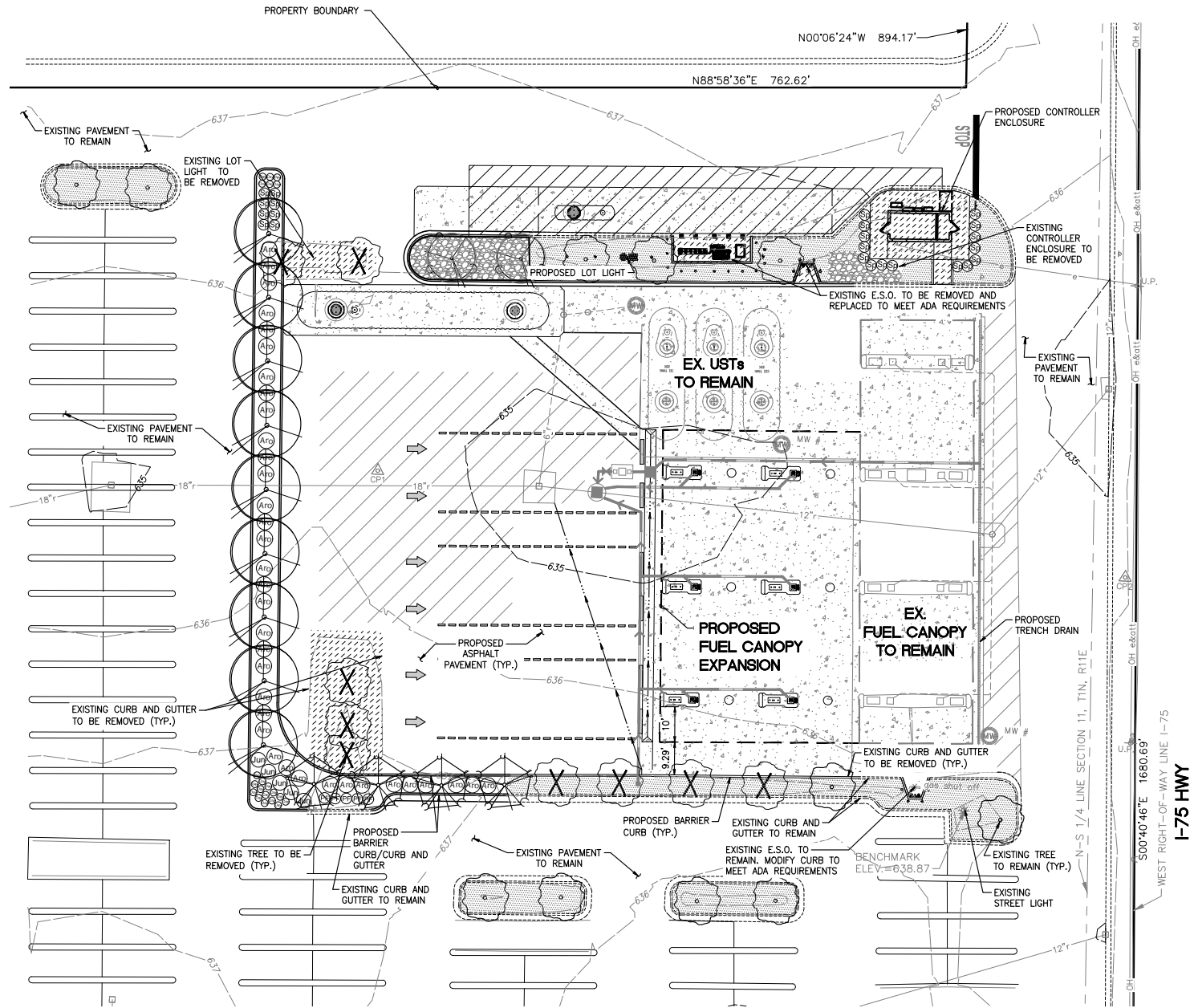
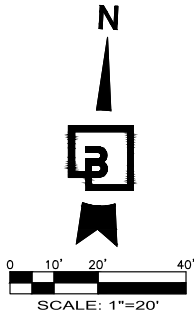
For: **COSTCO WHOLESALE**
999 LAKE DRIVE
ISSAQUAH, WA 98027

Scale: Horizontal 1" = 20' Vertical N/A
Designed: SN Draw: SN Checked: MESP Approved: CEL Date: 12/17/21

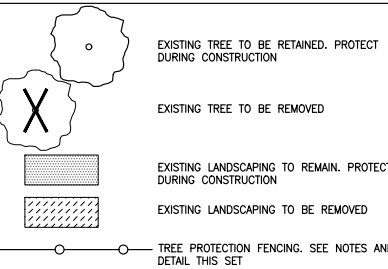
Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number: 6319
Sheet: C2 of 2










CONCEPTUAL LANDSCAPE EXHIBIT



LEGEND



PLANT SCHEDULE

SYMBOL	BOTANICAL / COMMON NAME	SIZE CONDITION	SPACING	QTY.	REMARKS
TREES:					
	MALUS 'RED BARON' / FL. CRABAPPLE	2" CAL.	AS SHOWN	4	FULL, WELL-BRANCHED, SINGLE CENTRAL LEADER
	GLEDITSIA TRI. INERMIS 'SHADEMASTER' / THORNLESS HONEYLOCUST	3" CAL.	AS SHOWN	9	FULL, WELL-BRANCHED, SINGLE CENTRAL LEADER
	ACER x FREEMANII 'AUTUMN BLAZE' / RED MAPLE	3" CAL.	AS SHOWN	2	FULL, WELL-BRANCHED, SINGLE CENTRAL LEADER
SHRUBS and ORNAMENTAL GRASSES:					
	ARONIA MELANOCARPA AUMTUMN MAGIC' / CHOKEBERRY	5 GALLON	AS SHOWN	36	FULL & BUSHY
	POTENTILLA FRUITICOSA 'ABBOTSWOOD' / SHRUBBY CINQUEFOIL	5 GALLON	AS SHOWN	5	FULL & BUSHY
	HEMEROCALLIS 'STELLA D'ORO' / DAYLILY	1 GALLON	AS SHOWN	20	FULL & BUSHY
	JUNIPERUS SABINA 'SCANDIA' / LOW-GROWING JUNIPER	5 GALLON	AS SHOWN	5	FULL & BUSHY
	SPIRAEA JAPONICA 'LIMEMOUND' / SPIRAEA	5 GALLON	AS SHOWN	23	FULL & BUSHY
MULCH:					
	MATCH TYPE AND DEPTH BARK MULCH				

LANDSCAPE CONTRACTOR TO ADJUST EXISTING IRRIGATION SYSTEM AS NECESSARY IN ORDER TO REMOVE DEMOLISHED LANDSCAPE AREAS FROM EXISTING SYSTEM AND EXPAND IRRIGATION SYSTEM TO PROVIDE WATER TO ALL NEW PLANT MATERIAL

Revision

No. Date By Cdd. Appr.

Title:

CONCEPTUAL LANDSCAPE EXHIBIT
30550 STEPHENSON HWY
MADISON HEIGHTS, MI 48071
COSTCO GASOLINE FACILITY #393

For:

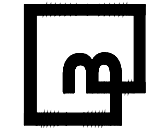
COSTCO
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027

PRELIMINARY

Scale: Horizontal 1"=20' Vertical N/A

Designed JMW Draw JMW Checked JMW Approved JMW Date 5/10/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.351.6222 barghausen.com



Job Number 6319 Sheet L-1 of 2

CONCEPTUAL LANDSCAPE EXHIBIT

LANDSCAPE PLANTING NOTES AND MATERIALS

SCOPE OF WORK

FURNISH ALL MATERIALS, LABOR, EQUIPMENT AND RELATED ITEMS NECESSARY TO ACCOMPLISH THE TREATMENT AND PREPARATION OF SOIL, FINISH GRADING, PLACEMENT OF SPECIFIED PLANT MATERIALS, FERTILIZER, STAKING, MULCH, CLEAN-UP, AND DEBRIS REMOVAL.

QUALIFICATIONS:
LANDSCAPE CONTRACTOR TO BE SKILLED AND KNOWLEDGEABLE IN THE FIELD OF WORK. CONTRACTOR TO BE LICENSED TO PERFORM THE WORK SPECIFIED WITHIN THE PRESIDING JURISDICTION.

JOB CONDITIONS:
IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE SITE AND REPORT ANY DISCREPANCIES TO THE OWNER. ALL PLANT MATERIAL AND FINISH GRADES ARE SUBJECT TO APPROVAL BY THE OWNER.

PROTECTION:
SAVE AND PROTECT ALL EXISTING PLANTINGS SHOWN TO REMAIN. THE IRRIGATION SYSTEM IS TO BE MODIFIED. DO NOT PLANT UNTIL THE SYSTEM HAS BEEN MODIFIED AND TESTED. HANDLE PLANTS WITH CARE – DO NOT DAMAGE OR BREAK ROOT SYSTEM, BARK, OR BRANCHES. REPAIR AND/OR REPLACE ITEMS DAMAGED AS A RESULT OF WORK, OR WORK NOT IN COMPLIANCE WITH PLANS AND NOTES, AS DIRECTED BY OWNER AT NO ADDITIONAL COST.

REPAIR OF EXISTING PLANTINGS:
DURING THE COURSE OF WORK, REPAIR ALL EXISTING PLANTING AREAS DAMAGED BY NEW CONSTRUCTION, RE-ESTABLISHING FINISH GRADE AND RE-MULCHING TO SPECIFIED DEPTH.

REPAIR OF EXISTING IRRIGATION SYSTEM:
DURING THE COURSE OF WORK, REPAIR ALL EXISTING IRRIGATION SYSTEMS DAMAGED BY NEW CONSTRUCTION, RE-ESTABLISH FINISH GRADE.

MATERIALS:

PLANT MATERIALS:
PLANT MATERIALS TO BE GRADE NO. 1, SIZED IN ACCORDANCE WITH (AAN) AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1-1996). PRUNE PLANTS RECEIVED FROM THE NURSERY ONLY UPON AUTHORIZATION BY THE LANDSCAPE ARCHITECT. "B & B" INDICATES BALLED AND BURLAPPED; "CONT." INDICATES CONTAINER; "GAL" INDICATES GALLON.

- A) SPECIFIED PLANT CANOPY SIZE IS THE MINIMUM ACCEPTABLE CONTAINER OR BALL SIZE ESTABLISHES MINIMUM PLANT CONDITION TO BE PROVIDED.
- B) QUALITY:
PLANT MATERIAL TO COMPLY WITH STATE AND FEDERAL LAWS FOR DISEASE INSPECTION, PLANTS TO BE FULLY LIVE, VIGOROUS, WELL FORMED, WITH WELL DEVELOPED FIBROUS ROOT SYSTEMS. ROOT BALLS OF PLANTS TO BE SOLID AND FIRMLY HELD TOGETHER, SECURELY CONTAINED AND PROTECTED FROM INJURY AND DESICATION. PLANTS DETERMINED BY THE OWNER TO HAVE BEEN DAMAGED; HAVE DEFORMITIES OF STEM, BRANCHES, OR ROOTS; LACK SYMMETRY, OR DO NOT MEET SIZE OR ANSI STANDARDS WILL BE REJECTED. PLANT MATERIAL TO BE FROM A SINGLE NURSERY SOURCE FOR EACH SPECIFIED SPECIES/HYBRID. NURSERY SOURCES TO BE THOSE LOCATED IN THE SAME REGION AS THE JOB SITE.
- C) SUBSTITUTION:
NO SUBSTITUTION OF PLANT MATERIAL, SPECIES OR VARIETY. SUBSTITUTIONS WHICH ARE PERMITTED WILL BE IN WRITING FROM THE OWNER. THE SPECIFIED SIZE, SPECIES AND NEAREST VARIETY, AS APPROVED, TO BE FURNISHED. SUBSTITUTIONS MAY REQUIRE RE-SUBMITTAL OF A REVISED LANDSCAPE PLAN TO THE CITY FOR APPROVAL.

SOIL PREPARATION:
TOPSOIL AND BACKFILL, ARE REQUIRED FOR ALL LANDSCAPE AREAS,

- A) TOPSOIL AND BACKFILL
CONTRACTOR IS RESPONSIBLE FOR SUPPLYING ALL TOPSOIL AND DETERMINING THE VOLUME OF TOPSOIL REQUIRED PER THE INFORMATION OF THE PLANS. CONTRACTOR IS RESPONSIBLE FOR ANY NECESSARY WEED CONTROL RESULTING FROM CONTAMINATED OFF-SITE SOURCES.
- B) AMENDMENT
1. ORGANIC COMPOST
TOPSOIL FOR PLANTING TO CONTAIN 5 TO 10 PERCENT ORGANIC MATERIAL BY VOLUME.
2. FERTILIZER
COMPLETE FERTILIZER WITH TRACE ELEMENTS, 8 PERCENT SULFUR, AND A MINIMUM OF 50 PERCENT SLOW RELEASE NITROGEN. FERTILIZER TO BE "AGRO-DELUXE NURSERY" 10-15-20 AT 50 POUNDS PER 10 YARDS OF ORGANIC COMPOST, OR COMPARABLE NITROGEN EQUIVALENT.
- C) PLANTING BACKFILL
ON-SITE TOPSOIL (EXCAVATED PIT SPOILS) AS FIELD PREPARED FOR PLANTING.
- D) TOPSOIL PREPARATION
AS A MINIMUM, ALL LANDSCAPE AREAS TO HAVE 6 INCHES MINIMUM OF TOPSOIL PER A) ABOVE. CONTRACTOR TO ADJUST GRADES AND SUPPLY TOPSOIL AS NECESSARY TO ASSURE THE MINIMUM DEPTH. TOPSOIL TO BE WORKED INTO SUB-BASE/SUBSOIL FOR ROUGH TRANSITION. SOIL DEPTH SPECIFIED IS FINISHED, COMPACTED DEPTH.

LAWN:
COMMERCIAL MIX SOD TO MATCH EXISTING SOD BLEND , VERIFY ON SITE.

MULCH (TOPDRESSING):
MULCH TO MATCH EXISTING MULCH IN MATERIAL, SIZE, TEXTURE, AND COLOR.

EXECUTION:

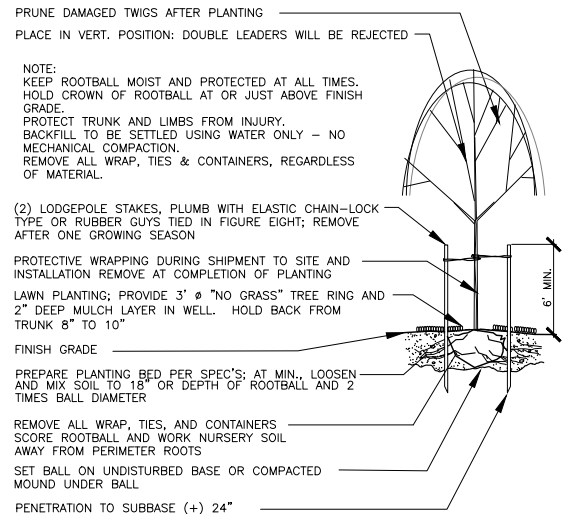
FINISH GRADES:
FINE GRADE AND REMOVE ROCKS AND FOREIGN OBJECTS OVER TWO INCHES (2") DIAMETER FROM TOP THREE INCHES (3") OF PREPARED PLANTING BED. ALL FINISH GRADES TO BE SMOOTH EVEN GRADES, LIGHTLY COMPACTED, AS DETAILED. SITE CIVIL DRAWINGS IDENTIFY FINAL ELEVATIONS.

SHRUBS:
ARRANGE SHRUBS ON SITE IN PROPOSED LOCATIONS PER DRAWINGS. EXCAVATE PIT AND PLANT AS CALLED OUT AND DETAILED. ALL SHRUBS TO STAND VERTICAL. BACKFILL SHALL BE PIT SPOILS. SETTLE BACKFILL USING WATER ONLY. NO MECHANICAL COMPACTION.

MULCH:
MULCH ALL NEW AND DISTURBED LANDSCAPE AREAS. APPLY SUFFICIENT QUANTITY TO PROVIDE A TWO INCH (2") DEPTH.

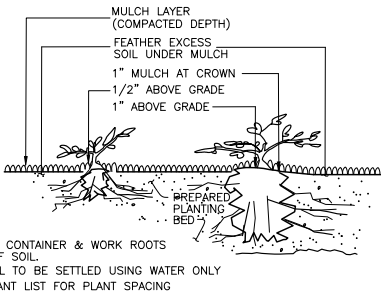
PLANTING:
MAINTAIN PLANTINGS THROUGH COMPLETED INSTALLATION, AND UNTIL ACCEPTANCE OF LANDSCAPE INSTALLATION. PLANTING MAINTENANCE TO INCLUDE WATERING, WEEDING, MOWING, CULTIVATING, RESETTING PLANTS TO PROPER GRADES OR POSITION, AND RE-ESTABLISHING SETTLED GRADES. INCLUDED IS REPLACEMENT OF DEAD PLANTS AND PLANTS SHOWING LOSS OF 40 PERCENT OR MORE OF CANOPY.

IRRIGATION:
THE IRRIGATION SYSTEM TO INCLUDING ADJUSTMENTS FOR BALANCED WATER DISTRIBUTION & PRECIPITATION THROUGH COMPLETED INSTALLATION, AND UNTIL ACCEPTANCE OF THE IRRIGATION MODIFICATIONS. FAILED OR MALFUNCTIONING IRRIGATION EQUIPMENT BE REPLACED AND/OR CORRECTED.



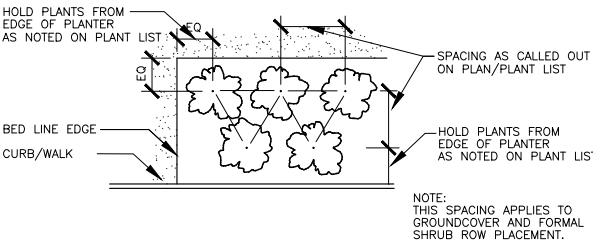
DECIDUOUS TREE PLANTING/STAKING DETAIL

NOT TO SCALE



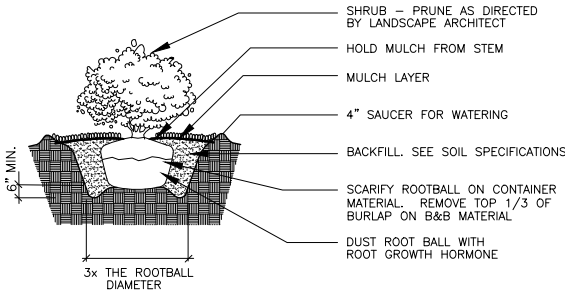
GROUNDCOVER PLANTING DETAIL

NOT TO SCALE



PLANT MATERIAL SPACING DETAIL

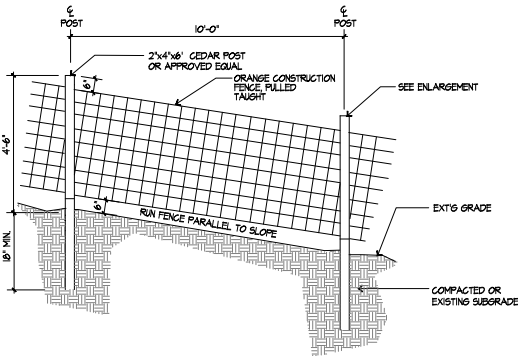
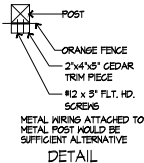
NOT TO SCALE



NOTE:
APPLY ADDITIONAL 4 OZ. 8-32-16 FERTILIZER INTO TOP 2" OF PLANTING MIX.
PLANT SHRUB HIGH ENOUGH TO ALLOW POSITIVE DRAINAGE AWAY FROM ROOTBALL. ROUGHEN ALL SURFACES OF PIT.

SHRUB PLANTING DETAIL

NOT TO SCALE



TREE PROTECTION DETAIL

NOT TO SCALE

TREE PRESERVATION NOTES

1. THE DRIPLINE OF RETAINED TREES SHALL BE MARKED PRIOR TO CLEARING AND GRADING ACTIVITIES.
2. 2" OF COMPOSTED WOODCHIPS SHALL BE PLACED WITHIN TREE PROTECTION FENCING OF ALL RETAINED TREES.
3. TREE PROTECTION FENCING SHALL BE PURCHASED IN CONTINUOUS ROLLS AND CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FENCING SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST WITH MIN. 6" OVERLAP, AND SECURELY FASTEN BOTH ENDS TO THE POST.
4. THE TREE PROTECTION FENCE SHALL BE INSTALLED AND MAINTAINED A MINIMUM OF 3' BEYOND THE OUTER EDGE OF THE DRIPLINE FOR ALL PROTECTED TREES. FENCING SHALL COMPLETELY SURROUND THE REQUIRED TREE PROTECTION AREA. FENCING SHALL REMAIN IN PLACE UNTIL CONSTRUCTION ACTIVITIES ARE COMPLETED.
5. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBANCE ACTIVITIES.
6. NO STORAGE OF MATERIALS OR EQUIPMENT WITHIN THE TREE PROTECTION FENCING IS ALLOWED DURING DEVELOPMENT.
7. REPLACE/REPAIR PROTECTIVE FENCING AS REQUIRED.
8. GRADE SHALL NOT BE FILLED OR CUT WITHIN THE DRIPLINE OF ANY TREE DESIGNATED TO REMAIN WITHOUT PRIOR REVIEW BY THE CITY'S QUALIFIED TREE PROTECTION PROFESSIONAL AND ADVANCE. WRITTEN APPROVAL FROM THE DIRECTOR.
9. TO THE GREATEST EXTENT PRACTICAL, UTILITY TRENCHES SHALL BE LOCATED OUTSIDE OF THE ROOT PROTECTION ZONE OF TREES TO BE RETAINED. BORING OR TUNNELING UNDER THE ORZ MAY BE CONSIDERED AN ALTERNATIVE, BUT SHALL REQUIRED THE ADVANCE, WRITTEN APPROVAL OF THE DIRECTOR.
10. TREES AND OTHER VEGETATION TO BE RETAINED SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION.

Revision

No. Date By Cdd. Appr.

Title:

CONCEPTUAL LANDSCAPE EXHIBIT
30550 STEPHENSON HWY
MADISON HEIGHTS, MI 48071
COSTCO GASOLINE FACILITY #393

For:

Costco Wholesale
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027

PRELIMINARY

Scale:

Horizontal

Vertical

N/A

Designed JMW

Drawn JMW

Checked JMW

Approved JMW

Date 5/10/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.351.6222 barghausen.com



Job Number

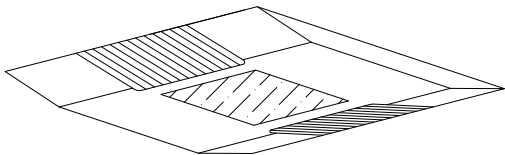
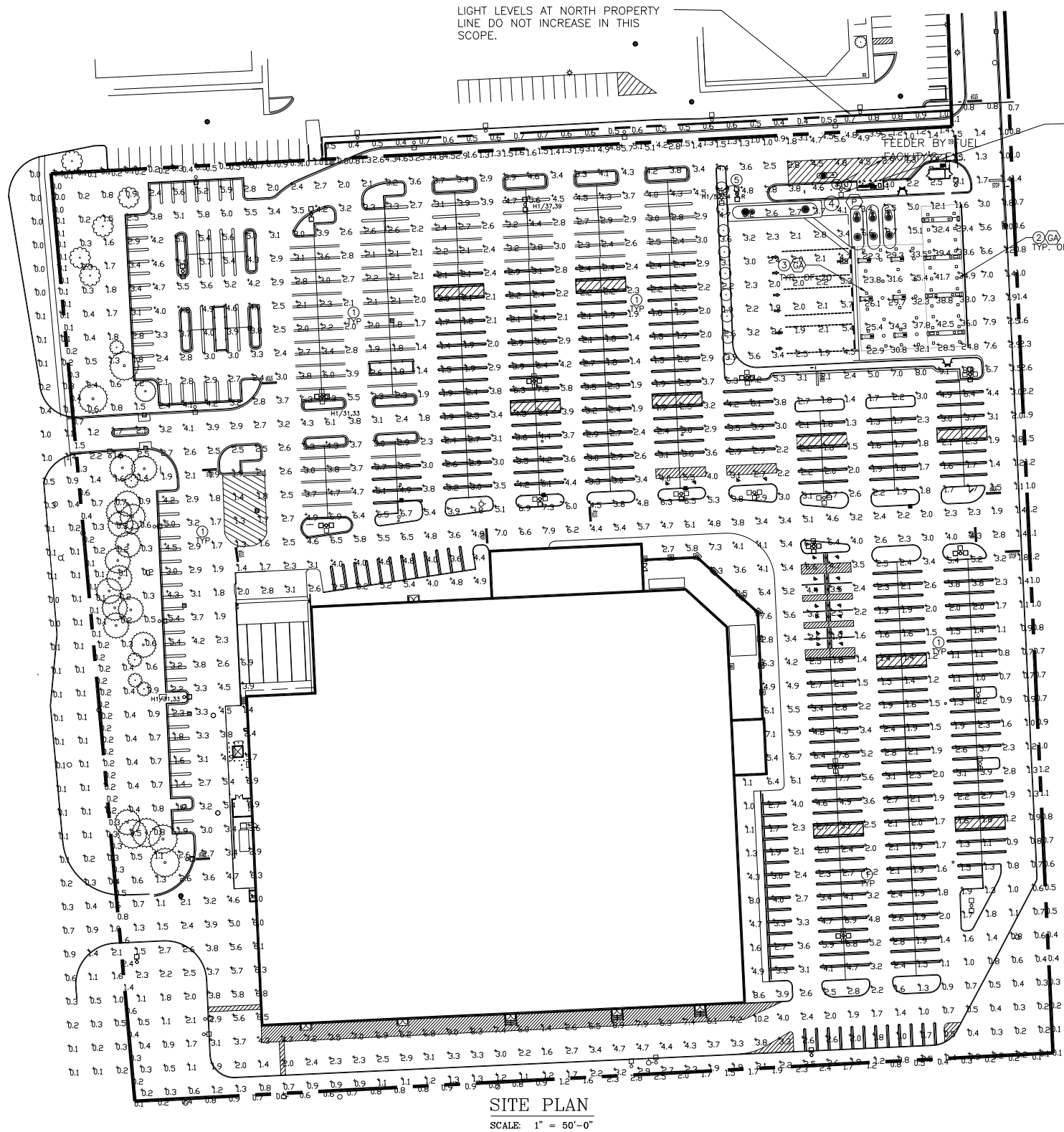
6319

Sheet

L-2 of 2



Know what's below.
Call before you dig.
Dial 811

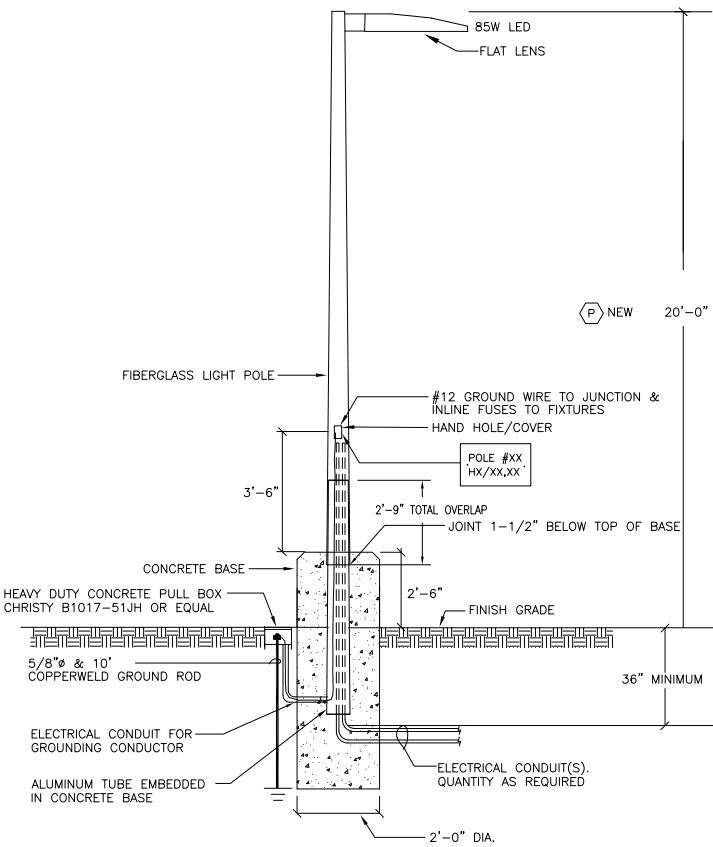


FUEL FACILITY -
LED (GA)
NO SCALE

FUEL FACILITY LIGHT W/ SECURITY CAMERA. E.C. TO PROVIDE AND INSTALL POLE & FIXTURE. PROVIDE (2) UNDERGROUND-RECESSED EXPLOSION-PROOF-RATED J-BOXES NEXT TO POLE BASE AND RUN (2) 1" C FROM J-BOXES INTO POLE SHAFT AT HANDHOLE'S HEIGHT. WIRING AND CONTROL ARE BY FUEL FACILITY'S E.C.

SITE PLAN NOTES

- 1. EXISTING POLE, BASE FIXTURE AND WIRING TO REMAIN.
- 2. E.C. TO REPLACE EXISTING (22) AT FUEL FACILITY CANOPY.
- 3. E.C. TO PROVIDE NEW (22) FIXTURES AT EXPANDED FUEL FACILITY CANOPY.
- 4. NEW POLE AND FIXTURE. E.C. TO SEAL UNDERGROUND CONDUITS WITHIN 10' OF ENTERING GROUND ON BOTH ENDS. SEAL POLE AND ASSOCIATED J-BOX. PROVIDE EXPLOSION-PROOF-RATED J-BOX AND OTHER ELECTRICAL DEVICES NEAR FUELING FACILITY. REFER TO NEC ARTICLE 514.
- 5. E.C. TO REMOVE AND RELOCATE EXISTING POLE AND FIXTURES. MATCH ROTATION AS SHOWN. DEMOLISH EXISTING BASE, PROVIDE HEAVY DUTY TRAFFIC RATED J-BOX AT EXISTING POLE LOCATION, EXTEND EXISTING FEEDER TO NEW LOCATION. PROVIDE NEW BASE AT NEW LOCATION TO MATCH EXISTING. REPULE WIRE AS REQUIRED.



NOTE: PROVIDE CONCRETE J-BOX AS REQUIRED. THIS DETAIL IS FOR ELECTRICAL CONDUITS ROUTING ONLY. SEE STRUCTURAL DRAWINGS S0.2 FOR DETAILS.

NEW POLE DETAIL
SCALE: NTS

LIGHTING FIXTURE SCHEDULE

ALL LIGHT FIXTURES SHALL HAVE FACTORY INSTALLED DISCONNECTED MEANS PER LATEST NEC CODE

TYPE	MANUFACTURER	NUMBER	LAMPS	MOUNT	WATT	REMARKS
(P)	COOPER MCGRAW EDISON	GLEON-SA2B-750-U-5NQ-BZ(50K COLOR TEMP.)	LED	VALMONT FIBERGLASS/ FIBERGLASS POLE	85	20'-0" ABOVE FINISHED GRADE. ROUND TAPERED FIBERGLASS/FIBERGLASS POLE (VALMONT COSTCO-100-10-20.0 POLE). NUMBER OF HEADS SHALL BE PER PLAN. SEE DETAIL SHEET SE-1. FIXTURE SHALL BE POWDER PAINTED. ELECTRO-STATIC APPLICATION POLE SHALL HAVE A MIN EPA=10 FOR 100 MPH WIND

CHECKED: ANT/JGM

DRAWN: NV

REVISION DATE:

ISSUE DATE: MAY 2022

ARCHITECT REFERENCE NO:

NO PART OF THIS DOCUMENT MAY BE USED OR COPIED IN WHOLE OR IN PART WITHOUT THE PRIOR WRITTEN CONSENT OF T.E.I.N.C.



T.E., Inc.
830 N. RIVERSIDE DRIVE
SUITE #200 98057
RENTON, WA
PHONE: 425-970-3753
FAX: 425-970-3756



FUEL FACILITY
EXPANSION
WAREHOUSE #393
30550 STEPHENSON HIGHWAY
MADISON HEIGHTS, MI 48071



MEMORANDUM

Date: May 2, 2022

Project #: 27022

To: Therese Garcia – Costco Real Estate Development

From: Chris Tiesler, PTOE

Project: Madison Heights Costco Gas Expansion

Subject: Trip Generation and Queueing Summary

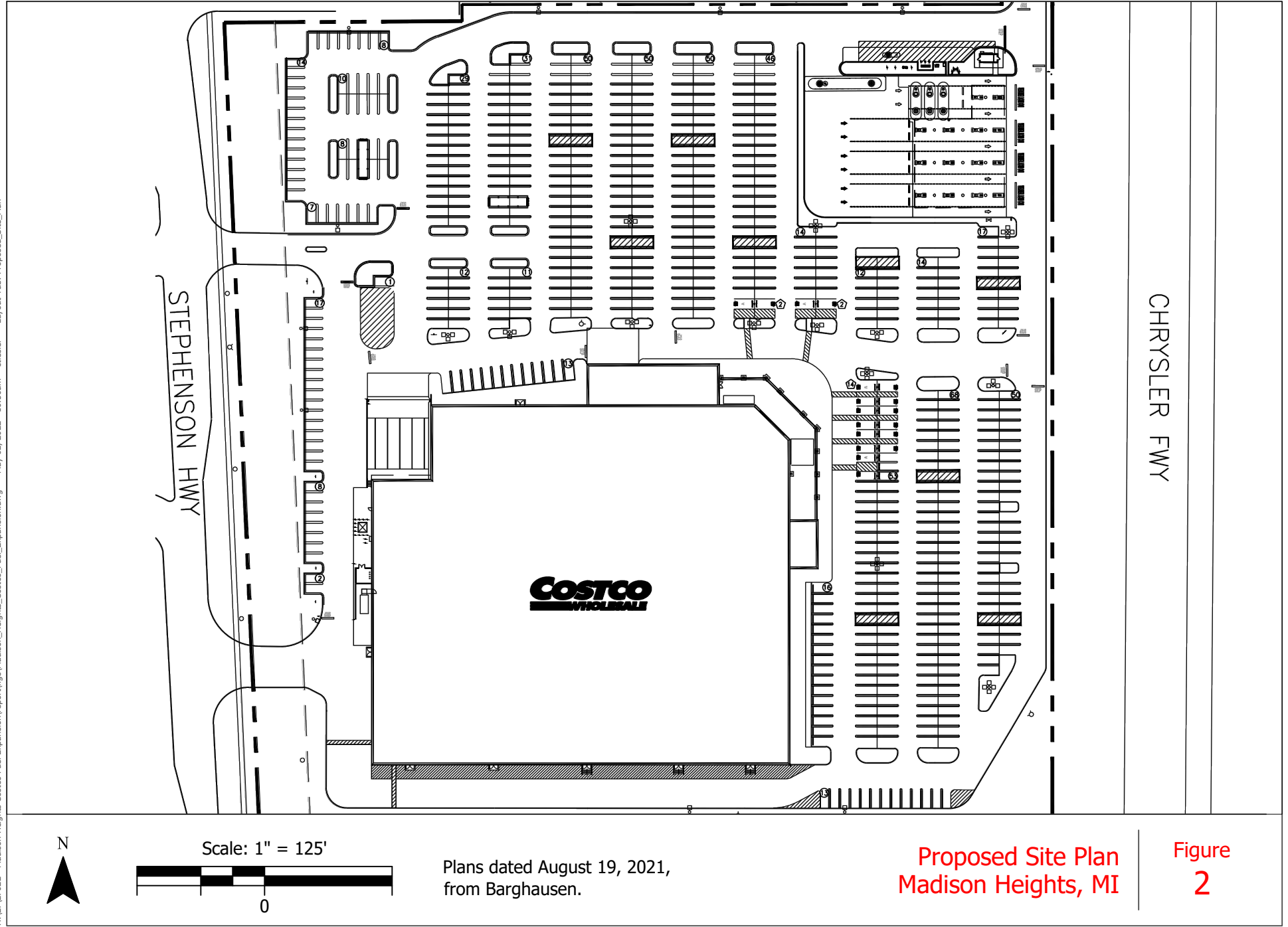
Kittelison & Associates, Inc. (Kittelison) has prepared transportation information for the on-site expansion of the existing Costco Gasoline fuel station located at 30550 Stephenson Highway in Madison Heights, Michigan. Of particular focus was the anticipated trip generation expected for the fuel station expansion and the anticipated vehicle circulation and queueing. The existing overall site plan for the Madison Heights Costco and fuel station is provided in **Figure 1**. **Figure 2** shows the proposed site plan for the fuel station expansion.

PROJECT DESCRIPTION

The existing Madison Heights Costco fuel station is in the northeast corner of the site. The fuel station is accessible via Mally Drive and Stephenson Highway. The existing fuel station consists of four islands (eight dispensers) with a total of sixteen (16) fueling positions. The expansion adds an additional two additional dispensers to three of the four islands, providing a new total of 28 vehicle fueling positions. It is anticipated that the expansion will improve the service provided to Costco members who can experience long queues and wait times during peak periods.



H:\27\27022 - Madison Heights Costco Fuel Expansion\report\figs\Madison_Highs_Costco_Fuel_Expansion.dwg May 02, 2022 - 10:56am - ctlester Layout Tab: Proposed_Site_Plan



COSTCO TRIP GENERATION DATABASE

For more than 20 years, Kittelson has maintained a database of traffic data and travel characteristics for Costco Wholesale, including data about fuel stations. The database contains transportation information such as trip rates, trip type percentages, and parking demand for Costco locations throughout the United States as well as Canada and Mexico. The database is updated periodically each time new Costco traffic counts or other information become available to Kittelson. To best evaluate the anticipated transportation characteristics of the Madison Heights gasoline fuel station expansion, both related database data and data collected on site were used in this study.

The Costco transportation database contains a large quantity of data related to Costco fuel stations. Trip generation rates and trip type information for over 60 Costco Gasoline facilities located throughout the U.S. are included. Costco has invested significant time and effort into developing this use-specific trip generation database for both its warehouses and its fuel stations. Because of membership requirements and the nature of Costco sales, Costco members have unique travel characteristics and patterns which are different from customers of other supermarkets. These unique characteristics and patterns exist in the trip generation for Costco warehouses, Costco Gasoline facilities, and the interaction of trips between the two.

The Costco-specific trip generation data presented herein follows nationally-accepted practices for trip generation data collection as recommended by the Institute of Transportation Engineers (ITE) and presents a robust dataset upon which to confidently and accurately predict the trip generation of the expansion of the Madison Heights gasoline fuel station.

MADISON HEIGHTS FUEL STATION EXPANSION TRIP GENERATION ESTIMATE

In developing a trip generation estimate for the fuel station expansion, it is important to recognize that the fuel station exists on site today and the project is an expansion to this existing use, not the addition of a new use. Since the membership of Costco does not change with the expansion of a fuel facility, the general demand for gas at the Madison Heights Costco would not change. Consequently, it is unlikely that the trip generation of the fuel station will increase directly in proportion to the increased number of fueling positions. Instead, the additional fueling positions will serve to more efficiently and effectively process the current peak demand at the fuel station, thus reducing wait times, vehicle queuing, and vehicle idling.

Kittelson reviewed before and after data from other comparable Costco Gasoline facility expansion sites to determine a representative relationship between new trip generation and the addition of fueling positions to an existing fuel station.

Before and After Fuel Expansion Data Summary

Kittelson used trip generation counts at seven Costco Gasoline facility locations that have expanded in size to study the relationship between trip generation and the fuel station expansion. These locations include sites where fuel stations have expanded from 16 fueling positions to 22 or 24 fueling positions. The comparable expansion sites identified were:

- Rancho Del Ray, California
- NE San Jose, California
- Concord, California
- Rohnert Park, California
- Cypress, California
- Portland, Oregon
- Tustin II, California

While this expansion will provide 28 fueling positions, the analysis shows that there is not a direct correlation between number of fueling positions and trip generation. As such, using these selected facilities presents a reasonable and conservative comparison of anticipated changes.

To work with a representative sample size, Costco provided fuel transactions collected on an hourly basis for a period before and after the expansion at each of these locations. Only data collected during the same months of the year before and after the expansion were included in this summary (for example, fuel transactions for the months of March and April before the expansion were compared to fuel transactions for the months of March and April after the expansion). The total number of weekday PM peak hour and Saturday midday peak hour trip ends counted for the seven listed sites are provided in **Table 1** and **Table 2**, respectively. Note the total number of trip ends does not reflect any reductions due to internal capture, pass-by, or diverted trips.

Table 1: Weekday PM Peak Hour Trip Growth

Location	Average Weekday PM Peak Hour Trips Generated		
	Before Expansion	After Expansion	% Difference
Rancho Del Ray, CA	414	676	63.3%
NE San Jose, CA	474	458	-3.4%
Concord, CA	470	550	17.0%
Rohnert Park, CA	426	498	16.9%
Cypress, CA	472	654	38.6%
Portland, OR	N/A	404	--
Tustin II, CA ¹	N/A	662	--
Average			26.5%

Source: Kittelson & Associates, Inc. 2021

¹ Expansion of this gas stations is from 12 fueling positions to 22 fueling positions

All other examples are expanded from 16 to 24 fueling positions

Table 2: Saturday Midday Peak Hour Trip Growth

Location	Saturday Midday Peak Hour Trips Generated		
	Before Expansion	After Expansion	% Difference
Rancho Del Ray, CA	N/A	678	--
NE San Jose, CA	494	686	38.9%
Concord, CA	520	700	34.6%
Rohnert Park, CA	518	606	17.0%
Cypress, CA	514	740	44.0%
Portland, OR	462	616	33%
Tustin II, CA ¹	580	610	5.2%
Average			28.8%

Source: Kittelson & Associates, Inc. 2021

¹ Expansion of this gas stations is from 12 fueling positions to 22 fueling positions. All other examples are expanded from 16 to 24 fueling positions

As shown in **Table 1** and **Table 2**, each of the sites recorded some increase in the number of peak hour fuel transactions. However, the increase found in most situations is significantly less than what would be calculated from a direct linear relationship to the number of additional fueling positions. Using a linear relationship, expanding the fuel station from 16 to 24 fueling positions would equate to an increase in activity or trip generation of 50% and expanding from 16 to 28 positions would equate to an increase of 75%. However, the before and after data show an average increase of 26.5% and 28.8% in fuel transactions during the weekday PM peak hour and Saturday midday peak hour, respectively.

These data demonstrate that increasing the number of fueling positions at the Madison Heights fuel station will not result in a direct linear increase in trip generation. The before and after data capture the change in demand that results from reducing peak hour queues and wait times at the fuel stations due to latent demand and more efficient peak operations. In all cases, peak queues and wait times are significantly reduced. Those members who previously chose not to purchase fuel because of the wait times will likely do so after expansion when the operations are improved.

Trip Type

The data collected at existing Costco Gasoline gas facilities indicate the trip generation characteristics described below for internal trip capture between the fuel station and the warehouse, as well as pass-by trips and diverted capture from the surrounding street system. The unique nature of Costco operations and its membership requirements result in different trip characteristics than those observed at typical fuel stations summarized in the standard reference *ITE Trip Generation*. The percentages of pass-by or diverted trips at Costco fuel stations is considerably lower than those documented in the *ITE Trip Generation* manual for typical fuel stations. In addition, membership requirements also have a substantial effect on trip internalization (or sharing of trips) between the warehouse and the fuel station. Fewer people exclusively visit a Costco fuel station (in comparison to a typical standalone fuel

station) because they have another primary purpose for visiting the site (that being a trip to the warehouse).

Internal Trips

A key finding from the studies conducted at Costco facilities is the fact that approximately 34% of the PM peak hour trips to and from Costco fuel stations and 35% of the Saturday midday trips are internal capture trips. Internal capture trips account for those members who patronize both the warehouse and the fuel station during a single visit to the Costco site. As such, although they account for a trip to both the warehouse and the fuel station, they only account for one overall vehicle trip to the site and on the surrounding transportation system. Based on studies including surveys at Costco fuel stations and membership card transaction data, on average 34% and 35% of the members buying gas during the weekday PM and Saturday midday peak hours, respectively, are members whose main purpose to the site is to visit the Costco warehouse. At some sites this number ranges as high as 75%. However, to remain conservative, the average rates are applied to this analysis.

Pass-by Trips

Another key trip characteristic that must be considered is that of pass-by trip capture. Pass-by trips represent members (and trips) that are currently traveling on the surrounding street network for some other primary purpose (such as a trip from work to home) and stop into the site en route during their normal travel. As such, pass-by trips do not result in a net increase in traffic on the surrounding transportation system and their only effect occurs at the immediate intersections and site access driveways where they become turning movements. Based on studies of customer surveys at Costco Gasoline fuel facilities, on average 37% and 33% of the members buying gas during the weekday PM and Saturday midday peak hours, respectively can be classified as pass-by trip capture from the surrounding street system. This is lower than the average pass-by rate quoted in the ITE *Trip Generation* manual for typical service stations (45%) and is attributable to the unique travel characteristics that result from Costco's membership requirements.

Diverted Trips

Diverted trips are similar to pass-by trips in that they represent members (and trips) that are currently traveling on the surrounding street network for some other primary purpose and stop into the site en route during their travel. However, as the name indicates, diverted trips divert from the normal roadways they would be traveling on to go to the Costco site. Based on studies of customer surveys at Costco Gasoline fuel facilities, on average 37% and 36% of the members buying gas during the weekday PM and Saturday midday peak hours, respectively, can be classified as diverted trip capture from the surrounding street system.

Net New Trips

Net new trips represent members (and trips) that are exclusively traveling on the surrounding transportation system with the primary purpose to go to the Costco fuel station. As such, net new trips do affect the surrounding transportation system. The net new trips are calculated by deducting internal, pass-by, and diverted trips from total trips.

Trip Generation Estimate

The peak hour for trip generation was defined as the analyzed hour during which the most vehicles entered the Madison Heights Costco gasoline fuel station. Arrival data were collected in late October/early November 2021 between 6:00 AM and 9:00 PM and on a typical weekday and Saturday. The weekday PM peak hour was found to occur from 5:20 – 6:20 PM and the Saturday midday peak hour from 1:00 – 2:00 PM. Under existing conditions, the Madison Heights fuel station generates approximately 466 total trip ends (or 233 vehicles) during the weekday PM peak hour, and 458 total trip ends (or 229 vehicles) during the Saturday midday peak hour. This information is included as **Attachment A**.

Kittelson applied the average changes in trip generation presented in **Table 1** and **Table 2** to estimate the expected number of additional total trips. The net new trip generation of the fuel station expansion for the weekday PM peak hour and the Saturday midday peak hour are summarized in **Table 3**.

Table 3: Madison Heights Costco Gasoline Fuel Station Expansion Trip Generation Estimate

Trip Type	Weekday PM Peak Hour Trip Ends		Saturday Midday Peak Hour Trip Ends	
	Existing	Expected Increase	Existing	Expected Increase
Total Trip Ends	466	123	458	132
Internal Trips	(158)	(42)	(160)	(46)
(34% PM, 35% SAT)				
Total External Trip Ends	308	81	298	86
Pass-By Trips	(114)	(30)	(98)	(28)
(37% PM, 33% SAT)				
Diverted Trips	(114)	(30)	(107)	(31)
(37% PM, 36% SAT)				
Net New External Trip Ends	80	21	93	27

Source: Kittelson & Associates, Inc. 2021

As can be seen from **Table 3**, the additional fueling positions are estimated to generate approximately 81 additional external weekday PM peak hour total trip ends (41 in, 40 out) and 86 additional external

Saturday midday peak hour total trip ends (43 in, 43 out). However, only 21 (11 in, 10 out) and 27 (14 in, 13 out) trip ends would be net new trips added to the surrounding transportation system during the weekday PM and Saturday midday peak hours, respectively.

GAS STATION OPERATIONS & QUEUING

Queueing

As outlined above, the primary purpose of the fuel station expansion is to improve upon the current operations and queueing that the existing facility experiences. While a minimal increase in trips is expected with the expansion, other Costco expansion locations show this increase in trips is greatly outweighed by the benefits of providing more pumps to expedite the processing of vehicles during peak times. All expansion locations were found to have more efficient processing of vehicles, shorter wait times, shorter queues, and less idling after the expansion. For example, average peak period queues have been observed at some Costco Gasoline fuel stations to decrease by 45-50% after expansion. By increasing the amount of fueling positions available to process the fuel station demand by ten (10), a similar reduction in peak period queues and wait times is anticipated at the Madison Heights location.

Existing queueing data were collected in late October/early November 2021 at the Madison Heights Costco Gasoline fuel station between 6:00 AM and 8:00 PM on a typical weekday and a typical Saturday. This information is included as **Attachment B**. For the queueing analysis, the peak hour was aligned with the identified peak hour of trip generation. The weekday PM peak hour was found to occur from 5:20 – 6:20 PM and the Saturday midday peak hour from 1:00 PM – 2:00 PM.

Table 4 summarizes the existing observed queueing conditions at the fuel station. As shown in the table, similar vehicle queue lengths were observed in the typical weekday PM peak hour as compared to the Saturday midday peak hour. Note that queue lengths were recorded at one-minute intervals – the maximum queue represents the one minute during the peak hour when the queue was greatest.

Table 4: Existing Peak Hour Queueing*

	Minimum Queue	Maximum Queue	Average Queue	95 th Percentile Queue
Weekday PM Peak Hour	17	34	25	31
Saturday Midday Peak Hour	9	35	24	34

Source: Kittelson & Associates, Inc. 2021

* Queue: Queued vehicles waiting in line behind the dispensers – do not include vehicles at fueling positions.

Weekday PM peak hour maximum queues from other similar fuel station expansions are compared in **Table 5**. Saturday midday peak hour maximum queues from other similar fuel station expansions are compared in **Table 6** to demonstrate the effect the fuel station expansion has on Saturday midday peak hour queueing.

Table 5: Weekday PM Peak Hour Maximum Queue - Before & After Data Summary

Location	Fueling Positions		Maximum Weekday PM Peak Hour Queue (vehicles)		
	Before	After	Before Expansion	After Expansion	% Difference
Rohnert Park, CA	16	24	28	8	-71.4%
Concord, CA	16	24	38	10	-73.7%
NE San Jose, CA	16	24	47	6	-87.2%
Wilsonville, OR	16	24	13	16	23.1%
Cypress, CA	16	24	35	17	-51.4%
AVERAGE					-52.1%

Source: Kittelson & Associates, Inc. 2021

Table 6: Saturday Midday Peak Hour Maximum Queue - Before & After Data Summary

Location	Fueling Positions		Maximum Saturday Midday Peak Hour Queue (vehicles)		
	Before	After	Before Expansion	After Expansion	% Difference
Rohnert Park, CA	16	24	39	22	-43.6%
Concord, CA	16	24	41	32	-22.0%
NE San Jose, CA	16	24	47	31	-34.0%
Portland, OR	16	24	35	20	-42.9%
Wilsonville, OR	16	24	35	33	-5.7%
Cypress, CA	16	24	52	19	-63.5%
AVERAGE					-35.2%

Source: Kittelson & Associates, Inc. 2021

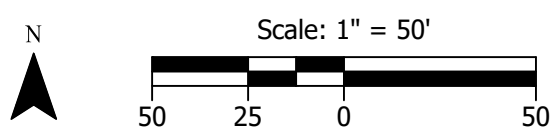
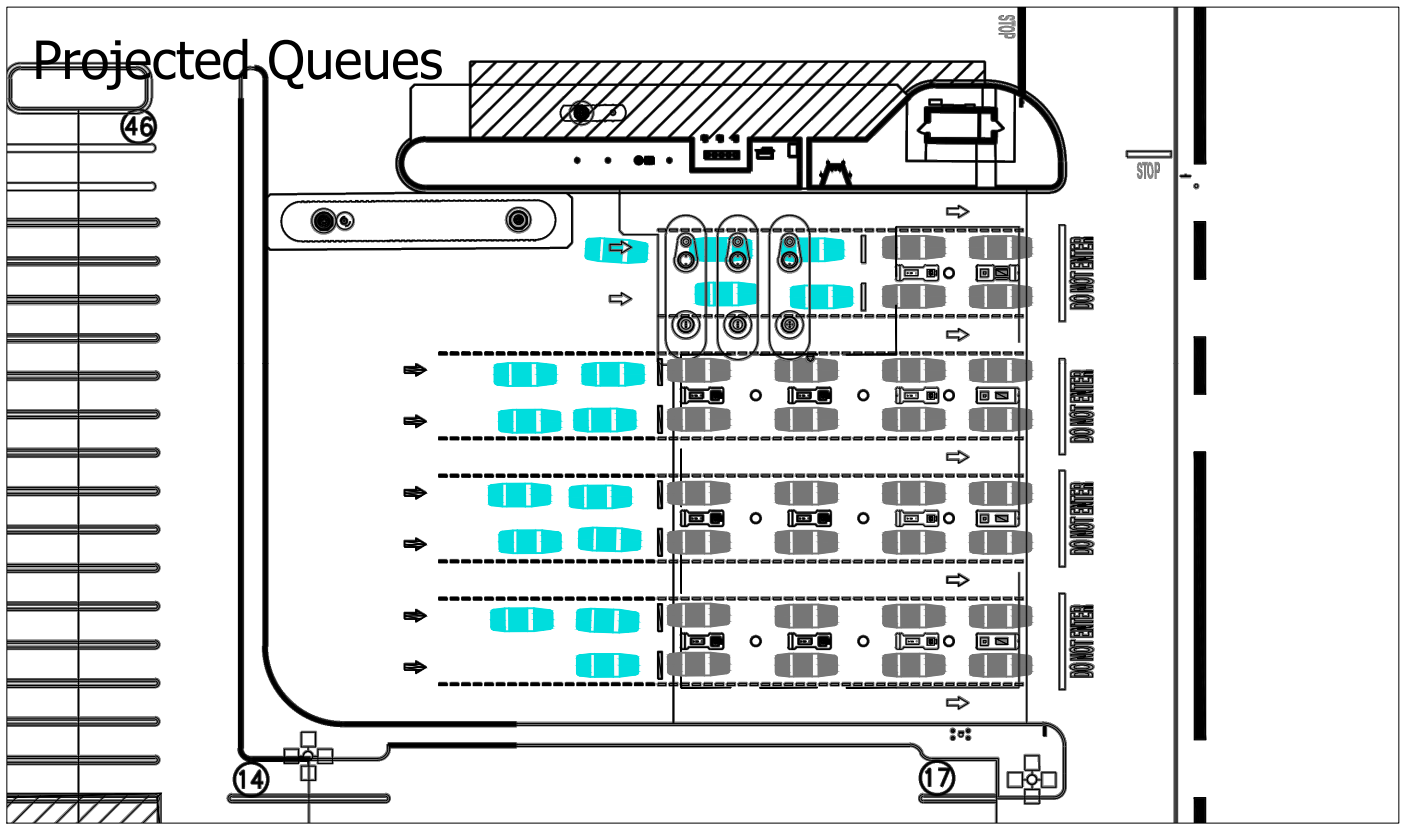
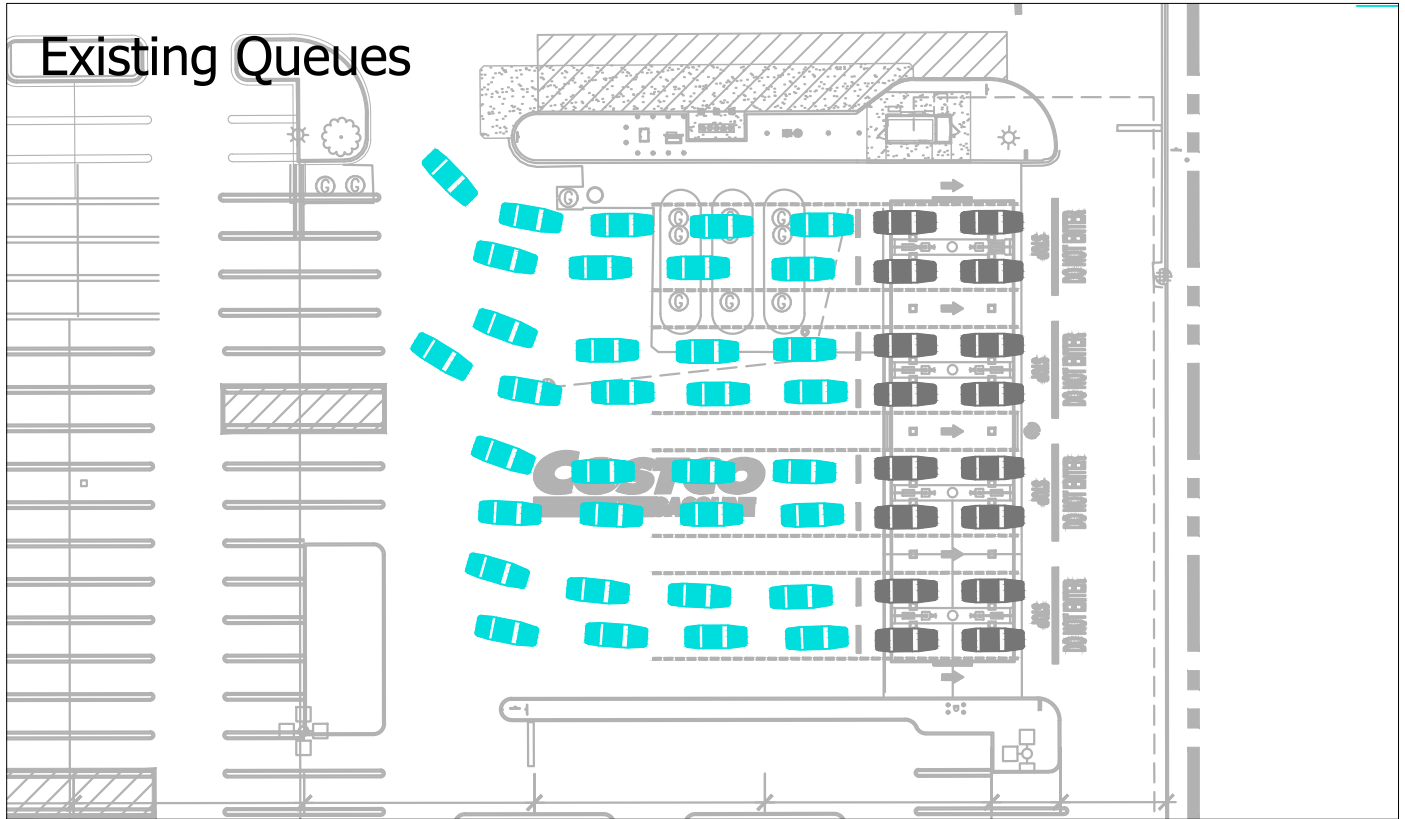
As shown in **Table 5** and **Table 6**, Costco fuel station expansions at similar sites demonstrate a substantial reduction in recorded maximum queues (queued vehicles recorded in one-minute increments) during the peak hours. During the weekday PM peak hour, these sites see a net average *reduction* of 52.1 percent, despite the noted increase in overall trips recorded in the same one-hour period. During the Saturday midday peak hour, these sites see a net average *reduction* of 35.2 percent following expansion.

Applying this average reduction to the observed weekday PM peak hour maximum queue at the Madison Heights fuel station would reduce the maximum observed one-minute queue from 34 vehicles to 16 vehicles. During the Saturday midday peak hour, the maximum queue would be reduced from 35 vehicles to 23 vehicles. These data underscore the fact that adding dispensers to the existing Costco fuel station will reduce wait times, queues, and idling at the Madison Heights fuel station once expanded.

Figure 3 presents the existing and projected maximum queue during the weekday PM peak hour. **Figure 4** presents the existing and projected maximum queue during the Saturday midday peak hour.

These data indicate adding dispensers to the existing fuel station will reduce wait times, queues, and idling once the station is expanded. As shown on **Figure 3** and **Figure 4**, the proposed maximum queues are projected to be contained well within the fuels station queue area post expansion.

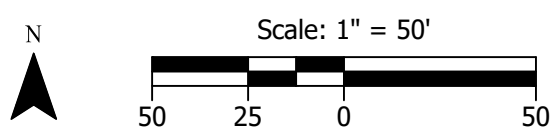
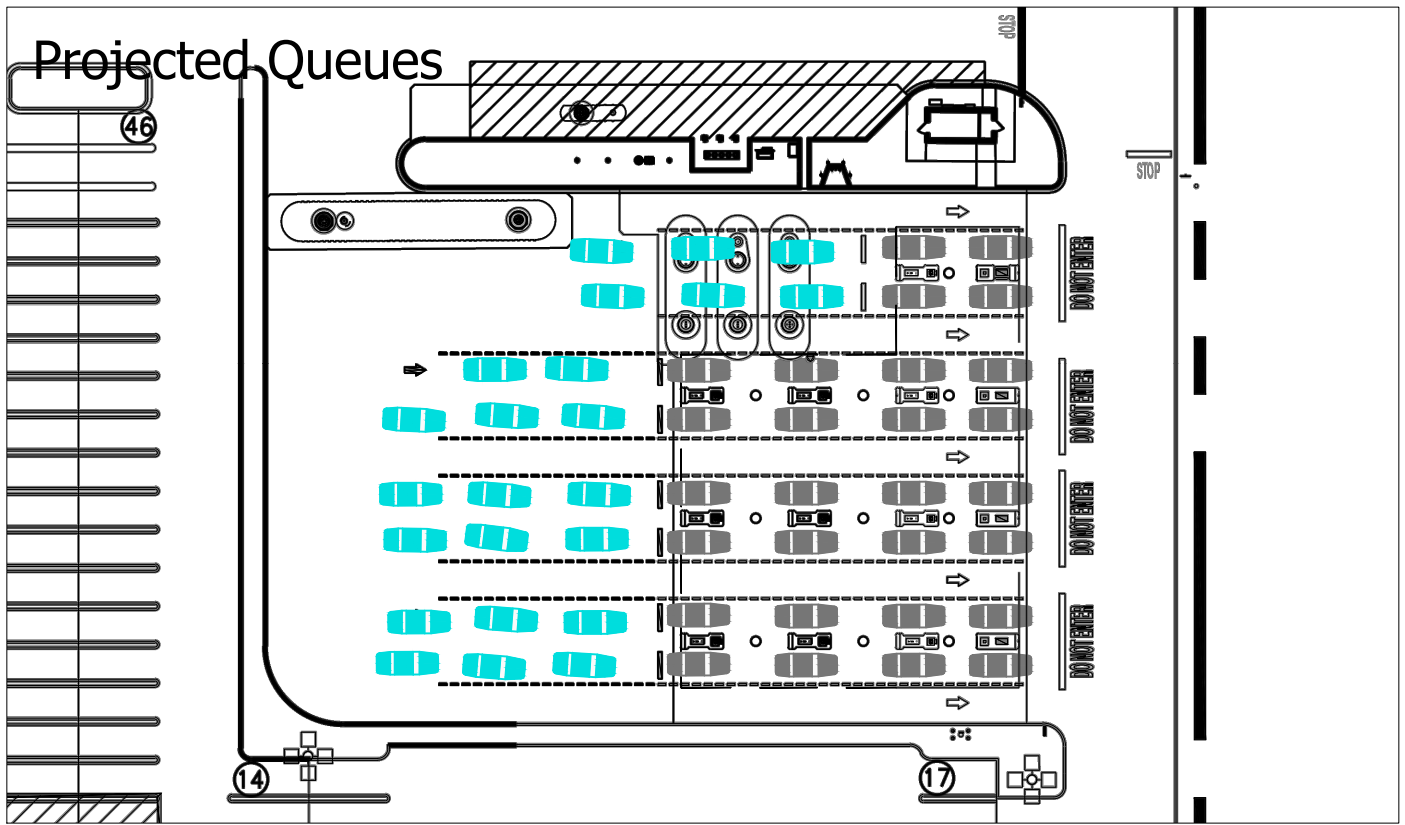
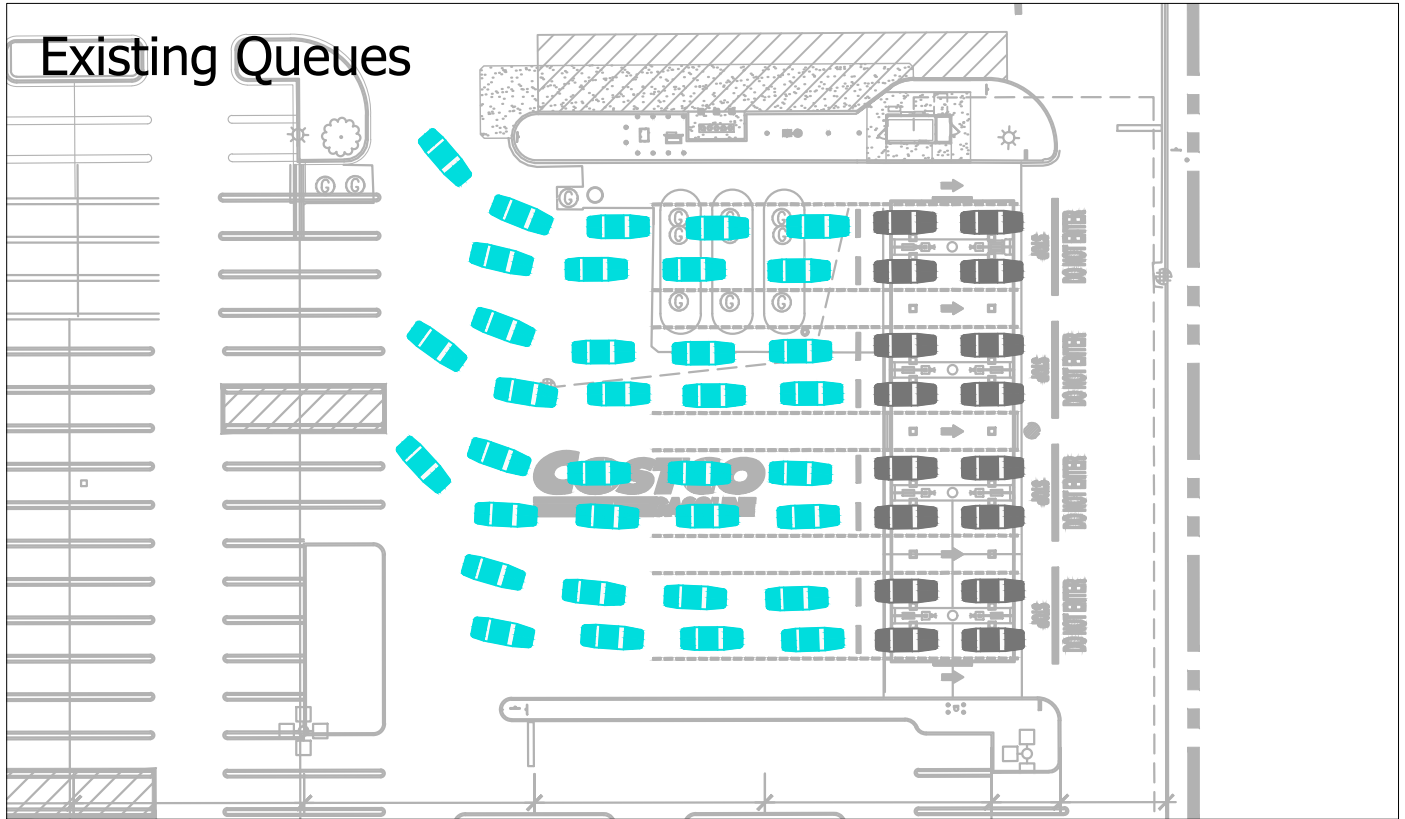
H:\27127022 - Madison Heights Costco Fuel Expansion\report\figs\Madison_Heights_Costco_Fuel_Expansion.dwg May 02, 2022 - 10:56am - ctiesler Layout Tab: Weekday_Max_Queue



Weekday PM Peak Hour
Maximum Queue
Madison Heights, MI

Figure
3

H:\27127022 - Madison Heights Costco Fuel Expansion\report\figs\Madison_Heights_Costco_Fuel_Expansion.dwg May 02, 2022 - 10:57am - ctiesler Layout Tab: Saturday_Max_Queue



Saturday Midday Peak Hour
Maximum Queue
Madison Heights, MI

Figure
4

Similar to opening more cashiers/check-out lanes at a supermarket, the additional “cashiers” available do not determine how many people wait in line but serve to process those waiting in line more efficiently and quickly. Reduced queues and wait times have been consistently observed at expanded Costco fuel stations constructed with a higher number of fueling positions. The average time it takes for a vehicle to fuel does not significantly change by the addition of more fueling positions but because there are more fueling positions available to process vehicles, all expansion locations were found to have overall more efficient processing of vehicles, shorter wait times, shorter queues, and less idling after the expansion.

CONCLUSION

The Madison Heights Costco gasoline fuel station expansion is anticipated to reduce queues by expediting the processing of vehicles. As with similar Costco Gasoline fuel facility expansion locations, the expansion will process vehicles more efficiently, resulting in shorter wait times, shorter queues, and less vehicle idling time.

The Costco-specific trip generation data presented herein follow nationally-accepted practices for trip generation data collection as recommended by ITE and present a robust dataset upon which to confidently and accurately predict the trip generation of the fuel station expansion.

The analysis shows that queues can be contained within proposed available storage. Should additional information be necessary to understand the anticipated effects of the fuel station expansion, please contact us at ctiesler@kittelsohn.com, or 571-384-2943.

Attachment A
Madison Heights Costco Gas Station
Trip Generation & Queueing Data



Location: Madison Heights

Date: 10/30/2021

Site Code: 15578904

Start Time	Ins
6:00 AM	5
6:05 AM	6
6:10 AM	8
6:15 AM	2
6:20 AM	2
6:25 AM	7
6:30 AM	2
6:35 AM	1
6:40 AM	7
6:45 AM	8
6:50 AM	10
6:55 AM	8
7:00 AM	3
7:05 AM	9
7:10 AM	8
7:15 AM	4
7:20 AM	9
7:25 AM	6
7:30 AM	8
7:35 AM	15
7:40 AM	8
7:45 AM	8
7:50 AM	10
7:55 AM	17
8:00 AM	9
8:05 AM	12
8:10 AM	13
8:15 AM	19
8:20 AM	14
8:25 AM	18
8:30 AM	8
8:35 AM	18
8:40 AM	13
8:45 AM	12
8:50 AM	15
8:55 AM	11
9:00 AM	16
9:05 AM	18
9:10 AM	27
9:15 AM	23
9:20 AM	24
9:25 AM	19
9:30 AM	18

9:35 AM	20
9:40 AM	14
9:45 AM	23
9:50 AM	20
9:55 AM	20
10:00 AM	15
10:05 AM	15
10:10 AM	21
10:15 AM	22
10:20 AM	27
10:25 AM	19
10:30 AM	20
10:35 AM	27
10:40 AM	19
10:45 AM	22
10:50 AM	22
10:55 AM	17
11:00 AM	21
11:05 AM	13
11:10 AM	13
11:15 AM	23
11:20 AM	17
11:25 AM	14
11:30 AM	22
11:35 AM	17
11:40 AM	15
11:45 AM	17
11:50 AM	17
11:55 AM	23
12:00 PM	14
12:05 PM	21
12:10 PM	15
12:15 PM	15
12:20 PM	17
12:25 PM	16
12:30 PM	18
12:35 PM	15
12:40 PM	17
12:45 PM	11
12:50 PM	18
12:55 PM	18
1:00 PM	20
1:05 PM	19
1:10 PM	19
1:15 PM	12
1:20 PM	20
1:25 PM	16
1:30 PM	20
1:35 PM	25
1:40 PM	23
1:45 PM	18
1:50 PM	17
1:55 PM	20
2:00 PM	17
2:05 PM	18
2:10 PM	17

2:15 PM	17
2:20 PM	11
2:25 PM	16
2:30 PM	21
2:35 PM	18
2:40 PM	15
2:45 PM	17
2:50 PM	16
2:55 PM	22
3:00 PM	22
3:05 PM	14
3:10 PM	20
3:15 PM	16
3:20 PM	17
3:25 PM	18
3:30 PM	15
3:35 PM	16
3:40 PM	13
3:45 PM	21
3:50 PM	13
3:55 PM	20
4:00 PM	15
4:05 PM	18
4:10 PM	20
4:15 PM	18
4:20 PM	16
4:25 PM	15
4:30 PM	12
4:35 PM	13
4:40 PM	14
4:45 PM	17
4:50 PM	13
4:55 PM	19
5:00 PM	17
5:05 PM	19
5:10 PM	16
5:15 PM	14
5:20 PM	22
5:25 PM	14
5:30 PM	20
5:35 PM	14
5:40 PM	18
5:45 PM	15
5:50 PM	19
5:55 PM	20
6:00 PM	25
6:05 PM	25
6:10 PM	21
6:15 PM	17
6:20 PM	20
6:25 PM	19
6:30 PM	15
6:35 PM	9
6:40 PM	11
6:45 PM	17
6:50 PM	15

6:55 PM	10
7:00 PM	8
7:05 PM	10
7:10 PM	6
7:15 PM	12
7:20 PM	10
7:25 PM	7
7:30 PM	5
7:35 PM	9
7:40 PM	2
7:45 PM	7
7:50 PM	5
7:55 PM	2
Total	2552



Site Code: 15578902

Location: Madison Heights

Date: 10/30/2021

Time: 6:00 AM - 8:00 PM

Time	Queue	Time	Queue	Time	Queue	Time	Queue	Time	Queue	Time	Queue	Time	Queue
6:00 AM	0	8:00 AM	1	10:00 AM	21	12:00 PM	29	2:00 PM	24	4:00 PM	32	6:00 PM	35
6:01 AM	1	8:01 AM	1	10:01 AM	16	12:01 PM	31	2:01 PM	27	4:01 PM	31	6:01 PM	37
6:02 AM	0	8:02 AM	1	10:02 AM	16	12:02 PM	29	2:02 PM	28	4:02 PM	30	6:02 PM	31
6:03 AM	0	8:03 AM	0	10:03 AM	15	12:03 PM	27	2:03 PM	32	4:03 PM	32	6:03 PM	33
6:04 AM	0	8:04 AM	0	10:04 AM	13	12:04 PM	26	2:04 PM	30	4:04 PM	31	6:04 PM	35
6:05 AM	0	8:05 AM	1	10:05 AM	13	12:05 PM	28	2:05 PM	29	4:05 PM	33	6:05 PM	32
6:06 AM	0	8:06 AM	0	10:06 AM	9	12:06 PM	27	2:06 PM	25	4:06 PM	29	6:06 PM	28
6:07 AM	0	8:07 AM	0	10:07 AM	8	12:07 PM	29	2:07 PM	29	4:07 PM	28	6:07 PM	33
6:08 AM	0	8:08 AM	0	10:08 AM	8	12:08 PM	29	2:08 PM	31	4:08 PM	30	6:08 PM	31
6:09 AM	0	8:09 AM	2	10:09 AM	9	12:09 PM	31	2:09 PM	33	4:09 PM	33	6:09 PM	32
6:10 AM	0	8:10 AM	2	10:10 AM	6	12:10 PM	32	2:10 PM	32	4:10 PM	30	6:10 PM	33
6:11 AM	0	8:11 AM	2	10:11 AM	6	12:11 PM	34	2:11 PM	36	4:11 PM	31	6:11 PM	33
6:12 AM	0	8:12 AM	0	10:12 AM	5	12:12 PM	32	2:12 PM	35	4:12 PM	32	6:12 PM	36
6:13 AM	0	8:13 AM	0	10:13 AM	5	12:13 PM	33	2:13 PM	33	4:13 PM	32	6:13 PM	35
6:14 AM	0	8:14 AM	1	10:14 AM	4	12:14 PM	29	2:14 PM	36	4:14 PM	31	6:14 PM	28
6:15 AM	0	8:15 AM	1	10:15 AM	7	12:15 PM	31	2:15 PM	33	4:15 PM	34	6:15 PM	34
6:16 AM	0	8:16 AM	2	10:16 AM	9	12:16 PM	30	2:16 PM	31	4:16 PM	35	6:16 PM	36
6:17 AM	0	8:17 AM	2	10:17 AM	9	12:17 PM	34	2:17 PM	26	4:17 PM	43	6:17 PM	32
6:18 AM	0	8:18 AM	3	10:18 AM	10	12:18 PM	33	2:18 PM	29	4:18 PM	34	6:18 PM	26
6:19 AM	0	8:19 AM	1	10:19 AM	13	12:19 PM	32	2:19 PM	32	4:19 PM	40	6:19 PM	24
6:20 AM	0	8:20 AM	2	10:20 AM	14	12:20 PM	34	2:20 PM	30	4:20 PM	38	6:20 PM	26
6:21 AM	0	8:21 AM	1	10:21 AM	10	12:21 PM	33	2:21 PM	32	4:21 PM	39	6:21 PM	21
6:22 AM	0	8:22 AM	1	10:22 AM	13	12:22 PM	30	2:22 PM	35	4:22 PM	37	6:22 PM	29
6:23 AM	0	8:23 AM	1	10:23 AM	15	12:23 PM	31	2:23 PM	34	4:23 PM	35	6:23 PM	30
6:24 AM	0	8:24 AM	0	10:24 AM	14	12:24 PM	29	2:24 PM	33	4:24 PM	45	6:24 PM	31
6:25 AM	0	8:25 AM	2	10:25 AM	24	12:25 PM	31	2:25 PM	34	4:25 PM	46	6:25 PM	29
6:26 AM	0	8:26 AM	0	10:26 AM	18	12:26 PM	29	2:26 PM	28	4:26 PM	42	6:26 PM	31
6:27 AM	0	8:27 AM	0	10:27 AM	19	12:27 PM	28	2:27 PM	24	4:27 PM	45	6:27 PM	29
6:28 AM	0	8:28 AM	1	10:28 AM	21	12:28 PM	27	2:28 PM	25	4:28 PM	42	6:28 PM	31
6:29 AM	0	8:29 AM	0	10:29 AM	25	12:29 PM	27	2:29 PM	27	4:29 PM	41	6:29 PM	26
6:30 AM	0	8:30 AM	1	10:30 AM	17	12:30 PM	26	2:30 PM	29	4:30 PM	42	6:30 PM	25

6:31 AM	0	8:31 AM	2	10:31 AM	15	12:31 PM	28	2:31 PM	26	4:31 PM	46	6:31 PM	29
6:32 AM	0	8:32 AM	2	10:32 AM	26	12:32 PM	31	2:32 PM	28	4:32 PM	49	6:32 PM	28
6:33 AM	0	8:33 AM	1	10:33 AM	18	12:33 PM	29	2:33 PM	33	4:33 PM	51	6:33 PM	29
6:34 AM	0	8:34 AM	0	10:34 AM	15	12:34 PM	27	2:34 PM	34	4:34 PM	47	6:34 PM	34
6:35 AM	0	8:35 AM	0	10:35 AM	20	12:35 PM	30	2:35 PM	35	4:35 PM	51	6:35 PM	24
6:36 AM	0	8:36 AM	0	10:36 AM	21	12:36 PM	30	2:36 PM	33	4:36 PM	54	6:36 PM	26
6:37 AM	0	8:37 AM	0	10:37 AM	24	12:37 PM	32	2:37 PM	34	4:37 PM	37	6:37 PM	23
6:38 AM	0	8:38 AM	0	10:38 AM	23	12:38 PM	30	2:38 PM	36	4:38 PM	41	6:38 PM	22
6:39 AM	0	8:39 AM	0	10:39 AM	30	12:39 PM	31	2:39 PM	38	4:39 PM	46	6:39 PM	20
6:40 AM	0	8:40 AM	0	10:40 AM	29	12:40 PM	36	2:40 PM	37	4:40 PM	49	6:40 PM	16
6:41 AM	0	8:41 AM	0	10:41 AM	26	12:41 PM	33	2:41 PM	34	4:41 PM	49	6:41 PM	13
6:42 AM	0	8:42 AM	0	10:42 AM	38	12:42 PM	31	2:42 PM	38	4:42 PM	41	6:42 PM	17
6:43 AM	0	8:43 AM	2	10:43 AM	43	12:43 PM	33	2:43 PM	34	4:43 PM	50	6:43 PM	15
6:44 AM	0	8:44 AM	1	10:44 AM	38	12:44 PM	35	2:44 PM	33	4:44 PM	43	6:44 PM	17
6:45 AM	0	8:45 AM	0	10:45 AM	38	12:45 PM	34	2:45 PM	27	4:45 PM	45	6:45 PM	19
6:46 AM	0	8:46 AM	0	10:46 AM	32	12:46 PM	30	2:46 PM	28	4:46 PM	39	6:46 PM	14
6:47 AM	0	8:47 AM	0	10:47 AM	32	12:47 PM	35	2:47 PM	32	4:47 PM	35	6:47 PM	13
6:48 AM	0	8:48 AM	0	10:48 AM	30	12:48 PM	33	2:48 PM	35	4:48 PM	44	6:48 PM	14
6:49 AM	0	8:49 AM	0	10:49 AM	26	12:49 PM	32	2:49 PM	31	4:49 PM	41	6:49 PM	16
6:50 AM	0	8:50 AM	1	10:50 AM	29	12:50 PM	32	2:50 PM	32	4:50 PM	38	6:50 PM	17
6:51 AM	0	8:51 AM	1	10:51 AM	28	12:51 PM	33	2:51 PM	29	4:51 PM	40	6:51 PM	12
6:52 AM	0	8:52 AM	2	10:52 AM	23	12:52 PM	35	2:52 PM	28	4:52 PM	41	6:52 PM	12
6:53 AM	0	8:53 AM	2	10:53 AM	31	12:53 PM	32	2:53 PM	34	4:53 PM	48	6:53 PM	16
6:54 AM	0	8:54 AM	2	10:54 AM	30	12:54 PM	32	2:54 PM	31	4:54 PM	48	6:54 PM	16
6:55 AM	0	8:55 AM	4	10:55 AM	35	12:55 PM	30	2:55 PM	28	4:55 PM	45	6:55 PM	17
6:56 AM	0	8:56 AM	2	10:56 AM	29	12:56 PM	31	2:56 PM	28	4:56 PM	32	6:56 PM	11
6:57 AM	0	8:57 AM	3	10:57 AM	27	12:57 PM	29	2:57 PM	34	4:57 PM	47	6:57 PM	11
6:58 AM	0	8:58 AM	4	10:58 AM	28	12:58 PM	30	2:58 PM	37	4:58 PM	47	6:58 PM	7
6:59 AM	0	8:59 AM	2	10:59 AM	20	12:59 PM	31	2:59 PM	36	4:59 PM	44	6:59 PM	6
7:00 AM	0	9:00 AM	2	11:00 AM	28	1:00 PM	33	3:00 PM	35	5:00 PM	39	7:00 PM	7
7:01 AM	0	9:01 AM	2	11:01 AM	24	1:01 PM	32	3:01 PM	35	5:01 PM	37	7:01 PM	6
7:02 AM	0	9:02 AM	0	11:02 AM	32	1:02 PM	33	3:02 PM	37	5:02 PM	43	7:02 PM	3
7:03 AM	0	9:03 AM	2	11:03 AM	37	1:03 PM	34	3:03 PM	39	5:03 PM	45	7:03 PM	1
7:04 AM	0	9:04 AM	2	11:04 AM	34	1:04 PM	35	3:04 PM	36	5:04 PM	39	7:04 PM	1
7:05 AM	0	9:05 AM	2	11:05 AM	36	1:05 PM	32	3:05 PM	33	5:05 PM	32	7:05 PM	0
7:06 AM	0	9:06 AM	4	11:06 AM	37	1:06 PM	33	3:06 PM	35	5:06 PM	37	7:06 PM	0
7:07 AM	0	9:07 AM	1	11:07 AM	32	1:07 PM	35	3:07 PM	34	5:07 PM	49	7:07 PM	0
7:08 AM	0	9:08 AM	1	11:08 AM	31	1:08 PM	30	3:08 PM	32	5:08 PM	49	7:08 PM	0

7:09 AM	0	9:09 AM	0	11:09 AM	29	1:09 PM	31	3:09 PM	32	5:09 PM	43	7:09 PM	0
7:10 AM	0	9:10 AM	2	11:10 AM	39	1:10 PM	32	3:10 PM	33	5:10 PM	40	7:10 PM	0
7:11 AM	0	9:11 AM	4	11:11 AM	30	1:11 PM	34	3:11 PM	31	5:11 PM	45	7:11 PM	0
7:12 AM	0	9:12 AM	9	11:12 AM	26	1:12 PM	32	3:12 PM	27	5:12 PM	50	7:12 PM	0
7:13 AM	0	9:13 AM	12	11:13 AM	31	1:13 PM	30	3:13 PM	32	5:13 PM	53	7:13 PM	0
7:14 AM	0	9:14 AM	6	11:14 AM	32	1:14 PM	31	3:14 PM	29	5:14 PM	46	7:14 PM	0
7:15 AM	0	9:15 AM	11	11:15 AM	29	1:15 PM	30	3:15 PM	27	5:15 PM	42	7:15 PM	0
7:16 AM	0	9:16 AM	14	11:16 AM	24	1:16 PM	28	3:16 PM	28	5:16 PM	47	7:16 PM	0
7:17 AM	0	9:17 AM	14	11:17 AM	33	1:17 PM	28	3:17 PM	30	5:17 PM	42	7:17 PM	0
7:18 AM	0	9:18 AM	13	11:18 AM	34	1:18 PM	23	3:18 PM	26	5:18 PM	39	7:18 PM	0
7:19 AM	0	9:19 AM	16	11:19 AM	29	1:19 PM	20	3:19 PM	28	5:19 PM	38	7:19 PM	0
7:20 AM	0	9:20 AM	18	11:20 AM	28	1:20 PM	21	3:20 PM	30	5:20 PM	43	7:20 PM	0
7:21 AM	0	9:21 AM	13	11:21 AM	27	1:21 PM	19	3:21 PM	34	5:21 PM	44	7:21 PM	0
7:22 AM	0	9:22 AM	20	11:22 AM	34	1:22 PM	17	3:22 PM	36	5:22 PM	42	7:22 PM	0
7:23 AM	0	9:23 AM	19	11:23 AM	35	1:23 PM	22	3:23 PM	34	5:23 PM	40	7:23 PM	0
7:24 AM	0	9:24 AM	19	11:24 AM	31	1:24 PM	20	3:24 PM	37	5:24 PM	39	7:24 PM	0
7:25 AM	0	9:25 AM	21	11:25 AM	32	1:25 PM	22	3:25 PM	35	5:25 PM	32	7:25 PM	0
7:26 AM	0	9:26 AM	28	11:26 AM	35	1:26 PM	24	3:26 PM	34	5:26 PM	35	7:26 PM	0
7:27 AM	0	9:27 AM	21	11:27 AM	33	1:27 PM	23	3:27 PM	32	5:27 PM	35	7:27 PM	0
7:28 AM	0	9:28 AM	29	11:28 AM	31	1:28 PM	22	3:28 PM	35	5:28 PM	36	7:28 PM	0
7:29 AM	0	9:29 AM	31	11:29 AM	33	1:29 PM	19	3:29 PM	38	5:29 PM	27	7:29 PM	0
7:30 AM	0	9:30 AM	28	11:30 AM	28	1:30 PM	18	3:30 PM	32	5:30 PM	36	7:30 PM	0
7:31 AM	0	9:31 AM	23	11:31 AM	32	1:31 PM	14	3:31 PM	36	5:31 PM	36	7:31 PM	0
7:32 AM	0	9:32 AM	23	11:32 AM	36	1:32 PM	13	3:32 PM	35	5:32 PM	33	7:32 PM	0
7:33 AM	0	9:33 AM	24	11:33 AM	32	1:33 PM	9	3:33 PM	36	5:33 PM	31	7:33 PM	0
7:34 AM	0	9:34 AM	21	11:34 AM	30	1:34 PM	12	3:34 PM	34	5:34 PM	27	7:34 PM	0
7:35 AM	0	9:35 AM	23	11:35 AM	31	1:35 PM	17	3:35 PM	28	5:35 PM	30	7:35 PM	0
7:36 AM	0	9:36 AM	21	11:36 AM	32	1:36 PM	13	3:36 PM	29	5:36 PM	31	7:36 PM	0
7:37 AM	0	9:37 AM	24	11:37 AM	33	1:37 PM	15	3:37 PM	26	5:37 PM	31	7:37 PM	0
7:38 AM	0	9:38 AM	35	11:38 AM	30	1:38 PM	18	3:38 PM	27	5:38 PM	28	7:38 PM	0
7:39 AM	1	9:39 AM	34	11:39 AM	30	1:39 PM	18	3:39 PM	26	5:39 PM	24	7:39 PM	0
7:40 AM	2	9:40 AM	22	11:40 AM	31	1:40 PM	16	3:40 PM	24	5:40 PM	21	7:40 PM	0
7:41 AM	3	9:41 AM	26	11:41 AM	36	1:41 PM	21	3:41 PM	25	5:41 PM	34	7:41 PM	0
7:42 AM	1	9:42 AM	23	11:42 AM	35	1:42 PM	22	3:42 PM	26	5:42 PM	36	7:42 PM	0
7:43 AM	0	9:43 AM	18	11:43 AM	32	1:43 PM	24	3:43 PM	28	5:43 PM	33	7:43 PM	0
7:44 AM	0	9:44 AM	17	11:44 AM	27	1:44 PM	23	3:44 PM	28	5:44 PM	43	7:44 PM	0
7:45 AM	0	9:45 AM	19	11:45 AM	28	1:45 PM	26	3:45 PM	26	5:45 PM	42	7:45 PM	0
7:46 AM	0	9:46 AM	25	11:46 AM	31	1:46 PM	27	3:46 PM	32	5:46 PM	40	7:46 PM	0

7:47 AM	0	9:47 AM	25	11:47 AM	29	1:47 PM	28	3:47 PM	30	5:47 PM	38	7:47 PM	0
7:48 AM	0	9:48 AM	21	11:48 AM	26	1:48 PM	23	3:48 PM	30	5:48 PM	32	7:48 PM	0
7:49 AM	0	9:49 AM	22	11:49 AM	28	1:49 PM	26	3:49 PM	31	5:49 PM	38	7:49 PM	0
7:50 AM	0	9:50 AM	21	11:50 AM	30	1:50 PM	25	3:50 PM	27	5:50 PM	35	7:50 PM	0
7:51 AM	0	9:51 AM	20	11:51 AM	31	1:51 PM	24	3:51 PM	26	5:51 PM	37	7:51 PM	0
7:52 AM	0	9:52 AM	19	11:52 AM	30	1:52 PM	25	3:52 PM	29	5:52 PM	35	7:52 PM	0
7:53 AM	0	9:53 AM	18	11:53 AM	28	1:53 PM	26	3:53 PM	30	5:53 PM	36	7:53 PM	0
7:54 AM	0	9:54 AM	20	11:54 AM	30	1:54 PM	21	3:54 PM	30	5:54 PM	40	7:54 PM	0
7:55 AM	0	9:55 AM	20	11:55 AM	32	1:55 PM	25	3:55 PM	28	5:55 PM	32	7:55 PM	0
7:56 AM	1	9:56 AM	20	11:56 AM	31	1:56 PM	26	3:56 PM	29	5:56 PM	30	7:56 PM	0
7:57 AM	2	9:57 AM	20	11:57 AM	29	1:57 PM	20	3:57 PM	31	5:57 PM	38	7:57 PM	0
7:58 AM	3	9:58 AM	23	11:58 AM	33	1:58 PM	23	3:58 PM	32	5:58 PM	38	7:58 PM	0
7:59 AM	3	9:59 AM	21	11:59 AM	29	1:59 PM	23	3:59 PM	31	5:59 PM	35	7:59 PM	0



Location: Madison Heights

Date: 11/2/2021

Site Code: 15578903

Start Time	Ins
6:00 AM	8
6:05 AM	4
6:10 AM	9
6:15 AM	10
6:20 AM	7
6:25 AM	11
6:30 AM	6
6:35 AM	7
6:40 AM	11
6:45 AM	5
6:50 AM	14
6:55 AM	7
7:00 AM	8
7:05 AM	13
7:10 AM	10
7:15 AM	9
7:20 AM	14
7:25 AM	12
7:30 AM	15
7:35 AM	11
7:40 AM	15
7:45 AM	8
7:50 AM	15
7:55 AM	7
8:00 AM	19
8:05 AM	14
8:10 AM	11
8:15 AM	14
8:20 AM	15
8:25 AM	9
8:30 AM	7
8:35 AM	16
8:40 AM	23
8:45 AM	21
8:50 AM	17
8:55 AM	18
9:00 AM	25
9:05 AM	23
9:10 AM	14
9:15 AM	15
9:20 AM	20
9:25 AM	16
9:30 AM	9

9:35 AM	18
9:40 AM	20
9:45 AM	19
9:50 AM	18
9:55 AM	23
10:00 AM	17
10:05 AM	16
10:10 AM	24
10:15 AM	15
10:20 AM	18
10:25 AM	19
10:30 AM	23
10:35 AM	13
10:40 AM	19
10:45 AM	20
10:50 AM	17
10:55 AM	15
11:00 AM	23
11:05 AM	19
11:10 AM	14
11:15 AM	17
11:20 AM	16
11:25 AM	16
11:30 AM	23
11:35 AM	17
11:40 AM	25
11:45 AM	22
11:50 AM	20
11:55 AM	19
12:00 PM	22
12:05 PM	21
12:10 PM	18
12:15 PM	25
12:20 PM	27
12:25 PM	20
12:30 PM	20
12:35 PM	18
12:40 PM	16
12:45 PM	24
12:50 PM	18
12:55 PM	18
1:00 PM	20
1:05 PM	19
1:10 PM	22
1:15 PM	17
1:20 PM	24
1:25 PM	21
1:30 PM	21
1:35 PM	18
1:40 PM	19
1:45 PM	15
1:50 PM	22
1:55 PM	21
2:00 PM	20
2:05 PM	17
2:10 PM	18

2:15 PM	23
2:20 PM	18
2:25 PM	13
2:30 PM	22
2:35 PM	20
2:40 PM	18
2:45 PM	20
2:50 PM	20
2:55 PM	20
3:00 PM	18
3:05 PM	22
3:10 PM	20
3:15 PM	19
3:20 PM	10
3:25 PM	24
3:30 PM	16
3:35 PM	16
3:40 PM	16
3:45 PM	14
3:50 PM	18
3:55 PM	15
4:00 PM	15
4:05 PM	12
4:10 PM	18
4:15 PM	16
4:20 PM	23
4:25 PM	16
4:30 PM	17
4:35 PM	15
4:40 PM	20
4:45 PM	19
4:50 PM	25
4:55 PM	13
5:00 PM	17
5:05 PM	16
5:10 PM	9
5:15 PM	11
5:20 PM	23
5:25 PM	14
5:30 PM	23
5:35 PM	12
5:40 PM	20
5:45 PM	23
5:50 PM	21
5:55 PM	17
6:00 PM	16
6:05 PM	21
6:10 PM	21
6:15 PM	22
6:20 PM	16
6:25 PM	17
6:30 PM	17
6:35 PM	17
6:40 PM	16
6:45 PM	16
6:50 PM	16

6:55 PM	17
7:00 PM	12
7:05 PM	12
7:10 PM	19
7:15 PM	14
7:20 PM	21
7:25 PM	21
7:30 PM	13
7:35 PM	21
7:40 PM	14
7:45 PM	14
7:50 PM	21
7:55 PM	14
Total	2833



Site Code: 15578901
Location: Madison Heights
Date: 11/2/2021
Time: 6:00 AM - 8:00 PM

Time	Queue	Time	Queue	Time	Queue	Time	Queue	Time	Queue	Time	Queue	Time	Queue
6:00 AM	1	8:00 AM	1	10:00 AM	8	12:00 PM	11	2:00 PM	28	4:00 PM	32	6:00 PM	28
6:01 AM	4	8:01 AM	2	10:01 AM	5	12:01 PM	11	2:01 PM	27	4:01 PM	33	6:01 PM	28
6:02 AM	2	8:02 AM	4	10:02 AM	7	12:02 PM	9	2:02 PM	31	4:02 PM	28	6:02 PM	28
6:03 AM	3	8:03 AM	2	10:03 AM	7	12:03 PM	12	2:03 PM	30	4:03 PM	24	6:03 PM	28
6:04 AM	4	8:04 AM	3	10:04 AM	4	12:04 PM	14	2:04 PM	31	4:04 PM	26	6:04 PM	27
6:05 AM	1	8:05 AM	4	10:05 AM	4	12:05 PM	16	2:05 PM	30	4:05 PM	32	6:05 PM	19
6:06 AM	0	8:06 AM	3	10:06 AM	4	12:06 PM	13	2:06 PM	34	4:06 PM	34	6:06 PM	18
6:07 AM	0	8:07 AM	0	10:07 AM	4	12:07 PM	11	2:07 PM	36	4:07 PM	22	6:07 PM	18
6:08 AM	0	8:08 AM	0	10:08 AM	3	12:08 PM	14	2:08 PM	34	4:08 PM	23	6:08 PM	18
6:09 AM	0	8:09 AM	1	10:09 AM	3	12:09 PM	13	2:09 PM	35	4:09 PM	22	6:09 PM	27
6:10 AM	0	8:10 AM	2	10:10 AM	4	12:10 PM	14	2:10 PM	42	4:10 PM	25	6:10 PM	27
6:11 AM	0	8:11 AM	0	10:11 AM	3	12:11 PM	17	2:11 PM	38	4:11 PM	19	6:11 PM	21
6:12 AM	0	8:12 AM	0	10:12 AM	3	12:12 PM	14	2:12 PM	40	4:12 PM	20	6:12 PM	26
6:13 AM	0	8:13 AM	0	10:13 AM	4	12:13 PM	13	2:13 PM	33	4:13 PM	25	6:13 PM	27
6:14 AM	0	8:14 AM	0	10:14 AM	6	12:14 PM	17	2:14 PM	33	4:14 PM	24	6:14 PM	29
6:15 AM	0	8:15 AM	0	10:15 AM	8	12:15 PM	14	2:15 PM	33	4:15 PM	18	6:15 PM	31
6:16 AM	0	8:16 AM	2	10:16 AM	5	12:16 PM	14	2:16 PM	33	4:16 PM	29	6:16 PM	31
6:17 AM	1	8:17 AM	0	10:17 AM	8	12:17 PM	15	2:17 PM	33	4:17 PM	31	6:17 PM	29
6:18 AM	1	8:18 AM	0	10:18 AM	8	12:18 PM	18	2:18 PM	29	4:18 PM	29	6:18 PM	30
6:19 AM	1	8:19 AM	0	10:19 AM	8	12:19 PM	19	2:19 PM	31	4:19 PM	29	6:19 PM	28
6:20 AM	0	8:20 AM	0	10:20 AM	7	12:20 PM	19	2:20 PM	32	4:20 PM	36	6:20 PM	34
6:21 AM	0	8:21 AM	0	10:21 AM	4	12:21 PM	21	2:21 PM	26	4:21 PM	26	6:21 PM	35
6:22 AM	0	8:22 AM	0	10:22 AM	5	12:22 PM	24	2:22 PM	33	4:22 PM	34	6:22 PM	37
6:23 AM	0	8:23 AM	0	10:23 AM	9	12:23 PM	25	2:23 PM	28	4:23 PM	33	6:23 PM	34
6:24 AM	0	8:24 AM	0	10:24 AM	5	12:24 PM	34	2:24 PM	36	4:24 PM	38	6:24 PM	35
6:25 AM	0	8:25 AM	0	10:25 AM	5	12:25 PM	32	2:25 PM	34	4:25 PM	34	6:25 PM	32
6:26 AM	0	8:26 AM	0	10:26 AM	9	12:26 PM	32	2:26 PM	32	4:26 PM	39	6:26 PM	31
6:27 AM	0	8:27 AM	0	10:27 AM	14	12:27 PM	29	2:27 PM	35	4:27 PM	34	6:27 PM	34
6:28 AM	0	8:28 AM	0	10:28 AM	13	12:28 PM	25	2:28 PM	33	4:28 PM	36	6:28 PM	31
6:29 AM	0	8:29 AM	0	10:29 AM	11	12:29 PM	30	2:29 PM	38	4:29 PM	32	6:29 PM	35
6:30 AM	0	8:30 AM	0	10:30 AM	13	12:30 PM	29	2:30 PM	36	4:30 PM	35	6:30 PM	34

6:31 AM	0	8:31 AM	0	10:31 AM	8	12:31 PM	30	2:31 PM	38	4:31 PM	35	6:31 PM	36
6:32 AM	0	8:32 AM	0	10:32 AM	10	12:32 PM	27	2:32 PM	40	4:32 PM	35	6:32 PM	32
6:33 AM	0	8:33 AM	0	10:33 AM	9	12:33 PM	33	2:33 PM	35	4:33 PM	32	6:33 PM	35
6:34 AM	0	8:34 AM	0	10:34 AM	15	12:34 PM	33	2:34 PM	36	4:34 PM	30	6:34 PM	39
6:35 AM	0	8:35 AM	0	10:35 AM	12	12:35 PM	37	2:35 PM	38	4:35 PM	31	6:35 PM	39
6:36 AM	0	8:36 AM	0	10:36 AM	13	12:36 PM	36	2:36 PM	37	4:36 PM	30	6:36 PM	34
6:37 AM	0	8:37 AM	0	10:37 AM	15	12:37 PM	29	2:37 PM	35	4:37 PM	30	6:37 PM	35
6:38 AM	0	8:38 AM	0	10:38 AM	15	12:38 PM	31	2:38 PM	37	4:38 PM	29	6:38 PM	34
6:39 AM	0	8:39 AM	0	10:39 AM	16	12:39 PM	23	2:39 PM	37	4:39 PM	32	6:39 PM	37
6:40 AM	0	8:40 AM	0	10:40 AM	13	12:40 PM	27	2:40 PM	42	4:40 PM	22	6:40 PM	30
6:41 AM	1	8:41 AM	0	10:41 AM	9	12:41 PM	26	2:41 PM	38	4:41 PM	32	6:41 PM	34
6:42 AM	0	8:42 AM	3	10:42 AM	9	12:42 PM	23	2:42 PM	40	4:42 PM	34	6:42 PM	34
6:43 AM	0	8:43 AM	5	10:43 AM	12	12:43 PM	25	2:43 PM	35	4:43 PM	33	6:43 PM	33
6:44 AM	0	8:44 AM	4	10:44 AM	11	12:44 PM	23	2:44 PM	39	4:44 PM	39	6:44 PM	34
6:45 AM	0	8:45 AM	6	10:45 AM	9	12:45 PM	19	2:45 PM	34	4:45 PM	38	6:45 PM	36
6:46 AM	0	8:46 AM	4	10:46 AM	7	12:46 PM	18	2:46 PM	36	4:46 PM	34	6:46 PM	37
6:47 AM	0	8:47 AM	5	10:47 AM	10	12:47 PM	18	2:47 PM	32	4:47 PM	29	6:47 PM	31
6:48 AM	0	8:48 AM	4	10:48 AM	9	12:48 PM	21	2:48 PM	31	4:48 PM	38	6:48 PM	36
6:49 AM	0	8:49 AM	7	10:49 AM	12	12:49 PM	20	2:49 PM	37	4:49 PM	33	6:49 PM	35
6:50 AM	0	8:50 AM	7	10:50 AM	12	12:50 PM	20	2:50 PM	37	4:50 PM	34	6:50 PM	33
6:51 AM	0	8:51 AM	8	10:51 AM	12	12:51 PM	25	2:51 PM	36	4:51 PM	32	6:51 PM	35
6:52 AM	0	8:52 AM	8	10:52 AM	9	12:52 PM	23	2:52 PM	35	4:52 PM	33	6:52 PM	34
6:53 AM	0	8:53 AM	4	10:53 AM	11	12:53 PM	24	2:53 PM	34	4:53 PM	36	6:53 PM	30
6:54 AM	0	8:54 AM	9	10:54 AM	9	12:54 PM	25	2:54 PM	35	4:54 PM	41	6:54 PM	24
6:55 AM	0	8:55 AM	5	10:55 AM	11	12:55 PM	26	2:55 PM	30	4:55 PM	34	6:55 PM	33
6:56 AM	0	8:56 AM	4	10:56 AM	6	12:56 PM	22	2:56 PM	30	4:56 PM	39	6:56 PM	26
6:57 AM	0	8:57 AM	1	10:57 AM	7	12:57 PM	25	2:57 PM	33	4:57 PM	36	6:57 PM	27
6:58 AM	0	8:58 AM	3	10:58 AM	9	12:58 PM	24	2:58 PM	34	4:58 PM	37	6:58 PM	28
6:59 AM	0	8:59 AM	4	10:59 AM	3	12:59 PM	25	2:59 PM	36	4:59 PM	30	6:59 PM	25
7:00 AM	0	9:00 AM	0	11:00 AM	3	1:00 PM	24	3:00 PM	37	5:00 PM	30	7:00 PM	26
7:01 AM	0	9:01 AM	5	11:01 AM	8	1:01 PM	29	3:01 PM	36	5:01 PM	31	7:01 PM	30
7:02 AM	0	9:02 AM	3	11:02 AM	8	1:02 PM	26	3:02 PM	34	5:02 PM	31	7:02 PM	29
7:03 AM	0	9:03 AM	5	11:03 AM	5	1:03 PM	26	3:03 PM	32	5:03 PM	28	7:03 PM	31
7:04 AM	0	9:04 AM	5	11:04 AM	2	1:04 PM	25	3:04 PM	30	5:04 PM	28	7:04 PM	31
7:05 AM	0	9:05 AM	7	11:05 AM	5	1:05 PM	28	3:05 PM	30	5:05 PM	28	7:05 PM	29
7:06 AM	0	9:06 AM	9	11:06 AM	8	1:06 PM	26	3:06 PM	26	5:06 PM	29	7:06 PM	22
7:07 AM	0	9:07 AM	7	11:07 AM	6	1:07 PM	25	3:07 PM	27	5:07 PM	29	7:07 PM	23
7:08 AM	0	9:08 AM	9	11:08 AM	5	1:08 PM	24	3:08 PM	29	5:08 PM	30	7:08 PM	21

7:09 AM	0	9:09 AM	11	11:09 AM	8	1:09 PM	25	3:09 PM	30	5:09 PM	32	7:09 PM	23
7:10 AM	0	9:10 AM	9	11:10 AM	9	1:10 PM	27	3:10 PM	30	5:10 PM	32	7:10 PM	20
7:11 AM	0	9:11 AM	9	11:11 AM	7	1:11 PM	26	3:11 PM	31	5:11 PM	31	7:11 PM	23
7:12 AM	0	9:12 AM	8	11:12 AM	2	1:12 PM	26	3:12 PM	34	5:12 PM	32	7:12 PM	22
7:13 AM	0	9:13 AM	9	11:13 AM	2	1:13 PM	22	3:13 PM	34	5:13 PM	29	7:13 PM	19
7:14 AM	0	9:14 AM	9	11:14 AM	4	1:14 PM	26	3:14 PM	35	5:14 PM	23	7:14 PM	18
7:15 AM	0	9:15 AM	3	11:15 AM	2	1:15 PM	27	3:15 PM	34	5:15 PM	29	7:15 PM	21
7:16 AM	0	9:16 AM	3	11:16 AM	3	1:16 PM	23	3:16 PM	36	5:16 PM	26	7:16 PM	23
7:17 AM	0	9:17 AM	3	11:17 AM	3	1:17 PM	27	3:17 PM	38	5:17 PM	30	7:17 PM	20
7:18 AM	0	9:18 AM	2	11:18 AM	3	1:18 PM	27	3:18 PM	33	5:18 PM	22	7:18 PM	20
7:19 AM	0	9:19 AM	0	11:19 AM	4	1:19 PM	25	3:19 PM	32	5:19 PM	25	7:19 PM	16
7:20 AM	0	9:20 AM	2	11:20 AM	3	1:20 PM	23	3:20 PM	35	5:20 PM	27	7:20 PM	14
7:21 AM	0	9:21 AM	5	11:21 AM	3	1:21 PM	26	3:21 PM	32	5:21 PM	28	7:21 PM	15
7:22 AM	1	9:22 AM	6	11:22 AM	4	1:22 PM	28	3:22 PM	29	5:22 PM	27	7:22 PM	18
7:23 AM	3	9:23 AM	6	11:23 AM	6	1:23 PM	31	3:23 PM	32	5:23 PM	34	7:23 PM	20
7:24 AM	1	9:24 AM	4	11:24 AM	6	1:24 PM	28	3:24 PM	31	5:24 PM	24	7:24 PM	20
7:25 AM	1	9:25 AM	4	11:25 AM	2	1:25 PM	31	3:25 PM	31	5:25 PM	32	7:25 PM	19
7:26 AM	1	9:26 AM	6	11:26 AM	2	1:26 PM	29	3:26 PM	28	5:26 PM	29	7:26 PM	18
7:27 AM	2	9:27 AM	7	11:27 AM	1	1:27 PM	31	3:27 PM	32	5:27 PM	28	7:27 PM	20
7:28 AM	1	9:28 AM	3	11:28 AM	1	1:28 PM	34	3:28 PM	29	5:28 PM	28	7:28 PM	21
7:29 AM	0	9:29 AM	3	11:29 AM	1	1:29 PM	32	3:29 PM	32	5:29 PM	28	7:29 PM	21
7:30 AM	0	9:30 AM	2	11:30 AM	4	1:30 PM	38	3:30 PM	29	5:30 PM	27	7:30 PM	20
7:31 AM	0	9:31 AM	2	11:31 AM	1	1:31 PM	39	3:31 PM	30	5:31 PM	25	7:31 PM	18
7:32 AM	0	9:32 AM	0	11:32 AM	2	1:32 PM	33	3:32 PM	32	5:32 PM	28	7:32 PM	17
7:33 AM	0	9:33 AM	1	11:33 AM	9	1:33 PM	37	3:33 PM	33	5:33 PM	30	7:33 PM	18
7:34 AM	0	9:34 AM	0	11:34 AM	4	1:34 PM	34	3:34 PM	29	5:34 PM	24	7:34 PM	16
7:35 AM	0	9:35 AM	0	11:35 AM	1	1:35 PM	36	3:35 PM	35	5:35 PM	26	7:35 PM	15
7:36 AM	0	9:36 AM	0	11:36 AM	0	1:36 PM	30	3:36 PM	37	5:36 PM	26	7:36 PM	18
7:37 AM	0	9:37 AM	0	11:37 AM	1	1:37 PM	28	3:37 PM	33	5:37 PM	23	7:37 PM	17
7:38 AM	0	9:38 AM	0	11:38 AM	3	1:38 PM	26	3:38 PM	32	5:38 PM	26	7:38 PM	20
7:39 AM	0	9:39 AM	0	11:39 AM	2	1:39 PM	26	3:39 PM	29	5:39 PM	19	7:39 PM	18
7:40 AM	0	9:40 AM	0	11:40 AM	5	1:40 PM	25	3:40 PM	33	5:40 PM	17	7:40 PM	17
7:41 AM	1	9:41 AM	2	11:41 AM	7	1:41 PM	29	3:41 PM	37	5:41 PM	19	7:41 PM	22
7:42 AM	1	9:42 AM	1	11:42 AM	7	1:42 PM	33	3:42 PM	28	5:42 PM	24	7:42 PM	15
7:43 AM	0	9:43 AM	7	11:43 AM	8	1:43 PM	28	3:43 PM	29	5:43 PM	17	7:43 PM	17
7:44 AM	0	9:44 AM	5	11:44 AM	11	1:44 PM	31	3:44 PM	34	5:44 PM	18	7:44 PM	18
7:45 AM	0	9:45 AM	6	11:45 AM	9	1:45 PM	37	3:45 PM	31	5:45 PM	20	7:45 PM	14
7:46 AM	0	9:46 AM	5	11:46 AM	8	1:46 PM	33	3:46 PM	33	5:46 PM	21	7:46 PM	14

7:47 AM	0	9:47 AM	8	11:47 AM	8	1:47 PM	29	3:47 PM	31	5:47 PM	21	7:47 PM	15
7:48 AM	0	9:48 AM	8	11:48 AM	7	1:48 PM	31	3:48 PM	34	5:48 PM	22	7:48 PM	10
7:49 AM	0	9:49 AM	3	11:49 AM	8	1:49 PM	36	3:49 PM	36	5:49 PM	20	7:49 PM	12
7:50 AM	0	9:50 AM	5	11:50 AM	7	1:50 PM	35	3:50 PM	33	5:50 PM	24	7:50 PM	11
7:51 AM	0	9:51 AM	4	11:51 AM	13	1:51 PM	28	3:51 PM	28	5:51 PM	22	7:51 PM	17
7:52 AM	0	9:52 AM	5	11:52 AM	8	1:52 PM	29	3:52 PM	32	5:52 PM	20	7:52 PM	15
7:53 AM	0	9:53 AM	8	11:53 AM	7	1:53 PM	30	3:53 PM	40	5:53 PM	20	7:53 PM	15
7:54 AM	0	9:54 AM	5	11:54 AM	6	1:54 PM	30	3:54 PM	36	5:54 PM	24	7:54 PM	18
7:55 AM	1	9:55 AM	3	11:55 AM	10	1:55 PM	33	3:55 PM	28	5:55 PM	25	7:55 PM	16
7:56 AM	1	9:56 AM	4	11:56 AM	9	1:56 PM	30	3:56 PM	31	5:56 PM	22	7:56 PM	13
7:57 AM	3	9:57 AM	3	11:57 AM	9	1:57 PM	30	3:57 PM	29	5:57 PM	20	7:57 PM	13
7:58 AM	2	9:58 AM	2	11:58 AM	7	1:58 PM	32	3:58 PM	25	5:58 PM	22	7:58 PM	12
7:59 AM	2	9:59 AM	3	11:59 AM	11	1:59 PM	34	3:59 PM	27	5:59 PM	25	7:59 PM	9