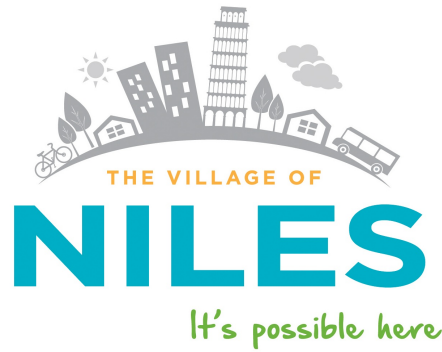


**MAYOR**  
George D. Alpagianis

**TRUSTEES**  
Joe LoVerde  
John C. Jekot  
Danette O'Donovan Matyas  
Craig Niedermaier  
Dean Strzelecki



**VILLAGE MANAGER**  
Joseph S. La Margo

**VILLAGE CLERK**  
Marlene J. Victorine

Phone: (847) 588-8000  
Fax: (847) 588-8051  
[www.vniles.com](http://www.vniles.com)

1000 Civic Center Drive, Niles, Illinois 60714

**AGENDA**  
**NILES VILLAGE BOARD OF TRUSTEES MEETING**  
**COUNCIL CHAMBERS**  
**Tuesday, October 25, 2022**  
**7:00 PM**

- 1. CALL TO ORDER**
- 2. PLEDGE OF ALLEGIANCE**
- 3. ROLL CALL**
- 4. ANNOUNCEMENTS**

**Item 4.a** Halloween Home Decorating Contest - Voting Begins at 7:00 p.m. October 25, 2022 on the Village's Facebook Page (Katie Schneider, Community Engagement Coordinator)  
[Details](#)

**Item 4.b** Veterans Day Ceremony at 11:00 a.m. at the Veterans Memorial Waterfall on November 11, 2022 - Village Facilities will be Closed November 11 in Observance of Veterans Day (Katie Schneider, Community Engagement Coordinator)  
[Details](#)

**Item 4.c** 10th Annual Holly Jolly Fest and Tree Lighting Ceremony on Saturday, November 26, 2022 at Civic Center Plaza from 2:00 p.m. to 8:00 p.m. (Katie Schneider, Community Engagement Coordinator)  
  
[Details](#)

**Item 4.d** Halloween Trick or Treat Information and Safety Tips (Police Chief Luis C. Tigera)  
[Details](#)

- 5. PROCLAMATIONS**

- |                 |  |                         |
|-----------------|--|-------------------------|
| <b>Item 5.a</b> | Proclamation and Presentation of "Key to the City" to Jesse White - Illinois Secretary of State<br><a href="#">Details</a> | President<br>Alpogianis |
| <b>Item 5.b</b> | Recognizing Fr. Dean Botsis 40 Years of Service to St. Haralambos<br><a href="#">Details</a>                               | President<br>Alpogianis |
| <b>Item 5.c</b> | Native American Heritage Month - November 2022<br><a href="#">Details</a>  | President<br>Alpogianis |
| <b>Item 5.d</b> | Honoring Niles Resident and Greek Olympian Panagiotis "Peter" Sikaras<br><a href="#">Details</a>                           | President<br>Alpogianis |

**6. PRESIDENT'S REPORT**

**7. VILLAGE CLERK'S REPORT**

- Item 7.a** Early Voting at Niles Village Hall Council Chambers - October 24, 2022 - November 7, 2022  
November 8, 2022 Gubernatorial General Election  
[Details](#)

**8. COMMITTEE REPORTS**

- Item 8.a** Trustee Jekot (Human Services Committee and Northwest Municipal Conference)
- Item 8.b** Trustee Strzelecki (Public Safety Committee and RED Center)
- Item 8.c** Trustee LoVerde (Finance Committee)
- Item 8.d** Trustee Matyas (Public Works Committee)
- Item 8.e** Trustee Niedermaier (Building and Zoning Committee, Bicycle and Pedestrian Plan Advisory Group)

**9. PUBLIC COMMENTS (AGENDA ITEMS ONLY)**

The floor is open for public comments on agenda items only. Please step up to the microphone, state your name and city, and make your comment. You will be allotted three minutes. Please make sure you sign in at the reception desk.

**10. CONSENT AGENDA**

All items on the Consent Agenda are considered to be routine and will be enacted in one motion. There will be no individual discussion of these items unless a Trustee so requests, in which event the item will be removed from the Consent Agenda and considered at the end of New Business.

- Item 10.a** Approval of September 27, 2022 Special Board of Trustees Meeting Minutes - Executive Session  
[Details](#)
  
- Item 10.b** Approval of September 27, 2022 Special Board of Trustees Meeting Minutes  
[Details](#)
  
- Item 10.c** Approval of September 27, 2022 Regular Board of Trustees Meeting Minutes  
[Details](#)
  
- Item 10.d** Ordinance Determining That the Minutes to Closed Meetings Shall Become Public  
[Details](#)
  
- Item 10.e** Ordinance Approving Change Order Number 2 Authorizing an Increase in the Time of Substantial Completion of the 2022 Street Improvements with Arrow Road Construction by 18 days for a Substantial Completion Date of December 1, 2022 and Establishing a Final Completion Date of May 1, 2023  
[Details](#)
  
- Item 10.f** Resolution Authorizing the Destruction of Audio Recordings of Closed Meeting Sessions  
[Details](#)
  
- Item 10.g** Resolution Expressing Intent to Continue Participation in the Suburban Tree Consortium and Authorize Tree Purchase in an Amount Not to Exceed \$55,000 for Fiscal Year 2023  
  
[Details](#)
  
- Item 10.h** Resolution Authorizing an Intergovernmental Agreement with the Illinois Department of Transportation for the Maintenance and Apportionment of Energy Costs for Traffic Control Devices located at Prospect Street and Oakton Street  
[Details](#)
  
- Item 10.i** Resolution Authorizing an Annual Service Agreement for Automatic Vehicle Location (AVL) Services with Verizon Connect Fleet USA LLC, utilizing the Sourcewell Cooperative Contract #020221-NWF in the Amount of \$35,822.40  
[Details](#)

**11. NEW BUSINESS**

- Item 11.a** Appointment of Interim Public Works Director Thomas Powers Effective October 4, 2022  
[Details](#) President Alpogianis

**Item 11.b** Ordinance Approving a Special Use to Allow a 'Gas Station' Located at 7220 N. Melvina Avenue (22-ZP-29) Trustee  
Niedermaier

[Details](#)

**Item 11.c** Ordinance Approving a Special Use to Allow a 'Parking Lot – Principal' and 'Car Wash' Located at 7310 N. Melvina Ave. (22-ZP-30) Trustee  
Niedermaier

[Details](#)

**Item 11.d** Ordinance Approving a Change Order Number 1 for Four Flags Tank Rehab, Painting and Tower Facilities Lightning Protection and Oriole Tower Lightning Protection Project from Jetco Ltd., By Decreasing the Contract Price by \$204,585.22 for a Total Contract Amount of \$962,400.78 Trustee Matyas

[Details](#)

**Item 11.e** Resolution Authorizing a Contractual Agreement with Baxter & Woodman, Inc. for the Design of the Dobson Street Storm Water Conveyance Improvements in the Amount \$189,606 Trustee Matyas

[Details](#)

## **12. FINANCIAL REPORTS**

**Item 12.a** Treasurer's Report - September 2022 Trustee LoVerde

[Details](#)

## **13. NEXT MEETINGS**

**Item 13.a** November 15, 2022 at 7:00 p.m. - Regular Board of Trustees Meeting

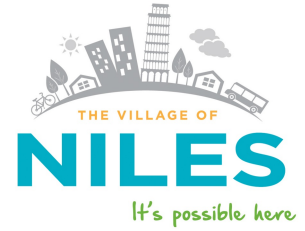
## **14. PUBLIC COMMENTS (NON-AGENDA ITEMS)**

## **15. EXECUTIVE SESSION (if necessary)**

## **16. ADJOURNMENT**



**BOARD AGENDA ITEM EXPLANATION FORM**



**Halloween Home Decorating Contest - Voting Begins at 7:00 p.m. October 25, 2022 on the Village's Facebook Page (Katie Schneider, Community Engagement Coordinator)**

Meeting Date: 10/25/2022

Item Number **4.a**

Requested By: Village Clerk Office

Action Requested: Announcements

Prepared By: Marlene Victorine, Village Clerk Assigned to:

**MOTION**

\_\_\_\_\_

**REASON FOR REQUEST / BACKGROUND**

\_\_\_\_\_

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance



BOARD AGENDA ITEM EXPLANATION FORM



Veterans Day Ceremony at 11:00 a.m. at the Veterans Memorial Waterfall on November 11, 2022 - Village Facilities will be Closed November 11 in Observance of Veterans Day (Katie Schneider, Community Engagement Coordinator)

Meeting Date: 10/25/2022

Item Number 4.b

Requested By: Village Managers Office

Action Requested: Announcements

Prepared By: Marlene Victorine, Village Clerk Assigned to:

MOTION

[Empty box for MOTION]

REASON FOR REQUEST / BACKGROUND

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Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance





BOARD AGENDA ITEM EXPLANATION FORM



10th Annual Holly Jolly Fest and Tree Lighting Ceremony on Saturday, November 26, 2022 at Civic Center Plaza from 2:00 p.m. to 8:00 p.m. (Katie Schneider, Community Engagement Coordinator)

Meeting Date: 10/25/2022

Item Number 4.c

Requested By: Village Managers Office

Action Requested: Announcements

Prepared By: Marlene Victorine, Village Clerk Assigned to:

MOTION

[Empty box for MOTION content]

REASON FOR REQUEST / BACKGROUND

[Empty box for REASON FOR REQUEST / BACKGROUND content]

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance



**BOARD AGENDA ITEM EXPLANATION FORM**



**Halloween Trick or Treat Information and Safety Tips (Police Chief Luis C. Tigera)**

Meeting Date: 10/25/2022

Item Number **4.d**

Requested By: Police Department

Action Requested: Announcements

Prepared By: Marlene Victorine, Village Clerk Assigned to:

**MOTION**

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**REASON FOR REQUEST / BACKGROUND**

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Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

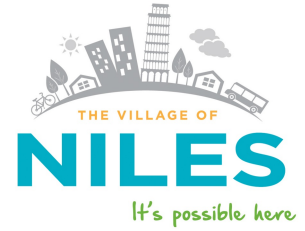
Budget Amount

Line Item Budget Amount

Variance



**BOARD AGENDA ITEM EXPLANATION FORM**



**Proclamation and Presentation of "Key to the City" to Jesse White - Illinois Secretary of State**

Meeting Date: 10/25/2022

Item Number **5.a**

Requested By: Village Clerk Office

Action Requested: Proclamation

Prepared By: Marlene Victorine, Village Clerk Assigned to: President Alpogianis

**ATTACHMENTS:**

[2022-XXP Proclamation Honoring Jesse White, Illinois Secretary of State FINAL.pdf](#)

**MOTION**

\_\_\_\_\_

**REASON FOR REQUEST / BACKGROUND**

\_\_\_\_\_

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance

# Proclamation

## Celebrating with Gratitude the Career of Illinois Secretary of State Jesse White “Key to the City”

**WHEREAS**, Jesse White is Illinois' 37th Secretary of State and was first elected to the office in 1998, Secretary White is now the longest serving Secretary of State in Illinois history; and

**WHEREAS**, Prior to his election as Secretary of State, White served as Cook County Recorder of Deeds – a job to which he was first elected in 1992 and reelected in 1996. Before that, he served 16 years in the Illinois General Assembly, representing the most culturally, economically and racially diverse district in Illinois; and

**WHEREAS**, The Illinois Secretary of State's office is the largest and most diverse office of its kind in the nation, providing more direct services to the people of Illinois than any other public agency, with the issuance of state ID cards, vehicle license plates and titles; registers corporations; enforces the Illinois Securities Act; administers the Organ/Tissue Donor Program; licenses drivers; and maintains driver records, also as State Librarian, Secretary White oversees the State Library and literacy programs, and as the State Archivist, he maintains records of legal or historic value; and

**WHEREAS**, under White's leadership, the use of new technology along with modernizing and streamlining operations has significantly improved customer service. Illinois has become a national leader in road safety as White strengthened DUI laws, reformed the truck driver licensing program and overhauled teen driving guidelines, and as a result of White's initiatives, traffic fatalities have decreased, and in 2014, White was inducted into the Illinois High School & College Driver Education Association Hall of Fame; and

**WHEREAS**, in 1959, White founded the internationally known “Jesse White Tumbling Team” to serve as a positive alternative for at-risk children residing in and around the Chicago area, and more than 18,500 young men and women have performed with the team. White has spent 63 years working as a volunteer with the team to help kids stay away from gangs, drugs, alcohol and smoking, and to help set at-risk youth on the path to success; and

**WHEREAS**, White served our country as a paratrooper in the U.S. Army's 101st Airborne Division and as a member of the Illinois National Guard and Reserve; and

**WHEREAS**, He played professional baseball for seven seasons with the Chicago Cubs organization and in August 2021, in honor of his professional baseball career and lifetime of public service, the Chicago Cubs signed White to an honorary Major League Baseball contract; and

**WHEREAS**, After his baseball career, Secretary White enjoyed a 33-year career with the Chicago Public Schools as a teacher and an administrator; and

**WHEREAS**, Jesse White was an all-city baseball and basketball player at Chicago's Waller High School (now Lincoln Park High School) and then went on to earn his Bachelor of Science from Alabama State College (now Alabama State University) in 1957; and

**WHEREAS**, Born in Alton, Illinois, Secretary White now lives on Chicago's Near North Side, and has three adult children, Glenna, Lorraine and Mark; and two grandchildren, Jesse and Susan.

**NOW, THEREFORE**, Mayor George D. Alpogianis, and the Board of Trustees of the Village of Niles, Illinois, do hereby proclaim, on his retirement, our thanks and respect and congratulations to Illinois Secretary of State Jesse White for his enormous contributions to our community.

Dated this 25<sup>th</sup> day of October, 2022.

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Mayor George D. Alpogianis

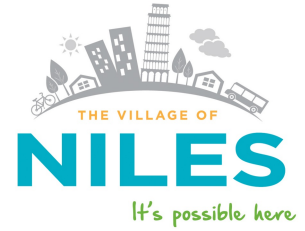
Attested:

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Marlene J. Victorine, Village Clerk



**BOARD AGENDA ITEM EXPLANATION FORM**



**Recognizing Fr. Dean Botsis 40 Years of Service to St. Haralambos**

Meeting Date: 10/25/2022

Item Number **5.b**

Requested By: Village Clerk Office

Action Requested: Proclamation

Prepared By: Marlene Victorine, Village Clerk Assigned to: President Alpogianis

**ATTACHMENTS:**

[2022-XXP Proclamation Honoring Father Dean Botsis.docx](#)

**MOTION**

\_\_\_\_\_

**REASON FOR REQUEST / BACKGROUND**

\_\_\_\_\_

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount



Line Item Budget  
Amount

Variance

# Proclamation

## Celebrating Father Constantine “Dean” Botsis on his 40<sup>th</sup> Anniversary

**WHEREAS**, Father Constantine P. Botsis celebrated his 40<sup>th</sup> Anniversary as the Priest of the Holy Taxiarchai and Saint Haralambos Greek Orthodox Church in the Village of Niles on October 2, 2022; and

**WHEREAS**, Born in Holland, Michigan, and raised in Grand Rapids, he studied at Hellenic College/ Holy Cross School of Theology in Brookline, Massachusetts receiving a Bachelor of Arts in 1971 and Master of Divinity in 1973; and

**WHEREAS**, He served as a lay minister at St. Nicholas Greek Orthodox Church in Northridge, California (1973-74), at the Annunciation Greek Orthodox Church Akron, Ohio (1974 – 1976); and later as diocesan youth director and bishop’s assistant in the Diocese of Detroit in 1977, where he wrote the Young Adult League Guidebook of the Greek Orthodox Archdiocese that was released at the 1980 Clergy-Laity Congress; and

**WHEREAS**, Fr. Dean became a counselor at the Ionian Village Camp in Greece, and served on the Ionian Village Staff for several years, meeting his future wife Georgia, from Duluth, MN; and

**WHEREAS**, Fr. Dean came to Chicago and served as the Registrar of the Diocese of Chicago, a full-time position which he held until 1986, and as Executive Secretary of the Spiritual Court of the Diocese of Chicago for 40 years, and during that period, was an organizer and founder of the Orthodox Christian Clergy Association of Greater Chicago (1980), which he served as president and secretary for many years, and was one of the founders of Orthodox Christian SYNERGY (1990), and also served as the spiritual advisor of the Diocese of Chicago Young Adult League from 1986 to 1993; and

**WHEREAS**, Fr. Dean was ordained to the Holy Diaconate in March of 1980 and served as the Bishop’s deacon until he was ordained to the Holy Priesthood in June of 1982, being assigned to the Holy Taxiarchai and St. Haralambos Greek Orthodox Church in Niles, Illinois on August 1, 1982, and overseeing the church’s growth from 125 families to 650 families; and

**WHEREAS**, working together with the building committee, Fr Dean advised the design and construction of the St. Haralambos Community Center in 1983, the Holy Taxiarchai and Saint Haralambos Church in 1988 and the new Community Life Center and Gym in 2021, and

**WHEREAS**, Fr. Dean served as a member of the Greek Orthodox Archdiocesan Council, and a Trustee of Holy Cross/Hellenic College in Brookline MA, and

**WHEREAS**, Fr. Dean was recognized as the 2021 Niles Citizen of the Year,

**NOW, THEREFORE**, Mayor George D. Alpogianis, and the Board of Trustees of the Village of Niles, Illinois, do hereby proclaim, with our thanks and respect and congratulations, on his 40<sup>th</sup> Anniversary, Father Dean Botsis for his enormous contributions to our community.

Dated this 25<sup>th</sup> day of October, 2022.

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Mayor George D. Alpogianis

Attested:

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Marlene J. Victorine, Village Clerk



**BOARD AGENDA ITEM EXPLANATION FORM**



**Native American Heritage Month - November 2022**

Meeting Date: 10/25/2022

Item Number **5.c**

Requested By: Village Board

Action Requested: Proclamation

Prepared By: Katie Schneider, Community Engagement Coordinator

Assigned to: President Alpogianis

**ATTACHMENTS:**

[2022-XXP Native American Heritage Month Proclamation\\_Suggestions - November.docx](#)

**MOTION**

\_\_\_\_\_

**REASON FOR REQUEST / BACKGROUND**

\_\_\_\_\_

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance

# Proclamation

## NATIVE AMERICAN HERITAGE MONTH NOVEMBER 2022

**WHEREAS**, Native Americans play a critical role in the health and vitality of our great Nation with vibrant cultures rich in traditions, tribal sovereignty and economic self-determination; and

**WHEREAS**, As business owners, artists, teachers, writers, courageous members of our Armed Forces, and so much more, their contributions to our society are cause for celebration and appreciation by all Americans; and

**WHEREAS**, the Sauk Tribe, now present-day Sac & Fox Nation, has a strong history in Northwestern, Illinois including the Village of Niles; and

**WHEREAS**, Black Hawk of the Sauk Tribe was famed for his reputation as a war leader, protector of his people, and his campaign to resist the takeover of his people's homelands, and

**WHEREAS**, For centuries, Native Americans were forcibly removed from ancestral lands, and banned from worshipping or performing sacred ceremonies, yet they remain some of our greatest environmental stewards and maintain strong religious beliefs that still feed the soul of our Nation; and

**WHEREAS**, Native American veterans and service members who have courageously served and continue to serve in our Armed Forces — including the brave Native American Code Talkers in World War I and World War II and to this day, have chosen to serve in the United States Armed Forces at a higher rate than any other group; and

**WHEREAS**, the Village of Niles honors the heritage of Native American Tribes and People, and resolves to honor their legacy and continued contribution in our communities for generations to come.

**NOW, THEREFORE, I**, Mayor George D. Alpogianis and the Board of Trustees of the Village of Niles, do hereby call upon all of our citizens to observe the month of November, and let us honor the Native American heritage.

Dated this 25<sup>th</sup> day of October, 2022.

Mayor George D. Alpogianis

\_\_\_\_\_  
Attested:

\_\_\_\_\_  
Marlene J. Victorine, Village Clerk





**BOARD AGENDA ITEM EXPLANATION FORM**



**Honoring Niles Resident and Greek Olympian Panagiotis "Peter" Sikaras**

Meeting Date: 10/25/2022

Item Number **5.d**

Requested By: Village Clerk Office

Action Requested: Proclamation

Prepared By: Angela Murphy, Deputy Village Clerk

Assigned to: President Alpogianis

**ATTACHMENTS:**

[2022-20P Honoring Peter Sikaris.docx](#)

**MOTION**

\_\_\_\_\_

**REASON FOR REQUEST / BACKGROUND**

\_\_\_\_\_

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance



# Proclamation

## Honoring Panagiotis "Peter" Sikaras

**WHEREAS**, Niles Resident Panagiotis "Peter" Sikaras was born on May 5, 1979; and

**WHEREAS**, Sikaras was picked by the Arizona Diamondbacks in the 13th round of the 2000 amateur draft, he debuted as a pro with the South Bend Silver Hawks; and

**WHEREAS**, he led the California League in saves that in 2003 and earned the American of Greek descent a spot on Greece's team for the 2003 European Championship; and

**WHEREAS**, while representing Greece in the 2004 Olympics, he made history with the team's only Olympic win and Sikaras became one of the few pitchers to earn their country's lone Olympic win during the 1992-2008 era when baseball was a Medal sport; and

**WHEREAS**, Sikaras played for the Detroit Tigers in 2007, and signed with the Philadelphia Phillies for 2009, and has since retired from baseball; and

**WHEREAS**, the Village of Niles will memorialize Panagiotis "Peter" Sikaras' athletic contributions by proudly displaying his 2004 Greek Olympic Jersey at the Niles Historical Society; and

**WHEREAS**, Sikaras is now a proud businessman, and owns and operates Tracy's Café and TW Bistro in the Village of Niles; and

**WHEREAS**, Peter Sikaras now resides in his hometown of Niles with his wife, Nectaria, and their three sons Konstantinos, Bobby, and Philippos.

**NOW THEREFORE**, Mayor George D. Alpogianis and the Board of Trustees of the Village of Niles do hereby proclaim and honor Panagiotis "Peter" Sikaras for his historical and athletic contributions to the Village of Niles.

Dated this 27<sup>th</sup> day of September, 2022.

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Mayor George D. Alpogianis

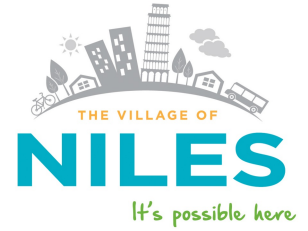
Attested:

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Marlene J. Victorine, Village Clerk



**BOARD AGENDA ITEM EXPLANATION FORM**



**Early Voting at Niles Village Hall Council Chambers - October 24, 2022 - November 7, 2022**

**November 8, 2022 Gubernatorial General Election**

Meeting Date: 10/25/2022

Item Number **7.a**

Requested By: Village Clerk Office

Action Requested: Announcements

Prepared By: Marlene Victorine, Village Clerk Assigned to:

**ATTACHMENTS:**

[Early Voting at Niles Village Hall October 24-November 7, 2022.pdf](#)

**MOTION**

\_\_\_\_\_

**REASON FOR REQUEST / BACKGROUND**

\_\_\_\_\_

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance



# Early Voting

## 2022 Gubernatorial Election

**Niles Village Hall  
1000 Civic Center Drive  
Council Chambers**

**Monday, October 24, 2022  
through  
Monday, November 7, 2022**

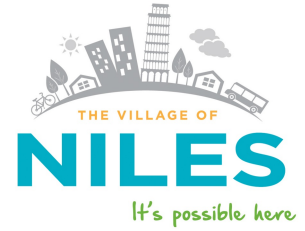
**Monday-Saturday: 9:00 a.m. to 5:00 p.m.  
Sunday: 10:00 a.m. to 4:00 p.m.**

*Election Day is Tuesday, November 8, 2022  
Village Hall is **NOT** an Election Day Polling Place  
Election Day Voting is available at your designated Polling Place 6 a.m. -7 p.m.*

For additional information, please contact Deputy Village Clerk Angela Murphy:  
(847) 588-8013 or atm@vniles.com



BOARD AGENDA ITEM EXPLANATION FORM



Approval of September 27, 2022 Special Board of Trustees Meeting Minutes - Executive Session

Meeting Date: 10/25/2022

Item Number 10.a

Requested By: Village Clerk Office

Action Requested: Minutes

Prepared By: Marlene Victorine, Village Clerk Assigned to:

MOTION

I move for Board approval of the September 27, 2022 Special Board of Trustees Meeting Minutes (Executive Session).

REASON FOR REQUEST / BACKGROUND

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance



**BOARD AGENDA ITEM EXPLANATION FORM**



**Approval of September 27, 2022 Special Board of Trustees Meeting Minutes**

Meeting Date: 10/25/2022

Item Number **10.b**

Requested By: Village Clerk Office

Action Requested: Minutes

Prepared By: Marlene Victorine, Village Clerk Assigned to:

**MOTION**

I move for Board approval of the September 27, 2022 Special Board of Trustees Meeting Minutes.

**REASON FOR REQUEST / BACKGROUND**

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance





**BOARD AGENDA ITEM EXPLANATION FORM**



**Approval of September 27, 2022 Regular Board of Trustees Meeting Minutes**

Meeting Date: 10/25/2022

Item Number **10.c**

Requested By: Village Clerk Office

Action Requested: Minutes

Prepared By: Marlene Victorine, Village Clerk Assigned to:

**MOTION**

I move for Board approval of the September 27, 2022 Regular Board of Trustees Meeting Minutes

**REASON FOR REQUEST / BACKGROUND**

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance



**BOARD AGENDA ITEM EXPLANATION FORM**



**Ordinance Determining That the Minutes to Closed Meetings Shall Become Public**

Meeting Date: 10/25/2022

Item Number **10.d**

Requested By: Legal

Action Requested: Ordinance

Prepared By: Marlene Victorine, Village Clerk Assigned to:

**ATTACHMENTS:**

[Ordinance 2022-xx Determining that the Minutes to Closed Meetings Shall Become Public.docx](#)

**MOTION**

I move for Board approval of the Ordinance Determining That the Minutes to Closed Meetings Shall Become Public.

**REASON FOR REQUEST / BACKGROUND**

Pursuant to Illinois State Statute 5 ILCS 120/2.06(D) of the Open Meetings Act, it is required that semi-annually a determination be made for minutes of closed meetings to become public. This ordinance makes that determination.

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance

## **ORDINANCE 2022-xx**

### **ORDINANCE DETERMINING THAT THE MINUTES TO CLOSED MEETINGS SHALL BECOME PUBLIC**

**WHEREAS**, 5 ILCS 140/7(1) of the Freedom of Information Act, allows the minutes of meetings of public bodies closed to the public as provided in the Open Meetings Act until the public body makes the minutes available to the public under Section 2.06 of the Open Meetings Act; and

**WHEREAS**, 5 ILCS 120/2.06(d) of the Open Meetings Act, requires that a determination must be made that minutes to closed meetings can become public;

**WHEREAS**, a determination has been made that the June 28, 2011; July 12, 2011; July 26, 2011; September 27, 2011; December 13, 2011; June 26, 2012; July 24, 2012; August 28, 2012; November 27, 2012; December 11, 2012; January 22, 2013; February 26, 2013; March 26, 2013; June 25, 2013; January 24, 2017; April 25, 2017; December 11, 2018; January 22, 2019; February 26, 2019; March 12, 2019; March 14, 2019; April 23, 2019; July 23, 2019; August 27, 2019; September 24, 2019; October 22, 2019; November 19, 2019; December 10, 2019; January 28, 2020; February 25, 2020; April 2, 2020; April 27, 2020; June 2, 2020; June 23, 2020; July 21, 2020; July 28, 2020; August 13, 2020; August 25, 2020; September 3, 2020; November 17, 2020; November 30, 2020; April 27, 2021; May 17, 2021; May 25, 2021; June 10, 2021; June 22, 2021; August 16, 2021; September 28, 2021; November 16, 2021; December 14, 2021; January 5, 2022; January 25, 2022; February 22, 2022; and March 22, 2022 closed session minutes will remain privileged.

**NOW, THEREFORE, BE IT ORDAINED** by the President and Board of Trustees of the Village of Niles, Cook County, Illinois, that the previously privileged minutes of April 26, 2016; March 28, 2017; January 19, 2021; February 23, 2021; March 29, 2021; July 13-14, 2021; and March 31, 2022 will now be made public.

**PASSED:** This 25<sup>th</sup> day of October, 2022

**AYES:**

**NAYS:**

**ABSENT:**

**ABSTAIN:**

**APPROVED** by me this 25<sup>th</sup> day of October, 2022.

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President of the Village of Niles  
Cook County, Illinois

**ATTESTED AND FILED** in my office this 25<sup>th</sup> day of October, 2022 and published in pamphlet form as provided by law in the Village of Niles, Illinois.

---

Village Clerk



**BOARD AGENDA ITEM EXPLANATION FORM**



**Ordinance Approving Change Order Number 2 Authorizing an Increase in the Time of Substantial Completion of the 2022 Street Improvements with Arrow Road Construction by 18 days for a Substantial Completion Date of December 1, 2022 and Establishing a Final Completion Date of May 1, 2023**

Meeting Date: 10/25/2022

Item Number **10.e**

Requested By: Public Works

Action Requested: Board Approval

Prepared By: Tom Powers, Interim Public Works Director

Assigned to:

**ATTACHMENTS:**

[Ordinance 2022-xx Approving a Change Order No. 2 for Arrow Road Construction Exhibit "A" Change Order No. 2.pdf](#)

**MOTION**

I move for Board approval of an Ordinance Approving a Change Order Number 2 Authorizing an Increase in the Time of Substantial Completion for the 2022 Street Improvements with Arrow Road Construction by 18 Days for a Substantial Completion Date of December 1, 2022 and Establishing a Final Completion Date of May 1, 2023.

**REASON FOR REQUEST / BACKGROUND**

During the Summer, a seven-week delay was caused by the Local 150 quarry strike. The contractor has worked hard time to make up time but an additional 18 days will be required to substantially complete the work. Staff also recommends a final completion date of May 1, 2023 is established in case additional material delays occur. The time extension is at no cost to the Village.

Will this action involve an expenditure of funds?

No

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget Amount

Variance

## **ORDINANCE 2022-**

### **ORDINANCE APPROVING A CHANGE ORDER NUMBER 2 AUTHORIZING AN INCREASE IN THE TIME OF SUBSTANTIAL COMPLETION OF THE 2022 STREET IMPROVEMENTS WITH ARROW ROAD CONSTRUCTION BY 18 DAYS FOR A SUBSTANTIAL COMPLETION DATE OF DECEMBER 1, 2022 AND ESTABLISHING A FINAL COMPLETION DATE OF MAY 1, 2023**

**WHEREAS**, the Village President and Board of Trustees (hereinafter collectively referred to as the “Village Board”) of the Village of Niles, Cook County, Illinois (hereinafter the “Village”), find that the Village is a home rule municipal corporation as provided in Article VII, Section 6 of the 1970 Constitution of the State of Illinois and pursuant to said constitutional authority, may exercise and perform any function pertaining to its governmental affairs; and

**WHEREAS**, Arrow Road Construction Company, was awarded the 2022 Street Improvement Project with a completion date of November 4, 2022 (“Project”); and

**WHEREAS**, the Project is delayed by 18 days due to the Local 150 Operators strike; and

**WHEREAS**, a change order is necessary to reflect the additional time needed to complete the Project; and

**WHEREAS**, the Corporate Authorities of the Village agree to authorize and approve Change Order Number 2 for the Project; and

**WHEREAS**, based on the recommendation of the Public Works Director, the Corporate Authorities of the Village make the following findings and determinations in accordance with the Illinois Compiled Statutes, Chapter 720, Section 5/33E-9 regarding changes to the Contract:

1. The change order (or series of change orders) recommended in Exhibit "A", which is attached hereto and made a part hereof, increases the contract sum by \$10,000.00 or more.
2. The change order (or series of change orders): is made necessary by circumstances not foreseeable at the time the Contract was signed; is germane to the Contract as originally signed; and
3. The change is in the best interests of the Village.

In addition, the Corporate Authorities of the Village make the following finding and determination pursuant to Section 5 of the Public Works Contract Change Order Act (50 ILCS 525/5): the amount of the Change Order (or series of change orders) does not increase the original



contract price by 50% or more of the original contract price and thus the Village is not obligated to re-bid the additional work proposed under the Change Order.

**NOW, THEREFORE BE IT ORDAINED** by the President and Board of Trustees of the Village of Niles, Cook County, Illinois, as follows:

**SECTION 1:** Each Whereas paragraph set forth above is incorporated by reference into this Section 1.

**SECTION 2:** The Corporate Authorities of the Village of Niles approve Change Order Number 2 for the original Contract Completion date to December 1, 2022 (the “Amended Contract Term”).

**SECTION 3:** The Corporate Authorities of the Village of Niles authorize and direct the Village President, the Village Clerk, the Village Treasurer, the Village Manager and the Public Works Director, or their designees, to execute, process and deliver the necessary checks, wire transactions, change order documents and such other instruments necessary to comply with the authorization and direction set forth in this Ordinance.

**SECTION 4:** Each section, paragraph, clause and provision of this Ordinance is separable, and if any provision is held unconstitutional or invalid for any reason, such decision shall not affect the remainder of this Ordinance, nor any part thereof, other than that part affected by such decision.

**SECTION 5:** This Ordinance shall be in full force and effect from and after its adoption, approval and publication in the manner provided by law.

- PASSED:** This 25<sup>th</sup> day of October, 2022
- YEAS:**
- NAYS:**
- ABSENT:**
- ABSTAIN:**

**APPROVED** by me this 25<sup>th</sup> day of October, 2022.

\_\_\_\_\_  
President of the Village of Niles  
Cook County, Illinois

**ATTESTED AND FILED** in my office this 25<sup>th</sup> day of October, 2022, and published in pamphlet form as provided by law in the Village of Niles, Illinois.

\_\_\_\_\_  
Village Clerk

**Exhibit "A"**

**Change Order Number 1**

(attached)



CHANGE ORDER #: \_\_\_\_\_

VENDOR #: \_\_\_\_\_ DEPARTMENT: \_\_\_\_\_  
NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_ P.O. #: \_\_\_\_\_  
\_\_\_\_\_ P.O. AMOUNT: \_\_\_\_\_

Previous Change Order Amounts: \_\_\_\_\_

This Change Order Amount: \_\_\_\_\_

Purchase Order Amount with all Approved Change Orders: \_\_\_\_\_

Org: \_\_\_\_\_ Object: \_\_\_\_\_

Reason for Change Order:

The contract time will be \_\_\_\_\_ The \_\_\_\_\_ will be \_\_\_\_\_

The date of substantial completion as of the date of this Change Order therefore is: \_\_\_\_\_

Requested By:

\_\_\_\_\_

Department

\_\_\_\_\_

Date



## BOARD AGENDA ITEM EXPLANATION FORM



### Resolution Authorizing the Destruction of Audio Recordings of Closed Meeting Sessions

Meeting Date: 10/25/2022

Item Number **10.f**

Requested By: Legal

Action Requested: Resolution

Prepared By: Marlene Victorine, Village Clerk Assigned to:

#### ATTACHMENTS:

[Resolution 2022-xxR Authorizing the Destruction of Audio Recordings of Closed Meeting Sessions.docx](#)  
[Resolution\\_2022-\\_\\_xR\\_Exhibit\\_A\\_List\\_of\\_Closed\\_Session\\_Tapes\\_to\\_be\\_Destroyed\\_2022.docx](#)

#### MOTION

I move for Board approval of the Resolution Authorizing the Destruction of Audio Recordings of Closed Meeting Sessions from July 23, 2019 through March 29, 2021.

#### REASON FOR REQUEST / BACKGROUND

The Open Meetings Act provides that verbatim recordings of closed sessions may be destroyed, without notification or approval of the State Archivist under the Local Records Act, not less than 18 months after completion of the recorded meeting and after the Board approved written minutes of the closed session and the destruction of the recording. The written minutes must meet the requirements of the Open Meetings Act. This is a request to destroy closed session recordings from July 23, 2019 through March 29, 2021.

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

Budget Amount

Line Item Budget Amount

Variance

## **RESOLUTION 2022-xxR**

### **RESOLUTION AUTHORIZING THE DESTRUCTION OF AUDIO RECORDINGS OF CLOSED MEETING SESSIONS**

**WHEREAS**, the Open Meetings Act requires governmental bodies to audio or video record their closed meetings: and;

**WHEREAS**, this governmental body has complied with that requirement; and

**WHEREAS**, the Open Meetings Act permits governmental bodies to destroy the verbatim record of closed meetings without notification to or approval of a Records Commission or the State Archivist not less than eighteen (18) months after the completion of the meeting recorded, but only after:

1. It approves the destruction of a particular recording; and
2. Approves the written minutes of the closed meeting; and

**WHEREAS**, for the verbatim record by tape and/or digital audio recording of the meetings set forth in Section 1 of this Resolution, at least eighteen (18) months have passed since the completion of those meetings, and this governmental body has approved written minutes for each of the meetings or portions of meetings set forth in Section 1; and

**WHEREAS**, this governmental body may order destruction of the verbatim record even if it continues to withhold the approved written minutes of the closed session until some later period of time;

**NOW, THEREFORE, BE IT RESOLVED**, by the President and the Board of Trustees of the Village of Niles, Cook County, Illinois, as follows:

**SECTION 1:** Based upon the statements made within the preamble to this resolution, the Village of Niles hereby orders the destruction of verbatim record being an audio tape and/or digital audio recording of the executive session meetings as listed in "Exhibit A".

**SECTION 2:** This resolution shall be in full force and effect from and after its passage, by vote of at least three-fourths of the corporate authorities, and approval in the manner provided by law.

**PASSED:** This 25<sup>th</sup> day of October, 2022

**AYES:**

**NAYS:**

**ABSENT:**

**ABSTAIN:**

**APPROVED** by me this 25<sup>th</sup> day of October, 2022.

---

President of the Village of Niles  
Cook County, Illinois

**ATTESTED AND FILED** in my office this 25<sup>th</sup> day of October, 2022, and published in pamphlet form as provided by law in the Village of Niles, Illinois.

---

Village Clerk





**EXHIBIT A**

**Recommended Destruction of Closed Session Recordings  
October 25, 2022 Board Meeting**

**2019**

July 23, 2019  
August 27, 2019  
September 24, 2019  
October 22, 2019  
November 19, 2019  
December 10, 2019

**2020**

January 28, 2020  
February 25, 2020  
April 2, 2020  
April 27, 2020  
June 2, 2020  
June 23, 2020  
July 21, 202  
July 28, 2020  
August 13, 2020  
August 25, 2020  
September 3, 2020  
November 17, 2020  
November 30, 2020

**2021**

January 19, 2021  
February 23, 2021  
March 29, 2021



## BOARD AGENDA ITEM EXPLANATION FORM



### Resolution Expressing Intent to Continue Participation in the Suburban Tree Consortium and Authorize Tree Purchase in an Amount Not to Exceed \$55,000 for Fiscal Year 2023

Meeting Date: 10/25/2022

Item Number **10.g**

Requested By: Public Works

Action Requested: Board Approval

Prepared By: Anthony Dati, Street Superintendent

Assigned to:

#### ATTACHMENTS:

[Resolution 2022-xx Authorizing Participation in the Suburban Tree Consortium for FY23.docx](#)  
[STC Participation Invoice 2022.pdf](#)

#### MOTION

I move for Board Approval of a Resolution Expressing Intent to Continue Participation in the Suburban Tree Consortium and Authorize Tree Purchase in an Amount Not to Exceed \$55,000 for Fiscal Year 2023.

#### REASON FOR REQUEST / BACKGROUND

Continued participation gives the Village of Niles a competitive advantage in selecting a more diverse selection with greater quantities. Currently the consortium has 9 nurseries. The yearly membership fee is \$575. Once a member of the consortium, the Village is no longer required to go out to bid every year. Each member is encouraged to create a 5-year tree planting plan to estimate the number of trees to be planted and to have more control over the tree inventory. Costs are reduced due to the large purchasing power as a group. At any time, the Village can reserve the right to exit out of the consortium without penalty.

The Village of Niles has \$55,000 budgeted for tree planting. All of the tree planting will be done before the end of FY23

As recommended by the Public Works Matrix Study - Recommendation #117: The Village should incorporate a tree species diversity requirement when identifying candidates for new trees or

replacement trees throughout the Village. The criteria should consider Village tree inventory as well as local tree populations.

Will this action involve an expenditure of funds? Yes

If yes, is this a budgeted item? Yes

Impact on future budget(s) No

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project No

Grant Source

ORG#	30050 / 13410	Total Amount for Approval	\$55,000 + \$575
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ACCT#	580120 / 540155	Budget Amount	\$55,000 + \$575
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		Line Item Budget Amount	\$55,000 / \$575
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		Variance	0
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## **RESOLUTION 2022-xxR**

### **RESOLUTION EXPRESSING INTENT TO CONTINUE PARTICIPATION IN THE SUBURBAN TREE CONSORTIUM AND TO AUTHORIZE CERTAIN PURCHASES FOR FISCAL YEAR 2023**

**WHEREAS**, the Village President and Board of Trustees (hereinafter collectively referred to as the “Village Board”) of the Village of Niles, Cook County, Illinois (hereinafter the “Village”), find that the Village is a home rule municipal corporation as provided in Article VII, Section 6 of the 1970 Constitution of the State of Illinois and pursuant to said constitutional authority, may exercise and perform any function pertaining to its governmental affairs; and

**WHEREAS**, the Village of Niles has joined the cooperative known as the Suburban Tree Consortium; and

**WHEREAS**, the Suburban Tree Consortium was created to jointly purchase parkway trees on behalf of a number of municipalities in an effort to realize cost savings and insure a reasonable supply and variety of suitable parkway trees; and

**WHEREAS**, Chapter 65 of ILCS 5/11-73.1-1 entitled “Municipal and Joint Municipal Tree Planting Programs”, authorizes municipalities to jointly enter into long term contracts for the purchase and delivery of trees; and

**WHEREAS**, due to the nature of the nursery industry and the plant materials desired by the Suburban Tree Consortium, assuring a reasonable number and variety of parkway trees at the best price is possible only with a multi-year commitment on the part of the Consortium Members, so as to allow adequate planning by the Consortium and the Nurseries/Suppliers; and

**WHEREAS**, the Suburban Tree Consortium member municipalities provide the Nurseries/Suppliers a projection of their parkway tree requirements for the next five years; and

**WHEREAS**, the Suburban Tree Consortium can realize the necessary number and variety and the best price of such parkway trees only by providing assurance to the tree Nursery/Supplier of the level of interest by the Consortium Members; and

**NOW, THEREFORE, BE IT RESOLVED** that the President and Board of Trustees of the Village of Niles, Cook County, Illinois, do hereby authorize the following:

**SECTION 1:** The Village does hereby express its intent to remain a member of the Suburban Tree Consortium and to procure parkway trees through the Consortium, subject to sufficient annual budgeting therefor for the five year period.

**SECTION 2:** That the Village Clerk is hereby authorized and directed to send a copy of this Resolution to the Suburban Tree Consortium Secretariat at the West Central Municipal Conference Office.

**SECTION 3:** That this Resolution shall be in full force and effect from and after its passage, approval and publication as provided by law.

**SECTION 4:** That all resolution or parts of resolution in conflict herewith are hereby repealed to the extent of any such conflict.

**SECTION 5:** That any section or provision of this resolution that is construed to be invalid or void shall not affect the remaining sections or provisions which shall remain in full force and effect thereafter.

**PASSED:** This 25<sup>th</sup> day of October, 2022  
**YEAS:**  
**NAYS:**  
**ABSENT:**  
**ABSTAIN:**

**APPROVED** by me this 25<sup>th</sup> day of October, 2022.

---

President of the Village of Niles  
Cook County, Illinois

**ATTESTED AND FILED** in my office this 25<sup>th</sup> day of October, 2022, and published in pamphlet form as provided by law in the Village of Niles, Illinois.

---

Village Clerk

# INVOICE

Suburban Tree Consortium  
C/O West Central Municipal Conf  
2000 5th Ave., Bldg N  
River Grove, IL 60171  
(708) 453-9100

INVOICE NUMBER: 0007316-IN

INVOICE DATE: 8/19/2022

13410 - 540155

Village of Niles  
1000 Civic Center Drive  
Niles, IL 60714

CUSTOMER NO. 0001390

CUSTOMER P.O.:

CONTACT: Account Payable

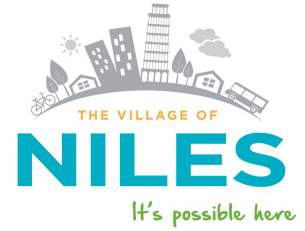
TERMS: NET 30 DAYS

SALES CD	DESCRIPTION	QUANTITY	PRICE	AMOUNT
STCDUE	Member Dues 2022-2023	EACH 1.000	575.000	575.00

Net Invoice:	<u>575.00</u>
Freight:	0.00
Sales Tax:	<u>0.00</u>
<b>Invoice Total:</b>	<b>575.00</b>



**BOARD AGENDA ITEM EXPLANATION FORM**



**Resolution Authorizing an Intergovernmental Agreement with the Illinois Department of Transportation for the Maintenance and Apportionment of Energy Costs for Traffic Control Devices located at Prospect Street and Oakton Street**

Meeting Date: 10/25/2022

Item Number **10.h**

Requested By: Public Works

Action Requested: Board Approval

Prepared By: Tom Powers, Interim Public Works Director

Assigned to:

**MOTION**

I move for Board Approval of a Resolution Authorizing an Intergovernmental Agreement with the Illinois Department of Transportation for the Maintenance and Apportionment of Energy Costs for Traffic Control Devices located at Prospect Street and Oakton Street.

**REASON FOR REQUEST / BACKGROUND**

The Village enters into various Intergovernmental Agreements with IDOT to address the maintenance of traffic signals on State Road intersections with local roads and business access points. The agreement results in IDOT taking additional financial responsibility the cost share will go from 50% Niles and 50% Park Ridge, to 50% state, 25% Niles and 25% Park Ridge.

Will this action involve an expenditure of funds?

No

If yes, is this a budgeted item?

Impact on future budget(s)

Yes

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

\$2,733/Year - This number will likely be reduced under the new agreement

Grant Funded Project

Grant Source

ORG#

Total Amount for  
Approval

ACCT#

Budget Amount

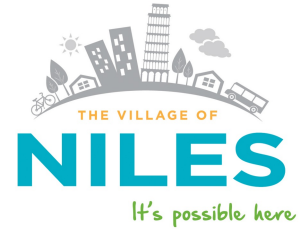
Line Item Budget  
Amount

Variance





**BOARD AGENDA ITEM EXPLANATION FORM**



**Resolution Authorizing an Annual Service Agreement for Automatic Vehicle Location (AVL) Services with Verizon Connect Fleet USA LLC, utilizing the Sourcewell Cooperative Contract #020221-NWF in the Amount of \$35,822.40**

Meeting Date: 10/25/2022

Item Number **10.i**

Requested By: Public Works

Action Requested: Resolution

Prepared By: Tom Powers, Interim Public Works Director

Assigned to:

**ATTACHMENTS:**

[Resolution\\_2022-xxR\\_Agreement\\_with\\_Verizon\\_Connect\\_for\\_AVL\\_2022.docx](#)

[Verizon\\_Connect\\_Contract\\_020221.pdf](#)

[Village of Niles PA - Government 5 \\_ 10 \\_ 2021 V1.pdf](#)

**MOTION**

I move for Board Approval of a Resolution Authorizing an Annual Service Agreement for Automatic Vehicle Location (AVL) Services with Verizon Connect Fleet USA LLC, utilizing the Sourcewell Cooperative Contract #020221-NWF in the Amount of \$35,822.40

**REASON FOR REQUEST / BACKGROUND**

The previous Automatic Vehicle Locating (AVL) system utilized by Public Works and Community Development provided unreliable data and service, therefore other options were explored. Verizon Connect offered a new AVL solution to government, with more reliable equipment, free installation and free dash cameras at roughly the same cost. Additional department vehicles added to this program include IT, General Government, Senior Center and Family Services.

Will this action involve an expenditure of funds?

Yes

If yes, is this a budgeted item?

Yes

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#	60020	Total Amount for Approval	\$35,822.40
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ACCT#	530105	Budget Amount	\$42,500
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Line Item Budget Amount

Variance

## **RESOLUTION 2022-xxR**

### **RESOLUTION AUTHORIZING AN ANNUAL SERVICE AGREEMENT FOR AUTOMATIC VEHICLE LOCATION (AVL) SERVICES WITH VERIZON CONNECT FLEET USA LLC, UTILIZING THE SOURCEWELL COOPERATIVE CONTRACT #020221-NWF IN THE AMOUNT OF \$35,822.40**

**WHEREAS**, the Village of Niles (“Village”), located in Cook County, Illinois is a home rule unit of government under the provisions of Article 7 of the Constitution of the State of Illinois, can exercise any power and perform any function pertaining to its government affairs; and

**WHEREAS**, the Village determined that Verizon Connect Fleet USA LLC (“Verizon”), provides a much more reliable service; and

**WHEREAS**, the Village desires Verizon to continue to perform the Services on behalf of the Village in accordance with the terms of the service agreement as set forth on Exhibit “A” (“Agreement”); and

**WHEREAS**, the corporate authorities of the Village of Niles have found that entering into a contractual agreement with Verizon will promote public health, safety and welfare, and that it is in the mutual best interests of all Parties to approve and enter into this agreement with Verizon.

**NOW, THEREFORE, BE IT RESOLVED** that the President and Board of Trustees of the Village of Niles, Cook County, Illinois, do hereby approve the following:

**SECTION 1:** That the President or his designee of the Village of Niles is hereby authorized to execute a contractual agreement with Verizon Connect Fleet USA LLC. utilizing the Sourcewell Cooperative Contract #020221-NWF, which is attached hereto and made a part of this Resolution as Exhibit “A”.

**SECTION 2:** That this Resolution shall be in full force and effect from and after its passage, approval and publication as provided by law.

**SECTION 3:** The President and Board of Trustees of the Village of Niles authorize and direct the Village President, or his designee, to execute the final version of the Agreement, which may contain certain non-substantive and non-financial modifications that are approved by the Village Attorney, and to execute and deliver all other instruments and documents and pay all

costs that are necessary to fulfill Niles's obligations under the Agreement. The Village Clerk shall attest, on behalf of the Village, the Contract upon receipt by the Village Clerk at least one original copy of the Contract executed by Verizon Connect Fleet USA LLC.; provided, however, that if the executed copy of the Contract is not received by the Village Clerk within 60 days after the effective date of this Resolution, then this authority to execute and attest shall, at the option of the President and Board of Trustees, be null and void.

**SECTION 4:** That all resolution or parts of resolution in conflict herewith are hereby repealed to the extent of any such conflict.

**SECTION 5:** That any section or provision of this resolution that is construed to be invalid or void shall not affect the remaining sections or provisions which shall remain in full force and effect thereafter.

**PASSED:** This 25<sup>th</sup> day of October, 2022  
**YEAS:**  
**NAYS:**  
**ABSENT:**  
**ABSTAIN:**

**APPROVED** by me this 25<sup>th</sup> day of October, 2022.

---

President of the Village of Niles  
Cook County, Illinois

**ATTESTED AND FILED** in my office this 25<sup>th</sup> day of October, 2022, and published in pamphlet form as provided by law in the Village of Niles, Illinois.

---

Village Clerk

## Verizon Connect

Fleet Management

#020221-NWF

Maturity Date: 03/26/2025

Documents 

## Documents

### Contract Documentation

 [Contract](#) 

### Competitive Solicitation Documentation

 [Request for Proposal \(RFP\)](#) 

 [Proof of Publication](#) 

 [Proposal Opening Record](#) 

 [Proposal Evaluation](#) 

 [Comment & Review](#) 

 [Board Resolutions](#) 

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**Solicitation Number: 020221****CONTRACT**

This Contract is between Sourcewell, 202 12th Street Northeast, P.O. Box 219, Staples, MN 56479 (Sourcewell) and Verizon Connect NWF Inc., 9868 Scranton Road, San Diego, CA 92121 (Vendor).

Sourcewell is a State of Minnesota local government agency and service cooperative created under the laws of the State of Minnesota (Minnesota Statutes Section 123A.21) that offers cooperative procurement solutions to government entities. Participation is open to federal, state/province, and municipal governmental entities, higher education, K-12 education, nonprofit, tribal government, and other public entities located in the United States and Canada. Sourcewell issued a public solicitation for Fleet Management Technologies with Related Software Solutions from which Vendor was awarded a contract.

Vendor desires to contract with Sourcewell to provide equipment, products, or services to Sourcewell and the entities that access Sourcewell's cooperative purchasing contracts located in the United States (Participating Entities).

**1. TERM OF CONTRACT**

- A. **EFFECTIVE DATE.** This Contract is effective upon the date of the final signature below.
- B. **EXPIRATION DATE AND EXTENSION.** This Contract expires March 26, 2025, unless it is cancelled sooner pursuant to Article 22. This Contract may be extended up to one additional one-year period upon request of Sourcewell and with written agreement by Vendor.
- C. **SURVIVAL OF TERMS.** Articles 11 through 14 survive the expiration or cancellation of this Contract.

**2. EQUIPMENT, PRODUCTS, OR SERVICES**

- A. **EQUIPMENT, PRODUCTS, OR SERVICES.** Vendor will provide the Equipment, Products, or Services as stated in its Proposal submitted under the Solicitation Number listed above. Vendor's Equipment, Products, or Services Proposal (Proposal) is attached and incorporated into this Contract.



All Equipment and Products provided under this Contract must be new/current model. Vendor may offer close-out or refurbished Equipment or Products if they are clearly indicated in Vendor's product and pricing list. Unless agreed to by the Participating Entities in advance, Equipment or Products must be delivered as operational to the Participating Entity's site.

This Contract offers an indefinite quantity of sales, and while substantial volume is anticipated, sales and sales volume are not guaranteed.

B. **WARRANTY.** Vendor warrants that all Equipment, Products, and Services furnished are free from liens and encumbrances, and are free from defects in design, materials, and workmanship. In addition, Vendor warrants the Equipment, Products, and Services are suitable for and will perform in accordance with the ordinary use for which they are intended. Vendor's dealers and distributors must agree to assist the Participating Entity in reaching a resolution in any dispute over warranty terms with the manufacturer. Any manufacturer's warranty that is effective past the expiration of the Vendor's warranty will be passed on to the Participating Entity.

C. **DEALERS, DISTRIBUTORS, AND/OR RESELLERS.** Upon Contract execution, Vendor will make available to Sourcewell a means to validate or authenticate Vendor's authorized dealers, distributors, and/or resellers relative to the Equipment, Products, and Services related to this Contract. This list may be updated from time-to-time and is incorporated into this Contract by reference. It is the Vendor's responsibility to ensure Sourcewell receives the most current version of this list.

### **3. PRICING**

All Equipment, Products, or Services under this Contract will be priced as stated in Vendor's Proposal.

When providing pricing quotes to Participating Entities, all pricing quoted must reflect a Participating Entity's total cost of acquisition. This means that the quoted cost is for delivered Equipment, Products, and Services that are operational for their intended purpose, and includes all costs to the Participating Entity's requested delivery location.

Regardless of the payment method chosen by the Participating Entity, the total cost associated with any purchase option of the Equipment, Products, or Services must always be disclosed in the pricing quote to the applicable Participating Entity at the time of purchase.

A. **SHIPPING AND SHIPPING COSTS.** All delivered Equipment and Products must be properly packaged. Damaged Equipment and Products may be rejected. If the damage is not readily apparent at the time of delivery, Vendor must permit the Equipment and Products to be returned within a reasonable time at no cost to Sourcewell or its Participating Entities. Participating Entities reserve the right to inspect the Equipment and Products at a reasonable

time after delivery where circumstances or conditions prevent effective inspection of the Equipment and Products at the time of delivery.

Vendor must arrange for and pay for the return shipment on Equipment and Products that arrive in a defective or inoperable condition.

Sourcwell may declare the Vendor in breach of this Contract if the Vendor intentionally delivers substandard or inferior Equipment or Products. In the event of the delivery of nonconforming Equipment and Products, the Participating Entity will notify the Vendor as soon as possible and the Vendor will replace nonconforming Equipment and Products with conforming Equipment and Products that are acceptable to the Participating Entity.

B. SALES TAX. Each Participating Entity is responsible for supplying the Vendor with valid tax-exemption certification(s). When ordering, a Participating Entity must indicate if it is a tax-exempt entity.

C. HOT LIST PRICING. At any time during this Contract, Vendor may offer a specific selection of Equipment, Products, or Services at discounts greater than those listed in the Contract. When Vendor determines it will offer Hot List Pricing, it must be submitted electronically to Sourcwell in a line-item format. Equipment, Products, or Services may be added or removed from the Hot List at any time through a Sourcwell Price and Product Change Form as defined in Article 4 below.

Hot List program and pricing may also be used to discount and liquidate close-out and discontinued Equipment and Products as long as those close-out and discontinued items are clearly identified as such. Current ordering process and administrative fees apply. Hot List Pricing must be published and made available to all Participating Entities.

#### **4. PRODUCT AND PRICING CHANGE REQUESTS**

Vendor may request Equipment, Product, or Service changes, additions, or deletions at any time. All requests must be made in writing by submitting a signed Sourcwell Price and Product Change Request Form to the assigned Sourcwell Contract Administrator. This form is available from the assigned Sourcwell Contract Administrator. At a minimum, the request must:

- Identify the applicable Sourcwell contract number;
- Clearly specify the requested change;
- Provide sufficient detail to justify the requested change;
- Individually list all Equipment, Products, or Services affected by the requested change, along with the requested change (e.g., addition, deletion, price change); and
- Include a complete restatement of pricing documentation in Microsoft Excel with the effective date of the modified pricing, or product addition or deletion. The new pricing

restatement must include all Equipment, Products, and Services offered, even for those items where pricing remains unchanged.

A fully executed Sourcewell Price and Product Request Form will become an amendment to this Contract and be incorporated by reference.

## **5. PARTICIPATION, CONTRACT ACCESS, AND PARTICIPATING ENTITY REQUIREMENTS**

A. PARTICIPATION. Sourcewell's cooperative contracts are available and open to public and nonprofit entities across the United States and Canada; such as federal, state/province, municipal, K-12 and higher education, tribal government, and other public entities. Vendor will only offer products and services to Participating Entities located in the United States.

The benefits of this Contract should be available to all Participating Entities that can legally access the Equipment, Products, or Services under this Contract. A Participating Entity's authority to access this Contract is determined through its cooperative purchasing, interlocal, or joint powers laws. Any entity accessing benefits of this Contract will be considered a Service Member of Sourcewell during such time of access. Vendor understands that a Participating Entity's use of this Contract is at the Participating Entity's sole convenience and Participating Entities reserve the right to obtain like Equipment, Products, or Services from any other source.

Vendor is responsible for familiarizing its sales and service forces with Sourcewell contract use eligibility requirements and documentation and will encourage potential participating entities to join Sourcewell. Sourcewell reserves the right to add and remove Participating Entities to its roster during the term of this Contract.

B. PUBLIC FACILITIES. Vendor's employees may be required to perform work at government-owned facilities, including schools. Vendor's employees and agents must conduct themselves in a professional manner while on the premises, and in accordance with Participating Entity policies and procedures, and all applicable laws.

## **6. PARTICIPATING ENTITY USE AND PURCHASING**

A. ORDERS AND PAYMENT. To access the contracted Equipment, Products, or Services under this Contract, a Participating Entity must clearly indicate to Vendor that it intends to access this Contract; however, order flow and procedure will be developed jointly between Sourcewell and Vendor. Typically, a Participating Entity will issue an order directly to Vendor. If a Participating Entity issues a purchase order, it may use its own forms, but the purchase order should clearly note the applicable Sourcewell contract number. All Participating Entity orders under this Contract must be issued prior to expiration of this Contract; however, Vendor performance, Participating Entity payment, and any applicable warranty periods or other Vendor or Participating Entity obligations may extend beyond the term of this Contract.

Vendor's acceptable forms of payment are included in Attachment A. Participating Entities will be solely responsible for payment and Sourcewell will have no liability for any unpaid invoice of any Participating Entity.

B. **ADDITIONAL TERMS AND CONDITIONS/PARTICIPATING ADDENDUM.** Additional terms and conditions to a purchase order, or other required transaction documentation, may be negotiated between a Participating Entity and Vendor, such as job or industry-specific requirements, legal requirements (e.g., affirmative action or immigration status requirements), or specific local policy requirements. Vendor will require Participating Entity's acceptance of Vendor's then-current Additional Terms and Conditions. To the extent that the Additional Terms and Conditions conflicts with the Contract, as between the Vendor and Participating Entity the Additional Terms and Conditions will govern. Some Participating Entities may require the use of a Participating Addendum; the terms of which will be worked out directly between the Participating Entity and the Vendor. Any negotiated additional terms and conditions must never be less favorable to the Participating Entity than what is contained in this Contract.

C. **SPECIALIZED SERVICE REQUIREMENTS.** In the event that the Participating Entity requires service or specialized performance requirements (such as e-commerce specifications, specialized delivery requirements, or other specifications and requirements) not addressed in this Contract, the Participating Entity and the Vendor may enter into a separate, standalone agreement, apart from this Contract. Sourcewell, including its agents and employees, will not be made a party to a claim for breach of such agreement.

D. **TERMINATION OF ORDERS.** Participating Entities may terminate an order, in whole or in part, immediately upon notice to Vendor in the event of any of the following events:

1. The Participating Entity fails to receive funding or appropriation from its governing body at levels sufficient to pay for the goods to be purchased;
2. Federal, state, or provincial laws or regulations prohibit the purchase or change the Participating Entity's requirements; or
3. Vendor commits any material breach of this Contract or the additional terms agreed to between the Vendor and a Participating Entity.

E. **GOVERNING LAW AND VENUE.** The governing law and venue for any action related to a Participating Entity's order will be determined by the Participating Entity making the purchase.

## **7. CUSTOMER SERVICE**

A. **PRIMARY ACCOUNT REPRESENTATIVE.** Vendor will assign an Account Representative to Sourcewell for this Contract and must provide prompt notice to Sourcewell if that person is changed. The Account Representative will be responsible for:

- Maintenance and management of this Contract;
- Timely response to all Sourcwell and Participating Entity inquiries; and
- Business reviews to Sourcwell and Participating Entities, if applicable.

B. BUSINESS REVIEWS. Vendor must perform a minimum of one business review with Sourcwell per contract year. The business review will cover sales to Participating Entities, pricing and contract terms, administrative fees, supply issues, customer issues, and any other necessary information.

## **8. REPORT ON CONTRACT SALES ACTIVITY AND ADMINISTRATIVE FEE PAYMENT**

A. CONTRACT SALES ACTIVITY REPORT. Each calendar quarter, Vendor must provide a contract sales activity report (Report) to the Sourcwell Contract Administrator assigned to this Contract. A Report must be provided regardless of the number or amount of sales during that quarter (i.e., if there are no sales, Vendor must submit a report indicating no sales were made).

The Report must contain the following fields:

- Customer Name (e.g., City of Staples Highway Department);
- Customer Physical Street Address;
- Customer City;
- Customer State/Province;
- Customer Zip Code;
- Item Purchased Description;
- Item Purchased Price; and
- Date Purchase was invoiced/sale was recognized as revenue by Vendor.

B. ADMINISTRATIVE FEE. In consideration for the support and services provided by Sourcwell, the Vendor will pay an administrative fee to Sourcwell on all Equipment, Products, and Services provided to Participating Entities. The Administrative Fee must be included in, and not added to, the pricing. Vendor may not charge Participating Entities more than the contracted price to offset the Administrative Fee.

The Vendor will submit payment to Sourcwell for the percentage of administrative fee stated in the Proposal multiplied by the total sales of all Equipment, Products, and Services purchased by Participating Entities under this Contract during each calendar quarter. Payments should note the Vendor's name and Sourcwell-assigned contract number in the memo; and must be mailed to the address above "Attn: Accounts Receivable" or remitted electronically to Sourcwell's banking institution per Sourcwell's Finance department instructions. Payments must be received no later than 45 calendar days after the end of each calendar quarter.

Vendor agrees to cooperate with Sourcewell in auditing transactions under this Contract to ensure that the administrative fee is paid on all items purchased under this Contract.

In the event the Vendor is delinquent in any undisputed administrative fees, Sourcewell reserves the right to cancel this Contract and reject any proposal submitted by the Vendor in any subsequent solicitation. In the event this Contract is cancelled by either party prior to the Contract's expiration date, the administrative fee payment will be due no more than 30 days from the cancellation date.

## **9. AUTHORIZED REPRESENTATIVE**

Sourcewell's Authorized Representative is its Chief Procurement Officer.

Vendor's Authorized Representative is the person named in the Vendor's Proposal. If Vendor's Authorized Representative changes at any time during this Contract, Vendor must promptly notify Sourcewell in writing.

## **10. AUDIT, ASSIGNMENT, AMENDMENTS, WAIVER, AND CONTRACT COMPLETE**

A. **AUDIT.** Pursuant to Minnesota Statutes Section 16C.05, subdivision 5, the books, records, documents, and accounting procedures and practices relevant this Agreement are subject to examination by Sourcewell or the Minnesota State Auditor for a minimum of six years from the end of this Contract. This clause extends to Participating Entities as it relates to business conducted by that Participating Entity under this Contract.

B. **ASSIGNMENT.** Neither the Vendor nor Sourcewell may assign or transfer any rights or obligations under this Contract without the prior consent of the parties and a fully executed assignment agreement. Such consent will not be unreasonably withheld.

C. **AMENDMENTS.** Any amendment to this Contract must be in writing and will not be effective until it has been fully executed by the parties.

D. **WAIVER.** If either party fails to enforce any provision of this Contract, that failure does not waive the provision or the right to enforce it.

E. **CONTRACT COMPLETE.** This Contract contains all negotiations and agreements between Sourcewell and Vendor. No other understanding regarding this Contract, whether written or oral, may be used to bind either party. For any conflict between the attached Proposal and the terms set out in Articles 1-22, the terms of Articles 1-22 will govern.

F. **RELATIONSHIP OF THE PARTIES.** The relationship of the parties is one of independent contractors, each free to exercise judgment and discretion with regard to the conduct of their

respective businesses. This Contract does not create a partnership, joint venture, or any other relationship such as master-servant, or principal-agent.

## 11. LIABILITY

Vendor must indemnify, save, and hold Sourcewell and its Participating Entities, including their agents and employees, harmless from any claims or causes of action, including attorneys' fees, arising out of the performance of this Contract by the Vendor or its agents or employees.

## 12. GOVERNMENT DATA PRACTICES

Vendor and Sourcewell must comply with the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13, as it applies to all data provided by or provided to Sourcewell under this Contract and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by the Vendor under this Contract.

If the Vendor receives a request to release the data referred to in this article, the Vendor must immediately notify Sourcewell and Sourcewell will assist with how the Vendor should respond to the request.

## 13. INTELLECTUAL PROPERTY, PUBLICITY, MARKETING, AND ENDORSEMENT

### A. INTELLECTUAL PROPERTY

1. *Grant of License.* During the term of this Contract:
  - a. Sourcewell grants to Vendor a royalty-free, worldwide, non-exclusive right and license to use the Trademark(s) provided to Vendor by Sourcewell in advertising and promotional materials for the purpose of marketing Sourcewell's relationship with Vendor.
  - b. Vendor grants to Sourcewell a royalty-free, worldwide, non-exclusive right and license to use Vendor's Trademarks in advertising and promotional materials for the purpose of marketing Vendor's relationship with Sourcewell.
2. *Limited Right of Sublicense.* The right and license granted herein includes a limited right of each party to grant sublicenses to its and their respective distributors, marketing representatives, and agents (collectively "Permitted Sublicensees") subject to compliance with Vendor policies and guidelines as determined by Vendor in advertising and promotional materials for the purpose of marketing the Parties' relationship to Participating Entities. Any sublicense granted will be subject to the terms and conditions of this Article. Each party will be responsible for any breach of this Article by any of their respective sublicensees.
3. *Use; Quality Control.*
  - a. Sourcewell must not alter Vendor's Trademarks from the form provided by Vendor and must comply with Vendor's removal requests as to specific uses of its trademarks or logos.

b. Vendor must not alter Sourcewell's Trademarks from the form provided by Sourcewell and must comply with Sourcewell's removal requests as to specific uses of its trademarks or logos.

c. Each party agrees to use, and to cause its Permitted Sublicensees to use, the other party's Trademarks only in good faith and in a dignified manner consistent with such party's use of the Trademarks. Upon written notice to the breaching party, the breaching party has 30 days of the date of the written notice to cure the breach or the license will be terminated.

4. As applicable, Vendor agrees to indemnify and hold harmless Sourcewell and its Participating Entities against any and all suits, claims, judgments, and costs instituted or recovered against Sourcewell or Participating Entities by any person on account of the use of any Equipment or Products by Sourcewell or its Participating Entities supplied by Vendor in violation of applicable patent or copyright laws.

5. *Termination.* Upon the termination of this Contract for any reason, each party, including Permitted Sublicensees, will have 30 days to remove all Trademarks from signage, websites, and the like bearing the other party's name or logo (excepting Sourcewell's pre-printed catalog of vendors which may be used until the next printing). Vendor must return all marketing and promotional materials, including signage, provided by Sourcewell, or dispose of it according to Sourcewell's written directions.

B. **PUBLICITY.** Any publicity regarding the subject matter of this Contract must not be released without prior written approval from the Authorized Representatives. Publicity includes notices, informational pamphlets, press releases, research, reports, signs, and similar public notices prepared by or for the Vendor individually or jointly with others, or any subcontractors, with respect to the program, publications, or services provided resulting from this Contract.

C. **MARKETING.** Any direct advertising or marketing with Participating Entities must be approved by Sourcewell. Materials should be sent to the Sourcewell Contract Administrator assigned to this Contract.

D. **ENDORSEMENT.** The Vendor must not claim that Sourcewell endorses its Equipment, Products, or Services.

#### **14. GOVERNING LAW, JURISDICTION, AND VENUE**

Minnesota law governs this Contract. Venue for all legal proceedings out of this Contract, or its breach, must be in the appropriate state court in Todd County or federal court in Fergus Falls, Minnesota.



## 15. FORCE MAJEURE

Neither party to this Contract will be held responsible for delay or default caused by acts of God or other conditions that are beyond that party's reasonable control. A party defaulting under this provision must provide the other party prompt written notice of the default.

## 16. SEVERABILITY

If any provision of this Contract is found to be illegal, unenforceable, or void then both Sourcewell and Vendor will be relieved of all obligations arising under such provisions. If the remainder of this Contract is capable of performance, it will not be affected by such declaration or finding and must be fully performed.

## 17. PERFORMANCE, DEFAULT, AND REMEDIES

A. PERFORMANCE. During the term of this Contract, the parties will monitor performance and address unresolved contract issues as follows:

1. *Notification.* The parties must promptly notify each other of any known dispute and work in good faith to resolve such dispute within a reasonable period of time. If necessary, Sourcewell and the Vendor will jointly develop a short briefing document that describes the issue(s), relevant impact, and positions of both parties.
2. *Escalation.* If parties are unable to resolve the issue in a timely manner, as specified above, either Sourcewell or Vendor may escalate the resolution of the issue to a higher level of management. The Vendor will have 30 calendar days to cure an outstanding issue.
3. *Performance while Dispute is Pending.* Notwithstanding the existence of a dispute, the Vendor must continue without delay to carry out all of its responsibilities under the Contract that are not affected by the dispute. If the Vendor fails to continue without delay to perform its responsibilities under the Contract, in the accomplishment of all undisputed work, any additional costs incurred by Sourcewell and/or its Participating Entities as a result of such failure to proceed will be borne by the Vendor.

B. DEFAULT AND REMEDIES. Either of the following constitutes cause to declare this Contract, or any Participating Entity order under this Contract, in default:

1. Nonperformance of contractual requirements, or
2. A material breach of any term or condition of this Contract.

Written notice of default and a reasonable opportunity to cure must be issued by the party claiming default. Time allowed for cure will not diminish or eliminate any liability for liquidated or other damages. If the default remains after the opportunity for cure, the non-defaulting party may:

- Exercise any remedy provided by law or equity, or
- Terminate the Contract or any portion thereof, including any orders issued against the Contract.

## 18. INSURANCE

A. REQUIREMENTS. At its own expense, Vendor must maintain insurance policy(ies) in effect at all times during the performance of this Contract with insurance company(ies) licensed or authorized to do business in the State of Minnesota having an "AM BEST" rating of A- or better, with coverage and limits of insurance as follows:

1. *Workers' Compensation and Employer's Liability.*

Workers' Compensation: In compliance with the statutory requirements of the state(s) of operation.

Employer's Liability Insurance:

Limits:

- \$500,000 each accident for bodily injury by accident
- \$500,000 policy limit for bodily injury by disease
- \$500,000 each employee for bodily injury by disease

2. *Commercial General Liability Insurance.* Vendor will maintain insurance covering its operations, with coverage on an occurrence basis, and must be subject to terms no less broad than the Insurance Services Office ("ISO") Commercial General Liability Form or equivalent. Coverage must include liability arising from premises, operations, bodily injury and property damage, independent contractors, products-completed operations, contractual liability, and personal injury and advertising injury. All required limits, terms and conditions of coverage must be maintained during the term of this Contract.

Limits:

- \$3,000,000 each occurrence Bodily Injury and Property Damage
- \$3,000,000 Personal and Advertising Injury
- \$4,000,000 aggregate for Products-Completed operations
- \$4,000,000 general aggregate

3. *Commercial Automobile Liability Insurance.* During the term of this Contract, Vendor will maintain insurance covering all owned, hired, and non-owned automobiles in limits of liability indicated below. The coverage must be subject to terms no less broad than ISO Business Auto Coverage Form or equivalent.

Limits:

- \$3,000,000 each accident, combined single limit

4. *Telecommunications, Media & Technology Errors and Omissions, including Network Security and Privacy Liability Insurance.* During the term of this Contract, Vendor will maintain Telecommunications, Media & Technology Errors & Omissions insurance

including network security and privacy liability. The insurance must cover claims which may arise from failure of Vendor's security resulting in, but not limited to, computer attacks, unauthorized access, disclosure of not public data – including but not limited to, confidential or private information, transmission of a computer virus, or denial of service.

Limits:

\$4,000,000 each claim and aggregate

Failure of Vendor to maintain the required insurance will constitute a material breach entitling Sourcewell to immediately terminate this Contract for default.

B. CERTIFICATES OF INSURANCE. Prior to commencing under this Contract, Vendor must furnish to Sourcewell a certificate of insurance, as evidence of the insurance required under this Contract. Within 15 days of expiration of the policy(ies), renewal certificates must be mailed to Sourcewell, 202 12th Street Northeast, P.O. Box 219, Staples, MN 56479 or sent to the Sourcewell Contract Administrator assigned to this Contract. The certificates must be signed by an authorized representative of the insurer(s) issuing such insurance.

Failure to request certificates of insurance by Sourcewell, or failure of Vendor to provide certificates of insurance, in no way limits or relieves Vendor of its duties and responsibilities in this Contract.

C. ADDITIONAL INSURED ENDORSEMENT AND PRIMARY AND NON-CONTRIBUTORY INSURANCE CLAUSE. Vendor agrees to include Sourcewell and its Participating Entities, including their officers, agents, and employees, as an additional insured as their interest may appear under this Agreement under the Vendor's commercial general liability insurance policy with respect to liability arising out of activities, "operations," or "work" performed by Vendor, and products and completed operations of Vendor. The policy provision(s) must further provide that coverage is primary and not excess over or contributory with any other valid, applicable, and collectible insurance or self-insurance in force for the additional insureds.

D. WAIVER OF SUBROGATION. Vendor waives its right of subrogation under workers' compensation and must require (by endorsement or otherwise) its workers' compensation insurer to waive subrogation rights against Sourcewell and other additional insureds for losses paid under the workers' compensation insurance policy. Where permitted by law, Vendor must require similar written express waivers of subrogation and insurance clauses from each of its subcontractors.

## **19. COMPLIANCE**

A. LAWS AND REGULATIONS. All Equipment, Products, or Services provided under this Contract must comply fully with applicable federal laws and regulations, and with the laws in the states and provinces in which the Equipment, Products, or Services are sold.

B. LICENSES. Vendor must maintain a valid and current status on all required federal, state/provincial, and local licenses, bonds, and permits required for the operation of the business that the Vendor conducts with Sourcewell and Participating Entities.

## **20. BANKRUPTCY, DEBARMENT, OR SUSPENSION CERTIFICATION**

Vendor certifies and warrants that it is not in bankruptcy or that it has previously disclosed in writing certain information to Sourcewell related to bankruptcy actions. If at any time during this Contract Vendor declares bankruptcy, Vendor must immediately notify Sourcewell in writing.

Vendor certifies and warrants that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from programs operated by the State of Minnesota; the United States federal government; or, any Participating Entity. Vendor certifies and warrants that neither it nor its principals have been convicted of a criminal offense related to the subject matter of this Contract. Vendor further warrants that it will provide immediate written notice to Sourcewell if this certification changes at any time.

## **21. PROVISIONS FOR NON-UNITED STATES FEDERAL ENTITY PROCUREMENTS UNDER UNITED STATES FEDERAL AWARDS OR OTHER AWARDS**

Participating Entities that use United States federal grant or FEMA funds to purchase goods or services from this Contract may be subject to additional requirements including the procurement standards of the Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards, 2 C.F.R. § 200. Participating Entities may also require additional requirements based on specific funding specifications. Within this Article, all references to “federal” should be interpreted to mean the United States federal government. The following list only applies when a Participating Entity accesses Vendor’s Equipment, Products, or Services with United States federal funds.

A. EQUAL EMPLOYMENT OPPORTUNITY. Except as otherwise provided under 41 C.F.R. § 60, all contracts that meet the definition of “federally assisted construction contract” in 41 C.F.R. § 60-1.3 must include the equal opportunity clause provided under 41 C.F.R. §60-1.4(b), in accordance with Executive Order 11246, “Equal Employment Opportunity” (30 FR 12319, 12935, 3 C.F.R. §, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and implementing regulations at 41 C.F.R. § 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.” The equal opportunity clause is incorporated herein by reference.

B. DAVIS-BACON ACT, AS AMENDED (40 U.S.C. § 3141-3148). When required by federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. § 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 C.F.R. § 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-federal entity must report all suspected or reported violations to the federal awarding agency. The contracts must also include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations (29 C.F.R. § 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-federal entity must report all suspected or reported violations to the federal awarding agency. Vendor must be in compliance with all applicable Davis-Bacon Act provisions.

C. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (40 U.S.C. § 3701-3708). Where applicable, all contracts awarded by the non-federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations (29 C.F.R. § 5). Under 40 U.S.C. § 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. § 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence. This provision is hereby incorporated by reference into this Contract. Vendor certifies that during the term of an award for all contracts by Sourcewell resulting from this procurement process, Vendor must comply with applicable requirements as referenced above.

D. RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT. If the federal award meets the definition of “funding agreement” under 37 C.F.R. § 401.2(a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental,

developmental, or research work under that “funding agreement,” the recipient or subrecipient must comply with the requirements of 37 C.F.R. § 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency. Vendor certifies that during the term of an award for all contracts by Sourcewell resulting from this procurement process, Vendor must comply with applicable requirements as referenced above.

E. CLEAN AIR ACT (42 U.S.C. § 7401-7671Q.) AND THE FEDERAL WATER POLLUTION CONTROL ACT (33 U.S.C. § 1251-1387). Contracts and subgrants of amounts in excess of \$150,000 require the non-federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. § 7401- 7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. § 1251- 1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA). Vendor certifies that during the term of this Contract will comply with applicable requirements as referenced above.

F. DEBARMENT AND SUSPENSION (EXECUTIVE ORDERS 12549 AND 12689). A contract award (see 2 C.F.R. § 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. §180 that implement Executive Orders 12549 (3 C.F.R. § 1986 Comp., p. 189) and 12689 (3 C.F.R. § 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. Vendor certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency.

G. BYRD ANTI-LOBBYING AMENDMENT, AS AMENDED (31 U.S.C. § 1352). Vendors must file any required certifications. Vendors must not have used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Vendors must disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. Such disclosures are forwarded from tier to tier up to the non-federal award. Vendors must file all certifications and disclosures required by, and otherwise comply with, the Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352).

H. RECORD RETENTION REQUIREMENTS. To the extent applicable, Vendor must comply with the record retention requirements detailed in 2 C.F.R. § 200.333. The Vendor further certifies that it will retain all records as required by 2 C.F.R. § 200.333 for a period of 3 years after grantees or subgrantees submit final expenditure reports or quarterly or annual financial reports, as applicable, and all other pending matters are closed.

I. ENERGY POLICY AND CONSERVATION ACT COMPLIANCE. To the extent applicable, Vendor must comply with the mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

J. BUY AMERICAN PROVISIONS COMPLIANCE. To the extent applicable, Vendor must comply with all applicable provisions of the Buy American Act. Purchases made in accordance with the Buy American Act must follow the applicable procurement rules calling for free and open competition. Because Vendor is not the manufacturer of the hardware it provides, it may not be able to certify compliance with the Buy American Act. Vendor will work in good faith to address Participating Entity concerns.

K. ACCESS TO RECORDS (2 C.F.R. § 200.336). Vendor agrees that duly authorized representatives of a federal agency must have access to any books, documents, papers and records of Vendor that are directly pertinent to Vendor's discharge of its obligations under this Contract for the purpose of making audits, examinations, excerpts, and transcriptions. The right also includes timely and reasonable access to Vendor's personnel for the purpose of interview and discussion relating to such documents.

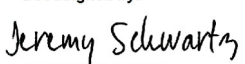
L. PROCUREMENT OF RECOVERED MATERIALS (2 C.F.R. § 200.322). A non-federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 C.F.R. § 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines. Because Vendor is not the manufacturer of the hardware it provides, it may not be able to certify compliance with the Solid Waste Disposal Act.

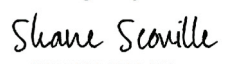
## **22. CANCELLATION**

Sourcwell or Vendor may cancel this Contract at any time, with or without cause, upon 60 days' written notice to the other party. However, Sourcwell may cancel this Contract immediately upon discovery of a material defect in any certification made in Vendor's Proposal. Cancellation of this Contract does not relieve either party of financial, product, or service obligations incurred or accrued prior to cancellation.

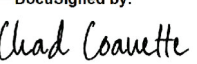
Sourcewell

Verizon Connect NWF Inc.

DocuSigned by:  
  
 By: C0FD2A139D06489...  
 Jeremy Schwartz  
 Title: Chief Procurement Officer  
 3/24/2021 | 2:12 PM CDT  
 Date: \_\_\_\_\_

DocuSigned by:  
  
 By: 8852D3ACAB3C4C1...  
 Shane Scoville  
 Title: Vice President Global Sales  
 3/25/2021 | 11:15 AM EDT  
 Date: \_\_\_\_\_

Approved:

DocuSigned by:  
  
 By: 7E42BBF817A64CC...  
 Chad Coauette  
 Title: Executive Director/CEO  
 3/25/2021 | 10:16 AM CDT  
 Date: \_\_\_\_\_



# RFP 020221 - Fleet Management Technologies with Related Software Solutions

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## Vendor Details

Company Name: Verizon Connect NWF Inc.  
Does your company conduct business under any other name? If yes, please state: CA  
Address: 9868 SCRANTON RD.  
SAN DIEGO, California 92121  
Contact: Marchand Clark-Hawkins  
Email: marchand.clark-hawkins@verizonconnect.com  
Phone: 858-401-3103  
HST#: 33-0872319

## Submission Details

Created On: Monday January 11, 2021 11:17:27  
Submitted On: Tuesday February 02, 2021 14:57:58  
Submitted By: Marchand Clark-Hawkins  
Email: marchand.clark-hawkins@verizonconnect.com  
Transaction #: eec18894-6748-4ffe-a12c-751fec8b3bcc  
Submitter's IP Address: 163.116.132.118

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## Specifications

**Table 1: Proposer Identity & Authorized Representatives**

**General Instructions** (applies to all Tables) Sourcewell prefers a brief but thorough response to each question. Please do not merely attach additional documents to your response without also providing a substantive response. Do not leave answers blank; mark "NA" if the question does not apply to you (preferably with an explanation).

Line Item	Question	Response *
1	Proposer Legal Name (and applicable d/b/a, if any):	1. Verizon Connect NWF Inc. 2. Verizon Connect Telo Inc. 3. Verizon Connect Fleet USA LLC
2	Proposer Address:	1. 9868 Scranton Road, San Diego, CA 92121 2. 15505 Sand Canyon, Irvine, CA 92618 3. 5055 North Point Parkway, Alpharetta, GA 30022
3	Proposer website address:	www.verizonconnect.com
4	Proposer's Authorized Representative (name, title, address, email address & phone) (The representative must have authority to sign the "Proposer's Assurance of Compliance" on behalf of the Proposer and, in the event of award, will be expected to execute the resulting contract):	Shane Scoville Vice President Global Sales shane.scoville@verizonconnect.com
5	Proposer's primary contact for this proposal (name, title, address, email address & phone):	Marchand Clark-Hawkins Consultant - Contract Management 9868 Scranton Road, San Diego, CA 92121 marchand.clark-hawkins@verizonconnect.com (858) 401-3103
6	Proposer's other contacts for this proposal, if any (name, title, address, email address & phone):	Chris Ellmore Managing Partner, North East Government Sales chris.ellmore@verizonconnect.com (617) 352-6607

**Table 2: Company Information and Financial Strength**

Line Item	Question	Response *
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7	Provide a brief history of your company, including your company's core values, business philosophy, and industry longevity related to the requested equipment, products or services.	<p>In 2016, Verizon brought together three powerful brands to service the needs of business fleets – Telogis, Fleetmatics, and Networkfleet. These three brands became Verizon Connect in 2018. Our legacy companies were founded in 2001 (Telogis), 2004 (Fleetmatics), and 1999 (Verizon Networkfleet). Verizon Connect is a subsidiary of Verizon Communications Inc., an industry leader in wireless services.</p> <p>Our full suite of industry-defining solutions and services put innovation, automation and connected data to work for customers and help them be safer, more efficient and more productive. With more than 3,500 dedicated employees in 15 countries, we deliver leading mobile technology platforms and solutions.</p> <p>Our mission To be a business partner to provide an end-to-end solution that helps businesses attain data-driven operational control.</p> <p>Our purpose Guiding a connected world on the go by automating, optimizing and revolutionizing the way people, vehicles and things move through the world.</p> <p>Our promise Together, we're redefining how life moves by helping people see clearly, act intelligently and go with confidence.</p> <p>See clearly. We help people see, understand and anticipate what's happening in their world with real-time data tracking, analysis and reporting.</p> <p>Act intelligently. We help people make clear and informed decisions, backed by facts and evidence, so they can take appropriate action.</p> <p>Go with confidence. We take the guesswork out of what's happening and what lies ahead to support our customers and keep them moving forward.</p>	*
8	What are your company's expectations in the event of an award?	Expectations regarding award of this event include working in co-operation with Sourcewell to provide Verizon Connect customers competitive, government-based pricing under the terms and conditions provided by Sourcewell. This will allow Verizon Connect to be better positioned to support the needs of government, educational and non-profit customers.	*
9	Demonstrate your financial strength and stability with meaningful data. This could include such items as financial statements, SEC filings, credit and bond ratings, letters of credit, and detailed reference letters. Upload supporting documents (as applicable) in the document upload section of your response.	Verizon Connect is a subsidiary of Verizon Communications, one of the world's largest providers of wireless communications services. Verizon's 2019 Annual Operating Revenue was \$131.9 Billion. Information regarding our financial solvency can be found within our Annual Reports and SEC filings via the provided URL: <a href="https://www.verizon.com/about/investors/financial-reporting">https://www.verizon.com/about/investors/financial-reporting</a> .	*
10	What is your US market share for the solutions that you are proposing?	Verizon Connect's Market Share for North America is 14.15%.	*
11	What is your Canadian market share for the solutions that you are proposing?	Verizon Connect's Market Share for North America is 14.15%.	*
12	Has your business ever petitioned for bankruptcy protection? If so, explain in detail.	Verizon has not petitioned for bankruptcy protection.	*
13	<p>How is your organization best described: is it a manufacturer, a distributor/dealer/reseller, or a service provider? Answer whichever question (either a) or b) just below) best applies to your organization.</p> <p>a) If your company is best described as a distributor/dealer/reseller (or similar entity), provide your written authorization to act as a distributor/dealer/reseller for the manufacturer of the products proposed in this RFP. If applicable, is your dealer network independent or company owned?</p> <p>b) If your company is best described as a manufacturer or service provider, describe your relationship with your sales and service force and with your dealer network in delivering the products and services proposed in this RFP. Are these individuals your employees, or the employees of a third party?</p>	Verizon Connect is a service provider of web-enabled, cloud-based telematics solutions. With presence in 15 countries, Verizon Connect employs 3500 professionals. Our company is structured as a direct to customer organization. We do have a network of subcontracting partners who assist us with the professional installation of telematics units.	*

14	If applicable, provide a detailed explanation outlining the licenses and certifications that are both required to be held, and actually held, by your organization (including third parties and subcontractors that you use) in pursuit of the business contemplated by this RFP.	There are no required licenses or certifications.	*
15	Provide all "Suspension or Debarment" information that has applied to your organization during the past ten years.	There are no suspensions or debarment to note.	*

**Table 3: Industry Recognition & Marketplace Success**

Line Item	Question	Response *	
16	Describe any relevant industry awards or recognition that your company has received in the past five years	Verizon Connect's industry Awards and Recognition can be viewed on our company's website:  <a href="https://www.verizonconnect.com/clients-and-results/">https://www.verizonconnect.com/clients-and-results/</a>	*
17	What percentage of your sales are to the governmental sector in the past three years	Verizon Connect manages relationships with over 80,000 customers globally. Of those approximately 80,000 customers, 4,500 are classified as customers in the Government sector (6%).	*
18	What percentage of your sales are to the education sector in the past three years	Verizon Connect manages relationships with over 80,000 customer globally. Of those approximately 80,000 customers, 931 are classified as customers within the education sector. (1%).	*
19	List any state, provincial, or cooperative purchasing contracts that you hold. What is the annual sales volume for each of these contracts over the past three years?	Verizon Connect currently provides pricing, terms and conditions under Sourcewell contract number 022217-NWF <a href="https://www.sourcewell-mn.gov/cooperative-purchasing/022217-nwf">https://www.sourcewell-mn.gov/cooperative-purchasing/022217-nwf</a> . The total annual sales for all cooperative purchasing contracts, for the last three years, is \$2,578,559.	*
20	List any GSA contracts or Standing Offers and Supply Arrangements (SOSA) that you hold. What is the annual sales volume for each of these contracts over the past three years?	Verizon Connect NWF holds GSA contract number GS-07F-5559R and three piggy-back agreements off of the aforementioned GSA contract with the states of Delaware, New Mexico and New York. The total annual sales for all cooperative purchasing contracts, for the last three years, is \$2,578,559.	*

**Table 4: References/Testimonials**

Line Item 21. Supply reference information from three customers who are eligible to be Sourcewell participating entities.

Entity Name *	Contact Name *	Phone Number *	
State of Rhode Island Tunnel and Bridge Authority	Kyle Benoit kbenoit@ritba.org	401-465-1878	*
Township of Lakewood	Patrick Donnelly Email: pdonnelly@lakewoodnj.gov	732-364-2500 extension 5200	*
Texas Department of Transportation	Robert White Email: robert.r.white@txdot.gov	512-467-5905	*

**Table 5: Top Five Government or Education Customers**

**Line Item 22. Provide a list of your top five government, education, or non-profit customers (entity name is optional), including entity type, the state or province the entity is located in, scope of the project(s), size of transaction(s), and dollar volumes from the past three years.**

Entity Name	Entity Type *	State / Province *	Scope of Work *	Size of Transactions *	Dollar Volume Past Three Years *
New York State Department of Transportation	Government	New York - NY	Verizon Connect is a provider of Automatic Vehicle Locator (AVL) services.	8000 units	\$3,100,000
Georgia Department of Transportation	Government	Georgia - GA	Verizon Connect is a provider of Automatic Vehicle Locator (AVL) services.	3500 units	\$2,100,000
City and County of San Francisco	Government	California - CA	Verizon Connect is a provider of Automatic Vehicle Locator (AVL) services.	2000 units	\$1,200,000
Orange County Public Works	Government	California - CA	Verizon Connect is a provider of Automatic Vehicle Locator (AVL) services.	1700 units	\$1,100,000
Colorado Department of Transportation	Government	Colorado - CO	Verizon Connect is a provider of Automatic Vehicle Locator (AVL) services.	1850 units	\$1,100,000

**Table 6: Ability to Sell and Deliver Service**

Describe your company's capability to meet the needs of Sourcewell participating entities across the US and Canada, as applicable. Your response should address in detail at least the following areas: locations of your network of sales and service providers, the number of workers (full-time equivalents) involved in each sector, whether these workers are your direct employees (or employees of a third party), and any overlap between the sales and service functions.

Line Item	Question	Response *
23	Sales force.	<p>Verizon Communications employs 133,200 professionals globally. Verizon Connect, a subsidiary to Verizon Communications employs 3500 professionals in 15 countries. Within North America, Verizon Connect employs approximately 110 Sales professionals supporting government and commercial customers.</p> <p>Please see disclaimer provided below:</p> <p>Verizon Connect, Inc. "Verizon" is a federal contractor subject to the rules and regulations including Title VII and Exec Order 11246. Verizon shall abide by the requirements of 41 CFR 60-1.4(a), 60-300.5(a), and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identify, or national origin. Moreover, these regulations require that Verizon take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, protected veteran status or disability.</p>
24	Dealer network or other distribution methods.	There are no deal networks or distribution partners to note for the outlined telematics services. For our Government customers, sales are managed as direct to customer through Verizon Connect's internal sales channels.

25	Service force.	<p>Verizon Communications employs 133,200 professionals globally. Verizon Connect, a subsidiary to Verizon Communications employs 3500 professionals in 15 countries. Within North America, Verizon Connect employs approximately 70 Customer Service professionals.</p> <p>Please see disclaimer provided below:</p> <p>Verizon Connect, Inc. "Verizon" is a federal contractor subject to the rules and regulations including Title VII and Exec Order 11246. Verizon shall abide by the requirements of 41 CFR 60-1.4(a), 60-300.5(a), and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identify, or national origin. Moreover, these regulations require that Verizon take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, protected veteran status or disability.</p>
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26	Describe in detail the process and procedure of your customer service program, if applicable. Include your response-time capabilities and commitments, as well as any incentives that help your providers meet your stated service goals or promises.	<p>Verizon Connect NWF Inc. (Networkfleet) The Networkfleet platform includes robust online support tools including help resources, a training center, and online installation support. Live and on-demand video training is available within the platform, along with user guides and video tutorials providing a quick and convenient way to learn basic functions of the application.</p> <p>Our Customer Care team is cross-trained to assist you in resolving any technical-related issues that may arise. Customers can contact Customer Care directly from the platform as well as by phone and email. Our professionally trained team is available to assist you Monday through Friday from 5 AM to 7 PM PST and Saturdays from 7 AM to 2 PM PST.</p> <p>All customer calls and emails are assigned a case number. Customer Care representatives will troubleshoot the issue for immediate resolution or escalate the issue to the appropriate department if needed. Our engineers are ready to assist Customer Care with any unresolved issues and questions. Issues are followed through to final resolution with the customer.</p> <p>Verizon Connect Telo Inc. (Fleet for Government) For our Fleet platform, Customers can access support 24/7 directly from the platform, via email, and via telephone. We deliver support in multiple languages, including English and Spanish. Three distinct support tiers are available to you for ongoing technical and operational support:</p> <ol style="list-style-type: none"> <li>1. Basic Support is included in your monthly software subscription fee and provides you with an average response time of within one (1) business day, unlimited cases and 24/7 live phone support.</li> <li>2. Premier Support provides you with an average response time of within four (4) business hours, unlimited cases, 24/7 live phone support, a priority phone queue, an assigned support account manager and technical lead, a quarterly health check and developer support (additional fees apply).</li> <li>3. Premier Administration provides you with designated support resources for administrator services, an average response time within four (4) business hours, unlimited cases, 24/7 live phone support, 24/7 emergency support, a priority phone queue, an assigned support account manager and technical lead, a monthly health check and developer support (additional fees apply).</li> </ol> <p>Verizon Connect Fleet USA LLC (Reveal) Live customer support is available 24/7. Support is also available by emailing <a href="mailto:reveal.support@verizonconnect.com">reveal.support@verizonconnect.com</a>. Additional Help resources are available anytime within the platform to assist you with the tool.</p> <p>Our Customer Support Team provides you with the following support:</p> <ul style="list-style-type: none"> <li>• Resolving or directing general inquiries</li> <li>• Assisting with 'how to' answers</li> <li>• Acting as the conduit for product enhancement suggestions</li> <li>• Reconfiguring firmware or units</li> <li>• Diagnosing units Over-the-Air (OTA)</li> <li>• Establishing potential fault within the unit</li> <li>• Scheduling an engineer visit when required, including placing service calls to remedy device issues or remove/re-install devices</li> <li>• Scheduling additional trainings</li> <li>• Diagnosing and triaging product-oriented issues through proprietary software to easily identify root causes and remediate issues quickly</li> </ul> <p>We use a world-class CRM to track all inquiries and support cases with a two-tier escalation process. If the Customer Support team is unable to resolve the issue, it will be escalated to our Application Support team, who works directly with our developers to resolve any product issues. This allows us to stay in constant contact with our customers to ensure proper communication, timely updates and quick issue resolution.</p>
27	Describe your ability and willingness to provide your products and services to Sourcwell participating entities in the United States.	Verizon Connect is currently a provider of Sourcwell pricing to the government and public sector in the United States. The only limitations we would have in providing products and pricing under Sourcwell's pricing, terms and conditions would be those restrictions set upon us by our customers.
28	Describe your ability and willingness to provide your products and services to Sourcwell participating entities in Canada.	Verizon Connect has presence in 15 countries. There are no restrictions to provide products and services in the United States. In Canada, our Fleet for Government and Networkfleet platforms are fully supported. Reveal is not currently supported, due to our inability to invoice a Canadian customer in local currency.
29	Identify any geographic areas of the United States or Canada that you will NOT be fully serving through the proposed contract.	Verizon Connect has presence in 15 countries. There are no geographic areas in the United States that cannot be supported. In Canada, our Fleet for Government and Networkfleet platforms are fully supported. Reveal is not currently supported, due to our inability to invoice a Canadian customer in local currency.

30	Identify any Sourcewell participating entity sectors (i.e., government, education, not-for-profit) that you will NOT be fully serving through the proposed contract. Explain in detail. For example, does your company have only a regional presence, or do other cooperative purchasing contracts limit your ability to promote another contract?	Verizon Connect is able to fully support all government and public sectors.	*
31	Define any specific contract requirements or restrictions that would apply to our participating entities in Hawaii and Alaska and in US Territories.	There are contract restrictions for participating entities in Hawaii, Alaska and in US Territories.	*

**Table 7: Marketing Plan**

Line Item	Question	Response *	
32	Describe your marketing strategy for promoting this contract opportunity. Upload representative samples of your marketing materials (if applicable) in the document upload section of your response.	<p>Verizon Connect will continue to promote the partnership with Sourcewell through multi-channel campaigns, including via email, digital and social. In addition, Verizon Connect will ensure all marketing materials relevant to Sourcewell, are up to date and utilized by our sales force.</p> <p>Examples include:</p> <ul style="list-style-type: none"> <li>· Landing Page: <a href="https://www.verizonconnect.com/partner/sourcewell/">https://www.verizonconnect.com/partner/sourcewell/</a></li> <li>· Sales Collateral: Reveal for Government – Sourcewell brochure</li> <li>· Example press release: <a href="https://www.verizonconnect.com/company/news/verizon-connect-reveal-is-now-available-for-government-customers-through-sourcewell/">https://www.verizonconnect.com/company/news/verizon-connect-reveal-is-now-available-for-government-customers-through-sourcewell/</a></li> </ul>	*
33	Describe your use of technology and digital data (e.g., social media, metadata usage) to enhance marketing effectiveness.	Verizon Connect utilizes advanced marketing technology, such as metadata and Google Analytics to support and optimize a strong key work and search engine optimization strategy. From a social media standpoint, Verizon Connect utilizes multiple social media channels to speak to specific segments of our audience and enhance our marketing effectiveness. For example, Facebook is utilized to reinforce and showcase the benefits of our solutions, as this social media platform typically consists of our end-users (drivers). LinkedIn consists of business decision makers, therefore, we market our solutions to emphasize how they contribute to improved business efficiency, cost-effectiveness and increased ROI. Finally, we utilize Twitter to reinforce the larger Verizon Business Group, providing information "blasts" to communicate our brand's strength and image, as well as provide information to our customers in real-time.	*
34	In your view, what is Sourcewell's role in promoting contracts arising out of this RFP? How will you integrate a Sourcewell-awarded contract into your sales process?	Sourcewell's role in promoting contracts arising out of this RFP is to provide fair, competitive pricing for services to government entities, non-profits and public sector customers. Sourcewell offers customers cost savings on equipment and services, as well as favorable contractual terms and conditions, which allow customers to run their entities more cost-effectively and efficiently.	*
35	Are your products or services available through an e-procurement ordering process? If so, describe your e-procurement system and how governmental and educational customers have used it.	Verizon Connect does not support e-procurement of services.	*

**Table 8: Value-Added Attributes**

Line Item	Question	Response *
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<p>36</p>	<p>Describe any product, equipment, maintenance, or operator training programs that you offer to Sourcewell participating entities. Include details, such as whether training is standard or optional, who provides training, and any costs that apply.</p>	<p>Verizon Connect provides several methods for training. Specific training is available for managers, drivers and platform administrators.</p> <p>Methods of available training include:</p> <ol style="list-style-type: none"> <li>1) Classroom instructor-led training - Permits the best concentration and learning</li> <li>2) Web-based instructor-led training - Up to 200 students may participate and attend from anywhere</li> <li>3) Online self-paced training - Available 24/7 from anywhere users have an internet connection</li> </ol> <p>Regularly scheduled live web training is available to all users and is included in your monthly fee. Users can track completion of training as well as competence and understanding using knowledge checks through the online training portal.</p> <p>Each type of training meets the same objectives. We recommend an onsite classroom training engagement for a core set of individuals for the initial launch. Verizon Connect also offers train-the-trainer training if desired. Customized training is also available for a tailored approach to the customer's specialized needs or requirements.</p> <p>Verizon Connect believes acceptance and internalization of new system introductions is best achieved with a partnership between Verizon Connect and our customers.</p> <p>Verizon Connect also offers hardware installation and maintenance training. This training is typically delivered during vehicle hardware installations to allow for technicians at local facilities to go through the necessary ramp-up and knowledge transfer. This empowers local technicians to be able to assist with future installations or reinstallations. You may also decide to have your trained technicians assume some of the installation responsibility to lower the overall project costs.</p>
<p>37</p>	<p>Describe any technological advances that your proposed products or services offer.</p>	<p>Verizon Connect employs over 1,000 professionals dedicated to Research and Development. Verizon Connect reviews and implements upgrades that support optimal utilization of our telematics services. With a research and development budget that exceeds the revenues of many of our competitors, we are committed to growing the capabilities of our offerings and leveraging new technologies. We are continually updating and developing current and future products. Our product roadmap starts with our customers, and leverages customer surveys, interviews, field studies and user tests to meet the ever-growing needs of our customers.</p> <p>Users recognize us for our ongoing updates and innovation, and we are excited to bring market-leading enhancements in the following areas in 2021:</p> <ul style="list-style-type: none"> <li>• Continued extension of our telematics core to meet the needs of today's mobile workforce, including continued investments in field service management, asset tracking and compliance</li> <li>• Improvements in usability and simplicity of the user experience (UX) for mobile applications and platform solutions</li> <li>• Continued innovation around our popular dashcam solution, Verizon Connect Integrated Video, helping fleet operators see exactly what's happening on the road in near real time to mitigate risk and coach drivers</li> <li>• Further integration with and support of Electric Vehicle data</li> <li>• The integration of "Smart" technologies which leverage 5G capabilities</li> <li>• Investments in Artificial Intelligence capabilities to aide customers in discovery of important information when processing big data</li> <li>• Accelerated development of 'machine learning' capabilities and tools that allow us to provide deeper data insights for our customers into areas that drive value for their business.</li> <li>• Increased development of integration capabilities that make it easier to connect telematics and mobile applications to back-office applications</li> <li>• Ongoing investments in backend infrastructure to meet the needs of growing companies for industry-leading stability, security and scalability</li> </ul>
<p>38</p>	<p>Describe any "green" initiatives that relate to your company or to your products or services, and include a list of the certifying agency for each.</p>	<p>Today, as 5G technology ushers in the Fourth Industrial Revolution, our focus on environmental sustainability and social responsibility has sharpened, and our commitment has accelerated. As we fulfill our corporate purpose to create the networks that move the world forward, we are taking bold steps toward reducing our environmental footprint, ensuring that our technology benefits everyone and employing our assets to tackle the world's biggest challenges.</p> <p>Our ESG strategy is to effectively govern and manage the environmental and social risks and opportunities that arise from our core business strategy. We believe that we will create long-term value for our shareholders by extending our network leadership through continued innovation for the benefit of both our company and society at large. We aim to provide our customers with best-in-class experiences while fostering a culture based on integrity and respect.</p> <p>For more information on our Sustainability efforts, please see the Corporate Responsibility Sustainability website at: <a href="http://www.verizon.com/about/responsibility/sustainability">http://www.verizon.com/about/responsibility/sustainability</a>.</p>

39	Identify any third-party issued eco-labels, ratings or certifications that your company has received for the equipment or products included in your Proposal related to energy efficiency or conservation, life-cycle design (cradle-to-cradle), or other green/sustainability factors.	There are no third-party eco-labels, ratings or certifications to share.	*
40	Describe any Women or Minority Business Entity (WMBE), Small Business Entity (SBE), or veteran owned business certifications that your company or hub partners have obtained. Upload documentation of certification (as applicable) in the document upload section of your response.	Verizon Connect is not a WMBE, Small Business, or Veteran-Owned Organization. This requirement is not applicable.	*
41	What unique attributes does your company, your products, or your services offer to Sourcewell participating entities? What makes your proposed solutions unique in your industry as it applies to Sourcewell participating entities?	<p>Verizon Connect is guiding a connected world on the go by automating, optimizing and revolutionizing the way people, vehicles and things move through the world. We ensure that the things our customers care about most – from people and vehicles to equipment and data – run smoothly and flow seamlessly.</p> <p>Our full suite of industry-defining fleet and workforce management solutions and services put innovation, automation and connected data to work for customers and help them be safer, smarter, more efficient and more compliant.</p> <p>Some of the things that make Verizon Connect a leader in the telematics industry include:</p> <ul style="list-style-type: none"> <li>- Services that are available from anywhere, at anytime</li> <li>- Backed by a global leader in wireless communications, Verizon Wireless</li> <li>- A scalable platform that is flexible and able to grow as our customer's businesses grow</li> <li>- 1000 professionals dedicated to research and development, providing customer's the most innovative and efficient ways to utilize our services</li> <li>- First to 5G technology</li> <li>- Seamless integration with our customer's existing business and software solutions, through API and Data Connect services</li> <li>- Customized implementation and training plans, based on each customer's specific needs</li> <li>- Global, always available customer support</li> <li>- Dedicated Customer Support Team, trained to be a subject matter expert to all of our customer's growth and development needs</li> </ul>	*

**Table 9: Warranty**

**Describe in detail your manufacturer warranty program, including conditions and requirements to qualify, claims procedure, and overall structure. You may upload representative samples of your warranty materials (if applicable) in the document upload section of your response in addition to responding to the questions below.**

Line Item	Question	Response *	
42	Do your warranties cover all products, parts, and labor?	Yes.	*
43	Do your warranties impose usage restrictions or other limitations that adversely affect coverage?	No.	*
44	Do your warranties cover the expense of technicians' travel time and mileage to perform warranty repairs?	No.	*
45	Are there any geographic regions of the United States or Canada (as applicable) for which you cannot provide a certified technician to perform warranty repairs? How will Sourcewell participating entities in these regions be provided service for warranty repair?	There are no restrictions. Verizon Connect provides a web-enabled, cloud-based solution which can be accessed via any supported web browser or mobile device (via mobile app). With presence in 15 countries globally, Verizon Connect has no limitations to providing support in those areas that we provide services. Additionally, Verizon Connect utilizes a network of subcontractors to provide professional installation (if required by customer) of telematics devices. Assignment of subcontractors are managed based on location to customer and timeline based on customer's requirements.	*
46	Will you cover warranty service for items made by other manufacturers that are part of your proposal, or are these warranties issues typically passed on to the original equipment manufacturer?	Verizon Connect has a robust portfolio of OEM agreements, connecting more vehicles and equipment over-the-air without ever touching the vehicle. OEM partnerships mean vehicles are ready to use from day one with factory warranty coverage and allow for online activation without any need to take the vehicle or equipment out of use for installation.	*
47	What are your proposed exchange and return programs and policies?	Hardware devices do not require maintenance. Technical issues with hardware devices have initial troubleshooting done by contacting our Customer Support team. A support representative will work to correct the issue or issue a Return Merchandise Authorization (RMA), so the hardware may be returned to Verizon Connect for additional troubleshooting or process a warranty replacement. Replacement devices will be received within seven (7) days.	*
48	Describe any service contract options for the items included in your proposal.	There are no service contracts related to the proposed services. The proposed services are provided as cloud-based, web enabled services. All maintenance is managed behind the scenes without interruption to the end-user's utilization of services. Hardware devices do not require maintenance. Technical issues with hardware devices have initial troubleshooting done by contacting our Customer Support team. A support representative will work to correct the issue or issue a Return Merchandise Authorization (RMA), so the hardware may be returned to Verizon Connect for additional troubleshooting or process a warranty replacement. Replacement devices will be received within seven (7) days. For some hardware options, there is no warranty needed as the hardware and replacements are included in the monthly cost. Other hardware options provide hardware warranty for one (1) year with options for extended warranties.	*

**Table 10: Payment Terms and Financing Options**

Line Item	Question	Response *
49	What are your payment terms (e.g., net 10, net 30)?	Verizon Connects Payment Terms are Net 30.
50	Describe any leasing or financing options available for use by educational or governmental entities.	Customers purchase telematics hardware units to be installed within the customer's vehicle (hardware can be leased upon request. Lease pricing can be provided based on number of units). Thereafter, a monthly subscription fee is paid to access GPS tracking and Diagnostics data.
51	Briefly describe your proposed order process. Include enough detail to support your ability to report quarterly sales to Sourcewell as described in the Contract template. For example, indicate whether your dealer network is included in your response and whether each dealer (or some other entity) will process the Sourcewell participating entities' purchase orders.	<p>Customer's providing an electronic signature as part of completing a Verizon Connect electronic Order Form or submitting or signing an Order Form for products and services offered pursuant to the Sourcewell Contract indicates Customer's acceptance of the terms of the Sourcewell Contract, including Verizon Connect's additional terms and conditions. If a Customer does not agree to the Sourcewell Contract, including Verizon Connect's additional terms and conditions, the Customer may not order such products or services. If there is a conflict between the terms of a Customer's Accepted Order Form and its Agreement, the terms of the Agreement (without reference to its Accepted Order Form) shall prevail.</p> <p>Customers may not modify, rescind or cancel an Accepted Order Form, in whole or in part, without Verizon Connect's written consent; any such action by Customer shall be considered null and void and have no effect on the Accepted Order Form. The transmission to the Customer of an Order Form does not constitute an offer. All orders are subject to acceptance by Verizon Connect, evidenced either (a) in writing via email, or (b) by shipping the Devices or provisioning the Verizon Connect Service.</p> <p>Under our current Sourcewell contract, all Verizon Connect sales are captured under the Sourcewell contract number to make reporting seamless. Our Finance department is able to easily determine any and all sales made under the contract for all three platforms.</p>
52	Do you accept the P-card procurement and payment process? If so, is there any additional cost to Sourcewell participating entities for using this process?	Verizon Connect does currently support Procurement Card payment. There are no additional fees imposed by Verizon Connect for use a P-card.

**Table 11: Pricing and Delivery**

Provide detailed pricing information in the questions that follow below. Keep in mind that reasonable price and product adjustments can be made during the term of an awarded Contract as described in the RFP, the template Contract, and the Sourcwell Price and Product Change Request Form.

Line Item	Question	Response *
53	Describe your pricing model (e.g., line-item discounts or product-category discounts). Provide detailed pricing data (including standard or list pricing and the Sourcwell discounted price) on all of the items that you want Sourcwell to consider as part of your RFP response. If applicable, provide a SKU for each item in your proposal. Upload your pricing materials (if applicable) in the document upload section of your response.	Pricing for Verizon Connect telematics services (includes Verizon Connect NWF Inc., Verizon Connect Telo Inc., and Verizon Connect Fleet USA LLC) includes the following: - A one-time fee to purchase telematics hardware unit (units can be leased if required) - A monthly subscription fee to access GPS and diagnostics data - A one-time fee for professional installation (customer can opt to manage installation internally)
54	Quantify the pricing discount represented by the pricing proposal in this response. For example, if the pricing in your response represents a percentage discount from MSRP or list, state the percentage or percentage range.	The prices offered to Sourcwell for the three product platforms are being discounted between 0.36% and 100% from the standard Commercial Price List. Verizon Connect will also offer further discounts to our customers guaranteed quantity orders of 2,000+ units for hardware. The pricing offered for the products is in line and consistent with those currently provided by Verizon Connect and other vendors offering similar products and services.
55	Describe any quantity or volume discounts or rebate programs that you offer.	Tiered pricing can be provided based on the number of units purchased by the customer. Price reductions will be provided when customer achieves the next level of outlined unit volume, purchased.
56	Propose a method of facilitating "sourced" products or related services, which may be referred to as "open market" items or "nonstandard options". For example, you may supply such items "at cost" or "at cost plus a percentage," or you may supply a quote for each such request.	Verizon Connect does not have a process or method in place to facilitate "sourced" products and/or services.
57	Identify any element of the total cost of acquisition that is NOT included in the pricing submitted with your response. This includes all additional charges associated with a purchase that are not directly identified as freight or shipping charges. For example, list costs for items like pre-delivery inspection, installation, set up, mandatory training, or initial inspection. Identify any parties that impose such costs and their relationship to the Proposer.	Installation is an optional service, as our customers may utilize self-installation via their internal, organizational technicians. Verizon Connect has relationships with numerous, certified installation partners that can assist our customers should they prefer their telematics units to be professionally installed. Installers are assigned based on close proximity to the customer's location, timeline required by the customer and the number of units and locations that require installation. The cost of installation services may be found in our proposed Price List. For the Networkfleet and Fleet for Government platform's professional installation is charged as a one-time fee and it is charged for installation and de-installation of devices. For our Reveal platform, professional installation is included in the the monthly service charge for the platform. Should the customer opt to self-install their devices, the customer's monthly fee would be lower than if they were to choose professional installation.
58	If freight, delivery, or shipping is an additional cost to the Sourcwell participating entity, describe in detail the complete freight, shipping, and delivery program.	Not Applicable. Shipping is included in the price of unit.
59	Specifically describe freight, shipping, and delivery terms or programs available for Alaska, Hawaii, Canada, or any offshore delivery.	Not Applicable. Shipping is included in the price of the unit.
60	Describe any unique distribution and/or delivery methods or options offered in your proposal.	The proposed platforms are provided as web-enabled, cloud-based services and are available at any time, from any supported web browser or mobile device. During initial implementation, units are shipped to installation locations and installed professionally by certified Verizon Connect partner companies (if required by customer), or may be installed internally by the customer.

**Table 12: Pricing Offered**

Line Item	The Pricing Offered in this Proposal is: *	Comments
61	b. the same as the Proposer typically offers to GPOs, cooperative procurement organizations, or state purchasing departments.	Please see our proposed Sourcwell pricing attached in this response.

**Table 13: Audit and Administrative Fee**

Line Item	Question	Response *
62	Specifically describe any self-audit process or program that you plan to employ to verify compliance with your proposed Contract with Sourcewell. This process includes ensuring that Sourcewell participating entities obtain the proper pricing, that the Vendor reports all sales under the Contract each quarter, and that the Vendor remits the proper administrative fee to Sourcewell.	Verizon Connect has a tracking report that is managed and reviewed for every government, public sector and non-profit opportunity that is managed. Metrics tracked include customers that are proposed/offered pricing, terms and conditions under the Sourcewell contract, revenue based on sales, solution which is priced under agreement.
63	Identify a proposed administrative fee that you will pay to Sourcewell for facilitating, managing, and promoting the Sourcewell Contract in the event that you are awarded a Contract. This fee is typically calculated as a percentage of Vendor's sales under the Contract or as a per-unit fee; it is not a line-item addition to the Member's cost of goods. (See the RFP and template Contract for additional details.)	Under Verizon Connect's current contract with Sourcewell, Verizon Connect currently pays Sourcewell 1 1/2% of total sales under the Sourcewell contract, quarterly.

**Table 14A: Depth and Breadth of Offered Equipment Products and Services**

Line Item	Question	Response *
64	Provide a detailed description of the equipment, products, and services that you are offering in your proposal.	Please see the attached document, providing a comprehensive overview of Verizon Connect's Fleet, Reveal and Networkfleet platforms.
65	Within this RFP category there may be subcategories of solutions. List subcategory titles that best describe your products and services.	<p>Within the support platforms, Verizon Connect provides the following tools and add-on solutions:</p> <p>Verizon Connect Fleet The Fleet platform provides the following:</p> <ul style="list-style-type: none"> <li>• Verizon Connect Fleet. Delivers real-time location, full engine diagnostics, driver safety metrics and status for all vehicles and assets on one dashboard, including full fleet metrics, maintenance scheduling, instant alerts and reports.</li> <li>• Verizon Connect Assets. Integrates your powered and non-powered assets with your vehicles and aggregates data for one view of your entire fleet.</li> <li>• Verizon Connect Video. Dash cam smart video footage is available within minutes. View harsh driving events with event classifications, along with speed overlay and video on demand, right from your desktop or mobile device.</li> <li>• Verizon Connect Workforce. Offers mobile workers a tool to plan jobs, track performance and manage reporting with customizable planning and performance tools.</li> <li>• Verizon Connect Compliance. Incorporates powerful Hours of Service (HOS) management features and a complete E-DVIR solution to automate compliance processes and reduce your administrative workload.</li> <li>• Verizon Mobile Apps. <ul style="list-style-type: none"> <li>o Verizon Connect Spotlight. Enables real-time access to fleet and assets location, health, and status for fleet managers and supervisors via Fleet's companion app.</li> <li>o Verizon Connect Navigation. An advanced, truck-restricted navigation companion with a large moving map and an easy-to-use touch screen interface.</li> <li>o Verizon Connect Coach. Drivers have direct access to driving KPIs, which help ensure safe driving, on-time performance and route compliance, with productivity metrics and leaderboards to support peer comparison.</li> </ul> </li> </ul> <p>Verizon Connect Reveal The Reveal platform includes:</p> <ul style="list-style-type: none"> <li>• Verizon Connect Reveal. Real-time location and driver safety metrics on one dashboard. Includes full fleet metrics, maintenance scheduling, geofencing, instant alerts and detailed reports.</li> <li>• Verizon Connect Driving Style. Improve driver behavior, increase safety, and lower insurance costs with a comprehensive view of drivers including alerting, reporting, and our proprietary safety scoring.</li> <li>• Verizon Connect Video. View road-facing and driver-facing dash cam smart video footage in minutes in the office or out in the field to see harsh driving events with event classifications and speed overlay, along with on demand video footage.</li> <li>• Verizon Connect LogBook. Stay compliant with regulations by conducting roadside inspections for DVIR reports, and track Hours of Service (HOS) for continued compliance.</li> <li>• Verizon Connect Mobile Apps.</li> </ul>

- o Verizon Connect Reveal Spotlight. Enables real-time access to fleet and assets location, health, and status for fleet managers and supervisors via Reveal's companion mobile app.
- o Verizon Connect Reveal Driver. Enables route dispatching to driver, the ability to view driver scorecards, confirm new driver vehicle assignments, and more.
- o Verizon Connect Navigation. Performs as an advanced, truck restricted navigation companion, with a large moving map format and a simple-to-use touch screen interface.
- o Verizon Connect Reveal Map. Gives quick access to all vehicles and drivers in one map with vehicle status and search capabilities.
- o Verizon Connect Reveal Field. Allows easy management of vehicles, technicians, and jobs for simple scheduling and dispatch with the online Scheduler and immediate job status updates and details with the mobile app.

Verizon Connect Networkfleet

Networkfleet includes:

- Networkfleet 5500 Series. Real-time location, engine diagnostics, driver safety metrics and status for all vehicles and assets on one dashboard with full fleet metrics, maintenance scheduling, alerts, reports and roadside assistance.
- Networkfleet 5200 Series. Real-time GPS tracking and status for all assets on one dashboard with full fleet metrics, alerts, reports and roadside assistance.
- Networkfleet Asset Guard. Location and status of your fixed, movable, powered, or non-powered assets, integrated with your vehicle fleet for a single view on one map.
- Networkfleet Mobile Apps.
  - o Networkfleet Manager. Real-time access to fleet and assets location, health, and status for fleet managers and supervisors via Fleet for Government's companion mobile app.
  - o Networkfleet Driver. Digital Forms to eliminate paperwork in the field and remotely sync with the platform.

**Table 14B: Depth and Breadth of Offered Equipment Products and Services**

Indicate below if the listed types or classes of equipment, products, and services are offered within your proposal. Provide additional comments in the text box provided, as necessary.

Line Item	Category or Type	Offered *	Comments
66	Fleet management information systems	<input checked="" type="radio"/> Yes <input type="radio"/> No	<p>Verizon Connect offers a leading cloud-based mobile workforce management platform that connects your business and helps you make better data-driven decisions. . Our innovative technology leads the market, and provides the latest features to help you make smart data-driven decisions. Our fleet and workforce management solutions are intuitive and designed to be easy to use and maintain. The comprehensive platform is reliable and provides a trusted daily tool that locates and optimizes your resources for any size fleet.</p> <p>Our Fleet Management capabilities support</p> <ul style="list-style-type: none"> <li>• the management of the location, status and health of your vehicles</li> <li>• the overseeing vehicle and equipment utilization</li> <li>• An increase in productivity and efficiency</li> </ul> <p>Our Workforce Management capabilities support:</p> <ul style="list-style-type: none"> <li>• the management of the location, status and well-being of your mobile workers</li> <li>• the monitoring of workday progress and activities</li> <li>• the promotion of safety and security</li> </ul> <p>Verizon Connect delivers real-time insight into your daily operations. We partner with our customers to identify and integrate the specific technologies that are appropriate for their operational needs and deliver targeted end-to-end solutions with modular designs and open architectures. This comprehensive platform approach is tailored to fully accomplish your goals and deliver measurable benefits and ROI.</p>
67	Fleet technology related hardware solutions	<input checked="" type="radio"/> Yes <input type="radio"/> No	<p>Verizon Connect's GPS tracking units are installed within the vehicle's cab, underneath the vehicle's dashboard. Information is taken directly from the vehicle's engine, allowing location and diagnostics data to be transmitted through the cloud and available via the user's web browser (Chrome, Edge, Firefox and Internet Explorer, or via Android and iOS Apple devices through mobile app.</p>
68	Fleet related software solutions	<input type="radio"/> Yes <input checked="" type="radio"/> No	<p>Verizon Connect's telematics solutions are provided as web-enabled, cloud-based solutions. No software is required to utilize Verizon Connect's telematics platforms.</p>
69	Telematics, fleet monitoring, asset tracking, and geofencing solutions	<input checked="" type="radio"/> Yes <input type="radio"/> No	<p>Please see the provided 'Verizon Connect Solution Overview' included as an attachment to this response. Information is providing regarding fleet monitoring, asset tracking and geofence capabilities for all participating platforms.</p>
70	Motor pool and fleet sharing solutions	<input checked="" type="radio"/> Yes <input type="radio"/> No	<p>Devices can be transferred between multiple vehicles and vehicles can be assigned to more than one driver. Additionally, can use the digital driver ID, via Verizon Connect Fleet's mobile WorkPlan app or key fob, for each driver within your fleet. This will inform you who is behind the wheel of a vehicle and if a vehicle has changed drivers throughout the day.</p> <p>Customers can easily configure their telematics platform to match their organizational structure with hierarchy capabilities.</p> <p>Verizon Connect's solutions allow you to use fleet and teams to create custom groups of people or vehicles, as well as support the sharing of vehicles amongst multiple drivers.</p>
71	Integrated video solutions	<input checked="" type="radio"/> Yes <input type="radio"/> No	<p>Verizon Connect's Fleet and Reveal platforms provide integrated video capabilities. A comprehensive overview of the platforms' integrated video capabilities are provided within the 'Verizon Connect Solution Overview' included as an attachment to this response.</p>



**Table 15: Industry Specific Questions**

Line Item	Question	Response *
72	If you are awarded a contract, provide a few examples of internal metrics that will be tracked to measure whether you are having success with the contract.	<p>Verizon Connect tracks the number of government, public and non-profit entities that submit RFx request. Metrics that are tracked include:</p> <ul style="list-style-type: none"> <li>- Company</li> <li>- Number of Units</li> <li>- Government Co-operative Pricing (yes/no)</li> <li>- Solution proposed under Sourcewell pricing</li> <li>- Potential Monthly and Annual Revenue</li> <li>- Win (yes/no)</li> </ul>
73	Describe your approach to data privacy in regard to your proposed solution(s).	<p>Maintaining the privacy of our customers is extremely important to Verizon Connect. Our official Privacy Policy can be found on our website at <a href="http://www.verizon.com/about/privacy/privacy-policy-summary">www.verizon.com/about/privacy/privacy-policy-summary</a>.</p> <p>Verizon Connect utilizes the following processes to protect sensitive data:</p> <ul style="list-style-type: none"> <li>• Maintaining a Verizon Code of Conduct for Verizon Connect employees (available to the public on our website at <a href="http://www.verizon.com/about/our-company/code-conduct">www.verizon.com/about/our-company/code-conduct</a>) which requires compliance with information security policies and procedures.</li> <li>• Using contractual and other measures to obtain third party suppliers' compliance with appropriate information security requirements, such as Verizon's baseline security requirements for suppliers, our Supplier Code of Conduct, and other materials.</li> <li>• Providing physical security controls for each computer room, data center, and similar facilities that may contain sensitive information.</li> <li>• Providing technical and other controls protecting sensitive information stored in Internal Systems, consistent with Verizon Connect's information security policies and procedures.</li> <li>• Complying with applicable laws and regulations related to protecting sensitive information stored by Verizon Connect.</li> </ul>

**Exceptions to Terms, Conditions, or Specifications Form**

Only those Proposer Exceptions to Terms, Conditions, or Specifications that have been accepted by Sourcewell have been incorporated into the contract text.

## Proposer's Affidavit

### PROPOSER AFFIDAVIT AND ASSURANCE OF COMPLIANCE

I certify that I am the authorized representative of the Proposer submitting the foregoing Proposal with the legal authority to bind the Proposer to this Affidavit and Assurance of Compliance:

1. The Proposer is submitting this Proposal under its full and complete legal name, and the Proposer legally exists in good standing in the jurisdiction of its residence.
2. The Proposer warrants that the information provided in this Proposal is true, correct, and reliable for purposes of evaluation for contract award.
3. The Proposer, including any person assisting with the creation of this Proposal, has arrived at this Proposal independently and the Proposal has been created without colluding with any other person, company, or parties that have or will submit a proposal under this solicitation; and the Proposal has in all respects been created fairly without any fraud or dishonesty. The Proposer has not directly or indirectly entered into any agreement or arrangement with any person or business in an effort to influence any part of this solicitation or operations of a resulting contract; and the Proposer has not taken any action in restraint of free trade or competitiveness in connection with this solicitation. Additionally, if Proposer has worked with a consultant on the Proposal, the consultant (an individual or a company) has not assisted any other entity that has submitted or will submit a proposal for this solicitation.
4. To the best of its knowledge and belief, and except as otherwise disclosed in the Proposal, there are no relevant facts or circumstances which could give rise to an organizational conflict of interest. An organizational conflict of interest exists when a vendor has an unfair competitive advantage or the vendor's objectivity in performing the contract is, or might be, impaired.
5. The contents of the Proposal have not been communicated by the Proposer or its employees or agents to any person not an employee or legally authorized agent of the Proposer and will not be communicated to any such persons prior to Due Date of this solicitation.
6. If awarded a contract, the Proposer will provide to Sourcewell Participating Entities the equipment, products, and services in accordance with the terms, conditions, and scope of a resulting contract.
7. The Proposer possesses, or will possess before delivering any equipment, products, or services, all applicable licenses or certifications necessary to deliver such equipment, products, or services under any resulting contract.
8. The Proposer agrees to deliver equipment, products, and services through valid contracts, purchase orders, or means that are acceptable to Sourcewell Members. Unless otherwise agreed to, the Proposer must provide only new and first-quality products and related services to Sourcewell Members under an awarded Contract.
9. The Proposer will comply with all applicable provisions of federal, state, and local laws, regulations, rules, and orders.
10. The Proposer understands that Sourcewell will reject RFP proposals that are marked "confidential" (or "nonpublic," etc.), either substantially or in their entirety. Under Minnesota Statutes Section 13.591, subdivision 4, all proposals are considered nonpublic data until the evaluation is complete and a Contract is awarded. At that point, proposals become public data. Minnesota Statutes Section 13.37 permits only certain narrowly defined data to be considered a "trade secret," and thus nonpublic data under Minnesota's Data Practices Act.
11. Proposer its employees, agents, and subcontractors are not:
  - a. Included on the "Specially Designated Nationals and Blocked Persons" list maintained by the Office of Foreign Assets Control of the United States Department of the Treasury found at: <https://www.treasury.gov/ofac/downloads/sdnlist.pdf>;
  - b. Included on the government-wide exclusions lists in the United States System for Award Management found at: <https://sam.gov/SAM/>; or

- c. Presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from programs operated by the State of Minnesota; the United States federal government or the Canadian government, as applicable; or any Participating Entity. Vendor certifies and warrants that neither it nor its principals have been convicted of a criminal offense related to the subject matter of this solicitation.

By checking this box I acknowledge that I am bound by the terms of the Proposer's Affidavit, have the legal authority to submit this Proposal on behalf of the Proposer, and that this electronic acknowledgment has the same legal effect, validity, and enforceability as if I had hand signed the Proposal. This signature will not be denied such legal effect, validity, or enforceability solely because an electronic signature or electronic record was used in its formation. - Shane Scoville, Vice President - Global Sales, Verizon Connect NWF Inc.

The Proposer declares that there is an actual or potential Conflict of Interest relating to the preparation of its submission, and/or the Proposer foresees an actual or potential Conflict of Interest in performing the contractual obligations contemplated in the bid.

Yes  No

The Bidder acknowledges and agrees that the addendum/addenda below form part of the Bid Document.

Check the box in the column "I have reviewed this addendum" below to acknowledge each of the addenda.

File Name	I have reviewed the below addendum and attachments (if applicable)	Pages
<b>Addendum_10_Fleet_Mgmt_Tech_RFP_020221</b> Tue January 26 2021 04:32 PM	<input checked="" type="checkbox"/>	2
<b>Addendum_9_Fleet_Mgmt_Tech_RFP_020221</b> Mon January 25 2021 05:09 PM	<input checked="" type="checkbox"/>	2
<b>Addendum_8_Fleet_Mgmt_Tech_RFP_020221</b> Wed January 20 2021 04:19 PM	<input checked="" type="checkbox"/>	1
<b>Addendum_7_Fleet_Mgmt_Tech_RFP_020221</b> Tue January 19 2021 12:21 PM	<input checked="" type="checkbox"/>	1
<b>Addendum_6_Fleet_Mgmt_Tech_RFP_020221</b> Mon January 18 2021 01:39 PM	<input checked="" type="checkbox"/>	1
<b>Addendum_5_Fleet_Mgmt_Tech_RFP_020221</b> Thu January 14 2021 01:16 PM	<input checked="" type="checkbox"/>	2
<b>Addendum_4_Fleet_Mgmt_Tech_RFP_020221</b> Thu January 14 2021 01:12 PM	<input checked="" type="checkbox"/>	3
<b>Addendum_3_Fleet_Mgmt_Tech_RFP_020221</b> Thu January 14 2021 01:05 PM	<input checked="" type="checkbox"/>	1
<b>Addendum_2_Fleet_Mgmt_Tech_RFP_020221</b> Fri January 8 2021 01:17 PM	<input checked="" type="checkbox"/>	1
<b>Addendum_1_Fleet_Mgmt_Tech_RFP_020221</b> Fri January 8 2021 01:17 PM	<input checked="" type="checkbox"/>	1

**SERVICES ORDER FORM**



**Customer Service: 1-844-617-1100**  
**Customer Service:**  
[reveal.support@verizonconnect.com](mailto:reveal.support@verizonconnect.com)  
[www.verizonconnect.com](http://www.verizonconnect.com)

GENERAL INFORMATION				
Order Date: May 10, 2021	Customer Reference Number:		VCF Salesperson Name: Timothy Watters	Region: CA
Company Name: Village of Niles		Officer or Owner: Andrew Przybylo		Telephone: (847) 588-8001
Address (Mailing or Invoicing Address): 1000 CIVIC CENTER DR			Officer/Owner Email Address: atp@vniles.com	Cell Phone:
City: NILES	State: IL	Zip Code: 60714-3229	Installation Contact if other than Officer/Owner:	Telephone:
<i>Please advise your VCF scheduler if there are multiple shipping or installation addresses</i>			Accounts Payable Contact, if other than Officer/Owner:	Telephone:
			Email:	

SUBSCRIPTION SERVICES:			
QUANTITY	DESCRIPTION	MONTHLY PER UNIT FEE	MONTHLY TOTALS
69	Vehicle Tracking Subscription	17.45 USD	1204.05 USD
69	Driver ID Subscription	0.00 USD	0.00 USD
69	128GB Upgrade Subscription	2.00 USD	138.00 USD
69	Integrated Video Forward Facing Camera	23.45 USD	1618.05 USD
69	Standard Integration Subscription	0.00 USD	0.00 USD
69	Driving Style Subscription	0.00 USD	0.00 USD

TOTAL MONTHLY AMOUNT	2960.10 USD
<b>Agreement Length:</b> 12 Months from the Subscription Start Date. The "Subscription Start Date" is the earlier of (i) the date of installation of any Equipment or (ii) 90 days from the execution of the Services Order Form. Billing for each ordered subscription shall start at the earlier of (i) the date of installation of the applicable Equipment or (ii) 90 days from the execution of this Services Order Form.	<b>Excludes Applicable Taxes and Fees</b>

ONE-TIME FEES (per Occurrence):			
QUANTITY	DESCRIPTION	AMOUNT	EXTENDED PRICE
207	Key Fob ID	0.00 USD	0.00 USD
<b>Total One-Time Fees</b>			<b>0.00 USD</b>
<b>COVERT INSTALLATION:</b> Unknown			<b>EXCLUDES APPLICABLE TAXES AND FEES</b>

**ORDER TERMS:**  
 Customer agrees that the purchase and/or licensing of the products and/or services set forth in this order is subject to the terms and conditions in the contract between Verizon Connect NWF Inc.(VCN) (formerly Networkfleet, Inc.) and Sourcewell (formerly NJPA) (Contract #022217-NWF) that are in effect as of the date the order was received by VCN ("Sourcewell Contract"). The Sourcewell Contract terms and conditions are available at <https://www.sourcewell-mn.gov/cooperative-purchasing/022217-nwf>. If, in accordance with the terms of the Sourcewell Contract, Customer and VCN have executed an additional separate written agreement ("Customer Addendum") with respect to the products and/or services set forth in this order, the terms and conditions set forth in the Customer Addendum shall also apply with respect to the products and/or services set forth in this order.

---

**INSTALLATION NOTES (not valid for changes to billing, payment or other contract terms):**

Customer Name: Village of Niles	
By (signature)	Date:



**BOARD AGENDA ITEM EXPLANATION FORM**



**Appointment of Interim Public Works Director Thomas Powers Effective October 4, 2022**

Meeting Date: 10/25/2022

Item Number **11.a**

Requested By: Village Managers Office

Action Requested: Board Approval

Prepared By: Marlene Victorine, Village Clerk Assigned to: President Alpogianis

**MOTION**

I move for Board approval of the appointment of Interim Public Works Director Thomas Powers effective October 4, 2022 with an annual salary of \$168,739.48.

**REASON FOR REQUEST / BACKGROUND**

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for Approval

ACCT#

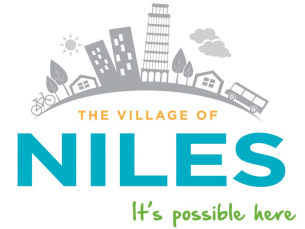
Budget Amount

Line Item Budget  
Amount

Variance



**BOARD AGENDA ITEM EXPLANATION FORM**



**Ordinance Approving a Special Use to Allow a 'Gas Station' Located at 7220 N. Melvina Avenue (22-ZP-29)**

Meeting Date: 10/25/2022

Item Number **11.b**

Requested By: Community Development Department

Action Requested: Ordinance

Prepared By: Katherine Lockerby, Senior Planner

Assigned to: Trustee Niedermaier

**ATTACHMENTS:**

[Staff Report - 22-ZP-29 - Costco Gas Station - 7220 N. Melvina.pdf](#)

[Ordinance 2022-xx Approving a Special Use Permit to Allow a Gas Station at 7220 N. Melvina.docx](#)

[Costco Niles Traffic Study.pdf](#)

**MOTION**

I move for Board Approval of an Ordinance Approving a Special Use as Required in Appendix B, Section 8.2(A) to Allow a 'Gas Station' Located at 7220 N. Melvina Avenue with the following conditions: 1) the traffic study and associated findings must be accepted by the Village Engineer; 2) any necessary modifications to the site plan, as a result of the accepted traffic study, must be made prior to the issuance of a building permit.

**REASON FOR REQUEST / BACKGROUND**

The Planning and Zoning Board voted 7-0-0 to recommend approval of the request, with conditions, at a public hearing held on October 3, 2022.

Will this action involve an expenditure of funds? No

If yes, is this a budgeted item? No

Impact on future budget(s) No

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

No

Grant Source

ORG#

Total Amount for  
Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance





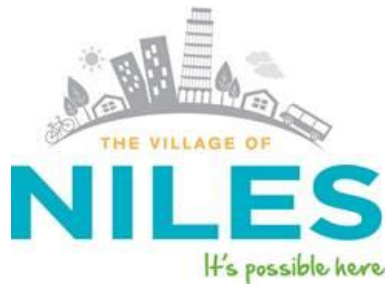
AGENDA ITEM NUMBER: 1  
 HEARING DATE: OCTOBER 3, 2022  
 CASE NUMBER: 22-ZP-29  
 PROJECT NAME: COSTCO GAS  
 APPLICATION TYPE: SUP

## Planning and Zoning Board Agenda Item 1

October 3, 2022

A request for approval of a Special Use Permit per Village of Niles Zoning Ordinance Appendix B Section 8.2(A) for a 'Gas Station' at 7220 N. Melvina Ave., Niles, IL 60714.

Attachment Number	Description	Provided	Date
1	Staff Report to the Planning and Zoning Board	✓	
2	Location Map	✓	
3	Applicant's Response to Special Use Standards	✓	
4	Special Use Permit Application	✓	
5	Applicant's Project Narrative	✓	
6	PLANS: Survey, Site Plan, Elevations, Landscape Plan	✓	



AGENDA ITEM NUMBER:	1
HEARING DATE:	OCTOBER 3, 2022
CASE NUMBER:	22-ZP-29
PROJECT NAME:	COSTCO GAS
APPLICATION TYPE:	SUP

## Planning and Zoning Board Staff Report October 3, 2022

**Item for Planning and Zoning Board Consideration:** A request for approval of a Special Use Permit per Village of Niles Zoning Ordinance Appendix B Section 8.2(A) for a 'Gas Station' at 7220 N. Melvina Ave., Niles, IL 60714.

**PROJECT SUMMARY**

The subject site is located on the northwest corner of Touhy Avenue and Melvina Avenue and is currently developed with a Costco Gas Station. The proposed action, if approved, would allow the Petitioner to increase the number of fuel dispensing bays by 10 (5 dual sided fuel pumps) and an expansion to the existing canopy. Currently there are 10 dual-sided fuel pumps on site, which allows for 20 dispensing bays. After the expansion, there will be a total of 15 dual-sided fuel pumps (30 dispensing bays). It should be noted that the expansion does not involve the expansion of the property, only the use of the property. The hours of operation are typically 6:00 AM – 9:30 PM on most days and the total number of employees on site is one.

**ANALYSIS**

**Surrounding Land Uses:**

Direction	Existing Zoning	Existing Use	Comprehensive Plan
North	ENT-MU, Cultural/Entertainment Mixed Use	Vacant YMCA	Public-Semi-Public
South	City of Chicago	City of Chicago	City of Chicago
East	ENT-MU, Cultural/Entertainment Mixed Use	Target	Regional Commercial
West	ENT-MU, Cultural/Entertainment Mixed Use	Aldi	Regional Commercial

**ZONING AND SITE DEVELOPMENT HISTORY**

The subject site was granted a special use as part of its construction in 2014. At that time, the prior Zoning Ordinance was in effect and the use was considered a special use. However, with the new Zoning Ordinance and associated map amendments, the "gas station" use was not allowed, either by right or by a special use, in the ENT-MU district. Therefore, the use is currently considered legal non-conforming. However, legal non-conforming uses are not allowed to expand the intensity of the use. Earlier this year, the Village Board approved a text amendment to the Zoning Ordinance which would allow for a "Gas Station" as a Special Use in the ENT-MU district.

**ZONING AND COMPREHENSIVE PLAN**

The site and its environs is zoned ENT-MU, Entertainment and the proposed use is classified as a Special Use in the Zoning Ordinance. As required by Section 15.3(E) of the Village's Zoning Ordinance, the recommendation of the Planning and Zoning Board and decision of the Village Board must be based on findings to suppose each of the following conclusions:

1. *The special use in the specific location proposed is consistent with the spirit and intent of this Ordinance, the adopted Comprehensive Plan and other adopted Village land use policies.*

2. *The proposed special use will not endanger the public health, safety, or welfare.*
3. *The proposed special use is compatible with the general land use of adjacent properties and other property within the immediate vicinity.*
4. *The proposed special use is deemed necessary for the public convenience at the proposed location.*

The Planning and Zoning Board is encouraged to consider and discuss the aforementioned standards as it contemplates this request. Additionally, the Petitioner has provided their response to the standards, which has been included as Attachment #3 in this packet.

Lastly, the proposed special use is consistent with Economic Development Goal #2 of the 2030 Comprehensive Plan, which is to “Maintain and strengthen the Village’s diverse tax base through the attraction, retention, and expansion of businesses in the Village.” The 2030 Comprehensive Plan identifies the site as Regional Commercial. It should be noted that there is a sub-area plan – the Touhy Triangle Plan – for the area, but said plan is currently being reevaluated for its future longevity as part of the Niles 2040 Comprehensive Plan process.

**CRITICAL ISSUES**

**Comments from Village Departments**

**Police:** Police had no comments/concerns.

**Fire:** The Fire Department had one concern. Since that station opened, the Fire Department has experienced a number fire alarm calls to the gas pumps. They believe this is due to individuals pressing the emergency button thinking it is an assistance call button. They have asked that the emergency button be encapsulated or that signage be placed stating that pressing the emergency button brings a fire response.

**Engineering:** Engineering has not completed a full review of the project as the traffic impact analysis is still under review. However, Engineering is comfortable with the project moving forward through the PZB, with the suggested conditions, and any remaining issues will get resolved as part of the permit review process.

**CD:** CD does not have any concerns regarding this proposal at this time.

**Building Modifications**

Along with the expansion of the fuel pumps, the applicant is proposing to expand the canopy over the pumps. Based on the preliminary review the proposal meetings all Zoning Ordinance requirements for gas station canopies.

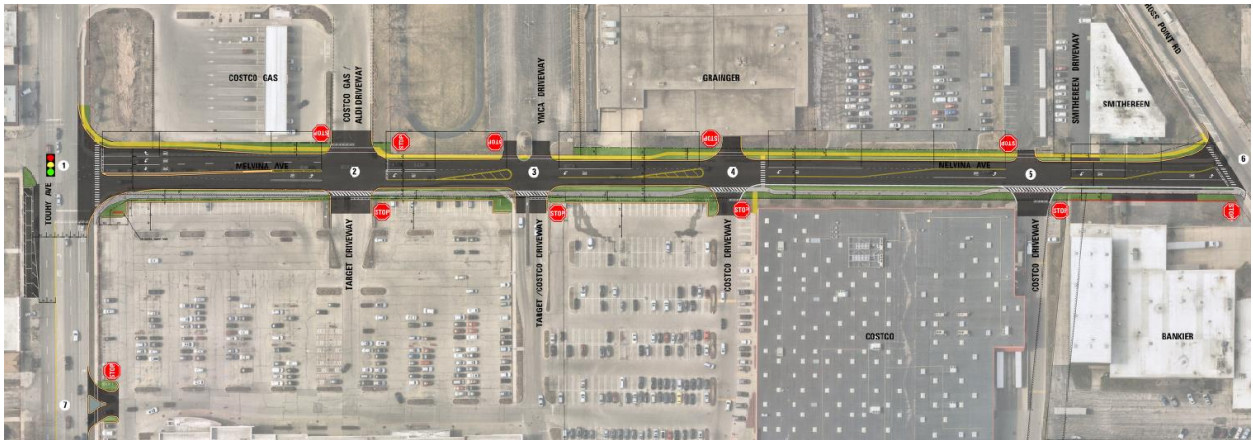
**Parking**

There are no changes to the required parking onsite in conjunction with this project.

**Melvina Avenue**

A separate but very important issue surrounding this area is the functionality of Melvina Avenue between Touhy Avenue and Gross Point Road. There is a significant amount of traffic that travels on this block and there oftentimes are backups and delays, both at the stop sign servicing the gas station and at the traffic signal at the Touhy/Melvina intersection. The Village of Niles is working with the City of Chicago and IDOT for improvements to the functionality of Melvina Avenue as well as the intersection with Touhy Avenue. At this time, the plans include pavement widening and the installation of a multi-purpose path on the east side of Melvina. Once complete, it is anticipated that the improvements will adequately serve the adjacent properties and the traffic congestion issues will be minimized.

The image below is the latest plan proposed for the improvements; however, it should be noted that the details of the entire Touhy/Melvina intersection are still being worked out.



The timeline for the rehabilitation of Melvina Avenue is dependent on a few critical items including 1) IDOT approval, 2) CDOT Approval, and 3) Land Acquisition for roadway widening. Village of Niles Staff is optimistic for construction in 2023, but due to the number of agencies involved, 2024 is probably more realistic.

### **Traffic Impact Analysis**

As part of the application process, Costco hired Kittelson & Associates to prepare a traffic study to assess the impacts the development will have on adjacent roadways and intersections. Some of the key findings and comments include:

1. A total of 71 additional weekday and 151 weekend peak hour round trips will be generated by the combined fuel and car wash improvements. However some of these trips would have already occurred due to existing destinations. Therefore they estimate a net new 44 additional weekday and 20 weekend peak hour round trips will be generated. This is a fairly low level of new trips added to the roadway network as a result of the fuel expansion and car wash.
2. Overall level of service for intersections (including driveways/access points) in the area range from A to C, however this rating does not account for individual approaches. Generally level of service rating at or above D is considered acceptable.
3. Individual approaches operate in the B-C range with the following exceptions:
  - a. Northbound Melvina at Gross Point which was already underperforming.
  - b. Historic data indicates that the Melvina approaches to Touhy are also underperforming.
4. Kittelson did not provide a Level of Service analysis for the Touhy and Melvina approaches; therefore, we cannot say how that intersection will be impacted in the near term. Previous analysis indicates the weekday level of service dropping from C to D, and the weekend level of service staying at level of service F with an additional 47 second of delay. This is based on previous studies for the added gas station traffic and the existing geometry to remain.
5. Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound approach delay will increase by 15.1 seconds. This situation will eventually be remedied with a traffic signal that is planned to be installed with the YMCA redevelopment.
6. Queuing analysis should be completed for both sites but we do not expect they will reveal queuing capacity issues.
7. The Village has enlisted Sam Schwartz to do a thorough analysis of the Costco study. The results are not available as of yet and there may be additional changes necessary based on the outcome of the review.

It should be noted that the applicant has stated that “While a minor increase in trips is expected, other Costco facility expansions have shown that this increased volume is better served by the benefits of providing more pumps to expedite vehicle processing during peak times.” They have also indicated that “more fueling positions improve the service provided to members and decrease overall queuing, wait times, and vehicle idling. All expansion locations were found to have more efficient processing of vehicles, shorter wait times, shorter queues, and less idling after the expansion.”

**LEGAL NOTIFICATION**

A legal notice was provided in the Bugle on September 15, 2022 and notices to all owners of property within 250 feet were mailed on September 14, 2022. On-site signage was also placed on the property the week September 12, 2022.

**SUGGESTED 'CONDITIONS OF APPROVAL' FOR THIS REQUESTED SPECIAL USE:**

1. The traffic study and associated findings must be accepted by the Village Engineer and any necessary modifications to the site plan as a result of the accepted traffic study must be made prior to the issuance of a building permit.

**OTHER REQUIRED ACTIONS**

For Special Uses, the Planning and Zoning Board is an advisory body to the Village Board. The Planning and Zoning Board will make a recommendation which is tentatively scheduled to be considered by the Village Board for a final decision on Tuesday, October 25, 2022.

**PRINCIPAL PARTIES EXPECTED AT MEETING**

1. Mr. Stephen Cross, Cross Engineering & Associates
2. Mr. Larry Dziurdzik,
3. Representative from Kittleson, Costco's traffic engineer,
4. Interested members of the public.





**SPECIAL USE STANDARDS**  
**Fuel Facility Expansion Special Use**

**Is the special use in the specific location proposed consistent with the spirit and intent of the zoning ordinance, the adopted Comprehensive Plan, and other adopted Village land use policies?**

The Costco fuel facility (Subject Property) is located at the northwest intersection of Touhy Avenue and Melvina Avenue, within the Touhy Avenue Commercial Corridor. The Subject Property is zoned ENT-MU, Entertainment / Mixed-Use zoning district. Gas Stations are permitted as a special use in the zoning code within the ENT-MU Zoning District. The proposed land use and zoning is consistent with the spirit and intent of the zoning code and the Comprehensive Plan. The Subject Property is located within an area defined in the Village's Land Use Plan as Regional Commercial. The Niles 2030 Comprehensive Plan, adopted October 25, 2011, describes under Section 4, Land Use Plan that "proposed commercial land uses are concentrated along the Village's commercial corridors and are reflective of the existing patterns of commercial development." The proposed fuel facility expansion is compatible with established commercial uses in the area and is consistent with the Comprehensive Plan's goals and objectives for commercial redevelopment.

**Will the proposed special use endanger the public health, safety, and welfare?**

The proposed fuel facility expansion will not endanger the public health, safety, or welfare of any portion of the community. The existing fuel facility has been in operation at this location since 2014. The facility expansion will be designed to provide a safe environment for its employee's and Costco members meeting applicable state and local codes for fire access, pedestrian and vehicular movements, and operations. Costco will maintain the facilities appearance, provide adequate lighting, and promote safe internal vehicular circulation. The proposed land use will have no adverse impact to any

nearby residential neighborhoods, and will minimize the demand for additional municipal services, utilities, and infrastructure.

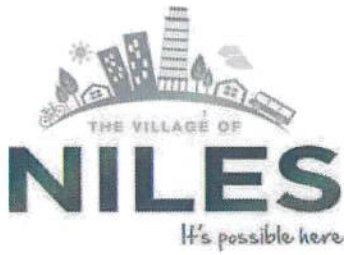
**Is the proposed special use compatible with the general land use of adjacent properties and other property within the immediate vicinity?**

The proposed special use is compatible with nearby land uses and adjacent properties in the immediate vicinity as the character of the requested special use (s) is commercial in nature. The fuel facility has provided and will continue to provide a complementary service to the existing Costco warehouse. The existing Costco warehouse and Target are located north and east of the Subject Property along Melvina Avenue, a commercial corridor. With the recent teardown of the YMCA campus and removal of the Grainger building, future retail and entertainment re-development opportunities are now possible that will strengthen the Village's commercial core. The fuel facility is currently and will continue to be integrated into an existing framework of commercial land uses.

**Is the proposed special use deemed necessary for the public convenience at the proposed location?**

The proposed special use has been deemed necessary for Costco members as it provides a convenient and safe auto service located at a street intersection easily accessible from Melvina Avenue and Touhy Avenue. The fuel expansion will improve current traffic patterns by providing a more efficient queuing arrangement with the additional fuel dispensers as proposed. Overall circulation, wait times, and congestion will be improved with the proposed special use at this location. The fuel facility is located nearby to the existing Costco warehouse offering a convenient and safe service while shopping at the warehouse.





# ZONING PERMIT APPLICATION—SPECIAL USE PERMIT

## VILLAGE OF NILES

1000 Civic Center Drive  
Niles, Illinois 60714  
847/588-8040  
847/588-8050 (Fax)

**To Be Completed by the Applicant—Please Print**

Address for Subject Property/Petition: 7220 N. Melvina, Avenue  
 Parcel Identification Number(s) (PINs): 10-29-302-051-0000  
 Applicant's Name: Costco Wholesale Corporation/ Stephen J. Cross  
     Street Address: 1955 Raymond Drive  
     City, State, Zip: Northbrook, Illinois 60062  
     Phone Number: 847-498-0800  
     E-Mail Address: scross@crossengineering.net  
 Name of Business (if applicable): Cross Engineering & Associates, Inc.

Applicant is (Check **ALL** that apply):

Property Owner\*  Business Owner  Other: Authorized Costco Representative

\* If the applicant is *not* the property owner, the owner of the property or their agent must print their name and sign below:

Kim Katz-Director of Real Estate  
 Property Owner Name (Printed)

V. King - For COSTCO WHOLESALE CORPORATION  
 Property Owner Signature

Note: By signing this form, you grant permission to Village of Niles staff to enter onto the subject property.

Signature of Applicant: Stephen J. Cross

Note: By signing this form, you grant permission to Village of Niles staff to enter onto the subject property.

**To be completed by Staff:**

PETITION #: \_\_\_\_\_ Parcel Zoning Classification \_\_\_\_\_  
 Date of Initial Consultation (1) \_\_\_\_\_  
 Date of Preliminary Application (2) \_\_\_\_\_  
 Date of Final Application (3) \_\_\_\_\_  
 Hearing Dates: Tentative: \_\_\_\_\_

**Application Fees:**

Variation—R-1 and R-2 Districts \$ 100.00  
 Variation—All Other Districts \$ 200.00  
 Special Use—All Districts \$ 350.00  
 Rezoning (by acreage) \$ 250-1,500.00  
 Text Amendment \$ 350.00  
 Plat, preliminary and final \$ 800.00  
 Appeal \$ 300.00  
 Annexation (by acreage) \$ 200-500.00  
 Planned Unit Developments To Be Provided By Staff

	Amount	Date Paid	Check # or Cash
Filing Fee			
Escrow Fund			
Other			
Total Paid			



CROSS ENGINEERING & ASSOCIATES, INC.

August 8, 2022

Ms. Kate Lockerby  
Senior Planner, Community Development  
Village of Niles  
1000 Civic Center Drive  
Niles, Illinois 60714

RE: Costco Wholesale  
Fuel Facility Expansion Special Use  
Application  
7220 N. Melvina Drive

Dear Ms. Lockerby,

On behalf of Costco Wholesale Corporation, please find the following attached documents in support of our Special Use application permit request for a proposed fuel facility expansion:

1. Overall Site Plan as prepared by Barghausen Consulting Engineers, dated 7-29-2022
2. Detailed Site Plan as prepared by Barghausen Consulting Engineers, dated 7-29-2022
3. Proposed Elevations as prepared by MG2 Architects, dated 7-26-2022
4. Landscape Plan as prepared by Kimley Horn, dated 8-1-2022
5. ALTA Land Title Survey as prepared by V3 Engineers, dated 6-24-2022
6. Zoning Permit Application-Special Use Permit with Standards
7. Check in the amount of \$350.00

### Project Description

Costco is proposing a pump dispenser expansion at the existing Costco fuel station located at the northwest intersection of Melvina Avenue and Touhy Avenue. The Costco fuel facility at this location has been in operation since 2014. The current zoning of the property, ENT-MU permits gas stations only has a special use. The gas station today is operating as a legal non-conforming use under the existing zoning for the property. The special use permit will allow the Costco facility to operate as a special use conforming to all standards as identified in the zoning code. The primary purpose of the fuel expansion is to improve current operations and reduce queuing at

the existing facility. While a minor increase in trips is expected, other Costco facility expansions have shown that this increased volume is better served by the benefits of providing more pumps to expedite vehicle processing during peak times. The Costco Gasoline program has been focused currently on building new fuel facilities with a greater number of fueling positions and expanding the older stations to accommodate current and future membership growth.

The fuel facility expansion will consist of the addition of 5 fuel pumps or 10 dispensers for a total of 15 fuel pumps. The 3<sup>rd</sup> bay of pumps will be located south of the existing two -bays.

The existing metal canopy will be expanded south to provide weather protection over the new pump dispensers. Five new masonry columns will be constructed providing support for the extended canopy. The columns will match the existing masonry block colors and textures.

Canopy signage will be located on the south facing elevation. The north elevation will remain as illustrated in the proposed elevation exhibit.

The queuing lanes will be extended south for stacking control as vehicles move north towards the fuel pumps. The perimeter curbing and general site circulation will remain in its current configurations. The intersection design at Melvina Avenue will be coordinated with the Village's proposed roadway improvements. Existing landscape will remain and will be protected throughout construction.

The fuel expansion will provide numerous benefits to Costco members. Our findings based on data at numerous sites across the county have consistently shown that more fueling positions improve the service provided to members and decrease overall queuing, wait times, and vehicle idling. All expansion locations were found to have more efficient processing of vehicles, shorter wait times, shorter queues and less idling after the expansion.

Typically, one gas attendant is on the property during regular business hours. The hours of operation will be 6AM to 9:30 PM on most days.

Costco continues to provide the best quality shopping and services to its members within the Village of Niles and surrounding areas. The proposed gas expansion will provide for the needs of Costco to continue to grow and to provide the convenience and services that Costco members and employee's look for and expect. We look forward to working with you and your staff on this special use application. Please feel free to contact myself or Larry Dziurdzik with any questions or if you need any additional information.

Sincerely,

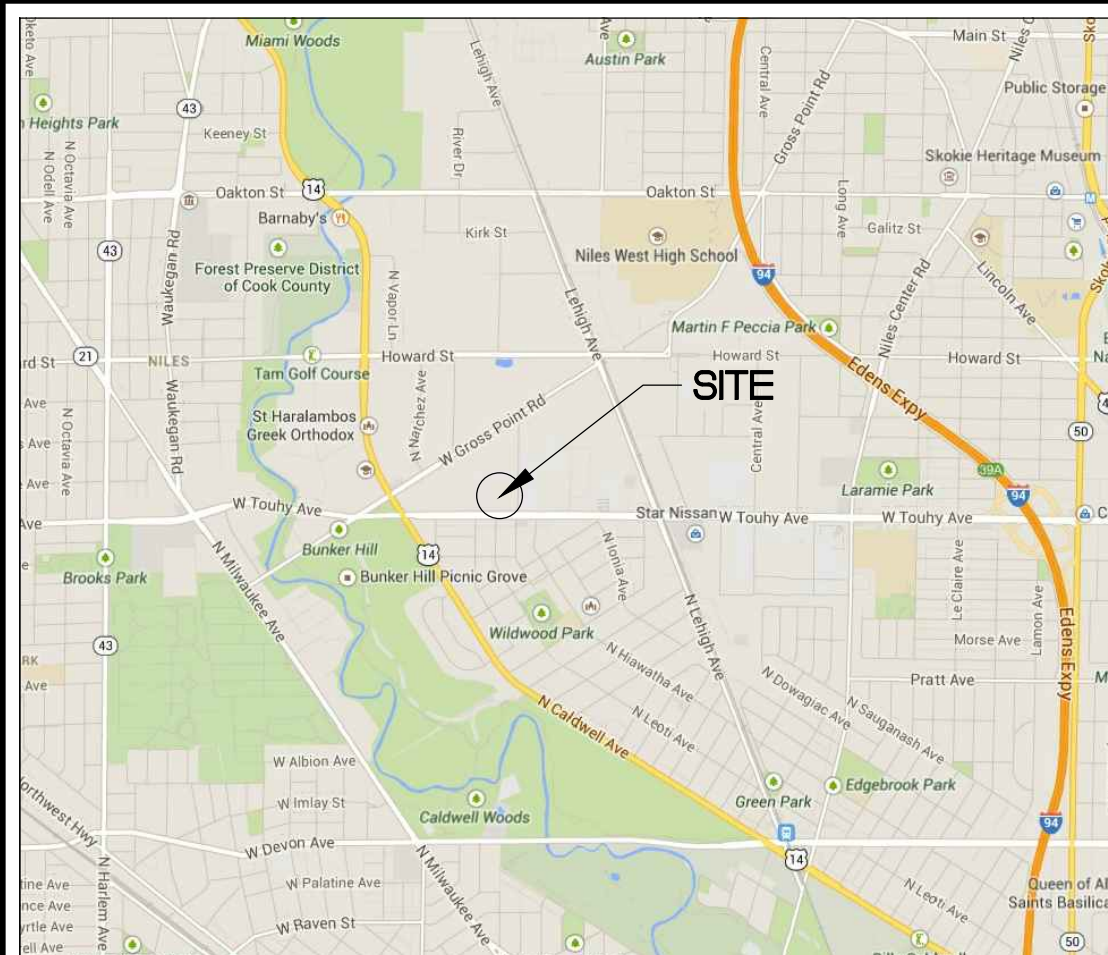
Costco Wholesale Corporation

A handwritten signature in black ink that reads "Stephen Cross". The signature is written in a cursive style with a large initial 'S' and a long horizontal stroke at the end.

Stephen Cross

Authorized Costco Representative

CC: Larry Dziurdzik, Costco Planning Consultant



# BOUNDARY AND TOPOGRAPHIC SURVEY FOR COSTCO GASOLINE EXPANSION NILES, IL

## LEGAL DESCRIPTION

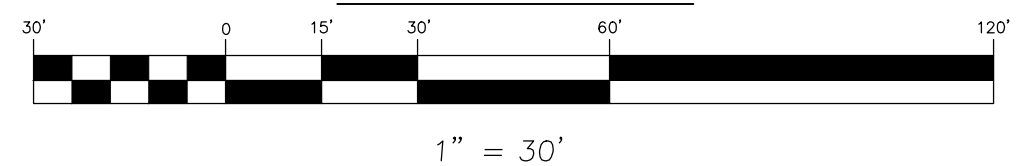
LOT 1 IN THE FINAL PLAT OF COSTCO GASOLINE BEING A PART OF THE SOUTHWEST FRACTIONAL QUARTER OF SECTION 29, TOWNSHIP 41 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN RECORDED APRIL 10, 2014 AS DOCUMENT NUMBER 1410029072, IN COOK COUNTY, ILLINOIS.

STATE PLANE MERIDIAN  
(NAD 83)

### BASIS OF BEARINGS

BASIS OF BEARINGS IS THE ILLINOIS STATE  
PLANE SYSTEM - EAST ZONE (1201)  
SCALE FACTOR - 1.0000238156

### GRAPHIC SCALE



### FLOOD HAZARD NOTE

THIS PROPERTY IS IN AN AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN (ZONE X) AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP OF COOK COUNTY, ILLINOIS (COMMUNITY PANEL NO. 17031C0243) EFFECTIVE DATE AUGUST 19, 2008.

### BENCHMARK

**SOURCE:**

**STATION DESIGNATION: MONUMENT 4**  
ESTABLISHED BY: VILLAGE OF NILES  
DATE: 2010  
ELEVATION: 612.107 (PUBLISHED AND HELD)  
DATUM: NAVD83  
DESCRIPTION: NEAR INTERSECTION OF CALDWELL AVENUE AND TOUHY AVENUE. (N: 184793.945, E: 1138871.839, IL. STATE PLANE COORDINATES)

**STATION DESIGNATION: MONUMENT 5**  
ESTABLISHED BY: VILLAGE OF NILES  
DATE: 2010  
ELEVATION: 625.086 (PUBLISHED AND MEASURED)  
DATUM: NAVD83  
DESCRIPTION: NEAR INTERSECTION OF AUSTIN AVENUE AND TOUHY AVENUE. (N: 1948658.823 E: 1135427.194, IL. STATE PLANE COORDINATES)

**SITE:**

**STATION DESIGNATION: BM#1**  
ESTABLISHED BY: V3 CO.  
DATE: 12/18/13  
ELEVATION: 624.13 (MEASURED)  
DATUM: NAVD83  
DESCRIPTION: WEST SOUTHWEST FLANGE BOLT OF FIRE HYDRANT ALONG WEST SIDE OF MELVINA AVENUE, APPROXIMATELY 405 FT. N. OF THE N. LINE OF TOUHY AVENUE.

**STATION DESIGNATION: BM#2**  
ESTABLISHED BY: V3 CO.  
DATE: 12/18/13  
ELEVATION: 625.08 (MEASURED)  
DATUM: NAVD83  
DESCRIPTION: NW BOLT OF TRAFFIC LIGHT POLE AT THE NORTHWEST CORNER OF MELVINA AVENUE AND TOUHY AVENUE.

### LEGEND

	CABLE TV PEDESTAL		PAINTED GAS LINE
	TRAFFIC LIGHT POLE		GAS VALVE
	TRAFFIC CONTROL VAULT		GAS METER
	TELEPHONE PEDESTAL		GAS METER VALVE
	TELEPHONE MANHOLE		GAS METER VALVE MARK
	PAINTED TELEPHONE LINE		GAS METER VALVE MARK
	FIBER OPTIC CABLE LINE		GAS METER VALVE MARK
	GUY POLE		GAS METER VALVE MARK
	UTILITY POLE		GAS METER VALVE MARK
	POWER POLE		GAS METER VALVE MARK
	LIGHT STANDARD		GAS METER VALVE MARK
	ELECTRIC MANHOLE		GAS METER VALVE MARK
	ELECTRIC PEDESTAL		GAS METER VALVE MARK
	ELECTRIC TRANSFORMER PAD		GAS METER VALVE MARK
	ELECTRIC METER		GAS METER VALVE MARK
	HANDHOLE		GAS METER VALVE MARK
	ELECTRICAL JUNCTION BOX		GAS METER VALVE MARK
	ELECTRIC SERVICE OUTLET BOX		GAS METER VALVE MARK
	PAINTED ELECTRIC LINE		GAS METER VALVE MARK
	TRANSFORMER PAD		GAS METER VALVE MARK
	SECTION CORNER		GAS METER VALVE MARK
	QUARTER SECTION CORNER		GAS METER VALVE MARK

### UTILITY ATLAS NOTES:

**J.U.L.I.E. DESIGN STAGE REQUEST**  
DIG NUMBER A3460778 RECEIVED 12/12/2013.

CONTACTS PROVIDED BY J.U.L.I.E. & LISTED BELOW WERE CONTACTED BY V3 VIA FAX, REQUESTING UTILITY ATLAS INFORMATION ON 12/12/2013.

CONTACTS	RESPONSE
ATT/DISTRIBUTION	RESPONDED WITH INFO
COMED	RESPONDED WITH ATLAS
COMCAST	RESPONDED "ALL CLEAR"
RODGERS TELECOM INC	RESPONDED "ALL CLEAR"
GABES CONSTRUCTION	NO RESPONSE
MCI	RESPONDED "ALL CLEAR"
MORTON GROVE, VILLAGE OF	NO RESPONSE
PAETEC	RESPONDED "ALL CLEAR"
METRO WTR REC DIST CHI	RESPONDED "ALL CLEAR"
NICOR GAS	RESPONDED WITH ATLAS
NILES, VILLAGE OF	NO RESPONSE
SPRINT	RESPONDED "ALL CLEAR"
ATT / T-TCG	RESPONDED "ALL CLEAR"

### SURVEYOR'S CERTIFICATE

STATE OF INDIANA )  
                                    ) SS  
COUNTY OF LAKE     )

I, ANTHONY J. STRICKLAND, AN ILLINOIS PROFESSIONAL LAND SURVEYOR, DO HEREBY CERTIFY THAT I HAVE SURVEYED THE ABOVE DESCRIBED PROPERTY AND THAT THIS PLAT IS A TRUE AND CORRECT REPRESENTATION THEREOF. ALL DIMENSIONS ARE GIVEN IN FEET AND DECIMALS THEREOF, CORRECTED TO A TEMPERATURE OF 68 DEGREES FAHRENHEIT.

THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR TOPOGRAPHIC SURVEYS.

FIELD WORK COMPLETED ON JUNE 22, 2022.

DATED THIS 24TH DAY OF JUNE, A.D., 2022.

ANTHONY J. STRICKLAND  
ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 35-3437  
MY LICENSE EXPIRES IN NOVEMBER 30, 2022.  
V3 COMPANIES OF ILLINOIS, LTD. PROFESSIONAL DESIGN FIRM NO. 184000902  
THIS DESIGN FIRM NUMBER EXPIRES APRIL 30, 2023.  
TSTRICKLAND@V3CO.COM

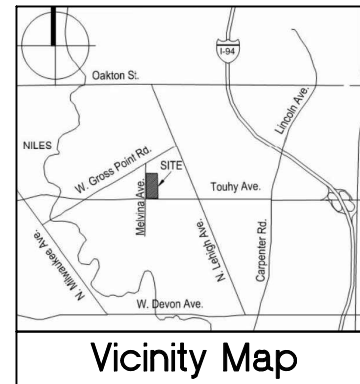
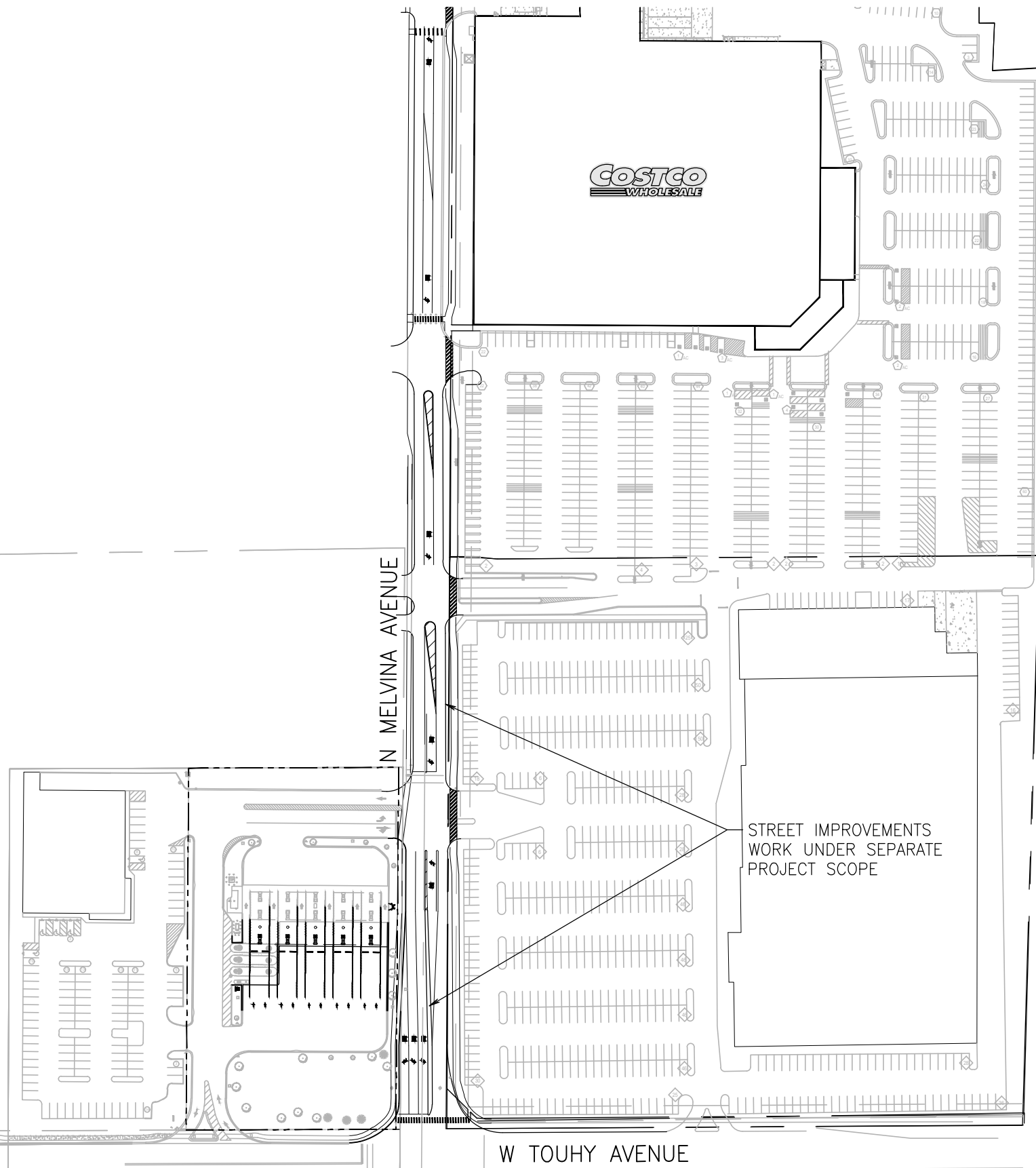
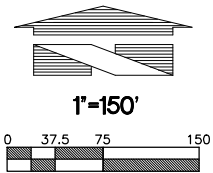
### GENERAL NOTES

- COMPARE ALL POINTS IN FIELD PRIOR TO ANY CONSTRUCTION AND REPORT ANY DISCREPANCIES TO SURVEYOR AT ONCE.
- FOR BUILDING RESTRICTIONS AS ESTABLISHED BY LOCAL ORDINANCES NOT SHOWN HEREON, CONSULT YOUR LOCAL MUNICIPAL AUTHORITIES.
- DO NOT SCALE DIMENSIONS FROM THIS MAP.
- CALL J.U.L.I.E. AT 1-800-892-0123 FOR FIELD LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY DIGGING OR CONSTRUCTION.
- UTILITIES AND IMPROVEMENTS SHOWN HEREON BASED ON VISIBLE FIELD VERIFIED STRUCTURES.
- THE OWNER SHOULD COMPARE THE DESCRIPTION ON THIS MAP IF ANY EXISTS, WITH HIS, OR HER DEED ABSTRACT, OR TITLE POLICY AND NOTIFY SURVEYOR OF ANY DIFFERENCES.
- PRINTS WERE PREPARED FOR THE SOLE USE OF THE CLIENT SHOWN HEREON AND ARE NOT TRANSFERABLE.
- UNDERGROUND UTILITY LINES SHOWN HEREON ARE BASED ON FIELD LOCATED STRUCTURES IN COORDINATION WITH ATLAS INFORMATION PROVIDED BY UTILITY COMPANIES THROUGH J.U.L.I.E.'S DESIGN STAGE PROCESS. SEE "UTILITY ATLAS NOTES" HEREON FOR SPECIFICS.

	Engineers	7325 Janes Avenue, Suite 100 Woodridge, IL 60517 630.724.9200 voice 630.724.0384 fax v3co.com	PREPARED FOR:	<b>COSTCO WHOLESALE CORPORATION</b> 999 LAKE DRIVE ISSAQVAH, WA 98027 425-313-6052
	Scientists Surveyors			

REVISIONS		DESCRIPTION
NO.	DATE	
1.	04/05/2018	ADD CONTOUR LINES
2.	06/24/2022	UPDATED PER SITE VISIT

BOUNDARY AND TOPOGRAPHIC SURVEY			
COSTCO GASOLINE EXPANSION - NILES, IL			
DRAFTING COMPLETED: 08/24/22	DRAWN BY: EJM	PROJECT MANAGER: AJS	Project No: 99077.07.PE
FIELD WORK COMPLETED: 06/22/22	CHECKED BY: AJS	SCALE: 1" = 30'	Group No: VP03.1
			SHEET NO. 1



### PROJECT DATA

CLIENT: COSTCO WHOLESAL  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7220 N. MELVINA AVENUE  
NILES, IL 60714

ZONING: ENT-MU ENTERTAINMENT-  
MIXED - USE DISTRICT

FUEL FACILITY SITE AREA (LOT 1): 2.36 ACRES (102,895 S.F.)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN  
PREPARED BY USING A  
V3 SURVEY DATED 6/24/22.

BUILDING DATA:	
COSTCO FUEL FACILITY DATA:	
EXISTING CANOPY AREA	4,864 S.F.
CONTROLLER ENCLOSURE AREA	135 S.F.
EXPANDED CANOPY AREA	4,256 S.F.
<b>TOTAL COSTCO FUEL FACILITY</b>	<b>9,120 S.F.</b>

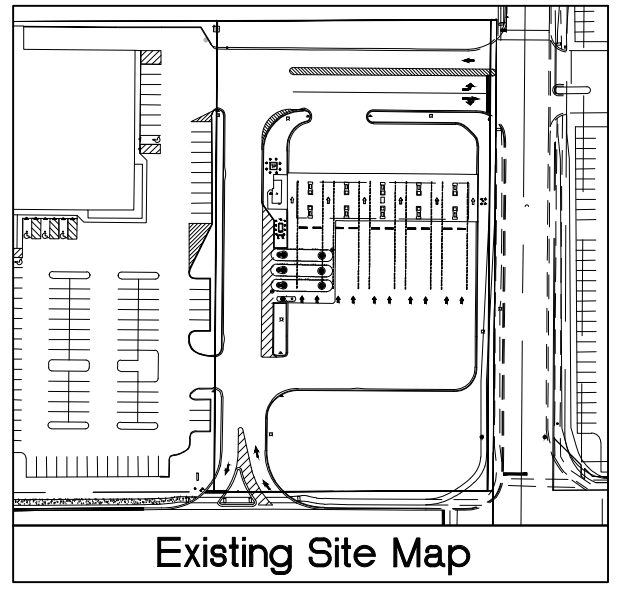
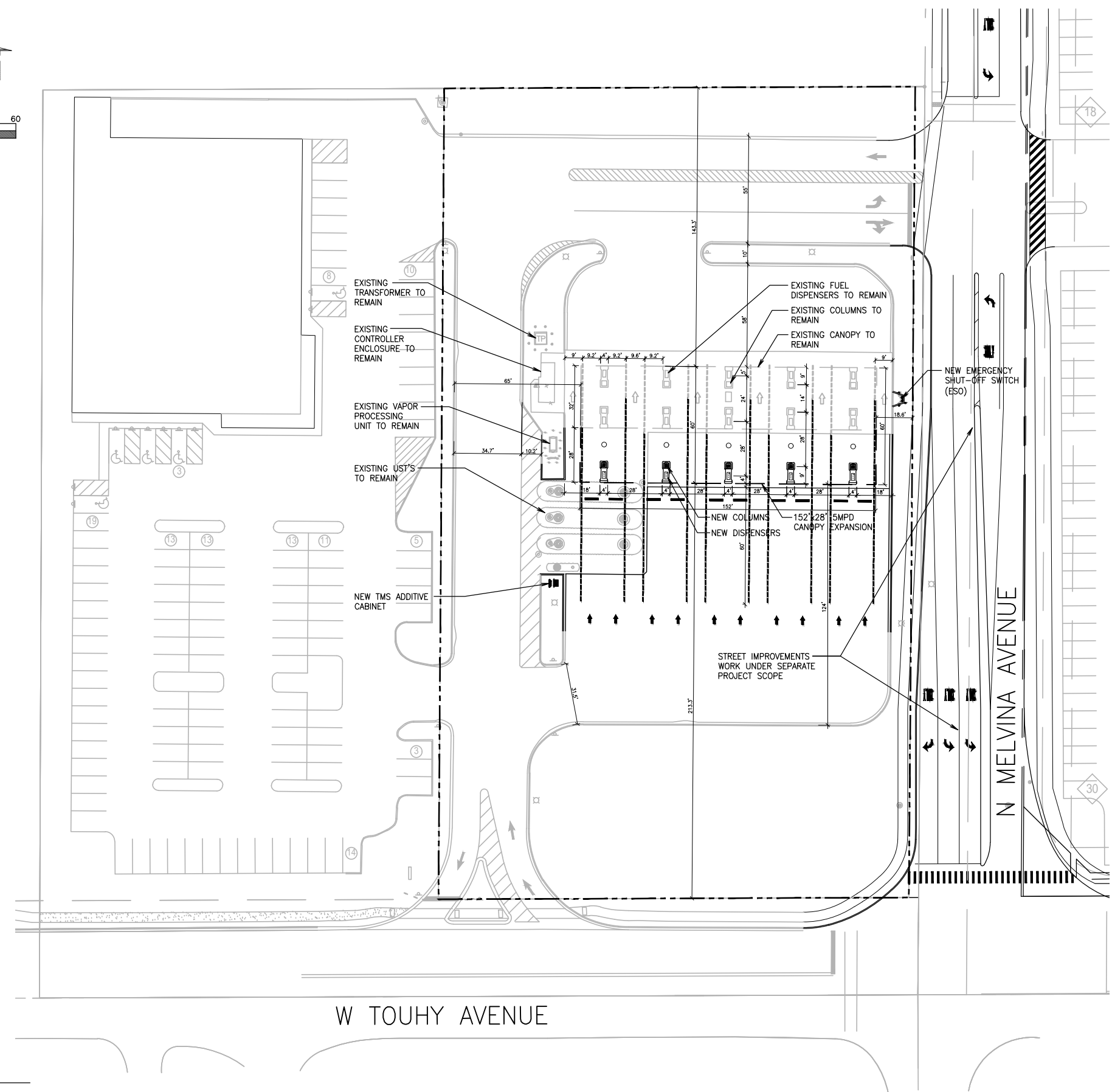
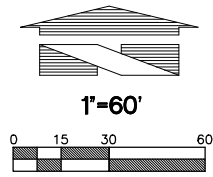
NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

SITE DATA:			
GROSS AREA OF SITE:	102,895 S.F.		A
BUILDING FLOOR AREA:	4,999 S.F.		B
PAVEMENT AREA:	65,523 S.F.		P
TOTAL IMPERVIOUS AREA:	70,522 S.F.	TIA = B + P	
IMPERVIOUS RATIO:	0.69%	IR = TIA/A	

### NOTES

1. THIS PRELIMINARY SITE PLAN IS BASED ON A V3 SURVEY DATED, 6/24/22.
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.

No.    Date    By    Ckd.    Appr.    Revision	<b>OVERALL SITE PLAN</b> <b>7220 N. MELVINA AVENUE</b> <b>NILES, IL 60714</b> <b>LOCATION #383</b>
<b>For:</b>	<b>COSTCO WHOLESAL GAS STATION ADDITION</b> <b>999 LAKE DRIVE</b> <b>ISSAQUAH, WASHINGTON. 98027</b>
Scale:	Horizontal Vertical
Designed SA Drawn JAS	Checked SA Approved Date 10/10/22
<b>Barghausen Consulting Engineers, Inc.</b> 18215 72nd Avenue South Kent, WA 98032 425.251.6222 <a href="http://barghausen.com">barghausen.com</a>	
BCE Job Number <b>16882</b>	Sheet <b>DD-1</b>



### PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7220 N. MELVINA AVENUE  
NILES, IL 60714

ZONING: ENT-MU ENTERTAINMENT-  
MIXED - USE DISTRICT

FUEL FACILITY SITE AREA (LOT 1): 2.36 ACRES (102,895 S.F.)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN  
PREPARED BY USING A  
V3 SURVEY DATED 6/24/22.

BUILDING DATA:	
COSTCO FUEL FACILITY DATA:	
EXISTING CANOPY AREA	4,864 S.F.
CONTROLLER ENCLOSURE AREA	135 S.F.
EXPANDED CANOPY AREA	4,256 S.F.
<b>TOTAL COSTCO FUEL FACILITY</b>	<b>9,120 S.F.</b>

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

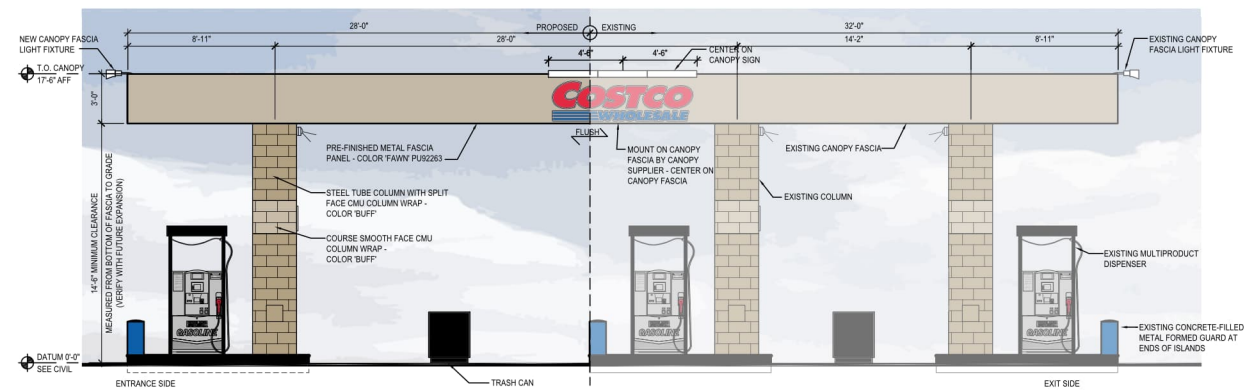
SITE DATA:		
GROSS AREA OF SITE:	102,895 S.F.	A
BUILDING FLOOR AREA:	4,999 S.F.	B
PAVEMENT AREA:	65,523 S.F.	P
TOTAL IMPERVIOUS AREA:	70,522 S.F.	TIA = B + P
IMPERVIOUS RATIO:	0.69%	IR = TIA/A

### NOTES

1. THIS PRELIMINARY SITE PLAN IS BASED ON A V3 SURVEY DATED, 6/24/22.
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.

No. _____ Date _____ By _____ Ctd. _____ Appr. _____ Revision _____	<p><b>For:</b> <b>COSTCO GASOLINE</b> COSTCO WHOLESALE GAS STATION ADDITION 999 LAKE DRIVE ISSAQUAH, WASHINGTON. 98027</p>
Scale: _____ Horizontal _____ Vertical _____	<p><b>Designed SA</b> _____ <b>Drawn JAS</b> _____ <b>Checked SA</b> _____ <b>Approved</b> _____ Date 10/10/22</p>
BCE Job Number <b>16882</b>	<p><b>Barghausen Consulting Engineers, Inc.</b> 18215 72nd Avenue South Kent, WA 98032 425.251.6222 <a href="http://barghausen.com">barghausen.com</a></p>
Sheet <b>DD-2</b>	<p style="font-size: small;">F:\168000a\16882\architectural\2022 Expansion\Option 1\16882-4d2.dwg 10/10/2022 2:26 PM DJEDEL</p>
<p style="text-align: right;"><b>119</b></p>	





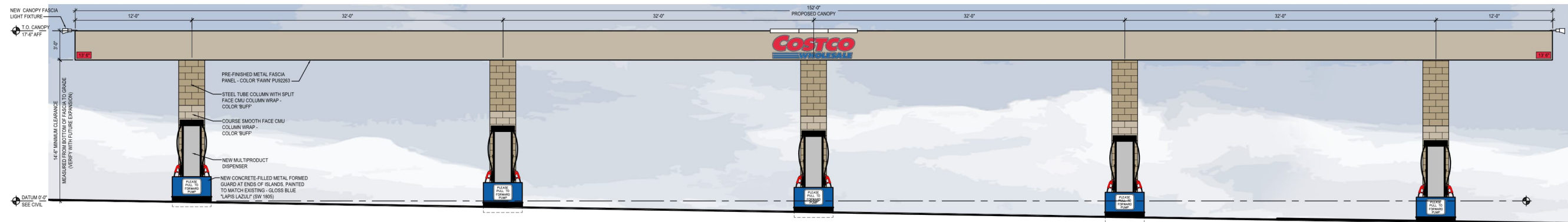
1 CANOPY & DISPENSER ISLANDS - EAST ELEVATION

SCALE: 3/16" = 1'-0"



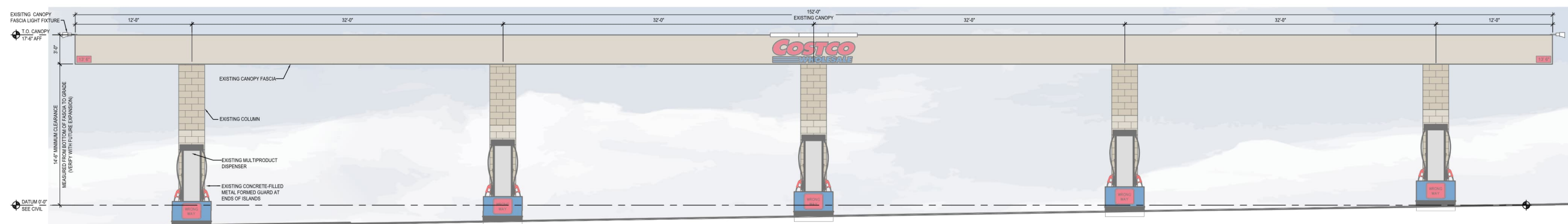
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SCALE: 3/16" = 1'-0"



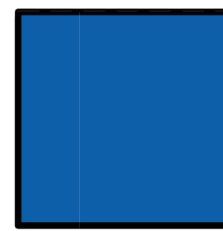
3 CANOPY & DISPENSER ISLANDS - SOUTH ELEVATION

SCALE: 3/16" = 1'-0"



4 CANOPY & DISPENSER ISLANDS - NORTH ELEVATION

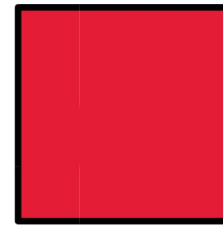
SCALE: 3/16" = 1'-0"



COSTCO BLUE BLUE



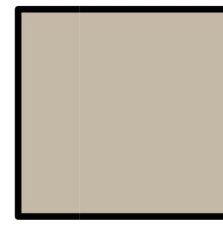
COURSE SMOOTH FACE CMU 'BUFF'



COSTCO RED RED



SPLIT FACE CMU 'BUFF'



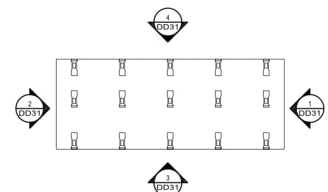
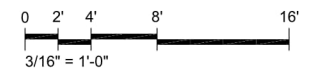
METAL FASCIA PANEL 'FAWN'

SIGNAGE AREA TABULATION (WALL SIGNS)				
QTY.	SIGN	SIZE	AREA (S.F.) EA.	TOTAL S.F.
4	COSTCO WHOLESALE	2'-5 1/4" x 8'-6 5/8"	20.85 S.F.	83.38 S.F.
			TOTAL SIGNAGE AREA	83.38 S.F.



5 CANOPY SIGNAGE

SCALE: 1/2" = 1'-0"



NILES, IL  
# 383

7311 MELVINA AVE. NILES,  
ILLINOIS 60714

1101 Second Ave, Ste 100  
Seattle, WA 98101  
206.962.6500  
MG2.com



98-5090-13  
JULY 26, 2022

PROPOSED  
ELEVATIONS

DD31-01

# COSTCO WHOLESALE

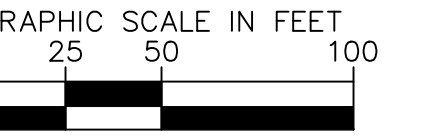
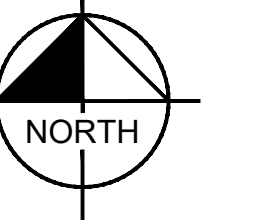
NILES, ILLINOIS

# PROPOSED ELEVATIONS

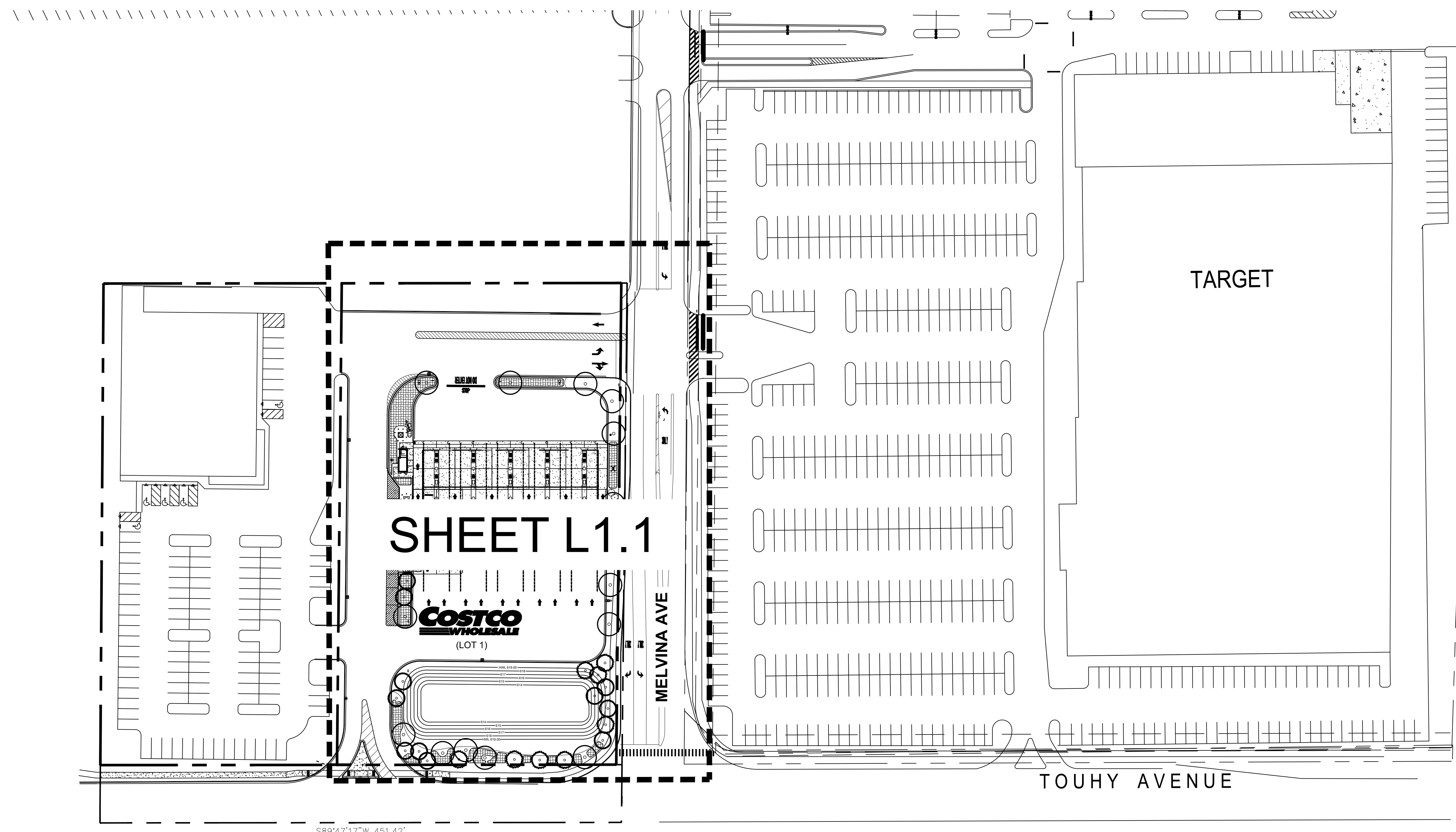
JULY 26, 2022



NORTH ARROW AND SCALE



SEAL AND SIGNATURES



**SHEET L1.1**



MELVINA AVE

TOUHY AVENUE

S89°47'17"W 451.42'

**COSTCO WHOLESALE**  
7311 MELVINA AVE.  
NILES, IL 60714

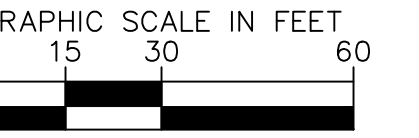
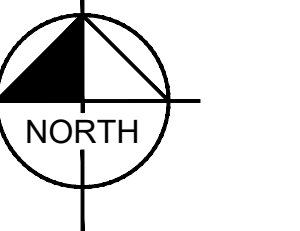
ISSUED DATE - 09/08/2022

DATE ISSUED FOR REV


**L1.0**  
LANDSCAPE PLAN -  
FUEL

AS INDICATED

NORTH ARROW AND SCALE



SEAL AND SIGNATURES

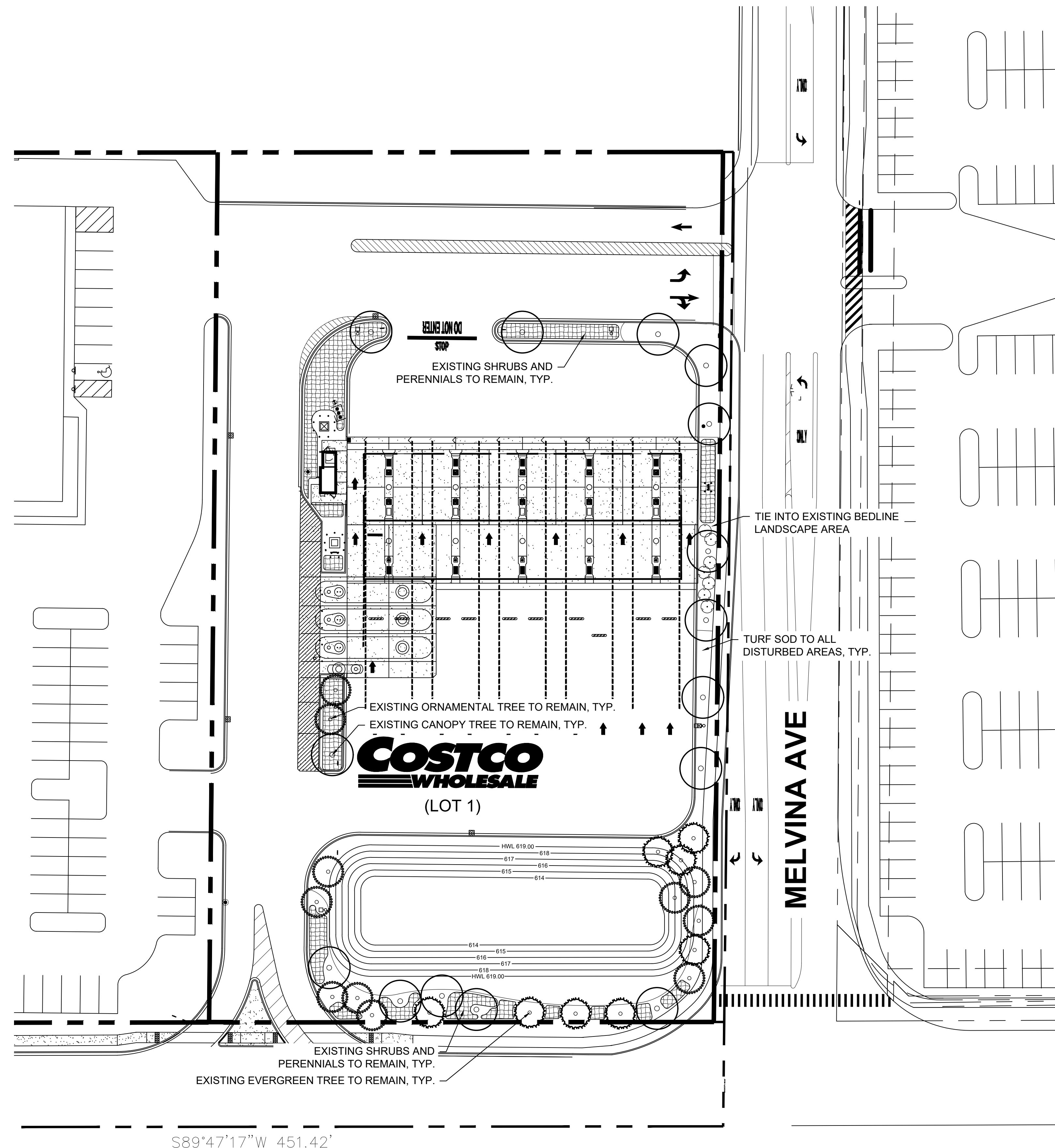
**COSTCO WHOLESALE**  
 7311 MELVINA AVE.  
 NILES, IL 60714

ISSUED DATE - 09/08/2022

DATE ISSUED FOR REV

**L1.1**  
 LANDSCAPE PLAN -  
 FUEL

AS INDICATED



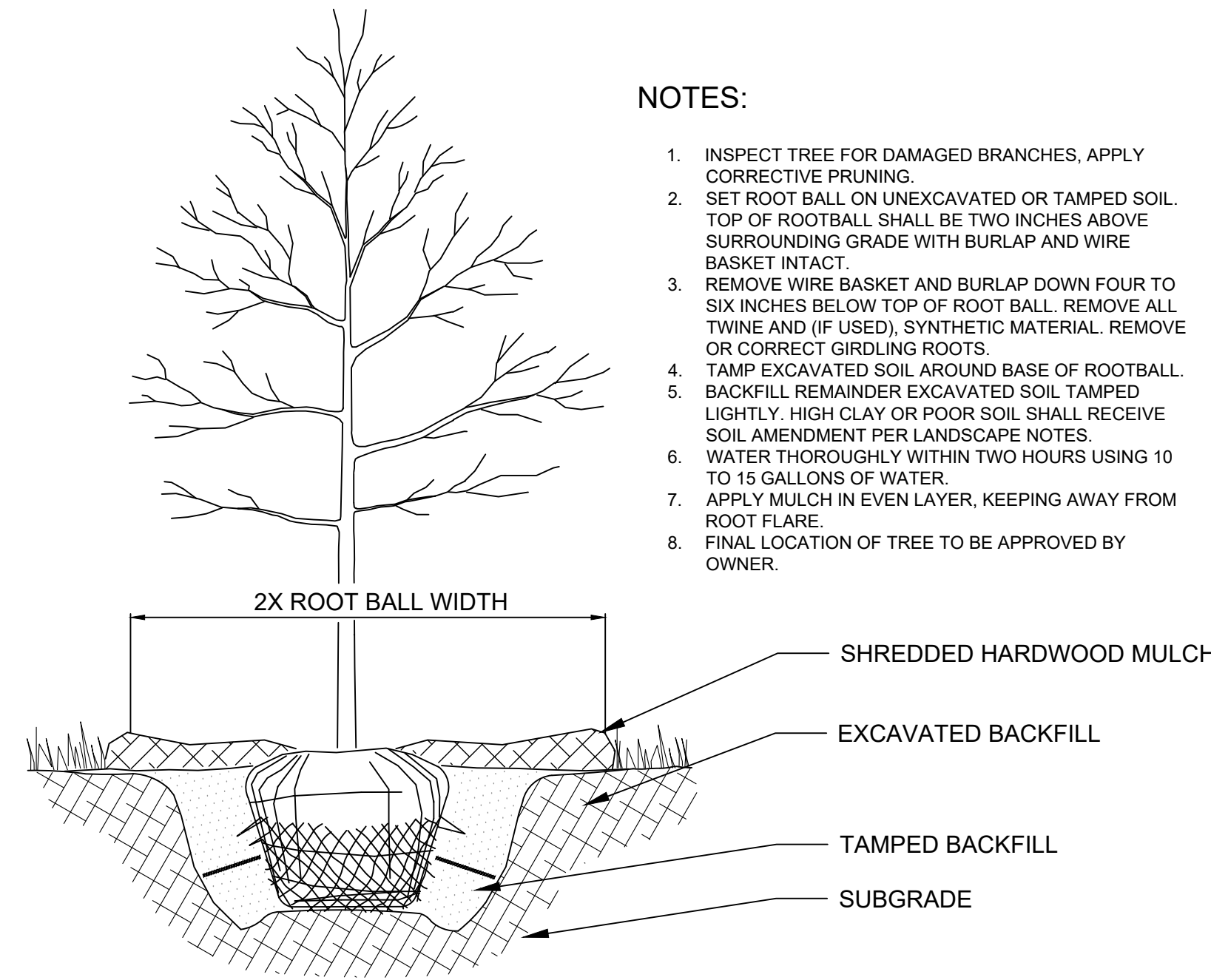
**EXISTING PLANT SCHEDULE**

	EXISTING CANOPY TREE	15
	EXISTING EVERGREEN TREE	8
	EXISTING ORNAMENTAL TREE	11
	EXISTING SHRUBS AND PERENNIALS	

**PLANT SCHEDULE**

SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SPACING	INSTALL SIZE	MATURE HT.	MATURE SP.
	CH	7	CORNUS ALBA 'BALHALO' TM / IVORY HALO DOGWOOD	-	SEE PLAN	24" HT. MIN.	4' - 6' HT.	4' - 6' SP.

NOTE: ALL INTERIOR ISLANDS AND FOUNDATION LANDSCAPE TO BE MULCHED WITH DECORATIVE STONE.

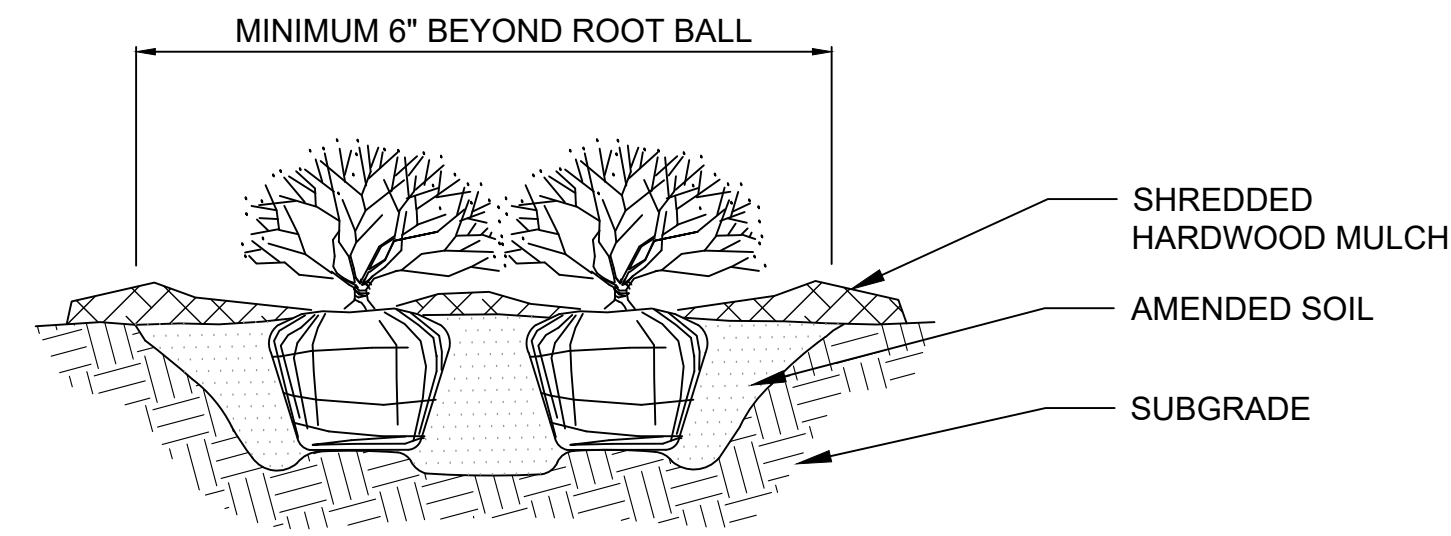


**NOTES:**

1. INSPECT TREE FOR DAMAGED BRANCHES. APPLY CORRECTIVE PRUNING.
2. SET ROOT BALL ON UNEXCAVATED OR TAMPED SOIL. TOP OF ROOTBALL SHALL BE TWO INCHES ABOVE SURROUNDING GRADE WITH BURLAP AND WIRE BASKET INTACT.
3. REMOVE WIRE BASKET AND BURLAP DOWN FOUR TO SIX INCHES BELOW TOP OF ROOT BALL. REMOVE ALL TWINE AND (IF USED), SYNTHETIC MATERIAL. REMOVE OR CORRECT GIRDLING ROOTS.
4. TAMP EXCAVATED SOIL AROUND BASE OF ROOTBALL.
5. BACKFILL REMAINDER EXCAVATED SOIL TAMPED LIGHTLY. HIGH CLAY OR POOR SOIL SHALL RECEIVE SOIL AMENDMENT PER LANDSCAPE NOTES.
6. WATER THOROUGHLY WITHIN TWO HOURS USING 10 TO 15 GALLONS OF WATER.
7. APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE.
8. FINAL LOCATION OF TREE TO BE APPROVED BY OWNER.

1 TREE PLANTING

NTS

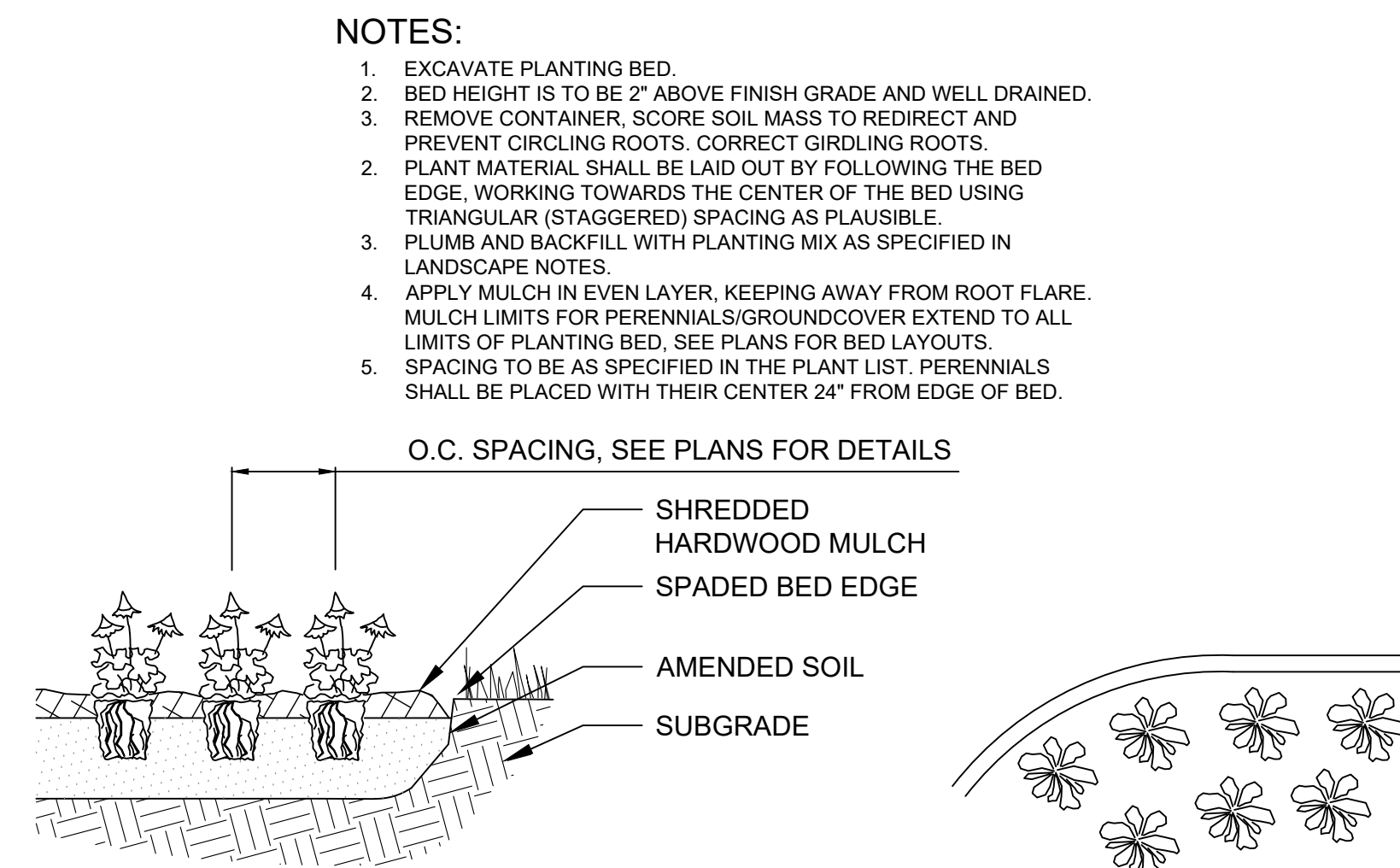


**NOTES:**

1. APPLY CORRECTIVE PRUNING.
2. SET ROOT BALL OR CONTAINER ON UNEXCAVATED OR TAMPED SOIL. TOP OF ROOTBALL (CONTAINER) SHALL BE ONE INCH ABOVE SURROUNDING GRADE. FOR LARGER SHRUBS WITHIN PLANTING BED DIG A DEEPER PIT ONLY FOR THOSE SHRUBS.
3. REMOVE BURLAP FROM TOP HALF THE LENGTH OF ROOTBALL TWINE AND (IF USED) SYNTHETIC MATERIAL SHALL BE REMOVED FROM PLANTING BED. FOR CONTAINER GROWN SHRUBS, REMOVE CONTAINER AND LOOSEN ROOTS PRIOR TO INSTALLATION.
4. REMOVE OR CORRECT GIRDLING ROOTS.
5. PLUMB AND BACKFILL WITH AMENDED SOIL PER LANDSCAPE NOTES. WATER THOROUGHLY WITHIN TWO HOURS.
6. APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE. MULCH LIMITS FOR SHRUBS EXTEND TO ALL LIMITS OF PLANTING BED. SEE PLANS FOR BED LAYOUTS.

2 SHRUB PLANTING

NTS



**NOTES:**

1. EXCAVATE PLANTING BED.
2. BED HEIGHT IS TO BE 2" ABOVE FINISH GRADE AND WELL DRAINED.
3. REMOVE CONTAINER, SCORE SOIL MASS TO REDIRECT AND PREVENT CIRCLING ROOTS. CORRECT GIRDLING ROOTS.
4. PLANT MATERIAL SHALL BE LAID OUT BY FOLLOWING THE BED EDGE, WORKING TOWARDS THE CENTER OF THE BED USING TRIANGULAR (STAGGERED) SPACING AS PLAUSIBLE.
5. PLUMB AND BACKFILL WITH PLANTING MIX AS SPECIFIED IN LANDSCAPE NOTES.
6. APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE. MULCH LIMITS FOR PERENNIALS/GROUNDCOVER EXTEND TO ALL LIMITS OF PLANTING BED. SEE PLANS FOR BED LAYOUTS.
7. SPACING TO BE AS SPECIFIED IN THE PLANT LIST. PERENNIALS SHALL BE PLACED WITH THEIR CENTER 24" FROM EDGE OF BED.

SECTION

PLAN VIEW

3 PERENNIAL PLANTING

NTS

**LANDSCAPE NOTES**

1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING MATERIALS AND PLANTS SHOWN ON THE LANDSCAPE PLAN. THE CONTRACTOR IS RESPONSIBLE FOR THE COST TO REPAIR UTILITIES, ADJACENT LANDSCAPE, PUBLIC AND PRIVATE PROPERTY THAT IS DAMAGED BY THE CONTRACTOR OR THEIR SUBCONTRACTOR'S OPERATIONS DURING INSTALLATION OR DURING THE SPECIFIED MAINTENANCE PERIOD. CALL FOR UTILITY LOCATIONS PRIOR TO ANY EXCAVATION.
2. THE CONTRACTOR SHALL REPORT ANY DISCREPANCY IN PLAN VS. FIELD CONDITIONS IMMEDIATELY TO THE LANDSCAPE ARCHITECT, PRIOR TO CONTINUING WITH THAT PORTION OF WORK.
3. NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY OF THEIR TRENCHES OR EXCAVATIONS THAT SETTLE.
5. ALL PLANTS TO BE SPECIMEN GRADE, WELL BRANCHED, HEALTHY, FULL, PRE-INOCULATED AND FERTILIZED. PLANTS SHALL BE FREE FROM DISEASE, PESTS, WOUNDS, AND SCARS. PLANTS SHALL BE FREE FROM NOTICEABLE GAPS, HOLES, OR DEFORMITIES. PLANTS SHALL BE FREE FROM BROKEN OR DEAD BRANCHES. TRUNKS WILL BE WRAPPED IF NECESSARY TO PREVENT SUN SCALD AND INSECT DAMAGE. THE LANDSCAPE CONTRACTOR SHALL REMOVE THE WRAP AT THE PROPER TIME AS PART OF THIS CONTRACT.
6. THE OWNER'S REPRESENTATIVE MAY REJECT ANY PLANT MATERIALS THAT ARE DISEASED, DEFORMED, OR OTHERWISE NOT EXHIBITING SUPERIOR QUALITY.
7. ALL NURSERY STOCK SHALL BE GUARANTEED, BY THE CONTRACTOR, FOR ONE YEAR FROM DATE OF FINAL INSPECTION. THE GUARANTEE BEGINS ON THE DATE OF THE LANDSCAPE ARCHITECT'S OR OWNERS WRITTEN ACCEPTANCE OF THE INITIAL PLANTING. REPLACEMENT PLANT MATERIAL SHALL HAVE A ONE YEAR GUARANTEE COMMENCING UPON PLANTING.
8. PLANTS TO MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2014 OR MOST CURRENT VERSION) REQUIREMENTS FOR SIZE AND TYPE SPECIFIED.
9. PRUNE PLANTS AS NECESSARY- PER STANDARD NURSERY PRACTICE AND TO CORRECT POOR BRANCHING OF EXISTING AND PROPOSED TREES.
10. SEED/SOD LIMIT LINES ARE APPROXIMATE. CONTRACTOR SHALL SEED/SOD ALL AREAS WHICH ARE DISTURBED BY GRADING WITH THE SPECIFIED SEED/SOD MIXES.
11. EDGING TO BE A SPADED EDGE UNLESS INDICATED OTHERWISE ON THE PLANS. SPADED EDGE TO PROVIDE V-SHAPED DEPTH AND WIDTH TO CREATE SEPARATION BETWEEN MULCH AND GRASS. A SPADED BED EDGE SHALL SEPARATE MULCH BEDS FROM TURF OR SEEDED AREAS. A SPADED EDGE IS NOT REQUIRED ALONG CURBED EDGES.
12. HIGH-QUALITY TOP SOIL SHALL BE IMPORTED AND GRADED BY GENERAL CONTRACTOR TO THE FOLLOWING MINIMUM DEPTHS BELOW FINISHED GRADE. REFER TO SOIL SPECIFICATION FOR MORE DETAIL.
  - PLANTING BEDS: 18 INCHES
  - ALL OTHER AREAS: 6 INCHES
13. CONTRACTOR SHALL INSTALL SHREDDED HARDWOOD MULCH AT A 3" DEPTH TO ALL TREES, SHRUB, PERENNIAL, AND GROUNDCOVER AREAS. TREES PLACED IN AREA COVERED BY TURF SHALL RECEIVE A 4 FT WIDE MAXIMUM TREE RING WITH 3" DEPTH SHREDDED HARDWOOD MULCH.
14. INSTALLATION OF TREES WITHIN PARKWAYS SHALL BE COORDINATED IN THE FIELD WITH LOCATIONS OF UNDERGROUND UTILITIES. TREES SHALL NOT BE LOCATED CLOSER THAN 5' FROM UNDERGROUND UTILITY LINES AND NO CLOSER THAN 10' FROM UTILITY STRUCTURES.
15. DO NOT DISTURB THE EXISTING PAVING, LIGHTING, OR LANDSCAPING THAT EXISTS ADJACENT TO THE SITE UNLESS OTHERWISE NOTED ON PLAN.
16. ALL DISTURBED AREAS TO BE SODDED OR SEEDED, UNLESS OTHERWISE NOTED. SOD/SEED SHALL BE LOCAL HARDY TURF GRASS MIX UNLESS, OTHERWISE NOTED.
17. PLANT QUANTITIES SHOWN ARE FOR THE CONVENIENCE OF THE OWNER AND JURISDICTIONAL REVIEW AGENCIES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES AS DRAWN.

**COSTCO WHOLESALE**  
 7311 MELVINA AVE.  
 NILES, IL 60714

ISSUED DATE - 09/08/2022

DATE	ISSUED FOR	REV

**L2.0**

**LANDSCAPE NOTES AND DETAILS**

## **ORDINANCE 2022-**

### **ORDINANCE APPROVING A SPECIAL USE PERMIT TO ALLOW A 'GAS STATION' LOCATED AT 7220 MELVINA AVENUE**

**WHEREAS**, the Village President and Board of Trustees (hereinafter collectively referred to as the “Village Board”) of the Village of Niles, Cook County, Illinois (hereinafter the “Village”), find that the Village is a home rule municipal corporation as provided in Article VII, Section 6 of the 1970 Constitution of the State of Illinois and pursuant to said constitutional authority, may exercise and perform any function pertaining to its governmental affairs; and

**WHEREAS**, the question of granting a special use permit to 7220 N. Melvina Avenue included in this ordinance, was referred to the Planning and Zoning Board for a public hearing; and

**WHEREAS**, a public hearing was held on October 3, 2022, after proper notice in a manner provided by law; and

**WHEREAS**, the applicant request is operate an ‘Gas Station’ located at 7220 N. Melvina Avenue; and

**WHEREAS**, the proposed use provides for an expansion of the existing number of fuel dispensing bays by 10 to the existing canopy of the gas station; and

**WHEREAS**, the Planning and Zoning Board has made a report, containing findings of fact and recommending the granting of the special use permit to allow the operation of a ‘Gas Station’ located at 7220 N. Melvina Avenue; and

**WHEREAS**, the corporate authorities of the Village of Niles, Cook County, Illinois have duly considered said Planning and Zoning Board recommendation and consider it in the best interest of the Village to grant said request.

**NOW, THEREFORE, BE IT ORDAINED**, by the President and Board of Trustees of the Village of Niles, Cook County, Illinois, as a Home Rule Municipality, as follows:

**SECTION 1:** Each Whereas paragraph set forth above is incorporated by reference into this Section 1.

**SECTION 2:** The materials and exhibits attached to this ordinance are incorporated by reference and made a part of this ordinance.

**SECTION 3:** A special use permit as required in Appendix B, Section 8.2(A) to allow a 'Gas Station' located at 7220 Melvina Avenue, is approved with the following condition: The traffic study and associated findings must be accepted by the Village Engineer and any necessary modifications to the site plan as a result of the accepted traffic study must be made prior to the issuance of a building permit.

**SECTION 4:** This Ordinance shall be in full force and effect from and after its passage, approval, and publication in pamphlet form as provided by law.

**PASSED:** This 25<sup>th</sup> day of October, 2022

**AYES:**

**NAYS:**

**ABSENT:**

**ABSTAIN:**

**APPROVED** by me this 25<sup>th</sup> day of October, 2022.

---

President of the Village of Niles  
Cook County, Illinois

**ATTESTED AND FILED** in my office this 25<sup>th</sup> day of October, 2022, and published in pamphlet form as provided by law in the Village of Niles, Illinois.

---

Village Clerk

# Technical Memorandum

September 13, 2022

Project# 28158

To: Stephen Cross, Authorized Costco Representative  
Cross Engineering Associates, Inc.  
1955 Raymond Drive, Suite 119  
Northbrook, IL 60062

From: Adam Burghdoff, Jake Mirabella, and Spencer Maddox

RE: Niles Costco Fuel Facility Expansion and Car Wash Transportation Evaluation

---

Kittelson & Associates, Inc. (Kittelson) has prepared a transportation evaluation for the proposed Costco Fuel Facility Expansion and Costco Car Wash Development Project (the "Project") located along Melvina Avenue in Niles Village, Illinois. The Project location and intersections evaluated in this study are shown in **Figure 1**.

This study's approach and scope was prepared in consultation with Niles Village staff and is consistent with industry best practices. The following summarizes the project description, methodology, data, analysis results, findings, and recommendations developed as part of this study.

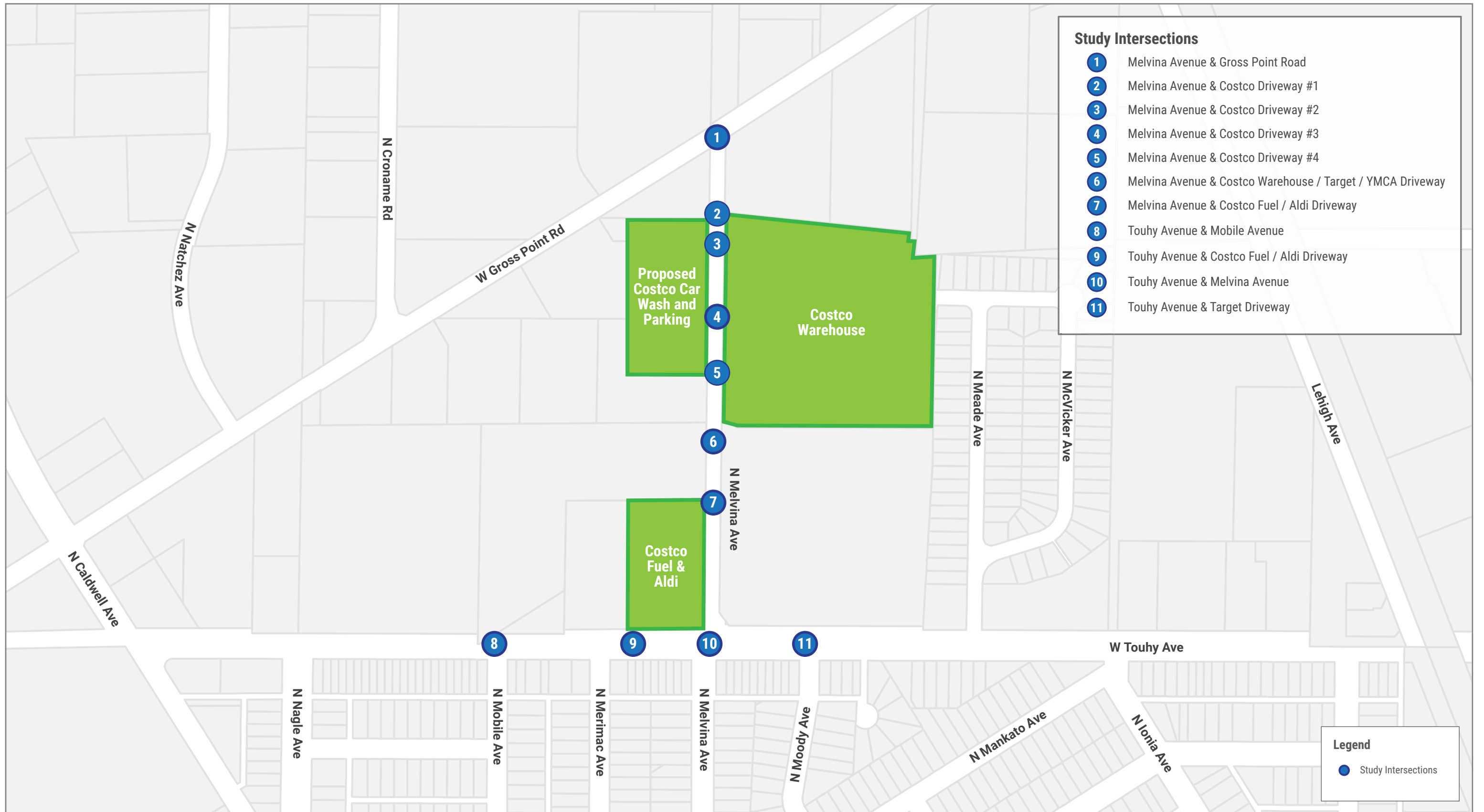
## Project Description

### Fuel Facility Expansion

The Project proposes to expand an existing Costco fuel facility, located at the northwest corner of the Melvina Avenue & Touhy Avenue intersection, from 20 existing fueling positions to 30 fueling positions (an increase of 10 fueling positions). The proposed fuel facility expansion is shown in the site plan included in **Appendix A**.

### Car Wash and Parking Lot Development

The Project also proposes to construct a Costco car wash west of the existing Costco warehouse along the west side of Melvina Avenue and a new 139 stall parking lot. The site for redevelopment currently consists of a portion of an underused parking lot and a portion of the former Granger office site that will be redeveloped. The proposed parking stalls will be available to Costco employees and Costco customers and will include cart corrals.



The car wash and parking lot component of the project is expected to be phased with the opening of a larger 233 stall parking lot opening first and the construction of the car wash in the second phase. The first phase is not expected to generate additional trips for the existing warehouse; however, the carwash is expected to generate trips. The analyses presented herein are based upon the more-conservative traffic projection including the car wash. The proposed car wash and parking lot site plan is included in **Appendix B**.

Two crosswalks extending from the west side of Melvina Avenue to the east side of Melvina Avenue is proposed to provide Costco employees and customers a way to cross Melvina Avenue.

## Methodology and Data

This study evaluates existing (2022), background (2028), and background (2028) plus project roadway conditions to determine potential impacts due to the proposed Project. Weekday AM, weekday PM, and Saturday midday peak hours are evaluated based on the following methodologies and data sources.

### Methodology

This study utilizes Synchro 11, Highway Capacity Manual (HCM) 6<sup>th</sup> Edition, and SimTraffic Microsimulation analysis methodologies to estimate vehicle delays and intersection levels of service (LOS).

HCM and Synchro methodologies cannot calculate intersection delay at the Costco Fuel/Aldi/Target Driveway (intersection 7) due to the three-way stop control (northbound movement is free and all other movements are stop controlled), therefore, SimTraffic microsimulation was used to estimate delay. Additionally, HCM two-way-stop control methodologies do not account for influences of other intersections. Exhibit 20-4 from HCM 6<sup>th</sup> Edition Chapter summarized the limitations and potential alternative tools.

Northbound approach vehicles along Melvina Avenue are expected to arrive in platoons which influence gap availability for minor the street. Due to the interactions between intersections and limitations of HCM 6<sup>th</sup> methodologies, SimTraffic, a more detailed analysis tool, was therefore used to estimate delay at the following intersections:

- Intersection 2: Melvina Avenue & Costco Driveway #1
- Intersection 3: Melvina Avenue & Costco Driveway #2
- Intersection 4: Melvina Avenue & Costco Driveway #3
- Intersection 5: Melvina Avenue & Costco Driveway #4
- Intersection 6: Melvina Avenue & Costco/Target/YMCA Driveway
- Intersection 7: Melvina Avenue & Costco Fuel/Aldi/Target Driveway

The 2009 Manual on Uniform Traffic Control Devices (MUTCD) with Revision Numbers 1, 2, and 3 dated July 2022 and the Illinois Department of Transportation (IDOT) TRA-23:



Guidelines for Establishing Pedestrian Crossings dated October 15, 2021, were considered in this study in developing crosswalk recommendations.

## Data

This study relies upon existing signal timings, existing conditions Synchro models, and Melvina Avenue Exhibit Alternative 3.1 provided by Niles Village staff. Existing signal timing data is included in **Appendix C** and the Melvina Avenue exhibit, which represents planned improvements along Melvina Avenue from Touhy Avenue to Gross Point Road, is included in **Appendix D**.

Existing conditions traffic count data was collected at five study intersections in July and August 2022 to supplement counts conducted in 2021. This data includes heavy vehicle, pedestrian, and bike volumes, as well as peak hour factors and is provided in **Appendix E**.

Chicago Metropolitan Agency for Planning (CMAP) provided 2050 Average Daily Traffic (ADT) volume forecast data for Touhy Avenue in the Project vicinity which was used to develop 2028 volume forecasts at the study intersections. Note that traffic count data was collected in 2021 at six study intersections and the annual growth rate determined from the CMAP forecasts were applied to arrive at 2022 traffic volumes where applicable. The CMAP 2050 ADT forecast letter is included in **Appendix F**.

## Traffic Volumes

Traffic analysis volumes were developed for existing (2022), background (2028), and background (2028) plus project weekday AM, weekday PM, and Saturday midday peak hours.

## Existing Conditions

Existing conditions traffic volumes were developed based upon existing traffic count data collected in July 2021 and July and August 2022 between 7:00am – 9:00am (weekday AM), 4:00pm – 6:00pm (weekday PM), and 11:00am – 1:00pm (Saturday midday). Individual intersection peak hour volumes were determined and used in this analysis. For the traffic count data collected in 2021, the annual growth rate determined from the CMAP forecasts were applied to arrive at 2022 traffic volumes where applicable. Volume balancing (increased only) was applied where applicable. Raw existing conditions weekday AM, weekday PM, and Saturday midday peak hour volumes are included in **Appendix E**. Balanced and adjusted existing conditions volumes assumed in the operational analyses are included in **Appendix G**.

## Background Conditions

Background peak hour traffic volumes were developed for future year 2028 when Project buildout is anticipated. Background volumes were developed by determining a growth rate between the CMAP base 2021 ADT (30,500) and the CMAP future 2050 ADT volume forecasts (34,800). The linear volume growth along Touhy Avenue was determined to be

0.49% per year. Peak hour volumes were balanced where applicable (volumes increased only) after applying peak hour volume growth based on the linear rate. Note that the 2050 ADT forecast provided by CMAP was for Touhy Avenue only, however a growth rate of 0.49% per year was also applied to Melvina Avenue. Balanced background (2028) conditions weekday AM, weekday PM, and Saturday midday peak hour volumes are included in **Appendix G**.

### Background Plus Project Conditions

Background plus project conditions peak hour volumes were developed by adding peak hour Project volumes anticipated from the proposed Costco fuel facility expansion and car wash to the forecasted 2028 background volumes described in the previous section.

Project forecasts were developed based upon the proposed Project description, trip generation data collected at similar Costco facilities, and distribution assumptions based upon current travel patterns in the study area. The trip generation analysis estimates that the Project would generate the following number of trips:

■ AM Peak Hour	■ PM Peak Hour	■ Saturday Midday Peak Hour
- 142 net new external trips	- 99 net new external trips	- 98 net new external trips
- 0 new internal trips	- 114 new internal trips	- 204 new internal trips
- 26 new pass-by trips	- 38 new pass-by trips	- 28 new pass-by trips
- 28 new diverted route trips	- 34 new diverted route trips	- 30 new diverted route trips

Note that no trip generation credits are assumed for the existing office building along the west side of Melvina Avenue (south of the proposed car wash) that is anticipated to be redeveloped. The trip generation and trip distribution analyses and assumptions are included in **Appendix H**.

Background plus project conditions weekday AM, weekday PM, and Saturday midday peak hour volumes are included in **Appendix G**.

### Operational Analysis Results

The traffic impact analysis was conducted using Synchro and SimTraffic software tools and HCM methodologies as described in the methodology section of this memorandum. A level of service (LOS) standard of LOS D is assumed in the operational analyses.

Analysis volumes were assumed as described in the traffic volumes section of this memorandum. The following summarizes the analysis results and findings for existing, background, and background plus project weekday AM, weekday PM, and Saturday midday peak hours. The following identifies the study intersections evaluated using HCM

6<sup>th</sup> methodologies and the study intersections evaluated using SimTraffic microsimulation methodologies:

- Intersection 1: Melvina Avenue & Gross Point Road – HCM 6<sup>th</sup>
- Intersection 2: Melvina Avenue & Costco Driveway #1 – SimTraffic
- Intersection 3: Melvina Avenue & Costco Driveway #2 – SimTraffic
- Intersection 4: Melvina Avenue & Costco Driveway #3 – SimTraffic
- Intersection 5: Melvina Avenue & Costco Driveway #4 – SimTraffic
- Intersection 6: Melvina Avenue & Costco/Target/YMCA Driveway – SimTraffic
- Intersection 7: Melvina Avenue & Costco Fuel/Aldi/Target Driveway – SimTraffic
- Intersection 8: Touhy Avenue & Mobile Avenue – HCM 6<sup>th</sup>
- Intersection 9: Touhy Avenue & Costco Fuel/Aldi Driveway – HCM 6<sup>th</sup>
- Intersection 10: Touhy Avenue & Melvina Avenue – HCM 6<sup>th</sup>
- Intersection 11: Touhy Avenue & Target Driveway – HCM 6<sup>th</sup>

### Existing Conditions

All study intersections analyzed with HCM 6<sup>th</sup> were estimated to operate at overall acceptable LOS C or better based on HCM 6<sup>th</sup> methodologies in existing conditions, except for the following:

- Gross Point Road & Melvina Avenue Northbound Approach
  - LOS E in PM and Saturday Midday peak hours. The critical movement (northbound left-turn) is under capacity.

All side street stop controlled (SSSC) approaches analyzed with SimTraffic were estimated to operate with 35 seconds of average vehicle SimTraffic delay in existing conditions or better except for the following:

- Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound Approach
  - SimTraffic westbound approach delay is estimated to be 113.8 seconds and 188.0 seconds per vehicle during the PM peak and Saturday Midday peak hour, respectively. Results indicate that limited southbound left-turn storage at Melvina Avenue and Touhy Avenue cause southbound approach queues to extend to the Costco Warehouse/Target/YMCA Driveway limiting the ability to process the westbound left-turns. The Melvina Avenue Exhibit Alternative 3.1 in **Appendix D** shows the southbound approach widened to two left-turn lanes at Melvina Avenue and Touhy Avenue in the future condition.
- Melvina Ave & Costco Fuel/Aldi/Target Driveway
  - SimTraffic southbound approach delay is estimated to be 35.1 seconds in the PM peak hour and the westbound approach delay is estimated to be 59.0 seconds per vehicle in the Saturday midday peak hour. The Melvina Avenue Exhibit Alternative 3.1 in **Appendix D** shows the southbound approach widened to provide a dedicated left-turn lane at this intersection.

A table summarizing average delay per vehicle and LOS for each study intersection is provided in **Appendix I**.

### **Background Conditions**

All study intersections analyzed with HCM 6<sup>th</sup> were estimated to operate at overall acceptable LOS C or better based on HCM 6<sup>th</sup> methodologies in existing conditions, except for the following:

- Gross Point Road & Melvina Avenue Northbound Approach
  - LOS E in PM peak hour. The critical movement (northbound left-turn) is under capacity.

All side street stop controlled (SSSC) approaches analyzed with SimTraffic were estimated to operate with 35 seconds of average vehicle SimTraffic delay in existing conditions or better.

A table summarizing average delay per vehicle and LOS for each study intersection is provided in **Appendix J**.

### **Background Plus Project Conditions**

All study intersections analyzed with HCM 6<sup>th</sup> were estimated to operate at overall acceptable LOS D or better based on HCM 6<sup>th</sup> methodologies in existing conditions, except for the following:

- Gross Point Road & Melvina Avenue Northbound Approach
  - LOS E in PM peak hour. The critical movement (northbound left-turn) is under capacity. There is 1.2 second increase in delay compared to background conditions.

All side street stop controlled (SSSC) approaches analyzed with SimTraffic were estimated to operate with 35 seconds of average vehicle SimTraffic delay in existing conditions or better except for the following:

- Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound Approach
  - SimTraffic westbound approach delay is estimated to be 48.2 seconds in the Saturday midday peak hour. There is a 15.1 second delay increase compared to background conditions.

A table summarizing average delay per vehicle and LOS for each study intersection is provided in **Appendix K**.

## **Crosswalk Evaluation**

The Project proposes to construct two crosswalks across Melvina Avenue that would provide Costco employees and customers east-west pedestrian crossings between the existing Costco warehouse and the proposed car wash and parking lot. The proposed crosswalk locations are included in the car wash and parking lot site plan provided in

**Appendix B.** The southern proposed crosswalk (southwest of the existing Costco warehouse) was identified in the Niles Village Melvina Avenue Exhibit Alternative 3.1 provided in **Appendix D.**

Based upon the existing pedestrian counts, parking expansion, and internal capture trips at the car wash, the number of pedestrians crossing were estimated. It was assumed that 1.5 pedestrians are equivalent to one vehicle trip. It is estimated that 7 pedestrians would cross Melvina Avenue during the AM peak hour, 120 pedestrians would cross Melvina Avenue during the PM peak hour, and 159 pedestrians would cross Melvina Avenue during the Saturday midday peak hour. These pedestrians would likely be spread across both proposed intersections but given the location of the Costco would likely primarily use the **southern crosswalk.**

It is recommended that the **northern crosswalk** be constructed at the location shown in the Project site plan at the northeast corner of the existing Costco warehouse and approximately 300 feet south of the nearest existing crosswalk located at the Melvina Avenue & Gross Point Road intersection.

A high-visibility continental crosswalk with ladder markings is recommended for installation at this northern location. Striping design should be consistent with MUTCD requirements. MUTCD W11-2 pedestrian crossing signs and W16-7P supplemental warning plaques are recommended to be installed to alert northbound and southbound motorists of this crosswalk.

It is recommended that the **southern crosswalk** be constructed at the location shown in the Project site plan at the southeast corner of the existing Costco warehouse and approximately 350 feet south of the proposed northern crosswalk and approximately 750 feet south of the nearest existing crosswalk located at the Melvina Avenue & Gross Point Road intersection.

It is anticipated that this will be the main crosswalk used by Costco customers that park in the proposed parking lot on the west side of Melvina Avenue. Since customers using this proposed crosswalk are anticipated to have slower crossing speeds when pushing shopping carts than typical pedestrians, crosswalk enhancements are recommended to emphasize the crosswalk for motorists. Recommendations are as follows:

1. Construct a raised crosswalk with high-visibility continental and ladder markings; and
2. Install MUTCD W11-2 pedestrian crossing signs and W16-7P supplemental warning plaques on northbound and southbound roadway approaches.
  - a. Install warning beacons per MUTCD Section 4L.03 above each W11-2 sign to emphasis the crosswalk location; or
  - b. Install rapid rectangular flashing beacons (RRFBs) at each northbound and southbound approach consistent with MUTCD Interim Approval 21 (IA-21).

All proposed crosswalks, markings, and signage should be constructed/installed consistent with MUTCD and local requirements.

## Findings and Recommendations

This technical memorandum was developed to document the transportation evaluation conducted for the proposed Costco Fuel Facility Expansion and Car Wash Development Project located along Melvina Avenue in Niles Village, Illinois.

This study was conducted consistent with the scope and methodology agreed upon between the Applicant and Niles Village and was prepared according to industry best practices and tools. A variety of data sources including existing traffic counts, ADT forecasts, signal timing data, and Costco specific data were considered in this study, as well as transportation software and analysis methodologies.

Based upon the approach described, it was found that all study intersections currently operate at acceptable levels except for:

- Gross Point Road & Melvina Avenue Northbound Approach
- Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound
- Melvina Ave & Costco Fuel/Aldi/Target Driveway Westbound/Southbound Approaches

Background improvements along Melvina Avenue are anticipated to improve operations to acceptable levels the Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound approach and the Melvina Ave & Costco Fuel/Aldi/Target Driveway under background conditions.

All study intersections operate at acceptable levels in the future with and without the proposed Project except for:

- Gross Point Road & Melvina Avenue Northbound Approach
  - The Project is anticipated to increase northbound delay by 1.2 seconds.
- Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound Approach
  - SimTraffic westbound approach delay is estimated to be 48.2 seconds in the Saturday midday peak hour. There is a 15.1 second delay increase compared to background conditions.

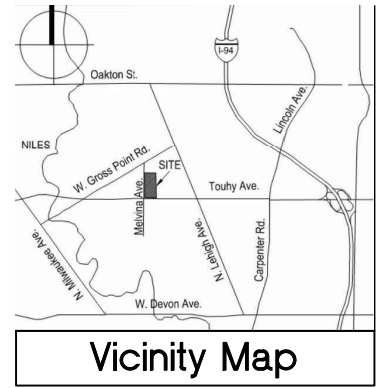
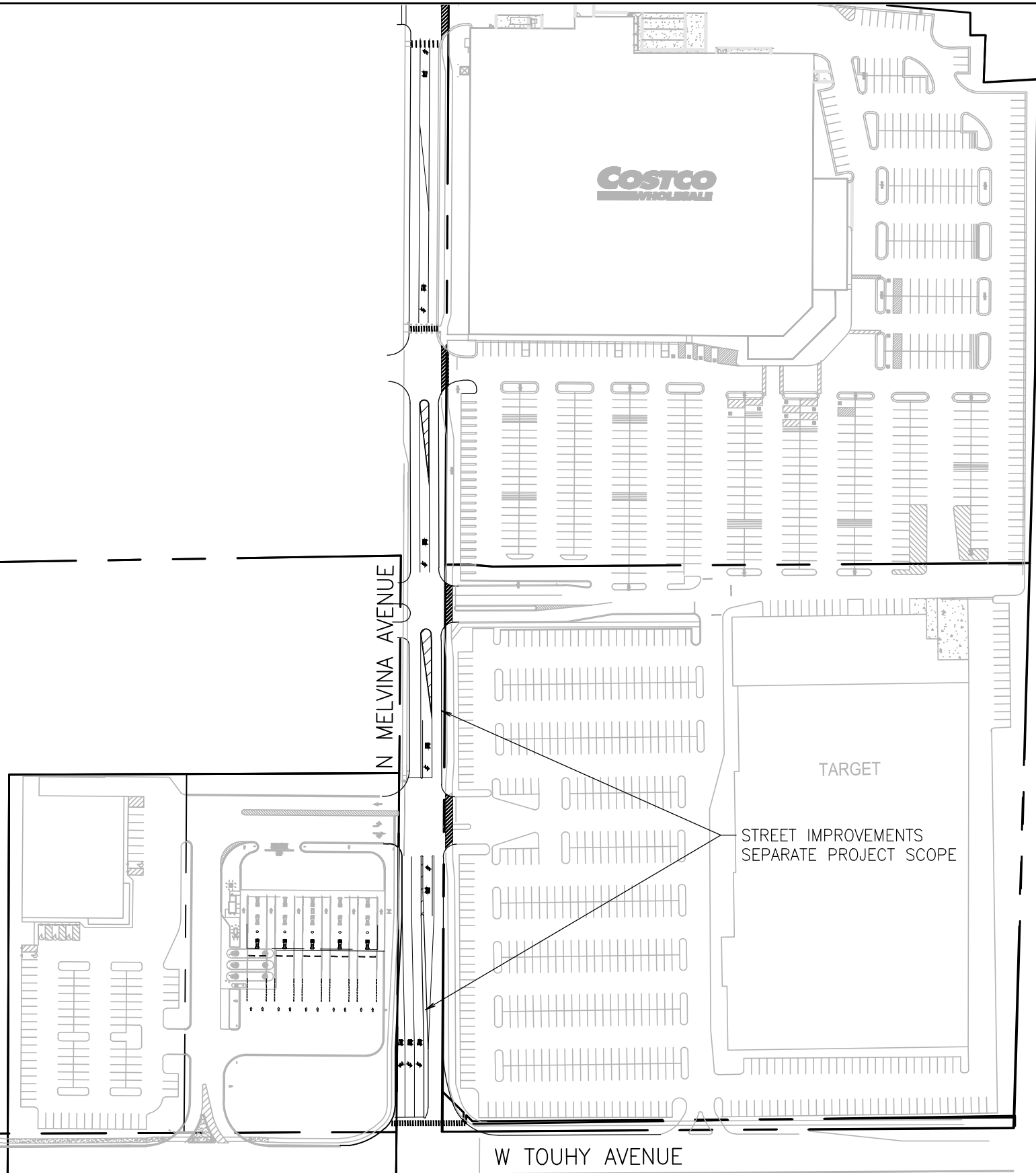
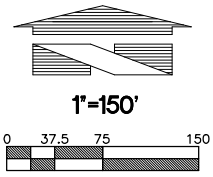
Furthermore, two east-west oriented pedestrian crosswalk connections across Melvina Avenue are proposed by the Project which are considered necessary to provide better pedestrian connectivity in the area and provide Costco employees and customers with a route to cross the north-south oriented Melvina Avenue.

Should additional information be necessary to understand the anticipated effects of the fuel station expansion, please contact us at [aburghdoff@kittelton.com](mailto:aburghdoff@kittelton.com) (407.373.1109) or [jmirabella@kittelton.com](mailto:jmirabella@kittelton.com) (813.556.6971).

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# Appendix A

## Fuel Facility Expansion Site Plan



### PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7311 MELVINA AVENUE  
NILES, IL 60714

ZONING: B-2

FUEL FACILITY SITE AREA (LOT 1) 2.36 ACRES (102,895 S.F.)

RESIDUAL PARCEL: 1.97 ACRES (85,674 S.F.)  
(LOT 2 - PROPOSED FUTURE DEVELOPMENT)

TOUHY AVENUE EASEMENT: 0.52 ACRES (22,576 S.F.)

TOTAL SITE AREA: 4.85 ACRES (211,145 S.F.)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A MULVANNY G2 ARCHITECTURE SITE PLAN DATED 1/2/14.

PROPOSED BUILDING DATA:  
COSTCO FUEL FACILITY DATA:

CANOPY AREA	4,864 S.F.
CONTROLLER ENCLOSURE AREA	135 S.F.
<b>TOTAL PROPOSED COSTCO FUEL FACILITY</b>	<b>4,999 S.F.</b>

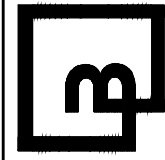
NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

SITE DATA:

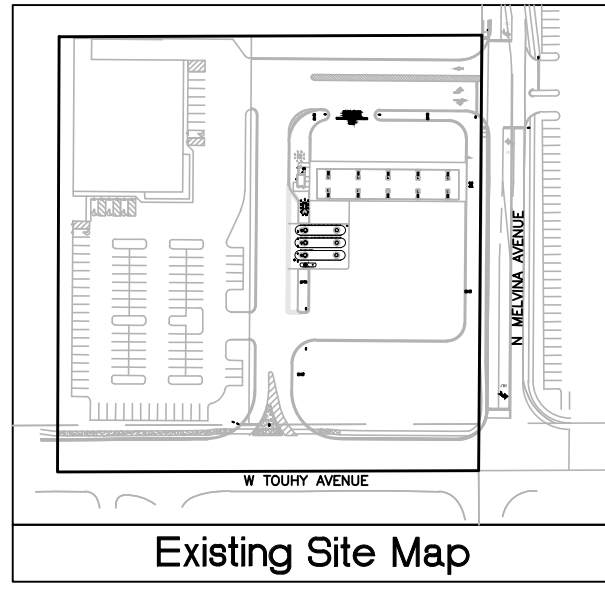
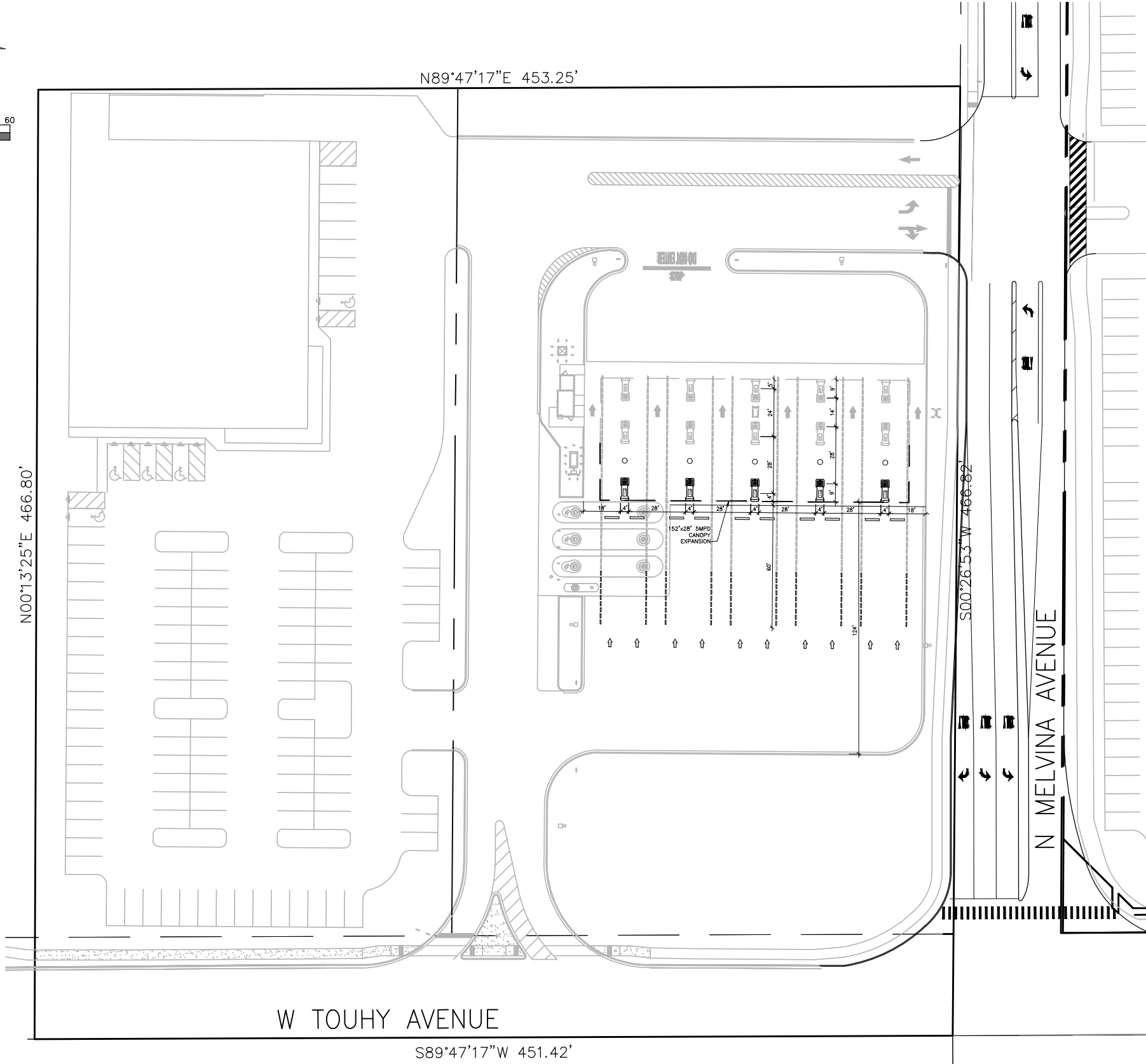
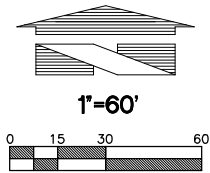
GROSS AREA OF SITE:	102,895 S.F.	A
BUILDING FLOOR AREA:	4,999 S.F.	B
PAVEMENT AREA:	65,523 S.F.	P
TOTAL IMPERVIOUS AREA:	70,522 S.F.	TIA = B + P
IMPERVIOUS RATIO:	0.69%	IR = TIA/A

### NOTES

- THIS PRELIMINARY SITE PLAN IS BASED ON A SITE PLAN BY MULVANNY G2 ARCHITECTURE DATED, 1/2/14. THIS PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CURRENT LAND SURVEY.
- 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.

No.    Date    By    Ctd.    Appr.    Revision	<p><b>OVERALL SITE PLAN</b> 7311 MELVINA AVENUE NILES, IL 60714 LOCATION #383</p>
<b>For:</b>	<p><b>COSTCO GASOLINE</b> COSTCO WHOLESALE GAS STATION ADDITION 999 LAKE DRIVE ISSAQUAH, WASHINGTON, 98027</p>
Scale:	<p>Horizontal Vertical</p>
Designed SA Drawn JAS Checked SA Approved Date 12/19/17	<p><b>Barghausen Consulting Engineers, Inc.</b> 18215 72nd Avenue South Kent, WA 98032 425.251.6222    <a href="http://barghausen.com">barghausen.com</a></p>
BEC Job Number <b>16882</b>	<div style="text-align: center;">  </div>
Sheet <b>DD-1</b>	





### PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7311 MELVINA AVENUE  
NILES, IL 60714

ZONING: B-2

FUEL FACILITY SITE AREA (LOT 1) 2.36 ACRES (102,895 S.F.)

RESIDUAL PARCEL: 1.97 ACRES (85,674 S.F.)  
(LOT 2 - PROPOSED FUTURE DEVELOPMENT)

TOUHY AVENUE EASEMENT: 0.52 ACRES (22,576 S.F.)

TOTAL SITE AREA: 4.85 ACRES (211,145 S.F.)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A MULVANNY G2 ARCHITECTURE SITE PLAN DATED 1/2/14.

PROPOSED BUILDING DATA:

COSTCO FUEL FACILITY DATA:	
CANOPY AREA	4,864 S.F.
CONTROLLER ENCLOSURE AREA	135 S.F.
<b>TOTAL PROPOSED COSTCO FUEL FACILITY</b>	<b>4,999 S.F.</b>

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

SITE DATA:

GROSS AREA OF SITE:	102,895 S.F.	A
BUILDING FLOOR AREA:	4,999 S.F.	B
PAVEMENT AREA:	65,523 S.F.	P
TOTAL IMPERVIOUS AREA:	70,522 S.F.	TIA = B + P
IMPERVIOUS RATIO:	0.69%	IR = TIA/A

### NOTES

1. THIS PRELIMINARY SITE PLAN IS BASED ON A SITE PLAN BY MULVANNY G2 ARCHITECTURE DATED, 1/2/14. 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.

Revision  
No. Date By Ctd. Appr.

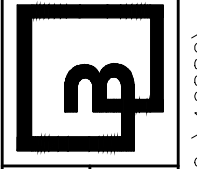
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DETAILED SITE PLAN  
7311 MELVINA AVENUE  
NILES, IL 60714  
LOCATION #383

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

Scale: Horizontal Vertical

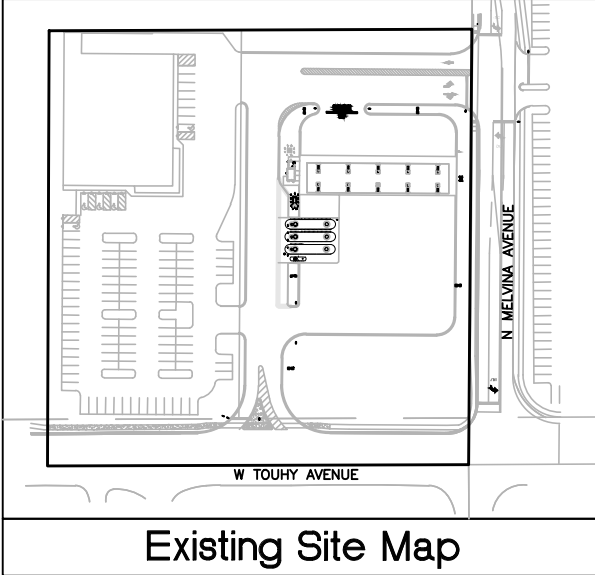
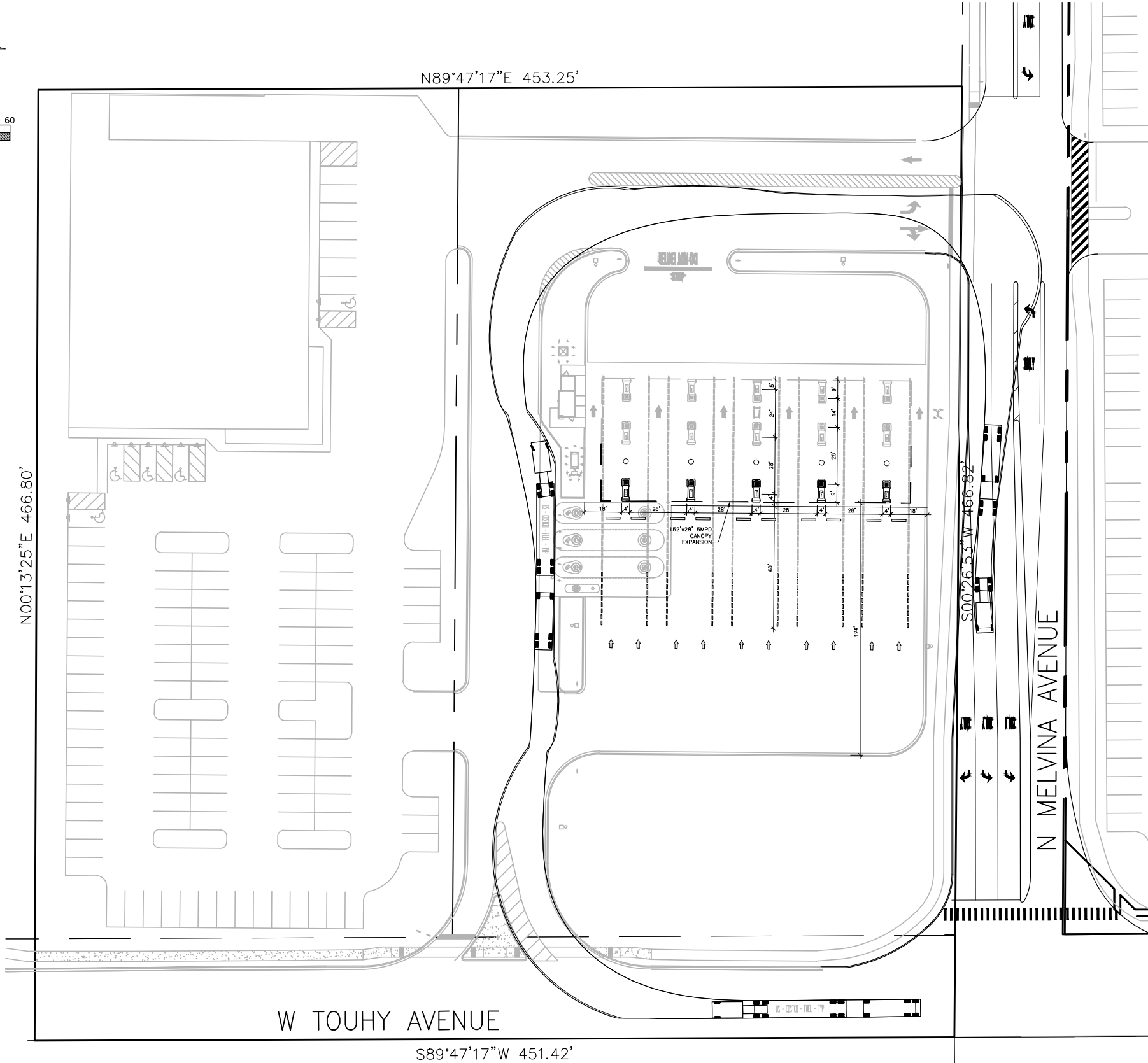
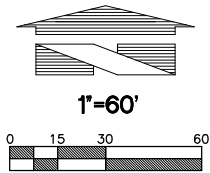
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Drawn JAS  
Checked SA  
Approved JAS  
Date 12/19/17

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222 [barghausen.com](http://barghausen.com)



BCE Job Number  
**16882**

Sheet  
**DD-2**



### PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7311 MELVINA AVENUE  
NILES, IL 60714

ZONING: B-2

FUEL FACILITY SITE AREA (LOT 1) 2.36 ACRES (102,895 S.F.)

RESIDUAL PARCEL: 1.97 ACRES (85,674 S.F.)  
(LOT 2 - PROPOSED FUTURE DEVELOPMENT)

TOUHY AVENUE EASEMENT: 0.52 ACRES (22,576 S.F.)

TOTAL SITE AREA: 4.85 ACRES (211,145 S.F.)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A MULVANNY G2 ARCHITECTURE SITE PLAN DATED 1/2/14.

PROPOSED BUILDING DATA:

COSTCO FUEL FACILITY DATA:	
CANOPY AREA	4,864 S.F.
CONTROLLER ENCLOSURE AREA	135 S.F.
<b>TOTAL PROPOSED COSTCO FUEL FACILITY</b>	<b>4,999 S.F.</b>

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

SITE DATA:

GROSS AREA OF SITE:	102,895 S.F.	A
BUILDING FLOOR AREA:	4,999 S.F.	B
PAVEMENT AREA:	65,523 S.F.	P
TOTAL IMPERVIOUS AREA:	70,522 S.F.	TIA = B + P
IMPERVIOUS RATIO:	0.69%	IR = TIA/A

### NOTES

- THIS PRELIMINARY SITE PLAN IS BASED ON A SITE PLAN BY MULVANNY G2 ARCHITECTURE DATED, 1/2/14. THIS PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CURRENT LAND SURVEY.
- 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.

No.	Date	By	Clk.	Appr.	Revision

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

Designed	SA	Scale:	Horizontal
Drawn	JAS	Vertical	
Checked	SA		
Approved			
Date	12/19/17		

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222 [barghausen.com](http://barghausen.com)



BCE Job Number	16882
Sheet	DD-4

---

# Appendix B

## Car Wash and Parking Lot Site Plan

W GROSS  
POINT RD

# PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7311 MELVINA AVE.  
NILES, ILLINOIS 60714

ZONING: COMMERCIAL / RETAIL

EXISTING SITE AREA: 10.33 ACRES (449,807 SF)  
EXISTING FUEL AREA: 2.31 ACRES (100,811 SF)  
TOTAL EXISTING AREA: 12.64 ACRES (550,618 SF)

NEW PARCEL DATA:  
GROSS AREA: ±2.96 ACRES (±128,926 SF)  
BUILDING LOT COVERAGE: ±0.11 ACRES (±4,746 SF)  
PAVEMENT LOT COVERAGE: ±1.94 ACRES (±84,548 SF)  
TOTAL IMPERVIOUS AREA: ±2.05 ACRES (±89,294 SF)  
IMPERVIOUS RATIO: 69.23%

TOTAL PROPOSED SITE AREA: ±15.60 ACRES (±679,544 SF)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A CIVIL PLAN BY JOSEPH A. SHUDT & ASSOC. DATED 12/30/94

THIS PLAN HAS BEEN UPDATED BY USING A CIVIL PLAN BY V3 DATED 06/15/18

BUILDING DATA:

EXISTING BUILDING AREA	136,625 SF
TIRE CENTER	5,200 SF
EXISTING COSTCO BUILDING	141,825 SF

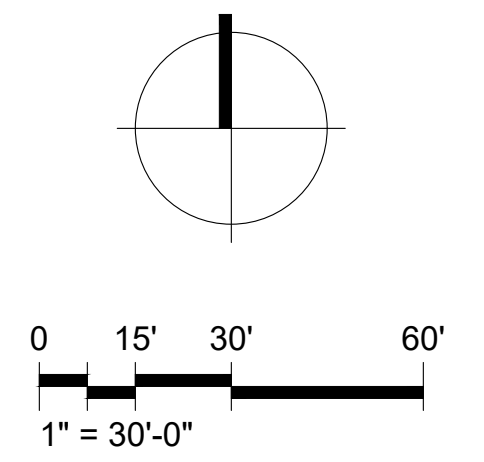
PROPOSED CAR WASH BUILDING AREA	4,746 SF
TOTAL PROPOSED BUILDING AREA	146,571 SF
ENTRANCE VESTIBULE	3,480 SF

COSTCO PARKING DATA:

# EXISTING STALLS	*564 STALLS
# EXISTING ACCESSIBLE STALLS	14 STALLS
TOTAL EXISTING PARKING	578 STALLS
* 4 REGULAR STALLS REMOVED FOR ADA SCOPE	
# PROPOSED PARKING 10' WIDE STALLS	132 STALLS
# PROPOSED ACCESSIBLE STALLS	3 STALLS
TOTAL PROPOSED PARKING	713 STALLS

NO. OF STALLS PER 1000 SF OF COSTCO BLDG AREA: (141,825 SF) 5.03 STALLS

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.



NILES, IL  
# 383

7311 MELVINA AVE. NILES, ILLINOIS  
60714

1101 Second Ave. Ste 100  
Seattle, WA 98101  
206 962 6500  
MG2.com

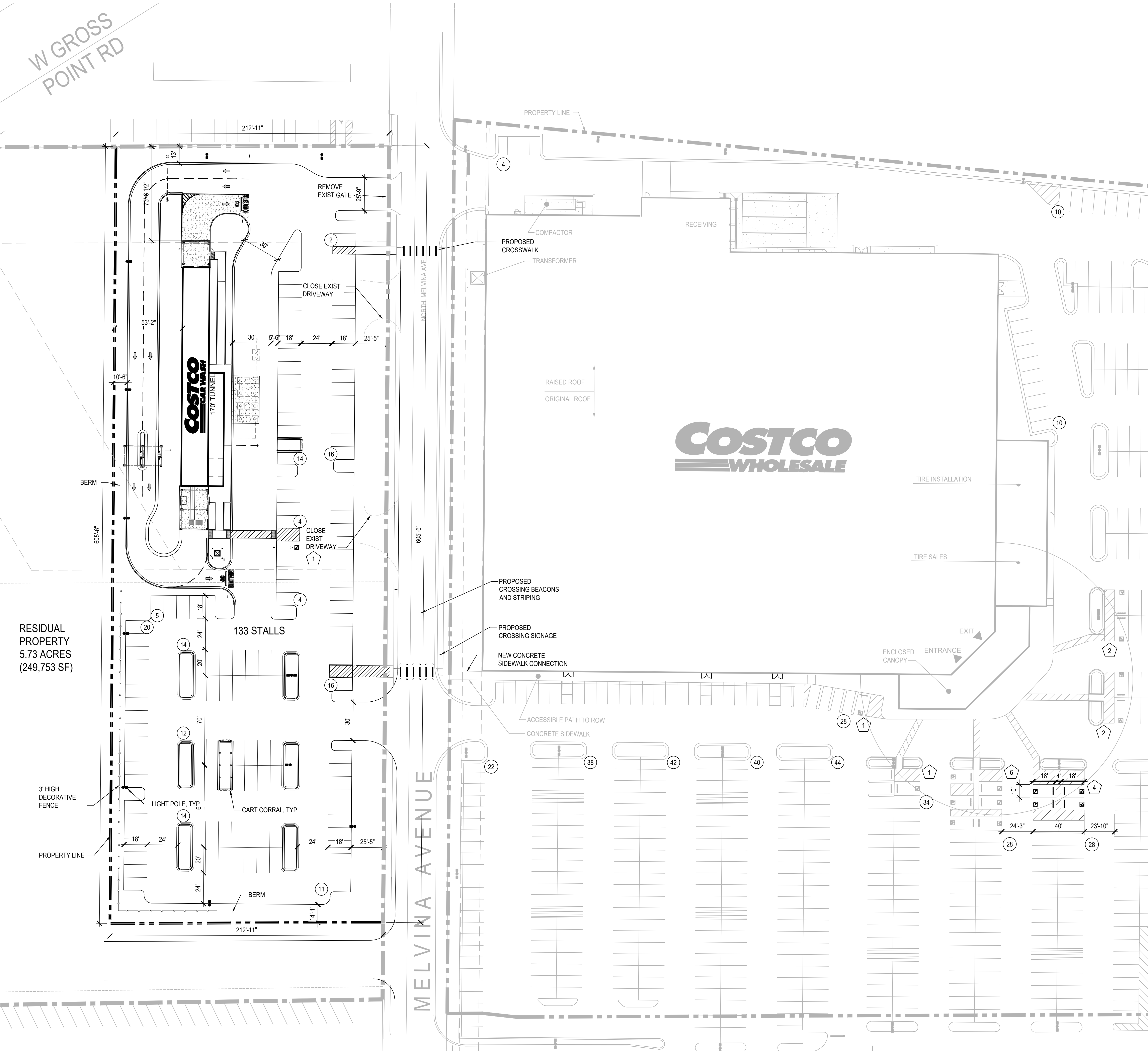


98-5090-16  
AUGUST 31, 2022

PRELIMINARY  
SITE PLAN

P12-14

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# COSTCO WHOLESALE

NILES, ILLINOIS

# ENLARGED SITE PLAN

AUGUST 31, 2022

W GROSS POINT RD

# PROJECT DATA

CLIENT: COSTCO WHOLESALE  
 999 LAKE DRIVE  
 ISSAQUAH, WA 98027

PROJECT ADDRESS: 7311 MELVINA AVE.  
 NILES, ILLINOIS 60714

ZONING: COMMERCIAL / RETAIL

EXISTING SITE AREA: 10.33 ACRES (449,807 SF)  
 EXISTING FUEL AREA: 2.31 ACRES (100,811 SF)  
 TOTAL EXISTING AREA: 12.64 ACRES (550,618 SF)

NEW PARCEL DATA:  
 GROSS AREA: ±2.96 ACRES (±128,926 SF)  
 BUILDING LOT COVERAGE: NA  
 PAVEMENT LOT COVERAGE: ±2.21 ACRES (±96,173 SF)  
 TOTAL IMPERVIOUS AREA: ±2.21 ACRES (±96,173 SF)  
 IMPERVIOUS RATIO: 74.60%

TOTAL PROPOSED SITE AREA: ±15.60 ACRES (±679,544 SF)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A CIVIL PLAN BY JOSEPH A. SHUDT & ASSOC. DATED 12/30/94

THIS PLAN HAS BEEN UPDATED BY USING A CIVIL PLAN BY V3 DATED 06/15/18

BUILDING DATA:

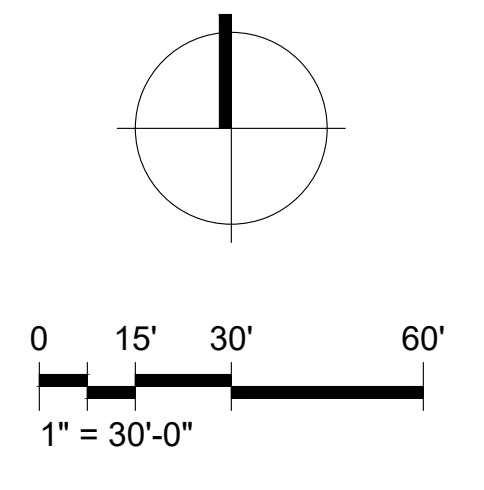
BUILDING AREA	136,625 SF
TIRE CENTER	5,200 SF
TOTAL COSTCO BUILDING	141,825 SF
ENTRANCE VESTIBULE	3,480 SF

COSTCO PARKING DATA:

# EXISTING STALLS	*564 STALLS
# EXISTING ACCESSIBLE STALLS	14 STALLS
TOTAL EXISTING PARKING	578 STALLS
* 4 REGULAR STALLS REMOVED FOR ADA SCOPE	
# PROPOSED PARKING 10' WIDE STALLS	216 STALLS
# PROPOSED ACCESSIBLE STALLS	2 STALLS
TOTAL PROPOSED PARKING	796 STALLS

NO. OF STALLS PER 1000 SF OF COSTCO BLDG AREA:(141,825 SF) 5.61 STALLS

NOTES:  
 EXISTING CONDITIONS TO BE FIELD VERIFIED.



7311 MELVINA AVE, NILES, ILLINOIS 60714

1101 Second Ave, Ste 100  
 Seattle, WA 98101  
 206 962 6500  
 MG2.com

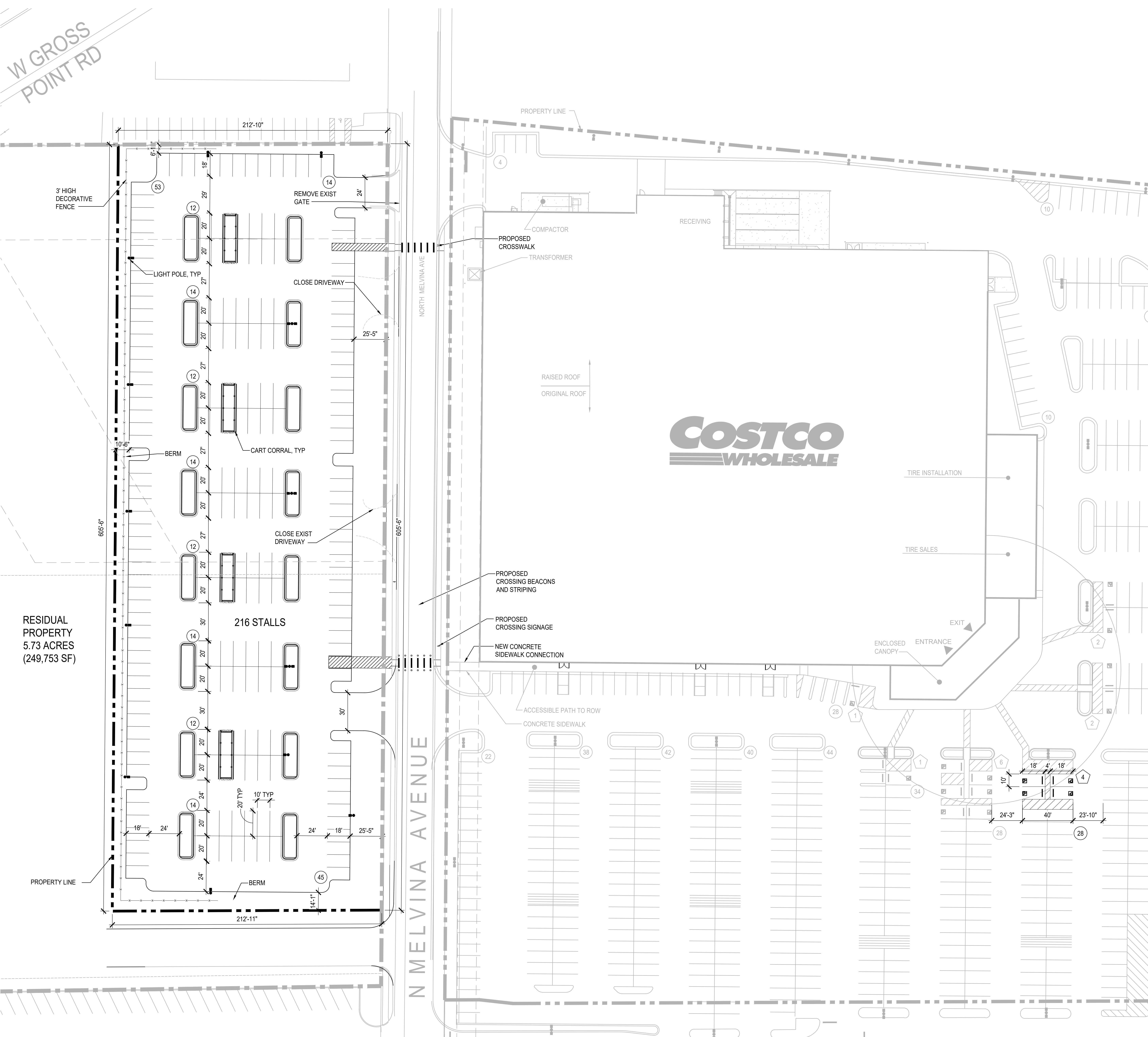


98-5090-16  
 AUGUST 31, 2022

PRELIMINARY SITE PLAN

P12-13

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RESIDUAL PROPERTY  
 5.73 ACRES  
 (249,753 SF)

216 STALLS



# COSTCO WHOLESALE

NILES, ILLINOIS

# ENLARGED SITE PLAN

AUGUST 31, 2022

---

# Appendix C

## Existing Signal Timing Data

Configuration

	Controller Sequence Priority											
	1	2	3	4	5	6	7	8	9	10	11	12
Ring 1 Phases . .	1	2	3	4	9	10	0	0	0	0	0	0
Ring 2 Phases . .	5	6	7	8	11	12	0	0	0	0	0	0

	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
In Use. . . . .	X	X	.	.	X	X	.	X	.	.	.	.
Exclusive Ped . .	.	.	.	.	.	.	.	.	.	.	.	.
Direction . . . .												

	Overlap			
	A	B	C	D
Direction . . . .				

Load Switch Channel/Driver Group Assign (Info Only):

Load Switch Channel (MMU)	Driver Phase/Ovlap	Signal Group Ped
1 . . . . .	1	.
2 . . . . .	2	.
3 . . . . .	3	.
4 . . . . .	4	.
5 . . . . .	5	.
6 . . . . .	6	.
7 . . . . .	7	.
8 . . . . .	8	.
9 . . . . .	2	X
10 . . . . .	4	X
11 . . . . .	6	X
12 . . . . .	8	X
13 . . . . .	0	.
14 . . . . .	0	.
15 . . . . .	0	.
16 . . . . .	0	.

Configuration Continued

```
-----
                Enable BIU:  1  2  3  4  5  6  7  8
Terminal/Facilities. . . . .  .  .  .  .  .  .  .  .
Detector Rack. . . . . . . . .  .  .  .  .  .  .  .

Type 2 Runs as Type 1. . . . .
MMU Disable. . . . . . . . . . X
Diagnostic Enable. . . . . .
Peer-Peer Comm Enable. . . . .

Peer To Peer Addresses . . . . .  1  2  3  4  5  6  7  8  9 10
                              . . 255 255 255 255 255 255 255 255 255 255
```

Port 2:

```
Port 2 Protocol . . . . . Terminal
Port 2 Enable . . . . . YES
AB3418 Address. . . . . 6
AB3418 Group Address. . . . . 0
AB3418 Response Delay . . . . . 0
AB3418 Single Flag Enable . . . NO
AB3418 Drop-Out Time. . . . . 0
AB3418 TOD SF Select. . . . . 0
Data Rate . . . . . 1200 bps
Data, Parity, Stop. . . . . 8, 0, 1
```

Port 3:

```
Port 3 Protocol . . . . . Telemetry
Port 3 Enable . . . . . YES
Telemetry Address . . . . . 6
System Detector 9-16 Address. . 0
Telemetry Response Delay. . . . 1
AB3418 Address. . . . . 0
AB3418 Group Address. . . . . 0
AB3418 Response Delay . . . . . 0
AB3418 Single Flag Enable . . . NO
AB3418 Drop-Out Time. . . . . 0
AB3418 TOD SF Select. . . . . 0
Duplex. . . . . Full
Data Rate . . . . . 9600 bps
Data, Parity, Stop. . . . . 8, 0, 1
```



Configuration Continued

Event Enabling		Alarm Enabling	
Critical RFE'S (MMU/TF)	X	ALARM 1	X
Non-Critical RFE'S (DET/TEST)	X	ALARM 2	X
Detector Errors	X	ALARM 3	.
Coordination Errors	X	ALARM 4	.
MMU Flash Faults	X	ALARM 5	.
Local Flash Faults	X	ALARM 6	.
Preempt	X	ALARM 7	.
Power On/Off	X	ALARM 8	.
Low Battery	X	ALARM 9	.
		ALARM 10	.
		ALARM 11	.
		ALARM 12	.
		ALARM 13	.
		ALARM 14	.
		ALARM 15	.
		ALARM 16	.

Supervisor Access Code . . . \*\*\*\*  
 Data Change Access Code . . . \*\*\*\*

MMU Compatibility Program (Info Only)

Channel	Is Allowed to Time With Channel														
	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Version Info:		
Software Assy.	Part No.	Version
Boot	27831	2.23
Program	27871	4.9
Application		. 3
Help	27891	4.63
Configuration	27908	C000

## By-Phase Timing Data

Direction	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
Minimum Green	3	15	0	0	3	15	0	8	0	0	0	0
Bike Min Green	0	0	0	0	0	0	0	0	0	0	0	0
Cond Serv Min Grn	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	12	0	0	0	0	0	7	0	0	0	0
Ped Clearance	0	10	0	0	0	0	0	18	0	0	0	0
Veh Extension	3.0	7.0	0.0	0.0	3.0	7.0	0.0	4.0	0.0	0.0	0.0	0.0
Alt Veh Exten	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Extension	0	0	0	0	0	0	0	0	0	0	0	0
Max 1	15	60	0	0	15	60	0	20	0	0	0	0
Max 2	15	60	0	0	15	60	0	20	0	0	0	0
Max 3	0	0	0	0	0	0	0	0	0	0	0	0
Det. Fail Max	9	30	0	0	9	30	0	20	0	0	0	0
Yellow Change	3.5	4.5	3.5	3.0	3.5	4.5	3.5	4.5	3.0	3.0	3.0	3.0
Red Clearance	0.0	1.5	0.0	0.0	0.0	1.5	0.0	1.5	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0
Act. B4 Init	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0
Time B4 Reduction	0	25	0	0	0	25	0	9	0	0	0	0
Cars Waiting	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	20	0	0	0	20	0	6	0	0	0	0
Minimum Gap	0.0	4.0	0.0	0.0	0.0	4.0	0.0	2.0	0.0	0.0	0.0	0.0

Coordination Patterns

-----

Pattern 1  
Cycle Length . . . 130 COS . . . . . 111  
Offset . . . . . 77  
Vehicle Permissive . . [1] 0 [2] 0  
Vehicle Perm 2 Displacement 0 Phase Reservice. . NO  
Splits: Phase 1- 11 2- 68 3- 0 4- 0  
Phase 5- 11 6- 68 7- 0 8- 21  
Phase 9- 0 10- 0 11- 0 12- 0 Split Sum: 0  
Split Extension/Ring [1] 0 [2] 0  
Split Demand Pattern [1] 0 [2] 0  
XRT Pattern. . . 0  
Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12  
Coord Phases . . . X . . . X . . . . .  
Veh Recall . . . . . . . . . . . . . . .  
Veh Max Recall . . . . . . . . . . . . . . .  
Ped Recall . . . . . . . . . . . . . . .  
Veh Omit . . . . . . . . . . . . . . .  
Alt Sequence . . A: . B: . C: . D: . E: . F: .

-----

Pattern 2  
Cycle Length . . . 130 COS . . . . . 211  
Offset . . . . . 48  
Vehicle Permissive . . [1] 0 [2] 0  
Vehicle Perm 2 Displacement 0 Phase Reservice. . NO  
Splits: Phase 1- 10 2- 71 3- 0 4- 0  
Phase 5- 10 6- 71 7- 0 8- 19  
Phase 9- 0 10- 0 11- 0 12- 0 Split Sum: 0  
Split Extension/Ring [1] 0 [2] 0  
Split Demand Pattern [1] 0 [2] 0  
XRT Pattern. . . 0  
Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12  
Coord Phases . . . X . . . X . . . . .  
Veh Recall . . . . . . . . . . . . . . .  
Veh Max Recall . . . . . . . . . . . . . . .  
Ped Recall . . . . . . . . . . . . . . .  
Veh Omit . . . . . . . . . . . . . . .  
Alt Sequence . . A: . B: . C: . D: . E: . F: .

-----

Pattern 3  
Cycle Length . . . 150 COS . . . . . 311  
Offset . . . . . 32  
Vehicle Permissive . . [1] 0 [2] 0  
Vehicle Perm 2 Displacement 0 Phase Reservice. . NO  
Splits: Phase 1- 9 2- 74 3- 0 4- 0  
Phase 5- 9 6- 74 7- 0 8- 17  
Phase 9- 0 10- 0 11- 0 12- 0 Split Sum: 0  
Split Extension/Ring [1] 0 [2] 0  
Split Demand Pattern [1] 0 [2] 0  
XRT Pattern. . . 0  
Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12  
Coord Phases . . . X . . . X . . . . .  
Veh Recall . . . X . . . X . . . . .  
Veh Max Recall . . . . . . . . . . . . . . .  
Ped Recall . . . . . . . . . . . . . . .  
Veh Omit . . . . . . . . . . . . . . .  
Alt Sequence . . A: . B: . C: . D: . E: . F: .

-----

NIC Program Steps

---

Step	Program	Step Begins	Pattern	Override
1	1	0600	2	NO
2	1	0930	1	NO
3	1	1400	3	NO
4	1	1900	1	NO
5	1	2300	0	NO
6	2	0700	1	NO
7	2	2300	0	NO
8	3	0900	1	NO
9	3	2200	0	NO

Configuration

	Controller Sequence Priority											
	1	2	3	4	5	6	7	8	9	10	11	12
Ring 1 Phases . .	1	2	3	4	9	10	0	0	0	0	0	0
Ring 2 Phases . .	5	6	7	8	11	12	0	0	0	0	0	0

	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
In Use. . . . .	X	X	.	X	X	X	X	X	.	.	.	.
Exclusive Ped . .	.	.	.	.	.	.	.	.	.	.	.	.
Direction . . . .												

	Overlap			
	A	B	C	D
Direction . . . .				

Load Switch Channel/Driver Group Assign (Info Only):

Load Switch Channel (MMU)	Driver Phase/Ovlap	Signal Group Ped
1 . . . . .	1	.
2 . . . . .	2	.
3 . . . . .	3	.
4 . . . . .	4	.
5 . . . . .	5	.
6 . . . . .	6	.
7 . . . . .	7	.
8 . . . . .	8	.
9 . . . . .	2	X
10 . . . . .	4	X
11 . . . . .	6	X
12 . . . . .	8	X
13 . . . . .	0	.
14 . . . . .	0	.
15 . . . . .	0	.
16 . . . . .	0	.

Configuration Continued

```

-----
                Enable BIU: 1 2 3 4 5 6 7 8
Terminal/Facilities . . . . . . . . . .
Detector Rack . . . . . . . . . .

Type 2 Runs as Type 1 . . . . .
MMU Disable . . . . . X
Diagnostic Enable . . . . .
Peer-Peer Comm Enable . . . . .

Peer To Peer Addresses . . . 1 2 3 4 5 6 7 8 9 10
                           . . 255 255 255 255 255 255 255 255 255 255

```

Port 2:

```

Port 2 Protocol . . . . . Terminal
Port 2 Enable . . . . . YES
AB3418 Address . . . . . 7
AB3418 Group Address . . . . . 0
AB3418 Response Delay . . . . . 0
AB3418 Single Flag Enable . . . NO
AB3418 Drop-Out Time . . . . . 0
AB3418 TOD SF Select . . . . . 0
Data Rate . . . . . 1200 bps
Data, Parity, Stop . . . . . 8, 0, 1

```

Port 3:

```

Port 3 Protocol . . . . . Telemetry
Port 3 Enable . . . . . YES
Telemetry Address . . . . . 7
System Detector 9-16 Address . . 0
Telemetry Response Delay . . . . 1
AB3418 Address . . . . . 1
AB3418 Group Address . . . . . 0
AB3418 Response Delay . . . . . 0
AB3418 Single Flag Enable . . . NO
AB3418 Drop-Out Time . . . . . 0
AB3418 TOD SF Select . . . . . 0
Duplex . . . . . Full
Data Rate . . . . . 9600 bps
Data, Parity, Stop . . . . . 8, 0, 1

```

Configuration Continued

Event Enabling		Alarm Enabling	
Critical RFE'S (MMU/TF)	X	ALARM 1	X
Non-Critical RFE'S (DET/TEST)	X	ALARM 2	X
Detector Errors	X	ALARM 3	.
Coordination Errors	X	ALARM 4	.
MMU Flash Faults	X	ALARM 5	.
Local Flash Faults	X	ALARM 6	.
Preempt	X	ALARM 7	.
Power On/Off	X	ALARM 8	.
Low Battery	X	ALARM 9	.
		ALARM 10	.
		ALARM 11	.
		ALARM 12	.
		ALARM 13	.
		ALARM 14	.
		ALARM 15	.
		ALARM 16	.

Supervisor Access Code . . . \*\*\*\*  
 Data Change Access Code . . . \*\*\*\*

MMU Compatibility Program (Info Only)

Channel	Is Allowed to Time With Channel														
	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Version Info:		
Software Assy.	Part No.	Version
Boot	27831	2.23
Program	27871	4.9
Application		. 3
Help	27891	4.63
Configuration	27908	C000

## By-Phase Timing Data

Direction	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
Minimum Green	3	15	0	8	3	15	3	6	0	0	0	0
Bike Min Green	0	0	0	0	0	0	0	0	0	0	0	0
Cond Serv Min Grn	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	0	0	0	0	0
Ped Clearance	0	13	0	18	0	20	0	7	0	0	0	0
Veh Extension	2.5	7.0	0.0	4.0	2.5	7.0	2.5	4.0	0.0	0.0	0.0	0.0
Alt Veh Exten	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Extension	0	0	0	0	0	0	0	0	0	0	0	0
Max 1	20	55	0	30	20	55	20	20	0	0	0	0
Max 2	20	55	0	30	20	55	20	20	0	0	0	0
Max 3	0	0	0	0	0	0	0	0	0	0	0	0
Det. Fail Max	9	30	0	20	9	30	9	20	0	0	0	0
Yellow Change	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5	3.0	3.0	3.0	3.0
Red Clearance	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0
Act. B4 Init	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0
Time B4 Reduction	0	25	0	9	0	25	9	9	0	0	0	0
Cars Waiting	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	20	0	6	0	20	6	6	0	0	0	0
Minimum Gap	0.0	3.5	0.0	2.0	0.0	3.5	2.0	2.5	0.0	0.0	0.0	0.0



Coordination Patterns

```

-----
Pattern 1
Cycle Length . . . 130   COS . . . . . 111
Offset . . . . . 49
Vehicle Permissive . . [1]    0   [2]    0
Vehicle Perm 2 Displacement 0   Phase Reservice. . NO
Splits:   Phase 1- 10 2- 51 3- 0 4- 39
           Phase 5- 18 6- 43 7- 22 8- 17
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1]    0   [2]    0
Split Demand Pattern [1]    0   [2]    0
XRT Pattern. . . 0
  Phase Number:  1   2   3   4   5   6   7   8   9  10  11  12
Coord Phases . . . X . . . . X . . . . .
Veh Recall . . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
    
```

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Pattern 2
Cycle Length . . . 130   COS . . . . . 211
Offset . . . . . 4
Vehicle Permissive . . [1]    0   [2]    0
Vehicle Perm 2 Displacement 0   Phase Reservice. . NO
Splits:   Phase 1- 10 2- 67 3- 0 4- 23
           Phase 5- 12 6- 65 7- 9 8- 14
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1]    0   [2]    0
Split Demand Pattern [1]    0   [2]    0
XRT Pattern. . . 0
  Phase Number:  1   2   3   4   5   6   7   8   9  10  11  12
Coord Phases . . . X . . . . X . . . . .
Veh Recall . . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
    
```

```

-----
Pattern 3
Cycle Length . . . 150   COS . . . . . 311
Offset . . . . . 8
Vehicle Permissive . . [1]    0   [2]    0
Vehicle Perm 2 Displacement 0   Phase Reservice. . NO
Splits:   Phase 1- 9 2- 55 3- 0 4- 36
           Phase 5- 16 6- 48 7- 20 8- 16
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1]    0   [2]    0
Split Demand Pattern [1]    0   [2]    0
XRT Pattern. . . 0
  Phase Number:  1   2   3   4   5   6   7   8   9  10  11  12
Coord Phases . . . X . . . . X . . . . .
Veh Recall . . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
    
```

NIC Program Steps

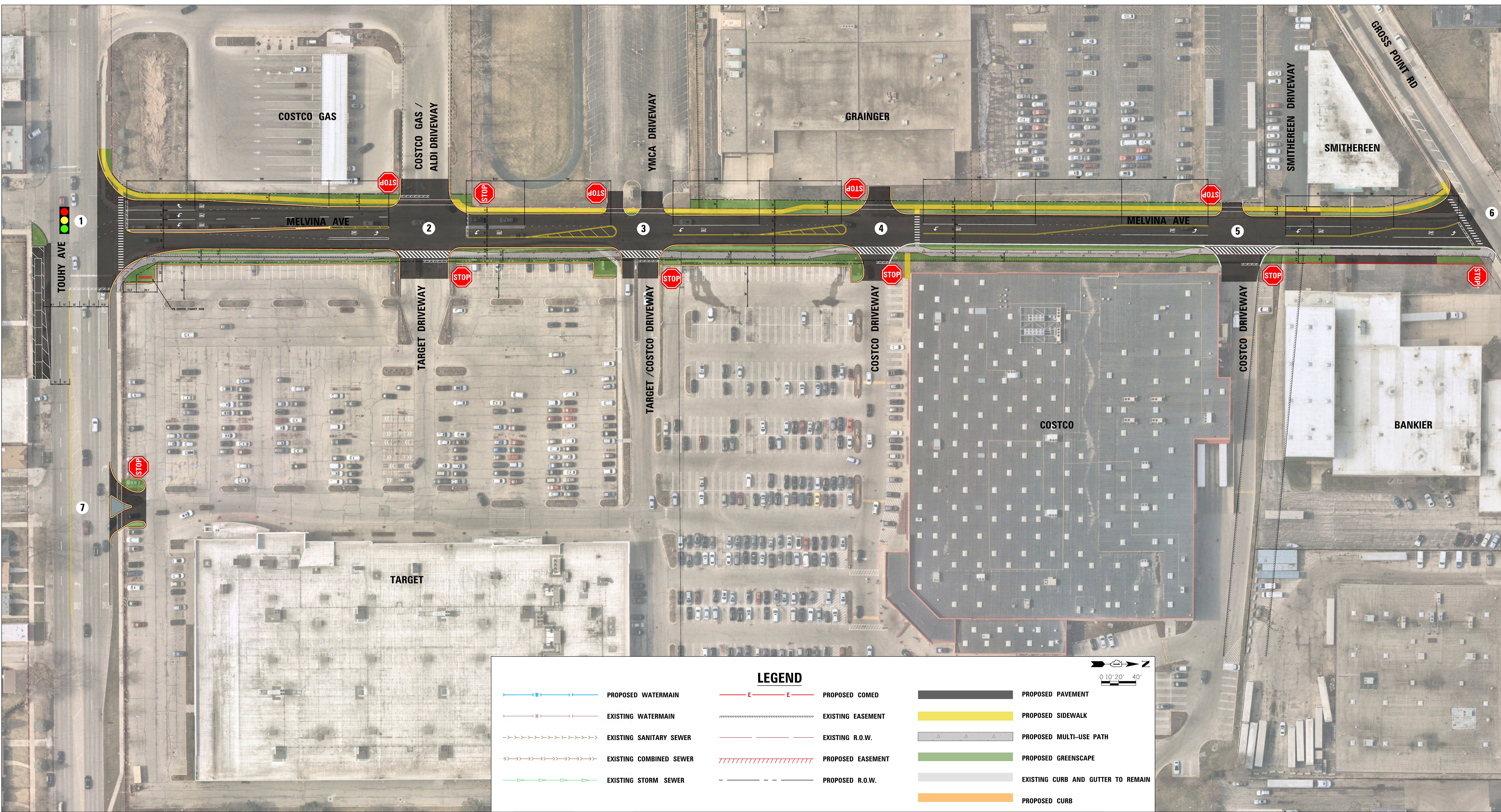
-----

Step	Program	Step Begins	Pattern	Override
1	1	0600	2	NO
2	1	0930	1	NO
3	1	1400	3	NO
4	1	1900	1	NO
5	1	2300	0	NO
6	2	0700	1	NO
7	2	2300	0	NO
8	3	0900	1	NO
9	3	2200	0	NO

---

# Appendix D

Melvina Avenue Exhibit Alternative 3.1



**LEGEND**

	PROPOSED WATERMAIN		PROPOSED COMED		PROPOSED PAVEMENT
	EXISTING WATERMAIN		EXISTING EASEMENT		PROPOSED SIDEWALK
	EXISTING SANITARY SEWER		EXISTING R.O.W.		PROPOSED MULTI-USE PATH
	EXISTING COMBINED SEWER		PROPOSED EASEMENT		PROPOSED GREENSCAPE
	EXISTING STORM SEWER		PROPOSED R.O.W.		EXISTING CURB AND GUTTER TO REMAIN
					PROPOSED CURB

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# Appendix E

## Existing Conditions Traffic Count Data



Leg Direction Start Time	Access Westbound			Melvina Northbound						Melvina Southbound						Int	Total				
	Left	Right	U-Turn	App Total	Peds	CW	Peds	CC\Thru	Right	U-Turn	App Total	Peds	CW	Peds	CC\Left			Thru	U-Turn	App Total	Peds
2021-07-03 11:00:00		43	17	0	60	3	0	37	42	0	79	0	0	29	36	0	65	0	1	204	
2021-07-03 11:15:00		41	22	0	63	0	0	59	54	0	113	0	0	26	28	0	54	3	1	230	
2021-07-03 11:30:00		40	17	0	57	0	0	42	34	0	76	0	0	17	29	0	46	5	1	179	
2021-07-03 11:45:00		36	14	0	50	0	2	39	46	0	85	0	1	17	34	0	51	1	2	186	
2021-07-03 12:00:00		38	20	0	58	1	0	57	43	0	100	0	0	27	36	0	63	0	2	221	
2021-07-03 12:15:00		41	19	0	60	0	0	45	39	0	84	0	0	13	37	0	50	12	1	194	
2021-07-03 12:30:00		38	21	0	59	0	0	40	36	0	76	0	0	22	32	0	54	0	8	189	
2021-07-03 12:45:00		32	43	0	75	0	0	16	24	0	40	0	0	23	29	0	52	0	2	167	
<b>Grand Total</b>		309	173	0	482	4	2	335	318	0	653	0	1	174	261	0	435	21	18	1570	
<b>% Approach</b>		64.1%	35.9%	0.0%				51.3%	48.7%	0.0%				40.0%	60.0%	0.0%					
<b>% Total</b>		19.7%	11.0%	0.0%	30.7%			21.3%	20.3%	0.0%	41.6%			11.1%	16.6%	0.0%	27.7%				
<b>Lights</b>		309	173	0	482			331	318	0	649			174	260	0	434			1565	
<b>% Lights</b>		100.0%	100.0%	0.0%	100.0%			98.8%	100.0%	0.0%	99.4%			100.0%	99.6%	0.0%	99.8%			99.7%	
<b>Articulated Trucks</b>		0	0	0	0			0	0	0	0			0	0	0	0			0	
<b>% Articulated Trucks</b>		0.0%	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%			0.0%	
<b>Buses and Single-Unit Trucks</b>		0	0	0	0			4	0	0	4			0	1	0	1			5	
<b>% Buses and Single-Unit Trucks</b>		0.0%	0.0%	0.0%	0.0%			1.2%	0.0%	0.0%	0.6%			0.0%	0.4%	0.0%	0.2%			0.3%	
<b>Pedestrians</b>						4	2					0	1					21	18		
<b>% Pedestrians</b>						100.0%	100.0%					0.0%	100.0%					100.0%	100.0%		
<b>Bicycles on Crosswalk</b>						0	0					0	0					0	0		
<b>% Bicycles on Crosswalk</b>						0.0%	0.0%					0.0%	0.0%					0.0%	0.0%		

Leg Direction Start Time	Access Westbound			Melvina Northbound						Melvina Southbound						Int	Total				
	Left	Right	U-Turn	App Total	Peds	CW	Peds	CC\Thru	Right	U-Turn	App Total	Peds	CW	Peds	CC\Left			Thru	U-Turn	App Total	Peds
2021-07-01 07:00:00		1	0	0	1	1	0	11	0	0	11	0	0	0	7	0	7	0	0	19	
2021-07-01 07:15:00		1	0	0	1	0	0	7	0	0	7	0	0	0	6	0	6	0	1	14	
2021-07-01 07:30:00		0	0	0	0	0	0	17	3	0	20	0	0	0	8	0	8	0	0	28	
2021-07-01 07:45:00		2	1	0	3	0	0	29	1	0	30	0	0	0	14	0	14	0	0	47	
2021-07-01 08:00:00		0	0	0	0	0	1	17	0	0	17	0	0	0	25	0	25	0	0	42	
2021-07-01 08:15:00		1	1	0	2	0	1	17	2	0	19	0	0	2	15	0	17	0	1	38	
2021-07-01 08:30:00		2	1	0	3	0	0	25	5	0	30	0	0	0	17	0	17	0	0	50	
2021-07-01 08:45:00		3	1	0	4	0	0	24	5	0	29	0	0	3	28	0	31	0	0	64	
2021-07-01 16:00:00		20	16	0	36	0	0	42	24	0	66	0	0	26	48	0	74	0	0	176	
2021-07-01 16:15:00		41	16	0	57	0	0	46	23	0	69	0	0	20	41	0	61	2	2	187	
2021-07-01 16:30:00		30	7	0	37	0	0	40	27	0	67	0	0	25	47	0	72	0	3	176	
2021-07-01 16:45:00		36	16	0	52	0	0	45	22	0	67	0	0	18	29	0	47	0	0	166	
2021-07-01 17:00:00		47	26	0	73	0	0	46	29	0	75	0	0	11	54	0	65	1	4	213	
2021-07-01 17:15:00		29	12	0	41	0	0	41	28	0	69	0	0	23	49	0	72	0	4	182	
2021-07-01 17:30:00		31	23	0	54	1	0	35	36	0	71	0	0	12	33	0	45	0	4	170	
2021-07-01 17:45:00		21	12	0	33	0	0	43	42	0	85	0	0	16	36	0	52	0	0	170	
<b>Grand Total</b>		265	132	0	397	2	2	485	247	0	732	0	0	156	457	0	613	3	19	1742	
<b>% Approach</b>		66.8%	33.2%	0.0%				66.3%	33.7%	0.0%				25.4%	74.6%	0.0%					
<b>% Total</b>		15.2%	7.6%	0.0%	22.8%			27.8%	14.2%	0.0%	42.0%			9.0%	26.2%	0.0%	35.2%				
<b>Lights</b>		262	131	0	393			477	243	0	720			156	448	0	604			1717	
<b>% Lights</b>		98.9%	99.2%	0.0%	99.0%			98.4%	98.4%	0.0%	98.4%			100.0%	98.0%	0.0%	98.5%			98.6%	
<b>Articulated Trucks</b>		2	0	0	2			0	2	0	2			0	3	0	3			7	
<b>% Articulated Trucks</b>		0.8%	0.0%	0.0%	0.5%			0.0%	0.8%	0.0%	0.3%			0.0%	0.7%	0.0%	0.5%			0.4%	
<b>Buses and Single-Unit Trucks</b>		1	1	0	2			8	2	0	10			0	6	0	6			18	
<b>% Buses and Single-Unit Trucks</b>		0.4%	0.8%	0.0%	0.5%			1.6%	0.8%	0.0%	1.4%			0.0%	1.3%	0.0%	1.0%			1.0%	
<b>Pedestrians</b>						2	2					0	0					3	18		
<b>% Pedestrians</b>						100.0%	100.0%					0.0%	0.0%					100.0%	94.7%		
<b>Bicycles on Crosswalk</b>						0	0					0	0					0	1		
<b>% Bicycles on Crosswalk</b>						0.0%	0.0%					0.0%	0.0%					0.0%	5.3%		

Leg Direction Start Time	Access Eastbound				Target Westbound				Melvina Northbound				Melvina Southbound				App Total	Peds CW	Peds CCW	Int Total						
	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn										
					App Total	Peds CW	Peds CCW		App Total	Peds CW	Peds CCW		App Total	Peds CW	Peds CCW						App Total	Peds CW	Peds CCW			
2021-07-01 07:00:00	0	0	0	0	0	0	0	1	0	0	0	1	0	12	1	0	0	13	0	0	0	8	0	0	22	
2021-07-01 07:15:00	0	0	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	7	0	0	2	5	0	0	15	
2021-07-01 07:30:00	0	0	0	0	0	1	0	1	0	1	0	2	0	0	0	0	20	0	0	0	8	0	0	30		
2021-07-01 07:45:00	0	0	1	0	1	1	1	1	0	0	0	1	0	0	0	31	0	0	0	4	12	0	0	49		
2021-07-01 08:00:00	0	0	1	0	1	0	0	0	0	0	0	0	0	17	0	0	0	17	0	0	9	16	0	0	43	
2021-07-01 08:15:00	0	0	0	0	0	1	0	2	0	2	0	4	1	15	0	1	1	16	0	0	1	15	0	0	36	
2021-07-01 08:30:00	0	0	0	0	0	0	0	4	0	1	0	5	0	29	2	0	0	31	0	0	4	16	0	0	56	
2021-07-01 08:45:00	0	0	1	0	1	0	0	2	0	3	0	5	0	27	3	0	0	30	0	0	6	23	2	0	67	
2021-07-01 16:00:00	1	1	2	0	4	0	1	53	0	14	0	67	0	53	36	0	0	89	0	0	11	56	0	0	227	
2021-07-01 16:15:00	0	0	0	0	0	0	0	41	0	14	0	55	0	53	28	0	0	81	0	0	7	76	0	0	219	
2021-07-01 16:30:00	0	0	0	0	0	0	5	40	0	18	0	58	0	49	24	0	0	73	0	0	11	65	1	0	208	
2021-07-01 16:45:00	1	0	3	0	4	0	0	42	0	13	0	55	0	56	21	0	1	78	0	0	6	55	2	0	200	
2021-07-01 17:00:00	0	1	4	0	5	0	0	42	0	20	0	62	0	51	22	0	1	74	0	0	18	85	0	0	244	
2021-07-01 17:15:00	1	0	1	0	2	0	0	53	0	13	0	66	0	55	23	0	0	78	0	0	9	67	0	0	222	
2021-07-01 17:30:00	0	0	2	0	2	0	1	47	1	6	0	54	1	69	14	0	0	83	0	0	7	55	1	0	202	
2021-07-01 17:45:00	0	0	0	0	0	0	0	46	0	12	0	58	0	74	16	0	0	90	0	0	6	54	0	0	208	
<b>Grand Total</b>	3	2	15	0	20	3	10	376	1	117	0	494	1	1	3	618	190	0	811	0	0	101	616	6	0	2048
<b>% Approach</b>	15.0%	10.0%	75.0%	0.0%				76.1%	0.2%	23.7%	0.0%			0.4%	76.2%	23.4%	0.0%			14.0%	85.2%	0.8%	0.0%			
<b>% Total</b>	0.1%	0.1%	0.7%	0.0%	1.0%			18.4%	0.0%	5.7%	0.0%	24.1%		0.1%	30.2%	9.3%	0.0%	39.6%		4.9%	30.1%	0.3%	0.0%	35.3%		
<b>Lights</b>	3	2	13	0	18			369	1	116	0	486		3	609	190	0	802		101	607	5	0	713	2019	
<b>% Lights</b>	100.0%	100.0%	86.7%	0.0%	90.0%			98.1%	100.0%	99.1%	0.0%	98.4%		100.0%	98.5%	100.0%	0.0%	98.9%		100.0%	98.5%	83.3%	0.0%	98.6%	98.6%	
<b>Articulated Trucks</b>	0	0	0	0	0			2	0	0	0	2		0	1	0	0	1		0	5	0	0	5	8	
<b>% Articulated Trucks</b>	0.0%	0.0%	0.0%	0.0%	0.0%			0.5%	0.0%	0.0%	0.0%	0.4%		0.0%	0.2%	0.0%	0.0%	0.1%		0.0%	0.8%	0.0%	0.0%	0.7%	0.4%	
<b>Buses and Single-Unit Trucks</b>	0	0	2	0	2			5	0	1	0	6		0	8	0	0	8		0	4	1	0	5	21	
<b>% Buses and Single-Unit Trucks</b>	0.0%	0.0%	13.3%	0.0%	10.0%			1.3%	0.0%	0.9%	0.0%	1.2%		0.0%	1.3%	0.0%	0.0%	1.0%		0.0%	0.6%	16.7%	0.0%	0.7%	1.0%	
<b>Pedestrians</b>						3	10						1	1					0	0				0	0	
<b>% Pedestrians</b>						100.0%	100.0%						100.0%	100.0%					0.0%	0.0%				0.0%	0.0%	
<b>Bicycles on Crosswalk</b>						0	0						0	0					0	0				0	0	
<b>% Bicycles on Crosswalk</b>						0.0%	0.0%						0.0%	0.0%					0.0%	0.0%				0.0%	0.0%	

Leg Direction Start Time	Access Eastbound				Target Westbound				Melvina Northbound				Melvina Southbound				App Total	Peds CW	Peds CCW	Int Total						
	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn										
					App Total	Peds CW	Peds CCW		App Total	Peds CW	Peds CCW		App Total	Peds CW	Peds CCW						App Total	Peds CW	Peds CCW			
2021-07-03 11:00:00	0	1	4	0	5	0	0	54	0	11	0	65	1	0	63	25	0	89	0	0	11	69	2	0	241	
2021-07-03 11:15:00	1	0	0	0	1	0	0	51	2	19	0	72	0	0	93	30	0	123	0	0	4	63	1	0	264	
2021-07-03 11:30:00	0	0	2	0	2	1	0	60	2	22	1	85	0	0	52	36	0	88	0	0	10	62	4	0	251	
2021-07-03 11:45:00	0	1	3	0	4	1	0	42	1	16	0	59	0	2	71	29	0	100	0	0	5	61	2	0	231	
2021-07-03 12:00:00	0	1	2	0	3	0	0	55	3	34	2	94	0	0	71	53	0	124	0	0	11	59	6	0	297	
2021-07-03 12:15:00	1	1	1	0	3	0	0	51	2	18	1	72	0	0	69	35	0	104	0	0	7	75	1	0	262	
2021-07-03 12:30:00	2	0	3	0	5	0	0	56	3	10	0	69	0	1	66	41	0	108	0	0	7	62	2	0	253	
2021-07-03 12:45:00	0	2	4	0	6	0	0	46	8	8	7	69	0	0	44	36	1	83	0	0	4	51	9	0	222	
<b>Grand Total</b>	4	6	19	0	29	2	0	415	21	138	11	585	1	2	4	529	285	1	819	0	0	59	502	27	0	2021
<b>% Approach</b>	13.8%	20.7%	65.5%	0.0%				70.9%	3.6%	23.6%	1.9%			0.5%	64.6%	34.8%	0.1%			10.0%	85.4%	4.6%	0.0%			
<b>% Total</b>	0.2%	0.3%	0.9%	0.0%	1.4%			20.5%	1.0%	6.8%	0.5%	28.9%		0.2%	26.2%	14.1%	0.0%	40.5%		2.9%	24.8%	1.3%	0.0%	29.1%		
<b>Lights</b>	4	6	19	0	29			413	21	138	11	583		4	526	283	1	814		58	502	27	0	587	2013	
<b>% Lights</b>	100.0%	100.0%	100.0%	0.0%	100.0%			99.5%	100.0%	100.0%	100.0%	99.7%		100.0%	99.4%	99.3%	100.0%	99.4%		98.3%	100.0%	100.0%	0.0%	99.8%	99.6%	
<b>Articulated Trucks</b>	0	0	0	0	0			2	0	0	0	2		0	0	0	0	0		0	0	0	0	0	2	
<b>% Articulated Trucks</b>	0.0%	0.0%	0.0%	0.0%	0.0%			0.5%	0.0%	0.0%	0.0%	0.3%		0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	
<b>Buses and Single-Unit Trucks</b>	0	0	0	0	0			0	0	0	0	0		0	3	2	0	5		1	0	0	0	1	6	
<b>% Buses and Single-Unit Trucks</b>	0.0%	0.0%	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.6%	0.7%	0.0%	0.6%		1.7%	0.0%	0.0%	0.0%	0.2%	0.3%	
<b>Pedestrians</b>						2	0						1	2					0	0				0	2	
<b>% Pedestrians</b>						100.0%	0.0%						100.0%	100.0%					0.0%	0.0%				0.0%	66.7%	
<b>Bicycles on Crosswalk</b>						0	0						0	0					0	0				0	1	
<b>% Bicycles on Crosswalk</b>						0.0%	0.0%						0.0%	0.0%					0.0%	0.0%				0.0%	33.3%	





# Melvina Ave & Touhy Ave

## Road Volumes

TMV Interval	Movement Eastbound				Westbound				Northbound				Southbound				Grand Total
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
7/1/2021 7:00	0	0	4	0	0	0	3	0	0	0	0	0	0	1	0	0	8
7/1/2021 7:15	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	1	8
7/1/2021 7:30	0	1	4	0	0	0	3	0	0	0	0	0	0	0	0	0	8
7/1/2021 7:45	0	0	2	1	0	0	3	0	0	0	0	0	0	0	0	1	7
7/1/2021 8:00	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	1	7
7/1/2021 8:15	0	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	7
7/1/2021 8:30	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	1	14
7/1/2021 8:45	0	0	7	0	0	0	4	0	0	0	0	0	0	1	0	0	12
7/1/2021 16:00	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	1	6
7/1/2021 16:15	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4
7/1/2021 16:30	0	0	2	0	0	0	6	0	0	0	0	0	0	0	0	0	8
7/1/2021 16:45	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4
7/1/2021 17:00	0	0	3	0	0	0	7	0	0	0	0	0	0	0	0	0	10
7/1/2021 17:15	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5
7/1/2021 17:30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7/1/2021 17:45	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5
7/3/2021 11:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2
7/3/2021 11:15	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1	5
7/3/2021 11:30	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7/3/2021 11:45	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4
7/3/2021 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/3/2021 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/3/2021 12:30	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5
7/3/2021 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	54	1	0	0	67	0	0	0	0	0	0	3	0	6	132

Melvina Ave & Touhy Ave

Crosswalk Volumes

Interval	Movement				Grand Total
	Eastbound	Westbound	Northbound	Southbound	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	1	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	1	0	0	0	1
8:45 AM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	2	1	3
5:00 PM	0	0	1	0	1
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0
11:30 AM	0	0	0	0	0
11:45 AM	0	0	0	1	1
12:00 PM	0	0	1	0	1
12:15 PM	0	0	0	0	0
12:30 PM	0	0	0	0	0
12:45 PM	0	0	0	0	0
Grand Total	1	0	4	3	8

**Road Volumes**

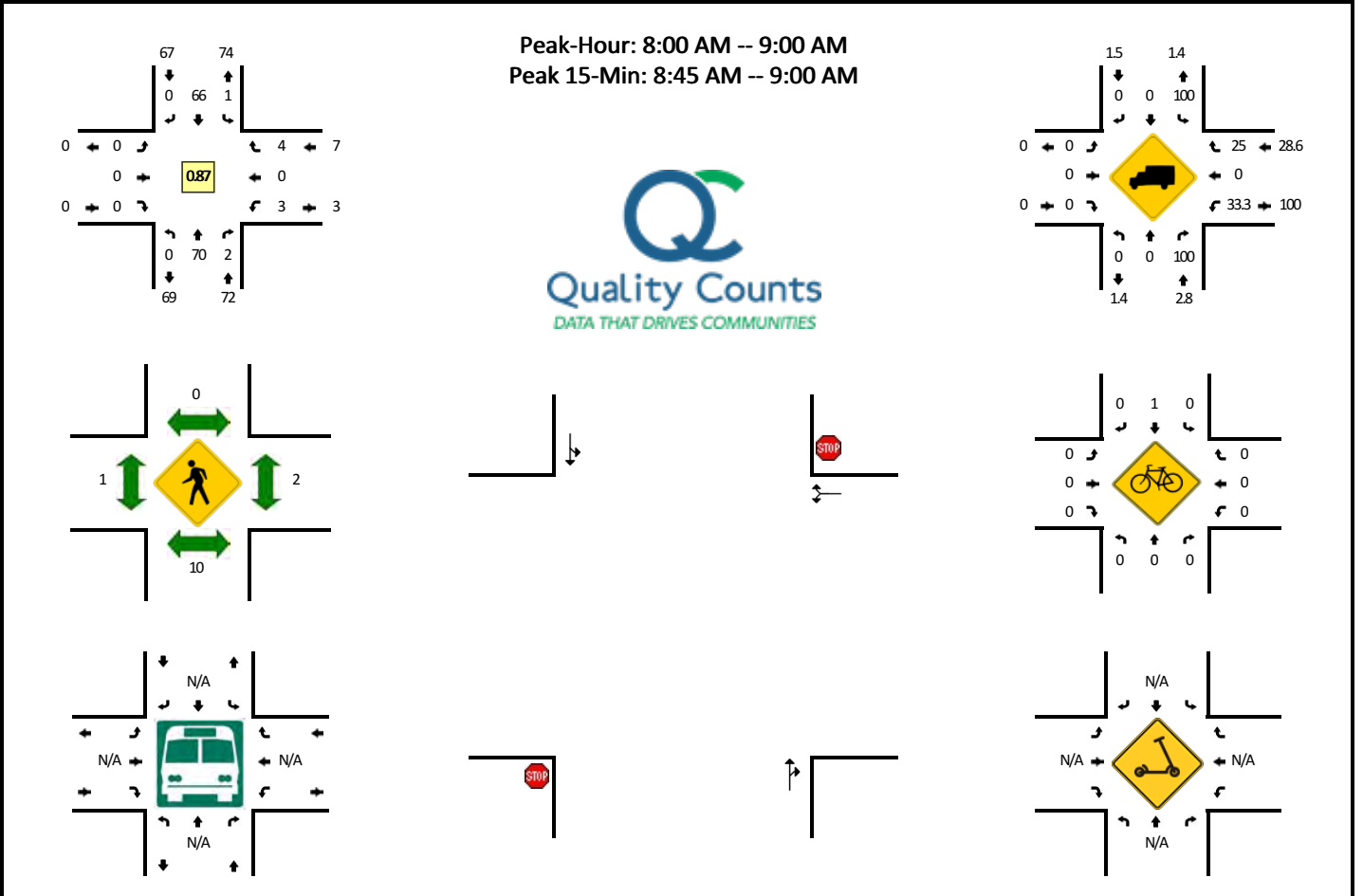
TMV Interval	Movement Eastbound			Westbound			Southbound			Grand Total
	U	L	T	U	T	R	U	L	R	
10/14/2021 7:00	0	0	2	0	4	0	0	0	0	6
10/14/2021 7:15	0	0	3	0	4	0	0	0	0	7
10/14/2021 7:30	0	0	7	0	5	0	0	0	0	12
10/14/2021 7:45	0	0	5	0	3	0	0	0	0	8
10/14/2021 8:00	0	0	3	0	1	0	0	0	0	4
10/14/2021 8:15	0	0	3	0	4	0	0	0	0	7
10/14/2021 8:30	0	0	7	0	2	0	0	0	0	9
10/14/2021 8:45	0	0	5	0	5	0	0	0	0	10
10/14/2021 16:00	0	0	6	0	1	0	0	0	0	7
10/14/2021 16:15	0	0	4	0	2	0	0	0	0	6
10/14/2021 16:30	0	0	2	0	3	0	0	0	0	5
10/14/2021 16:45	0	0	2	0	4	0	0	0	0	6
10/14/2021 17:00	0	0	5	0	3	0	0	0	0	8
10/14/2021 17:15	0	0	4	0	6	0	0	0	0	10
10/14/2021 17:30	0	0	2	0	2	0	0	0	0	4
10/14/2021 17:45	0	0	0	0	3	0	0	0	0	3
10/16/2021 11:00	0	0	1	0	0	0	0	0	0	1
10/16/2021 11:15	0	0	2	0	1	0	0	0	0	3
10/16/2021 11:30	0	0	1	0	3	0	0	0	0	4
10/16/2021 11:45	0	0	1	0	0	0	0	0	0	1
10/16/2021 12:00	0	0	0	0	0	0	0	0	0	0
10/16/2021 12:15	0	0	2	0	1	0	0	0	0	3
10/16/2021 12:30	0	0	0	0	2	0	0	0	0	2
10/16/2021 12:45	0	0	3	0	1	0	0	0	0	4
Grand Total	0	0	70	0	60	0	0	0	0	130

**Crosswalk Volumes**

Interval	Movement			Grand Total
	Eastbound	Westbound	Southbound	
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	1	1
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
11:00 AM	0	0	0	0
11:15 AM	0	0	0	0
11:30 AM	0	0	0	0
11:45 AM	0	0	0	0
12:00 PM	0	0	0	0
12:15 PM	0	0	0	0
12:30 PM	0	0	0	0
12:45 PM	0	0	0	0
Grand Total	0	0	1	1

**LOCATION:** N Melvina Ave -- North Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892901  
**DATE:** Tue, Aug 2 2022



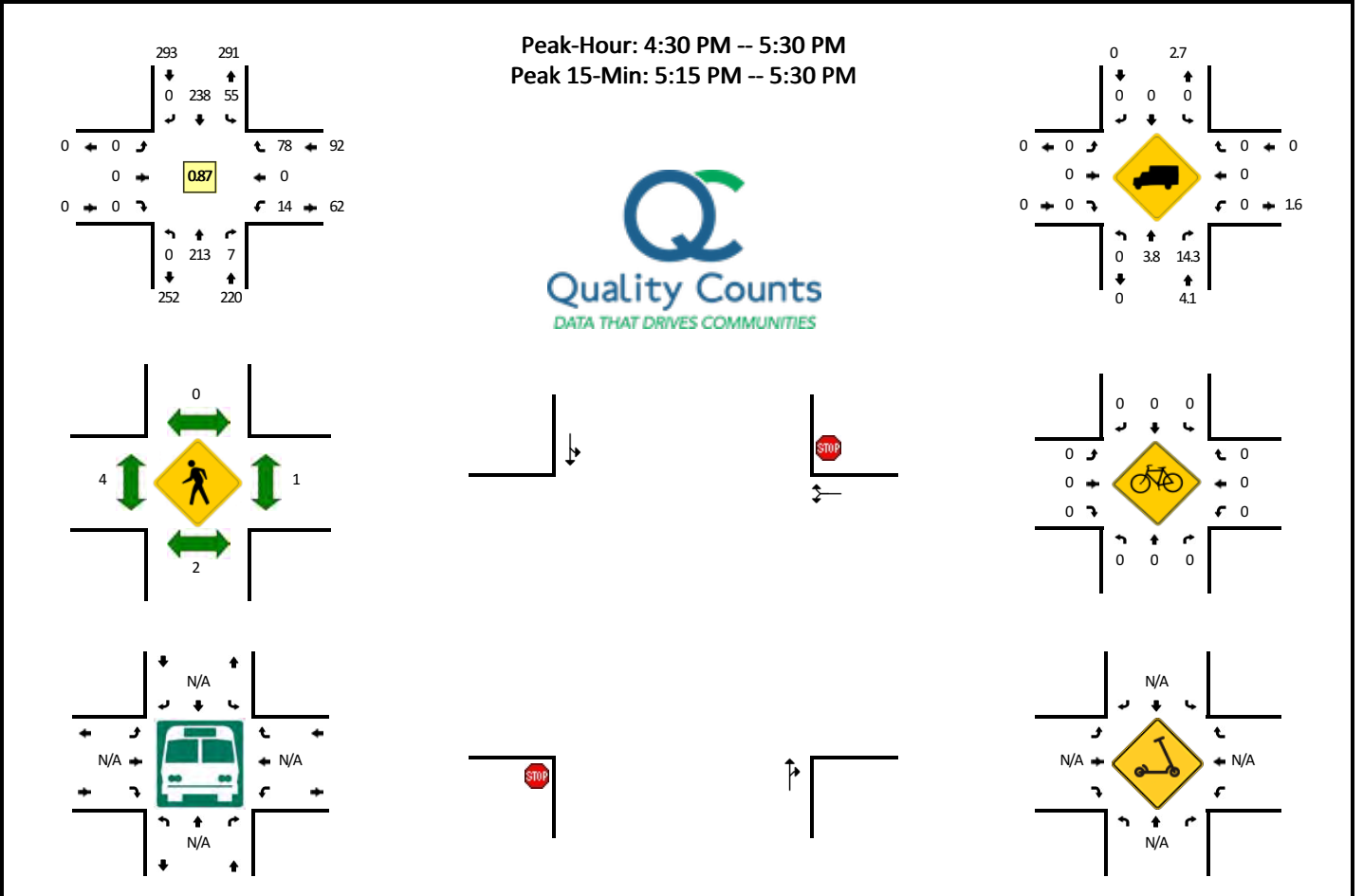
15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				North Access (Eastbound)				North Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	18	2	0	1	11	0	0	0	0	0	0	0	0	0	0	32	
7:15 AM	0	16	1	0	0	12	0	0	0	0	0	0	0	0	0	0	29	
7:30 AM	0	11	0	0	0	14	0	0	0	0	0	0	0	0	0	0	25	
7:45 AM	0	17	0	0	0	14	0	0	0	0	0	0	0	0	0	0	31	117
8:00 AM	0	17	1	0	0	15	0	0	0	0	0	0	0	0	0	0	33	118
8:15 AM	0	12	1	0	1	18	0	0	0	0	0	0	0	0	1	0	33	122
8:30 AM	0	22	0	0	0	13	0	0	0	0	0	0	2	0	1	0	38	135
8:45 AM	0	19	0	0	0	20	0	0	0	0	0	0	1	0	2	0	42	146

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	76	0	0	0	80	0	0	0	0	0	0	4	0	8	0	168
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
Buses																	
Pedestrians		28				0				0				0			28
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

*Comments:*

**LOCATION:** N Melvina Ave -- North Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892902  
**DATE:** Tue, Aug 9 2022

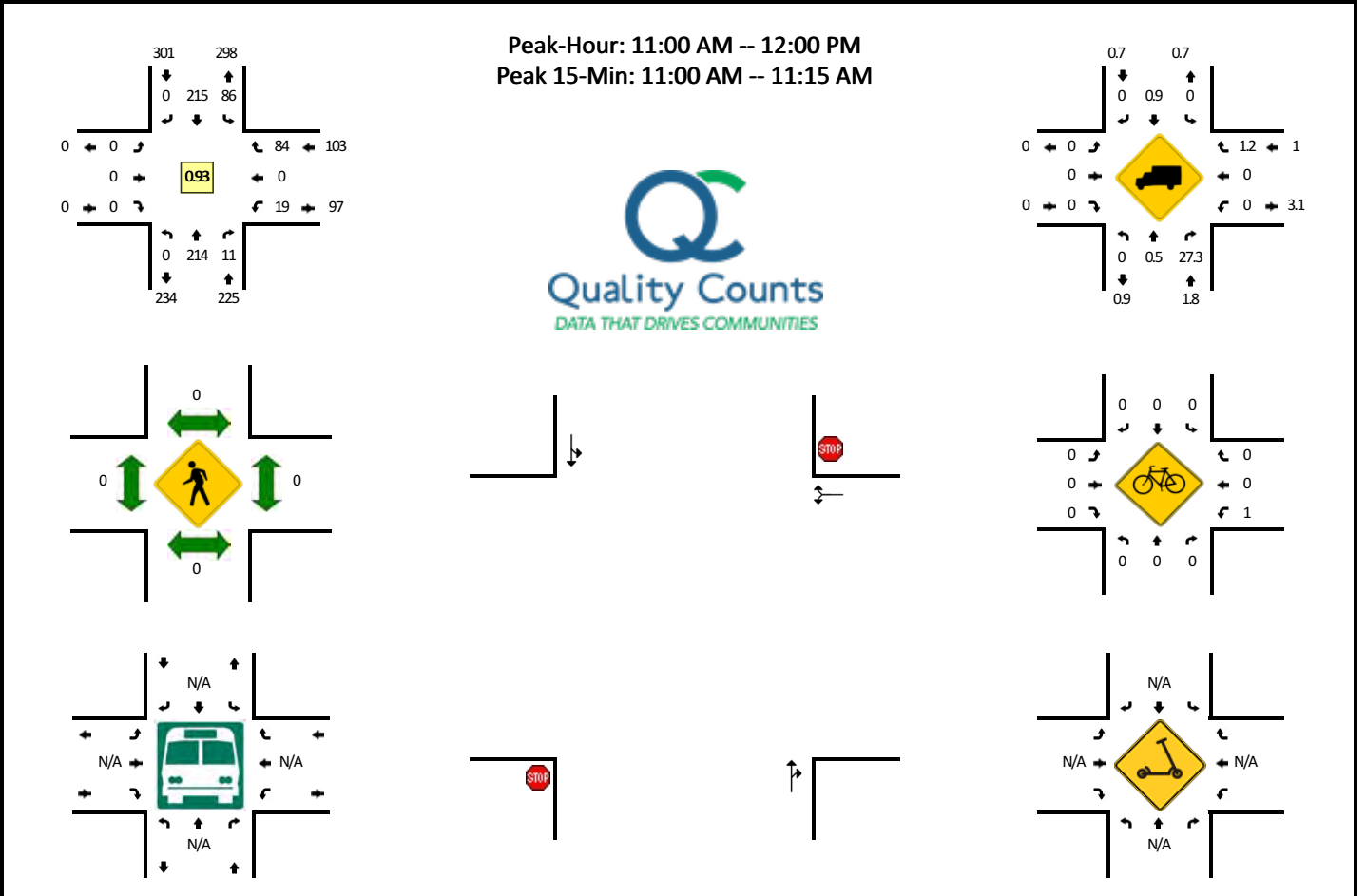


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				North Access (Eastbound)				North Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	47	2	0	17	65	0	0	0	0	0	0	6	0	16	0	153	
4:15 PM	0	49	1	0	17	55	0	0	0	0	0	0	2	0	14	0	138	
4:30 PM	0	57	1	0	16	58	0	0	0	0	0	0	4	0	16	0	152	
4:45 PM	0	53	1	0	19	61	0	0	0	0	0	0	1	0	19	0	154	597
5:00 PM	0	46	0	0	6	56	0	0	0	0	0	0	4	0	13	0	125	569
5:15 PM	0	57	5	0	14	63	0	0	0	0	0	0	5	0	30	0	174	605
5:30 PM	0	47	2	0	20	56	1	0	0	0	0	0	3	0	12	0	141	594
5:45 PM	0	38	1	0	5	64	0	0	0	0	0	0	3	0	20	0	131	571
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	228	20	0	56	252	0	0	0	0	0	0	20	0	120	0	696	
Heavy Trucks	0	12	4		0	0	0		0	0	0		0	0	0		16	
Buses																		
Pedestrians		4				0				4				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

*Comments:*

**LOCATION:** N Melvina Ave -- North Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892903  
**DATE:** Sat, Jul 30 2022



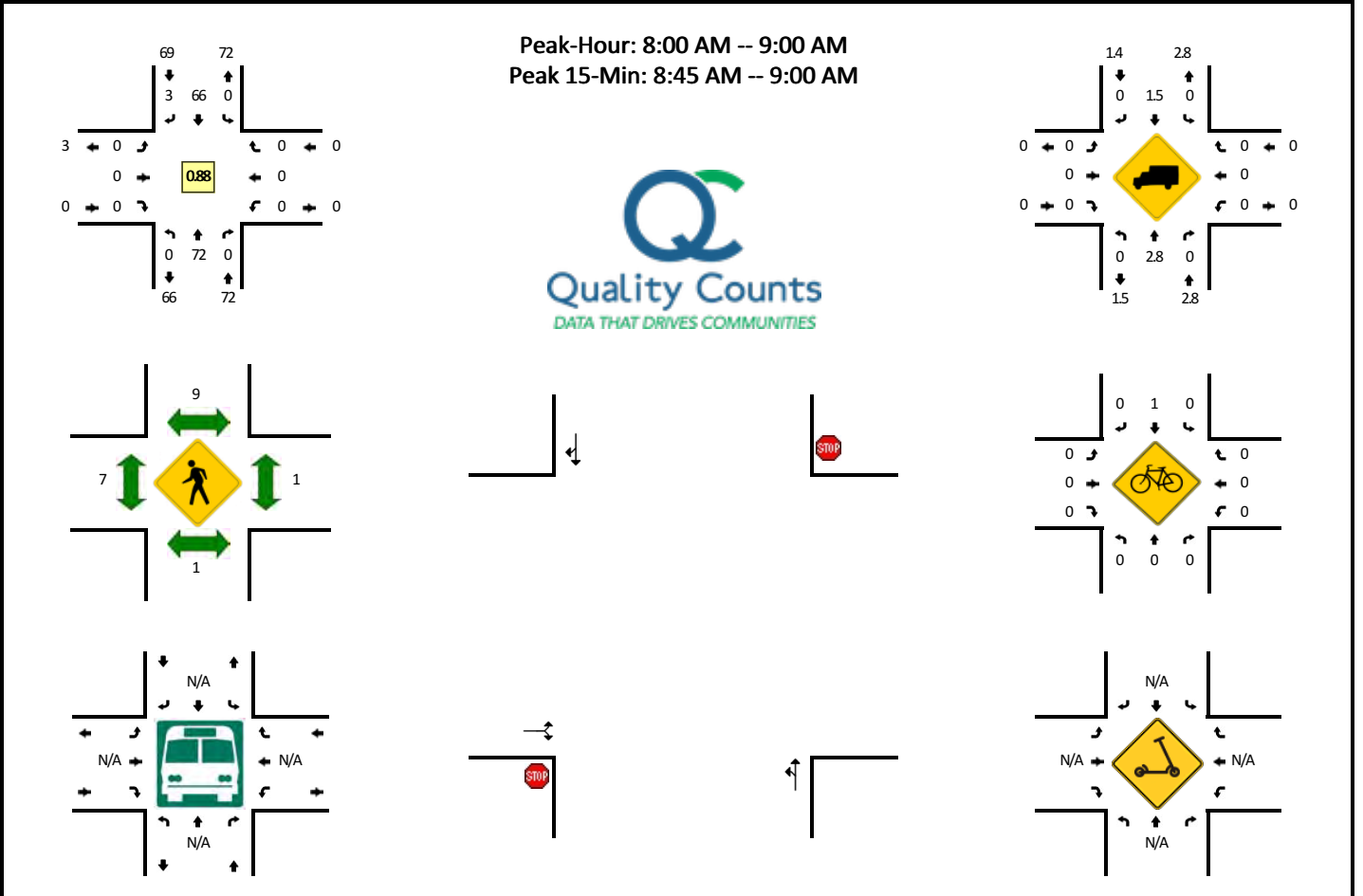
15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				North Access (Eastbound)				North Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	58	1	0	29	63	0	0	0	0	0	0	3	0	16	0	170	
11:15 AM	0	50	7	0	23	54	0	0	0	0	0	0	7	0	24	0	165	
11:30 AM	0	61	1	0	18	46	0	0	0	0	0	0	7	0	26	0	159	
11:45 AM	0	45	2	0	16	52	0	0	0	0	0	0	2	0	18	0	135	629
12:00 PM	0	52	3	0	21	46	0	0	0	0	0	0	4	0	20	0	146	605
12:15 PM	0	34	2	0	23	53	0	0	0	0	0	0	2	0	25	0	139	579
12:30 PM	0	52	2	0	24	51	0	0	0	0	0	0	7	0	21	0	157	577
12:45 PM	0	50	2	0	12	50	0	0	0	0	0	0	7	0	24	0	145	587
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	232	4	0	116	252	0	0	0	0	0	0	12	0	64	0	680	
Heavy Trucks	0	0	4		0	4	0		0	0	0		0	0	0		8	
Buses																		
Pedestrians		0				0				0				0				0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0			0
Scoters																		

*Comments:*



**LOCATION:** N Melvina Ave -- Central Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892904  
**DATE:** Tue, Aug 2 2022



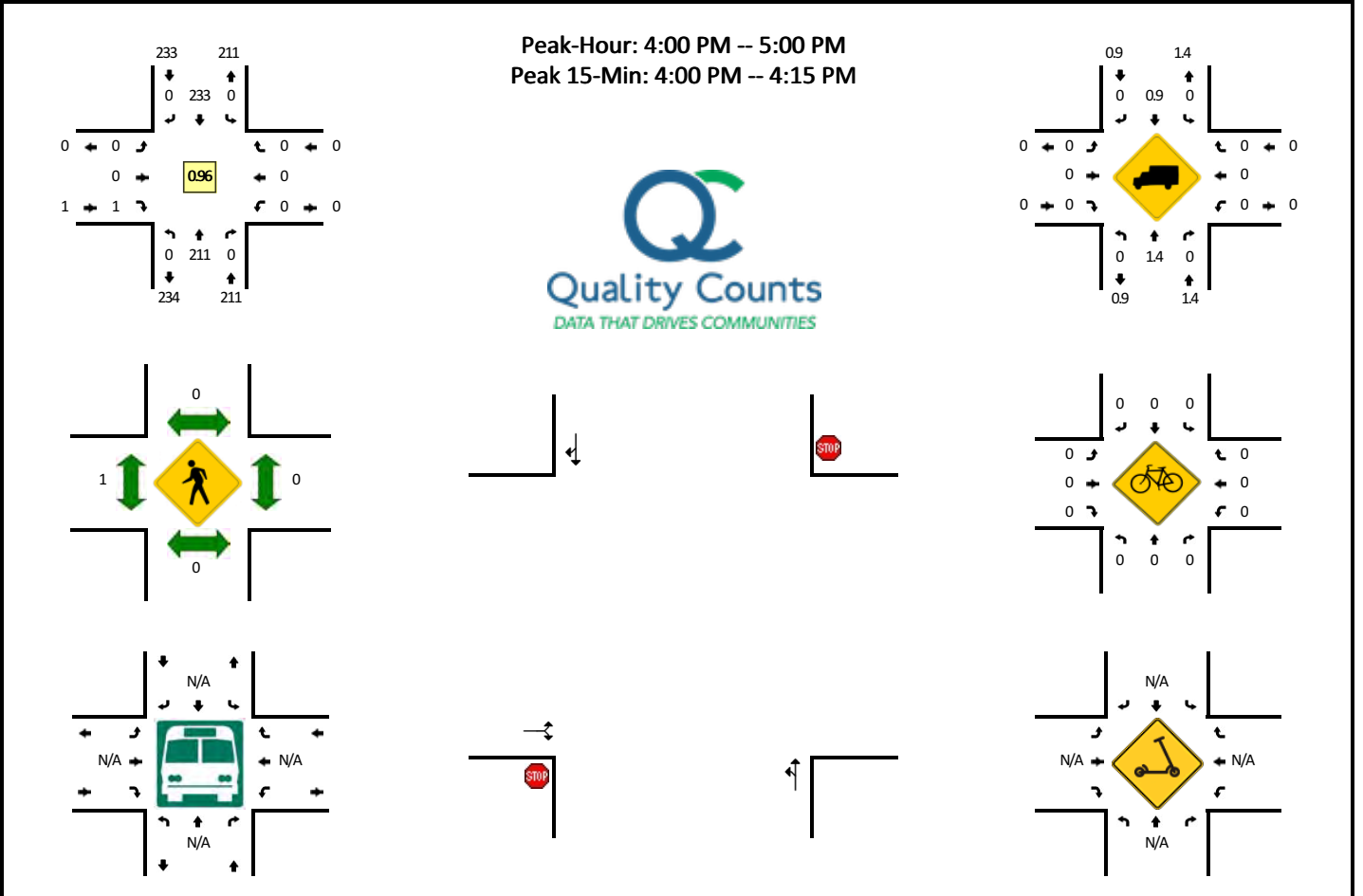
15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				Central Access (Eastbound)				Central Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	20	0	0	0	9	0	0	0	0	0	0	0	0	0	0	30	
7:15 AM	0	17	0	0	0	12	0	0	0	0	0	0	0	0	0	0	29	
7:30 AM	0	11	0	0	0	14	0	0	0	0	0	0	0	0	0	0	25	
7:45 AM	0	17	0	0	0	14	0	0	0	0	0	0	0	0	0	0	31	115
8:00 AM	0	18	0	0	0	15	0	0	0	0	0	0	0	0	0	0	33	118
8:15 AM	0	13	0	0	0	17	1	0	0	0	0	0	0	0	0	0	31	120
8:30 AM	0	22	0	0	0	14	1	0	0	0	0	0	0	0	0	0	37	132
8:45 AM	0	19	0	0	0	20	1	0	0	0	0	0	0	0	0	0	40	141

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	76	0	0	0	80	4	0	0	0	0	0	0	0	0	0	160
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Buses																	
Pedestrians		4				24				12				4			44
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

*Comments:*

**LOCATION:** N Melvina Ave -- Central Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892905  
**DATE:** Tue, Aug 2 2022



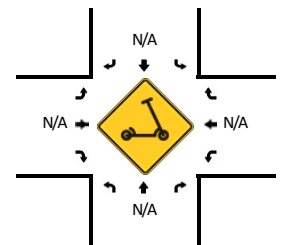
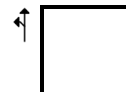
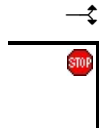
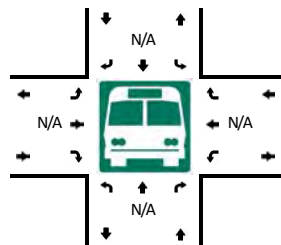
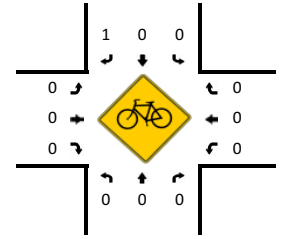
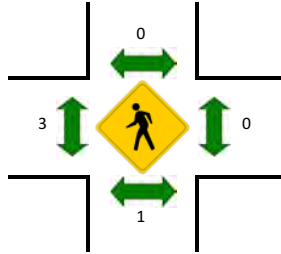
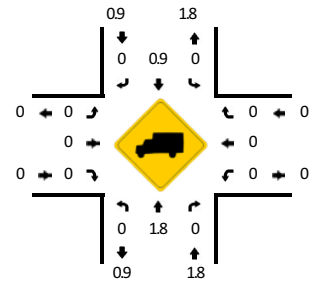
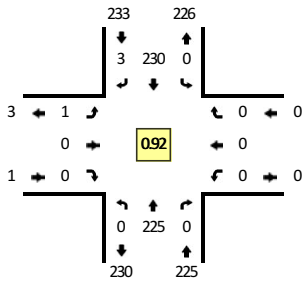
15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				Central Access (Eastbound)				Central Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	55	0	0	0	61	0	0	0	0	0	0	0	0	0	0	116	
4:15 PM	0	54	0	0	0	58	0	0	0	0	0	0	0	0	0	0	112	
4:30 PM	0	54	0	0	0	59	0	0	0	0	0	0	0	0	0	0	113	
4:45 PM	0	48	0	0	0	55	0	0	0	0	0	1	0	0	0	0	104	445
5:00 PM	0	41	0	0	0	61	0	0	0	0	0	0	0	0	0	0	102	431
5:15 PM	0	43	0	0	0	49	0	0	0	0	0	0	0	0	0	0	92	411
5:30 PM	0	53	0	0	0	63	0	0	0	0	0	1	0	0	0	0	117	415
5:45 PM	0	37	0	0	0	54	0	0	0	1	0	0	0	0	0	0	92	403
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	220	0	0	0	244	0	0	0	0	0	0	0	0	0	0	464	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians		0				0					4			0			4	
Bicycles	0	0	0		0	0	0			0	0	0	0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** N Melvina Ave -- Central Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892906  
**DATE:** Sat, Jul 30 2022

Peak-Hour: 11:00 AM -- 12:00 PM  
 Peak 15-Min: 11:00 AM -- 11:15 AM

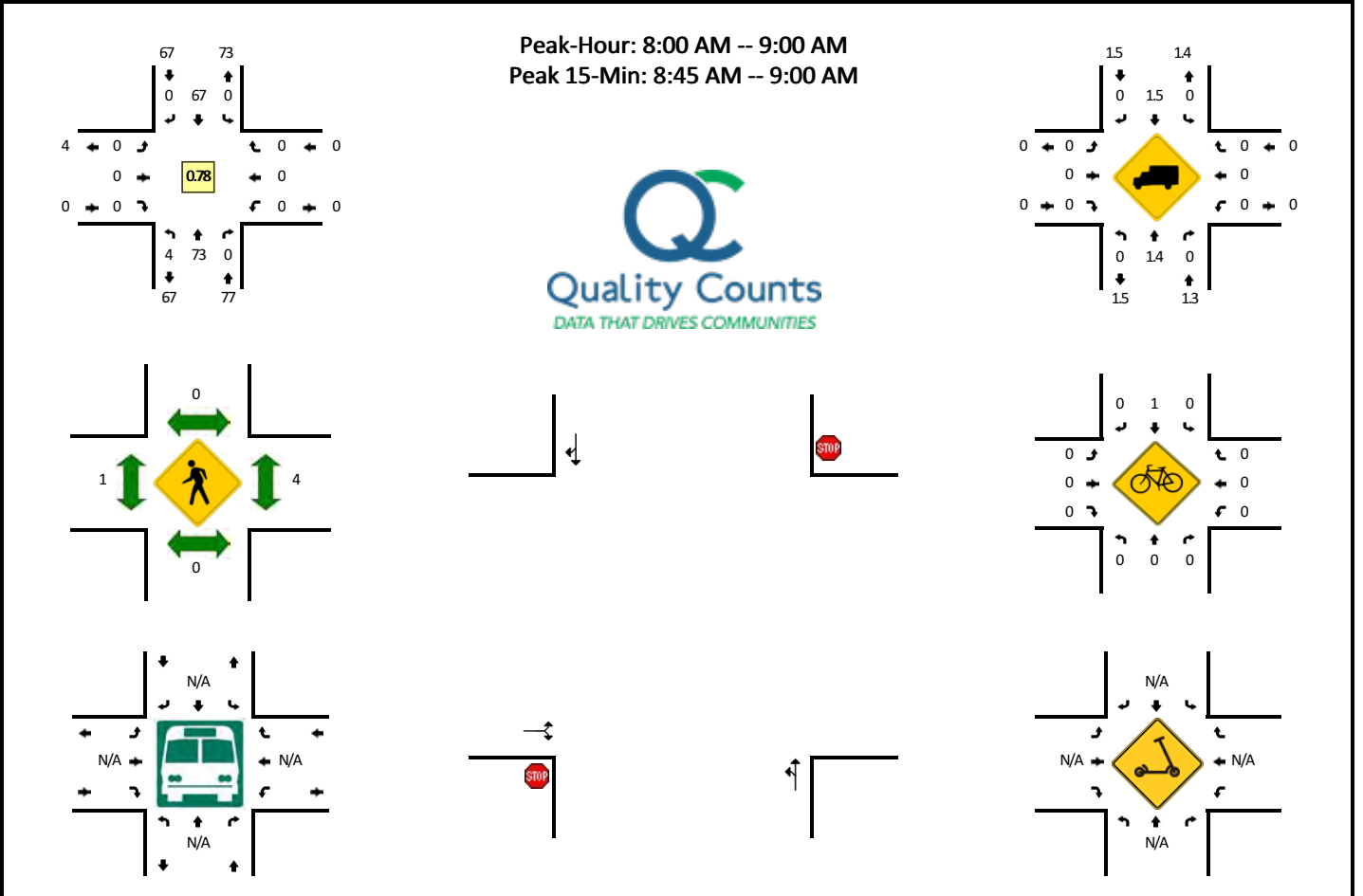


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				Central Access (Eastbound)				Central Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	59	0	0	0	66	0	0	0	0	0	0	0	0	0	0	125	
11:15 AM	0	57	0	0	0	60	1	0	0	0	0	0	0	0	0	0	118	
11:30 AM	0	62	0	0	0	51	2	0	0	0	0	0	0	0	0	0	115	
11:45 AM	0	47	0	0	0	53	0	0	1	0	0	0	0	0	0	0	101	459
12:00 PM	0	55	0	0	0	49	1	0	0	0	0	0	0	0	0	0	105	439
12:15 PM	3	35	0	0	0	54	1	0	0	0	0	0	0	0	0	0	93	414
12:30 PM	0	50	0	0	0	58	0	0	0	0	1	0	0	0	0	0	109	408
12:45 PM	1	51	0	0	0	59	0	0	0	0	0	0	0	0	0	0	111	418
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	236	0	0	0	264	0	0	0	0	0	0	0	0	0	0	500	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	
Buses																		
Pedestrians		0				0					4			0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

**LOCATION:** N Melvina Ave -- South Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892907  
**DATE:** Tue, Aug 2 2022



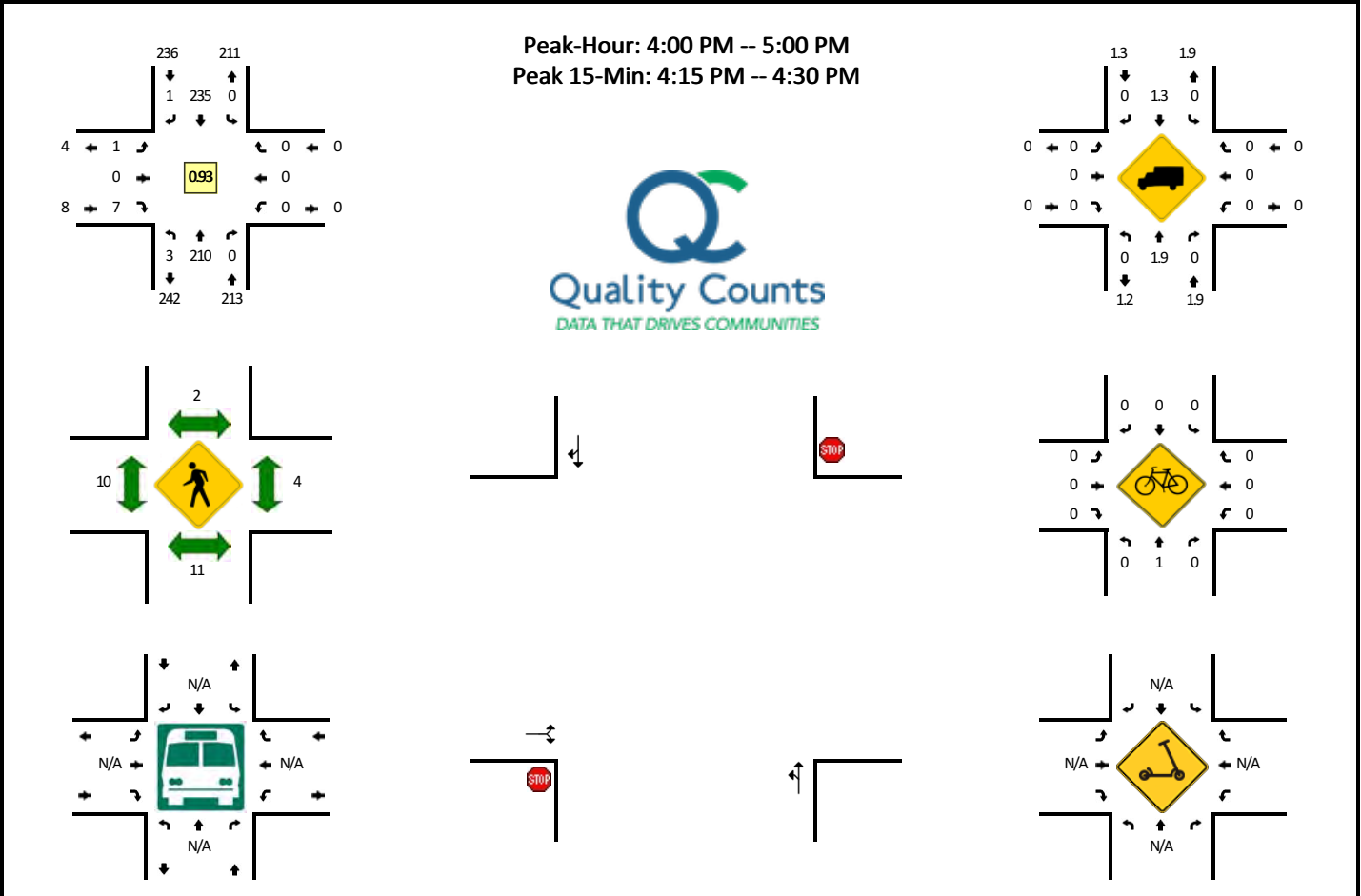
15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				South Access (Eastbound)				South Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	21	0	0	0	11	0	0	0	0	0	0	0	0	0	0	34	
7:15 AM	0	17	0	0	0	12	0	0	0	0	0	0	0	0	0	0	29	
7:30 AM	1	10	0	0	0	14	0	0	0	0	0	1	0	0	0	0	26	
7:45 AM	2	18	0	0	0	14	0	0	0	0	0	0	0	0	0	0	34	123
8:00 AM	0	17	0	0	0	16	0	0	0	0	0	0	0	0	0	0	33	122
8:15 AM	0	13	0	0	0	17	0	0	0	0	0	0	0	0	0	0	30	123
8:30 AM	0	22	0	0	0	13	0	0	0	0	0	0	0	0	0	0	35	132
8:45 AM	4	21	0	0	0	21	0	0	0	0	0	0	0	0	0	0	46	144

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	84	0	0	0	84	0	0	0	0	0	0	0	0	0	0	184
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Buses																	
Pedestrians		0				0					0			0			0
Bicycles	0	0	0		0	0	0			0	0	0		0	0	0	0
Scoters																	

*Comments:*

**LOCATION:** N Melvina Ave -- South Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892908  
**DATE:** Tue, Aug 2 2022

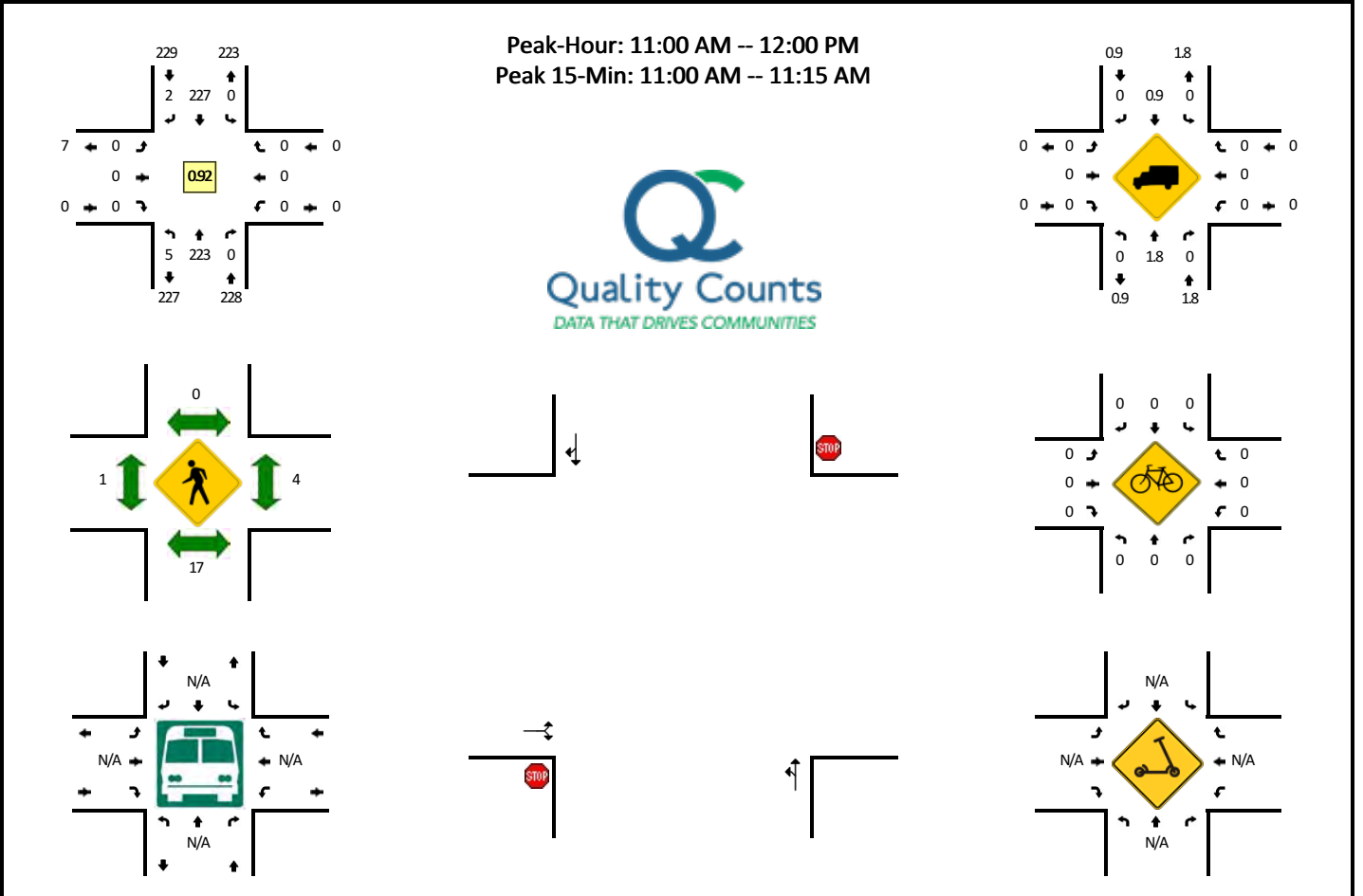


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				South Access (Eastbound)				South Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	55	0	0	0	62	0	0	0	0	0	0	0	0	0	0	118	
4:15 PM	1	58	0	0	0	60	0	0	0	0	4	0	0	0	0	0	123	
4:30 PM	0	49	0	0	0	57	0	0	0	0	2	0	0	0	0	0	108	
4:45 PM	1	48	0	0	0	56	1	0	1	0	1	0	0	0	0	0	108	457
5:00 PM	0	40	0	0	0	60	0	0	1	0	0	0	0	0	0	0	101	440
5:15 PM	2	43	0	0	0	51	0	0	0	0	2	0	0	0	0	0	98	415
5:30 PM	0	54	0	0	0	63	0	0	0	0	0	0	0	0	0	0	117	424
5:45 PM	1	38	0	0	0	57	0	0	0	0	0	0	0	0	0	0	96	412
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	232	0	0	0	240	0	0	0	0	16	0	0	0	0	0	492	
Heavy Trucks	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		12				4				8				4			28	
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4	
Scoters																		

*Comments:*

**LOCATION:** N Melvina Ave -- South Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892909  
**DATE:** Sat, Jul 30 2022

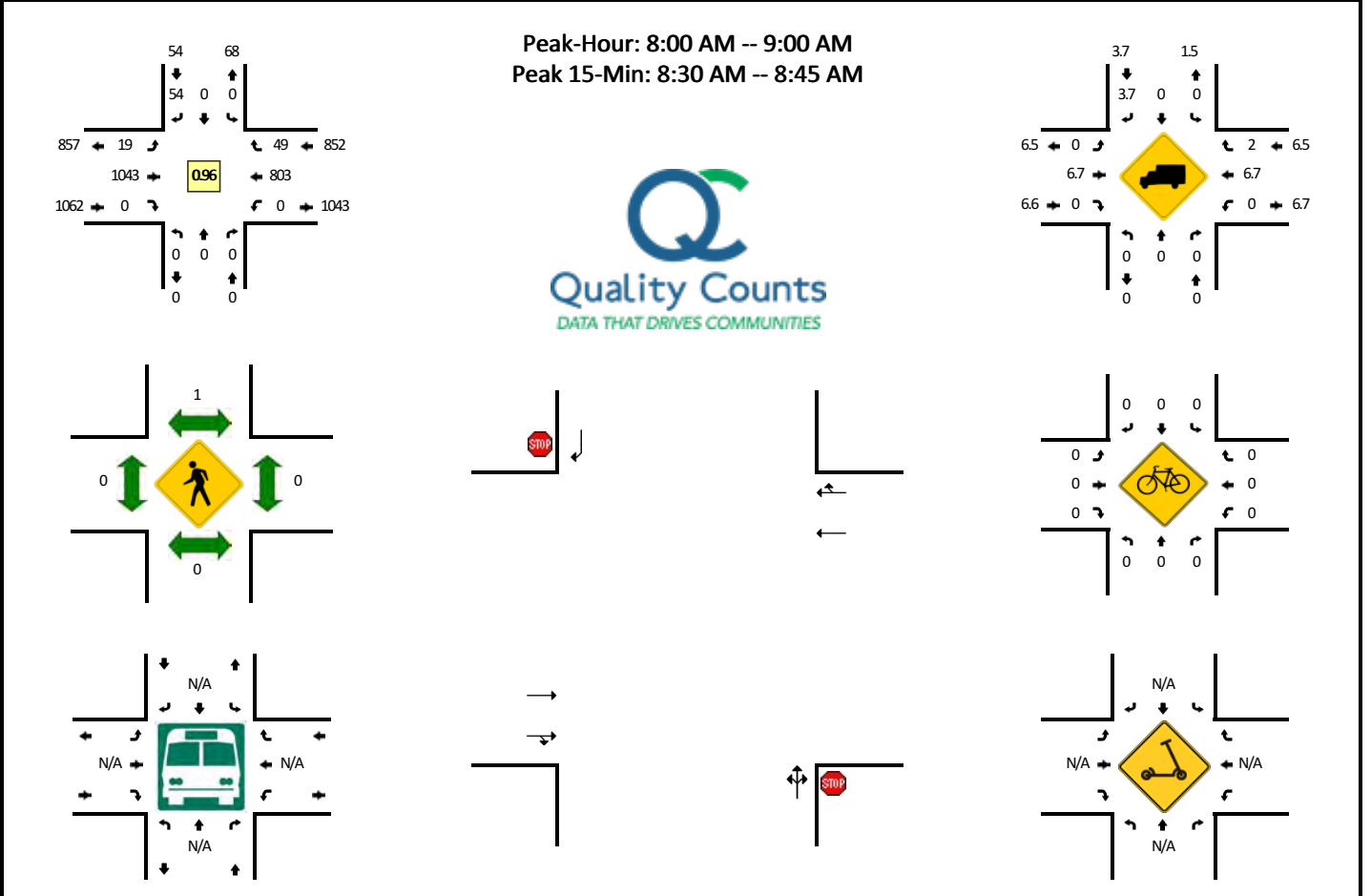


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				South Access (Eastbound)				South Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	2	57	0	0	0	64	1	0	0	0	0	0	0	0	0	0	124	
11:15 AM	0	60	0	0	0	60	0	0	0	0	0	0	0	0	0	0	120	
11:30 AM	3	58	0	0	0	50	0	0	0	0	0	0	0	0	0	0	111	
11:45 AM	0	48	0	0	0	53	1	0	0	0	0	0	0	0	0	0	102	457
12:00 PM	2	53	0	0	0	50	0	0	0	0	0	0	0	0	0	0	105	438
12:15 PM	3	40	0	0	0	54	0	0	0	0	0	0	0	0	0	0	97	415
12:30 PM	2	56	0	0	0	59	0	0	0	0	0	0	0	0	0	0	117	421
12:45 PM	0	55	0	0	0	56	0	0	0	0	0	1	0	0	0	0	112	431
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	228	0	0	0	256	4	0	0	0	0	0	0	0	0	0	496	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	
Buses																		
Pedestrians		16				0				0				0			16	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** Gas Station Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892910  
**DATE:** Tue, Aug 2 2022

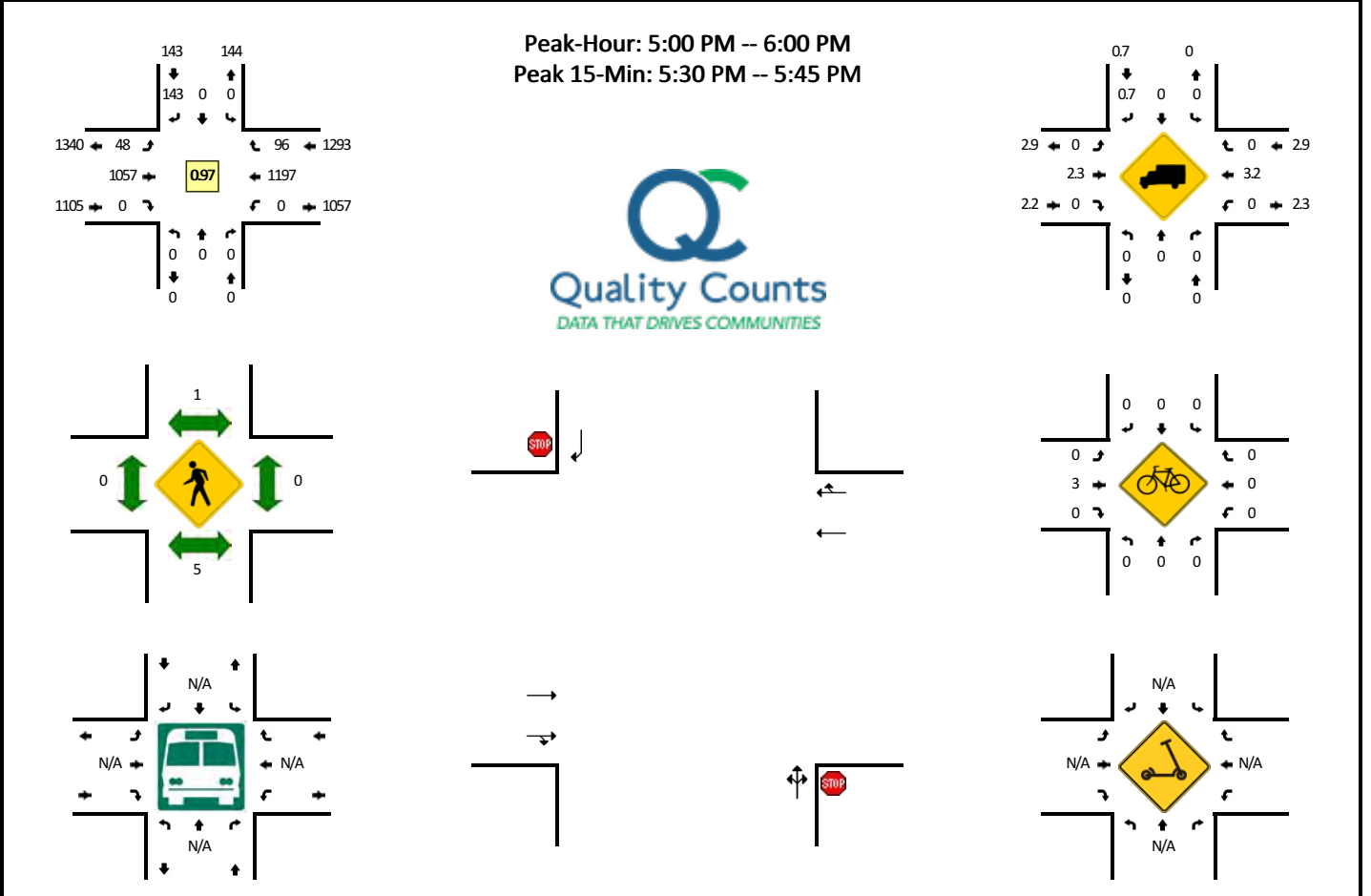


15-Min Count Period Beginning At	Gas Station Access (Northbound)				Gas Station Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	9	0	7	204	0	0	0	195	15	0	430	
7:15 AM	0	0	0	0	0	0	12	0	2	216	0	0	0	195	14	0	439	
7:30 AM	0	0	0	0	0	0	14	0	3	222	0	0	0	234	11	0	484	
7:45 AM	0	0	0	0	0	0	13	0	6	263	0	0	0	173	7	0	462	1815
8:00 AM	0	0	0	0	0	0	17	0	5	221	0	0	0	213	10	0	466	1851
8:15 AM	0	0	0	0	0	0	10	0	6	279	0	0	0	199	9	0	503	1915
8:30 AM	0	0	0	0	0	0	13	0	4	276	0	0	0	203	16	0	512	1943
8:45 AM	0	0	0	0	0	0	14	0	4	267	0	0	0	188	14	0	487	1968
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	52	0	16	1104	0	0	0	812	64	0	2048	
Heavy Trucks	0	0	0	0	0	0	4	0	0	52	0	0	0	64	0	0	120	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** Gas Station Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892911  
**DATE:** Tue, Aug 2 2022



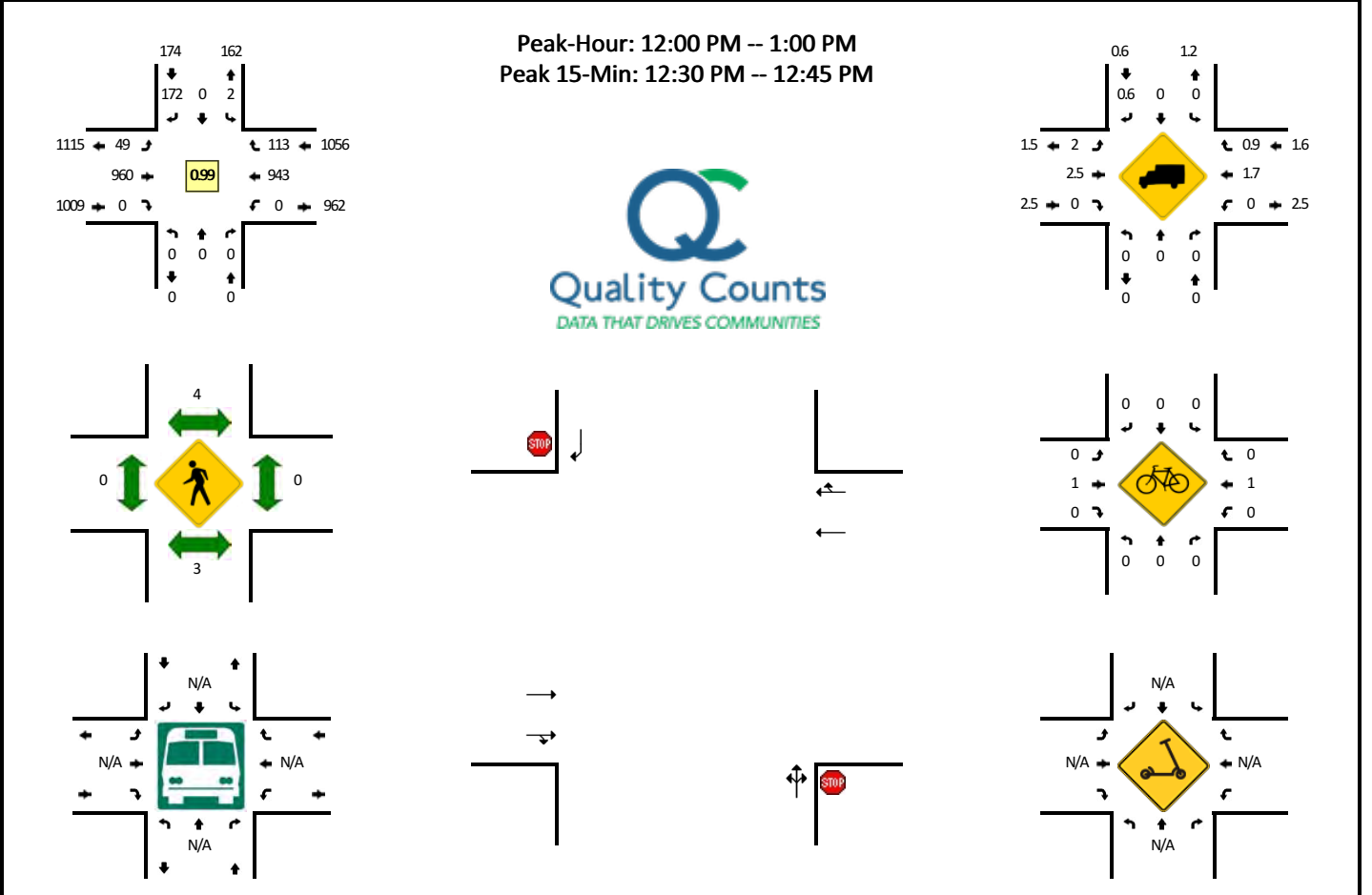
15-Min Count Period Beginning At	Gas Station Access (Northbound)				Gas Station Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	38	0	8	223	0	0	0	302	28	0	599	
4:15 PM	0	0	0	0	0	0	30	0	11	219	0	0	0	313	32	0	605	
4:30 PM	0	0	0	0	1	0	38	0	14	216	0	1	0	310	28	0	608	
4:45 PM	0	0	0	0	0	0	45	0	6	235	0	0	0	280	19	0	585	2397
5:00 PM	0	0	0	0	0	0	43	0	10	246	0	0	0	320	21	0	640	2438
5:15 PM	0	0	0	0	0	0	25	0	9	274	0	0	0	293	22	0	623	2456
5:30 PM	0	0	0	0	0	0	38	0	19	302	0	0	0	274	24	0	657	2505
5:45 PM	0	0	0	0	0	0	37	0	10	235	0	0	0	310	29	0	621	2541
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	152	0	76	1208	0	0	0	1096	96	0	2628	
Heavy Trucks	0	0	0	0	0	0	0	0	0	24	0	0	0	28	0	0	52	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*



**LOCATION:** Gas Station Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892912  
**DATE:** Sat, Jul 30 2022

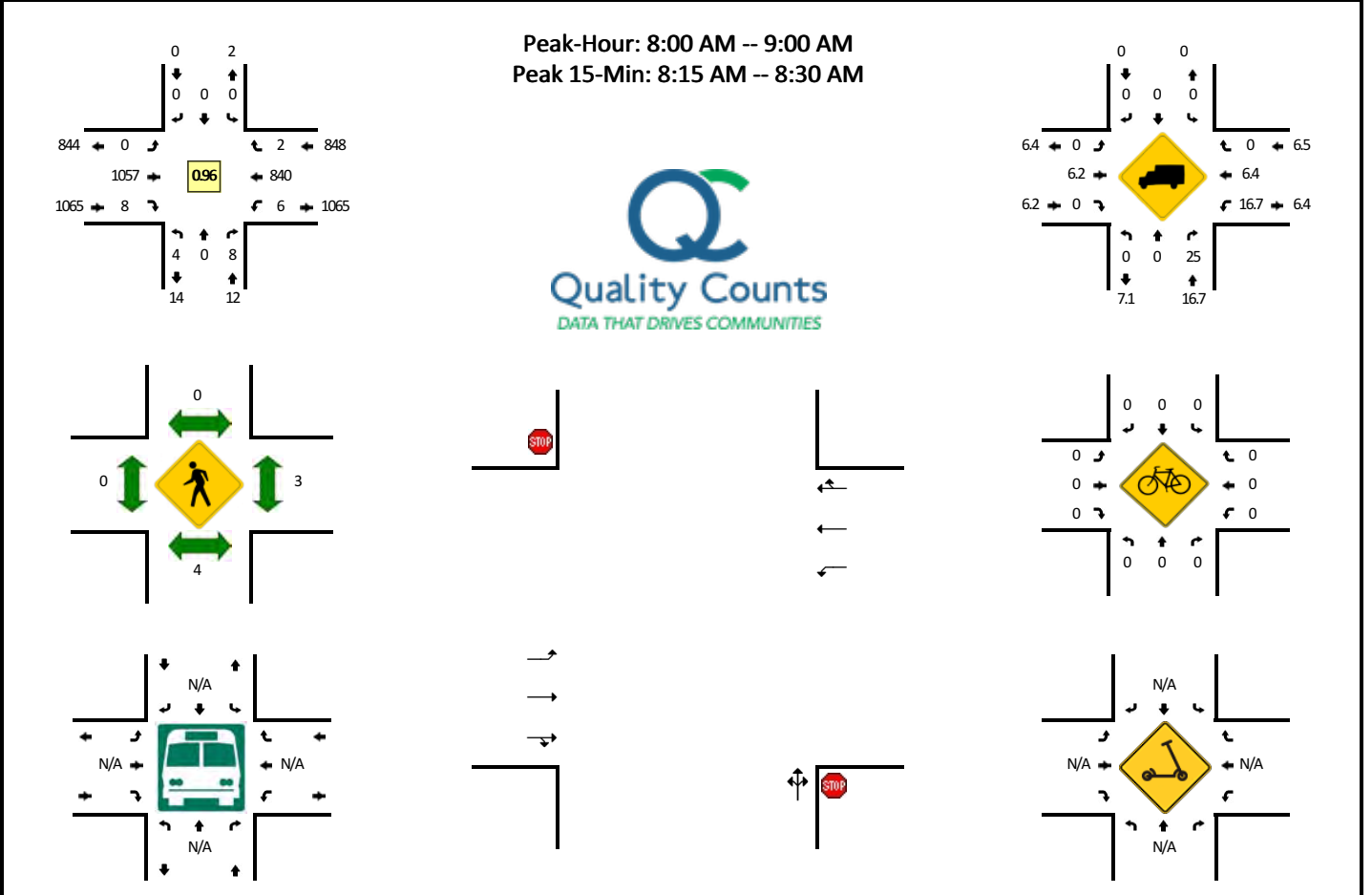


15-Min Count Period Beginning At	Gas Station Access (Northbound)				Gas Station Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	1	0	46	0	3	217	0	0	0	194	23	0	484	
11:15 AM	0	0	0	0	1	0	40	0	6	260	0	0	0	216	38	0	561	
11:30 AM	0	0	0	0	2	0	31	0	9	278	0	0	0	213	26	0	559	
11:45 AM	0	0	0	0	0	0	41	0	12	220	0	0	0	205	35	0	513	2117
12:00 PM	0	0	0	0	0	0	37	0	17	232	0	0	0	241	26	0	553	2186
12:15 PM	0	0	0	0	0	0	46	0	13	242	0	0	0	230	30	0	561	2186
12:30 PM	0	0	0	0	0	0	38	0	11	234	0	0	0	251	29	0	563	2190
12:45 PM	0	0	0	0	2	0	51	0	8	252	0	0	0	221	28	0	562	2239
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	152	0	44	936	0	0	0	1004	116	0	2252	
Heavy Trucks	0	0	0	0	0	0	0	0	4	28	0	0	0	24	0	0	56	
Buses																		
Pedestrians		0				8				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** N Mobile Ave/Parking Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892913  
**DATE:** Tue, Aug 2 2022

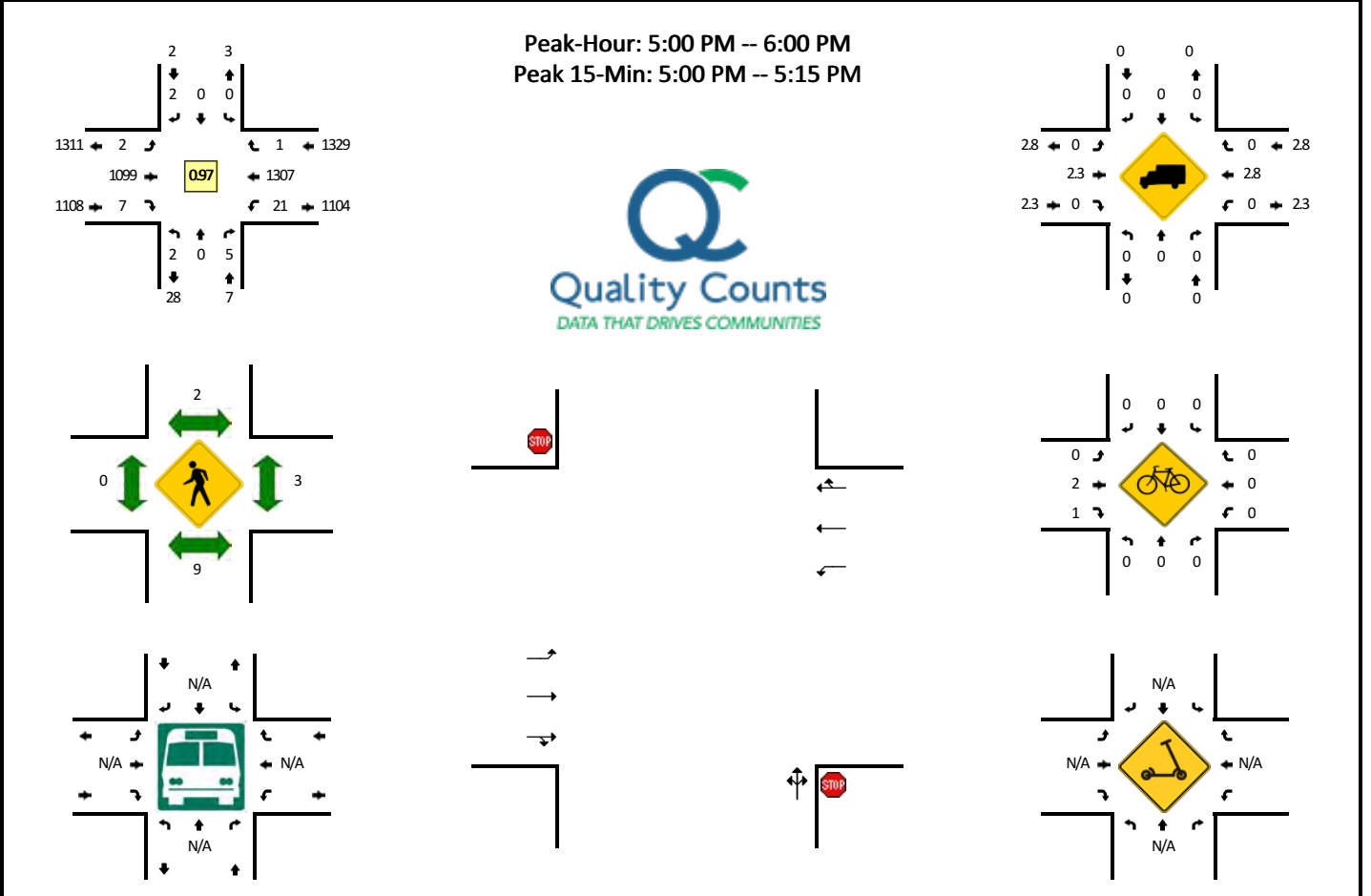


15-Min Count Period Beginning At	N Mobile Ave/Parking Access (Northbound)				N Mobile Ave/Parking Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	0	0	0	212	0	0	3	202	0	0	419	
7:15 AM	1	0	1	0	0	0	0	0	0	218	2	0	1	207	0	0	430	
7:30 AM	1	0	1	0	0	0	0	0	0	220	0	0	3	239	0	0	464	
7:45 AM	1	0	2	0	0	0	0	0	0	270	2	0	1	185	0	0	461	1774
8:00 AM	0	0	2	0	0	0	0	0	0	224	3	0	1	225	1	0	456	1811
8:15 AM	1	0	4	0	0	0	0	0	0	283	2	0	2	211	0	0	503	1884
8:30 AM	2	0	1	0	0	0	0	0	0	280	1	0	2	213	1	0	500	1920
8:45 AM	1	0	1	0	0	0	0	0	0	270	2	0	1	191	0	0	466	1925
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	0	16	0	0	0	0	0	0	1132	8	0	8	844	0	0	2012	
Heavy Trucks	0	0	0		0	0	0		0	64	0		4	44	0		112	
Buses																		
Pedestrians		8				0				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** N Mobile Ave/Parking Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892914  
**DATE:** Tue, Aug 2 2022



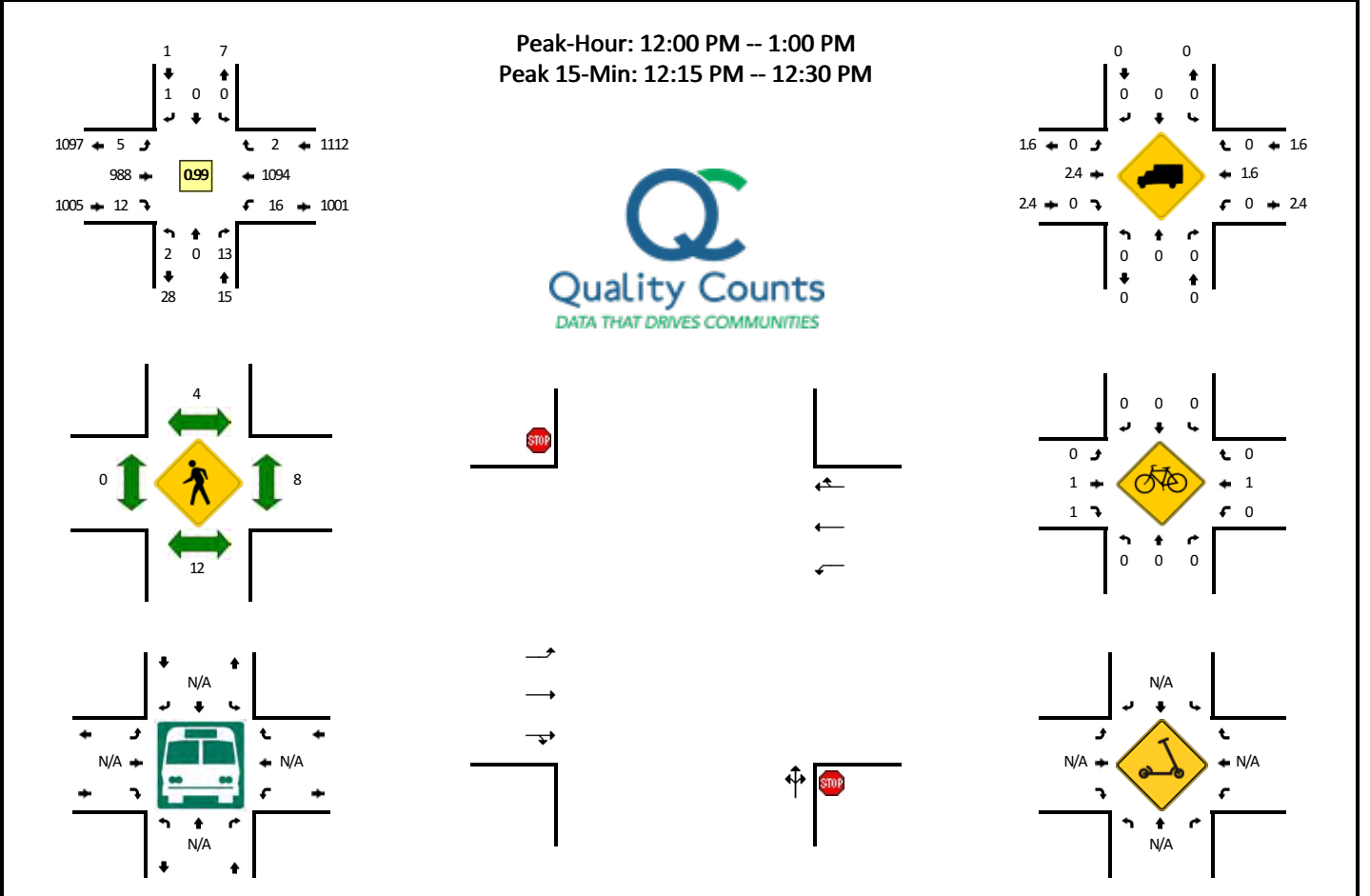
15-Min Count Period Beginning At	N Mobile Ave/Parking Access (Northbound)				N Mobile Ave/Parking Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	4	0	0	0	0	0	1	210	4	0	2	335	1	0	558	
4:15 PM	1	0	5	0	0	0	0	0	1	229	1	0	3	337	0	0	577	
4:30 PM	0	0	1	0	0	0	1	0	1	227	3	0	2	340	1	0	576	
4:45 PM	2	0	3	0	1	0	0	0	1	233	3	0	5	320	1	0	569	2280
5:00 PM	0	0	0	0	0	0	0	0	1	264	4	0	7	354	0	0	630	2352
5:15 PM	2	0	2	0	0	0	0	0	0	289	1	0	4	312	0	0	610	2385
5:30 PM	0	0	0	0	0	0	2	0	1	305	2	0	5	301	1	0	617	2426
5:45 PM	0	0	3	0	0	0	0	0	0	241	0	0	5	340	0	0	589	2446

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	4	1056	16	0	28	1416	0	0	2520
Heavy Trucks	0	0	0	0	0	0	0	0	0	28	0	0	0	44	0	0	72
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	4	4		0	0	0		8
Scoters																	

*Comments:*

**LOCATION:** N Mobile Ave/Parking Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892915  
**DATE:** Sat, Jul 30 2022



15-Min Count Period Beginning At	N Mobile Ave/Parking Access (Northbound)				N Mobile Ave/Parking Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	7	0	0	0	1	0	1	217	4	0	7	239	0	0	476	
11:15 AM	1	0	3	0	0	0	1	0	0	269	0	1	6	256	0	0	537	
11:30 AM	1	0	4	0	0	0	0	0	3	270	3	0	5	242	1	1	530	
11:45 AM	3	0	2	0	0	0	0	0	2	229	3	0	5	238	0	0	482	2025
12:00 PM	1	0	3	0	0	0	1	0	1	246	2	0	7	267	0	0	528	2077
12:15 PM	0	0	3	0	0	0	0	0	1	253	3	0	4	273	0	0	537	2077
12:30 PM	1	0	2	0	0	0	0	0	3	239	4	0	2	283	1	0	535	2082
12:45 PM	0	0	5	0	0	0	0	0	0	250	3	0	3	271	1	0	533	2133
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	12	0	0	0	0	0	4	1012	12	0	16	1092	0	0	2148	
Heavy Trucks	0	0	0		0	0	0		0	28	0		0	20	0		48	
Buses																		
Pedestrians		24				4				0				20			48	
Bicycles	0	0	0		0	0	0		0	4	4		0	0	0		8	
Scoters																		

*Comments:*

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# Appendix F

CMAP 2050 ADT Forecast Letter



Chicago Metropolitan Agency for Planning

433 West Van Buren Street  
Suite 450  
Chicago, IL 60607  
312-454-0400  
cmap.illinois.gov

July 25, 2022

Adam Burghdoff  
Principal  
Kittelson & Associates, Inc  
225 East Robinson Street,  
Suite 355  
Orlando, FL 32801

**Subject: Touhy Avenue between N. Caldwell Avenue and N. Lehigh Avenue**  
Village of Niles

Dear Mr. Burghdoff:

In response to a request made on your behalf and dated July 25,2022, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current ADT	Year 2050 ADT
Touhy Avenue	30,500	34,800

Traffic projections are developed using existing ADT data provided in the request letter and the results from the December 2021 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP  
Senior Planner, Research & Analysis

cc: Rios (IDOT)  
2022\_ForecastTraffic\Niles\ck-101-22\ck-101-22.docx

**TRAFFIC FORECAST RECORD**

**Record Number:** ck-101-22

**Type of Report:** Projection

**Year Sought:** 2050

**Analyst:** JAR

**Organization requesting forecast:** Kittelson & Associates, Inc.

**Contact:** Adam Burghdoff, P.E.

**Email or Phone** aburghdoff@kittelson.com

**Sponsor:** Village of Niles

**Date request was received:** July 25,2022

**Date that response was emailed:** July 25, 2022

**Facility Location:** Touhy Avenue between N. Caldwell Avenue and N. Lehigh Avenue

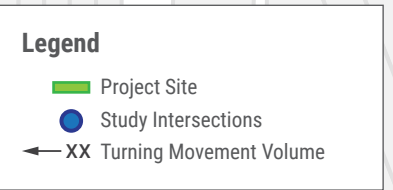
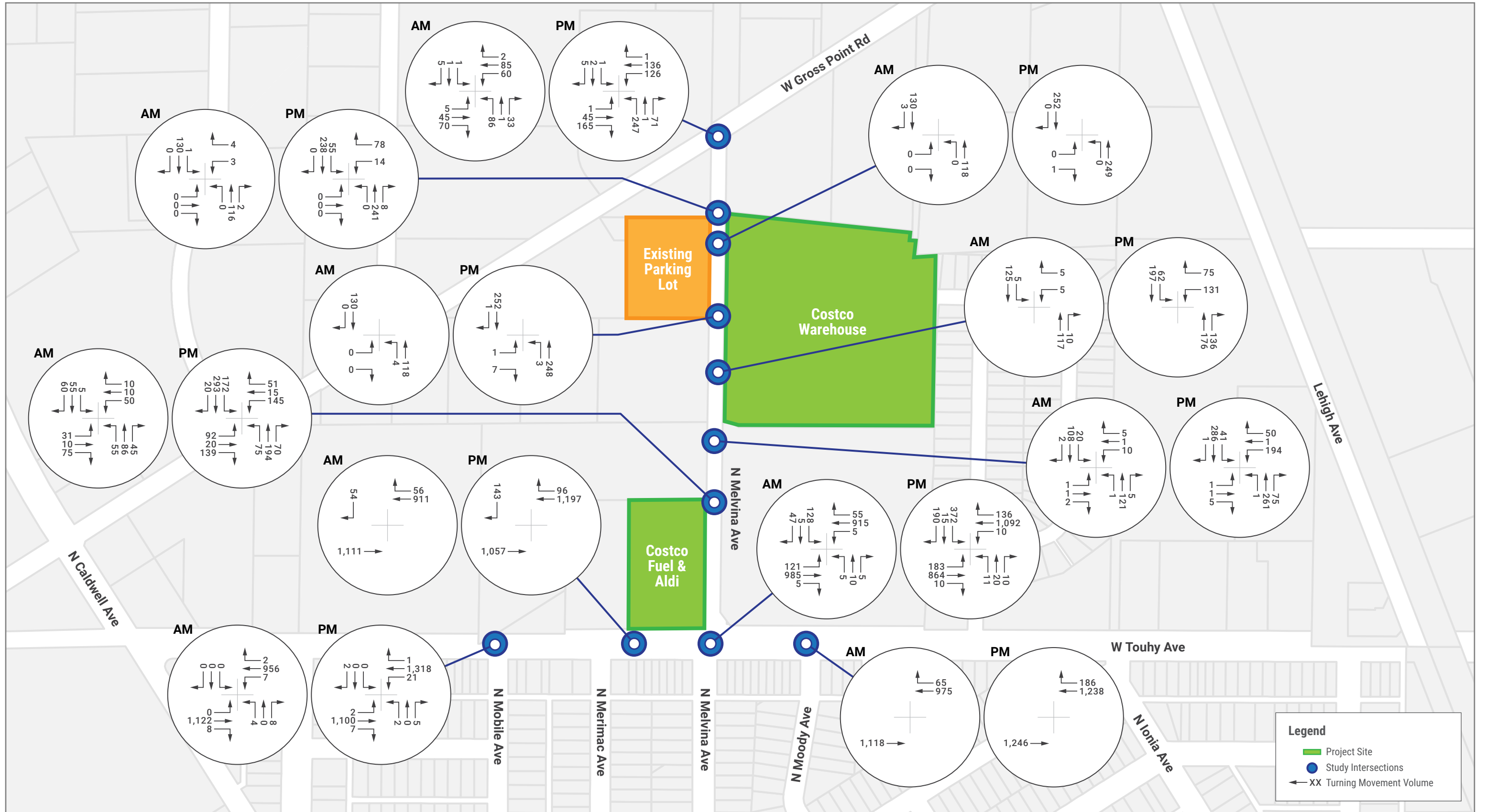
**Municipality:** Niles

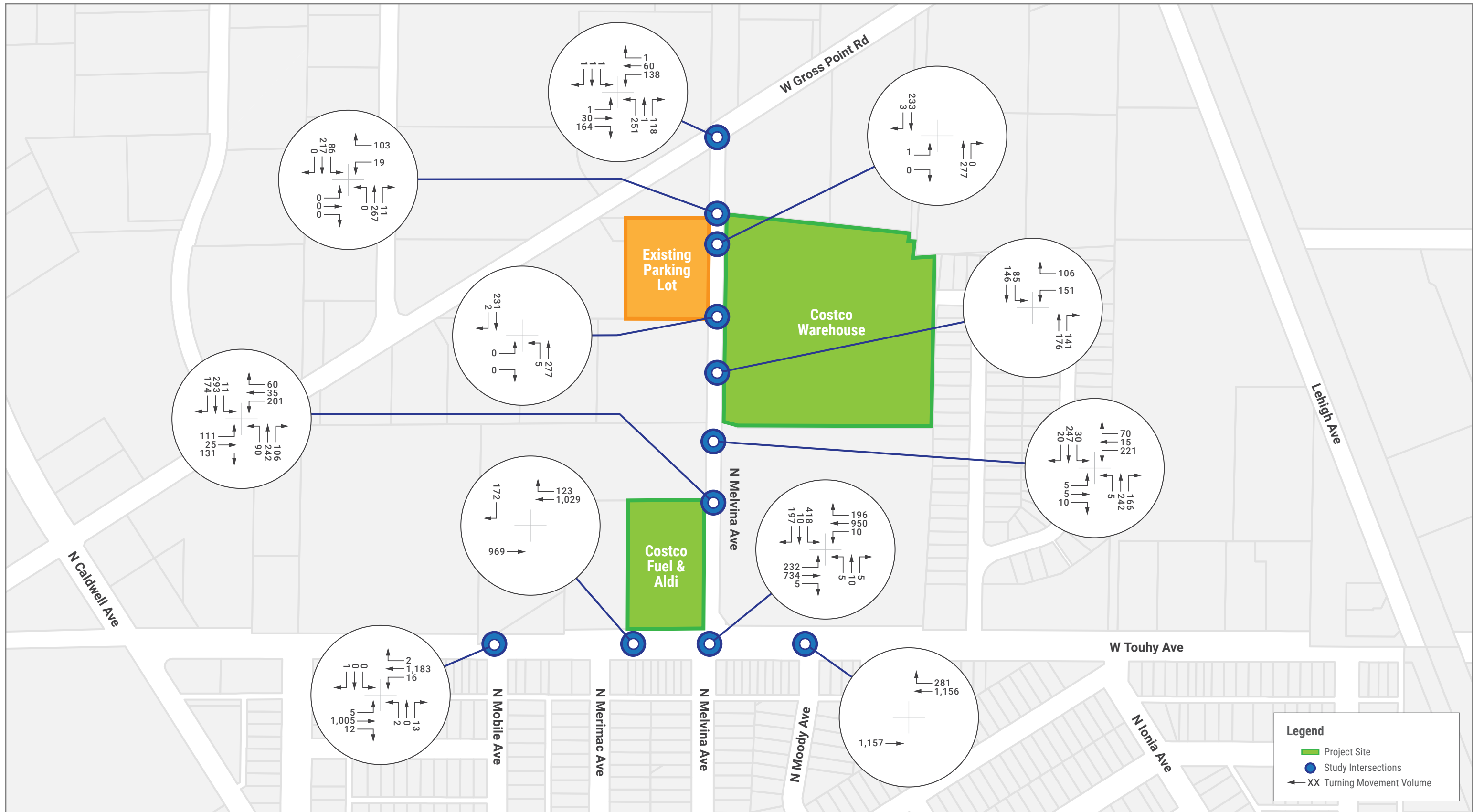
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# Appendix G

Existing, Background, and Background Plus  
Project Peak Hour Traffic Volumes

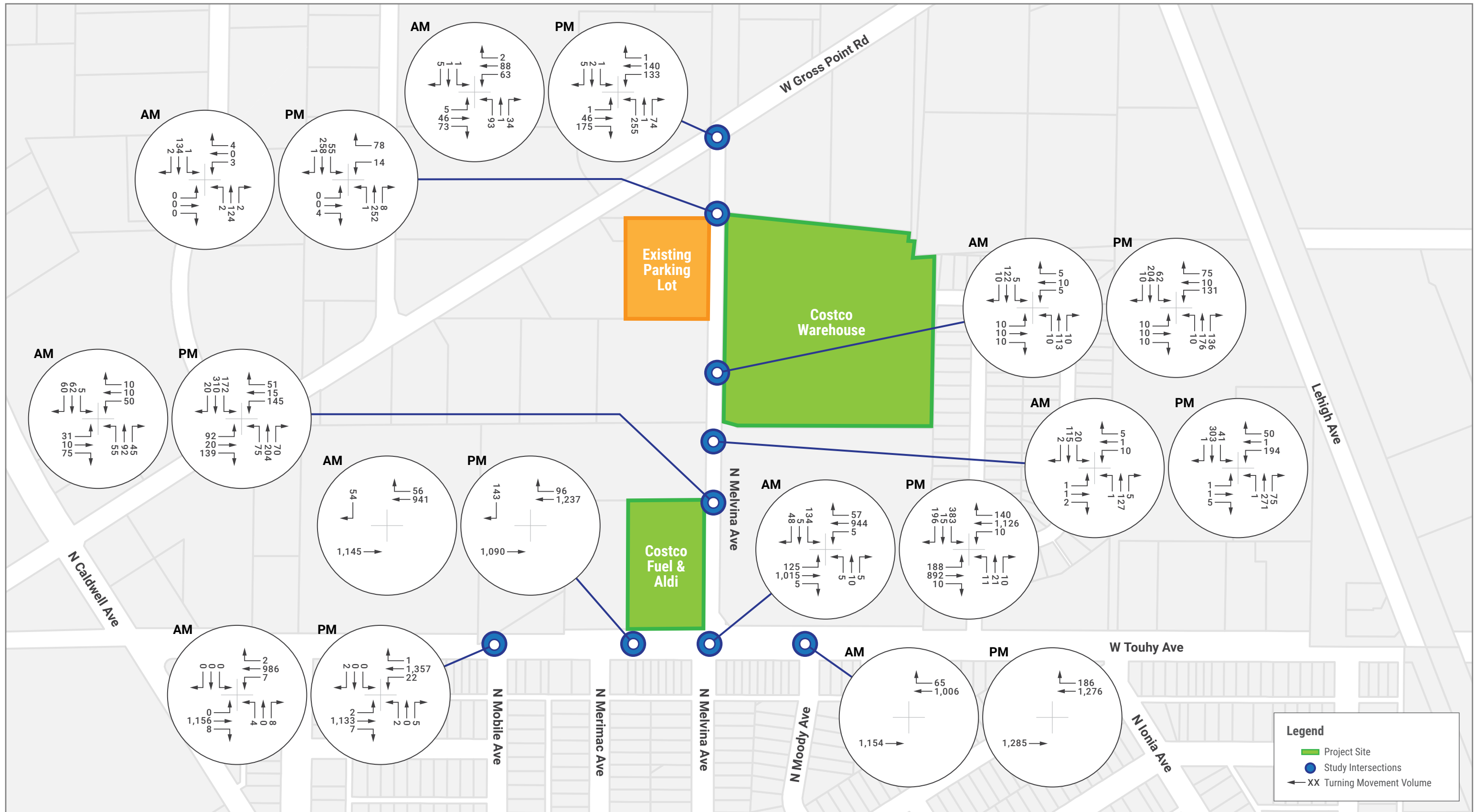




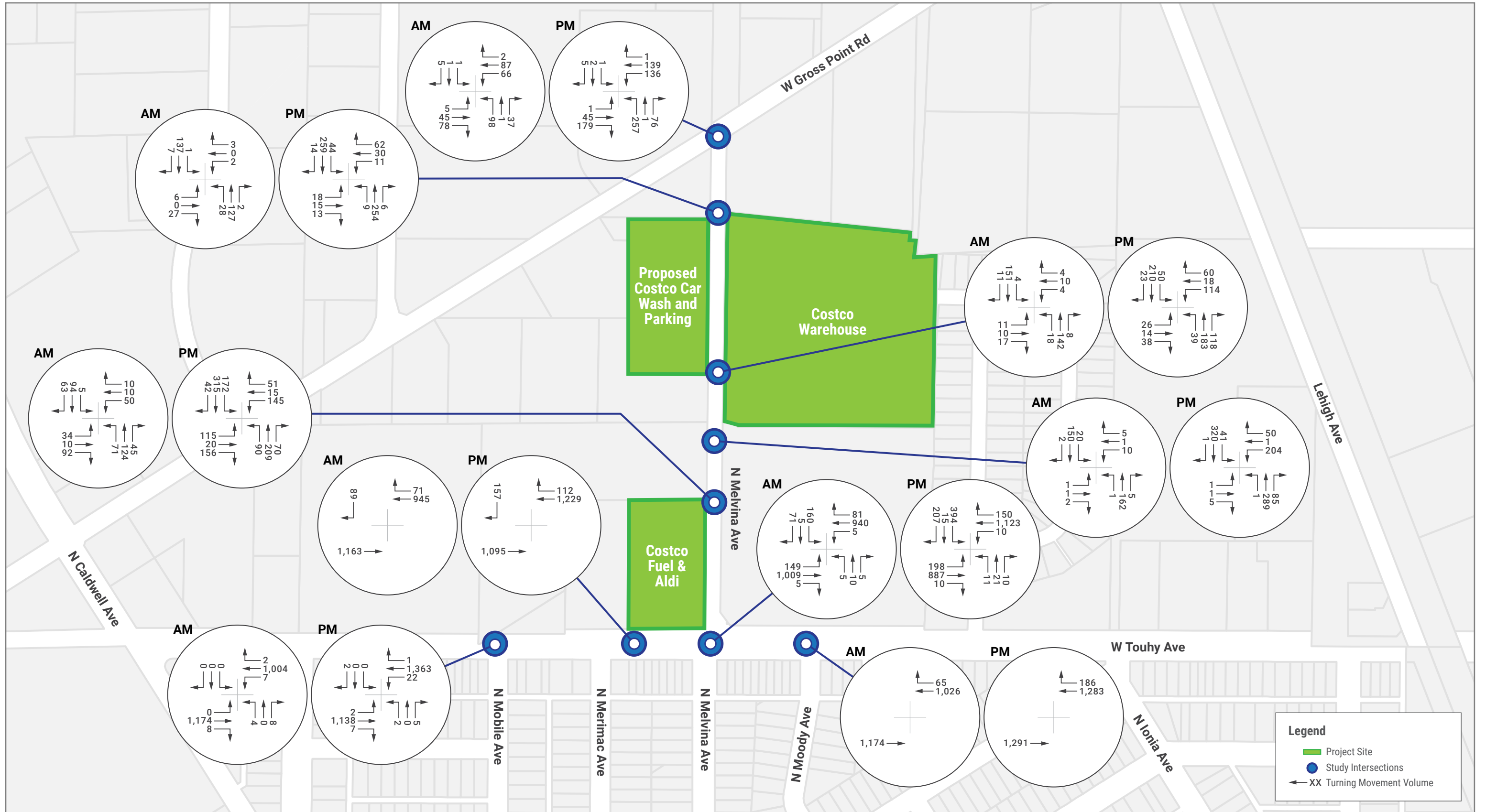


Niles Costco | Traffic Impact Study

Figure 3 | Saturday Midday Existing (2022) Turning Movement Volumes









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# Appendix H

## Trip Generation and Trip Distribution Analysis

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## Project Trip Generation Estimates

This chapter provides a description of the Costco Trip Generation Database.

### Costco Trip Generation Database

Kittelsohn has maintained a traffic information and travel characteristics database for Costco Wholesale over the past 20 years. Costco fuel facilities are included in this database. The database contains transportation information such as trip rates, trip types, 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 Kittelsohn.

The Costco transportation database (the “database”) contains a large quantity of data related to Costco fuel stations. Trip generation rates and trip type information for over 60 Costco fuel facilities located throughout the U.S. are included in the database. Costco has invested significant time and effort into developing this use-specific trip generation data for its warehouses, business centers, and fuel facilities. Due to membership requirements and the nature of Costco sales, Costco members have unique travel characteristics and patterns which are different when compared to other supermarket and fuel facility customers. These unique characteristics and patterns are present in the trip generation rates as well as the interaction between Costco warehouses and Costco fuel facilities.

The Costco-specific trip generation data presented in this study 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 predict the likely changes in peak hour trip generation estimates for Costco fuel facility expansions.

### Fuel Expansion Trip Generation

The Fuel Expansion trip generation is outlined in the previously submitted *Niles Costco Gasoline Fuel Station Expansion Trip Generation* memorandum and is included as an attachment. The previously conducted analysis included PM and Saturday Midday trip generation. Since AM peak hour counts were not previously conducted, the trips were estimated on the proportion of AM to PM fuel facility trips based on Costco data from 43 sites. On average, AM peak hour trips are 63.7 percent of PM peak hour trips, and that percentage was applied to estimate existing AM peak hour trips.

Since expansion data for the AM peak hour is limited and varies within the database, the PM peak hour expansion rate was applied to the estimated AM trips to provide a conservative trip generation estimate.



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## Pass-By, Diverted, and Internal Capture Rates

Pass-By, Diverted, and Internal Capture rates are based on five sites with comparable expansion. Before and after expansion data from sites that were expanded from 16 or 20 fueling positions to 30 or 32 fueling positions was collected. The comparable expansion sites identified were:

Santee, CA	South San Francisco (Airport Blvd), CA
Sunnyvale, CA	South San Francisco (El Camino Real), CA
Scottsdale, AZ	

### Trip Type

The data collected at existing Costco Gasoline fuel stations 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 *Trip Generation*, published by the Institute of Transportation Engineers (ITE). The percentages of pass-by or diverted trips at Costco fuel stations is considerably lower than those quoted in the ITE *Trip Generation* manual for typical fuel stations. Correspondingly, membership requirements also have a significant 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 gasoline pumps 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.

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### ***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 stations, on average 36%, 36%, and 33% of the members buying gas during the weekday AM, 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 stations, on average 40%, 37%, and 36% of the members buying gas during the weekday AM, 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.

## **Costco Car Wash Trip Generation**

The Costco Trip Generation Database also includes data specific to Costco Car Washes. Trip generation data for Costco Car Washes was based on 2021 count data from three sites:

- Brentwood, TN
- Scottsdale, AZ
- Boise, ID

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**Table 1** lists the identified comparable Costco Car Wash sites.

**Table 1: Comparable Costco Car Wash Trip Generation**

Location	Average Peak Hour Trips Generated		
	AM Peak	PM Peak	Saturday Midday Peak
Brentwood, TN	74	110	138
Scottsdale, AZ	-	116	154
Boise, ID	-	86	140
<b>Average</b>	<b>74</b>	<b>106</b>	<b>144</b>

Source: Kittelson & Associates, Inc. 2022

Pass-By, Diverted Route, and Internal Capture rates were also calculated based on data collected from these three sites.

Note that no pass-by, diverted route, or internal capture rate was assumed for the AM peak hour since the data is not currently available.

Based on the available Costco Fuel Facility and Car Wash data, **Table 2** summarizes the trip generation.

Table 2: Trip Generation Summary

Land Use	Number of Units	Units	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Midday Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out
<b>Existing Use</b>											
Costco Fuel Facility <sup>1</sup>	20	Fueling Positions	365	183	182	573	287	286	702	351	351
<b>Land Use Average Rates</b>											
Costco Fuel Facility Expansion Data <sup>2</sup>	-	-	1.187	50%	50%	1.187	50%	50%	1.224	50%	50%
<b>Proposed Use</b>											
Costco Fuel Facility Expansion	30	Fueling Positions	433	217	216	680	340	340	860	430	430
<b><i>New Fuel Facility Project Trips (Gross)</i></b>			<b>68</b>	<b>34</b>	<b>34</b>	<b>107</b>	<b>53</b>	<b>54</b>	<b>158</b>	<b>79</b>	<b>79</b>
Costco Car Wash <sup>3</sup>	1	Car Wash Tunnel	74	37	37	106	53	53	144	72	72
<b><i>Total New Gross Project Trips (Fuel + Car Wash)</i></b>			<b>142</b>	<b>71</b>	<b>71</b>	<b>213</b>	<b>106</b>	<b>107</b>	<b>302</b>	<b>151</b>	<b>151</b>
<b><i>Total New Internal Capture Trips (Fuel to/from Warehouse and Car Wash to/from Warehouse)<sup>4</sup></i></b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>114</b>	<b>57</b>	<b>57</b>	<b>204</b>	<b>102</b>	<b>102</b>
<b><i>Total External Project Trips</i></b>			<b>142</b>	<b>71</b>	<b>71</b>	<b>99</b>	<b>49</b>	<b>50</b>	<b>98</b>	<b>49</b>	<b>49</b>
<i>New Costco Fuel Facility Pass-By Trips<sup>5</sup> (AM Peak=36%, PM Peak=36%, Saturday Midday Peak=33%)</i>			26	13	13	26	13	13	18	9	9
<i>New Costco Car Wash Pass-By Trips<sup>6</sup> (AM Peak=0%, PM Peak=35%, Saturday Midday Peak=18%)</i>			*	*	*	12	6	6	10	5	5
<b><i>Total New Pass-By Project Trips</i></b>			<b>26</b>	<b>13</b>	<b>13</b>	<b>38</b>	<b>19</b>	<b>19</b>	<b>28</b>	<b>14</b>	<b>14</b>
<i>New Costco Fuel Facility Diverted Route Trips<sup>7</sup> (AM Peak=40%, PM Peak=37%, Saturday Midday Peak=36%)</i>			28	14	14	26	13	13	20	10	10
<i>New Costco Car Wash Diverted Route Trips<sup>8</sup> (AM Peak=0%, PM Peak=26%, Saturday Midday Peak=20%)</i>			*	*	*	8	4	4	10	5	5
<b><i>Total New Diverted Route Project Trips</i></b>			<b>28</b>	<b>14</b>	<b>14</b>	<b>34</b>	<b>17</b>	<b>17</b>	<b>30</b>	<b>15</b>	<b>15</b>
<b>Trip Generation Estimates Summary</b>											
<i>Project Gross Trips</i>			142	71	71	213	106	107	302	151	151
<i>Project Internal Capture Trips</i>			0	0	0	114	57	57	204	102	102
<i>Project Pass-By Trips</i>			26	13	13	38	19	19	28	14	14
<i>Project Diverted Route Trips</i>			28	14	14	34	17	17	30	15	15
<b><i>Net New Project Trips</i></b>			<b>88</b>	<b>44</b>	<b>44</b>	<b>27</b>	<b>13</b>	<b>14</b>	<b>40</b>	<b>20</b>	<b>20</b>

\*AM Peak Pass-By and Diverted Route Trip percentages are not available for the car wash in the AM Peak.

Note for the Car Wash Internal Capture, it was assumed that 50 percent of trips that would go from the Car Wash to the Costco Warehouse would remain on the same parking lot and walk over versus drive. Additional footnotes are included in the page below.

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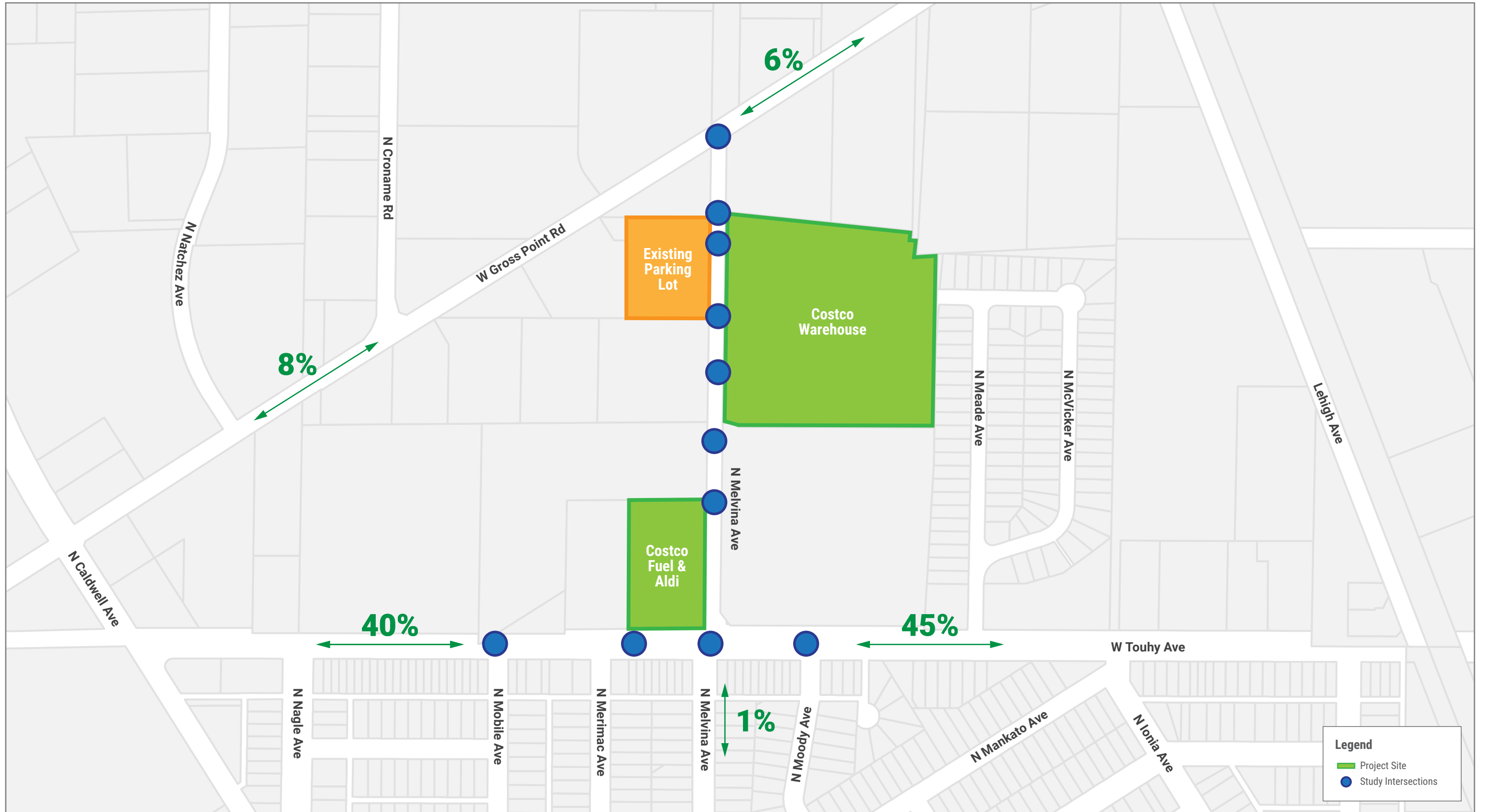
## Trip Generation Table Footnotes

1. Weekday PM and Saturday Midday Trip Generation based on existing counts from Niles Costco Gasoline Fuel Station Expansion Trip Generation and Queueing Technical Memorandum dated May 8, 2018. Weekday AM peak hour data is based on average proportion of AM to PM trips from 43 Costco Fuel Facility driveway counts with between 16 and 22 fueling positions.
2. Weekday PM peak hour and Saturday Midday percent expansion data from Niles Costco Gasoline Fuel Station Expansion Trip Generation and Queueing Technical Memorandum dated May 8, 2018. Weekday AM peak hour increase in trip generation due to expansion was assumed to be equal to the weekday PM trip generation increase.
3. Weekday AM trip generation data based on one site from Boise, Idaho as weekday AM peak hour data is limited. Weekday PM and Saturday Midday data is based on surveys from 3 Costco sites.
4. Internal capture data is based on the average of 5 Costco fuel facility sites and 3 Costco car wash sites surveyed. 70% and 67% of car wash trips are assumed internally captured during the weekday PM and Saturday Midday peak hours, respectively. 34% and 35% of fuel facility trips are assumed internally captured during weekday PM and Saturday Midday peak hours, respectively.
5. Costco fuel facility pass-by rates are based on the average of 5 Costco fuel facilities surveyed.
6. Costco car wash pass-by rates are based on the average of 3 Costco car wash sites surveyed.
7. Costco fuel facility diverted route trip rates are based on the average of 5 Costco fuel facility sites surveyed.
8. Costco car wash diverted route trip rates are based on the average of 3 Costco car wash sites.

---

## **Trip Distribution Estimates**

Trip distribution was estimated based on the existing 2021 and 2022 adjusted and balanced count data for the study network. Incoming and outgoing trips in the study area were totaled across the AM, PM, and Saturday time periods. To calculate the distribution, the distribution was calculated using screen lines at each external intersection. The trip distribution figure is included as an attachment.











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# Appendix I

## Existing Intersection Operations

Table 3 summarizes the overall intersection and worst approach operations for Existing conditions. LOS is not reported for SimTraffic results as microsimulation delay does not directly correlate to HCM defined LOS thresholds.

**Table 3: Intersection Operations, Existing Conditions**

No.	Intersection	Traffic Control <sup>1</sup>	Peak Hour	LOS <sup>2</sup> (Overall Delay) <sup>3</sup>	Approach LOS <sup>4</sup> (Approach Delay) <sup>5</sup>
1	Gross Point Rd & Melvina Ave	TWSC	AM	A (5.1)	B (11.9)
			PM	C (18.6)	<b>E (43.2)</b>
			SAT	C (20.9)	<b>E (40.3)</b>
2	Melvina Ave & Costco Warehouse/Employee Parking Driveway#1 <sup>6</sup>	TWSC	AM	0.2	3.8
			PM	1.1	4.6
			SAT	1.7	6.0
3	Melvina Ave & Costco Employee Parking Driveway #2 <sup>6</sup>	SSSC	AM	0.1	0.1
			PM	0.1	0.2
			SAT	0.2	3.2
4	Melvina Ave & Costco Warehouse Driveway #3 <sup>6</sup>	SSSC	AM	0.1	0.2
			PM	0.3	3.8
			SAT	0.3	0.4
5	Melvina Ave & Costco Warehouse Driveway <sup>6</sup>	SSSC	AM	0.3	3.5
			PM	7.4	2.7
			SAT	4.0	9.5
6	Melvina Ave & Costco Warehouse/Target/YMCA Dwy <sup>6</sup>	TWSC	AM	0.7	4.5
			PM	38.9	<b>113.8</b>
			SAT	47.2	<b>188.0</b>
7	Melvina Ave & Target/Aldi/Costco Fuel Dwy <sup>6</sup>	SSSC	AM	4.0	6.9
			PM	21.1	35.1
			SAT	31.9	59.0
8	Touhy Ave & Mobile Ave	Signal	AM	A (2.3)	-
			PM	A (2.1)	-
			SAT	A (2.7)	-
9	Touhy Ave & Costco Fuel/Aldi Dwy	TWSC	AM	A (0.4)	B (13.0)
			PM	A (1.3)	C (19.0)
			SAT	A (1.6)	C (17.8)
10	Melvina Ave & Touhy Ave	Signal	AM	A (9.0)	-
			PM	C (25.1)	-
			SAT	C (22.2)	-
11	Touhy Ave & Target Dwy	None	AM	A (-)	A (-)
			PM	A (-)	A (-)
			SAT	A (-)	A (-)

Source: Kittelson & Associates, Inc. 2022.

Notes:

<sup>1</sup> Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, SSSC = Side Street Stop Control AWSC = All-Way Stop Control Intersection.

<sup>2</sup> LOS = Level of Service

<sup>3</sup> Delay = Average vehicle delay reported in seconds per vehicle.

<sup>4</sup> Approach LOS = Level of Service for worst approach.

<sup>5</sup> Approach delay = Average vehicle delay reported in seconds per vehicle for the worst approach.

<sup>6</sup> SimTraffic Delay reported.

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	45	70	60	85	2	86	1	33	1	1	5
Future Vol, veh/h	5	45	70	60	85	2	86	1	33	1	1	5
Conflicting Peds, #/hr	0	0	4	4	0	0	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	60	9	9	0	9	50	4	0	0	0	100	17
Mvmt Flow	6	50	78	67	94	2	96	1	37	1	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	132	0	0	338	335	96	352	373	95
Stage 1	-	-	-	-	-	-	105	105	-	229	229	-
Stage 2	-	-	-	-	-	-	233	230	-	123	144	-
Critical Hdwy	4.7	-	-	4.1	-	-	7.14	6.5	6.2	7.1	7.5	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.74	-	-	2.2	-	-	3.536	4	3.3	3.5	4.9	3.453
Pot Cap-1 Maneuver	1202	-	-	1466	-	-	612	589	966	607	431	922
Stage 1	-	-	-	-	-	-	896	812	-	778	566	-
Stage 2	-	-	-	-	-	-	766	718	-	886	624	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1202	-	-	1460	-	-	580	555	960	558	406	922
Mov Cap-2 Maneuver	-	-	-	-	-	-	580	555	-	558	406	-
Stage 1	-	-	-	-	-	-	888	805	-	774	538	-
Stage 2	-	-	-	-	-	-	723	683	-	845	618	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			3.1			11.9			10		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	651	1202	-	-	1460	-	-	723
HCM Lane V/C Ratio	0.205	0.005	-	-	0.046	-	-	0.011
HCM Control Delay (s)	11.9	8	0	-	7.6	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.1	0.1
Total Del/Veh (s)	0.7	1.6	5.0	3.5	2.4

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.8	0.0	0.2	0.2

3: Melvina Ave. & Costco Employee Parking Dwy #2 Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.1	0.0	0.1

4: Melvina Ave. & Costco Employee Parking Dwy #3 Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.1	0.1

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.5	0.1	0.2	0.3

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	2.0	0.0	0.0	0.1
Total Del/Veh (s)	3.2	4.5	0.3	0.5	0.7

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.1	0.0	0.0	0.2
Total Del/Veh (s)	6.9	6.2	0.8	4.7	4.0

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	1.9	3.0	29.2	2.6

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.7	1.5	1.2	1.6

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	5.7	6.2	64.2	63.5	11.5

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.5	0.3
Total Del/Veh (s)	1.2	0.6	0.9

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	14.5

**Intersection: 1: Melvina Ave. & Gross Point Rd.**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	9	56	70	45
Average Queue (ft)	0	10	24	6
95th Queue (ft)	6	35	51	27
Link Distance (ft)	1156	417	188	140
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1**

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	55
Average Queue (ft)	6
95th Queue (ft)	30
Link Distance (ft)	257
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

**Intersection: 3: Melvina Ave. & Costco Employee Parking Dwy #2**

Movement	NB	SB
Directions Served	LT	TR
Maximum Queue (ft)	18	11
Average Queue (ft)	1	0
95th Queue (ft)	8	8
Link Distance (ft)	124	38
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



**Intersection: 4: Melvina Ave. & Costco Employee Parking Dwy #3**

Movement	NB
Directions Served	LT
Maximum Queue (ft)	18
Average Queue (ft)	1
95th Queue (ft)	8
Link Distance (ft)	114
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

**Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2**

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	51	17
Average Queue (ft)	11	1
95th Queue (ft)	40	9
Link Distance (ft)	282	114
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	LTR
Maximum Queue (ft)	47	54	31	34
Average Queue (ft)	5	10	7	3
95th Queue (ft)	26	42	27	19
Link Distance (ft)	219	286		212
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			130	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	L	TR	L	TR
Maximum Queue (ft)	48	86	57	42	37	101
Average Queue (ft)	21	37	25	13	3	46
95th Queue (ft)	47	72	50	39	19	78
Link Distance (ft)	278	278	295			163
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				45	25	
Storage Blk Time (%)			1	0	0	10
Queuing Penalty (veh)			0	0	0	1

Intersection: 8: Mobile Ave. & Touhy Ave.

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	TR	LTR
Maximum Queue (ft)	245	175	72	251	232	66
Average Queue (ft)	35	20	6	32	30	14
95th Queue (ft)	151	101	39	140	128	48
Link Distance (ft)	582	582		361	361	482
Upstream Blk Time (%)				0		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)			100			
Storage Blk Time (%)	2			2		
Queuing Penalty (veh)	0			0		

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	WB	SB
Directions Served	LT	T	T	R
Maximum Queue (ft)	180	150	9	33
Average Queue (ft)	27	8	0	1
95th Queue (ft)	103	65	7	14
Link Distance (ft)	361	361	211	226
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	TR
Maximum Queue (ft)	145	230	224	30	232	216	53	62	226	240
Average Queue (ft)	53	106	87	3	120	80	12	25	112	72
95th Queue (ft)	104	202	185	19	219	176	42	58	204	199
Link Distance (ft)		211	211		259	259	259	562		304
Upstream Blk Time (%)	0	1	1		0	0				2
Queuing Penalty (veh)	0	4	3		0	0				5
Storage Bay Dist (ft)	180			100					165	
Storage Blk Time (%)		1			10				9	0
Queuing Penalty (veh)		2			0				5	0

Intersection: 11: Touhy Ave. & Target Dwy

Movement	EB	EB	WB	WB
Directions Served	T	T	T	TR
Maximum Queue (ft)	21	26	12	6
Average Queue (ft)	1	1	1	0
95th Queue (ft)	13	20	8	4
Link Distance (ft)	259	259	479	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 20
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Existing Conditions  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1122	8	7	956	2	4	0	8	0	0	0
Future Volume (veh/h)	0	1122	8	7	956	2	4	0	8	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1811	1900	1648	1811	1900	1900	1900	1530	1900	1900	1900
Adj Flow Rate, veh/h	0	1169	8	7	996	2	4	0	8	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	6	0	17	6	0	0	0	25	0	0	0
Cap, veh/h	539	2946	20	383	3076	6	51	4	36	0	80	0
Arrive On Green	0.00	0.84	0.85	0.01	1.00	1.00	0.06	0.00	0.03	0.00	0.00	0.00
Sat Flow, veh/h	1810	3503	24	1570	3523	7	407	111	1038	0	1900	0
Grp Volume(v), veh/h	0	574	603	7	486	512	12	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1721	1807	1570	1721	1810	1556	0	0	0	1900	0
Q Serve(g_s), s	0.0	10.4	10.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.4	10.3	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.00	0.33		0.67	0.00		0.00
Lane Grp Cap(c), veh/h	539	1447	1519	383	1502	1580	127	0	0	0	80	0
V/C Ratio(X)	0.00	0.40	0.40	0.02	0.32	0.32	0.09	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	670	1447	1519	490	1502	1580	297	0	0	0	248	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	2.5	2.5	1.8	0.0	0.0	60.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.8	0.0	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	4.7	4.9	0.0	0.4	0.4	0.7	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.3	3.2	1.9	0.6	0.5	61.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	A
Approach Vol, veh/h		1177			1005			12				0
Approach Delay, s/veh		3.3			0.6			61.0				0.0
Approach LOS		A			A			E				A
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.2	115.3		10.5	0.0	119.5		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	9.5	86.0		16.0	9.5	86.0		19.0				
Max Q Clear Time (g_c+1/2b), s	12.4	12.4		0.0	0.0	2.0		2.9				
Green Ext Time (p_c), s	0.0	34.8		0.0	0.0	27.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	19	1111	911	56	0	54
Future Vol, veh/h	19	1111	911	56	0	54
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	7	7	2	0	4
Mvmt Flow	20	1157	949	58	0	56





















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1008	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	695	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	694	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	694	-	-	-	507
HCM Lane V/C Ratio	0.029	-	-	-	0.111
HCM Control Delay (s)	10.3	-	-	-	13
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Existing Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	985	5	5	915	55	5	10	5	128	5	47
Future Volume (veh/h)	121	985	5	5	915	55	5	10	5	128	5	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1796	1900	1900	1891	1900	1900	1900	1900	1841	1900	1737
Adj Flow Rate, veh/h	133	1082	5	5	1005	60	5	11	5	141	5	52
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	7	0	0	7	0	0	0	0	4	0	11
Cap, veh/h	433	2582	12	436	2544	1139	47	43	18	260	19	201
Arrive On Green	0.07	1.00	1.00	0.00	0.71	0.71	0.07	0.04	0.04	0.07	0.14	0.14
Sat Flow, veh/h	1767	3484	16	1810	3593	1609	294	1000	404	1753	142	1480
Grp Volume(v), veh/h	133	530	557	5	1005	60	21	0	0	141	0	57
Grp Sat Flow(s),veh/h/ln	1767	1706	1793	1810	1796	1609	1698	0	0	1753	0	1623
Q Serve(g_s), s	2.7	0.0	0.0	0.1	14.7	1.5	0.0	0.0	0.0	8.5	0.0	4.1
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.1	14.7	1.5	1.4	0.0	0.0	8.5	0.0	4.1
Prop In Lane	1.00		0.01	1.00		1.00	0.24		0.24	1.00		0.91
Lane Grp Cap(c), veh/h	433	1265	1329	436	2544	1139	147	0	0	260	0	220
V/C Ratio(X)	0.31	0.42	0.42	0.01	0.40	0.05	0.14	0.00	0.00	0.54	0.00	0.26
Avail Cap(c_a), veh/h	538	1265	1329	561	2544	1139	228	0	0	260	0	300
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.3	0.0	0.0	5.4	7.7	5.8	59.8	0.0	0.0	54.2	0.0	49.9
Incr Delay (d2), s/veh	0.3	1.0	1.0	0.0	0.5	0.1	0.6	0.0	0.0	1.9	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	0.6	0.6	0.1	9.2	0.9	1.2	0.0	0.0	8.1	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	1.0	1.0	5.4	8.1	5.8	60.5	0.0	0.0	56.1	0.0	50.8
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	D
Approach Vol, veh/h		1220			1070			21			198	
Approach Delay, s/veh		1.5			8.0			60.5			54.6	
Approach LOS		A			A			E			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.0	102.4		23.6	8.3	98.1	12.0	11.6				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0	3.5	6.0				
Max Green Setting (Gmax), s	9.5	81.0		24.0	12.5	78.0	8.5	12.0				
Max Q Clear Time (g_c+I1), s	2.1	2.0		6.1	4.7	16.7	10.5	3.4				
Green Ext Time (p_c), s	0.0	31.3		0.2	0.2	28.2	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				9.0								
HCM 6th LOS				A								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1118	0	0	975	65	0	0	0	0	0	0
Future Vol, veh/h	0	1118	0	0	975	65	0	0	0	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	6	2	2	5	2	0	2	0	0	2	0
Mvmt Flow	0	1141	0	0	995	66	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1539	2203	572
Stage 1	-	-	-	-	-	-	1141	1141	-
Stage 2	-	-	-	-	-	-	398	1062	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	135	44	468
Stage 1	0	-	0	0	-	-	265	274	-
Stage 2	0	-	0	0	-	-	617	298	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	135	0	468
Mov Cap-2 Maneuver	-	-	-	-	-	-	135	0	-
Stage 1	-	-	-	-	-	-	265	0	-
Stage 2	-	-	-	-	-	-	617	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	18.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	45	165	126	136	1	247	1	71	1	2	5
Future Vol, veh/h	1	45	165	126	136	1	247	1	71	1	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	11	0	1	8	0	0	0	0	0	0	0
Mvmt Flow	1	51	188	143	155	1	281	1	81	1	2	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	239	0	0	593	589	146	631	683	156
Stage 1	-	-	-	-	-	-	147	147	-	442	442	-
Stage 2	-	-	-	-	-	-	446	442	-	189	241	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1436	-	-	1334	-	-	420	423	906	396	374	895
Stage 1	-	-	-	-	-	-	860	779	-	598	580	-
Stage 2	-	-	-	-	-	-	595	580	-	817	710	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1436	-	-	1334	-	-	378	373	905	327	330	895
Mov Cap-2 Maneuver	-	-	-	-	-	-	378	373	-	327	330	-
Stage 1	-	-	-	-	-	-	859	778	-	597	512	-
Stage 2	-	-	-	-	-	-	520	512	-	742	709	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			3.8			43.2			11.7		
HCM LOS							E			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	434	1436	-	-	1334	-	-	544
HCM Lane V/C Ratio	0.835	0.001	-	-	0.107	-	-	0.017
HCM Control Delay (s)	43.2	7.5	0	-	8	0	-	11.7
HCM Lane LOS	E	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	8	0	-	-	0.4	-	-	0.1



1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.1	0.1
Total Del/Veh (s)	0.9	2.5	10.1	5.8	5.2

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	4.6	0.2	0.8	1.1

3: Melvina Ave. & Costco Employee Parking Dwy #2 Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.1	0.1

4: Melvina Ave. & Costco Employee Parking Dwy #3 Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.8	0.4	0.1	0.3

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.1
Total Del/Veh (s)	7.4	0.8	1.4	2.7

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	87.1	0.0	0.0	26.4
Total Del/Veh (s)	25.3	113.8	0.8	8.6	38.9

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.4	0.0	1.9	1.0
Total Del/Veh (s)	17.7	23.2	1.4	35.1	21.1

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	1.8	4.7	30.9	5.4	3.5

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	5.2	3.0	1.9	3.9

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.3	0.1
Total Del/Veh (s)	15.9	17.1	82.4	67.7	26.9

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.9	0.5
Total Del/Veh (s)	1.7	2.8	2.3

Total Network Performance

Denied Del/Veh (s)	6.0
Total Del/Veh (s)	39.4

**Intersection: 1: Melvina Ave. & Gross Point Rd.**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	16	48	157	12
Average Queue (ft)	1	23	66	1
95th Queue (ft)	5	50	130	7
Link Distance (ft)	1156	416	188	139
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1**

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	72	66	32
Average Queue (ft)	32	5	9
95th Queue (ft)	51	31	32
Link Distance (ft)	257	38	188
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection: 3: Melvina Ave. & Costco Employee Parking Dwy #2**

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

**Intersection: 4: Melvina Ave. & Costco Employee Parking Dwy #3**

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	31
Average Queue (ft)	10	2
95th Queue (ft)	33	15
Link Distance (ft)	216	114
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2**

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	98	75
Average Queue (ft)	52	28
95th Queue (ft)	83	65
Link Distance (ft)	282	114
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	LTR
Maximum Queue (ft)	29	301	190	194
Average Queue (ft)	10	248	118	56
95th Queue (ft)	31	396	256	141
Link Distance (ft)	219	286		212
Upstream Blk Time (%)		66		0
Queuing Penalty (veh)		0		0
Storage Bay Dist (ft)			130	
Storage Blk Time (%)		70		
Queuing Penalty (veh)		36		

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	L	TR	L	TR
Maximum Queue (ft)	92	160	149	100	60	180
Average Queue (ft)	34	64	65	40	59	161
95th Queue (ft)	64	107	120	85	65	201
Link Distance (ft)	278	278	295			163
Upstream Blk Time (%)						23
Queuing Penalty (veh)						110
Storage Bay Dist (ft)				45	25	
Storage Blk Time (%)			27	2	39	80
Queuing Penalty (veh)			18	3	123	138

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	27	182	176	53	310	328	31	31
Average Queue (ft)	1	37	17	15	41	45	11	2
95th Queue (ft)	9	139	85	46	184	197	34	15
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		2			2			
Queuing Penalty (veh)		0			0			

**Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy**

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	R
Maximum Queue (ft)	267	223	165	83
Average Queue (ft)	90	49	7	18
95th Queue (ft)	219	175	57	65
Link Distance (ft)	361	361	210	208
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	TR
Maximum Queue (ft)	204	226	225	199	284	285	160	118	240	319
Average Queue (ft)	99	163	148	21	245	213	50	38	232	288
95th Queue (ft)	169	254	229	105	304	299	116	92	254	365
Link Distance (ft)		210	210		259	259	259	562		304
Upstream Blk Time (%)	0	4	2		6	2				21
Queuing Penalty (veh)	0	19	9		24	9				119
Storage Bay Dist (ft)	180			100					165	
Storage Blk Time (%)	0	7			30				44	15
Queuing Penalty (veh)	0	14			3				90	56

Intersection: 11: Touhy Ave. & Target Dwy

Movement	EB	EB	WB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	97	133	281	235
Average Queue (ft)	5	7	54	19
95th Queue (ft)	38	49	160	104
Link Distance (ft)	259	259	479	479
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				1
Queuing Penalty (veh)				4

Network Summary

Network wide Queuing Penalty: 775
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Existing Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1100	7	21	1318	1	2	0	5	0	0	2
Future Volume (veh/h)	2	1100	7	21	1318	1	2	0	5	0	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1856	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	2	1134	7	22	1359	1	2	0	5	0	0	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	0	3	0	0	0	0	0	0	0
Cap, veh/h	398	3095	19	464	3128	2	41	3	33	0	0	47
Arrive On Green	0.00	0.85	0.86	0.02	1.00	1.00	0.05	0.00	0.03	0.00	0.00	0.04
Sat Flow, veh/h	1810	3620	22	1810	3615	3	335	110	1115	0	0	1570
Grp Volume(v), veh/h	2	557	584	22	663	697	7	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1810	1777	1866	1810	1763	1855	1561	0	0	0	0	1570
Q Serve(g_s), s	0.0	9.9	9.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.0	9.9	9.9	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00		0.01	1.00		0.00	0.29		0.71	0.00		1.00
Lane Grp Cap(c), veh/h	398	1519	1595	464	1525	1605	109	0	0	0	0	47
V/C Ratio(X)	0.01	0.37	0.37	0.05	0.43	0.43	0.06	0.00	0.00	0.00	0.00	0.04
Avail Cap(c_a), veh/h	522	1519	1595	569	1525	1605	257	0	0	0	0	168
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	1.5	2.3	2.3	1.7	0.0	0.0	70.5	0.0	0.0	0.0	0.0	70.2
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.9	0.9	0.4	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	2.8	0.1	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	3.0	3.0	1.7	0.9	0.9	70.8	0.0	0.0	0.0	0.0	70.6
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1143			1382			7				2
Approach Delay, s/veh		3.0			0.9			70.8				70.6
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	134.2		10.5	3.7	135.8		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	105.0		16.0	10.5	105.0		19.0				
Max Q Clear Time (g_c+1/2), s	11.9	11.9		2.2	2.0	2.0		2.6				
Green Ext Time (p_c), s	0.0	35.8		0.0	0.0	52.1		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	48	1057	1197	96	0	143
Future Vol, veh/h	48	1057	1197	96	0	143
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	2	3	0	0	1
Mvmt Flow	49	1090	1234	99	0	147

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1334	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	524	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	524	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-





















Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	524	-	-	-	403
HCM Lane V/C Ratio	0.094	-	-	-	0.366
HCM Control Delay (s)	12.6	-	-	-	19
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.6



HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Existing Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	864	10	10	1092	136	11	20	10	372	15	190
Future Volume (veh/h)	183	864	10	10	1092	136	11	20	10	372	15	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.97	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1856	1767	1900	1953	1885	1900	1900	1900	1870	1900	1900
Adj Flow Rate, veh/h	201	949	11	11	1200	149	12	22	11	409	16	209
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	9	0	3	1	0	0	0	2	0	0
Cap, veh/h	323	2315	27	415	2211	945	44	35	16	431	28	362
Arrive On Green	0.12	1.00	1.00	0.01	0.60	0.60	0.06	0.04	0.05	0.18	0.24	0.25
Sat Flow, veh/h	1810	3569	41	1810	3711	1586	346	859	390	1781	115	1505
Grp Volume(v), veh/h	201	469	491	11	1200	149	45	0	0	409	0	225
Grp Sat Flow(s),veh/h/ln	1810	1763	1848	1810	1856	1586	1595	0	0	1781	0	1620
Q Serve(g_s), s	6.6	0.0	0.0	0.4	29.0	6.3	2.5	0.0	0.0	26.5	0.0	18.3
Cycle Q Clear(g_c), s	6.6	0.0	0.0	0.4	29.0	6.3	4.0	0.0	0.0	26.5	0.0	18.3
Prop In Lane	1.00		0.02	1.00		1.00	0.27		0.24	1.00		0.93
Lane Grp Cap(c), veh/h	323	1143	1199	415	2211	945	127	0	0	431	0	390
V/C Ratio(X)	0.62	0.41	0.41	0.03	0.54	0.16	0.35	0.00	0.00	0.95	0.00	0.58
Avail Cap(c_a), veh/h	461	1143	1199	516	2211	945	250	0	0	431	0	519
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	0.0	11.9	18.1	13.5	70.4	0.0	0.0	57.9	0.0	49.8
Incr Delay (d2), s/veh	1.5	1.1	1.0	0.0	1.0	0.4	2.4	0.0	0.0	30.8	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.3	0.3	0.2	12.5	2.4	1.8	0.0	0.0	6.5	0.0	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	1.1	1.0	11.9	19.1	13.9	72.7	0.0	0.0	88.7	0.0	51.7
LnGrp LOS	B	A	A	B	B	B	E	A	A	F	A	D
Approach Vol, veh/h		1161			1360			45			634	
Approach Delay, s/veh		3.6			18.4			72.7			75.6	
Approach LOS		A			B			E			E	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	103.3		42.1	12.5	95.4	30.0	12.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0	3.5	6.0				
Max Green Setting (Gmax), s	9.5	77.0		48.0	20.5	66.0	26.5	18.0				
Max Q Clear Time (g_c+I1), s	2.4	2.0		20.3	8.6	31.0	28.5	6.0				
Green Ext Time (p_c), s	0.0	24.9		1.6	0.4	25.8	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				25.1								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1246	0	0	1238	186	0	0	0	0	0	0
Future Vol, veh/h	0	1246	0	0	1238	186	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	2	0	2	2	0	0	0	0	2	0
Mvmt Flow	0	1285	0	0	1276	192	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1798	2753	646
Stage 1	-	-	-	-	-	-	1285	1285	-
Stage 2	-	-	-	-	-	-	513	1468	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	95	20	419
Stage 1	0	-	0	0	-	-	223	237	-
Stage 2	0	-	0	0	-	-	538	194	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	95	0	418
Mov Cap-2 Maneuver	-	-	-	-	-	-	95	0	-
Stage 1	-	-	-	-	-	-	223	0	-
Stage 2	-	-	-	-	-	-	537	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	20.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	30	164	138	60	1	251	1	118	1	1	1
Future Vol, veh/h	1	30	164	138	60	1	251	1	118	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	3	0	1	0	0	0	0	0
Mvmt Flow	1	35	191	160	70	1	292	1	137	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	71	0	0	226	0	0	525	524	132	594	619	71
Stage 1	-	-	-	-	-	-	133	133	-	391	391	-
Stage 2	-	-	-	-	-	-	392	391	-	203	228	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.11	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.509	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1542	-	-	1354	-	-	465	461	923	420	407	997
Stage 1	-	-	-	-	-	-	873	790	-	637	611	-
Stage 2	-	-	-	-	-	-	635	611	-	804	719	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1542	-	-	1354	-	-	419	404	922	323	357	997
Mov Cap-2 Maneuver	-	-	-	-	-	-	419	404	-	323	357	-
Stage 1	-	-	-	-	-	-	872	789	-	636	536	-
Stage 2	-	-	-	-	-	-	555	536	-	682	718	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			5.6			40.3			13.3		
HCM LOS							E			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	507	1542	-	-	1354	-	-	435
HCM Lane V/C Ratio	0.849	0.001	-	-	0.119	-	-	0.008
HCM Control Delay (s)	40.3	7.3	0	-	8	-	-	13.3
HCM Lane LOS	E	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	8.8	0	-	-	0.4	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.4	0.1	0.3
Total Del/Veh (s)	1.1	3.9	11.9	7.3	7.0

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	6.0	0.3	1.2	1.7

3: Melvina Ave. & Costco Employee Parking Dwy #2 Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.2	0.2	0.2	0.2

4: Melvina Ave. & Costco Employee Parking Dwy #3 Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.4	0.2	0.3

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.0	0.1
Total Del/Veh (s)	9.5	0.8	2.0	4.0

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	524.8	0.0	0.1	151.8
Total Del/Veh (s)	73.1	188.0	1.1	17.4	47.2

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	7.4	0.0	9.9	4.3
Total Del/Veh (s)	27.9	59.0	1.5	49.2	31.9

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	3.2	5.5	11.8	11.7	4.5

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	3.7	3.1	2.7	3.3

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.0	0.0
Total Del/Veh (s)	15.6	20.3	63.9	61.2	27.8

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	1.2	0.7
Total Del/Veh (s)	1.3	2.0	1.7

Total Network Performance

Denied Del/Veh (s)	38.2
Total Del/Veh (s)	45.9

Intersection: 1: Melvina Ave. & Gross Point Rd.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	16	105	180	17
Average Queue (ft)	2	25	71	1
95th Queue (ft)	10	67	148	9
Link Distance (ft)	1156	417	188	140
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			4	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	87	31	79
Average Queue (ft)	39	2	22
95th Queue (ft)	63	16	58
Link Distance (ft)	257	38	188
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Melvina Ave. & Costco Employee Parking Dwy #2

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	12	23
Average Queue (ft)	1	1
95th Queue (ft)	8	11
Link Distance (ft)	207	124
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Melvina Ave. & Costco Employee Parking Dwy #3

Movement	NB	SB
Directions Served	LT	TR
Maximum Queue (ft)	40	20
Average Queue (ft)	4	1
95th Queue (ft)	22	12
Link Distance (ft)	114	124
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	132	28	90
Average Queue (ft)	65	2	29
95th Queue (ft)	112	12	69
Link Distance (ft)	282	212	114
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	76	301	190	50	225
Average Queue (ft)	24	256	95	3	84
95th Queue (ft)	70	387	242	20	192
Link Distance (ft)	219	286		163	212
Upstream Blk Time (%)		74			1
Queuing Penalty (veh)		0			4
Storage Bay Dist (ft)			130		
Storage Blk Time (%)		81			
Queuing Penalty (veh)		70			

Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	122	209	310	100	19	22	60	183
Average Queue (ft)	46	94	162	73	1	1	15	172
95th Queue (ft)	89	180	325	130	8	11	55	201
Link Distance (ft)	278	278	295			304		163
Upstream Blk Time (%)		0	12					40
Queuing Penalty (veh)		0	0					189
Storage Bay Dist (ft)				45	50		25	
Storage Blk Time (%)			67	5		0	2	97
Queuing Penalty (veh)			64	11		0	11	11

Intersection: 8: Mobile Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	34	250	178	73	290	298	31	19
Average Queue (ft)	4	58	30	12	46	50	11	1
95th Queue (ft)	22	195	115	48	188	191	36	9
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	0		
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		5			2			
Queuing Penalty (veh)		0			0			

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	R
Maximum Queue (ft)	278	227	33	62	118
Average Queue (ft)	65	23	0	1	27
95th Queue (ft)	188	117	8	15	86
Link Distance (ft)	361	361	211	211	242
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					



Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	TR
Maximum Queue (ft)	210	239	223	165	274	266	182	69	240	324
Average Queue (ft)	117	135	114	10	215	178	91	24	235	282
95th Queue (ft)	195	224	195	60	294	278	161	59	254	380
Link Distance (ft)		211	211		261	261	261	562		304
Upstream Blk Time (%)	0	1	1		4	1				16
Queuing Penalty (veh)	0	7	2		14	2				101
Storage Bay Dist (ft)	180			100					165	
Storage Blk Time (%)	2	3			31				47	6
Queuing Penalty (veh)	8	6			3				98	25

Intersection: 11: Touhy Ave. & Target Dwy

Movement	WB	WB	WB
Directions Served	T	T	TR
Maximum Queue (ft)	157	52	17
Average Queue (ft)	20	4	1
95th Queue (ft)	91	39	9
Link Distance (ft)	480	480	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Network Summary

Network wide Queuing Penalty: 632
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Existing Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1005	12	16	1183	2	2	0	13	0	0	1
Future Volume (veh/h)	5	1005	12	16	1183	2	2	0	13	0	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.97		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1015	12	16	1195	2	2	0	13	0	0	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	446	2910	34	483	2969	5	38	6	83	0	0	107
Arrive On Green	0.00	0.81	0.82	0.02	1.00	1.00	0.08	0.00	0.06	0.00	0.00	0.07
Sat Flow, veh/h	1810	3596	43	1810	3640	6	115	92	1345	0	0	1554
Grp Volume(v), veh/h	5	502	525	16	583	614	15	0	0	0	0	1
Grp Sat Flow(s),veh/h/ln	1810	1777	1861	1810	1777	1869	1552	0	0	0	0	1554
Q Serve(g_s), s	0.1	9.8	9.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	9.8	9.7	0.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		0.02	1.00		0.00	0.13		0.87	0.00		1.00
Lane Grp Cap(c), veh/h	446	1438	1506	483	1449	1524	162	0	0	0	0	107
V/C Ratio(X)	0.01	0.35	0.35	0.03	0.40	0.40	0.09	0.00	0.00	0.00	0.00	0.01
Avail Cap(c_a), veh/h	585	1438	1506	611	1449	1524	315	0	0	0	0	203
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	2.3	3.3	3.3	2.5	0.0	0.0	57.6	0.0	0.0	0.0	0.0	56.4
Incr Delay (d2), s/veh	0.0	0.7	0.6	0.0	0.8	0.8	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	2.9	3.0	0.1	0.3	0.3	0.5	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.3	4.0	3.9	2.5	0.8	0.8	58.0	0.0	0.0	0.0	0.0	56.4
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1032			1213			15				1
Approach Delay, s/veh		3.9			0.8			58.0				56.4
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	111.2		14.0	4.0	112.0		14.0				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	83.0		16.0	10.5	83.0		21.0				
Max Q Clear Time (g_c+1/2), s	11.8	11.8		2.1	2.1	2.0		3.2				
Green Ext Time (p_c), s	0.0	27.4		0.0	0.0	37.2		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	49	969	1029	123	2	172
Future Vol, veh/h	49	969	1029	123	2	172
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	1	0	1
Mvmt Flow	49	979	1039	124	2	174





















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1167	0	-	0	1693 586
Stage 1	-	-	-	-	1105 -
Stage 2	-	-	-	-	588 -
Critical Hdwy	4.14	-	-	-	6.8 6.92
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.22	-	-	-	3.5 3.31
Pot Cap-1 Maneuver	594	-	-	-	86 456
Stage 1	-	-	-	-	283 -
Stage 2	-	-	-	-	524 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	592	-	-	-	70 454
Mov Cap-2 Maneuver	-	-	-	-	70 -
Stage 1	-	-	-	-	231 -
Stage 2	-	-	-	-	522 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	592	-	-	-	454
HCM Lane V/C Ratio	0.084	-	-	-	0.383
HCM Control Delay (s)	11.6	-	-	-	17.8
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.8

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Existing Conditions  
Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	734	5	10	950	196	5	10	5	418	10	197
Future Volume (veh/h)	232	734	5	10	950	196	5	10	5	418	10	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1604	1900	1969	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	239	757	5	10	979	202	5	10	5	431	10	203
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	20	0	2	0	0	0	0	0	0	0
Cap, veh/h	373	2188	14	447	1983	850	48	44	19	506	20	414
Arrive On Green	0.16	1.00	1.00	0.01	0.53	0.53	0.07	0.05	0.05	0.20	0.27	0.28
Sat Flow, veh/h	1781	3619	24	1810	3741	1603	285	943	409	1810	76	1539
Grp Volume(v), veh/h	239	372	390	10	979	202	20	0	0	431	0	213
Grp Sat Flow(s),veh/h/ln	1781	1777	1866	1810	1870	1603	1638	0	0	1810	0	1615
Q Serve(g_s), s	8.1	0.0	0.0	0.3	21.6	8.8	0.0	0.0	0.0	25.5	0.0	14.3
Cycle Q Clear(g_c), s	8.1	0.0	0.0	0.3	21.6	8.8	1.4	0.0	0.0	25.5	0.0	14.3
Prop In Lane	1.00		0.01	1.00		1.00	0.25		0.25	1.00		0.95
Lane Grp Cap(c), veh/h	373	1074	1128	447	1983	850	148	0	0	506	0	435
V/C Ratio(X)	0.64	0.35	0.35	0.02	0.49	0.24	0.14	0.00	0.00	0.85	0.00	0.49
Avail Cap(c_a), veh/h	495	1074	1128	566	1983	850	269	0	0	506	0	559
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	0.0	14.0	19.4	16.4	59.3	0.0	0.0	47.0	0.0	39.6
Incr Delay (d2), s/veh	1.4	0.9	0.8	0.0	0.9	0.7	0.6	0.0	0.0	12.8	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.3	0.3	0.1	9.4	3.5	0.6	0.0	0.0	15.4	0.0	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.6	0.9	0.8	14.0	20.3	17.1	59.9	0.0	0.0	59.8	0.0	40.8
LnGrp LOS	B	A	A	B	C	B	E	A	A	E	A	D
Approach Vol, veh/h		1001			1191			20			644	
Approach Delay, s/veh		4.1			19.7			59.9			53.5	
Approach LOS		A			B			E			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.4	84.6		41.0	14.1	74.9	29.0	12.0				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0	3.5	6.0				
Max Green Setting (Gmax), s	9.5	60.0		45.0	19.5	50.0	25.5	16.0				
Max Q Clear Time (g_c+I1), s	2.3	2.0		16.3	10.1	23.6	27.5	3.4				
Green Ext Time (p_c), s	0.0	16.3		1.5	0.5	18.5	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.2								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1157	0	0	1156	281	0	0	0	0	0	0
Future Vol, veh/h	0	1157	0	0	1156	281	0	0	0	0	0	0
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	2	0	0	2	0	0	2	0
Mvmt Flow	0	1231	0	0	1230	299	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1723	2763	616
Stage 1	-	-	-	-	-	-	1231	1231	-
Stage 2	-	-	-	-	-	-	492	1532	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	105	19	438
Stage 1	0	-	0	0	-	-	238	248	-
Stage 2	0	-	0	0	-	-	552	177	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	105	0	438
Mov Cap-2 Maneuver	-	-	-	-	-	-	105	0	-
Stage 1	-	-	-	-	-	-	238	0	-
Stage 2	-	-	-	-	-	-	552	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

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# Appendix J

## Background Intersection Operations

Table 4 summarizes the overall intersection and worst approach operations for Background conditions. LOS is not reported for SimTraffic results as microsimulation delay does not directly correlate to HCM defined LOS thresholds.

**Table 4: Intersection Operations, Background Conditions**

No.	Intersection	Traffic Control <sup>1</sup>	Peak Hour	LOS <sup>2</sup> (Overall Delay) <sup>3</sup>	Approach LOS <sup>4</sup> (Approach Delay) <sup>5</sup>
1	Gross Point Rd & Melvina Ave	TWSC	AM	A (5.0)	B (11.7)
			PM	C (16.6)	<b>E (38.6)</b>
			SAT	C (15.4)	D (29.0)
2	Melvina Ave & Costco Warehouse/Employee Parking Driveway#1 <sup>6</sup>	TWSC	AM	0.3	3.1
			PM	1.1	4.0
			SAT	1.5	5.1
3	Melvina Ave & Costco Employee Parking Driveway #2 <sup>6</sup>	SSSC	AM	N/A	N/A
			PM	N/A	N/A
			SAT	N/A	N/A
4	Melvina Ave & Costco Warehouse Driveway #3 <sup>6</sup>	SSSC	AM	N/A	N/A
			PM	N/A	N/A
			SAT	N/A	N/A
5	Melvina Ave & Costco Warehouse Driveway <sup>6</sup>	SSSC	AM	0.9	5.2
			PM	2.9	8.2
			SAT	4.2	10.5
6	Melvina Ave & Costco Warehouse/Target/YMCA Dwy <sup>6</sup>	TWSC	AM	0.6	5.4
			PM	3.8	13.1
			SAT	11.4	33.1
7	Melvina Ave & Target/Aldi/Costco Fuel Dwy <sup>6</sup>	SSSC	AM	3.1	5.2
			PM	7.7	10.9
			SAT	10.3	15.6
8	Touhy Ave & Mobile Ave	Signal	AM	A (2.4)	-
			PM	A (2.1)	-
			SAT	A(2.7)	-
9	Touhy Ave & Costco Fuel/Aldi Dwy	TWSC	AM	A (0.4)	B (13.2)
			PM	A (1.3)	C (19.7)
			SAT	A (1.6)	C (18.3)
10	Melvina Ave & Touhy Ave	Signal	AM	A (9.9)	-
			PM	C (24.1)	-
			SAT	C (29.4)	-
11	Touhy Ave & Target Dwy	None	AM	A (-)	A (-)
			PM	A (-)	A (-)
			SAT	A (-)	A (-)

Source: Kittelson & Associates, Inc. 2022.

Notes:

<sup>1</sup> Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, SSSC = Side Street Stop Control AWSC = All-Way Stop Control Intersection.

<sup>2</sup> LOS = Level of Service

<sup>3</sup> Delay = Average vehicle delay reported in seconds per vehicle.

<sup>4</sup>Approach LOS = Level of Service for worst approach.

<sup>5</sup>Approach delay = Average vehicle delay reported in seconds per vehicle for the worst approach.

<sup>6</sup>SimTraffic Delay reported.

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	5	46	73	63	88	2	93	1	34	1	1	5
Future Vol, veh/h	5	46	73	63	88	2	93	1	34	1	1	5
Conflicting Peds, #/hr	0	0	4	4	0	0	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	60	9	9	0	9	50	4	0	0	0	100	17
Mvmt Flow	6	51	81	70	98	2	103	1	38	1	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	0	136	0	0	351	348	99	365	387	99
Stage 1	-	-	-	-	-	-	108	108	-	239	239	-
Stage 2	-	-	-	-	-	-	243	240	-	126	148	-
Critical Hdwy	4.7	-	-	4.1	-	-	7.14	6.5	6.2	7.1	7.5	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.74	-	-	2.2	-	-	3.536	4	3.3	3.5	4.9	3.453
Pot Cap-1 Maneuver	1197	-	-	1461	-	-	600	579	962	595	422	917
Stage 1	-	-	-	-	-	-	893	810	-	769	559	-
Stage 2	-	-	-	-	-	-	756	711	-	883	621	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1197	-	-	1455	-	-	568	544	956	545	397	917
Mov Cap-2 Maneuver	-	-	-	-	-	-	568	544	-	545	397	-
Stage 1	-	-	-	-	-	-	885	803	-	765	530	-
Stage 2	-	-	-	-	-	-	712	675	-	841	615	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			3.1			11.7			10.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	568	936	1197	-	-	1455	-	-	714
HCM Lane V/C Ratio	0.182	0.042	0.005	-	-	0.048	-	-	0.011
HCM Control Delay (s)	12.7	9	8	0	-	7.6	0	-	10.1
HCM Lane LOS	B	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0.1	0	-	-	0.2	-	-	0



1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.1	0.1	0.1
Total Del/Veh (s)	0.9	1.8	4.8	2.6	2.5

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.1	0.3	0.2	0.3

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.2	5.2	0.3	0.2	0.9

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.6	0.0	0.0	0.1
Total Del/Veh (s)	2.9	5.4	0.3	0.4	0.6

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.3	0.1	0.0	0.2
Total Del/Veh (s)	4.0	5.2	0.9	4.4	3.1

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	1.6	3.4	24.9	2.6

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	2.0	1.8	1.2	1.9

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.0	8.5	61.5	55.1	12.3

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.5	0.3
Total Del/Veh (s)	1.3	0.8	1.0

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	15.2

Intersection: 1: Melvina Ave. & Gross Point Rd.

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	25	50	55	18	32
Average Queue (ft)	1	10	23	4	3
95th Queue (ft)	12	35	46	9	16
Link Distance (ft)	1149	411		186	138
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1

Movement	WB	NB	NB	SB
Directions Served	LTR	L	TR	TR
Maximum Queue (ft)	56	12	24	12
Average Queue (ft)	8	1	1	0
95th Queue (ft)	37	8	10	7
Link Distance (ft)	251		384	186
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	L
Maximum Queue (ft)	35	51	28	19
Average Queue (ft)	20	15	1	1
95th Queue (ft)	44	43	12	9
Link Distance (ft)	174	276	218	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				130
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	L
Maximum Queue (ft)	63	64	31	29
Average Queue (ft)	4	11	6	4
95th Queue (ft)	27	43	25	19
Link Distance (ft)	213	280		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			130	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	TR	L	TR
Maximum Queue (ft)	42	57	54	36	9	37	103
Average Queue (ft)	16	31	23	14	0	4	48
95th Queue (ft)	36	50	46	40	5	22	79
Link Distance (ft)	266	266	294		306		164
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				45		65	
Storage Blk Time (%)			1	0		0	1
Queuing Penalty (veh)			0	0		0	0

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	TR	LTR
Maximum Queue (ft)	213	190	38	289	275	54
Average Queue (ft)	33	20	5	42	39	13
95th Queue (ft)	142	98	23	183	172	44
Link Distance (ft)	582	582		361	361	482
Upstream Blk Time (%)				0	0	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			100			
Storage Blk Time (%)	2			2		
Queuing Penalty (veh)	0			0		

**Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy**

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	R
Maximum Queue (ft)	203	145	6	11	32
Average Queue (ft)	43	13	0	1	2
95th Queue (ft)	142	77	5	10	16
Link Distance (ft)	361	361	198	198	226
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

**Intersection: 10: Melvina Ave. & Touhy Ave.**

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	156	205	207	96	262	242	64	65	132	149	154
Average Queue (ft)	57	113	101	6	144	111	16	21	57	67	54
95th Queue (ft)	108	207	199	47	258	224	48	52	105	121	115
Link Distance (ft)		198	198		248	248	248	562	306	306	
Upstream Blk Time (%)	0	1	0		1	0					
Queuing Penalty (veh)	0	5	3		2	0					
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	0	2			14					7	9
Queuing Penalty (veh)	0	2			1					4	6

**Intersection: 11: Touhy Ave. & Target Dwy**

Movement	EB	WB	WB
Directions Served	T	T	T
Maximum Queue (ft)	6	100	23
Average Queue (ft)	0	6	1
95th Queue (ft)	4	44	17
Link Distance (ft)	248	479	479
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

**Network Summary**

Network wide Queuing Penalty: 25

HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background Conditions  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1156	8	7	986	2	4	0	8	0	0	0
Future Volume (veh/h)	0	1156	8	7	986	2	4	0	8	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1811	1900	1648	1811	1900	1900	1900	1530	1900	1900	1900
Adj Flow Rate, veh/h	0	1204	8	7	1027	2	4	0	8	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	6	0	17	6	0	0	0	25	0	0	0
Cap, veh/h	525	2947	20	371	3076	6	51	4	36	0	80	0
Arrive On Green	0.00	0.84	0.85	0.01	1.00	1.00	0.06	0.00	0.03	0.00	0.00	0.00
Sat Flow, veh/h	1810	3504	23	1570	3523	7	407	111	1038	0	1900	0
Grp Volume(v), veh/h	0	591	621	7	501	528	12	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1721	1807	1570	1721	1810	1556	0	0	0	1900	0
Q Serve(g_s), s	0.0	10.8	10.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.8	10.8	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.00	0.33		0.67	0.00		0.00
Lane Grp Cap(c), veh/h	525	1447	1519	371	1502	1580	127	0	0	0	80	0
V/C Ratio(X)	0.00	0.41	0.41	0.02	0.33	0.33	0.09	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	656	1447	1519	478	1502	1580	297	0	0	0	248	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	2.5	2.5	1.9	0.0	0.0	60.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.8	0.0	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	2.8	0.0	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.4	3.3	1.9	0.6	0.6	61.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	A
Approach Vol, veh/h		1212		1036				12			0	
Approach Delay, s/veh		3.3		0.6				61.0			0.0	
Approach LOS		A		A				E				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.2	115.3		10.5	0.0	119.5		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	9.5	86.0		16.0	9.5	86.0		19.0				
Max Q Clear Time (g_c+I), s	12.8	12.8		0.0	0.0	2.0		2.9				
Green Ext Time (p_c), s	0.0	36.5		0.0	0.0	28.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.4
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	19	1145	941	56	0	54
Future Vol, veh/h	19	1145	941	56	0	54
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	7	7	2	0	4
Mvmt Flow	20	1193	980	58	0	56






















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1039	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	6.98
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	3.34
Pot Cap-1 Maneuver	677	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	676	-	496
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	676	-	-	-	496
HCM Lane V/C Ratio	0.029	-	-	-	0.113
HCM Control Delay (s)	10.5	-	-	-	13.2
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1015	5	5	944	57	5	10	5	134	5	48
Future Volume (veh/h)	125	1015	5	5	944	57	5	10	5	134	5	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1796	1900	1900	1891	1900	1900	1900	1900	1841	1900	1737
Adj Flow Rate, veh/h	137	1115	5	5	1037	63	5	11	5	147	5	53
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	7	0	0	7	0	0	0	0	4	0	11
Cap, veh/h	421	2580	12	423	2538	1137	10	23	10	223	9	97
Arrive On Green	0.08	1.00	1.00	0.00	0.71	0.71	0.05	0.02	0.02	0.07	0.07	0.07
Sat Flow, veh/h	1767	3484	16	1810	3593	1609	427	939	427	3401	139	1474
Grp Volume(v), veh/h	137	546	574	5	1037	63	21	0	0	147	0	58
Grp Sat Flow(s),veh/h/ln	1767	1706	1793	1810	1796	1609	1792	0	0	1700	0	1613
Q Serve(g_s), s	2.8	0.0	0.0	0.1	15.5	1.6	1.5	0.0	0.0	5.5	0.0	4.5
Cycle Q Clear(g_c), s	2.8	0.0	0.0	0.1	15.5	1.6	1.5	0.0	0.0	5.5	0.0	4.5
Prop In Lane	1.00		0.01	1.00		1.00	0.24		0.24	1.00		0.91
Lane Grp Cap(c), veh/h	421	1264	1328	423	2538	1137	44	0	0	223	0	106
V/C Ratio(X)	0.33	0.43	0.43	0.01	0.41	0.06	0.48	0.00	0.00	0.66	0.00	0.55
Avail Cap(c_a), veh/h	551	1264	1328	479	2538	1137	110	0	0	392	0	186
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.4	0.0	0.0	5.5	7.9	5.8	62.2	0.0	0.0	59.3	0.0	58.4
Incr Delay (d2), s/veh	0.3	1.1	1.0	0.0	0.5	0.1	11.0	0.0	0.0	4.6	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	0.4	0.0	5.6	0.5	0.8	0.0	0.0	2.5	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	1.1	1.0	5.5	8.4	5.9	73.2	0.0	0.0	63.9	0.0	64.5
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	E
Approach Vol, veh/h		1257			1105			21			205	
Approach Delay, s/veh		1.6			8.2			73.2			64.1	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.0	102.3		14.5	8.4	97.8		9.2				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	4.5	81.0		15.0	14.5	71.0		8.0				
Max Q Clear Time (g_c+I1), s	2.1	2.0		7.5	4.8	17.5		3.5				
Green Ext Time (p_c), s	0.0	33.0		0.7	0.2	27.7		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				9.9								
HCM 6th LOS				A								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												



Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1154	0	0	1006	65	0	0	0	0	0	0
Future Vol, veh/h	0	1154	0	0	1006	65	0	0	0	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	6	2	2	5	2	0	2	0	0	2	0
Mvmt Flow	0	1178	0	0	1027	66	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1589	2272	590
Stage 1	-	-	-	-	-	-	1178	1178	-
Stage 2	-	-	-	-	-	-	411	1094	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	126	40	456
Stage 1	0	-	0	0	-	-	253	263	-
Stage 2	0	-	0	0	-	-	608	288	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	126	0	456
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	0	-
Stage 1	-	-	-	-	-	-	253	0	-
Stage 2	-	-	-	-	-	-	608	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	16.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	1	46	177	135	140	1	255	1	74	1	2	5
Future Vol, veh/h	1	46	177	135	140	1	255	1	74	1	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	11	0	1	8	0	0	0	0	0	0	0
Mvmt Flow	1	52	201	153	159	1	290	1	84	1	2	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	160	0	0	253	0	0	625	621	154	664	721	160
Stage 1	-	-	-	-	-	-	155	155	-	466	466	-
Stage 2	-	-	-	-	-	-	470	466	-	198	255	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1432	-	-	1318	-	-	400	406	897	377	356	890
Stage 1	-	-	-	-	-	-	852	773	-	581	566	-
Stage 2	-	-	-	-	-	-	578	566	-	808	700	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1432	-	-	1318	-	-	356	354	896	307	310	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	356	354	-	307	310	-
Stage 1	-	-	-	-	-	-	851	772	-	580	494	-
Stage 2	-	-	-	-	-	-	499	494	-	730	699	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			4			38.6			12		
HCM LOS							E			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	356	878	1432	-	-	1318	-	-	522
HCM Lane V/C Ratio	0.814	0.097	0.001	-	-	0.116	-	-	0.017
HCM Control Delay (s)	47.1	9.5	7.5	0	-	8.1	0	-	12
HCM Lane LOS	E	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	7.1	0.3	0	-	-	0.4	-	-	0.1

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.1	0.1	0.1
Total Del/Veh (s)	1.1	3.3	9.6	4.7	5.3

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	2.7	4.0	0.5	0.7	1.1

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	6.7	8.2	0.7	1.0	2.9

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.2	0.0	0.0	0.3
Total Del/Veh (s)	8.0	13.1	0.7	0.9	3.8

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.3	0.0	0.0	0.3
Total Del/Veh (s)	8.7	10.9	1.4	10.0	7.7

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.6	4.7	23.1	8.4	3.9

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	6.7	3.3	2.7	4.7

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.1	0.0	0.2
Total Del/Veh (s)	17.4	19.0	81.8	59.2	27.1

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.8	0.4
Total Del/Veh (s)	2.0	3.7	2.9

Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	30.4

Intersection: 1: Melvina Ave. & Gross Point Rd.

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	17	86	124	162	6
Average Queue (ft)	2	26	53	13	2
95th Queue (ft)	12	69	106	62	6
Link Distance (ft)	1149	410		186	138
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			5		
Queuing Penalty (veh)			4		

Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	30	55	53
Average Queue (ft)	2	33	13
95th Queue (ft)	15	47	41
Link Distance (ft)	234	251	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	31	117	50	53	29
Average Queue (ft)	18	54	4	19	1
95th Queue (ft)	42	89	22	46	10
Link Distance (ft)	174	276	218		384
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				130	
Storage Blk Time (%)					
Queuing Penalty (veh)					

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	L
Maximum Queue (ft)	28	149	53	29
Average Queue (ft)	7	65	24	12
95th Queue (ft)	27	110	50	35
Link Distance (ft)	213	280		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			130	100
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	TR	L	TR
Maximum Queue (ft)	87	94	178	100	50	79	138
Average Queue (ft)	33	50	56	35	2	45	74
95th Queue (ft)	61	84	124	78	17	74	119
Link Distance (ft)	266	266	294		306		164
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				45		65	
Storage Blk Time (%)			11	1	0	2	10
Queuing Penalty (veh)			7	2	0	7	17

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	29	302	220	199	296	289	31	31
Average Queue (ft)	2	43	26	21	30	36	11	1
95th Queue (ft)	14	175	117	82	153	156	35	11
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		3			1			
Queuing Penalty (veh)		0			0			

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	SB
Directions Served	LT	T	R
Maximum Queue (ft)	361	340	101
Average Queue (ft)	132	79	24
95th Queue (ft)	292	243	79
Link Distance (ft)	361	361	208
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	196	229	220	200	270	287	157	138	238	278	234
Average Queue (ft)	107	172	164	26	238	217	63	45	169	206	162
95th Queue (ft)	203	242	239	127	311	299	124	95	231	279	254
Link Distance (ft)		197	197		248	248	248	562	306	306	
Upstream Blk Time (%)	0	6	5		11	5					
Queuing Penalty (veh)	0	30	25		47	23					
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	1	9			32					39	49
Queuing Penalty (veh)	6	16			3					83	92

Intersection: 11: Touhy Ave. & Target Dwy

Movement	EB	EB	WB	WB	WB
Directions Served	T	T	T	T	TR
Maximum Queue (ft)	75	31	289	277	30
Average Queue (ft)	5	3	87	50	2
95th Queue (ft)	30	18	234	180	15
Link Distance (ft)	248	248	479	479	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				1	
Queuing Penalty (veh)				4	

Network Summary

Network wide Queuing Penalty: 369

HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1133	7	22	1357	1	2	0	5	0	0	2
Future Volume (veh/h)	2	1133	7	22	1357	1	2	0	5	0	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1856	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	2	1168	7	23	1399	1	2	0	5	0	0	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	0	3	0	0	0	0	0	0	0
Cap, veh/h	385	3094	19	451	3128	2	41	3	33	0	0	47
Arrive On Green	0.00	0.85	0.86	0.02	1.00	1.00	0.05	0.00	0.03	0.00	0.00	0.04
Sat Flow, veh/h	1810	3621	22	1810	3615	3	335	110	1115	0	0	1570
Grp Volume(v), veh/h	2	573	602	23	682	718	7	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1810	1777	1866	1810	1763	1855	1561	0	0	0	0	1570
Q Serve(g_s), s	0.0	10.4	10.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.0	10.4	10.4	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00		0.01	1.00		0.00	0.29		0.71	0.00		1.00
Lane Grp Cap(c), veh/h	385	1518	1594	451	1525	1605	109	0	0	0	0	47
V/C Ratio(X)	0.01	0.38	0.38	0.05	0.45	0.45	0.06	0.00	0.00	0.00	0.00	0.04
Avail Cap(c_a), veh/h	509	1518	1594	555	1525	1605	257	0	0	0	0	168
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	1.6	2.3	2.3	1.7	0.0	0.0	70.5	0.0	0.0	0.0	0.0	70.2
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	1.0	0.9	0.4	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	2.9	0.1	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	3.1	3.0	1.7	1.0	0.9	70.8	0.0	0.0	0.0	0.0	70.6
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1177			1423			7				2
Approach Delay, s/veh		3.0			0.9			70.8				70.6
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	134.2		10.5	3.7	135.8		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	105.0		16.0	10.5	105.0		19.0				
Max Q Clear Time (g_c+1/3), s	12.4	12.4		2.2	2.0	2.0		2.6				
Green Ext Time (p_c), s	0.0	37.8		0.0	0.0	55.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.



Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	48	1090	1237	96	0	143
Future Vol, veh/h	48	1090	1237	96	0	143
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	2	3	0	0	1
Mvmt Flow	49	1124	1275	99	0	147






















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1375	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	505	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	505	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	19.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	505	-	-	-	391
HCM Lane V/C Ratio	0.098	-	-	-	0.377
HCM Control Delay (s)	12.9	-	-	-	19.7
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.7

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	892	10	10	1126	140	11	21	10	383	15	196
Future Volume (veh/h)	188	892	10	10	1126	140	11	21	10	383	15	196
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1856	1767	1900	1953	1885	1900	1900	1900	1870	1900	1900
Adj Flow Rate, veh/h	207	980	11	11	1237	154	12	23	11	421	16	215
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	9	0	3	1	0	0	0	2	0	0
Cap, veh/h	312	2294	26	399	2178	930	16	30	15	597	19	260
Arrive On Green	0.13	1.00	1.00	0.01	0.59	0.59	0.05	0.03	0.04	0.17	0.17	0.18
Sat Flow, veh/h	1810	3571	40	1810	3711	1585	466	892	427	3456	112	1505
Grp Volume(v), veh/h	207	484	507	11	1237	154	46	0	0	421	0	231
Grp Sat Flow(s),veh/h/ln	1810	1763	1848	1810	1856	1585	1785	0	0	1728	0	1617
Q Serve(g_s), s	7.0	0.0	0.0	0.4	31.0	6.7	3.8	0.0	0.0	17.2	0.0	20.6
Cycle Q Clear(g_c), s	7.0	0.0	0.0	0.4	31.0	6.7	3.8	0.0	0.0	17.2	0.0	20.6
Prop In Lane	1.00		0.02	1.00		1.00	0.26		0.24	1.00		0.93
Lane Grp Cap(c), veh/h	312	1132	1187	399	2178	930	61	0	0	597	0	279
V/C Ratio(X)	0.66	0.43	0.43	0.03	0.57	0.17	0.76	0.00	0.00	0.70	0.00	0.83
Avail Cap(c_a), veh/h	445	1132	1187	422	2178	930	107	0	0	737	0	345
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	0.0	12.4	19.2	14.2	71.3	0.0	0.0	58.4	0.0	59.4
Incr Delay (d2), s/veh	1.8	1.2	1.1	0.0	1.1	0.4	23.2	0.0	0.0	2.9	0.0	14.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.4	0.4	0.2	13.4	2.5	2.2	0.0	0.0	7.9	0.0	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	1.2	1.1	12.4	20.3	14.6	94.5	0.0	0.0	61.3	0.0	73.5
LnGrp LOS	B	A	A	B	C	B	F	A	A	E	A	E
Approach Vol, veh/h		1198			1402			46			652	
Approach Delay, s/veh		4.0			19.6			94.5			65.6	
Approach LOS		A			B			F			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	102.4		31.9	12.9	94.0		11.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	3.0	84.5		32.0	20.5	67.0		9.0				
Max Q Clear Time (g_c+I1), s	2.4	2.0		22.6	9.0	33.0		5.8				
Green Ext Time (p_c), s	0.0	26.9		3.1	0.4	25.9		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.1								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1285	0	0	1276	186	0	0	0	0	0	0
Future Vol, veh/h	0	1285	0	0	1276	186	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	2	0	2	2	0	0	0	0	2	0
Mvmt Flow	0	1325	0	0	1315	192	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1854	2832	666
Stage 1	-	-	-	-	-	-	1325	1325	-
Stage 2	-	-	-	-	-	-	529	1507	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	88	18	407
Stage 1	0	-	0	0	-	-	212	227	-
Stage 2	0	-	0	0	-	-	528	185	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	88	0	406
Mov Cap-2 Maneuver	-	-	-	-	-	-	88	0	-
Stage 1	-	-	-	-	-	-	212	0	-
Stage 2	-	-	-	-	-	-	527	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	15.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	1	31	173	146	62	1	262	1	123	1	1	1
Future Vol, veh/h	1	31	173	146	62	1	262	1	123	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	3	0	1	0	0	0	0	0
Mvmt Flow	1	36	201	170	72	1	305	1	143	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	73	0	0	237	0	0	553	552	138	625	652	73
Stage 1	-	-	-	-	-	-	139	139	-	413	413	-
Stage 2	-	-	-	-	-	-	414	413	-	212	239	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.11	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.509	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1540	-	-	1342	-	-	445	444	916	400	390	995
Stage 1	-	-	-	-	-	-	866	785	-	620	597	-
Stage 2	-	-	-	-	-	-	618	597	-	795	711	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1540	-	-	1342	-	-	398	385	915	302	338	995
Mov Cap-2 Maneuver	-	-	-	-	-	-	398	385	-	302	338	-
Stage 1	-	-	-	-	-	-	865	784	-	619	518	-
Stage 2	-	-	-	-	-	-	535	518	-	669	710	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			5.6			29			13.8		
HCM LOS							D			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	398	905	1540	-	-	1342	-	-	412
HCM Lane V/C Ratio	0.765	0.159	0.001	-	-	0.127	-	-	0.008
HCM Control Delay (s)	38.1	9.7	7.3	0	-	8.1	-	-	13.8
HCM Lane LOS	E	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	6.3	0.6	0	-	-	0.4	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.2	0.1	0.1	0.2
Total Del/Veh (s)	1.2	3.6	9.9	4.8	6.1

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.1	4.9	0.7	0.9	1.5

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	8.9	10.5	1.1	1.9	4.2

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	4.1	0.0	0.0	1.3
Total Del/Veh (s)	12.3	33.1	1.2	1.7	11.4

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.6	0.0	0.2	0.4
Total Del/Veh (s)	10.2	15.5	1.6	15.6	10.3

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.4	6.7	6.4	16.5	4.8

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	4.4	3.3	3.6	3.8

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	16.2	20.8	68.6	47.7	25.5

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	1.2	0.6
Total Del/Veh (s)	1.5	2.3	1.9

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	30.1

**Intersection: 1: Melvina Ave. & Gross Point Rd.**

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	17	134	124	172	7
Average Queue (ft)	2	28	66	25	0
95th Queue (ft)	10	75	117	102	3
Link Distance (ft)	1149	411		186	138
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			9	0	
Queuing Penalty (veh)			11	0	

**Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1**

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	30	79	51
Average Queue (ft)	2	38	20
95th Queue (ft)	15	61	49
Link Distance (ft)	234	251	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2**

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	56	132	70	94	31
Average Queue (ft)	24	65	7	30	2
95th Queue (ft)	49	107	33	63	15
Link Distance (ft)	174	276	218		384
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				130	
Storage Blk Time (%)					
Queuing Penalty (veh)					

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	L	TR	LTR	L	TR
Maximum Queue (ft)	52	295	190	23	50	50
Average Queue (ft)	13	140	75	3	14	6
95th Queue (ft)	40	280	186	16	39	28
Link Distance (ft)	213	280		164		218
Upstream Blk Time (%)		9				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			130		100	
Storage Blk Time (%)		21				
Queuing Penalty (veh)		20				

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	90	117	184	100	26	19	30	181
Average Queue (ft)	41	47	71	50	1	1	11	127
95th Queue (ft)	76	81	134	99	9	6	35	189
Link Distance (ft)	266	266	294			306		164
Upstream Blk Time (%)								2
Queuing Penalty (veh)								11
Storage Bay Dist (ft)				45	50		65	
Storage Blk Time (%)			20	9				42
Queuing Penalty (veh)			19	17				5

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	29	248	211	31	351	388	55	31
Average Queue (ft)	1	44	21	10	58	59	11	2
95th Queue (ft)	10	149	98	34	214	225	38	12
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	2		
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		3			4			
Queuing Penalty (veh)		0			1			



Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	SB
Directions Served	LT	T	R
Maximum Queue (ft)	277	178	142
Average Queue (ft)	91	38	41
95th Queue (ft)	226	136	113
Link Distance (ft)	361	361	242
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	181	230	198	199	269	263	220	74	241	259	234
Average Queue (ft)	119	137	117	32	231	187	103	27	146	178	150
95th Queue (ft)	184	241	193	130	290	275	194	60	229	263	245
Link Distance (ft)		198	198		250	250	250	562	306	306	
Upstream Blk Time (%)	0	2	0		5	1					
Queuing Penalty (veh)	0	9	2		18	2					
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	1	2			32					33	37
Queuing Penalty (veh)	4	6			3					70	80

Intersection: 11: Touhy Ave. & Target Dwy

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	231	147
Average Queue (ft)	29	10
95th Queue (ft)	116	68
Link Distance (ft)	480	480
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Network Summary

Network wide Queuing Penalty: 281
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1035	12	16	1218	2	2	0	13	0	0	1
Future Volume (veh/h)	5	1035	12	16	1218	2	2	0	13	0	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.97		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1045	12	16	1230	2	2	0	13	0	0	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	434	2911	33	470	2969	5	38	6	83	0	0	107
Arrive On Green	0.00	0.81	0.82	0.02	1.00	1.00	0.08	0.00	0.06	0.00	0.00	0.07
Sat Flow, veh/h	1810	3597	41	1810	3640	6	115	92	1345	0	0	1554
Grp Volume(v), veh/h	5	516	541	16	600	632	15	0	0	0	0	1
Grp Sat Flow(s),veh/h/ln	1810	1777	1862	1810	1777	1869	1552	0	0	0	0	1554
Q Serve(g_s), s	0.1	10.2	10.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	10.2	10.1	0.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		0.02	1.00		0.00	0.13		0.87	0.00		1.00
Lane Grp Cap(c), veh/h	434	1438	1507	470	1449	1524	162	0	0	0	0	107
V/C Ratio(X)	0.01	0.36	0.36	0.03	0.41	0.41	0.09	0.00	0.00	0.00	0.00	0.01
Avail Cap(c_a), veh/h	573	1438	1507	598	1449	1524	315	0	0	0	0	203
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	2.3	3.3	3.3	2.5	0.0	0.0	57.6	0.0	0.0	0.0	0.0	56.4
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.9	0.8	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	3.0	3.1	0.1	0.4	0.4	0.5	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.3	4.0	4.0	2.5	0.9	0.8	58.0	0.0	0.0	0.0	0.0	56.4
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1062			1248			15				1
Approach Delay, s/veh		4.0			0.9			58.0				56.4
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	111.2		14.0	4.0	112.0		14.0				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	83.0		16.0	10.5	83.0		21.0				
Max Q Clear Time (g_c+1/2), s	12.2	12.2		2.1	2.1	2.0		3.2				
Green Ext Time (p_c), s	0.0	28.6		0.0	0.0	39.1		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	49	999	1064	123	2	172
Future Vol, veh/h	49	999	1064	123	2	172
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	1	0	1
Mvmt Flow	49	1009	1075	124	2	174






















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1203	0	-	0	1744 604
Stage 1	-	-	-	-	1141 -
Stage 2	-	-	-	-	603 -
Critical Hdwy	4.14	-	-	-	6.8 6.92
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.22	-	-	-	3.5 3.31
Pot Cap-1 Maneuver	576	-	-	-	79 444
Stage 1	-	-	-	-	271 -
Stage 2	-	-	-	-	515 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	574	-	-	-	63 443
Mov Cap-2 Maneuver	-	-	-	-	63 -
Stage 1	-	-	-	-	218 -
Stage 2	-	-	-	-	513 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	574	-	-	-	443
HCM Lane V/C Ratio	0.086	-	-	-	0.392
HCM Control Delay (s)	11.9	-	-	-	18.3
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.8

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background Conditions  
Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	757	5	10	979	202	5	10	5	431	10	203
Future Volume (veh/h)	239	757	5	10	979	202	5	10	5	431	10	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1604	1900	1969	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	246	780	5	10	1009	208	5	10	5	444	10	209
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	20	0	2	0	0	0	0	0	0	0
Cap, veh/h	369	2276	15	380	2106	903	11	21	11	614	13	269
Arrive On Green	0.02	0.21	0.21	0.01	0.56	0.56	0.05	0.02	0.03	0.17	0.17	0.18
Sat Flow, veh/h	1781	3620	23	1810	3741	1603	446	892	446	3510	74	1538
Grp Volume(v), veh/h	246	383	402	10	1009	208	20	0	0	444	0	219
Grp Sat Flow(s),veh/h/ln	1781	1777	1866	1810	1870	1603	1783	0	0	1755	0	1611
Q Serve(g_s), s	6.9	23.9	23.9	0.3	21.0	8.5	1.4	0.0	0.0	15.5	0.0	16.8
Cycle Q Clear(g_c), s	6.9	23.9	23.9	0.3	21.0	8.5	1.4	0.0	0.0	15.5	0.0	16.8
Prop In Lane	1.00		0.01	1.00		1.00	0.25		0.25	1.00		0.95
Lane Grp Cap(c), veh/h	369	1117	1174	380	2106	903	42	0	0	614	0	282
V/C Ratio(X)	0.67	0.34	0.34	0.03	0.48	0.23	0.47	0.00	0.00	0.72	0.00	0.78
Avail Cap(c_a), veh/h	534	1117	1174	410	2106	903	82	0	0	810	0	372
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	28.6	28.6	13.0	17.0	14.3	62.2	0.0	0.0	50.6	0.0	50.7
Incr Delay (d2), s/veh	1.5	0.8	0.8	0.0	0.8	0.6	11.2	0.0	0.0	2.8	0.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	11.6	12.2	0.1	9.0	3.2	0.8	0.0	0.0	7.1	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	29.4	29.4	13.0	17.8	14.9	73.4	0.0	0.0	53.4	0.0	59.5
LnGrp LOS	B	C	C	B	B	B	E	A	A	D	A	E
Approach Vol, veh/h		1031			1227			20				663
Approach Delay, s/veh		26.2			17.2			73.4				55.5
Approach LOS		C			B			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.4	87.8		28.7	13.0	79.2		9.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	3.1	69.4		30.0	21.5	51.0		6.0				
Max Q Clear Time (g_c+I1), s	2.3	25.9		18.8	8.9	23.0		3.4				
Green Ext Time (p_c), s	0.0	15.6		3.5	0.6	19.9		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				29.4								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1193	0	0	1191	281	0	0	0	0	0	0
Future Vol, veh/h	0	1193	0	0	1191	281	0	0	0	0	0	0
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	2	0	0	2	0	0	2	0
Mvmt Flow	0	1269	0	0	1267	299	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1776	2838	635
Stage 1	-	-	-	-	-	-	1269	1269	-
Stage 2	-	-	-	-	-	-	507	1569	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	97	17	426
Stage 1	0	-	0	0	-	-	227	238	-
Stage 2	0	-	0	0	-	-	542	170	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	97	0	426
Mov Cap-2 Maneuver	-	-	-	-	-	-	97	0	-
Stage 1	-	-	-	-	-	-	227	0	-
Stage 2	-	-	-	-	-	-	542	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

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# Appendix K

Background plus Project Intersection Operations

Table 5 summarizes the overall intersection operations for Background plus Project conditions and compares the overall intersection operations to Background conditions. LOS is not reported for SimTraffic results as microsimulation delay does not directly correlate to HCM defined LOS thresholds.

**Table 5: Overall Intersection Operations, Background plus Project Conditions**

No.	Intersection	Traffic Control <sup>1</sup>	Peak Hour	Background LOS <sup>2</sup> (Background Overall Delay) <sup>3</sup>	Background plus Project LOS (Background plus Project Overall Delay)
1	Gross Point Rd & Melvina Ave	TWSC	AM	A (5.0)	A (5.2)
			PM	C (16.6)	C (17.2)
			SAT	C (15.4)	C (15.9)
2	Melvina Ave & Costco Warehouse/Employee Parking Driveway#1 <sup>4</sup>	TWSC	AM	0.3	0.8
			PM	1.1	2.0
			SAT	1.5	3.9
3	Melvina Ave & Costco Employee Parking Driveway #2 <sup>4</sup>	SSSC	AM	N/A	N/A
			PM	N/A	N/A
			SAT	N/A	N/A
4	Melvina Ave & Costco Warehouse Driveway #3 <sup>4</sup>	SSSC	AM	N/A	N/A
			PM	N/A	N/A
			SAT	N/A	N/A
5	Melvina Ave & Costco Warehouse Driveway <sup>4</sup>	SSSC	AM	0.9	1.1
			PM	2.9	4.8
			SAT	4.2	4.3
6	Melvina Ave & Costco Warehouse/Target/YMCA Dwy <sup>4</sup>	TWSC	AM	0.6	0.7
			PM	3.8	7.1
			SAT	11.4	14.5
7	Melvina Ave & Target/Aldi/Costco Fuel Dwy <sup>4</sup>	SSSC	AM	3.1	3.3
			PM	7.7	9.2
			SAT	10.3	15.0
8	Touhy Ave & Mobile Ave	Signal	AM	A (2.4)	A (2.4)
			PM	A (2.1)	A (2.1)
			SAT	A(2.7)	A (2.7)
9	Touhy Ave & Costco Fuel/Aldi Dwy	TWSC	AM	A (0.4)	A (0.5)
			PM	A (1.3)	A (1.4)
			SAT	A (1.6)	A (1.7)
10	Melvina Ave & Touhy Ave	Signal	AM	A (9.9)	B (11.5)
			PM	C (24.1)	C (24.9)
			SAT	C (29.4)	C (30.1)
11	Touhy Ave & Target Dwy	None	AM	A (-)	A (-)
			PM	A (-)	A (-)
			SAT	A (-)	A (-)

Source: Kittelson & Associates, Inc. 2022.

Notes:

<sup>1</sup> Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, SSSC = Side Street Stop Control AWSC = All-Way Stop Control Intersection.

<sup>2</sup> LOS = Level of Service

<sup>3</sup> Delay = Average vehicle delay reported in seconds per vehicle.

<sup>4</sup> SimTraffic Delay reported.

Table 6 summarizes the intersection by worst approach operations for Background plus Project conditions and compares the intersection operations to Background conditions. LOS is not reported for SimTraffic results as microsimulation delay does not directly correlate to HCM defined LOS thresholds.

**Table 6: Intersection Operations by Approach, Background plus Project Conditions**

No.	Intersection	Traffic Control <sup>1</sup>	Peak Hour	Background Approach LOS <sup>2</sup> (Approach Delay) <sup>3</sup>	Background plus Project Approach LOS (Approach Delay)
1	Gross Point Rd & Melvina Ave	TWSC	AM	B (11.7)	B (11.9)
			PM	<b>E (38.6)</b>	<b>E (39.8)</b>
			SAT	D (29.0)	D (29.9)
2	Melvina Ave & Costco Warehouse/Employee Parking Driveway#1	TWSC	AM	3.1	4.7
			PM	4.0	8.1
			SAT	5.1	16.0
5	Melvina Ave & Costco Warehouse Driveway	SSSC	AM	5.2	5.8
			PM	8.2	13
			SAT	10.5	10.4
6	Melvina Ave & Costco Warehouse/Target/YMCA Dwy	TWSC	AM	5.4	5.4
			PM	13.1	24.4
			SAT	33.1	48.2
7	Melvina Ave & Target/Aldi/Costco Fuel Dwy <sup>4</sup>	SSSC	AM	5.2	5.7
			PM	10.9	12.9
			SAT	15.6	24.0
9	Touhy Ave & Costco Fuel/Aldi Dwy	TWSC	AM	B (13.2)	B (13.6)
			PM	C (19.7)	C (20.7)
			SAT	C (18.3)	C (18.9)

Source: Kittelson & Associates, Inc. 2022.

Notes:

<sup>1</sup> Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, SSSC = Side Street Stop Control, AWSC = All-Way Stop Control Intersection.

<sup>2</sup>Approach LOS = Level of Service for worst approach.

<sup>3</sup>Approach delay = Average vehicle delay reported in seconds per vehicle for the worst approach.

<sup>4</sup>SimTraffic Delay reported.



Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	5	45	78	66	87	2	98	1	37	1	1	5
Future Vol, veh/h	5	45	78	66	87	2	98	1	37	1	1	5
Conflicting Peds, #/hr	0	0	4	4	0	0	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	60	9	9	0	9	50	4	0	0	0	100	17
Mvmt Flow	6	50	87	73	97	2	109	1	41	1	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	99	0	0	141	0	0	358	355	101	374	397	98
Stage 1	-	-	-	-	-	-	110	110	-	244	244	-
Stage 2	-	-	-	-	-	-	248	245	-	130	153	-
Critical Hdwy	4.7	-	-	4.1	-	-	7.14	6.5	6.2	7.1	7.5	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.74	-	-	2.2	-	-	3.536	4	3.3	3.5	4.9	3.453
Pot Cap-1 Maneuver	1199	-	-	1455	-	-	594	574	960	587	416	918
Stage 1	-	-	-	-	-	-	890	808	-	764	556	-
Stage 2	-	-	-	-	-	-	751	707	-	878	617	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1199	-	-	1449	-	-	561	538	954	535	390	918
Mov Cap-2 Maneuver	-	-	-	-	-	-	561	538	-	535	390	-
Stage 1	-	-	-	-	-	-	882	801	-	760	527	-
Stage 2	-	-	-	-	-	-	705	670	-	833	611	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			3.2			11.9			10.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	561	935	1199	-	-	1449	-	-	709
HCM Lane V/C Ratio	0.194	0.045	0.005	-	-	0.051	-	-	0.011
HCM Control Delay (s)	13	9	8	0	-	7.6	0	-	10.1
HCM Lane LOS	B	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0.1	0	-	-	0.2	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.1	0.1	0.1
Total Del/Veh (s)	0.7	1.8	4.6	2.4	2.3

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.1	0.0	0.0
Total Del/Veh (s)	3.5	4.7	0.7	0.3	0.8

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.8	5.0	0.6	0.2	1.1

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.9	0.0	0.0	0.0
Total Del/Veh (s)	4.4	5.4	0.3	0.3	0.7

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.2	0.1	0.0	0.2
Total Del/Veh (s)	4.5	5.7	1.0	4.9	3.3

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.2
Total Del/Veh (s)	1.6	2.1	28.0	1.9

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	2.7	2.0	1.2	2.3

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	8.5	9.2	50.5	57.7	14.2

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.6	0.3
Total Del/Veh (s)	1.4	1.0	1.2

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	16.8

Intersection: 1: Melvina Ave. & Gross Point Rd.

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	24	67	118	26	7
Average Queue (ft)	1	12	26	4	1
95th Queue (ft)	6	42	64	12	6
Link Distance (ft)	1149	411		186	138
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1

Movement	EB	WB	NB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	55	66	32
Average Queue (ft)	18	8	8
95th Queue (ft)	46	38	30
Link Distance (ft)	234	251	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	53	77	50
Average Queue (ft)	20	18	6
95th Queue (ft)	48	49	28
Link Distance (ft)	174	276	218
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	L
Maximum Queue (ft)	47	67	31	26
Average Queue (ft)	8	15	3	1
95th Queue (ft)	31	50	19	9
Link Distance (ft)	213	280		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			130	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	TR	L	TR
Maximum Queue (ft)	66	54	54	69	28	30	93
Average Queue (ft)	18	34	26	18	1	5	59
95th Queue (ft)	43	51	50	50	10	23	87
Link Distance (ft)	266	266	294		306		164
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				45		65	
Storage Blk Time (%)			1	1			3
Queuing Penalty (veh)			0	0			0

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	TR	LTR
Maximum Queue (ft)	348	343	67	203	211	51
Average Queue (ft)	33	25	3	20	14	12
95th Queue (ft)	161	152	25	99	89	42
Link Distance (ft)	582	582		361	361	482
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100			
Storage Blk Time (%)	2			1		
Queuing Penalty (veh)	0			0		

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB
Directions Served	LT	T
Maximum Queue (ft)	298	216
Average Queue (ft)	62	29
95th Queue (ft)	206	121
Link Distance (ft)	361	361
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	130	203	225	28	264	213	73	96	128	200	155
Average Queue (ft)	61	125	112	0	159	117	21	21	63	87	84
95th Queue (ft)	109	220	213	0	266	217	58	62	116	157	132
Link Distance (ft)		198	198		248	248	248	562	306	306	
Upstream Blk Time (%)		1	1		1						
Queuing Penalty (veh)		9	7		3						
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)		2			15					15	14
Queuing Penalty (veh)		4			1					12	11

Intersection: 11: Touhy Ave. & Target Dwy

Movement	WB
Directions Served	T
Maximum Queue (ft)	97
Average Queue (ft)	10
95th Queue (ft)	53
Link Distance (ft)	479
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 46
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background plus Project Conditions  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1174	8	7	1004	2	4	0	8	0	0	0
Future Volume (veh/h)	0	1174	8	7	1004	2	4	0	8	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1811	1900	1648	1811	1900	1900	1900	1530	1900	1900	1900
Adj Flow Rate, veh/h	0	1223	8	7	1046	2	4	0	8	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	6	0	17	6	0	0	0	25	0	0	0
Cap, veh/h	517	2947	19	365	3076	6	51	4	36	0	80	0
Arrive On Green	0.00	0.84	0.85	0.01	1.00	1.00	0.06	0.00	0.03	0.00	0.00	0.00
Sat Flow, veh/h	1810	3504	23	1570	3524	7	407	111	1038	0	1900	0
Grp Volume(v), veh/h	0	600	631	7	511	537	12	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1721	1807	1570	1721	1810	1556	0	0	0	1900	0
Q Serve(g_s), s	0.0	11.1	11.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	11.1	11.1	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.00	0.33		0.67	0.00		0.00
Lane Grp Cap(c), veh/h	517	1447	1520	365	1502	1580	127	0	0	0	80	0
V/C Ratio(X)	0.00	0.41	0.42	0.02	0.34	0.34	0.09	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	648	1447	1520	471	1502	1580	297	0	0	0	248	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	2.5	2.5	1.9	0.0	0.0	60.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.8	0.0	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	2.8	2.9	0.0	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.4	3.4	1.9	0.6	0.6	61.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	A
Approach Vol, veh/h		1231			1055			12				0
Approach Delay, s/veh		3.4			0.6			61.0				0.0
Approach LOS		A			A			E				A
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.2	115.3		10.5	0.0	119.5		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	9.5	86.0		16.0	9.5	86.0		19.0				
Max Q Clear Time (g_c+1/2, s)	13.1	13.1		0.0	0.0	2.0		2.9				
Green Ext Time (p_c), s	0.0	37.3		0.0	0.0	29.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.4
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	19	1163	945	71	0	68
Future Vol, veh/h	19	1163	945	71	0	68
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	7	7	2	0	4
Mvmt Flow	20	1211	984	74	0	71

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1059	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	665	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	664	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-






















Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	664	-	-	-	488
HCM Lane V/C Ratio	0.03	-	-	-	0.145
HCM Control Delay (s)	10.6	-	-	-	13.6
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5



HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background plus Project Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	1009	5	5	940	81	5	10	5	160	5	71
Future Volume (veh/h)	149	1009	5	5	940	81	5	10	5	160	5	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1796	1900	1900	1891	1900	1900	1900	1900	1841	1900	1737
Adj Flow Rate, veh/h	164	1109	5	5	1033	89	5	11	5	176	5	78
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	7	0	0	7	0	0	0	0	4	0	11
Cap, veh/h	416	2549	11	417	2483	1112	10	23	10	254	7	113
Arrive On Green	0.09	1.00	1.00	0.00	0.69	0.69	0.05	0.02	0.02	0.07	0.07	0.08
Sat Flow, veh/h	1767	3484	16	1810	3593	1609	427	939	427	3401	97	1511
Grp Volume(v), veh/h	164	543	571	5	1033	89	21	0	0	176	0	83
Grp Sat Flow(s),veh/h/ln	1767	1706	1793	1810	1796	1609	1792	0	0	1700	0	1608
Q Serve(g_s), s	3.5	0.0	0.0	0.1	16.2	2.4	1.5	0.0	0.0	6.6	0.0	6.5
Cycle Q Clear(g_c), s	3.5	0.0	0.0	0.1	16.2	2.4	1.5	0.0	0.0	6.6	0.0	6.5
Prop In Lane	1.00		0.01	1.00		1.00	0.24		0.24	1.00		0.94
Lane Grp Cap(c), veh/h	416	1249	1312	417	2483	1112	44	0	0	254	0	120
V/C Ratio(X)	0.39	0.44	0.44	0.01	0.42	0.08	0.48	0.00	0.00	0.69	0.00	0.69
Avail Cap(c_a), veh/h	535	1249	1312	473	2483	1112	110	0	0	392	0	186
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	6.1	8.7	6.6	62.2	0.0	0.0	58.7	0.0	58.2
Incr Delay (d2), s/veh	0.5	1.1	1.1	0.0	0.5	0.1	11.0	0.0	0.0	4.8	0.0	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.4	0.4	0.0	6.0	0.8	0.8	0.0	0.0	3.0	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	1.1	1.1	6.1	9.2	6.7	73.2	0.0	0.0	63.5	0.0	67.9
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	E
Approach Vol, veh/h		1278			1127			21			259	
Approach Delay, s/veh		1.8			9.0			73.2			64.9	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.0	101.1		15.7	9.3	95.8		9.2				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	4.5	81.0		15.0	14.5	71.0		8.0				
Max Q Clear Time (g_c+I1), s	2.1	2.0		8.6	5.5	18.2		3.5				
Green Ext Time (p_c), s	0.0	32.7		0.8	0.3	28.0		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				11.5								
HCM 6th LOS				B								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1174	0	0	1026	65	0	0	0	0	0	0
Future Vol, veh/h	0	1174	0	0	1026	65	0	0	0	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	6	2	2	5	2	0	2	0	0	2	0
Mvmt Flow	0	1198	0	0	1047	66	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1617	2312	600
Stage 1	-	-	-	-	-	-	1198	1198	-
Stage 2	-	-	-	-	-	-	419	1114	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	121	38	449
Stage 1	0	-	0	0	-	-	247	257	-
Stage 2	0	-	0	0	-	-	602	282	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	121	0	449
Mov Cap-2 Maneuver	-	-	-	-	-	-	121	0	-
Stage 1	-	-	-	-	-	-	247	0	-
Stage 2	-	-	-	-	-	-	602	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	17.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	1	45	179	136	139	1	257	1	76	1	2	5
Future Vol, veh/h	1	45	179	136	139	1	257	1	76	1	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	11	0	1	8	0	0	0	0	0	0	0
Mvmt Flow	1	51	203	155	158	1	292	1	86	1	2	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	159	0	0	254	0	0	628	624	154	668	725	159
Stage 1	-	-	-	-	-	-	155	155	-	469	469	-
Stage 2	-	-	-	-	-	-	473	469	-	199	256	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1433	-	-	1317	-	-	398	404	897	375	354	892
Stage 1	-	-	-	-	-	-	852	773	-	579	564	-
Stage 2	-	-	-	-	-	-	576	564	-	807	699	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1433	-	-	1317	-	-	354	351	896	304	308	892
Mov Cap-2 Maneuver	-	-	-	-	-	-	354	351	-	304	308	-
Stage 1	-	-	-	-	-	-	851	772	-	578	491	-
Stage 2	-	-	-	-	-	-	496	491	-	727	698	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			4			39.8			12		
HCM LOS							E			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	354	878	1433	-	-	1317	-	-	520
HCM Lane V/C Ratio	0.825	0.1	0.001	-	-	0.117	-	-	0.017
HCM Control Delay (s)	48.8	9.6	7.5	0	-	8.1	0	-	12
HCM Lane LOS	E	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	7.3	0.3	0	-	-	0.4	-	-	0.1

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.3	0.1	0.1	0.2
Total Del/Veh (s)	1.3	3.4	12.6	5.9	6.5

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0
Total Del/Veh (s)	8.1	6.9	0.9	0.7	2.0

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	10.7	13.0	1.8	1.4	4.8

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	3.9	0.0	0.0	1.0
Total Del/Veh (s)	11.0	24.4	0.9	1.6	7.1

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.5	0.0	0.0	0.3
Total Del/Veh (s)	10.0	12.2	1.5	12.9	9.2

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.0	4.4	28.3	21.6	3.4

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	7.0	3.3	4.1	4.9

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.1
Total Del/Veh (s)	18.9	21.5	74.0	57.9	28.8

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.9	0.4
Total Del/Veh (s)	2.0	3.8	2.9

Total Network Performance

Denied Del/Veh (s)	0.8
Total Del/Veh (s)	32.7

Intersection: 1: Melvina Ave. & Gross Point Rd.

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	31	102	123	182	6
Average Queue (ft)	2	31	64	18	1
95th Queue (ft)	12	76	116	87	5
Link Distance (ft)	1149	410		186	138
Upstream Blk Time (%)				1	
Queuing Penalty (veh)				3	
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			11	0	
Queuing Penalty (veh)			9	0	

Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	47	66	19	55	36	6
Average Queue (ft)	24	36	2	2	10	0
95th Queue (ft)	48	58	13	30	34	5
Link Distance (ft)	234	251		384		186
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100		75	
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	75	124	109	45	70
Average Queue (ft)	35	62	29	18	13
95th Queue (ft)	61	105	80	45	45
Link Distance (ft)	174	276	218		384
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				130	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	L	TR	LTR	L	TR
Maximum Queue (ft)	28	202	109	5	43	56
Average Queue (ft)	7	89	33	0	13	4
95th Queue (ft)	27	188	93	4	37	41
Link Distance (ft)	213	280		164		218
Upstream Blk Time (%)		2				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			130		100	
Storage Blk Time (%)		8				1
Queuing Penalty (veh)		4				0

Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	93	150	121	92	6	26	109	166
Average Queue (ft)	38	53	52	37	1	2	55	84
95th Queue (ft)	70	99	97	72	7	14	105	147
Link Distance (ft)	266	266	294			306		164
Upstream Blk Time (%)		0					0	1
Queuing Penalty (veh)		0					0	6
Storage Bay Dist (ft)				45	50		65	
Storage Blk Time (%)			13	3		0	5	20
Queuing Penalty (veh)			9	4		0	18	33

Intersection: 8: Mobile Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	30	253	189	49	209	220	36	31
Average Queue (ft)	2	29	22	14	19	21	8	2
95th Queue (ft)	14	143	112	40	122	135	30	15
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	3		
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		2			1			
Queuing Penalty (veh)		0			0			

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	R
Maximum Queue (ft)	323	286	38	55	141
Average Queue (ft)	124	79	2	3	42
95th Queue (ft)	283	235	16	31	114
Link Distance (ft)	361	361	197	197	208
Upstream Blk Time (%)	0	0		0	0
Queuing Penalty (veh)	1	0		0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	197	233	228	136	271	279	164	108	294	310	235
Average Queue (ft)	123	171	162	13	245	220	69	46	177	219	171
95th Queue (ft)	205	245	237	69	300	304	139	92	267	316	261
Link Distance (ft)		197	197		248	248	248	562	306	306	
Upstream Blk Time (%)	1	5	5		12	5			0	2	
Queuing Penalty (veh)	0	30	25		53	22			0	5	
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	3	8			35					40	47
Queuing Penalty (veh)	16	16			4					88	92

Intersection: 11: Touhy Ave. & Target Dwy

Movement	EB	EB	WB	WB	WB
Directions Served	T	T	T	T	TR
Maximum Queue (ft)	105	118	322	273	101
Average Queue (ft)	6	6	85	40	5
95th Queue (ft)	50	52	236	169	47
Link Distance (ft)	248	248	479	479	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				1	
Queuing Penalty (veh)				7	

Network Summary

Network wide Queuing Penalty: 448
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background plus Project Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1138	7	22	1363	1	2	0	5	0	0	2
Future Volume (veh/h)	2	1138	7	22	1363	1	2	0	5	0	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1856	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	2	1173	7	23	1405	1	2	0	5	0	0	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	0	3	0	0	0	0	0	0	0
Cap, veh/h	383	3094	18	449	3128	2	41	3	33	0	0	47
Arrive On Green	0.00	0.85	0.86	0.02	1.00	1.00	0.05	0.00	0.03	0.00	0.00	0.04
Sat Flow, veh/h	1810	3621	22	1810	3615	3	335	110	1115	0	0	1570
Grp Volume(v), veh/h	2	576	604	23	685	721	7	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1810	1777	1866	1810	1763	1855	1561	0	0	0	0	1570
Q Serve(g_s), s	0.0	10.5	10.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.0	10.5	10.5	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00		0.01	1.00		0.00	0.29		0.71	0.00		1.00
Lane Grp Cap(c), veh/h	383	1518	1594	449	1525	1605	109	0	0	0	0	47
V/C Ratio(X)	0.01	0.38	0.38	0.05	0.45	0.45	0.06	0.00	0.00	0.00	0.00	0.04
Avail Cap(c_a), veh/h	507	1518	1594	553	1525	1605	257	0	0	0	0	168
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	1.6	2.3	2.3	1.7	0.0	0.0	70.5	0.0	0.0	0.0	0.0	70.2
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	1.0	0.9	0.4	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	3.0	0.1	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	3.1	3.0	1.7	1.0	0.9	70.8	0.0	0.0	0.0	0.0	70.6
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1182			1429			7				2
Approach Delay, s/veh		3.0			0.9			70.8				70.6
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	134.2		10.5	3.7	135.8		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	105.0		16.0	10.5	105.0		19.0				
Max Q Clear Time (g_c+I), s	12.5	12.5		2.2	2.0	2.0		2.6				
Green Ext Time (p_c), s	0.0	38.1		0.0	0.0	55.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	48	1095	1229	112	0	157
Future Vol, veh/h	48	1095	1229	112	0	157
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	2	3	0	0	1
Mvmt Flow	49	1129	1267	115	0	162






















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1383	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	502	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	502	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	502	-	-	-	389
HCM Lane V/C Ratio	0.099	-	-	-	0.416
HCM Control Delay (s)	13	-	-	-	20.7
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background plus Project Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	198	887	10	10	1123	150	11	21	10	394	15	207
Future Volume (veh/h)	198	887	10	10	1123	150	11	21	10	394	15	207
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1856	1767	1900	1953	1885	1900	1900	1900	1870	1900	1900
Adj Flow Rate, veh/h	218	975	11	11	1234	165	12	23	11	433	16	227
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	9	0	3	1	0	0	0	2	0	0
Cap, veh/h	312	2272	26	395	2141	915	16	30	15	618	19	270
Arrive On Green	0.13	1.00	1.00	0.01	0.58	0.58	0.05	0.03	0.04	0.18	0.18	0.19
Sat Flow, veh/h	1810	3570	40	1810	3711	1585	466	892	427	3456	106	1510
Grp Volume(v), veh/h	218	481	505	11	1234	165	46	0	0	433	0	243
Grp Sat Flow(s),veh/h/ln	1810	1763	1848	1810	1856	1585	1785	0	0	1728	0	1617
Q Serve(g_s), s	7.6	0.0	0.0	0.4	31.6	7.4	3.8	0.0	0.0	17.6	0.0	21.8
Cycle Q Clear(g_c), s	7.6	0.0	0.0	0.4	31.6	7.4	3.8	0.0	0.0	17.6	0.0	21.8
Prop In Lane	1.00		0.02	1.00		1.00	0.26		0.24	1.00		0.93
Lane Grp Cap(c), veh/h	312	1122	1176	395	2141	915	61	0	0	618	0	289
V/C Ratio(X)	0.70	0.43	0.43	0.03	0.58	0.18	0.76	0.00	0.00	0.70	0.00	0.84
Avail Cap(c_a), veh/h	439	1122	1176	418	2141	915	107	0	0	737	0	345
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	0.0	0.0	13.0	20.1	15.0	71.3	0.0	0.0	57.8	0.0	59.1
Incr Delay (d2), s/veh	2.1	1.2	1.1	0.0	1.1	0.4	23.2	0.0	0.0	2.9	0.0	15.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.4	0.4	0.2	13.8	2.8	2.2	0.0	0.0	8.1	0.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	1.2	1.1	13.1	21.2	15.4	94.5	0.0	0.0	60.7	0.0	75.0
LnGrp LOS	B	A	A	B	C	B	F	A	A	E	A	E
Approach Vol, veh/h		1204			1410			46			676	
Approach Delay, s/veh		4.4			20.5			94.5			65.8	
Approach LOS		A			C			F			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	101.5		32.8	13.5	92.5		11.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	3.0	84.5		32.0	20.5	67.0		9.0				
Max Q Clear Time (g_c+I1), s	2.4	2.0		23.8	9.6	33.6		5.8				
Green Ext Time (p_c), s	0.0	26.6		3.0	0.4	25.6		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.9								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1291	0	0	1283	186	0	0	0	0	0	0
Future Vol, veh/h	0	1291	0	0	1283	186	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	2	0	2	2	0	0	0	0	2	0
Mvmt Flow	0	1331	0	0	1323	192	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1863	2846	669
Stage 1	-	-	-	-	-	-	1331	1331	-
Stage 2	-	-	-	-	-	-	532	1515	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	86	17	405
Stage 1	0	-	0	0	-	-	211	226	-
Stage 2	0	-	0	0	-	-	526	184	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	86	0	404
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	0	-
Stage 1	-	-	-	-	-	-	211	0	-
Stage 2	-	-	-	-	-	-	525	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	15.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	1	30	176	148	61	1	265	1	125	1	1	1
Future Vol, veh/h	1	30	176	148	61	1	265	1	125	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	3	0	1	0	0	0	0	0
Mvmt Flow	1	35	205	172	71	1	308	1	145	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	72	0	0	240	0	0	557	556	139	630	658	72
Stage 1	-	-	-	-	-	-	140	140	-	416	416	-
Stage 2	-	-	-	-	-	-	417	416	-	214	242	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.11	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.509	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1541	-	-	1339	-	-	443	442	915	397	387	996
Stage 1	-	-	-	-	-	-	865	785	-	618	595	-
Stage 2	-	-	-	-	-	-	615	595	-	793	709	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1541	-	-	1339	-	-	396	382	914	299	335	996
Mov Cap-2 Maneuver	-	-	-	-	-	-	396	382	-	299	335	-
Stage 1	-	-	-	-	-	-	864	784	-	617	515	-
Stage 2	-	-	-	-	-	-	531	515	-	665	708	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			5.7			29.9			13.9		
HCM LOS							D			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	396	904	1541	-	-	1339	-	-	409
HCM Lane V/C Ratio	0.778	0.162	0.001	-	-	0.129	-	-	0.009
HCM Control Delay (s)	39.5	9.8	7.3	0	-	8.1	-	-	13.9
HCM Lane LOS	E	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	6.6	0.6	0	-	-	0.4	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.3	0.1	0.1	0.2
Total Del/Veh (s)	1.4	3.5	12.5	15.7	7.3

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.4	16.0	1.4	0.9	3.9

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.1
Total Del/Veh (s)	9.3	10.4	1.3	1.5	4.3

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	6.4	0.0	0.0	1.7
Total Del/Veh (s)	14.0	48.2	1.4	2.1	14.5

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.4	0.0	4.0	1.6
Total Del/Veh (s)	13.8	20.5	1.6	24.0	15.0

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.0	5.3	6.4	31.7	3.8

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.4	3.3	2.6	3.3

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.0	0.0
Total Del/Veh (s)	15.4	20.7	52.8	50.1	25.9

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	1.2	0.7
Total Del/Veh (s)	1.5	2.4	2.0

Total Network Performance

Denied Del/Veh (s)	1.5
Total Del/Veh (s)	31.9

Intersection: 1: Melvina Ave. & Gross Point Rd.

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	71	93	125	188	7
Average Queue (ft)	4	26	57	30	0
95th Queue (ft)	28	71	112	126	2
Link Distance (ft)	1149	411		186	138
Upstream Blk Time (%)				2	
Queuing Penalty (veh)				10	
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			13		
Queuing Penalty (veh)			18		

Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	53	204	32	94	55
Average Queue (ft)	29	50	6	3	16
95th Queue (ft)	52	106	27	31	44
Link Distance (ft)	234	251		384	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		75
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	L
Maximum Queue (ft)	104	135	54	54
Average Queue (ft)	41	61	15	21
95th Queue (ft)	75	93	39	53
Link Distance (ft)	174	276	218	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				130
Storage Blk Time (%)				
Queuing Penalty (veh)				



**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	L	TR	LTR	L	TR
Maximum Queue (ft)	28	295	190	85	29	75
Average Queue (ft)	13	153	81	4	9	15
95th Queue (ft)	35	301	204	30	30	56
Link Distance (ft)	213	280		164		218
Upstream Blk Time (%)		9				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			130		100	
Storage Blk Time (%)		35				
Queuing Penalty (veh)		31				

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	TR	L	TR
Maximum Queue (ft)	137	115	301	100	20	50	177
Average Queue (ft)	60	53	100	60	1	9	150
95th Queue (ft)	109	85	214	109	9	32	191
Link Distance (ft)	266	266	294		306		164
Upstream Blk Time (%)			0				7
Queuing Penalty (veh)			0				38
Storage Bay Dist (ft)				45		65	
Storage Blk Time (%)			31	6		0	76
Queuing Penalty (veh)			30	13		0	8

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	31	192	127	31	205	204	31	31
Average Queue (ft)	4	34	16	10	37	42	8	1
95th Queue (ft)	20	133	67	33	139	147	30	11
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		2			4			
Queuing Penalty (veh)		0			1			

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	R
Maximum Queue (ft)	237	226	22	98
Average Queue (ft)	59	30	2	32
95th Queue (ft)	161	128	11	88
Link Distance (ft)	361	361	198	242
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	198	218	204	200	270	270	245	74	262	286	235
Average Queue (ft)	124	121	106	16	227	197	96	24	151	187	159
95th Queue (ft)	199	218	193	78	295	272	180	59	229	274	238
Link Distance (ft)		198	198		250	250	250	562	306	306	
Upstream Blk Time (%)	0	1	0		6	1	0				
Queuing Penalty (veh)	0	6	2		25	5	0				
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	3	2			33					40	42
Queuing Penalty (veh)	10	5			3					89	93

Intersection: 11: Touhy Ave. & Target Dwy

Movement	WB	WB	WB
Directions Served	T	T	TR
Maximum Queue (ft)	137	116	54
Average Queue (ft)	28	9	2
95th Queue (ft)	99	59	19
Link Distance (ft)	480	480	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Network Summary

Network wide Queuing Penalty: 388
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background plus Project Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1043	12	16	1226	2	2	0	13	0	0	1
Future Volume (veh/h)	5	1043	12	16	1226	2	2	0	13	0	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.97		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1054	12	16	1238	2	2	0	13	0	0	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	431	2911	33	466	2969	5	38	6	83	0	0	107
Arrive On Green	0.00	0.81	0.82	0.02	1.00	1.00	0.08	0.00	0.06	0.00	0.00	0.07
Sat Flow, veh/h	1810	3597	41	1810	3640	6	115	92	1345	0	0	1554
Grp Volume(v), veh/h	5	521	545	16	604	636	15	0	0	0	0	1
Grp Sat Flow(s),veh/h/ln	1810	1777	1862	1810	1777	1869	1552	0	0	0	0	1554
Q Serve(g_s), s	0.1	10.3	10.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	10.3	10.3	0.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		0.02	1.00		0.00	0.13		0.87	0.00		1.00
Lane Grp Cap(c), veh/h	431	1438	1507	466	1449	1524	162	0	0	0	0	107
V/C Ratio(X)	0.01	0.36	0.36	0.03	0.42	0.42	0.09	0.00	0.00	0.00	0.00	0.01
Avail Cap(c_a), veh/h	570	1438	1507	594	1449	1524	315	0	0	0	0	203
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	2.3	3.3	3.3	2.5	0.0	0.0	57.6	0.0	0.0	0.0	0.0	56.4
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.9	0.8	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	3.2	0.1	0.4	0.4	0.5	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.3	4.1	4.0	2.6	0.9	0.8	58.0	0.0	0.0	0.0	0.0	56.4
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1071			1256			15				1
Approach Delay, s/veh		4.0			0.9			58.0				56.4
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	111.2		14.0	4.0	112.0		14.0				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	83.0		16.0	10.5	83.0		21.0				
Max Q Clear Time (g_c+1/2), s	12.3	12.3		2.1	2.1	2.0		3.2				
Green Ext Time (p_c), s	0.0	29.0		0.0	0.0	39.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	49	1007	1062	134	2	182
Future Vol, veh/h	49	1007	1062	134	2	182
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	1	0	1
Mvmt Flow	49	1017	1073	135	2	184






















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1212	0	-	0	1752 608
Stage 1	-	-	-	-	1145 -
Stage 2	-	-	-	-	607 -
Critical Hdwy	4.14	-	-	-	6.8 6.92
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.22	-	-	-	3.5 3.31
Pot Cap-1 Maneuver	571	-	-	-	78 441
Stage 1	-	-	-	-	270 -
Stage 2	-	-	-	-	512 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	569	-	-	-	62 440
Mov Cap-2 Maneuver	-	-	-	-	62 -
Stage 1	-	-	-	-	216 -
Stage 2	-	-	-	-	510 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	18.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	569	-	-	-	440
HCM Lane V/C Ratio	0.087	-	-	-	0.418
HCM Control Delay (s)	11.9	-	-	-	18.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background plus Project Conditions  
Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	251	753	5	10	977	213	5	10	5	444	10	214
Future Volume (veh/h)	251	753	5	10	977	213	5	10	5	444	10	214
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1604	1900	1969	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	259	776	5	10	1007	220	5	10	5	458	10	221
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	20	0	2	0	0	0	0	0	0	0
Cap, veh/h	369	2253	15	377	2066	885	11	21	11	637	13	280
Arrive On Green	0.03	0.21	0.21	0.01	0.55	0.55	0.05	0.02	0.03	0.18	0.18	0.19
Sat Flow, veh/h	1781	3620	23	1810	3741	1603	446	892	446	3510	70	1541
Grp Volume(v), veh/h	259	381	400	10	1007	220	20	0	0	458	0	231
Grp Sat Flow(s),veh/h/ln	1781	1777	1866	1810	1870	1603	1783	0	0	1755	0	1611
Q Serve(g_s), s	7.4	23.8	23.8	0.3	21.4	9.3	1.4	0.0	0.0	16.0	0.0	17.8
Cycle Q Clear(g_c), s	7.4	23.8	23.8	0.3	21.4	9.3	1.4	0.0	0.0	16.0	0.0	17.8
Prop In Lane	1.00		0.01	1.00		1.00	0.25		0.25	1.00		0.96
Lane Grp Cap(c), veh/h	369	1106	1162	377	2066	885	42	0	0	637	0	292
V/C Ratio(X)	0.70	0.34	0.34	0.03	0.49	0.25	0.47	0.00	0.00	0.72	0.00	0.79
Avail Cap(c_a), veh/h	526	1106	1162	407	2066	885	82	0	0	810	0	372
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	29.0	29.0	13.5	17.8	15.1	62.2	0.0	0.0	50.1	0.0	50.4
Incr Delay (d2), s/veh	1.8	0.9	0.8	0.0	0.8	0.7	11.2	0.0	0.0	2.8	0.0	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	11.6	12.2	0.1	9.2	3.5	0.8	0.0	0.0	7.3	0.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	29.8	29.8	13.6	18.7	15.8	73.4	0.0	0.0	52.9	0.0	60.4
LnGrp LOS	B	C	C	B	B	B	E	A	A	D	A	E
Approach Vol, veh/h		1040			1237			20				689
Approach Delay, s/veh		26.7			18.1			73.4				55.4
Approach LOS		C			B			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.4	86.9		29.6	13.5	77.8		9.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	3.1	69.4		30.0	21.5	51.0		6.0				
Max Q Clear Time (g_c+I1), s	2.3	25.8		19.8	9.4	23.4		3.4				
Green Ext Time (p_c), s	0.0	15.5		3.5	0.6	19.7		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				30.1								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1202	0	0	1200	281	0	0	0	0	0	0
Future Vol, veh/h	0	1202	0	0	1200	281	0	0	0	0	0	0
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	2	0	0	2	0	0	2	0
Mvmt Flow	0	1279	0	0	1277	299	0	0	0	0	0	0

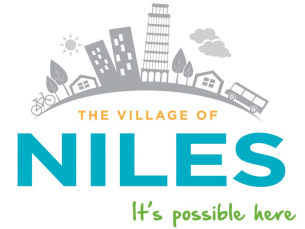
Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1790	2858	640
Stage 1	-	-	-	-	-	-	1279	1279	-
Stage 2	-	-	-	-	-	-	511	1579	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	96	17	423
Stage 1	0	-	0	0	-	-	224	235	-
Stage 2	0	-	0	0	-	-	539	168	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	96	0	423
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	0	-
Stage 1	-	-	-	-	-	-	224	0	-
Stage 2	-	-	-	-	-	-	539	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-



BOARD AGENDA ITEM EXPLANATION FORM



Ordinance Approving a Special Use to Allow a ‘Parking Lot – Principal’ and ‘Car Wash’ Located at 7310 N. Melvina Ave. (22-ZP-30)

Meeting Date: 10/25/2022

Item Number 11.c

Requested By: Community Development Department

Action Requested: Ordinance

Prepared By: Katherine Lockerby, Senior Planner

Assigned to: Trustee Niedermaier

ATTACHMENTS:

Staff Report 22-ZP-30 - Costco Parking Lot and Car Wash - 7310 N. Melvina.pdf

Ordinance 2022-xx Approving a Special Use to Allow a Parking Lot and Car Wash at 7310 Melvina.docx

Costco Niles Traffic Study.pdf

MOTION

I move for Board Approval of an Ordinance approving a Special Use Permit as Required in Appendix B, Section 8.2(A) to allow a ‘Parking Lot – Principal’ and ‘Car Wash’ Located at 7310 N. Melvina Avenue with the following conditions:

- 1. A traffic study and associated findings must be accepted by the Village Engineer and any necessary modifications to the site plan as a result of the accepted traffic study must be made prior to the issuance of a building permit.
2. At such time when the Phase 2 Car Wash is constructed, the Special Use for the Parking Lot – Principal will become null and void.
3. Passively activated signage with rapid flashing beacon must be installed at the proposed southern crosswalk across Melvina Avenue.

REASON FOR REQUEST / BACKGROUND

The Planning and Zoning Board voted 7-0-0 to recommend approval of the request, with conditions, at a public hearing held on October 3, 2022.

Will this action involve an expenditure of funds?

No

If yes, is this a budgeted item?

No

Impact on future budget(s) No

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project No

Grant Source

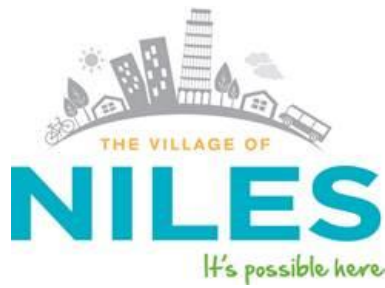
ORG# Total Amount for Approval

ACCT# Budget Amount

Line Item Budget Amount

Variance





AGENDA ITEM NUMBER: 2  
 HEARING DATE: OCTOBER 3, 2022  
 CASE NUMBER: 22-ZP-30  
 PROJECT NAME: COSTCO CAR WASH/PARKING LOT  
 APPLICATION TYPE: SUP

## Planning and Zoning Board Agenda Item 2

### October 3, 2022

A request for approval of a Special Use Permit per Village of Niles Zoning Ordinance Appendix B Section 8.2(A) for a 'Parking Lot – Principal' and 'Car Wash' at 7310 N. Melvina Ave., Niles, IL 60714.

Attachment Number	Description	Provided	Date
1	Staff Report to the Planning and Zoning Board	✓	
2	Location Map	✓	
3	Applicant's Response to Special Use Standards	✓	
4	Special Use Permit Application	✓	
5	Applicant's Project Narrative	✓	
6	PLANS: Survey, Site Plan, Elevations, Landscape Plan	✓	



AGENDA ITEM NUMBER:	2
HEARING DATE:	OCTOBER 3, 2022
CASE NUMBER:	22-ZP-30
PROJECT NAME:	COSTCO CAR WASH/PARKING LOT
APPLICATION TYPE:	SUP

## Planning and Zoning Board Staff Report October 3, 2022

**Item for Planning and Zoning Board Consideration:** A Request for approval of a Special Use Permit per Village of Niles Zoning Ordinance Appendix B Section 8.2(A) for a ‘Parking Lot – Principal’ and ‘Car Wash’ at 7310 N. Melvina Ave., Niles, IL 60714.

**ZONING AND SITE DEVELOPMENT HISTORY**

On June 28, 2022, the Village Board entered into an agreement with Costco for the sale of a portion (3 acres) of the Village-owned Grainger property, with the intent that Costco would redevelop the subject property with a car wash and overflow parking for Costco employees. However, the property is zoned ENT-MU and at that time, the proposed uses were not permitted in that district. Consistent with the proposed land uses, the Village Board approved a Zoning Ordinance text amendment that included adding “Parking Lot – Principal” and “Car Wash” as a special uses in the ENT-MU district.

**PROJECT SUMMARY**

The subject property is 3 acres in size and is located on the west side of Melvina Avenue, across from the Costco Warehouse. Costco has been renting parking stalls on the subject property from the Village to address parking shortages (due to parking demand) on the actual warehouse property. The proposed action, if approved, would allow the Petitioner to develop the property in 2 phases. Phase 1 includes the development of the subject property as a parking lot with 233 parking stalls and site landscaping. Phase 2 includes the construction of a 4,700 square foot car wash on the site with 139 parking stalls and site landscaping. The car wash will typically have 1 or 2 employees on site at any given time and the proposed hours of operation will match the hours of operation of the warehouse.

**ANALYSIS**

**Surrounding Land Uses:**

Direction	Existing Zoning	Existing Use	Comprehensive Plan
North	ENT-MU, Cultural/Entertainment Mixed Use	Smithereen	Light Industrial/Business Park
South	ENT-MU, Cultural/Entertainment Mixed Use	Vacant YMCA	Public-Semi-Public
East	ENT-MU, Cultural/Entertainment Mixed Use	Costco	Regional Commercial
West	ENT-MU, Cultural/Entertainment Mixed Use	Remaining Vacant (former) Grainger Property	Light Industrial/Business Park

**ZONING AND COMPREHENSIVE PLAN**

The site and its environs is zoned ENT-MU, Entertainment and the proposed Phase 1 Parking Lot – Principal and Phase 2 Car Wash are both classified as a Special Uses in the Zoning Ordinance. As required by Section 15.3(E) of

the Village's Zoning Ordinance, the recommendation of the Planning and Zoning Board and decision of the Village Board must be based on findings to suppose each of the following conclusions:

1. *The special use in the specific location proposed is consistent with the spirit and intent of this Ordinance, the adopted Comprehensive Plan and other adopted Village land use policies.*
2. *The proposed special use will not endanger the public health, safety, or welfare.*
3. *The proposed special use is compatible with the general land use of adjacent properties and other property within the immediate vicinity.*
4. *The proposed special use is deemed necessary for the public convenience at the proposed location.*

The Planning and Zoning Board is encouraged to consider and discuss the aforementioned standards as it contemplates this request. Additionally, the Petitioner has provided their response to the standards, which has been included as Attachment #3 in this packet. If the project is approved, a recommended condition is that the Special Use for the Parking Lot – Principal be null and void once the Car Wash is constructed.

The 2030 Comprehensive Plan identifies the site as Light Industrial/Business Park. However, the proposed special use is consistent with Economic Development Goal #2 of the 2030 Comprehensive Plan, which is to "Maintain and strengthen the Village's diverse tax base through the attraction, retention, and expansion of businesses in the Village." It should be noted that there is a sub-area plan – the Touhy Triangle Plan – for the area, but said plan is currently being reevaluated for its future longevity as part of the Niles 2040 Comprehensive Plan process.

## **CRITICAL ISSUES**

### **Comments from Village Departments**

**Police:** Police had no comments/concerns.

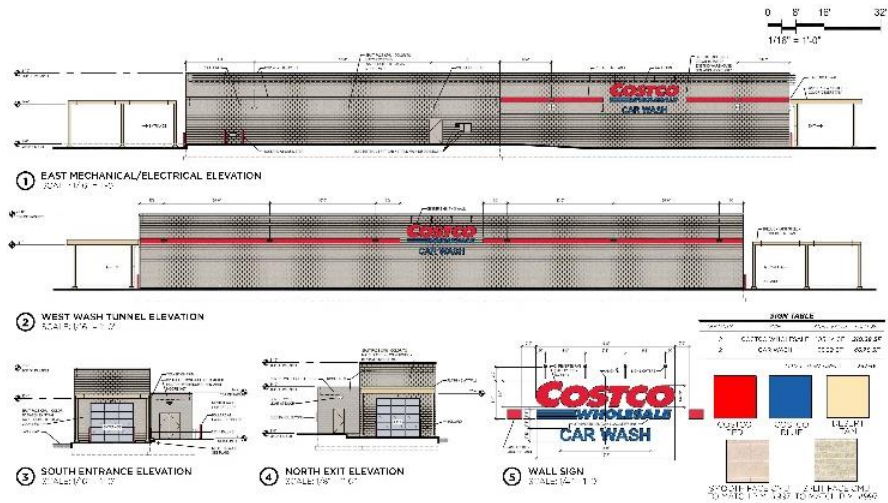
**Fire:** Fire had no comments/concerns.

**Engineering:** Engineering has not completed a full review of the project as the traffic impact analysis is still under review. However, Engineering is comfortable with the project moving forward through the Planning and Zoning Board/Village Board process, with the suggested conditions, and any remaining issues will get resolved as part of the permit review process.

**CD:** CD Staff worked diligently with the Petitioner to ensure the proposal, if approved, adheres to the Village's Zoning Ordinance. CD does not have any additional comments regarding this proposal at this time.

### **Building Elevations**

Village Staff worked closely with Costco's representatives on the special use applications for the proposed parking lot/car wash and gas station expansion. One of the biggest issues that arose from the Staff review was the quality of the design of the proposed car wash. The first elevation included materials that are not allowed per Village Code in addition to missing design elements that are required in the ENT-MU Zoning District. These comments were relayed to Costco's representatives, who were very receptive to the comments, and a second elevation was proposed. Due to the high visibility of the car wash, Staff was eager to get a higher quality design for the site than what was proposed with the second submittal. This concern, and design suggestions, were forwarded to Costco's representatives and a third, and final, revised elevation was presented to the Village. The following is an evolution of the proposed elevations:



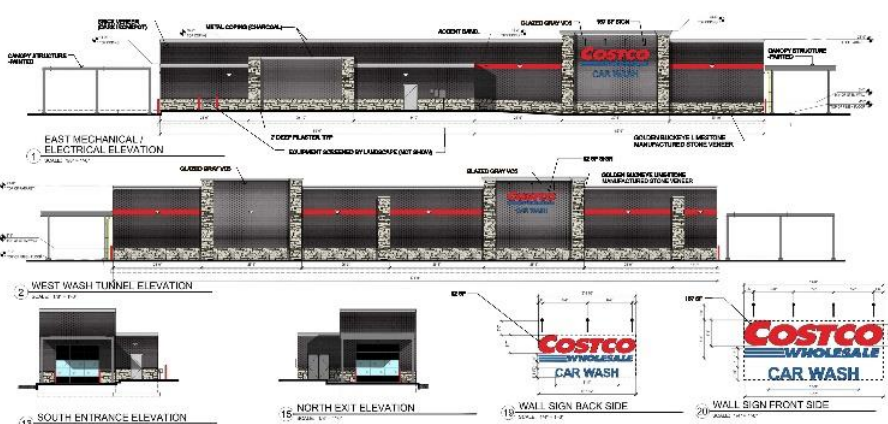
**MG2** JULY 26, 2022 99-00-00-15 NILES, IL **CONCEPT CAR WASH ELEVATIONS** **COSTCO WHOLESALE**

**Elevation – Round #1**



**MG2** SEPTEMBER 2, 2022 99-00-00-15 NILES, ILLINOIS PG. 1 **CAR WASH ELEVATIONS** **COSTCO WHOLESALE**

**Elevation – Round #2**



**MG2** SEPTEMBER 6, 2022 PG. 2 OF 2 99-00-00-15 NILES, ILLINOIS PG. 2 **CAR WASH ELEVATIONS** **COSTCO WHOLESALE**

**Elevation – Round #3 – to be presented to Planning and Zoning Board**

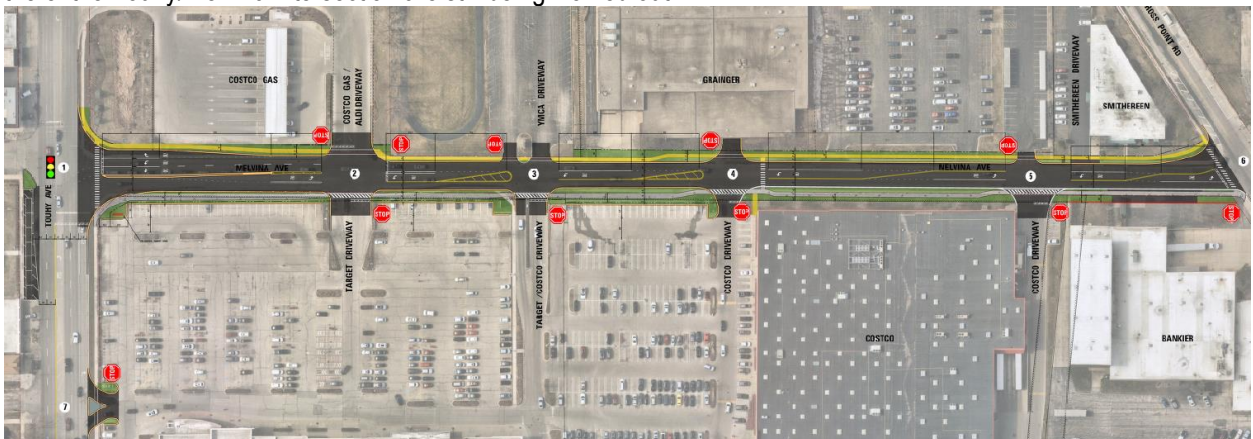
### **Parking**

Based on the uses on the entire Costco Warehouse/Car Wash/Parking Lot Campus, a minimum of roughly 450 parking stalls are required. However, the total parking proposed for the entire campus is 813 parking stalls in Phase 1 and 719 parking stalls in Phase 2. Therefore, the proposal exceeds the minimum required parking for the entire campus.

### **Melvina Avenue**

A separate but very important issue surrounding this area is the functionality of Melvina Avenue between Touhy Avenue and Gross Point Road. There is a significant amount of traffic that travels on this block and there oftentimes are backups and delays, both at the stop sign servicing the gas station and at the traffic signal at the Touhy/Melvina intersection. The Village of Niles is working with the City of Chicago and IDOT for improvements to the functionality of Melvina Avenue as well as the intersection with Touhy Avenue. At this time, the plans include pavement widening and the installation of a multi-purpose path on the east side of Melvina. Once complete, it is anticipated that the improvements will adequately serve the adjacent properties and the traffic congestion issues will be minimized. Fifteen feet of frontage along the subject property has been dedicated to the Village to allow for the road widening; however the plans submitted by the petitioner do not properly reflect the relocated property line. The petitioner has indicated that that will be rectified on the plans prior to Village Board consideration of this request.

The image below is the latest plan proposed for the improvements; however, it should be noted that the details of the entire Touhy/Melvina intersection are still being worked out.



The timeline for the rehabilitation of Melvina Avenue is dependent on a few critical items including 1) IDOT approval, 2) CDOT Approval, and 3) Land Acquisition for roadway widening. Village of Niles Staff is optimistic for construction in 2023, but due to the number of agencies involved, 2024 is probably more realistic.

### **Traffic Impact Analysis**

As part of the application process, Costco hired Kittlelson & Associates to prepare a traffic study to assess the impacts the development will have on adjacent roadways and intersections. Some of the key finding and comments include:

1. A total of 71 additional weekday and 151 weekend peak hour round trips will be generated by the combined fuel and car wash improvements. However some of these trips would have already occurred due to existing destinations. Therefore they estimate a net new 44 additional weekday and 20 weekend peak hour round trips will be generated. This is fairly low level of new trips added to the roadway network as a result of the fuel expansion and car wash.
2. Overall level of service for intersections (including driveways/access points) in the area range from A to C, however this rating does not account for individual approaches. Generally level of service rating at or above D is considered acceptable.
3. Individual approaches operate in the B-C range with the following exceptions:

- a. Northbound Melvina at Gross Point which was already underperforming. .
- b. Historic data indicates that the Melvina approaches to Touhy are also underperforming.
4. Kittelson did not provide a Level of Service analysis for the Touhy and Melvina approaches; therefore, we cannot say how that intersection will be impacted in the near term. Previous analysis indicates the weekday level of service dropping from C to D, and the weekend level of service staying at level of service F with an additional 47 second of delay. This is based on previous studies for the added gas station traffic and the existing geometry to remain.
5. Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound approach delay will increase by 15.1 seconds. This situation will eventually be remedied with a traffic signal that is planned to be installed with the YMCA redevelopment.
6. Queuing analysis should be completed for both sites but we do not expect they will reveal queuing capacity issues.
7. The Village has enlisted Sam Schwartz to do a thorough analysis of the Costco study. The results are not available as of yet and there may be additional changes necessary based on the outcome of the review.

### **Pedestrian Access between the Campus Parcels**

The petitioner has indicated that the main users of the proposed parking lot will be Costco employees. However, cart corrals are proposed in both phases, which raised some concern with Village Staff regarding the use of the parking lot by Costco customers. Costco has acknowledged that customers will potentially park in the proposed lot as it is conveniently located within a close proximity of the front entrance and that the cart corrals will help to eliminate carts displaced throughout the lot and discarded in landscape islands. They have also stated that the Costco employees will collect carts at this lot as they normally do throughout the parking areas. The concern that was raised by Village Staff, however, focused on the impacts the shoppers will have on traffic and their safety (pushing full shopping carts across Melvina and employees bringing carts back across Melvina to the store). In order to minimize the impact onto adjacent roadways and taking the safety of customers into consideration, it is recommended that the parking lot be limited to employees only.

Regardless of who is using the parking lot, a safe means for pedestrians to cross Melvina Avenue is necessary. The petitioner has designed pedestrian crossings in two locations across Melvina to provide a safe crossing for customers and employees. In order to minimize the impacts pedestrians may have on the functionality of Melvina Avenue and taking the amount of traffic that travels on Melvina Avenue into account, Village Staff believes that it is imperative that the north crossing be eliminated from the plans. The south crossing is proposed to be raised and have a rectangular rapid flashing beacon to accompany a pedestrian warning sign. The proposed crossing will be fully evaluated by the Village's Engineers in conjunction with the review of the traffic impact analysis and, if the project is approved, a recommended condition is that any additional suggested changes must be made to the plans prior to the issuance of a building permit.

### **Subdivision**

If the Village Board approves the proposed car wash, the former Grainger building will be demolished and the property will be subdivided into two lots – one for the proposed Costco car wash/parking lot (roughly 3 acres) and one that includes the rest of the Grainger site minus the 3 acres.

### **LEGAL NOTIFICATION**

A legal notice was provided in the Bugle on September 15, 2022 and notices to all owners of property within 250 feet were mailed on September 14, 2022. On-site signage was also placed on the property the week September 12, 2022.

### **SUGGESTED 'CONDITIONS OF APPROVAL' FOR THIS REQUESTED SPECIAL USE:**

1. Signs shall be posted in the parking lot identifying that the parking is for Costco employees only.
2. The north pedestrian crossing over Melvina Avenue must be removed from the plans prior to the issuance of a building permit.
3. The traffic study and associated findings must be accepted by the Village Engineer and any necessary modifications to the site plan as a result of the accepted traffic study must be made prior to the issuance of a building permit.

4. At such time when the Phase 2 Car Wash is constructed, the Special Use for the Parking Lot – Principal will become null and void.

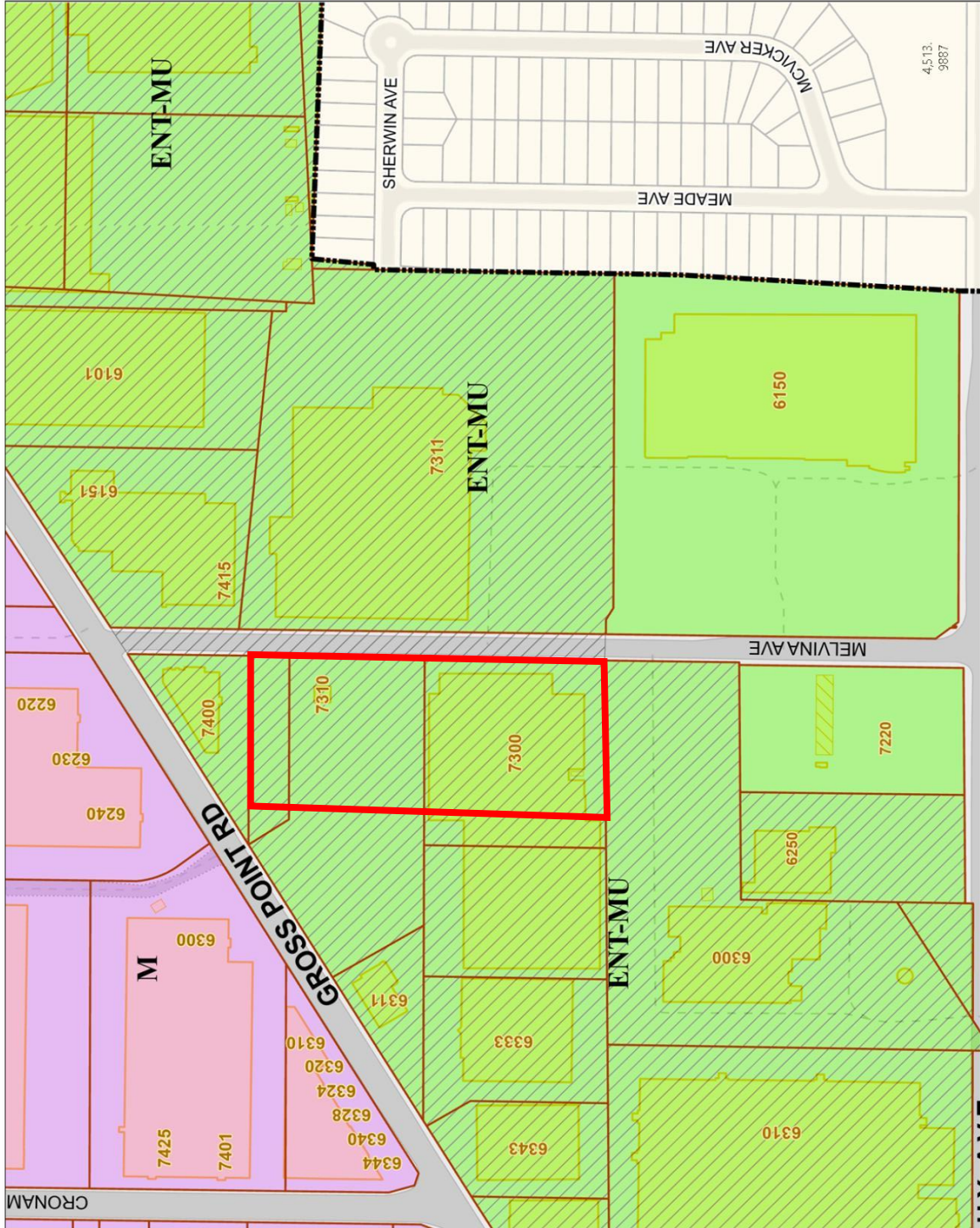
**OTHER REQUIRED ACTIONS**

For Special Uses, the Planning and Zoning Board is an advisory body to the Village Board. The Planning and Zoning Board will make a recommendation which is tentatively scheduled to be considered by the Village Board for a final decision on Tuesday, October 25, 2022.

**PRINCIPAL PARTIES EXPECTED AT MEETING**

1. Mr. Stephen Cross, Cross Engineering & Associates
2. Mr. Larry Dziurdzik,
3. Representative from Kittleson, Costco's traffic engineer,
4. Interested members of the public.

# Proposed Costco Car Wash/Parking Lot



The Village of Niles has developed a proprietary information system (GIS) database from existing public records that The Village of Niles is providing to assist in the development, use or maintenance of any application for a license or permit. The Village of Niles makes no claim as to the accuracy of the data. The Village assumes no responsibility for the accuracy of any subsequent copies of the licensed data, made and distributed under the license. © Village of Niles

This map is not to be used for navigation.



**Legend**

**Village Limits**  
 Village Limits

**Parcels**  
 Parcels

**Parcels - Outside Niles**  
 Parcels - Outside Niles

**Zoning Overlay (PUDs)**  
 Zoning Overlay (PUDs)

**Zoning Overlay (Cannabis District)**  
 Zoning Overlay (Cannabis District)

**Zoning - General**

- C-1 Corridor Commercial
- C-2 General Commercial
- C-3 Milwaukee Avenue Form-Based
- C-4 Milwaukee Ave Mixed-Use
- C-5 Urban Village
- ENT-MU Entertainment / Mixed-Use
- M Limited Industrial
- OR Office / Research
- P-1 Public / Institutional Lands
- R-1 Single Family Residential
- R-2 Single Family Residential
- R-2-35A Single Family Residential
- R-2-35B Single Family Residential
- R-3 Two-Family / Townhome Residential

**Notes**

A Request for approval of a Special Use Permit per Village of Niles Zoning Ordinance Appendix B Section 8.2(A) for a 'Parking Lot - Principal' and 'Car Wash' at 7310 N. Melvina Ave., Niles, IL 60714.

Scale: 1" = 3,353.5508 feet  
 1" = 279.4626 feet

Village of Niles  
 1000 Oak Center Drive  
 Niles, IL 60714  
 www.niles.com  
 Email: info@niles.com  
 © Village of Niles





**SPECIAL USE STANDARDS**  
**Car Wash and Parking Lot as a Principal Use**

**Is the special use in the specific location proposed consistent with the spirit and intent of the zoning ordinance, the adopted Comprehensive Plan, and other adopted Village land use policies?**

The proposed car wash and parking lot are located on a 3-acre parcel (Subject Property) of land zoned ENT-MU, Entertainment / Mixed-Use zoning district. Car wash facilities and parking lots as a principal use are permitted as a special use in the zoning code within the ENT-MU Zoning District. The proposed land use and existing zoning is consistent with the spirit and intent of the zoning code and Comprehensive Plan.

The Subject Property is located within an area defined in the Village Land Use Plan as Light Industrial / Business Park. Historically, Grainger and other light industrial / manufacturing companies occupied this area however, the current zoning provides an opportunity to stimulate re-development in this area for retail and entertainment land uses. The recent teardown of the YMCA Campus residential building and the vacancy and future tear down of the Grainger building are two examples that demonstrate the Village's new policy direction in this area. The current zoning district encourages the orderly re-development of the subject property and nearby properties into land uses that provide mixed-use retail and complementary entertainment businesses.

The existing Costco warehouse is located along Melvina Avenue, an established commercial corridor. The Niles 2030 Comprehensive Plan, adopted October 25, 2011, describes under Section 4, Land Use Plan that "proposed commercial land uses are concentrated along the Village's commercial corridors and are reflective of the existing patterns of commercial development." The proposed car wash and parking lot is compatible with established commercial uses in the area and is consistent with the Comprehensive Plan's goals and objectives for commercial redevelopment.

**Will the proposed special use endanger the public health, safety, and welfare?**

The proposed car wash and parking lot will not endanger the public health, safety, or welfare of any portion of the community. The proposed land uses will be designed to provide a safe environment meeting applicable state and local codes for fire access, pedestrian, and vehicular movements, and building operations. Costco will maintain the car wash and parking lot facilities appearance, provide adequate lighting, provide a safe and efficient parking lot for members and employees, while abiding by the noise ordinance and hours of operation. The proposed land use will have no adverse impact to any nearby residential neighborhood, and will minimize the demand for additional municipal services, utilities, and infrastructure.

**Is the proposed special use compatible with the general land use of adjacent properties and other property within the immediate vicinity?**

The proposed special use (s) is compatible with nearby land uses and adjacent properties in the immediate vicinity as the character of the requested special use (s) is commercial in nature. Commercial and existing light industrial land uses are compatible with one another and from a land use perspective are considered reasonable. The proposed car wash and parking expansion are complementary to the existing Costco warehouse. The existing Costco warehouse and Target are located nearby, east, and south of the Subject Property along Melvina Avenue, a commercial corridor. With the recent teardown of the YMCA campus and removal of the Grainger building west of Melvina Avenue, future retail and entertainment re-development opportunities are now possible that will strengthen the Village's commercial core in the immediate area.

**Is the proposed special use deemed necessary for the public convenience at the proposed location?**

The proposed special use (s) is necessary as it will provide Costco employees as well as member's a convenient and safe parking option at a location that is in close proximity to the existing Costco warehouse. Costco employees currently park in the Grainger

parking lot west of Melvina Avenue, which is the location for the new proposed parking lot and car wash. The proposed car wash provides a convenient service to Costco members by offering a budget conscious wash while shopping at the warehouse.



# ZONING PERMIT APPLICATION—SPECIAL USE PERMIT

**VILLAGE OF NILES**  
1000 Civic Center Drive  
Niles, Illinois 60714  
847/588-8040  
847/588-8050 (Fax)

***To Be Completed by the Applicant—Please Print***

Address for Subject Property/Petition: 7311 Melvina, Ave.  
 Parcel Identification Number(s) (PINs): New 3 Acre Parcel  
 Applicant's Name: Costco Wholesale Corporation/ Stephen J. Cross  
     Street Address: 1955 Raymond Drive  
     City, State, Zip: Northbrook, Illinois 60062  
     Phone Number: 847-498-0800  
     E-Mail Address: scross@crossengineering.net  
 Name of Business (if applicable): Cross Engineering & Associates, Inc.

Applicant is (Check **ALL** that apply):

Property Owner \*  Business Owner  Other: Authorized Costco Representative

\* If the applicant is *not* the property owner, the owner of the property or their agent must print their name and sign below:

**Village of Niles**

Property Owner Name (*Printed*) \_\_\_\_\_ Property Owner Signature \_\_\_\_\_

*Note: By signing this form, you grant permission to Village of Niles staff to enter onto the subject property.*

Signature of Applicant: 

*Note: By signing this form, you grant permission to Village of Niles staff to enter onto the subject property.*

***To be completed by Staff:***

PETITION #: \_\_\_\_\_ Parcel Zoning Classification \_\_\_\_\_  
 Date of Initial Consultation (1) \_\_\_\_\_  
 Date of Preliminary Application (2) \_\_\_\_\_  
 Date of Final Application (3) \_\_\_\_\_  
 Hearing Dates: Tentative: \_\_\_\_\_

**Application Fees:**

Variation—R-1 and R-2 Districts \$ 100.00  
 Variation—All Other Districts \$ 200.00  
 Special Use—All Districts \$ 350.00  
 Rezoning (by acreage) \$ 250-1,500.00  
 Text Amendment \$ 350.00  
 Plat, preliminary and final \$ 800.00  
 Appeal \$ 300.00  
 Annexation (by acreage) \$ 200-500.00  
 Planned Unit Developments To Be Provided By Staff

	Amount	Date Paid	Check # or Cash
Filing Fee			
Escrow Fund			
Other			
<b>Total Paid</b>			



CROSS ENGINEERING & ASSOCIATES, INC.

August 8, 2022

Ms. Kate Lockerby  
Senior Planner, Community Development  
Village of Niles  
1000 Civic Center Drive  
Niles, Illinois 60714

RE: Costco Wholesale  
Car Wash & Parking Lot Special Use  
Application  
7311 N. Melvina Drive

Dear Ms. Lockerby,

On behalf of Costco Wholesale Corporation, please find the following attached documents in support of our Special Use application permit request for a proposed car wash and parking lot as a principal use:

1. Car Wash & Parking Site Plan as prepared by MG2 Architects, dated 8-1-2022
2. Car Wash & Parking Landscape Plan as prepared by Kimley Horn, dated 8-1-2022
3. Car Wash Enlarged Floor Plan as prepared by MG2 Architects, dated 8-1-2022
4. Car Wash Elevations as prepared by MG2 Architects, dated 8-1-2022
5. Parking Lot Site Plan as prepared by MG2 Architects, dated 8-1-2022
6. Parking Lot Landscape Plan as prepared by Kimley Horn, dated 8-1-2022
7. ALTA Land Title Survey as prepared by V3 Engineers, dated 7-5-2022
8. Zoning Permit Application-Special Use Permit with Standards
9. Purchase and Sales Agreement between the Village of Niles and Costco
10. Check in the amount of \$350.00

#### Project Description

Costco is proposing a car wash facility with associated parking on a 3- acre parcel of land that they will purchase from the Village along Melvina Avenue directly west of the existing Costco warehouse. The current zoning for the property is ENT-MU, which permits car washes and parking as a special use under this zoning district. It is Costco's intentions to develop the 3-acre parcel as a parking lot for 233 stalls as Phase I with the car wash development following at a date to be determined as Phase

II. The parking lot will provide much needed parking for Costco employees who today use the existing Grainger lot located directly west of the existing warehouse. The location of the parking lot is convenient for employees as well as Costco members. Pedestrian crosswalks and traffic control measures have been provided to ensure a safe route across Melvina Avenue to the warehouse. Final site plans will be coordinated with the proposed Melvina roadway improvements currently under design by the Village. The total parking provided for the Costco property will be 813 parking stalls at the completion of Phase I.

Phase II will be the integration of a 4,700 square foot car wash facility within the existing parking lot. The parking lot has been designed so that the building footprint with associated drive lanes can be located with minimal disturbance to the existing parking lot to remain at the south end making spaces available to employees and members throughout construction. The new parking provided for Phase II is 139 parking stalls. The total parking provided for the Costco property will be 719 parking stalls at the completion of Phase II.

The car wash facility will be a fully automated conveyORIZED tunnel car wash. The 1-story building design will match the warehouse masonry and will include the Costco trademark red banding. Costco Car Wash signage is located on the east and west wall elevations as illustrated on the concept car wash elevations. The east and west building elevations will be softened with a mixture of evergreen and deciduous landscape plantings. Extensive landscape plantings will be provided at the perimeter of the property for effective screening along Melvina Avenue. Typically, 1 to 2 employees operate the car wash at any given time. The hours of operation will match the warehouse store hours.

Costco continues to provide the best quality shopping and services to its members within the Village of Niles and surrounding areas. The proposed parking lot expansion and car wash will provide for the needs of Costco to continue to grow and to provide the convenience and services that Costco members and employee's look for and expect. We look forward to working with you and your staff on this special use application. Please feel free to contact myself or Larry Dziurdzik with any questions or if you need any additional information.

Sincerely,

Costco Wholesale Corporation



Stephen Cross

Authorized Costco Representative

CC: Larry Dziurdzik, Costco Planning Consultant



PLANS  
FOR  
PROPOSED PARKING LOT  
ONLY  
(PHASE I)



# PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7310 & 7311 N MELVINA AVENUE  
NILES, ILLINOIS 60714

ZONING: ENT-MU (ENTERTAINMENT MIXED-USE)

EXISTING SITE AREA: 10.33 ACRES (449,807 SF)  
EXISTING FUEL AREA: 2.36 ACRES (102,895 SF)  
TOTAL EXISTING AREA: 12.69 ACRES (552,702 SF)

PROPOSED SITE AREA ADDITION: 3.00 ACRES (130,836 SF)  
TOTAL PROPOSED SITE AREA: 15.69 ACRES (683,538 SF)

BOUNDARIES INFORMATION: THIS PLAN HAD BEEN PREPARED BY USING A CIVIL PLAN BY JOSEPH A. SHUDT & ASSOC. DATED 12/30/94  
THIS PLAN HAS BEEN UPDATED BY USING A CIVIL SURVEY BY V3 DATED 09/19/22

**BUILDING DATA:**

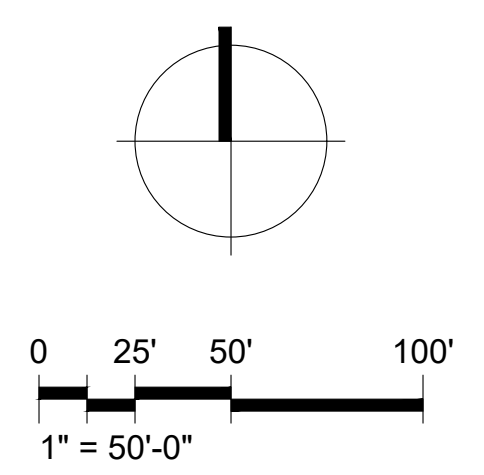
BUILDING AREA	136,625 SF
TIRE CENTER	5,200 SF
TOTAL COSTCO BUILDING	141,825 SF
ENTRANCE VESTIBULE	3,480 SF

**COSTCO PARKING DATA:**

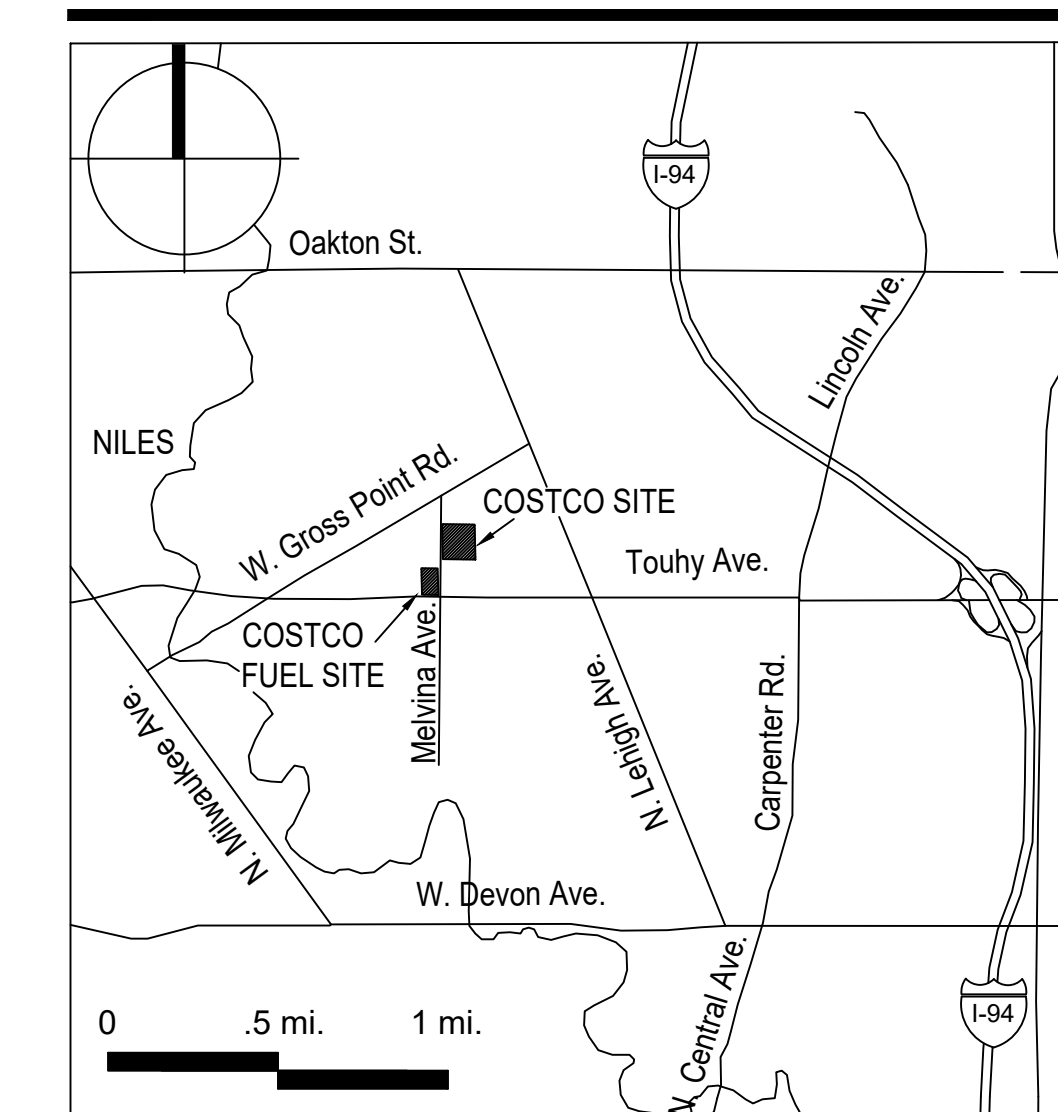
# EXISTING STALLS	*564 STALLS
# EXISTING ACCESSIBLE STALLS	14 STALLS
TOTAL EXISTING PARKING	578 STALLS
* 4 REGULAR STALLS REMOVED FOR ADA SCOPE	
# PROPOSED PARKING 10' WIDE STALLS	231 STALLS
# PROPOSED ACCESSIBLE STALLS	2 STALLS
TOTAL PROPOSED PARKING	811 STALLS

NO. OF STALLS PER 1000 SF OF COSTCO BLDG AREA:(141,825 SF) 5.72 STALLS

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.



## VICINITY MAP



NILES, IL  
# 383

7310 & 7311 N MELVINA AVENUE  
NILES, ILLINOIS 60714

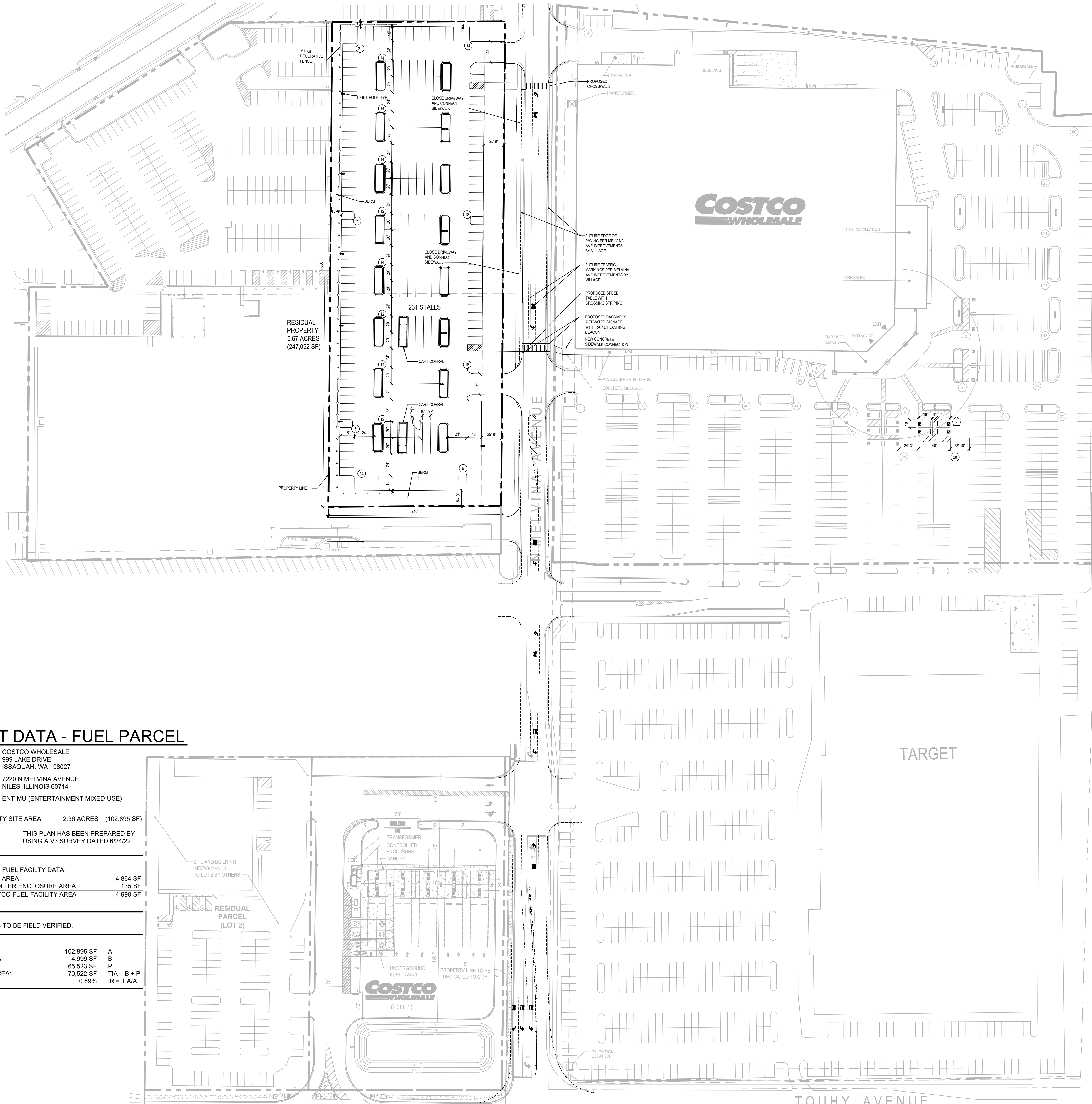
1101 Second Ave, Ste 100  
Seattle, WA 98101  
206 962 6500  
MG2.com



98-5090-16  
OCTOBER 7, 2022

SITE PLAN

DD11-03



## PROJECT DATA - FUEL PARCEL

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7220 N MELVINA AVENUE  
NILES, ILLINOIS 60714

ZONING: ENT-MU (ENTERTAINMENT MIXED-USE)

EXISTING FUEL FACILITY SITE AREA: 2.36 ACRES (102,895 SF)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A V3 SURVEY DATED 6/24/22

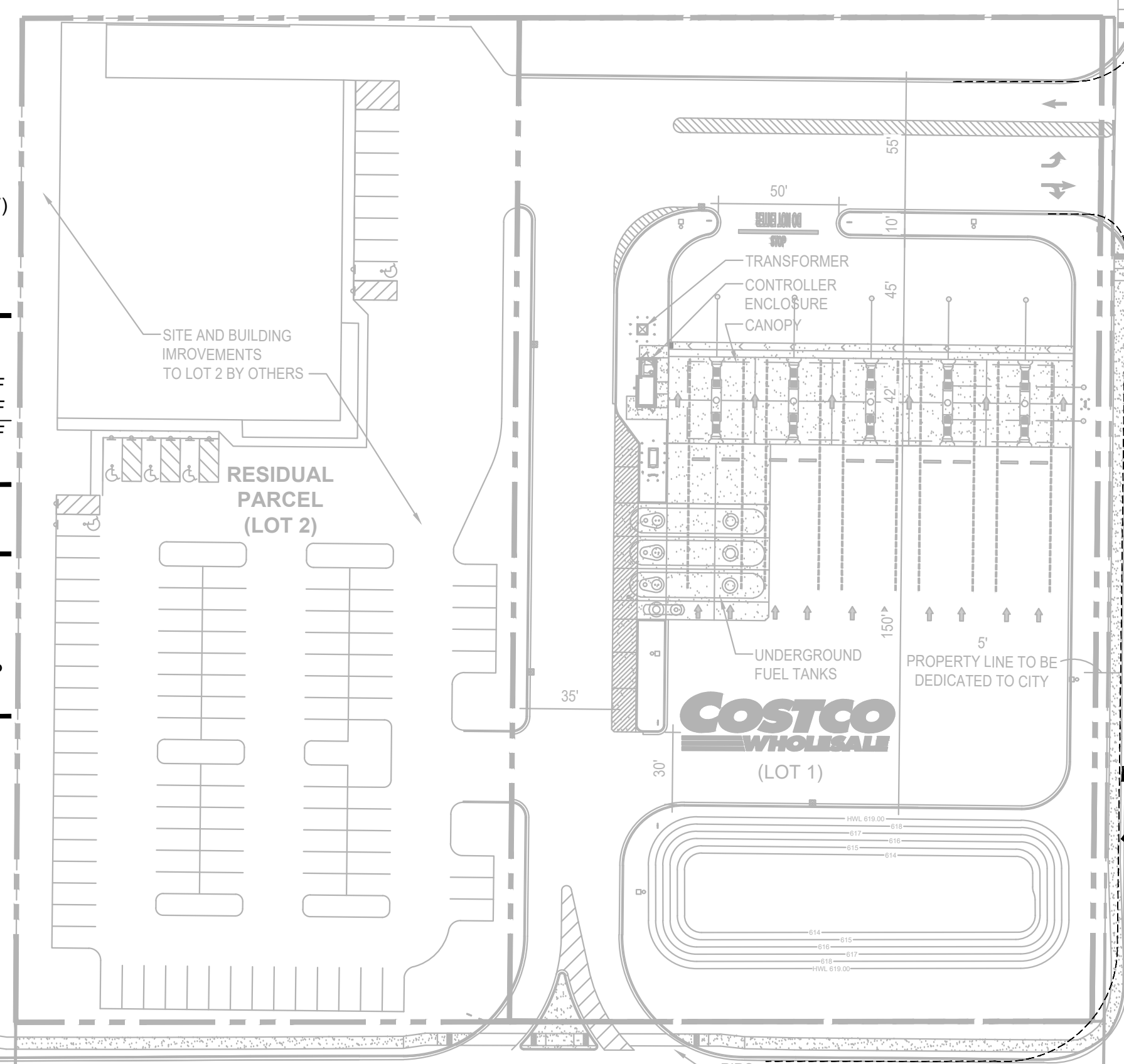
**BUILDING DATA:**

EXISTING COSTCO FUEL FACILITY DATA:	
EXISTING CANOPY AREA	4,864 SF
EXISTING CONTROLLER ENCLOSURE AREA	135 SF
TOTAL EXISTING COSTCO FUEL FACILITY AREA	4,999 SF

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

**SITE DATA:**

GROSS AREA OF SITE:	102,895 SF	A
BUILDING FLOOR AREA:	4,999 SF	B
PAVEMENT AREA:	65,523 SF	P
TOTAL IMPERVIOUS AREA:	70,522 SF	TIA = B + P
IMPERVIOUS RATIO:	0.69%	IR = TIA/A



# COSTCO WHOLESALE

NILES, ILLINOIS

# SITE PLAN

OCTOBER 7, 2022

# PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7310 & 7311 N MELVINA AVENUE  
NILES, ILLINOIS 60714

ZONING: ENT-MU (ENTERTAINMENT MIXED-USE)

EXISTING SITE AREA: 10.33 ACRES (449,807 SF)  
EXISTING FUEL AREA: 2.36 ACRES (102,895 SF)  
TOTAL EXISTING AREA: 12.69 ACRES (552,702 SF)

NEW PARCEL DATA:  
GROSS AREA: 3.00 ACRES (130,836 SF)  
BUILDING LOT COVERAGE: NA  
PAVEMENT LOT COVERAGE: 2.18 ACRES (95,016 SF)  
TOTAL IMPERVIOUS AREA: 2.18 ACRES (95,016 SF)  
IMPERVIOUS RATIO: 72.62%

TOTAL PROPOSED SITE AREA: 15.69 ACRES (683,538 SF)

BOUNDARIES INFORMATION: THIS PLAN HAD BEEN PREPARED BY USING A CIVIL PLAN BY JOSEPH A. SHUDT & ASSOC. DATED 12/30/94  
THIS PLAN HAS BEEN UPDATED BY USING A CIVIL SURVEY BY V3 DATED 09/19/22

**BUILDING DATA:**

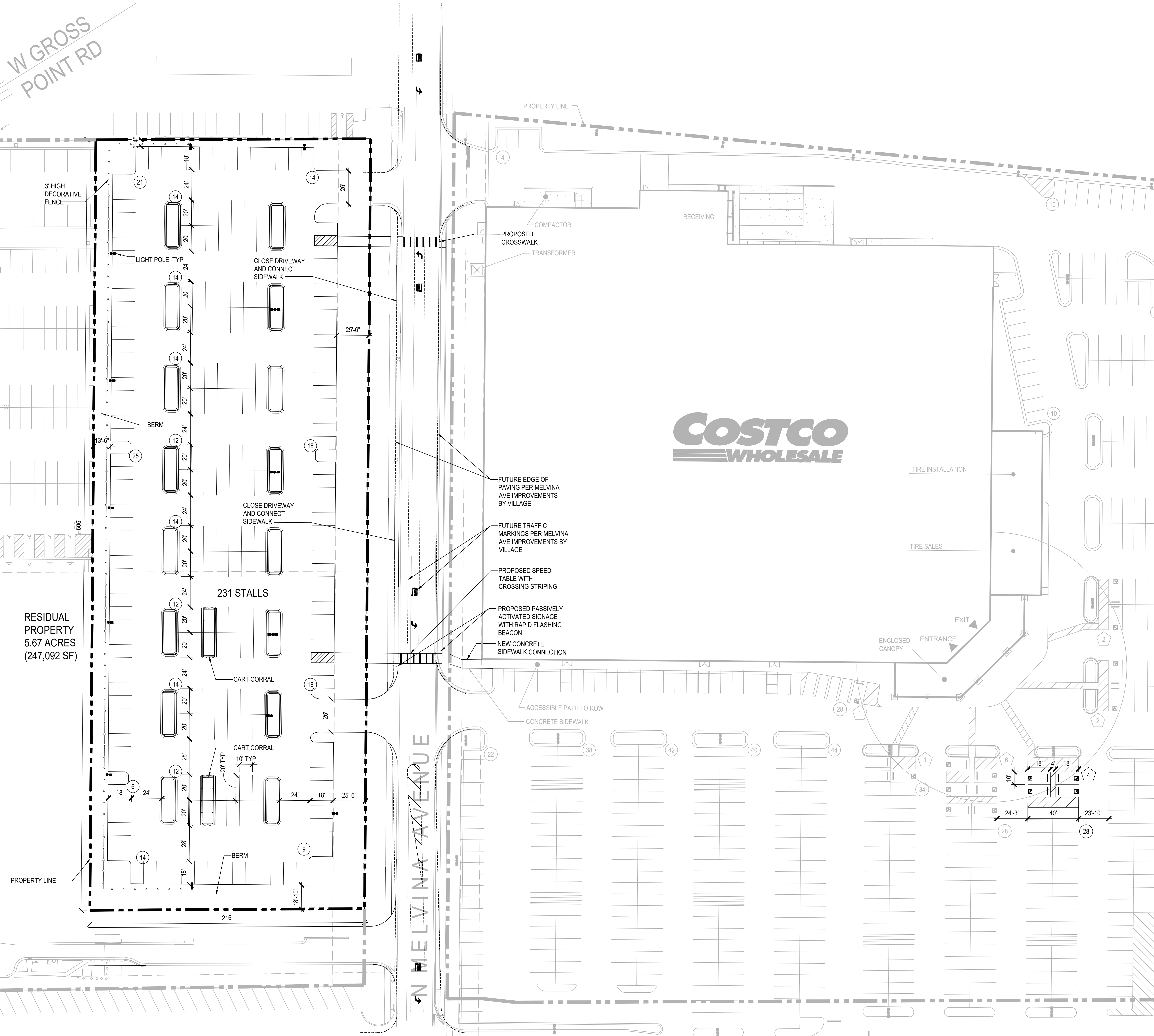
BUILDING AREA	136,625 SF
TIRE CENTER	5,200 SF
TOTAL COSTCO BUILDING	141,825 SF
ENTRANCE VESTIBULE	3,480 SF

**COSTCO PARKING DATA:**

# EXISTING STALLS	*564 STALLS
# EXISTING ACCESSIBLE STALLS	14 STALLS
TOTAL EXISTING PARKING	578 STALLS
* 4 REGULAR STALLS REMOVED FOR ADA SCOPE	
# PROPOSED PARKING 10' WIDE STALLS	231 STALLS
# PROPOSED ACCESSIBLE STALLS	2 STALLS
TOTAL PROPOSED PARKING	811 STALLS

**NO. OF STALLS PER 1000 SF OF COSTCO BLDG AREA:(141,825 SF)** 5.72 STALLS

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.



# COSTCO WHOLESALE

NILES, ILLINOIS

# ENLARGED SITE PLAN

OCTOBER 7, 2022



7310 & 7311 N MELVINA AVENUE  
NILES, ILLINOIS 60714

1101 Second Ave. Ste 100  
Seattle, WA 98101  
206 962 6500  
MG2.com

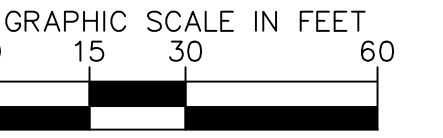
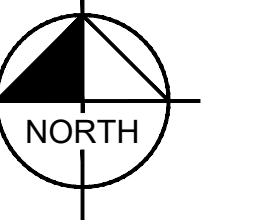


98-5090-16  
OCTOBER 7, 2022

ENLARGED  
SITE PLAN

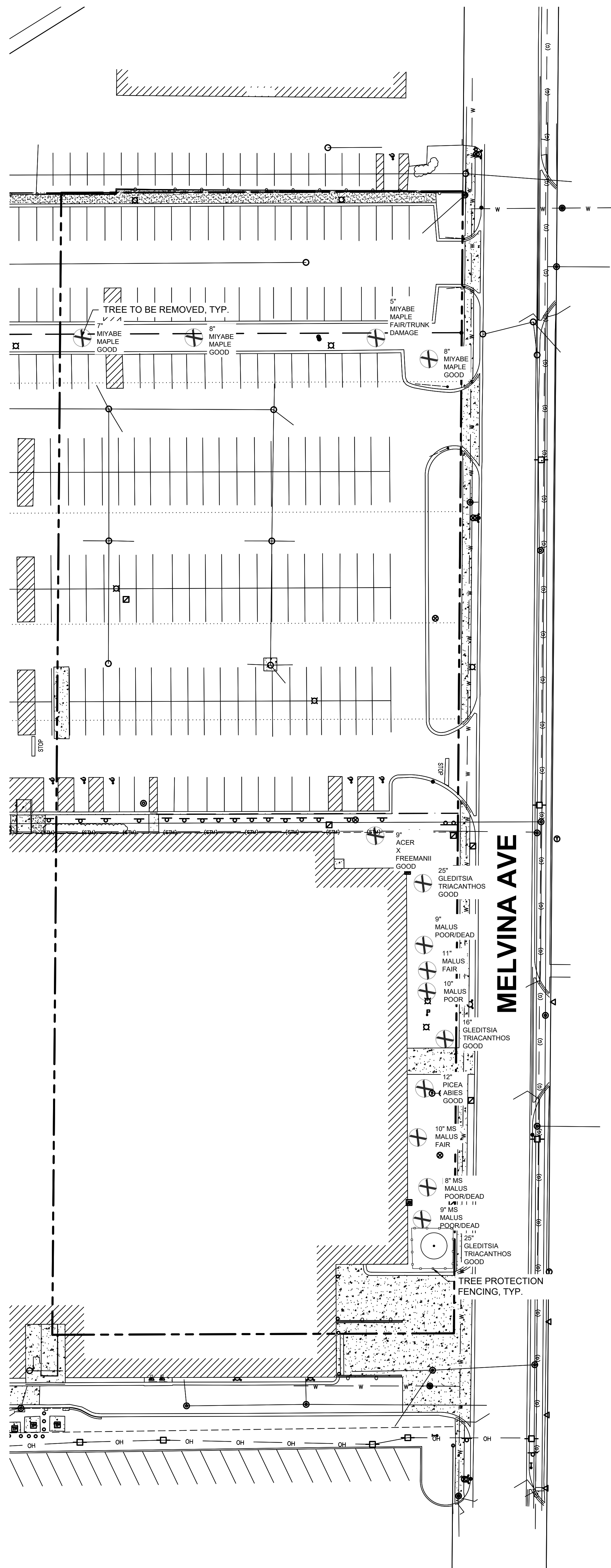
DD12-03

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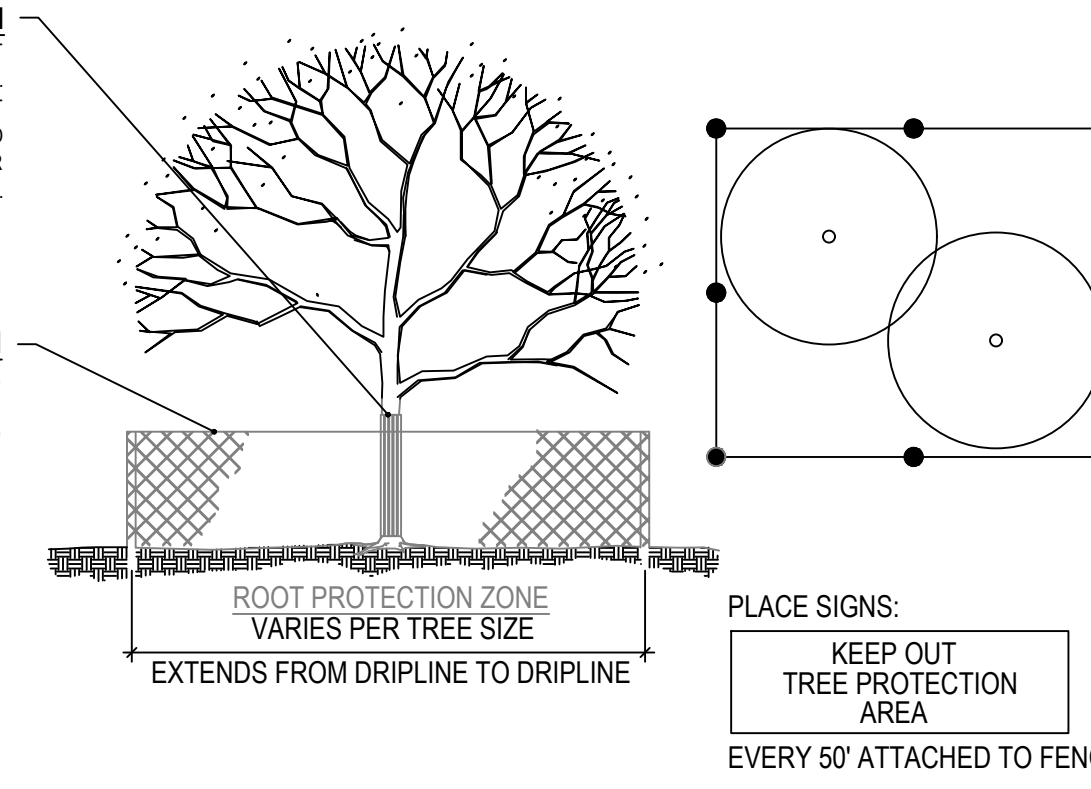
**COSTCO WHOLESALE**  
7311 MELVINA AVE.  
NILES, IL 60714


**L1.0**  
**TREE REMOVALS**  
**PLAN**



**TRUNK PROTECTION**  
REQUIRED IF WHEELED CONSTRUCTION EQUIPMENT INVOLVED WITHIN 20' OR LESS. 1" BOARDS NOT LESS THAN 8' LONG OR TO REACH TREE SCAFFOLD BRANCH. WIRE TO HOLD BOARDS IN PLACE, NO NAILS PERMITTED. INCLUDE WRAPPING OF BURLAP UNDER BOARDS.

**BRANCH PROTECTION**  
PROTECT LOWER BRANCHES OF TREE CANOPY. PROVIDE CONSTRUCTION FENCING OR EQUAL AT DRIPLINE (MIN).

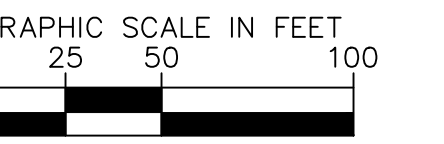
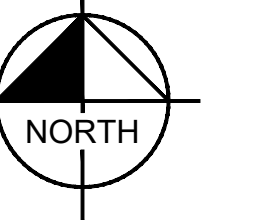


**TREE PROTECTION NOTES**

1. ALL TREES TO BE PROTECTED AND PRESERVED SHALL BE PER DETAIL. GROUPING OF MORE THAN ONE TREE MAY OCCUR.
2. TREES TO BE PROTECTED AND PRESERVED SHALL BE IDENTIFIED ON THE TRUNK WITH WHITE SURVEY TAPE.
3. TO PREVENT ROOT SMOTHERING, SOIL STOCKPILES, SUPPLIES, EQUIPMENT OR ANY OTHER MATERIAL SHALL NOT BE PLACED OR STORED WITHIN THE DRIP LINE OR WITHIN 15 FEET OF A TREE TRUNK, WHICHEVER IS GREATER.
4. TREE ROOTS SHALL NOT BE CUT UNLESS CUTTING IS UNAVOIDABLE.
6. WHEN ROOT CUTTING IS UNAVOIDABLE, A CLEAN SHARP CUT SHALL BE MADE TO AVOID SHREDDING OR SMASHING. ROOT CUTS SHOULD BE MADE BACK TO A LATERAL ROOT. WHENEVER POSSIBLE, ROOTS SHOULD BE CUT BETWEEN LATE FALL AND BUD OPENING. WHEN ROOT ENERGY SUPPLIES ARE HIGH AND CONDITIONS ARE LEAST FAVORABLE FOR DISEASE CAUSING AGENTS. EXPOSED ROOTS SHALL BE COVERED IMMEDIATELY TO PREVENT DEHYDRATION. ROOTS SHALL BE COVERED WITH SOIL OR BURLAP AND KEPT MOIST.
7. WATERING OF PROTECTED TREES IN WHICH ROOTS WERE CUT SHALL BE PROVIDED BY THE CONTRACTOR.
8. AUGER TUNNELING RATHER THAN TRENCHING SHOULD BE USED FOR UTILITY PLACEMENT WITHIN DRIP LINE.
9. FENCING MATERIAL SHALL ENCIRCLE ANY TREE OR SHRUB WHOSE OUTER DRIP LINE EDGE IS WITHIN 20 FEET OF ANY CONSTRUCTION ACTIVITIES.
10. FENCING MATERIAL SHALL BE BRIGHT, CONTRASTING COLOR, DURABLE, AND A MINIMUM OF FOUR FEET IN HEIGHT.
11. FENCING MATERIAL SHALL BE SET AT THE DRIP LINE OR 15 FEET FROM TREE TRUNK, WHICHEVER IS GREATER, AND MAINTAINED IN AN UPRIGHT POSITION THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
12. ANY GRADE CHANGES (SUCH AS THE REMOVAL OF TOPSOIL OR ADDITION OF FILL MATERIAL) WITHIN THE DRIP LINE SHOULD BE AVOIDED FOR EXISTING TREES TO REMAIN. RETAINING WALLS AND TREE WELLS ARE ACCEPTABLE ONLY WHEN CONSTRUCTED PRIOR TO GRADE CHANGE.
13. REFER TO PLANS FOR FENCE STAKING LOCATIONS.

**1 TREE PROTECTION**

NTS

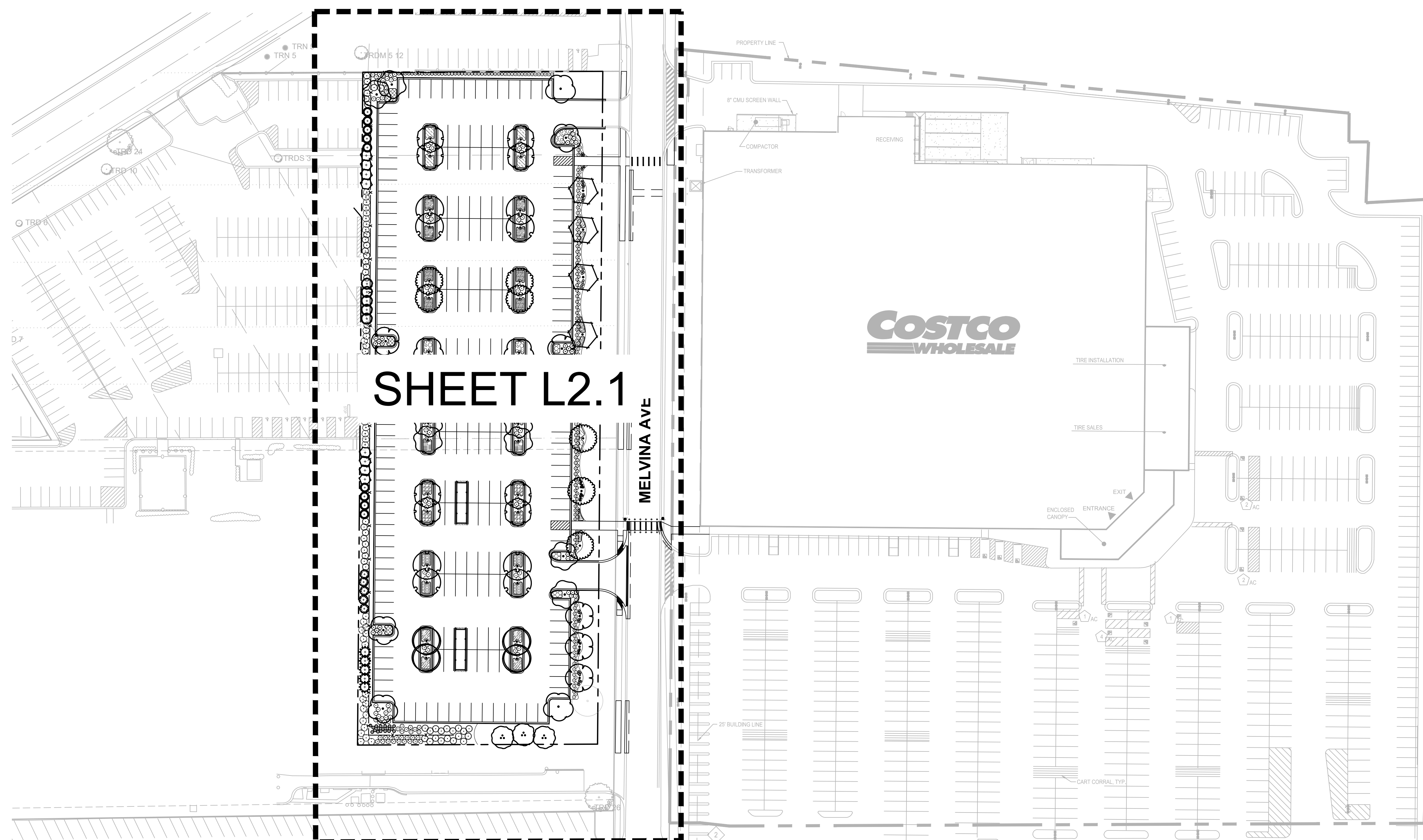


**COSTCO WHOLESALE**  
 7311 MELVINA AVE.  
 NILES, IL 60714

ISSUED DATE - 10/07/2022

DATE ISSUED FOR REV

**L2.0**  
**LANDSCAPE PLAN**

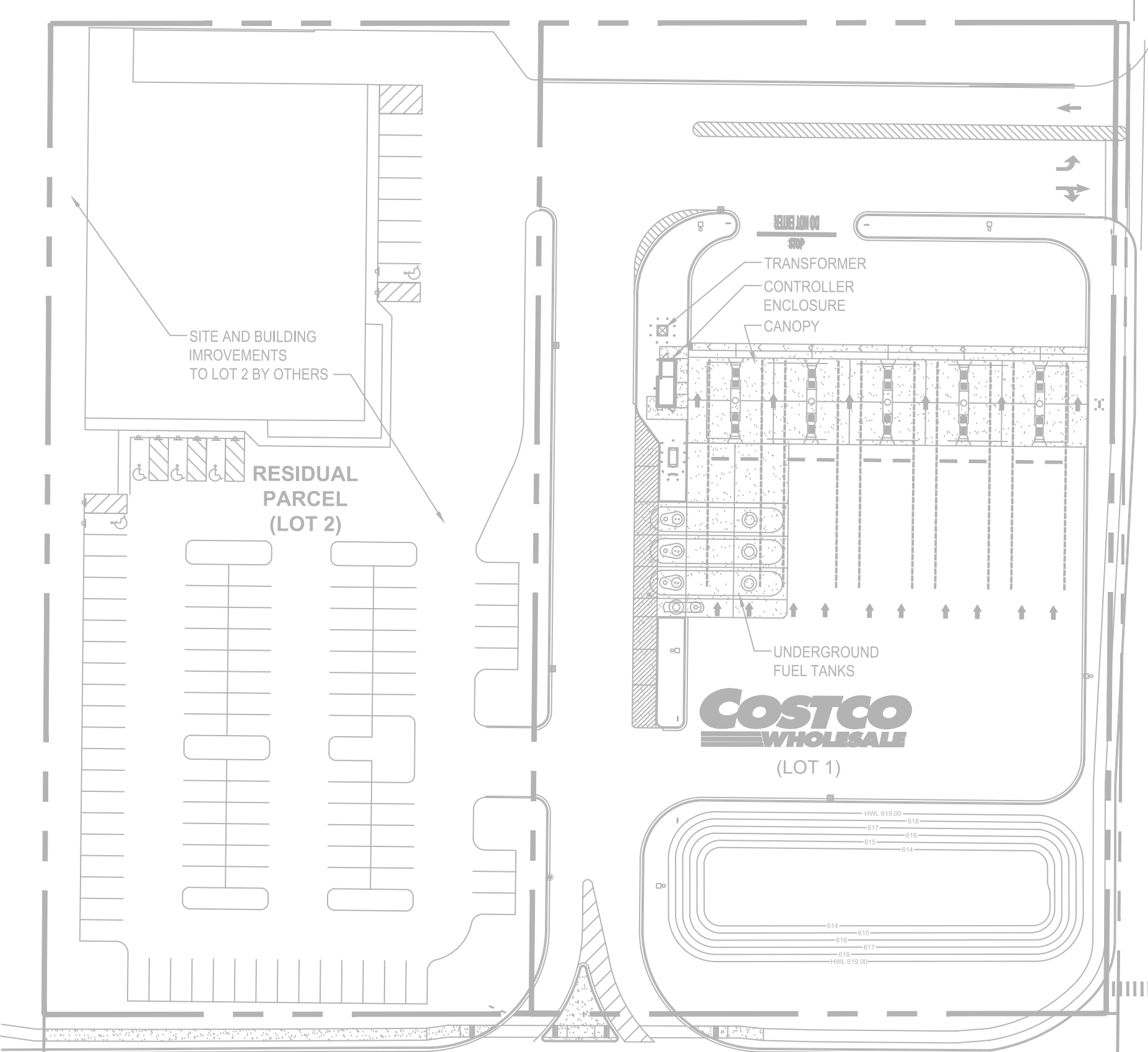


**SHEET L2.1**

MELVINA AVE



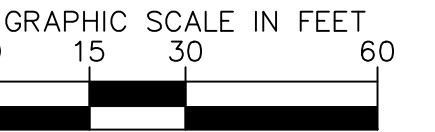
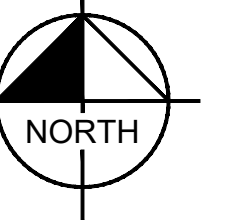
TARGET



NILES, IL - LANDSCAPE CODE REQUIREMENTS		
ZONING ORDINANCE	REQUIRED	PROPOSED
<b>SECTION 11.6 - PARKING LOT PERIMETER LANDSCAPE YARD</b>		
A PERIMETER LANDSCAPE YARD IS REQUIRED FOR ALL PARKING LOTS THAT ABUT A PUBLIC RIGHT-OF-WAY. THERE SHALL BE 1 SHRUB PLANTED FOR EVERY 3 FEET OF LANDSCAPE YARD LENGTH AND A MINIMUM OF 1 SHADE TREE FOR EACH 50 LINEAR FEET OF PERIMETER LANDSCAPE YARD.	TOTAL LENGTH ALONG MELVINA AVE. = 486.05 LF 486.05 LF / 3 LF = 162.02 <b>162 SHRUBS REQUIRED ALONG MELVINA AVE.</b>	179 SHRUBS PROVIDED ALONG MELVINA AVE.
	TOTAL LENGTH ALONG MELVINA AVE. = 486.05 LF 486.05 LF / 50 LF = 9.72 <b>10 TREES REQUIRED ALONG MELVINA AVE.</b>	11 TREE PROVIDED ALONG MELVINA AVE.
<b>SECTION 11.7 - INTERIOR PARKING LOT LANDSCAPE</b>		
A MINIMUM OF 1 SHADE TREE MUST BE PROVIDED FOR EVERY PARKING LOT ISLAND OR LANDSCAPED AREA.	<b>SHADE TREES REQUIRED IN ALL PARKING ISLANDS</b>	SHADE TREES PROVIDED IN ALL PARKING ISLANDS
IN ADDITION TO THE REQUIRED SHADE TREES, A MINIMUM OF 70% OF EVERY PARKING LOT ISLAND MUST BE PLANTED IN ORNAMENTAL TREES, LIVE GROUNDCOVER, SHRUBS, PERENNIALS OR ORNAMENTAL GRASSES.	<b>70% OF ALL LANDSCAPE ISLANDS REQUIRED TO CONTAIN LIVE GROUNDCOVER</b>	SHRUBS, ORNAMENTAL GRASSES AND/OR PERENNIALS PROVIDED IN ALL PARKING LOT ISLANDS
THE MINIMUM TOTAL LANDSCAPE AREA OF A PARKING LOT, MUST BE 10% OF THE TOTAL PARKING LOT AREA (NOT INCLUDING PARKING LOT PERIMETER LANDSCAPE).	TOTAL NEWLY DEVELOPED PARKING LOT AREA = 94,201.42 SQ. FT. 94,201.42 SQ. FT. x 0.10 = 9,420.14 <b>9,420 SQ. FT. OF INTERIOR LANDSCAPE AREA REQUIRED</b>	PARKING LOT ISLANDS AREAS = 7,532.48 SQ. FT. NORTH AND WEST AREAS = 8,643.48 SQ. FT. TOTAL INTERIOR LANDSCAPE PROVIDED = 16,175.96 SQ. FT.

NOTE: CODE TABLE DOES NOT INCLUDE EXISTING FUEL STATION, ALL LANDSCAPE TO REMAIN.

NORTH ARROW AND SCALE



SEAL AND SIGNATURES

**COSTCO WHOLESALE**  
 7311 MELVINA AVE.  
 NILES, IL 60714

ISSUED DATE - 10/07/2022

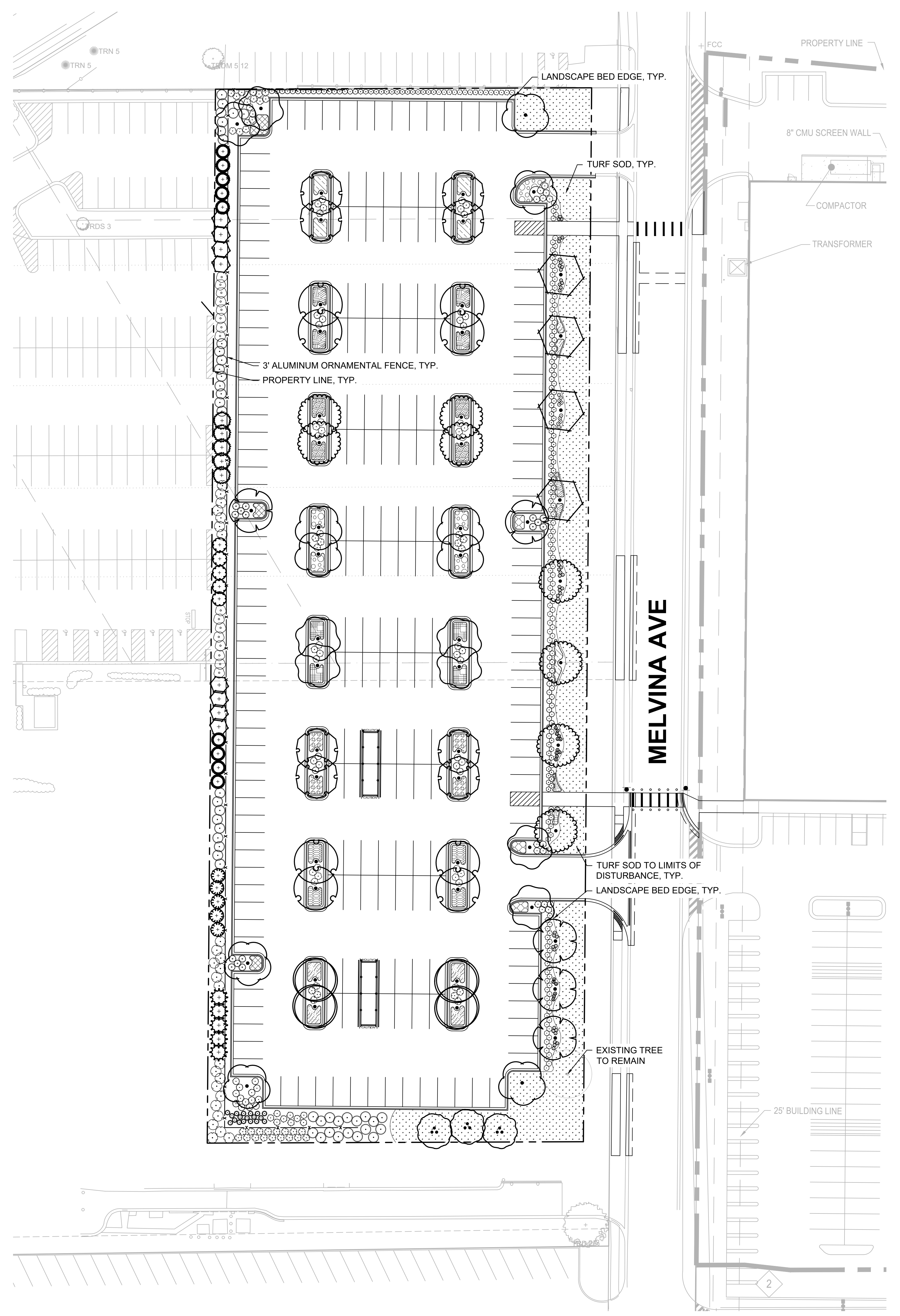
DATE	ISSUED FOR	REV

**L2.1**  
 DETAILED  
 LANDSCAPE PLAN

AS INDICATED

**PLANT SCHEDULE**

TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL / INSTALL SIZE	MATURE HT.	MATURE SP.	OTHER
	CO	8	CELTIS OCCIDENTALIS / COMMON HACKBERRY	B & B	2.5" CAL. MIN	40' - 60' HT.	40' - 60' SP.	
	GK	4	GYMNOCLADUS DIOICA 'ESPRESSO' / ESPRESSO KENTUCKY COFFEETREE	B & B	2.5" CAL. MIN	50' HT.	30' SP.	
	GT	8	GLEDITSIA TRIACANTHOS F. INERMIS / THORNLESS HONEY LOCUST	B & B	2.5" CAL. MIN	45' HT.	40' - 45' SP.	
	QB	5	QUERCUS BICOLOR / SWAMP WHITE OAK	B & B	2.5" CAL. MIN	50' - 60' HT.	50' - 60' SP.	
	UA	8	ULMUS X 'MORTON' TM / ACCOLADE ELM	B & B	2.5" CAL. MIN	60' HT.	50' SP.	
	UC	4	ULMUS X 'FRONTIER' / FRONTIER ELM	B & B	2.5" CAL. MIN	40' HT.	30' SP.	
	UH	9	ULMUS X 'PATRIOT' / PATRIOT ELM	B & B	2.5" CAL. MIN	55' - 65' HT.	30' - 40' SP.	
	ZA	8	ZELKOVA SERRATA 'AUTUMN GLOW' / AUTUMN GLOW JAPANESE ZELKOVA	B & B	2.5" CAL. MIN	35' HT.	25' - 30' SP.	
EVERGREEN TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL / INSTALL SIZE	MATURE HT.	MATURE SP.	OTHER
	JL	5	JUNIPERUS CHINENSIS 'MOUNTBATTEN' / MOUNTBATTEN JUNIPER	B & B	4" HT. MIN.	12' HT.	8' - 10' SP.	
	JX	5	JUNIPERUS X 'J.N SELECT BLUE' TM / STAR POWER JUNIPER	B & B	4" HT. MIN.	15' - 20' HT.	8' - 10' SP.	
	PF	5	PINUS STROBUS 'FASTIGIATA' / PYRAMIDAL WHITE PINE	B & B	4" HT. MIN.	20' - 25' HT.	8' - 10' SP.	
	PF2	8	PICEA PUNGENS 'FAT ALBERT' / FAT ALBERT COLORADO SPRUCE	B & B	4" HT. MIN.	10' - 20' HT.	8' - 10' SP.	
	TN	5	THUJA OCCIDENTALIS 'NIGRA' / BLACK ARBORVITAE	B & B	4" HT. MIN.	20' HT.	6' - 8' SP.	
	TT	9	THUJA OCCIDENTALIS 'TECHNY' / TECHNY ARBORVITAE	B & B	4" HT. MIN.	10' - 20' HT.	6' - 8' SP.	
ORNAMENTAL TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL / INSTALL SIZE	MATURE HT.	MATURE SP.	OTHER
	AA2	3	AMELANCHIER CANADENSIS 'AUTUMN BRILLIANCE' / AUTUMN BRILLIANCE SERVICEBERRY	B & B	8" HT. MIN.	15' - 25' HT.	15' - 25' SP.	MULTI-STEM
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SPACING	INSTALL SIZE	MATURE HT.	MATURE SP.
	AM	33	ARONIA MELANOCARPA 'MORTON' TM / IROQUOIS BEAUTY BLACK CHOKEBERRY	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	36" - 48" SP.
	CA	30	CEANOTHUS AMERICANUS / NEW JERSEY TEA	-	SEE PLAN	18" HT. MIN.	36" - 48" HT.	36" - 48" SP.
	CH	25	CORNUS ALBA 'BAILHALO' TM / IVORY HALO DOGWOOD	-	SEE PLAN	24" HT. MIN.	4' - 6' HT.	4' - 6' SP.
	HJ	16	HYDRANGEA PANICULATA 'JANE' TM / LITTLE LIME PANICLE HYDRANGEA	-	SEE PLAN	18" HT. MIN.	36" - 48" HT.	36" - 48" SP.
	PD	18	PHYSOCARPUS OPULIFOLIUS 'DONNA MAY' TM / LITTLE DEVIL DWARF NINEBARK	-	SEE PLAN	18" HT. MIN.	36" - 48" HT.	36" - 48" SP.
	PJ	16	POTENTILLA FRUTICOSA 'JACKMANII' / JACKMAN'S BUSH CINQUEFOIL	-	SEE PLAN	18" HT. MIN.	36" - 48" HT.	36" - 48" SP.
	PS	16	PHYSOCARPUS OPULIFOLIUS 'SEWARD' TM / SUMMER WINE NINEBARK	-	SEE PLAN	24" HT. MIN.	4' - 6' HT.	4' - 6' SP.
	PW	63	POTENTILLA FRUTICOSA 'WHITE LADY' TM / HAPPY FACE WHITE BUSH CINQUEFOIL	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	24" - 36" SP.
	SF	24	SPIRAEA JAPONICA 'NEON FLASH' / NEON FLASH JAPANESE SPIREA	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	36" - 48" SP.
	SS	55	SPIRAEA JAPONICA 'LITTLE PRINCESS' / LITTLE PRINCESS JAPANESE SPIREA	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	24" - 36" SP.
	ST	51	SPIRAEA BETULIFOLIA 'TOR' / TOR BIRCHLEAF SPIREA	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	24" - 36" SP.
	VA	45	VIBURNUM DENTATUM 'CHRISTOM' TM / BLUE MUFFIN ARROWWOOD VIBURNUM	-	SEE PLAN	24" HT. MIN.	4' - 6' HT.	4' - 6' SP.
	WB	15	WEIGELA FLORIDA 'BRAMWELL' TM / FINE WINE WEIGELA	-	SEE PLAN	18" HT. MIN.	36" - 48" HT.	36" - 48" SP.
	WD	57	WEIGELA FLORIDA 'DARK HORSE' / DARK HORSE WEIGELA	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	24" - 36" SP.
ORNAMENTAL GRASSES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SPACING	INSTALL SIZE	MATURE HT.	MATURE SP.
	CK	18	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / FEATHER REED GRASS	1 GAL	SEE PLAN	4' - 6' HT.	24" - 36" SP.	
	FF	10	FESTUCA X 'COOL AS ICE' / COOL AS ICE BLUE FESCUE	1 GAL	SEE PLAN	12" - 18" HT.	18" - 24" SP.	
	PC	43	PANICUM VIRGATUM 'CHEYENNE SKY' / CHEYENNE SKY SWITCH GRASS	1 GAL	SEE PLAN	3' - 4' HT.	18" - 24" SP.	
	PP	17	PENNISETUM ALOPECUROIDES 'PIGLET' / PIGLET DWARF FOUNTAIN GRASS	1 GAL	SEE PLAN	12" - 18" HT.	18" - 24" SP.	
GRASSES AND PERENNIALS	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SPACING	MATURE HT.		
	AB	95	AMSONIA X 'BLUE ICE' / BLUE ICE BLUESTAR	1 GAL	24" OC	12" - 18" HT.		
	AS	99	ALLIUM X 'SUMMER BEAUTY' / SUMMER BEAUTY ORNAMENTAL ONION	1 GAL	24" OC	12" - 18" HT.		
	CC	95	COREOPSIS X 'NOVOCORAR' / CREME CAREML TICKSEED	1 GAL	24" OC	12" - 18" HT.		
	CM	140	COREOPSIS X 'MOONBEAM' / MOONBEAM TICKSEED	1 GAL	18" OC	12" - 18" HT.		
	EC	140	ECHINACEA X 'CHEYENNE SPIRIT' / CHEYENNE SPIRIT CONEFLOWER	1 GAL	18" OC	24" - 36" HT.		
	HA	66	HEMEROCALLIS X 'APRICOT SPARKLES' / APRICOT SPARKLES DAYLILY	1 GAL	18" OC	12" - 18" HT.		
	HS	101	HEMEROCALLIS X 'SUMMER WINE' / SUMMER WINE DAYLILY	1 GAL	24" OC	18" - 24" HT.		
	NB	140	NEPETA RACEMOSA 'BLUE WONDER' / BLUE WONDER CATMINT	1 GAL	18" OC	8" - 12" HT.		
	RS	111	RUDBECKIA FULGIDA 'LITTLE GOLDSTAR' / LITTLE GOLDSTAR BLACK-EYED SUSAN	1 GAL	24" OC	12" - 18" HT.		
	ST2	91	SPOROBOLUS HETEROLEPIS 'TARA' / TARA PRAIRIE DROPSEED	1 GAL	18" OC	24" - 36" HT.		
GROUND COVERS			BOTANICAL / COMMON NAME					
			TURF SOD					

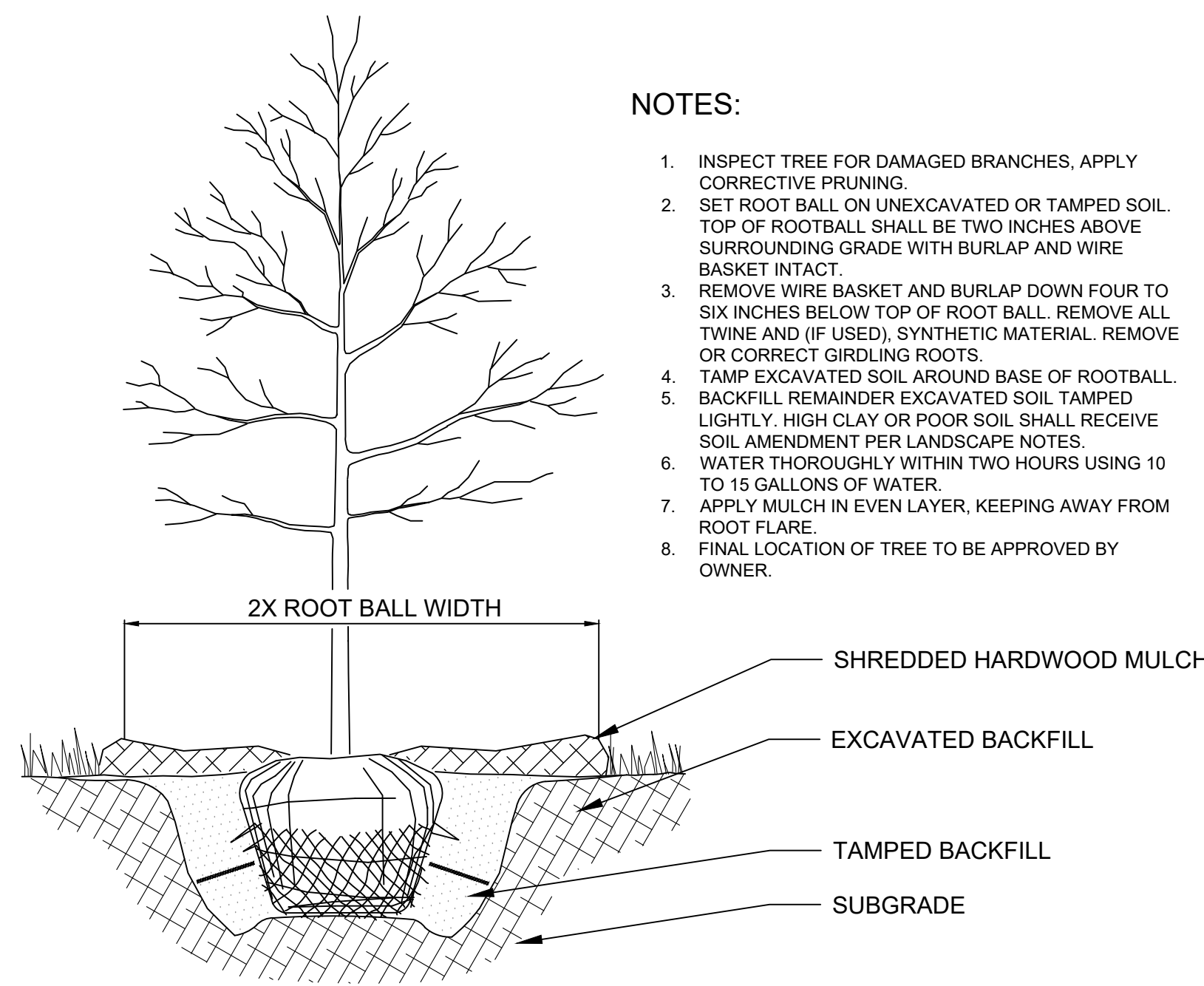


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3/25

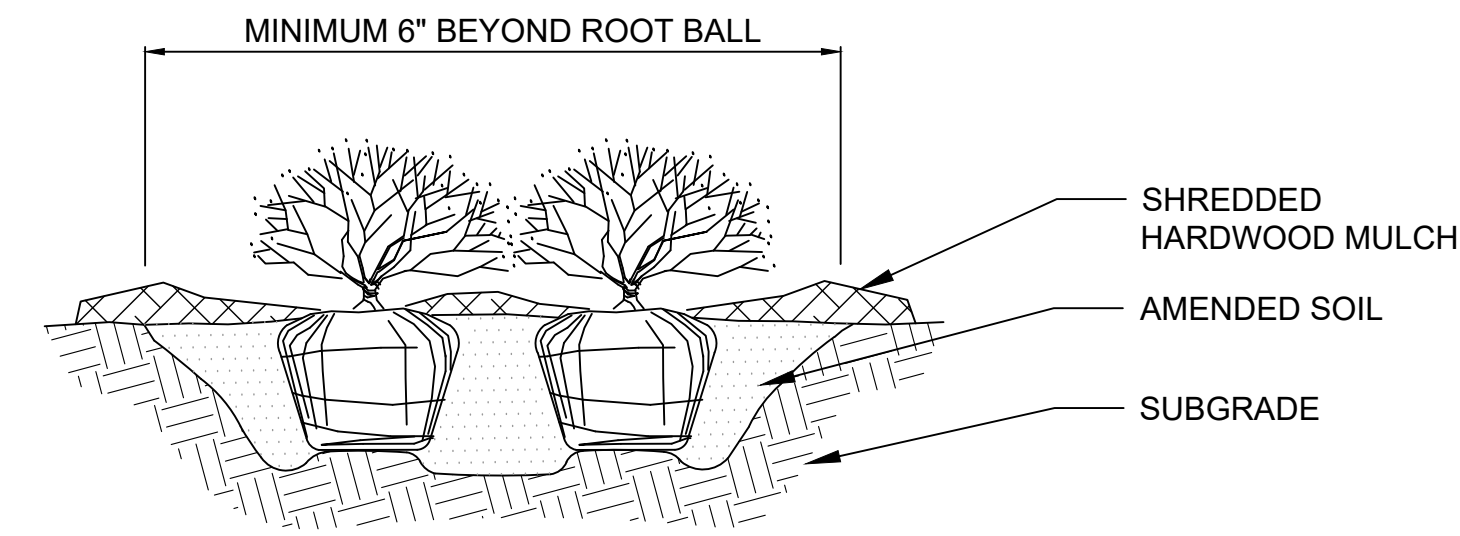
**NOTES:**

- INSPECT TREE FOR DAMAGED BRANCHES. APPLY CORRECTIVE PRUNING.
- SET ROOT BALL ON UNEXCAVATED OR TAMPED SOIL. TOP OF ROOTBALL SHALL BE TWO INCHES ABOVE SURROUNDING GRADE WITH BURLAP AND WIRE BASKET INTACT.
- REMOVE WIRE BASKET AND BURLAP DOWN FOUR TO SIX INCHES BELOW TOP OF ROOT BALL. REMOVE ALL TWINE AND (IF USED), SYNTHETIC MATERIAL. REMOVE OR CORRECT GIRDLING ROOTS.
- TAMP EXCAVATED SOIL AROUND BASE OF ROOTBALL.
- BACKFILL REMAINDER EXCAVATED SOIL TAMPED LIGHTLY. HIGH CLAY OR POOR SOIL SHALL RECEIVE SOIL AMENDMENT PER LANDSCAPE NOTES.
- WATER THOROUGHLY WITHIN TWO HOURS USING 10 TO 15 GALLONS OF WATER.
- APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE.
- FINAL LOCATION OF TREE TO BE APPROVED BY OWNER.



1 TREE PLANTING

NTS



**NOTES:**

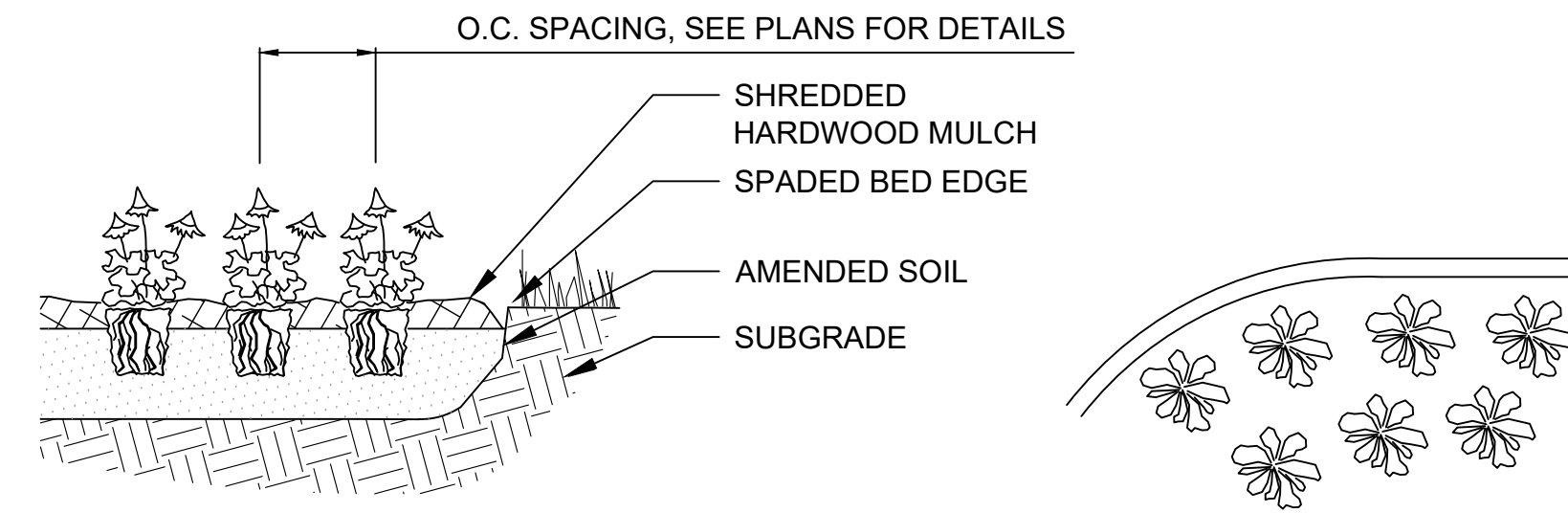
- APPLY CORRECTIVE PRUNING.
- SET ROOT BALL OR CONTAINER ON UNEXCAVATED OR TAMPED SOIL. TOP OF ROOTBALL (CONTAINER) SHALL BE ONE INCH ABOVE SURROUNDING GRADE. FOR LARGER SHRUBS WITHIN PLANTING BED DIG A DEEPER PIT ONLY FOR THOSE SHRUBS.
- REMOVE BURLAP FROM TOP HALF THE LENGTH OF ROOTBALL TWINE AND (IF USED) SYNTHETIC MATERIAL SHALL BE REMOVED FROM PLANTING BED. FOR CONTAINER GROWN SHRUBS, REMOVE CONTAINER AND LOOSEN ROOTS PRIOR TO INSTALLATION.
- REMOVE OR CORRECT GIRDLING ROOTS.
- PLUMB AND BACKFILL WITH AMENDED SOIL PER LANDSCAPE NOTES. WATER THOROUGHLY WITHIN TWO HOURS.
- APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE. MULCH LIMITS FOR SHRUBS EXTEND TO ALL LIMITS OF PLANTING BED. SEE PLANS FOR BED LAYOUTS.

2 SHRUB PLANTING

NTS

**NOTES:**

- EXCAVATE PLANTING BED.
- BED HEIGHT IS TO BE 2" ABOVE FINISH GRADE AND WELL DRAINED.
- REMOVE CONTAINER, SCORE SOIL MASS TO REDIRECT AND PREVENT CIRCLING ROOTS. CORRECT GIRDLING ROOTS.
- PLANT MATERIAL SHALL BE LAID OUT BY FOLLOWING THE BED EDGE, WORKING TOWARDS THE CENTER OF THE BED USING TRIANGULAR (STAGGERED) SPACING AS PLAUSIBLE.
- PLUMB AND BACKFILL WITH PLANTING MIX AS SPECIFIED IN LANDSCAPE NOTES.
- APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE. MULCH LIMITS FOR PERENNIALS/GROUNDCOVER EXTEND TO ALL LIMITS OF PLANTING BED. SEE PLANS FOR BED LAYOUTS.
- SPACING TO BE AS SPECIFIED IN THE PLANT LIST. PERENNIALS SHALL BE PLACED WITH THEIR CENTER 24" FROM EDGE OF BED.



**SECTION**

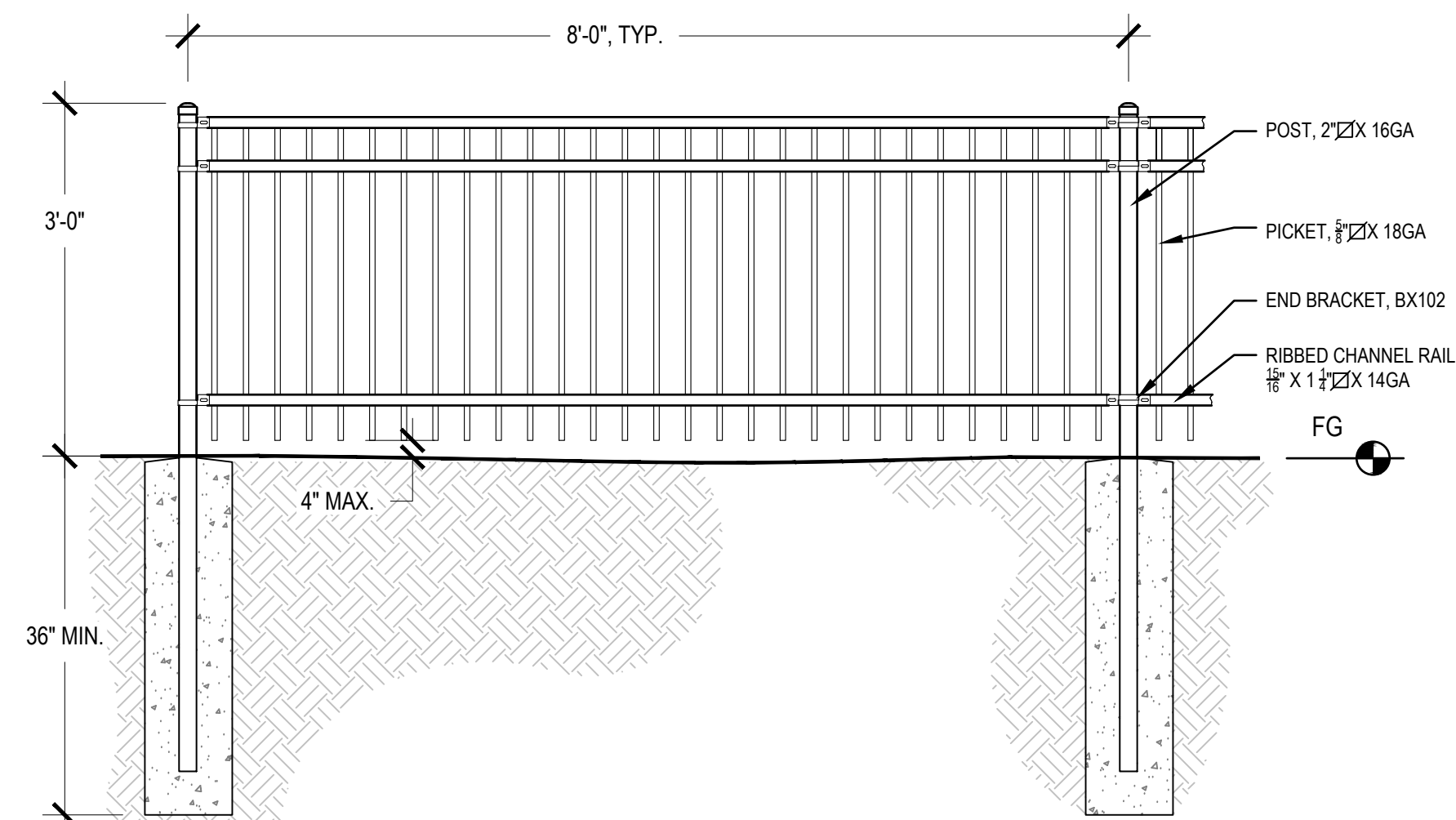
**PLAN VIEW**

3 PERENNIAL PLANTING

NTS

**LANDSCAPE NOTES**

- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING MATERIALS AND PLANTS SHOWN ON THE LANDSCAPE PLAN. THE CONTRACTOR IS RESPONSIBLE FOR THE COST TO REPAIR UTILITIES, ADJACENT LANDSCAPE, PUBLIC AND PRIVATE PROPERTY THAT IS DAMAGED BY THE CONTRACTOR OR THEIR SUBCONTRACTOR'S OPERATIONS DURING INSTALLATION OR DURING THE SPECIFIED MAINTENANCE PERIOD. CALL FOR UTILITY LOCATIONS PRIOR TO ANY EXCAVATION.
- THE CONTRACTOR SHALL REPORT ANY DISCREPANCY IN PLAN VS. FIELD CONDITIONS IMMEDIATELY TO THE LANDSCAPE ARCHITECT, PRIOR TO CONTINUING WITH THAT PORTION OF WORK.
- NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY OF THEIR TRENCHES OR EXCAVATIONS THAT SETTLE.
- ALL PLANTS TO BE SPECIMEN GRADE, WELL BRANCHED, HEALTHY, FULL, PRE-INOCULATED AND FERTILIZED. PLANTS SHALL BE FREE FROM DISEASE, PESTS, WOUNDS, AND SCARS. PLANTS SHALL BE FREE FROM NOTICEABLE GAPS, HOLES, OR DEFORMITIES. PLANTS SHALL BE FREE FROM BROKEN OR DEAD BRANCHES. TRUNKS WILL BE WRAPPED IF NECESSARY TO PREVENT SUN SCALD AND INSECT DAMAGE. THE LANDSCAPE CONTRACTOR SHALL REMOVE THE WRAP AT THE PROPER TIME AS PART OF THIS CONTRACT.
- THE OWNER'S REPRESENTATIVE MAY REJECT ANY PLANT MATERIALS THAT ARE DISEASED, DEFORMED, OR OTHERWISE NOT EXHIBITING SUPERIOR QUALITY.
- ALL NURSERY STOCK SHALL BE GUARANTEED, BY THE CONTRACTOR, FOR ONE YEAR FROM DATE OF FINAL INSPECTION. THE GUARANTEE BEGINS ON THE DATE OF THE LANDSCAPE ARCHITECT'S OR OWNER'S WRITTEN ACCEPTANCE OF THE INITIAL PLANTING. REPLACEMENT PLANT MATERIAL SHALL HAVE A ONE YEAR GUARANTEE COMMENCING UPON PLANTING.
- PLANTS TO MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2014 OR MOST CURRENT VERSION) REQUIREMENTS FOR SIZE AND TYPE SPECIFIED.
- PRUNE PLANTS AS NECESSARY- PER STANDARD NURSERY PRACTICE AND TO CORRECT POOR BRANCHING OF EXISTING AND PROPOSED TREES.
- SEED/SOD LIMIT LINES ARE APPROXIMATE. CONTRACTOR SHALL SEED/SOD ALL AREAS WHICH ARE DISTURBED BY GRADING WITH THE SPECIFIED SEED/SOD MIXES.
- EDGING TO BE A SPADED EDGE UNLESS INDICATED OTHERWISE ON THE PLANS. SPADED EDGE TO PROVIDE V-SHAPED DEPTH AND WIDTH TO CREATE SEPARATION BETWEEN MULCH AND GRASS. A SPADED BED EDGE SHALL SEPARATE MULCH BEDS FROM TURF OR SEEDED AREAS. A SPADED EDGE IS NOT REQUIRED ALONG CURBED EDGES.
  - PLANTING BEDS: 18 INCHES
  - ALL OTHER AREAS: 6 INCHES
- CONTRACTOR SHALL INSTALL SHREDDED HARDWOOD MULCH AT A 3" DEPTH TO ALL TREES, SHRUB, PERENNIAL, AND GROUNDCOVER AREAS. TREES PLACED IN AREA COVERED BY TURF SHALL RECEIVE A 4 FT WIDE MAXIMUM TREE RING WITH 3" DEPTH SHREDDED HARDWOOD MULCH.
- INSTALLATION OF TREES WITHIN PARKWAYS SHALL BE COORDINATED IN THE FIELD WITH LOCATIONS OF UNDERGROUND UTILITIES. TREES SHALL NOT BE LOCATED CLOSER THAN 5' FROM UNDERGROUND UTILITY LINES AND NO CLOSER THAN 10' FROM UTILITY STRUCTURES.
- DO NOT DISTURB THE EXISTING PAVING, LIGHTING, OR LANDSCAPING THAT EXISTS ADJACENT TO THE SITE UNLESS OTHERWISE NOTED ON PLAN.
- ALL DISTURBED AREAS TO BE SODDED OR SEEDED, UNLESS OTHERWISE NOTED. SOD/SEED SHALL BE LOCAL HARDY TURF GRASS MIX UNLESS, OTHERWISE NOTED. ALL TURF SOD/SEED AREAS SHALL BE MINERAL BASE.
- PLANT QUANTITIES SHOWN ARE FOR THE CONVENIENCE OF THE OWNER AND JURISDICTIONAL REVIEW AGENCIES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES AS DRAWN.

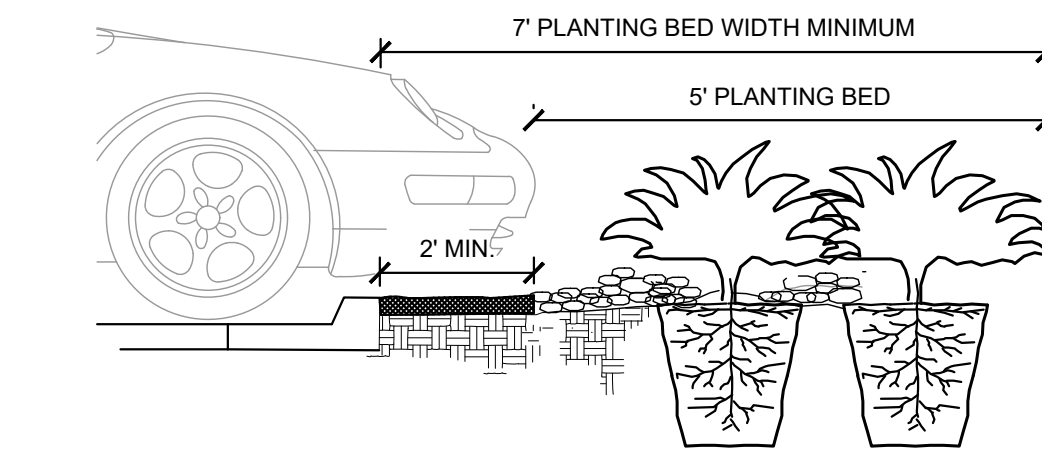


4 3' ORNAMENTAL FENCE

3/4" = 1'-0"

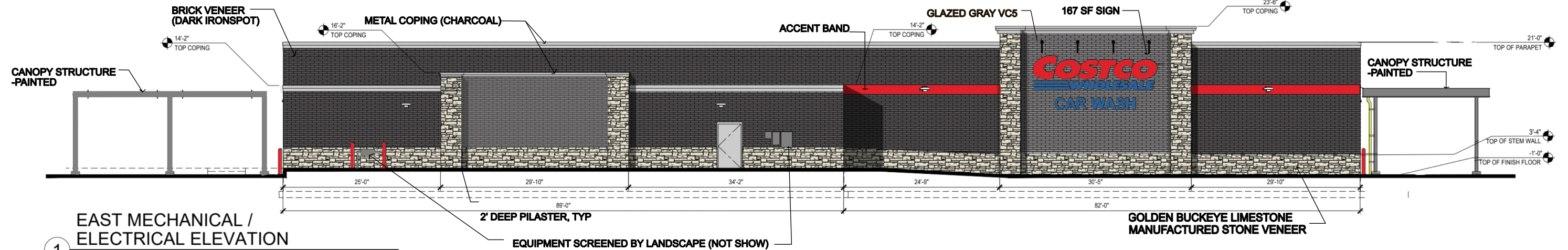
**NOTES:**

- TYPICAL FENCE DETAIL. REFER TO MANUFACTURERS SPECIFICATIONS.
- POST SIZE VARIES BY FENCE HEIGHT AND WIND LOAD.
- CONCRETE FOOTING VARIES BASED ON LOCAL SOIL CONDITIONS.

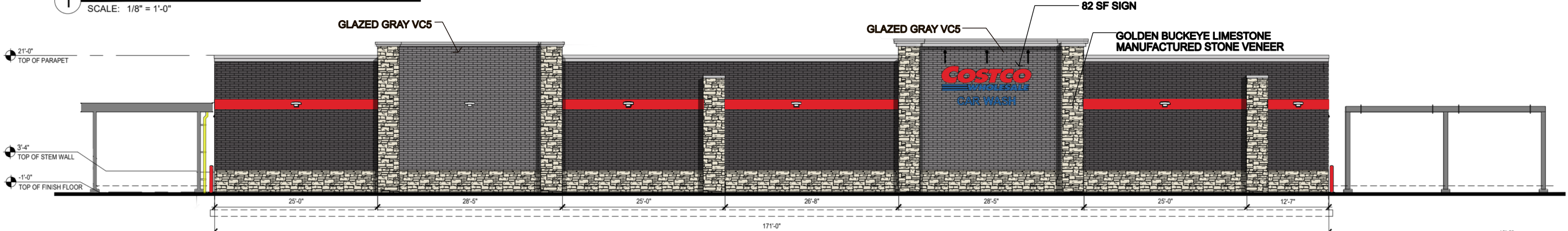


5 PARKING SPACE PLANTINGS

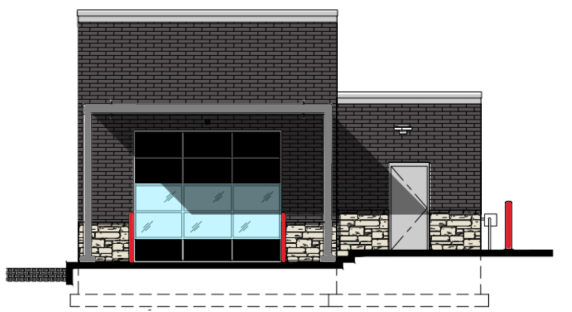
PLANS  
FOR  
PROPOSED CAR WASH  
  
(PHASE II)



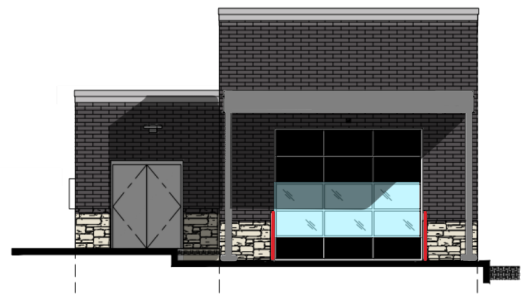
**1 EAST MECHANICAL / ELECTRICAL ELEVATION**  
SCALE: 1/8" = 1'-0"



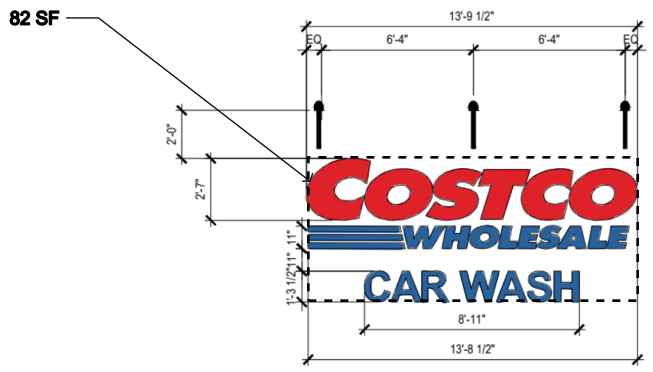
**2 WEST WASH TUNNEL ELEVATION**  
SCALE: 1/8" = 1'-0"



**13 SOUTH ENTRANCE ELEVATION**  
SCALE: 1/8" = 1'-0"



**15 NORTH EXIT ELEVATION**  
SCALE: 1/8" = 1'-0"



**19 WALL SIGN BACK SIDE**  
SCALE: 1/4" = 1'-0"



**20 WALL SIGN FRONT SIDE**  
SCALE: 1/4" = 1'-0"



# PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7310 & 7311 N MELVINA AVENUE  
NILES, ILLINOIS 60714

ZONING: ENT-MU (ENTERTAINMENT MIXED-USE)

EXISTING SITE AREA: 10.33 ACRES (449,807 SF)  
EXISTING FUEL AREA: 2.36 ACRES (102,895 SF)  
TOTAL EXISTING AREA: 12.69 ACRES (552,702 SF)

PROPOSED SITE AREA ADDITION: 3.00 ACRES (130,836 SF)  
TOTAL PROPOSED SITE AREA: 15.69 ACRES (683,538 SF)

BOUNDARIES INFORMATION: THIS PLAN HAD BEEN PREPARED BY USING A CIVIL PLAN BY JOSEPH A. SHUDT & ASSOC. DATED 12/30/94  
THIS PLAN HAS BEEN UPDATED BY USING A CIVIL SURVEY BY V3 DATED 09/19/22

**BUILDING DATA:**

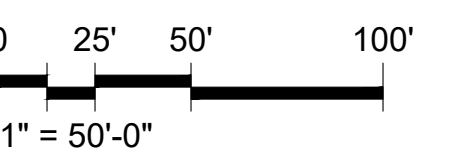
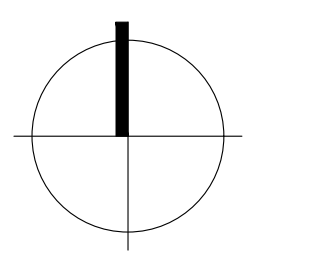
EXISTING BUILDING AREA	136,625 SF
TIRE CENTER	5,200 SF
EXISTING COSTCO BUILDING	141,825 SF
PROPOSED CAR WASH BUILDING AREA	4,746 SF
TOTAL PROPOSED BUILDING AREA	146,571 SF
ENTRANCE VESTIBULE	3,480 SF

**COSTCO PARKING DATA:**

# EXISTING STALLS	*564 STALLS
# EXISTING ACCESSIBLE STALLS	14 STALLS
TOTAL EXISTING PARKING	578 STALLS
* 4 REGULAR STALLS REMOVED FOR ADA SCOPE	
# PROPOSED PARKING 10' WIDE STALLS	131 STALLS
# PROPOSED ACCESSIBLE STALLS	3 STALLS
TOTAL PROPOSED PARKING	712 STALLS

NO. OF STALLS PER 1000 SF OF COSTCO BLDG AREA: (141,825 SF) 5.02 STALLS

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.



NILES, IL  
# 383

7310 & 7311 N MELVINA AVENUE  
NILES, ILLINOIS 60714

1101 Second Ave. Ste 100  
Seattle, WA 98101  
206 962 6500  
MG2.com

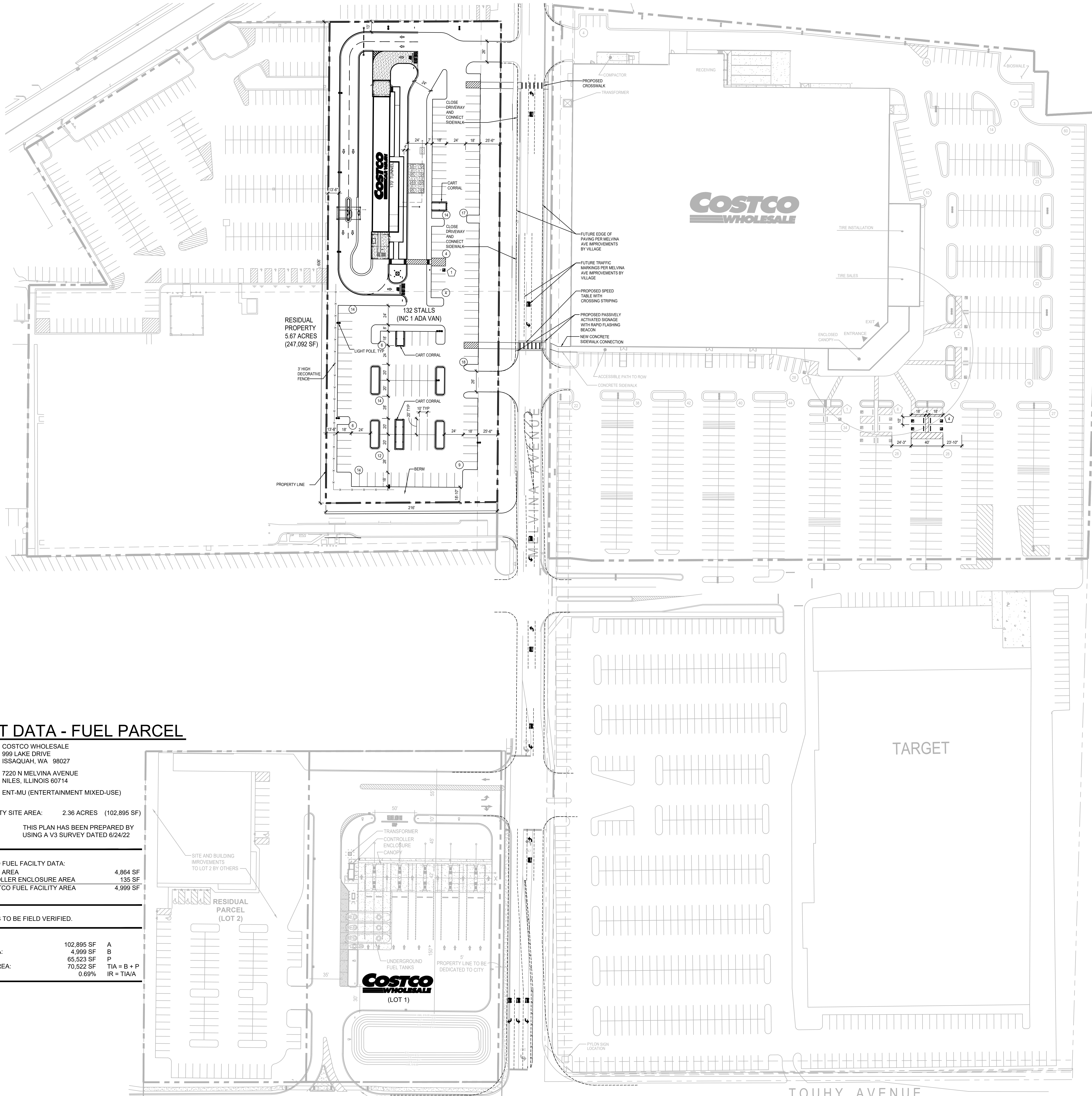


98-5090-16  
OCTOBER 7, 2022

PRELIMINARY  
SITE PLAN

DD11-04

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## PROJECT DATA - FUEL PARCEL

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7220 N MELVINA AVENUE  
NILES, ILLINOIS 60714

ZONING: ENT-MU (ENTERTAINMENT MIXED-USE)

EXISTING FUEL FACILITY SITE AREA: 2.36 ACRES (102,895 SF)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A V3 SURVEY DATED 6/24/22

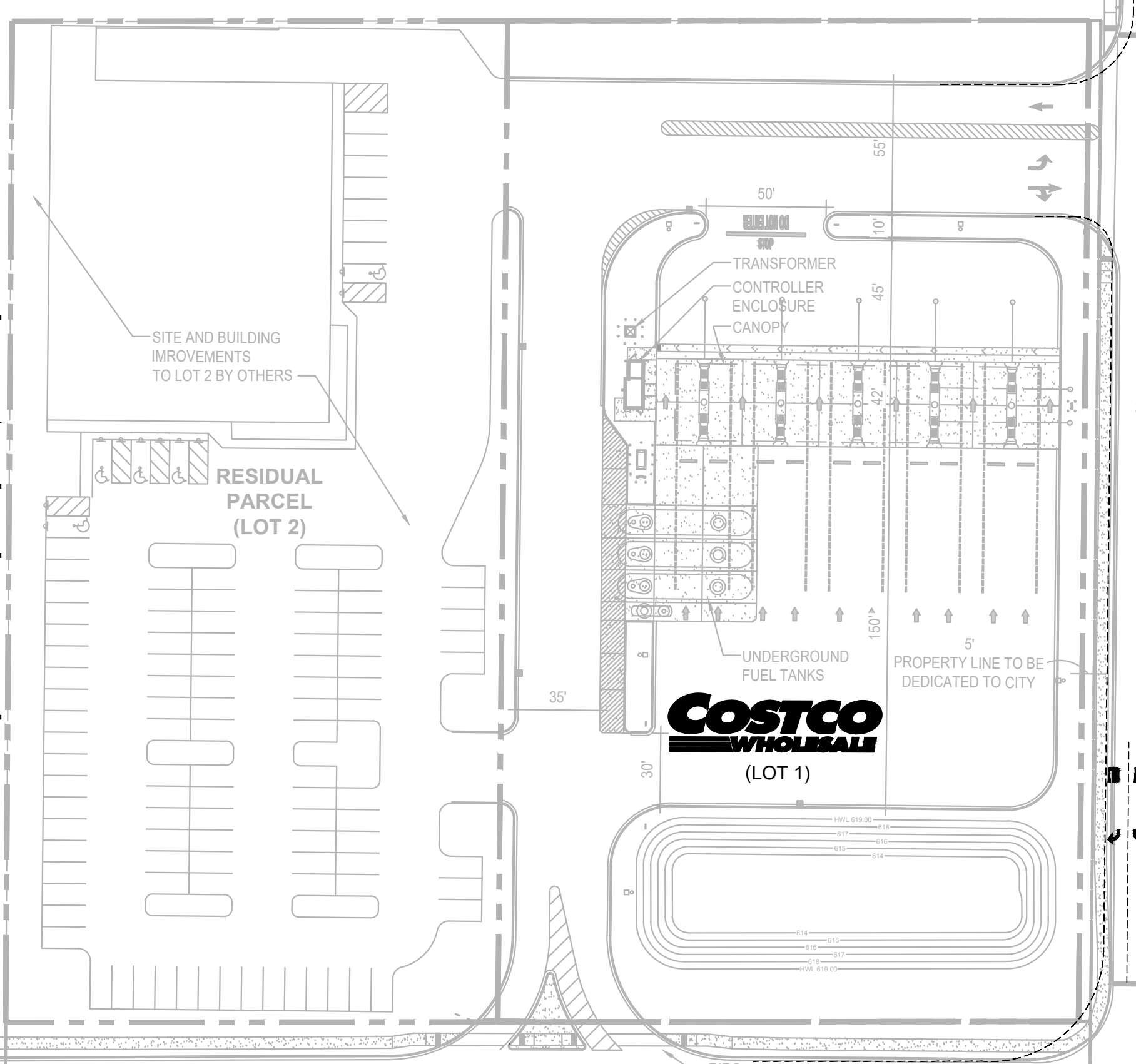
**BUILDING DATA:**

EXISTING COSTCO FUEL FACILITY DATA:	
EXISTING CANOPY AREA	4,864 SF
EXISTING CONTROLLER ENCLOSURE AREA	135 SF
TOTAL EXISTING COSTCO FUEL FACILITY AREA	4,999 SF

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

**SITE DATA:**

GROSS AREA OF SITE:	102,895 SF	A
BUILDING FLOOR AREA:	4,999 SF	B
PAVEMENT AREA:	65,523 SF	P
TOTAL IMPERVIOUS AREA:	70,522 SF	TIA = B + P
IMPERVIOUS RATIO:	0.69%	IR = TIA/A



# COSTCO WHOLESALE

NILES, ILLINOIS

TOUHY AVENUE

# PRELIMINARY SITE PLAN

OCTOBER 7, 2022

W GROSS  
POINT RD

# PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7310 & 7311 N MELVINA AVENUE  
NILES, ILLINOIS 60714

ZONING: ENT-MU (ENTERTAINMENT MIXED-USE)

EXISTING SITE AREA: 10.33 ACRES (449,807 SF)  
EXISTING FUEL AREA: 2.36 ACRES (102,895 SF)  
TOTAL EXISTING AREA: 12.69 ACRES (552,702 SF)

NEW PARCEL DATA:  
GROSS AREA: 3.00 ACRES (130,836 SF)  
BUILDING LOT COVERAGE: 0.11 ACRES (4,746 SF)  
PAVEMENT LOT COVERAGE: 1.87 ACRES (81,586 SF)  
TOTAL IMPERVIOUS AREA: 1.98 ACRES (86,332 SF)  
IMPERVIOUS RATIO: 65.98%

TOTAL PROPOSED SITE AREA: 15.69 ACRES (683,538 SF)

BOUNDARIES INFORMATION: THIS PLAN HAD BEEN PREPARED BY USING A CIVIL PLAN BY JOSEPH A. SHUDT & ASSOC. DATED 12/30/94

THIS PLAN HAS BEEN UPDATED BY USING A CIVIL SURVEY BY V3 DATED 09/19/22

**BUILDING DATA:**

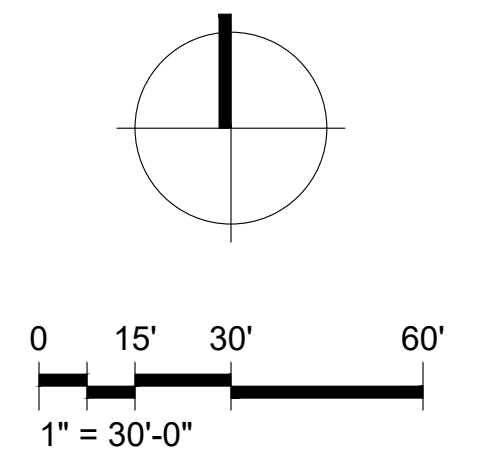
EXISTING BUILDING AREA	136,625 SF
TIRE CENTER	5,200 SF
EXISTING COSTCO BUILDING	141,825 SF
PROPOSED CAR WASH BUILDING AREA	4,746 SF
TOTAL PROPOSED BUILDING AREA	146,571 SF
ENTRANCE VESTIBULE	3,480 SF

**COSTCO PARKING DATA:**

# EXISTING STALLS	*564 STALLS
# EXISTING ACCESSIBLE STALLS	14 STALLS
TOTAL EXISTING PARKING	578 STALLS
* 4 REGULAR STALLS REMOVED FOR ADA SCOPE	
# PROPOSED PARKING 10' WIDE STALLS	131 STALLS
# PROPOSED ACCESSIBLE STALLS	3 STALLS
TOTAL PROPOSED PARKING	712 STALLS

NO. OF STALLS PER 1000 SF OF COSTCO BLDG AREA:(141,825 SF) 5.02 STALLS

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.



7310 & 7311 N MELVINA AVENUE  
NILES, ILLINOIS 60714

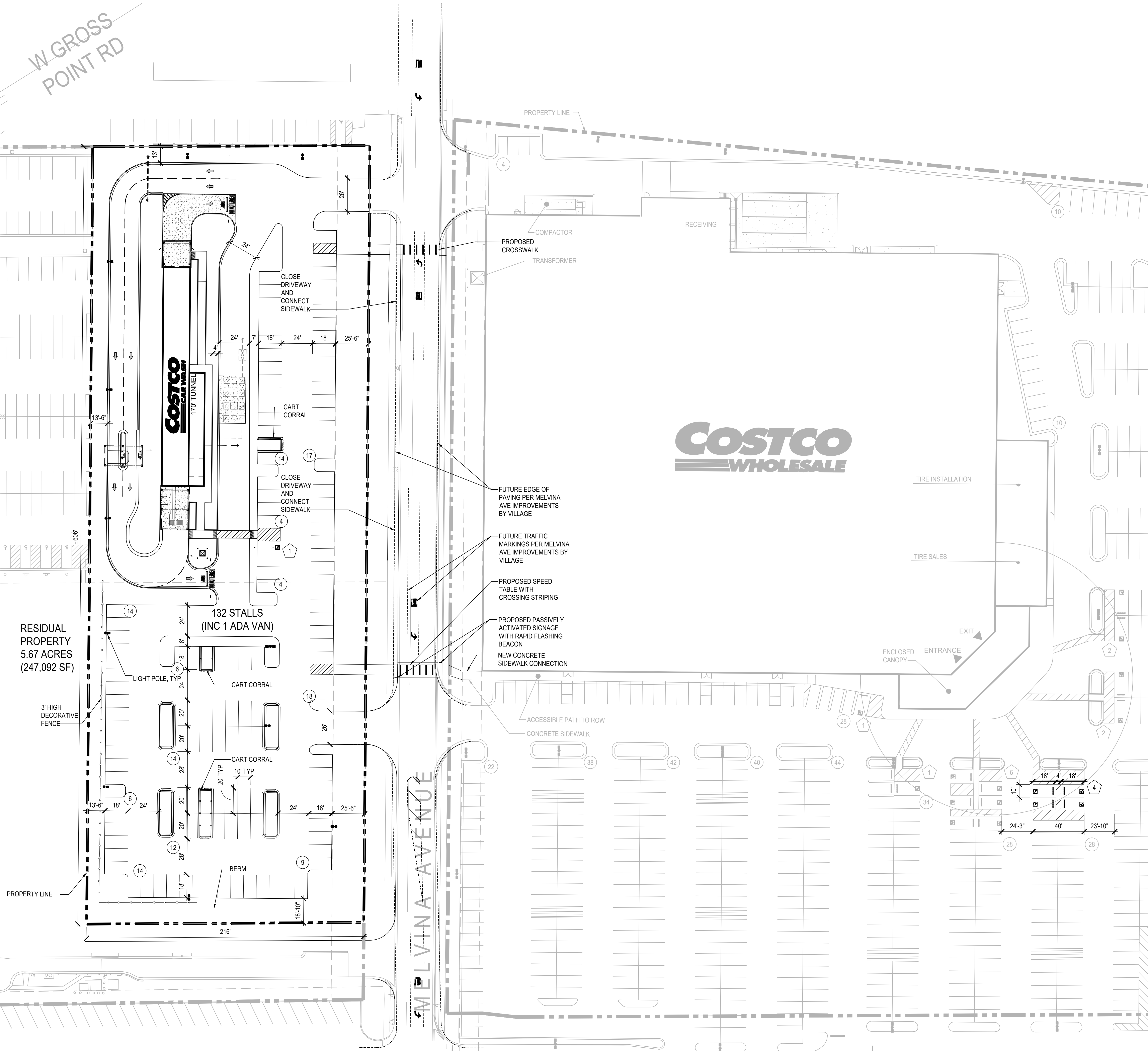
1101 Second Ave. Ste 100  
Seattle, WA 98101  
206 962 6500  
MG2.com



98-5090-16  
OCTOBER 7, 2022

PRELIMINARY  
SITE PLAN

DD12-04



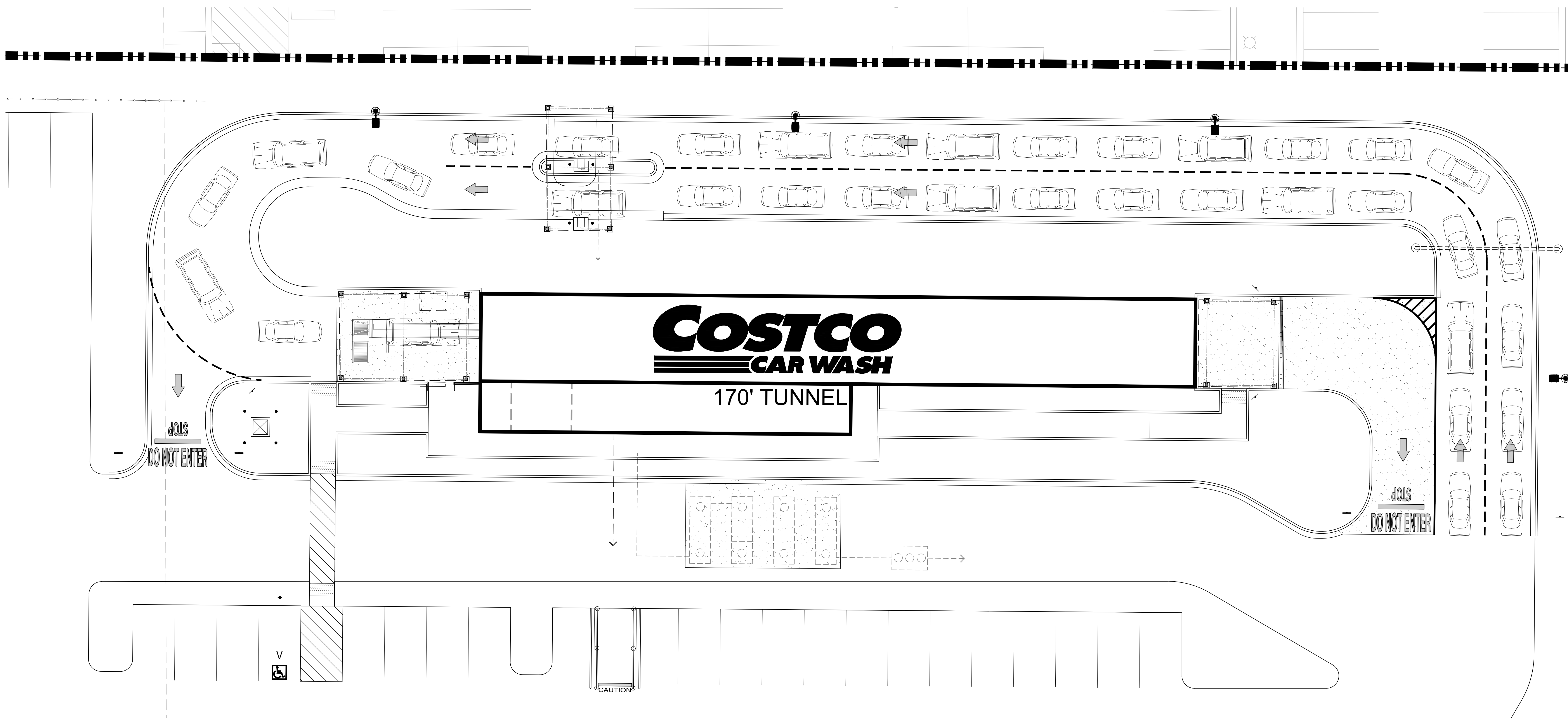
# COSTCO WHOLESALE

NILES, ILLINOIS

# ENLARGED SITE PLAN

OCTOBER 7, 2022

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CONCEPTUAL STACKING	
CARS STACKING BEFORE PAYMENT	27
CARS AT PAYMENT KIOSK	2
CARS WAITING AFTER PAYMENT	7
<b>TOTAL CARS IN AREA</b>	<b>36</b>

# COSTCO WHOLESALE

NILES, ILLINOIS

# CAR WASH STACKING PLAN

OCTOBER 7, 2022



NILES, IL  
# 383

7310 & 7311 N MELVINA AVENUE  
NILES, ILLINOIS 60714

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OCTOBER 7, 2022

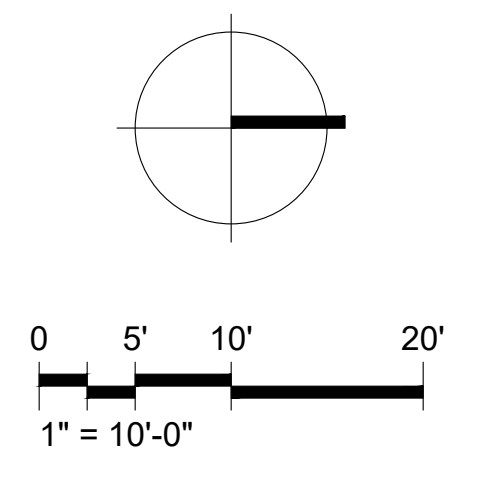
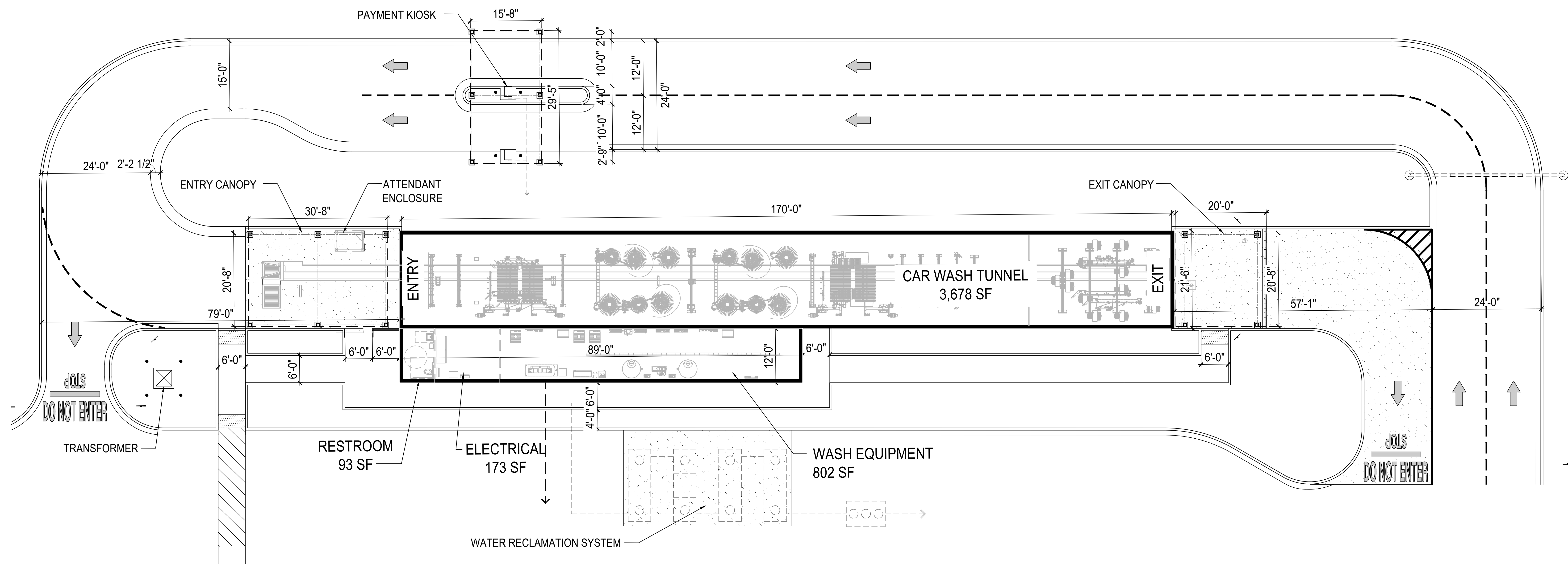
CAR WASH  
STACKING  
PLAN

DD13-04

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BUILDING DATA

CAR WASH TUNNEL AREA	3,678 SF
WASH EQUIPMENT AREA	802 SF
RESTROOM AREA	93 SF
ELECTRICAL AREA	173 SF
<b>TOTAL GROSS CAR WASH AREA</b>	<b>4,746 SF</b>



**COSTCO**  
**WHOLESALE**  
 NILES, IL  
 # 383

7310 & 7311 N MELVINA AVENUE  
 NILES, ILLINOIS 60714

1101 Second Ave. Ste 100  
 Seattle, WA 98101  
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98-5090-16  
 OCTOBER 7, 2022

ENLARGED  
 FLOOR PLAN

DD21-04

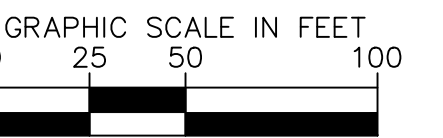
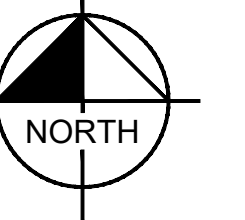
**COSTCO WHOLESALE**

NILES, ILLINOIS

**ENLARGED FLOOR PLAN**

OCTOBER 7, 2022

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**COSTCO WHOLESALE**  
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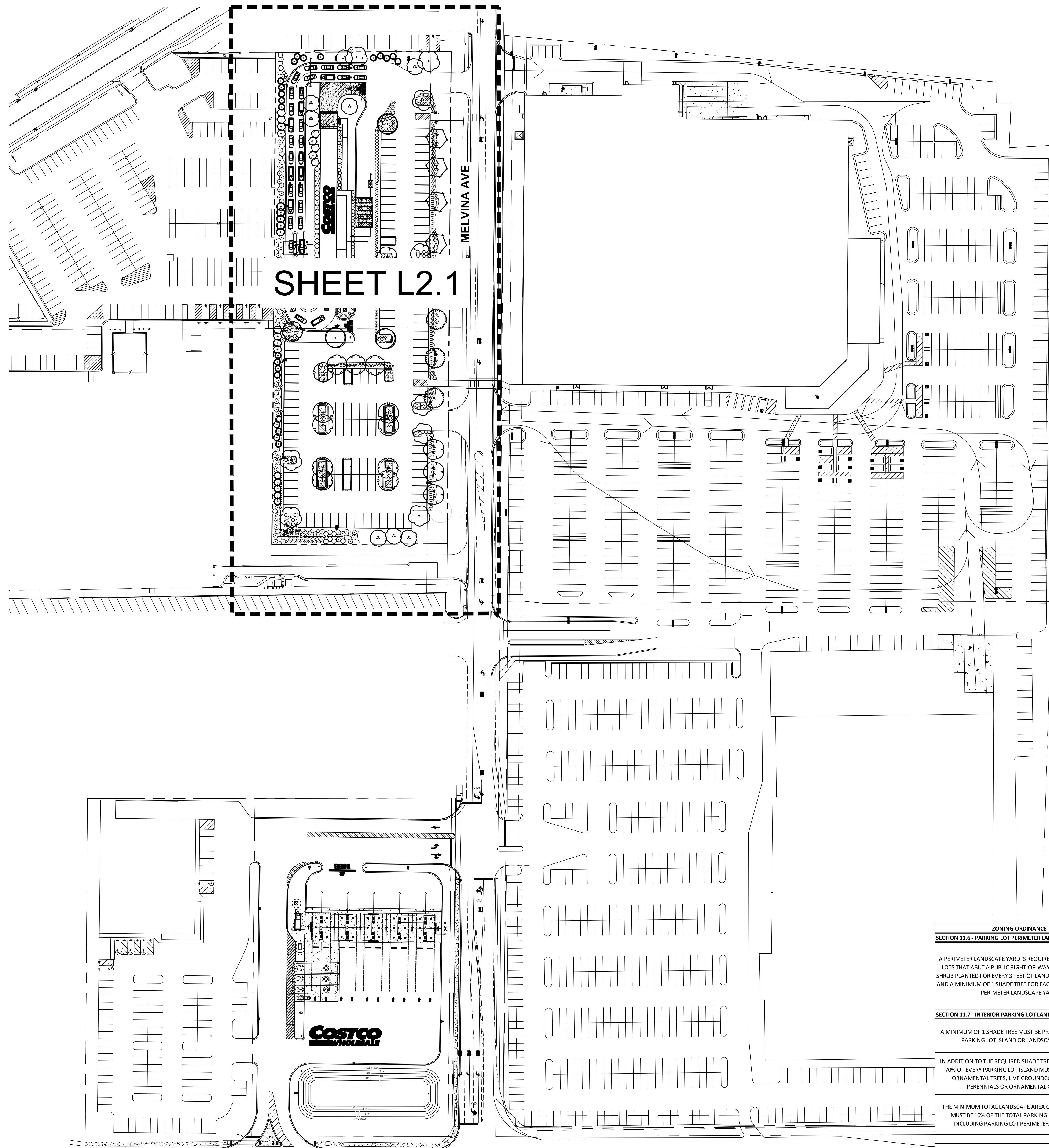
ISSUED DATE - 10/07/2022

DATE ISSUED FOR REV

**L2.0**

**LANDSCAPE PLAN**

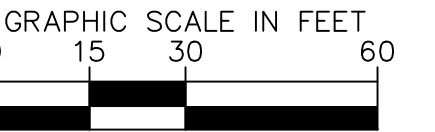
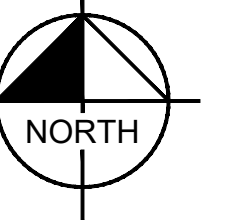
AS INDICATED



**SHEET L2.1**

ZONING ORDINANCE	NILES, IL - LANDSCAPE CODE REQUIREMENTS	
	REQUIRED	PROPOSED
<b>SECTION 11.6 - PARKING LOT PERIMETER LANDSCAPE YARD</b>		
A PERIMETER LANDSCAPE YARD IS REQUIRED FOR ALL PARKING LOTS THAT ABUT A PUBLIC RIGHT-OF-WAY. THERE SHALL BE 1 SHRUB PLANTED FOR EVERY 3 FEET OF LANDSCAPE YARD LENGTH AND A MINIMUM OF 1 SHADE TREE FOR EACH 50 LINEAR FEET OF PERIMETER LANDSCAPE YARD.	TOTAL LENGTH ALONG MELVINA AVE. = 536.04 LF 536.04 LF / 3 LF = 178.68 <b>179 SHRUBS REQUIRED ALONG MELVINA AVE.</b>	179 SHRUBS PROVIDED ALONG MELVINA AVE.
	TOTAL LENGTH ALONG MELVINA AVE. = 536.04 LF 536.04 LF / 50 LF = 10.72 <b>11 TREES REQUIRED ALONG MELVINA AVE.</b>	11 TREE PROVIDED ALONG MELVINA AVE.
<b>SECTION 11.7 - INTERIOR PARKING LOT LANDSCAPE</b>		
A MINIMUM OF 1 SHADE TREE MUST BE PROVIDED FOR EVERY PARKING LOT ISLAND OR LANDSCAPED AREA.	<b>SHADE TREES REQUIRED IN ALL PARKING ISLANDS</b>	SHADE TREES PROVIDED IN ALL PARKING ISLANDS
IN ADDITION TO THE REQUIRED SHADE TREES, A MINIMUM OF 70% OF EVERY PARKING LOT ISLAND MUST BE PLANTED IN ORNAMENTAL TREES, LIVE GROUNDCOVER, SHRUBS, PERENNIALS OR ORNAMENTAL GRASSES.	<b>70% OF ALL LANDSCAPE ISLANDS REQUIRED TO CONTAIN LIVE GROUNDCOVER</b>	SHRUBS, ORNAMENTAL GRASSES AND/OR PERENNIALS PROVIDED IN ALL PARKING LOT ISLANDS
THE MINIMUM TOTAL LANDSCAPE AREA OF A PARKING LOT, MUST BE 10% OF THE TOTAL PARKING LOT AREA (NOT INCLUDING PARKING LOT PERIMETER LANDSCAPE).	TOTAL NEWLY DEVELOPED PARKING LOT AREA = 53,740.7 SQ. FT. 53,740.7 SQ. FT. x 0.10 = 5,374.07 <b>5,374 SQ. FT. OF INTERIOR LANDSCAPE AREA REQUIRED</b>	PARKING LOT ISLANDS AREAS = 7,644.85 SQ. FT. WEST AREA = 7,870.51 SQ. FT. TOTAL INTERIOR LANDSCAPE PROVIDED = 15,515.36 SQ. FT.

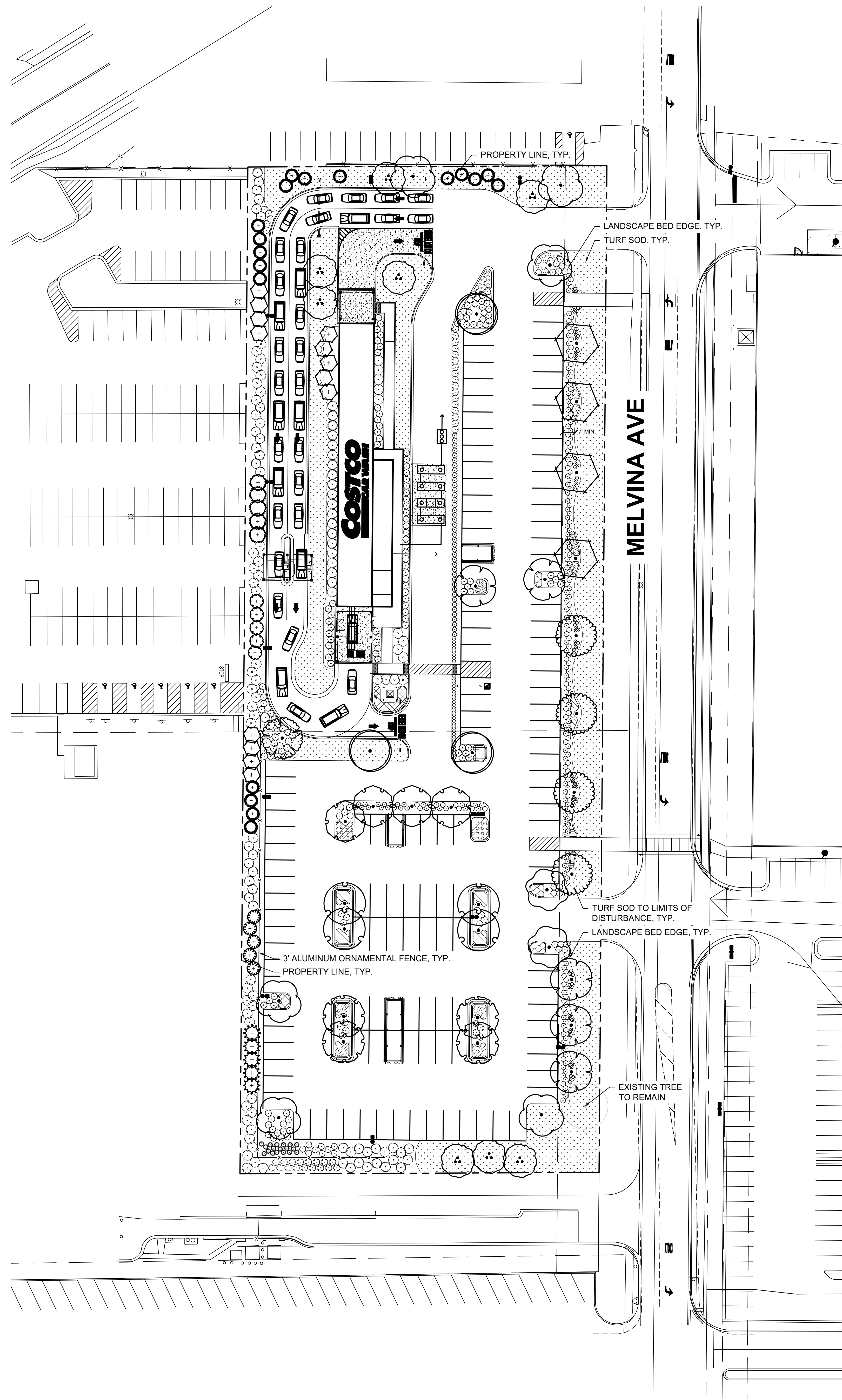
NOTE: CODE TABLE DOES NOT INCLUDE EXISTING FUEL STATION, ALL LANDSCAPE TO REMAIN.



**COSTCO WHOLESALE**  
7311 MELVINA AVE.  
NILES, IL 60714

DATE	ISSUED FOR	REV

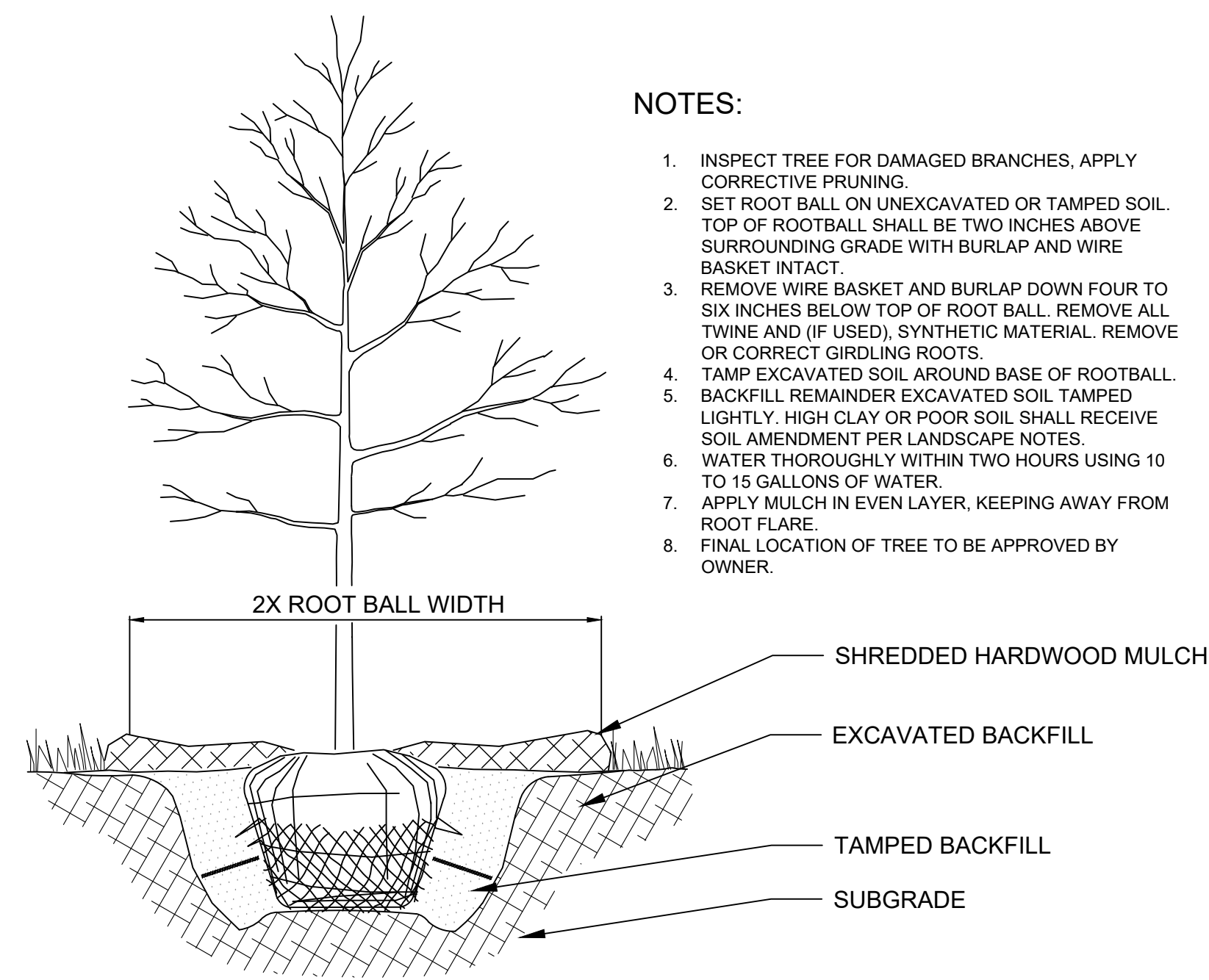
**L2.1**  
**DETAILED**  
**LANDSCAPE PLAN**



**PLANT SCHEDULE**

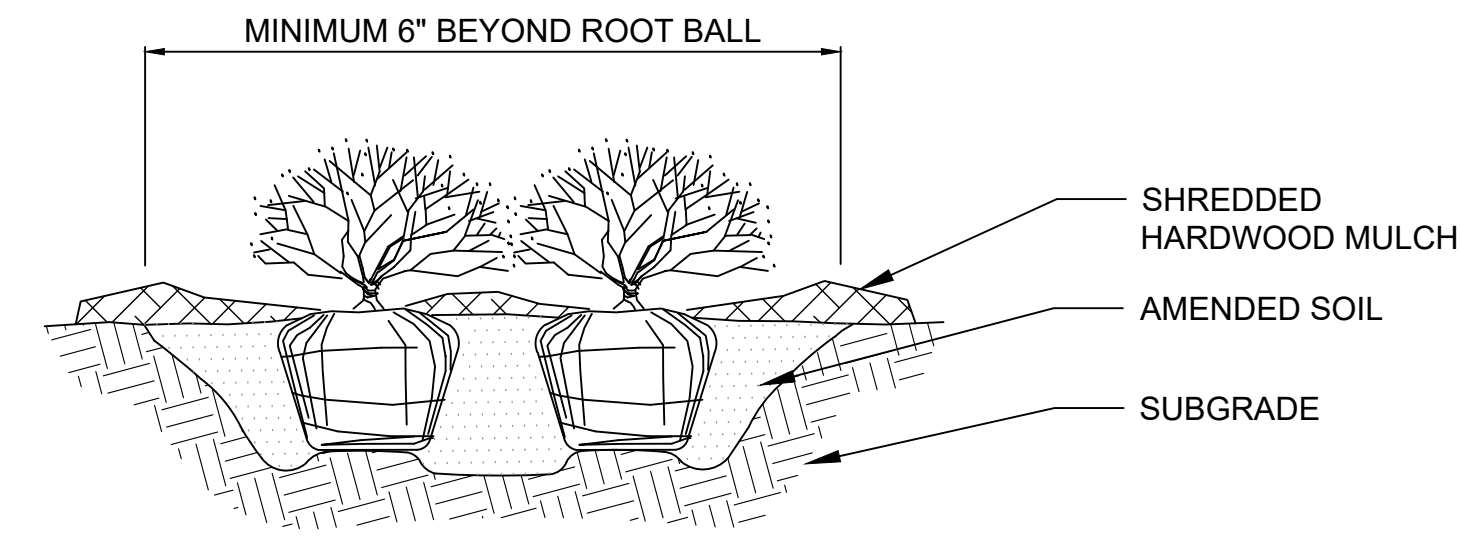
TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL / INSTALL SIZE	MATURE HT.	MATURE SP.	OTHER
	CO	4	CELTIS OCCIDENTALIS / COMMON HACKBERRY	B & B	2.5" CAL. MIN	40' - 60' HT.	40' - 60' SP.	
	GA	1	GINKGO BILOBA 'AUTUMN GOLD' TM / AUTUMN GOLD MAIDENHAIR TREE	B & B	2.5" CAL. MIN	50' HT.	30' SP.	
	GK	4	GYMNOCLADUS DIOICA 'ESPRESSO' / ESPRESSO KENTUCKY COFFEETREE	B & B	2.5" CAL. MIN	50' HT.	30' SP.	
	GT	2	GLEDTISIA TRIACANTHOS F. INERMIS / THORNLESS HONEY LOCUST	B & B	2.5" CAL. MIN	45' HT.	40' - 45' SP.	
	QB	5	QUERCUS BICOLOR / SWAMP WHITE OAK	B & B	2.5" CAL. MIN	50' - 60' HT.	50' - 60' SP.	
	UA	4	ULMUS X 'MORTON' TM / ACCOLADE ELM	B & B	2.5" CAL. MIN	60' HT.	50' SP.	
	UC	3	ULMUS X 'FRONTIER' / FRONTIER ELM	B & B	2.5" CAL. MIN	40' HT.	30' SP.	
	UH	6	ULMUS X 'PATRIOT' / PATRIOT ELM	B & B	2.5" CAL. MIN	55' - 65' HT.	30' - 40' SP.	
	UP	4	ULMUS AMERICANA 'PRINCETON' / PRINCETON AMERICAN ELM	B & B	2.5" CAL. MIN	60' HT.	50' SP.	
	ZA	4	ZELKOVA SERRATA 'AUTUMN GLOW' / AUTUMN GLOW JAPANESE ZELKOVA	B & B	2.5" CAL. MIN	35' HT.	25' - 30' SP.	
EVERGREEN TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL / INSTALL SIZE	MATURE HT.	MATURE SP.	OTHER
	JL	5	JUNIPERUS CHINENSIS 'MOUNTBATTEN' / MOUNTBATTEN JUNIPER	B & B	4" HT. MIN.	12' HT.	8' - 10' SP.	
	JX	5	JUNIPERUS X 'J.N SELECT BLUE' TM / STAR POWER JUNIPER	B & B	4" HT. MIN.	15' - 20' HT.	8' - 10' SP.	
	PF	5	PINUS STROBUS 'FASTIGIATA' / PYRAMIDAL WHITE PINE	B & B	4" HT. MIN.	20' - 25' HT.	8' - 10' SP.	
	PF2	13	PICEA PUNGENS 'FAT ALBERT' / FAT ALBERT COLORADO SPRUCE	B & B	4" HT. MIN.	10' - 20' HT.	8' - 10' SP.	
	TN	5	THUJA OCCIDENTALIS 'NIGRA' / BLACK ARBORVITAE	B & B	4" HT. MIN.	20' HT.	6' - 8' SP.	
	TT	18	THUJA OCCIDENTALIS 'TECHNY' / TECHNY ARBORVITAE	B & B	4" HT. MIN.	10' - 20' HT.	6' - 8' SP.	
ORNAMENTAL TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL / INSTALL SIZE	MATURE HT.	MATURE SP.	OTHER
	AA2	8	AMELANCHIER CANADENSIS 'AUTUMN BRILLIANCE' / AUTUMN BRILLIANCE SERVICEBERRY	B & B	8" HT. MIN.	15' - 25' HT.	15' - 25' SP.	MULTI-STEM
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SPACING	INSTALL SIZE	MATURE HT.	MATURE SP.
	AL	35	ARONIA MELANOCARPA 'UCONNAM165' TM / LOW SCAPE MOUND BLACK CHOKEBERRY	-	SEE PLAN	12" HT. MIN.	18" - 24" HT.	18" - 24" SP.
	AM	49	ARONIA MELANOCARPA 'MORTON' TM / IROQUOIS BEAUTY BLACK CHOKEBERRY	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	36" - 48" SP.
	CA	27	CEANOTHUS AMERICANUS / NEW JERSEY TEA	-	SEE PLAN	18" HT. MIN.	36" - 48" HT.	36" - 48" SP.
	CH	30	CORNUS ALBA 'BAILHALO' TM / IVORY HALO DOGWOOD	-	SEE PLAN	24" HT. MIN.	4' - 6' HT.	4' - 6' SP.
	HJ	26	HYDRANGEA PANICULATA 'JANE' TM / LITTLE LIME PANICLE HYDRANGEA	-	SEE PLAN	18" HT. MIN.	36" - 48" HT.	36" - 48" SP.
	HM	41	HYDRANGEA ARBORESCENS 'NCHA7' TM / INVINCIBELLE MINI MAUVETTE HYDRANGEA	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	24" - 36" SP.
	PD	18	PHYSOCARPUS OPULIFOLIUS 'DONNA MAY' TM / LITTLE DEVIL DWARF NINEBARK	-	SEE PLAN	18" HT. MIN.	36" - 48" HT.	36" - 48" SP.
	PS	24	PHYSOCARPUS OPULIFOLIUS 'SEWARD' TM / SUMMER WINE NINEBARK	-	SEE PLAN	24" HT. MIN.	4' - 6' HT.	4' - 6' SP.
	PW	63	POTENTILLA FRUTICOSA 'WHITE LADY' TM / HAPPY FACE WHITE BUSH CINQUEFOIL	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	24" - 36" SP.
	SF	62	SPIRAEA JAPONICA 'NEON FLASH' / NEON FLASH JAPANESE SPIREA	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	36" - 48" SP.
	SS	58	SPIRAEA JAPONICA 'LITTLE PRINCESS' / LITTLE PRINCESS JAPANESE SPIREA	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	24" - 36" SP.
	ST	51	SPIRAEA BETULIFOLIA 'TOR' / TOR BIRCHLEAF SPIREA	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	24" - 36" SP.
	VA	66	VIBURNUM DENTATUM 'CHRISTOM' TM / BLUE MUFFIN ARROWWOOD VIBURNUM	-	SEE PLAN	24" HT. MIN.	4' - 6' HT.	4' - 6' SP.
	WB	45	WEIGELA FLORIDA 'BRAMWELL' TM / FINE WINE WEIGELA	-	SEE PLAN	18" HT. MIN.	36" - 48" HT.	36" - 48" SP.
	WD	42	WEIGELA FLORIDA 'DARK HORSE' / DARK HORSE WEIGELA	-	SEE PLAN	18" HT. MIN.	24" - 36" HT.	24" - 36" SP.
ORNAMENTAL GRASSES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SPACING	INSTALL SIZE	MATURE HT.	MATURE SP.
	CK	18	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / FEATHER REED GRASS	1 GAL	SEE PLAN	4' - 6' HT.	24" - 36" SP.	
	FF	10	FESTUCA X 'COOL AS ICE' / COOL AS ICE BLUE FESCUE	1 GAL	SEE PLAN	12" - 18" HT.	18" - 24" SP.	
	PC	43	PANICUM VIRGATUM 'CHEYENNE SKY' / CHEYENNE SKY SWITCH GRASS	1 GAL	SEE PLAN	3' - 4' HT.	18" - 24" SP.	
	PP	17	PENNISETUM ALOPECUROIDES 'PIGLET' / PIGLET DWARF FOUNTAIN GRASS	1 GAL	SEE PLAN	12" - 18" HT.	18" - 24" SP.	
GRASSES AND PERENNIALS	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SPACING	MATURE HT.		
	AB	32	AMSONIA X 'BLUE ICE' / BLUE ICE BLUESTAR	1 GAL	24" OC	12" - 18" HT.		
	AS	85	ALLIUM X 'SUMMER BEAUTY' / SUMMER BEAUTY ORNAMENTAL ONION	1 GAL	24" OC	12" - 18" HT.		
	CC	81	COREOPSIS X 'NOVOCORCAR' / CREME CAREML TICKSEED	1 GAL	24" OC	12" - 18" HT.		
	HA	66	HEMEROCALLIS X 'APRICOT SPARKLES' / APRICOT SPARKLES DAYLILY	1 GAL	18" OC	12" - 18" HT.		
	HS	33	HEMEROCALLIS X 'SUMMER WINE' / SUMMER WINE DAYLILY	1 GAL	24" OC	18" - 24" HT.		
	NB	107	NEPETA RACEMOSA 'BLUE WONDER' / BLUE WONDER CATMINT	1 GAL	18" OC	8" - 12" HT.		
	RS	54	RUDBECKIA FULGIDA 'LITTLE GOLDSTAR' / LITTLE GOLDSTAR BLACK-EYED SUSAN	1 GAL	24" OC	12" - 18" HT.		
	ST2	98	SPOROBOLUS HETEROLEPIS 'TARA' / TARA PRAIRIE DROPSEED	1 GAL	18" OC	24" - 36" HT.		
GROUND COVERS			BOTANICAL / COMMON NAME					
			TURF SOD					

DATE	ISSUED FOR	REV



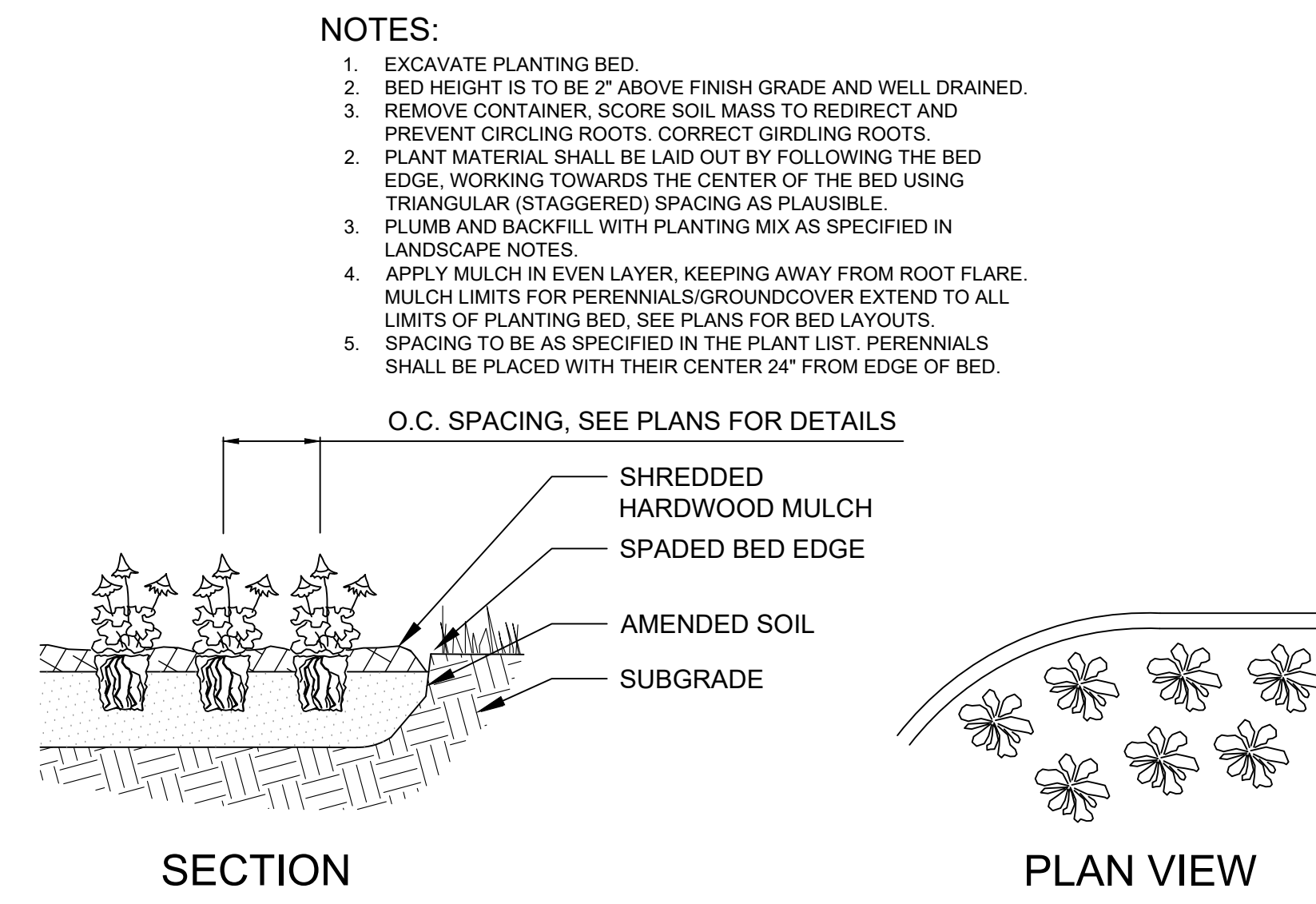
1 TREE PLANTING

NTS



2 SHRUB PLANTING

NTS

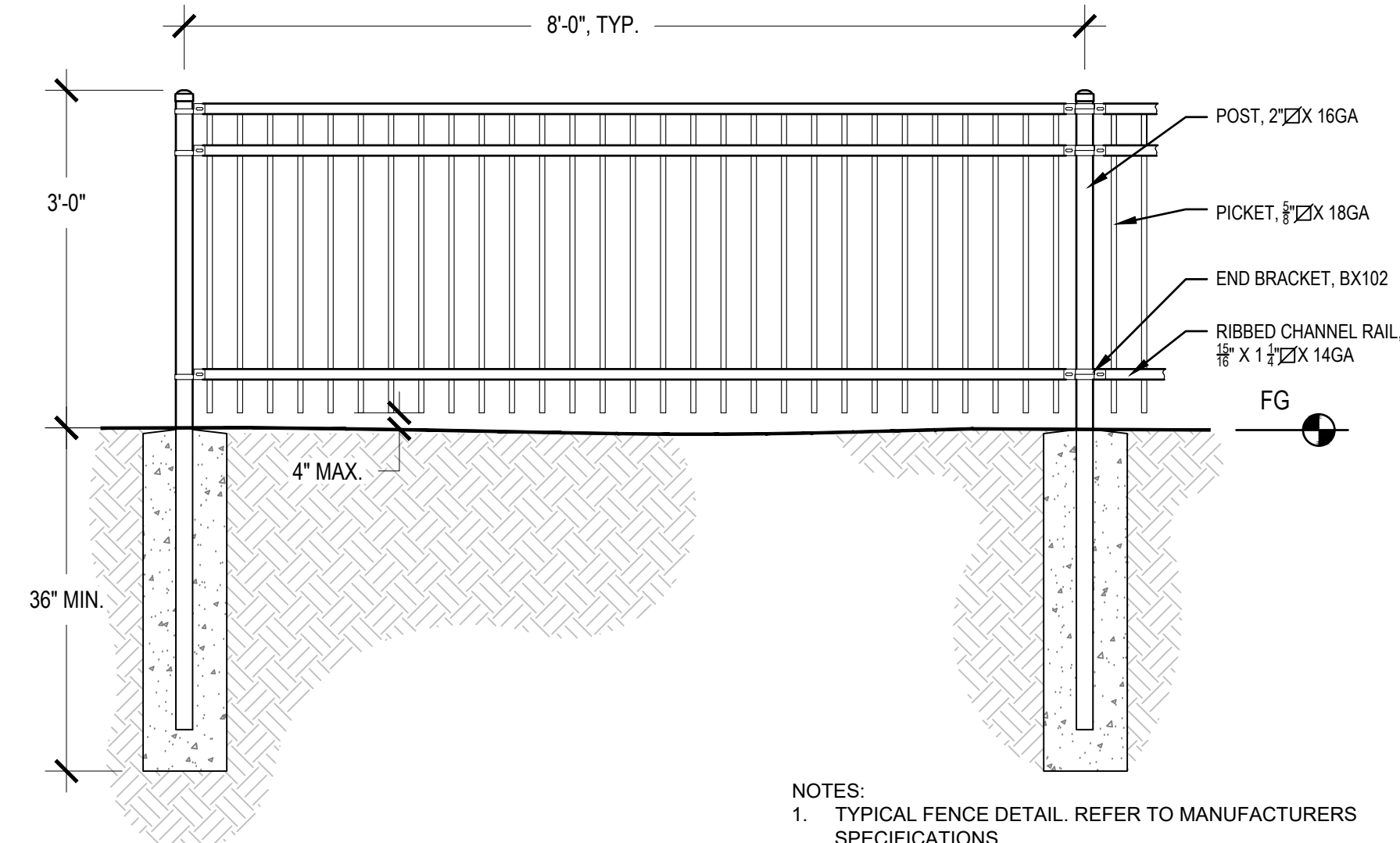


3 PERENNIAL PLANTING

NTS

**LANDSCAPE NOTES**

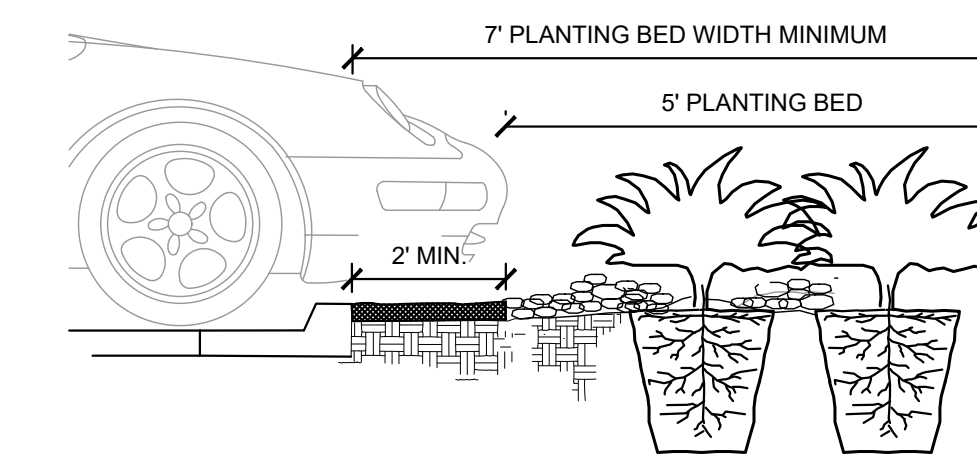
- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING MATERIALS AND PLANTS SHOWN ON THE LANDSCAPE PLAN. THE CONTRACTOR IS RESPONSIBLE FOR THE COST TO REPAIR UTILITIES, ADJACENT LANDSCAPE, PUBLIC AND PRIVATE PROPERTY THAT IS DAMAGED BY THE CONTRACTOR OR THEIR SUBCONTRACTOR'S OPERATIONS DURING INSTALLATION OR DURING THE SPECIFIED MAINTENANCE PERIOD. CALL FOR UTILITY LOCATIONS PRIOR TO ANY EXCAVATION.
- THE CONTRACTOR SHALL REPORT ANY DISCREPANCY IN PLAN VS. FIELD CONDITIONS IMMEDIATELY TO THE LANDSCAPE ARCHITECT, PRIOR TO CONTINUING WITH THAT PORTION OF WORK.
- NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY OF THEIR TRENCHES OR EXCAVATIONS THAT SETTLE.
- ALL PLANTS TO BE SPECIMEN GRADE, WELL BRANCHED, HEALTHY, FULL, PRE-INOCULATED AND FERTILIZED. PLANTS SHALL BE FREE FROM DISEASE, PESTS, WOUNDS, AND SCARS. PLANTS SHALL BE FREE FROM NOTICEABLE GAPS, HOLES, OR DEFORMITIES. PLANTS SHALL BE FREE FROM BROKEN OR DEAD BRANCHES. TRUNKS WILL BE WRAPPED IF NECESSARY TO PREVENT SUN SCALD AND INSECT DAMAGE. THE LANDSCAPE CONTRACTOR SHALL REMOVE THE WRAP AT THE PROPER TIME AS PART OF THIS CONTRACT.
- THE OWNER'S REPRESENTATIVE MAY REJECT ANY PLANT MATERIALS THAT ARE DISEASED, DEFORMED, OR OTHERWISE NOT EXHIBITING SUPERIOR QUALITY.
- ALL NURSERY STOCK SHALL BE GUARANTEED, BY THE CONTRACTOR, FOR ONE YEAR FROM DATE OF FINAL INSPECTION. THE GUARANTEE BEGINS ON THE DATE OF THE LANDSCAPE ARCHITECT'S OR OWNERS WRITTEN ACCEPTANCE OF THE INITIAL PLANTING. REPLACEMENT PLANT MATERIAL SHALL HAVE A ONE YEAR GUARANTEE COMMENCING UPON PLANTING.
- PLANTS TO MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2014 OR MOST CURRENT VERSION) REQUIREMENTS FOR SIZE AND TYPE SPECIFIED.
- PRUNE PLANTS AS NECESSARY- PER STANDARD NURSERY PRACTICE AND TO CORRECT POOR BRANCHING OF EXISTING AND PROPOSED TREES.
- SEED/SOD LIMIT LINES ARE APPROXIMATE. CONTRACTOR SHALL SEED/SOD ALL AREAS WHICH ARE DISTURBED BY GRADING WITH THE SPECIFIED SEED/SOD MIXES.
- EDGING TO BE A SPADED EDGE UNLESS INDICATED OTHERWISE ON THE PLANS. SPADED EDGE TO PROVIDE V-SHAPED DEPTH AND WIDTH TO CREATE SEPARATION BETWEEN MULCH AND GRASS. A SPADED BED EDGE SHALL SEPARATE MULCH BEDS FROM TURF OR SEEDED AREAS. A SPADED EDGE IS NOT REQUIRED ALONG CURBED EDGES.
- HIGH-QUALITY TOP SOIL SHALL BE IMPORTED AND GRADED BY GENERAL CONTRACTOR TO THE FOLLOWING MINIMUM DEPTHS BELOW FINISHED GRADE. REFER TO SOIL SPECIFICATION FOR MORE DETAIL.
  - PLANTING BEDS: 18 INCHES
  - ALL OTHER AREAS: 6 INCHES
- CONTRACTOR SHALL INSTALL SHREDDED HARDWOOD MULCH AT A 3" DEPTH TO ALL TREES, SHRUB, PERENNIAL, AND GROUND COVER AREAS. TREES PLACED IN AREA COVERED BY TURF SHALL RECEIVE A 4 FT WIDE MAXIMUM TREE RING WITH 3" DEPTH SHREDDED HARDWOOD MULCH.
- INSTALLATION OF TREES WITHIN PARKWAYS SHALL BE COORDINATED IN THE FIELD WITH LOCATIONS OF UNDERGROUND UTILITIES. TREES SHALL NOT BE LOCATED CLOSER THAN 5' FROM UNDERGROUND UTILITY LINES AND NO CLOSER THAN 10' FROM UTILITY STRUCTURES.
- DO NOT DISTURB THE EXISTING PAVING, LIGHTING, OR LANDSCAPING THAT EXISTS ADJACENT TO THE SITE UNLESS OTHERWISE NOTED ON PLAN.
- ALL DISTURBED AREAS TO BE SODDED OR SEEDED, UNLESS OTHERWISE NOTED. SOD/SEED SHALL BE LOCAL HARDY TURF GRASS MIX UNLESS, OTHERWISE NOTED. ALL TURF SOD/SEED AREAS SHALL BE MINERAL BASE.
- PLANT QUANTITIES SHOWN ARE FOR THE CONVENIENCE OF THE OWNER AND JURISDICTIONAL REVIEW AGENCIES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES AS DRAWN.



4 3' ORNAMENTAL FENCE

3/4" = 1'-0"

- NOTES:
- TYPICAL FENCE DETAIL. REFER TO MANUFACTURERS SPECIFICATIONS.
  - POST SIZE VARIES BY FENCE HEIGHT AND WIND LOAD.
  - CONCRETE FOOTING VARIES BASED ON LOCAL SOIL CONDITIONS.



5 PARKING SPACE PLANTINGS

## **ORDINANCE 2022-**

### **ORDINANCE APPROVING A SPECIAL USE PERMIT TO ALLOW A 'PARKING LOT-PRINCIPAL' AND 'CAR WASH' LOCATED AT 7310 N. MELVINA AVENUE**

**WHEREAS**, the Village President and Board of Trustees (hereinafter collectively referred to as the "Village Board") of the Village of Niles, Cook County, Illinois (hereinafter the "Village"), find that the Village is a home rule municipal corporation as provided in Article VII, Section 6 of the 1970 Constitution of the State of Illinois and pursuant to said constitutional authority, may exercise and perform any function pertaining to its governmental affairs; and

**WHEREAS**, the question of granting a special use permit to 7310 N. Melvina Avenue included in this ordinance, was referred to the Planning and Zoning Board for a public hearing; and

**WHEREAS**, a public hearing was held on October 3, 2022, after proper notice in a manner provided by law; and

**WHEREAS**, the applicant request is to operate a 'Parking Lot – Principal' and 'Car Wash' at 7310 N. Melvina Avenue; and

**WHEREAS**, the proposed use provides for parking lot and car wash; and

**WHEREAS**, the Planning and Zoning Board has made a report, containing findings of fact and recommending the granting of the special use permit to allow the operation of a 'Parking Lot – Principal' and 'Car Wash' at 7310 N. Melvina Avenue; and

**WHEREAS**, the corporate authorities of the Village of Niles, Cook County, Illinois have duly considered said Planning and Zoning Board recommendation and consider it in the best interest of the Village to grant said request.

**NOW, THEREFORE, BE IT ORDAINED**, by the President and Board of Trustees of the Village of Niles, Cook County, Illinois, as a Home Rule Municipality, as follows:

**SECTION 1:** Each Whereas paragraph set forth above is incorporated by reference into this Section 1.



**SECTION 2:** The materials and exhibits attached to this ordinance are incorporated by reference and made a part of this ordinance.

**SECTION 3:** A special use permit as required in Appendix B, Section 8.2(A) to allow a ‘Parking Lot – Principal’ and ‘Car Wash’ at 7310 N. Melvina Avenue, is approved with the following conditions:

1. A traffic study and associated findings must be accepted by the Village Engineer and any necessary modifications to the site plan as a result of the accepted traffic study must be made prior to the issuance of a building permit.
2. At such time when the Phase 2 Car Wash is constructed, the Special Use for the Parking Lot – Principal will become null and void.
3. Passively activated signage with rapid flashing beacon must be installed at the proposed southern crosswalk across Melvina Avenue.

**SECTION 4:** This Ordinance shall be in full force and effect from and after its passage, approval, and publication in pamphlet form as provided by law.

**PASSED:** This 25<sup>th</sup> day of October, 2022  
**AYES:**  
**NAYS:**  
**ABSENT:**  
**ABSTAIN:**

**APPROVED** by me this 25<sup>th</sup> day of October, 2022.

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President of the Village of Niles  
Cook County, Illinois

**ATTESTED AND FILED** in my office this 25<sup>th</sup> day of October, 2022, and published in pamphlet form as provided by law in the Village of Niles, Illinois.

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Village Clerk

# Technical Memorandum

September 13, 2022

Project# 28158

To: Stephen Cross, Authorized Costco Representative  
Cross Engineering Associates, Inc.  
1955 Raymond Drive, Suite 119  
Northbrook, IL 60062

From: Adam Burghdoff, Jake Mirabella, and Spencer Maddox

RE: Niles Costco Fuel Facility Expansion and Car Wash Transportation Evaluation

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Kittelson & Associates, Inc. (Kittelson) has prepared a transportation evaluation for the proposed Costco Fuel Facility Expansion and Costco Car Wash Development Project (the "Project") located along Melvina Avenue in Niles Village, Illinois. The Project location and intersections evaluated in this study are shown in **Figure 1**.

This study's approach and scope was prepared in consultation with Niles Village staff and is consistent with industry best practices. The following summarizes the project description, methodology, data, analysis results, findings, and recommendations developed as part of this study.

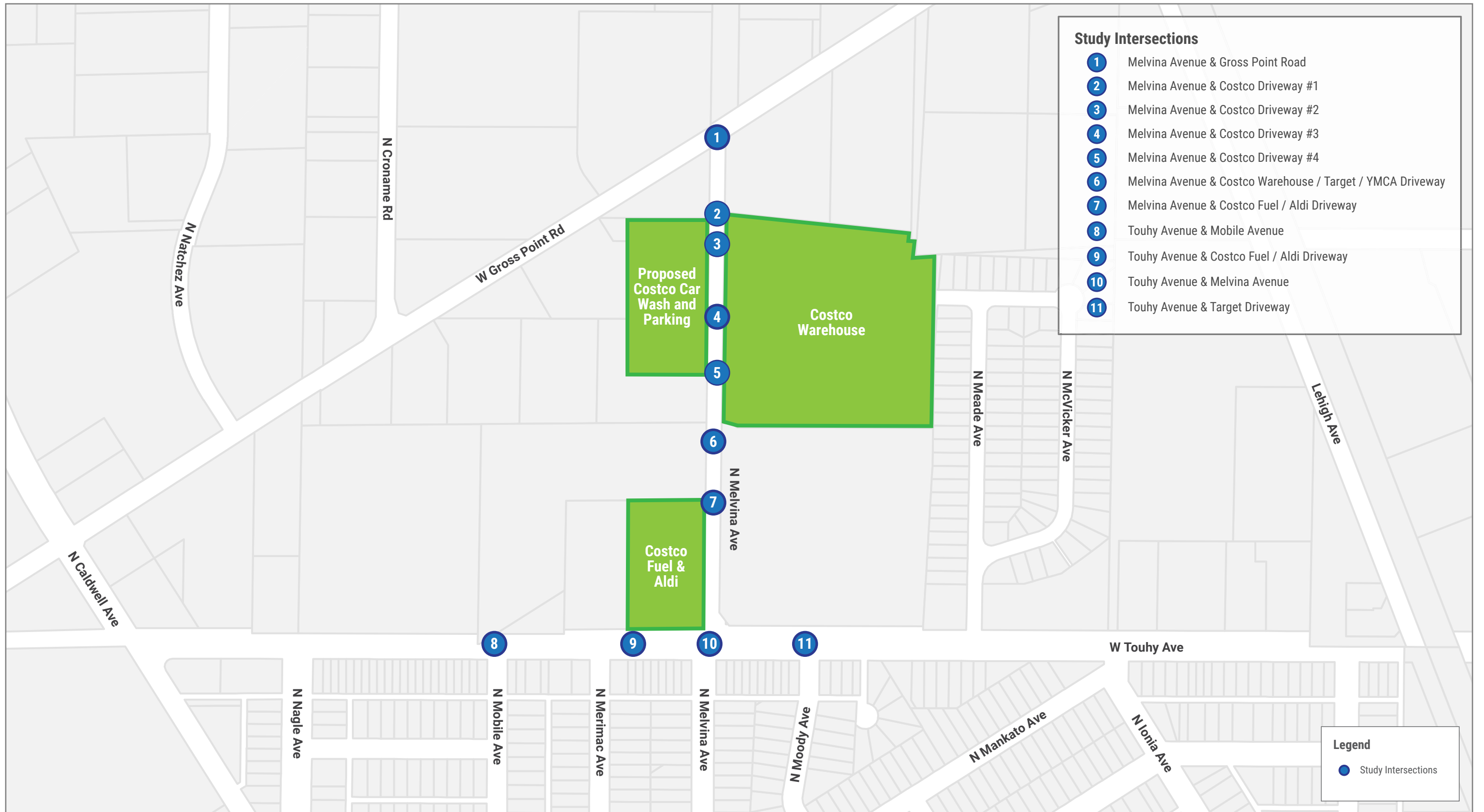
## Project Description

### Fuel Facility Expansion

The Project proposes to expand an existing Costco fuel facility, located at the northwest corner of the Melvina Avenue & Touhy Avenue intersection, from 20 existing fueling positions to 30 fueling positions (an increase of 10 fueling positions). The proposed fuel facility expansion is shown in the site plan included in **Appendix A**.

### Car Wash and Parking Lot Development

The Project also proposes to construct a Costco car wash west of the existing Costco warehouse along the west side of Melvina Avenue and a new 139 stall parking lot. The site for redevelopment currently consists of a portion of an underused parking lot and a portion of the former Granger office site that will be redeveloped. The proposed parking stalls will be available to Costco employees and Costco customers and will include cart corrals.



The car wash and parking lot component of the project is expected to be phased with the opening of a larger 233 stall parking lot opening first and the construction of the car wash in the second phase. The first phase is not expected to generate additional trips for the existing warehouse; however, the carwash is expected to generate trips. The analyses presented herein are based upon the more-conservative traffic projection including the car wash. The proposed car wash and parking lot site plan is included in **Appendix B**.

Two crosswalks extending from the west side of Melvina Avenue to the east side of Melvina Avenue is proposed to provide Costco employees and customers a way to cross Melvina Avenue.

## Methodology and Data

This study evaluates existing (2022), background (2028), and background (2028) plus project roadway conditions to determine potential impacts due to the proposed Project. Weekday AM, weekday PM, and Saturday midday peak hours are evaluated based on the following methodologies and data sources.

### Methodology

This study utilizes Synchro 11, Highway Capacity Manual (HCM) 6<sup>th</sup> Edition, and SimTraffic Microsimulation analysis methodologies to estimate vehicle delays and intersection levels of service (LOS).

HCM and Synchro methodologies cannot calculate intersection delay at the Costco Fuel/Aldi/Target Driveway (intersection 7) due to the three-way stop control (northbound movement is free and all other movements are stop controlled), therefore, SimTraffic microsimulation was used to estimate delay. Additionally, HCM two-way-stop control methodologies do not account for influences of other intersections. Exhibit 20-4 from HCM 6<sup>th</sup> Edition Chapter summarized the limitations and potential alternative tools.

Northbound approach vehicles along Melvina Avenue are expected to arrive in platoons which influence gap availability for minor the street. Due to the interactions between intersections and limitations of HCM 6<sup>th</sup> methodologies, SimTraffic, a more detailed analysis tool, was therefore used to estimate delay at the following intersections:

- Intersection 2: Melvina Avenue & Costco Driveway #1
- Intersection 3: Melvina Avenue & Costco Driveway #2
- Intersection 4: Melvina Avenue & Costco Driveway #3
- Intersection 5: Melvina Avenue & Costco Driveway #4
- Intersection 6: Melvina Avenue & Costco/Target/YMCA Driveway
- Intersection 7: Melvina Avenue & Costco Fuel/Aldi/Target Driveway

The 2009 Manual on Uniform Traffic Control Devices (MUTCD) with Revision Numbers 1, 2, and 3 dated July 2022 and the Illinois Department of Transportation (IDOT) TRA-23:

Guidelines for Establishing Pedestrian Crossings dated October 15, 2021, were considered in this study in developing crosswalk recommendations.

## Data

This study relies upon existing signal timings, existing conditions Synchro models, and Melvina Avenue Exhibit Alternative 3.1 provided by Niles Village staff. Existing signal timing data is included in **Appendix C** and the Melvina Avenue exhibit, which represents planned improvements along Melvina Avenue from Touhy Avenue to Gross Point Road, is included in **Appendix D**.

Existing conditions traffic count data was collected at five study intersections in July and August 2022 to supplement counts conducted in 2021. This data includes heavy vehicle, pedestrian, and bike volumes, as well as peak hour factors and is provided in **Appendix E**.

Chicago Metropolitan Agency for Planning (CMAP) provided 2050 Average Daily Traffic (ADT) volume forecast data for Touhy Avenue in the Project vicinity which was used to develop 2028 volume forecasts at the study intersections. Note that traffic count data was collected in 2021 at six study intersections and the annual growth rate determined from the CMAP forecasts were applied to arrive at 2022 traffic volumes where applicable. The CMAP 2050 ADT forecast letter is included in **Appendix F**.

## Traffic Volumes

Traffic analysis volumes were developed for existing (2022), background (2028), and background (2028) plus project weekday AM, weekday PM, and Saturday midday peak hours.

## Existing Conditions

Existing conditions traffic volumes were developed based upon existing traffic count data collected in July 2021 and July and August 2022 between 7:00am – 9:00am (weekday AM), 4:00pm – 6:00pm (weekday PM), and 11:00am – 1:00pm (Saturday midday). Individual intersection peak hour volumes were determined and used in this analysis. For the traffic count data collected in 2021, the annual growth rate determined from the CMAP forecasts were applied to arrive at 2022 traffic volumes where applicable. Volume balancing (increased only) was applied where applicable. Raw existing conditions weekday AM, weekday PM, and Saturday midday peak hour volumes are included in **Appendix E**. Balanced and adjusted existing conditions volumes assumed in the operational analyses are included in **Appendix G**.

## Background Conditions

Background peak hour traffic volumes were developed for future year 2028 when Project buildout is anticipated. Background volumes were developed by determining a growth rate between the CMAP base 2021 ADT (30,500) and the CMAP future 2050 ADT volume forecasts (34,800). The linear volume growth along Touhy Avenue was determined to be

0.49% per year. Peak hour volumes were balanced where applicable (volumes increased only) after applying peak hour volume growth based on the linear rate. Note that the 2050 ADT forecast provided by CMAP was for Touhy Avenue only, however a growth rate of 0.49% per year was also applied to Melvina Avenue. Balanced background (2028) conditions weekday AM, weekday PM, and Saturday midday peak hour volumes are included in **Appendix G**.

### Background Plus Project Conditions

Background plus project conditions peak hour volumes were developed by adding peak hour Project volumes anticipated from the proposed Costco fuel facility expansion and car wash to the forecasted 2028 background volumes described in the previous section.

Project forecasts were developed based upon the proposed Project description, trip generation data collected at similar Costco facilities, and distribution assumptions based upon current travel patterns in the study area. The trip generation analysis estimates that the Project would generate the following number of trips:

■ AM Peak Hour	■ PM Peak Hour	■ Saturday Midday Peak Hour
- 142 net new external trips	- 99 net new external trips	- 98 net new external trips
- 0 new internal trips	- 114 new internal trips	- 204 new internal trips
- 26 new pass-by trips	- 38 new pass-by trips	- 28 new pass-by trips
- 28 new diverted route trips	- 34 new diverted route trips	- 30 new diverted route trips

Note that no trip generation credits are assumed for the existing office building along the west side of Melvina Avenue (south of the proposed car wash) that is anticipated to be redeveloped. The trip generation and trip distribution analyses and assumptions are included in **Appendix H**.

Background plus project conditions weekday AM, weekday PM, and Saturday midday peak hour volumes are included in **Appendix G**.

### Operational Analysis Results

The traffic impact analysis was conducted using Synchro and SimTraffic software tools and HCM methodologies as described in the methodology section of this memorandum. A level of service (LOS) standard of LOS D is assumed in the operational analyses.

Analysis volumes were assumed as described in the traffic volumes section of this memorandum. The following summarizes the analysis results and findings for existing, background, and background plus project weekday AM, weekday PM, and Saturday midday peak hours. The following identifies the study intersections evaluated using HCM

6<sup>th</sup> methodologies and the study intersections evaluated using SimTraffic microsimulation methodologies:

- Intersection 1: Melvina Avenue & Gross Point Road – HCM 6<sup>th</sup>
- Intersection 2: Melvina Avenue & Costco Driveway #1 – SimTraffic
- Intersection 3: Melvina Avenue & Costco Driveway #2 – SimTraffic
- Intersection 4: Melvina Avenue & Costco Driveway #3 – SimTraffic
- Intersection 5: Melvina Avenue & Costco Driveway #4 – SimTraffic
- Intersection 6: Melvina Avenue & Costco/Target/YMCA Driveway – SimTraffic
- Intersection 7: Melvina Avenue & Costco Fuel/Aldi/Target Driveway – SimTraffic
- Intersection 8: Touhy Avenue & Mobile Avenue – HCM 6<sup>th</sup>
- Intersection 9: Touhy Avenue & Costco Fuel/Aldi Driveway – HCM 6<sup>th</sup>
- Intersection 10: Touhy Avenue & Melvina Avenue – HCM 6<sup>th</sup>
- Intersection 11: Touhy Avenue & Target Driveway – HCM 6<sup>th</sup>

### Existing Conditions

All study intersections analyzed with HCM 6<sup>th</sup> were estimated to operate at overall acceptable LOS C or better based on HCM 6<sup>th</sup> methodologies in existing conditions, except for the following:

- Gross Point Road & Melvina Avenue Northbound Approach
  - LOS E in PM and Saturday Midday peak hours. The critical movement (northbound left-turn) is under capacity.

All side street stop controlled (SSSC) approaches analyzed with SimTraffic were estimated to operate with 35 seconds of average vehicle SimTraffic delay in existing conditions or better except for the following:

- Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound Approach
  - SimTraffic westbound approach delay is estimated to be 113.8 seconds and 188.0 seconds per vehicle during the PM peak and Saturday Midday peak hour, respectively. Results indicate that limited southbound left-turn storage at Melvina Avenue and Touhy Avenue cause southbound approach queues to extend to the Costco Warehouse/Target/YMCA Driveway limiting the ability to process the westbound left-turns. The Melvina Avenue Exhibit Alternative 3.1 in **Appendix D** shows the southbound approach widened to two left-turn lanes at Melvina Avenue and Touhy Avenue in the future condition.
- Melvina Ave & Costco Fuel/Aldi/Target Driveway
  - SimTraffic southbound approach delay is estimated to be 35.1 seconds in the PM peak hour and the westbound approach delay is estimated to be 59.0 seconds per vehicle in the Saturday midday peak hour. The Melvina Avenue Exhibit Alternative 3.1 in **Appendix D** shows the southbound approach widened to provide a dedicated left-turn lane at this intersection.

A table summarizing average delay per vehicle and LOS for each study intersection is provided in **Appendix I**.

### **Background Conditions**

All study intersections analyzed with HCM 6<sup>th</sup> were estimated to operate at overall acceptable LOS C or better based on HCM 6<sup>th</sup> methodologies in existing conditions, except for the following:

- Gross Point Road & Melvina Avenue Northbound Approach
  - LOS E in PM peak hour. The critical movement (northbound left-turn) is under capacity.

All side street stop controlled (SSSC) approaches analyzed with SimTraffic were estimated to operate with 35 seconds of average vehicle SimTraffic delay in existing conditions or better.

A table summarizing average delay per vehicle and LOS for each study intersection is provided in **Appendix J**.

### **Background Plus Project Conditions**

All study intersections analyzed with HCM 6<sup>th</sup> were estimated to operate at overall acceptable LOS D or better based on HCM 6<sup>th</sup> methodologies in existing conditions, except for the following:

- Gross Point Road & Melvina Avenue Northbound Approach
  - LOS E in PM peak hour. The critical movement (northbound left-turn) is under capacity. There is 1.2 second increase in delay compared to background conditions.

All side street stop controlled (SSSC) approaches analyzed with SimTraffic were estimated to operate with 35 seconds of average vehicle SimTraffic delay in existing conditions or better except for the following:

- Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound Approach
  - SimTraffic westbound approach delay is estimated to be 48.2 seconds in the Saturday midday peak hour. There is a 15.1 second delay increase compared to background conditions.

A table summarizing average delay per vehicle and LOS for each study intersection is provided in **Appendix K**.

## **Crosswalk Evaluation**

The Project proposes to construct two crosswalks across Melvina Avenue that would provide Costco employees and customers east-west pedestrian crossings between the existing Costco warehouse and the proposed car wash and parking lot. The proposed crosswalk locations are included in the car wash and parking lot site plan provided in



**Appendix B.** The southern proposed crosswalk (southwest of the existing Costco warehouse) was identified in the Niles Village Melvina Avenue Exhibit Alternative 3.1 provided in **Appendix D.**

Based upon the existing pedestrian counts, parking expansion, and internal capture trips at the car wash, the number of pedestrians crossing were estimated. It was assumed that 1.5 pedestrians are equivalent to one vehicle trip. It is estimated that 7 pedestrians would cross Melvina Avenue during the AM peak hour, 120 pedestrians would cross Melvina Avenue during the PM peak hour, and 159 pedestrians would cross Melvina Avenue during the Saturday midday peak hour. These pedestrians would likely be spread across both proposed intersections but given the location of the Costco would likely primarily use the **southern crosswalk.**

It is recommended that the **northern crosswalk** be constructed at the location shown in the Project site plan at the northeast corner of the existing Costco warehouse and approximately 300 feet south of the nearest existing crosswalk located at the Melvina Avenue & Gross Point Road intersection.

A high-visibility continental crosswalk with ladder markings is recommended for installation at this northern location. Striping design should be consistent with MUTCD requirements. MUTCD W11-2 pedestrian crossing signs and W16-7P supplemental warning plaques are recommended to be installed to alert northbound and southbound motorists of this crosswalk.

It is recommended that the **southern crosswalk** be constructed at the location shown in the Project site plan at the southeast corner of the existing Costco warehouse and approximately 350 feet south of the proposed northern crosswalk and approximately 750 feet south of the nearest existing crosswalk located at the Melvina Avenue & Gross Point Road intersection.

It is anticipated that this will be the main crosswalk used by Costco customers that park in the proposed parking lot on the west side of Melvina Avenue. Since customers using this proposed crosswalk are anticipated to have slower crossing speeds when pushing shopping carts than typical pedestrians, crosswalk enhancements are recommended to emphasize the crosswalk for motorists. Recommendations are as follows:

1. Construct a raised crosswalk with high-visibility continental and ladder markings; and
2. Install MUTCD W11-2 pedestrian crossing signs and W16-7P supplemental warning plaques on northbound and southbound roadway approaches.
  - a. Install warning beacons per MUTCD Section 4L.03 above each W11-2 sign to emphasis the crosswalk location; or
  - b. Install rapid rectangular flashing beacons (RRFBs) at each northbound and southbound approach consistent with MUTCD Interim Approval 21 (IA-21).

All proposed crosswalks, markings, and signage should be constructed/installed consistent with MUTCD and local requirements.

## Findings and Recommendations

This technical memorandum was developed to document the transportation evaluation conducted for the proposed Costco Fuel Facility Expansion and Car Wash Development Project located along Melvina Avenue in Niles Village, Illinois.

This study was conducted consistent with the scope and methodology agreed upon between the Applicant and Niles Village and was prepared according to industry best practices and tools. A variety of data sources including existing traffic counts, ADT forecasts, signal timing data, and Costco specific data were considered in this study, as well as transportation software and analysis methodologies.

Based upon the approach described, it was found that all study intersections currently operate at acceptable levels except for:

- Gross Point Road & Melvina Avenue Northbound Approach
- Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound
- Melvina Ave & Costco Fuel/Aldi/Target Driveway Westbound/Southbound Approaches

Background improvements along Melvina Avenue are anticipated to improve operations to acceptable levels the Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound approach and the Melvina Ave & Costco Fuel/Aldi/Target Driveway under background conditions.

All study intersections operate at acceptable levels in the future with and without the proposed Project except for:

- Gross Point Road & Melvina Avenue Northbound Approach
  - The Project is anticipated to increase northbound delay by 1.2 seconds.
- Melvina Ave & Costco Warehouse/Target/YMCA Driveway Westbound Approach
  - SimTraffic westbound approach delay is estimated to be 48.2 seconds in the Saturday midday peak hour. There is a 15.1 second delay increase compared to background conditions.

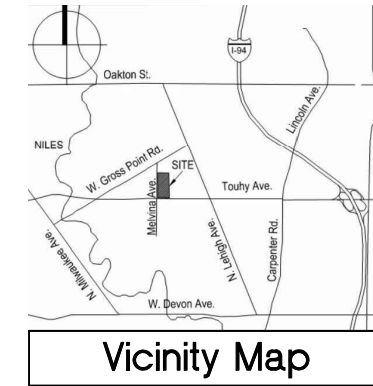
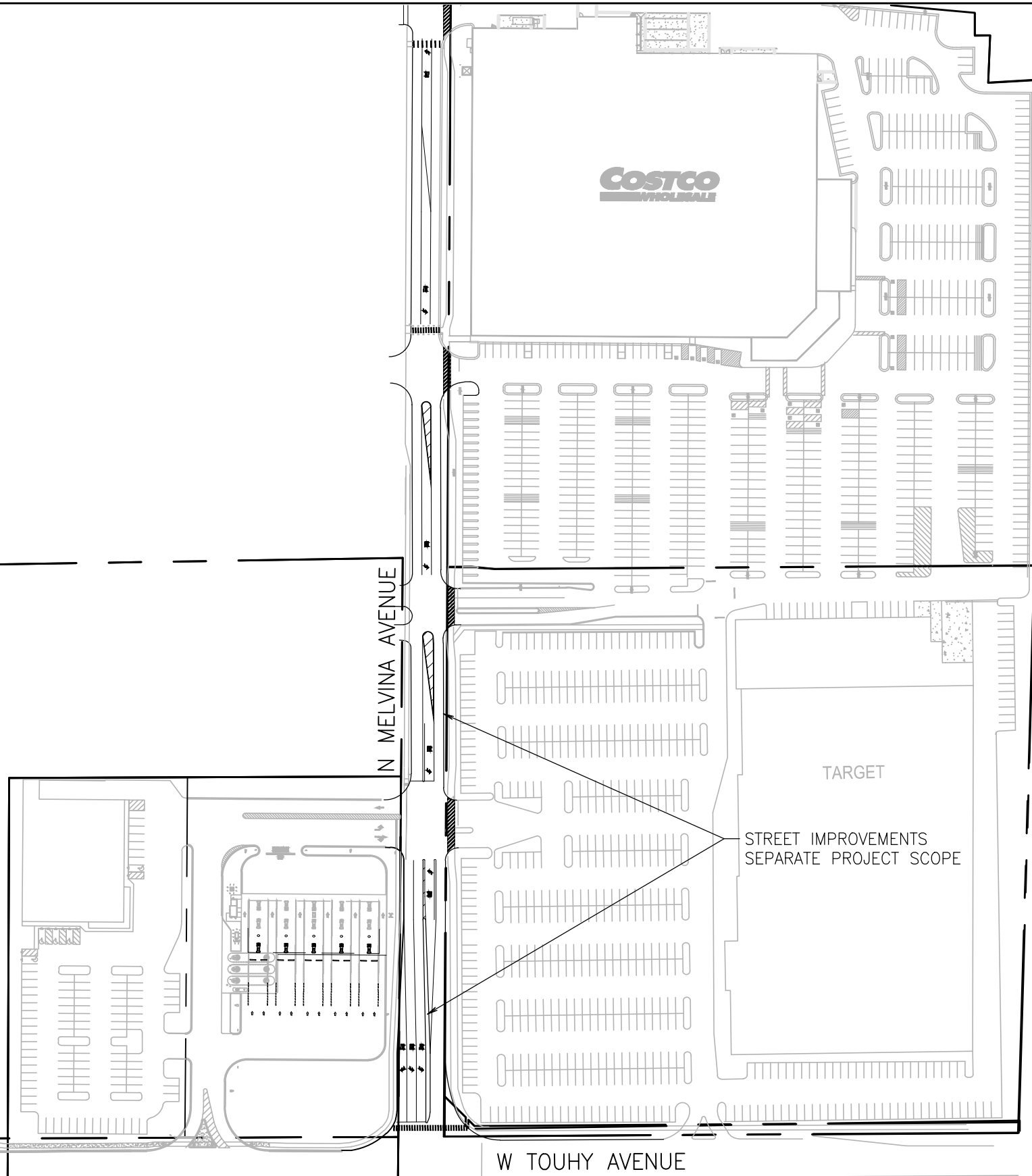
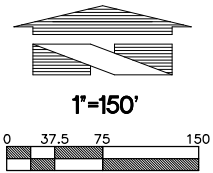
Furthermore, two east-west oriented pedestrian crosswalk connections across Melvina Avenue are proposed by the Project which are considered necessary to provide better pedestrian connectivity in the area and provide Costco employees and customers with a route to cross the north-south oriented Melvina Avenue.

Should additional information be necessary to understand the anticipated effects of the fuel station expansion, please contact us at [aburghdoff@kittelton.com](mailto:aburghdoff@kittelton.com) (407.373.1109) or [jmirabella@kittelton.com](mailto:jmirabella@kittelton.com) (813.556.6971).

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# Appendix A

## Fuel Facility Expansion Site Plan



### PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7311 MELVINA AVENUE  
NILES, IL 60714

ZONING: B-2

FUEL FACILITY SITE AREA (LOT 1) 2.36 ACRES (102,895 S.F.)

RESIDUAL PARCEL: 1.97 ACRES (85,674 S.F.)  
(LOT 2 - PROPOSED FUTURE DEVELOPMENT)

TOUHY AVENUE EASEMENT: 0.52 ACRES (22,576 S.F.)

TOTAL SITE AREA: 4.85 ACRES (211,145 S.F.)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A MULVANNY G2 ARCHITECTURE SITE PLAN DATED 1/2/14.

PROPOSED BUILDING DATA:

COSTCO FUEL FACILITY DATA:	
CANOPY AREA	4,864 S.F.
CONTROLLER ENCLOSURE AREA	135 S.F.
<b>TOTAL PROPOSED COSTCO FUEL FACILITY</b>	<b>4,999 S.F.</b>

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

SITE DATA:

GROSS AREA OF SITE:	102,895 S.F.	A
BUILDING FLOOR AREA:	4,999 S.F.	B
PAVEMENT AREA:	65,523 S.F.	P
TOTAL IMPERVIOUS AREA:	70,522 S.F.	TIA = B + P
IMPERVIOUS RATIO:	0.69%	IR = TIA/A

### NOTES

- THIS PRELIMINARY SITE PLAN IS BASED ON A SITE PLAN BY MULVANNY G2 ARCHITECTURE DATED, 1/2/14. THIS PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CURRENT LAND SURVEY.
- 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.

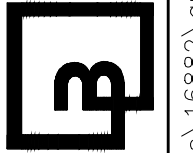
No.	Date	By	Clk.	Appr.	Revision

**OVERALL SITE PLAN**  
7311 MELVINA AVENUE  
NILES, IL 60714  
LOCATION #383

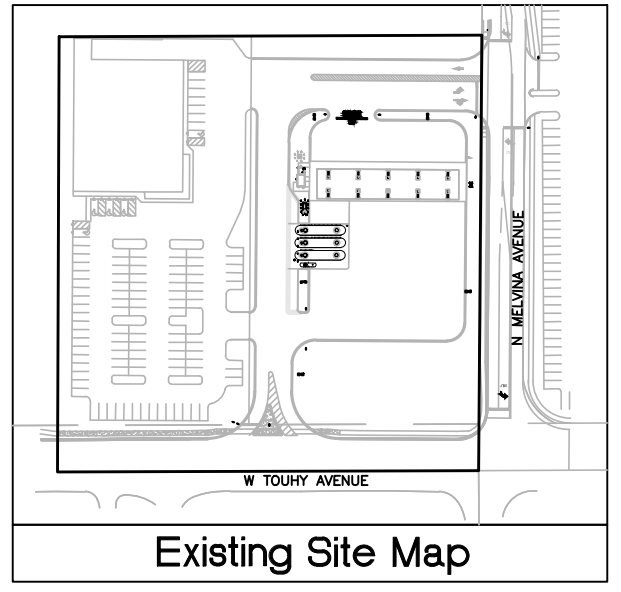
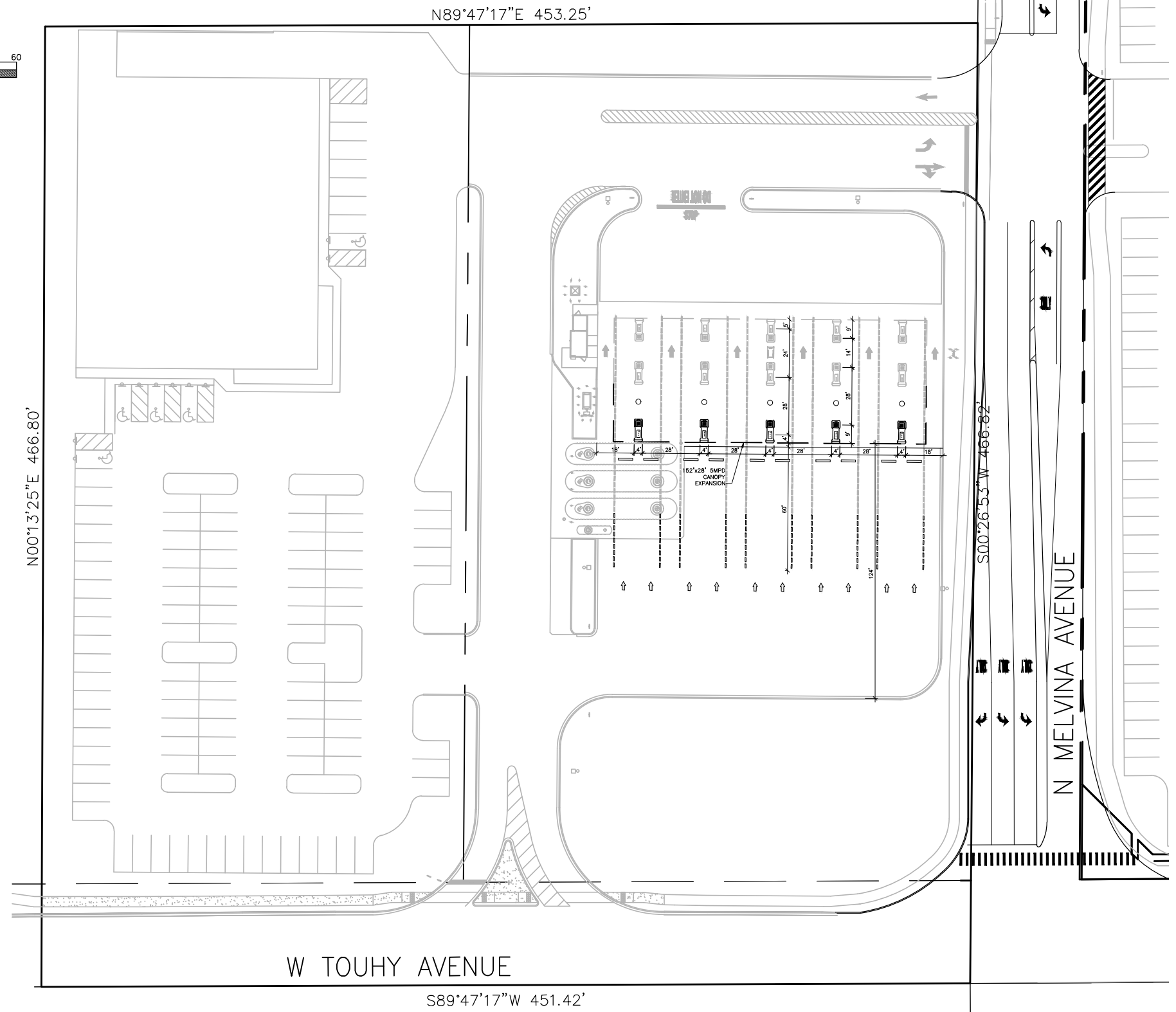
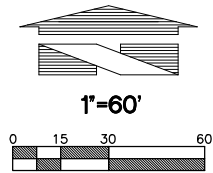
**For:** **COSTCO GASOLINE**  
COSTCO WHOLESALE GAS STATION ADDITION  
999 LAKE DRIVE  
ISSAQUAH, WASHINGTON, 98027

Designed SA	Drawn JAS	Checked SA	Approved	Date 12/19/17
Scale:	Horizontal	Vertical		

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222 [barghausen.com](http://barghausen.com)



BCE Job Number	16882
Sheet	DD-1



### PROJECT DATA

CLIENT: COSTCO WHOLESALE  
999 LAKE DRIVE  
ISSAQUAH, WA 98027

PROJECT ADDRESS: 7311 MELVINA AVENUE  
NILES, IL 60714

ZONING: B-2

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NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

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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.

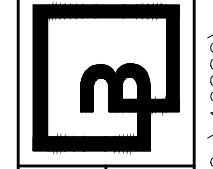
No.	Date	By	Clk.	Appr.	Revision

**Title**  
**DETAILED SITE PLAN**  
 7311 MELVINA AVENUE  
 NILES, IL 60714  
 LOCATION #383

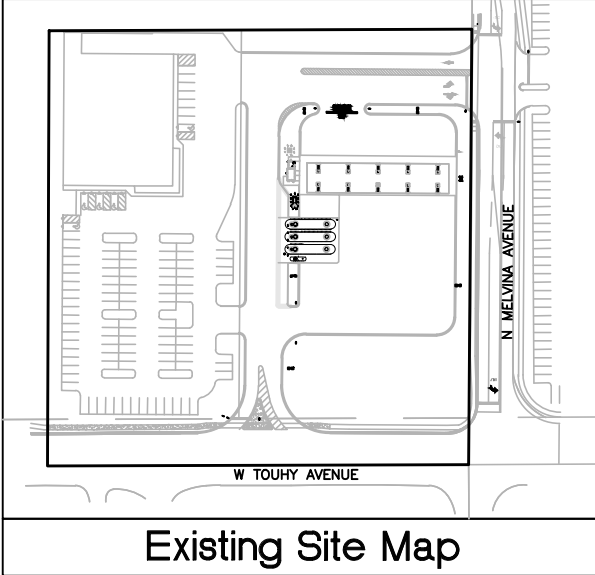
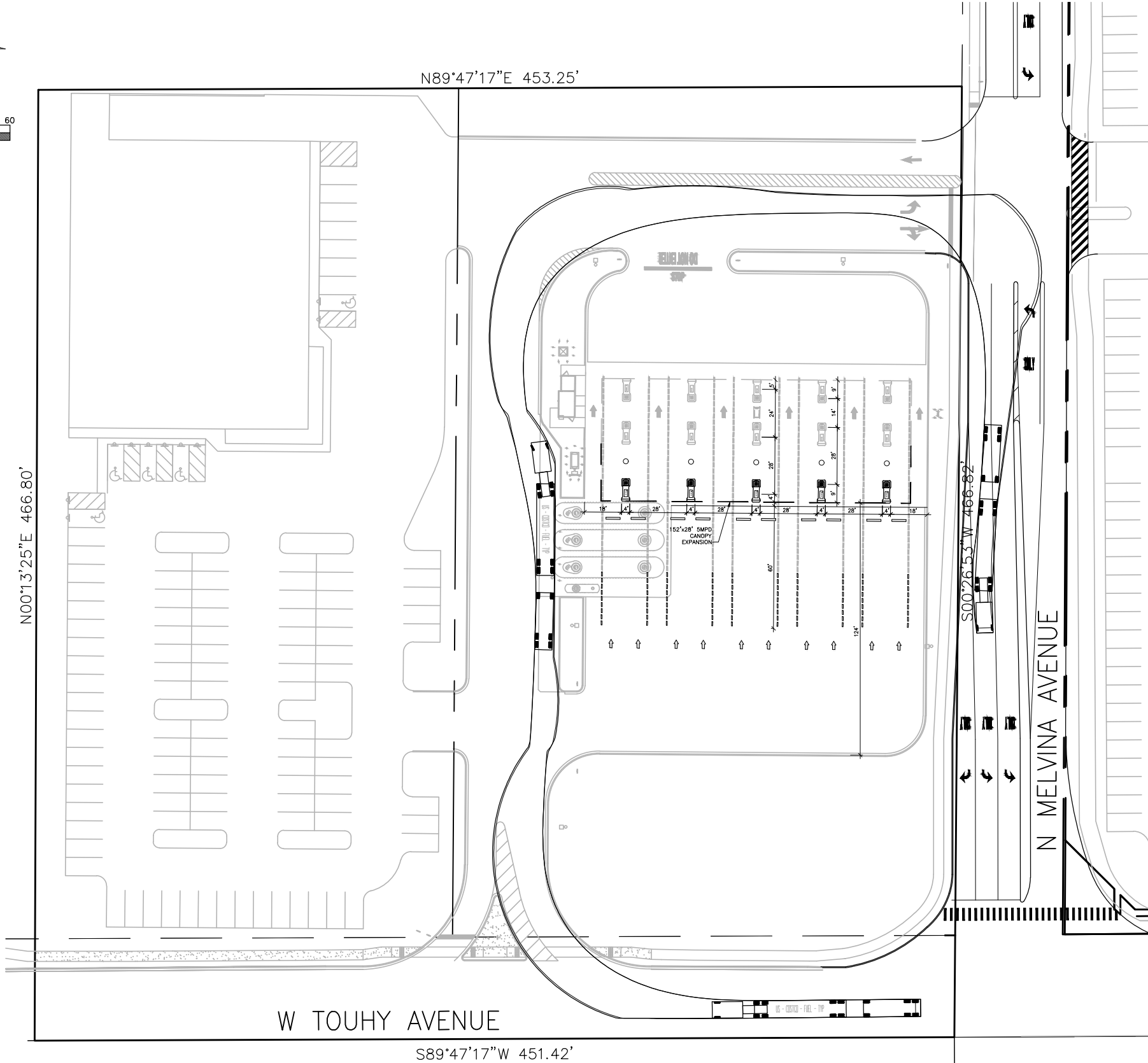
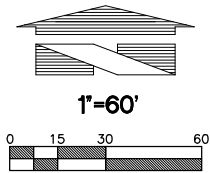
**For:**  
**COSTCO GASOLINE**  
 COSTCO WHOLESALE GAS STATION ADDITION  
 999 LAKE DRIVE  
 ISSAQUAH, WASHINGTON, 98027

Designed	SA	Scale:
Drawn	JAS	Horizontal
Checked	SA	Vertical
Approved	-	
Date	12/19/17	

**Barghausen Consulting Engineers, Inc.**  
 18215 72nd Avenue South  
 Kent, WA 98032  
 425.251.6222 [barghausen.com](http://barghausen.com)



BCE Job Number	16882
Sheet	DD-2



### PROJECT DATA

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999 LAKE DRIVE  
ISSAQUAH, WA 98027

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NILES, IL 60714

ZONING: B-2

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CANOPY AREA	4,864 S.F.
CONTROLLER ENCLOSURE AREA	135 S.F.
<b>TOTAL PROPOSED COSTCO FUEL FACILITY</b>	<b>4,999 S.F.</b>

NOTES:  
EXISTING CONDITIONS TO BE FIELD VERIFIED.

SITE DATA:

GROSS AREA OF SITE:	102,895 S.F.	A
BUILDING FLOOR AREA:	4,999 S.F.	B
PAVEMENT AREA:	65,523 S.F.	P
TOTAL IMPERVIOUS AREA:	70,522 S.F.	TIA = B + P
IMPERVIOUS RATIO:	0.69%	IR = TIA/A

### NOTES

1. THIS PRELIMINARY SITE PLAN IS BASED ON A SITE PLAN BY MULVANNY G2 ARCHITECTURE DATED, 1/2/14. 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.

TRUCK TURN MODEL  
7311 MELVINA AVENUE  
NILES, IL 60714  
LOCATION #383

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

Scale: Horizontal Vertical  
Designed SA JAS  
Drawn JAS  
Checked SA  
Approved  
Date 12/19/17

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222 [barghausen.com](http://barghausen.com)



BCE Job Number  
**16882**  
Sheet  
**DD-4**

---

# Appendix B

## Car Wash and Parking Lot Site Plan

W GROSS POINT RD

# PROJECT DATA

CLIENT: COSTCO WHOLESALE  
 999 LAKE DRIVE  
 ISSAQUAH, WA 98027

PROJECT ADDRESS: 7311 MELVINA AVE.  
 NILES, ILLINOIS 60714

ZONING: COMMERCIAL / RETAIL

EXISTING SITE AREA: 10.33 ACRES (449,807 SF)  
 EXISTING FUEL AREA: 2.31 ACRES (100,811 SF)  
 TOTAL EXISTING AREA: 12.64 ACRES (550,618 SF)

NEW PARCEL DATA:  
 GROSS AREA: ±2.96 ACRES (±128,926 SF)  
 BUILDING LOT COVERAGE: ±0.11 ACRES (±4,746 SF)  
 PAVEMENT LOT COVERAGE: ±1.94 ACRES (±84,548 SF)  
 TOTAL IMPERVIOUS AREA: ±2.05 ACRES (±89,294 SF)  
 IMPERVIOUS RATIO: 69.23%

TOTAL PROPOSED SITE AREA: ±15.60 ACRES (±679,544 SF)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A CIVIL PLAN BY JOSEPH A. SHUDT & ASSOC. DATED 12/30/94

THIS PLAN HAS BEEN UPDATED BY USING A CIVIL PLAN BY V3 DATED 06/15/18

BUILDING DATA:

EXISTING BUILDING AREA	136,625 SF
TIRE CENTER	5,200 SF
EXISTING COSTCO BUILDING	141,825 SF

PROPOSED CAR WASH BUILDING AREA	4,746 SF
TOTAL PROPOSED BUILDING AREA	146,571 SF

ENTRANCE VESTIBULE 3,480 SF

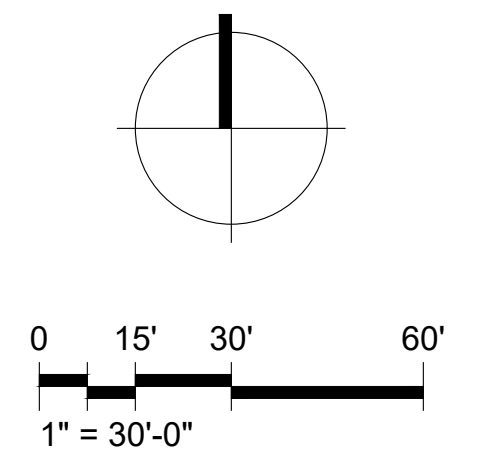
COSTCO PARKING DATA:

# EXISTING STALLS	*564 STALLS
# EXISTING ACCESSIBLE STALLS	14 STALLS
TOTAL EXISTING PARKING	578 STALLS
* 4 REGULAR STALLS REMOVED FOR ADA SCOPE	

# PROPOSED PARKING 10' WIDE STALLS	132 STALLS
# PROPOSED ACCESSIBLE STALLS	3 STALLS
TOTAL PROPOSED PARKING	713 STALLS

NO. OF STALLS PER 1000 SF OF COSTCO BLDG AREA:(141,825 SF)	5.03 STALLS
--	-------------

NOTES: EXISTING CONDITIONS TO BE FIELD VERIFIED.



NILES, IL # 383

7311 MELVINA AVE. NILES, ILLINOIS 60714

1101 Second Ave. Ste 100  
 Seattle, WA 98101  
 206 962 6500  
 MG2.com

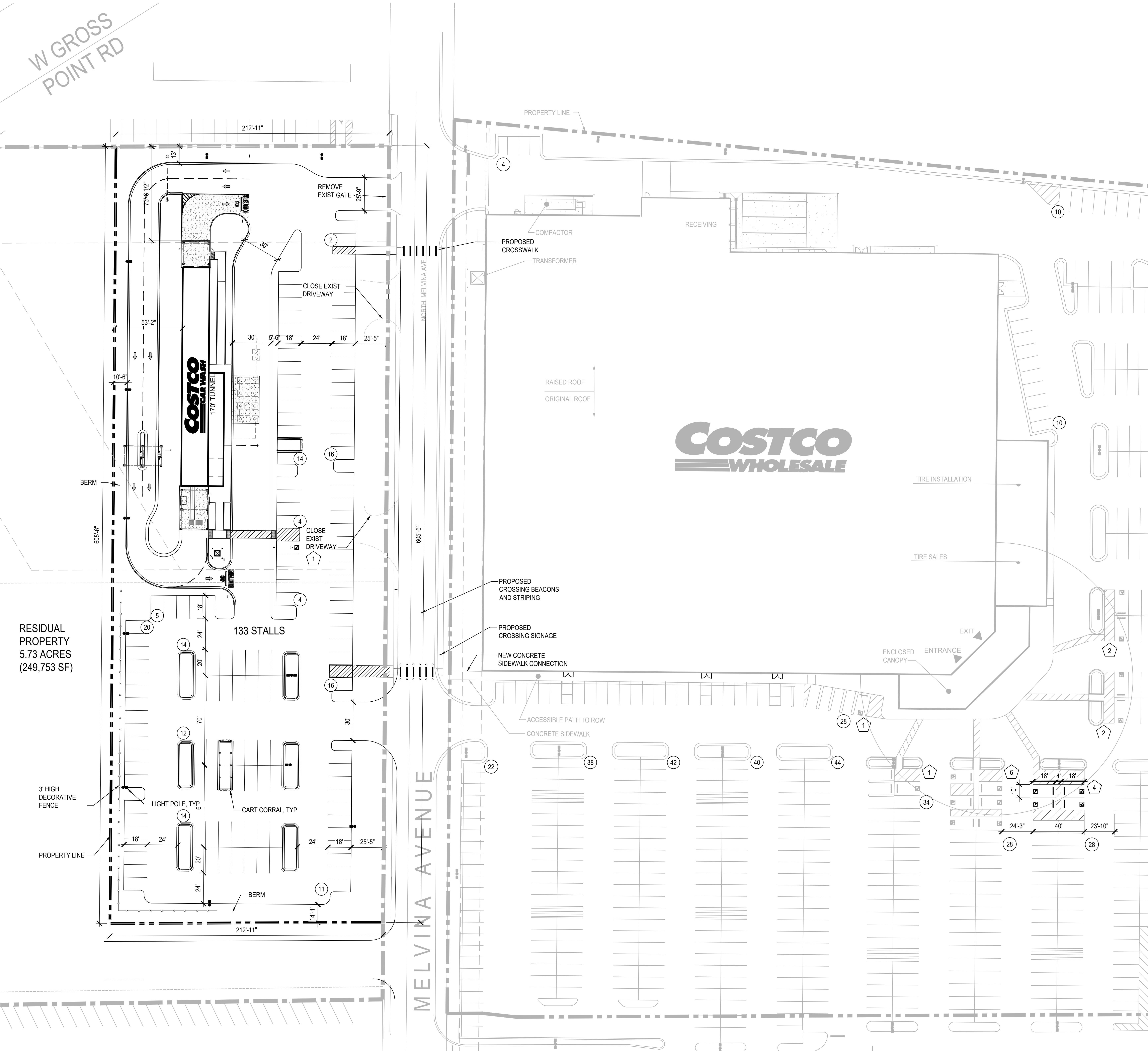


98-5090-16  
AUGUST 31, 2022

PRELIMINARY SITE PLAN

P12-14

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# COSTCO WHOLESALE

NILES, ILLINOIS

# ENLARGED SITE PLAN

AUGUST 31, 2022



W GROSS POINT RD

# PROJECT DATA

CLIENT: COSTCO WHOLESALE  
 999 LAKE DRIVE  
 ISSAQUAH, WA 98027

PROJECT ADDRESS: 7311 MELVINA AVE.  
 NILES, ILLINOIS 60714

ZONING: COMMERCIAL / RETAIL

EXISTING SITE AREA: 10.33 ACRES (449,807 SF)  
 EXISTING FUEL AREA: 2.31 ACRES (100,811 SF)  
 TOTAL EXISTING AREA: 12.64 ACRES (550,618 SF)

NEW PARCEL DATA:  
 GROSS AREA: ±2.96 ACRES (±128,926 SF)  
 BUILDING LOT COVERAGE: NA  
 PAVEMENT LOT COVERAGE: ±2.21 ACRES (±96,173 SF)  
 TOTAL IMPERVIOUS AREA: ±2.21 ACRES (±96,173 SF)  
 IMPERVIOUS RATIO: 74.60%

TOTAL PROPOSED SITE AREA: ±15.60 ACRES (±679,544 SF)

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING A CIVIL PLAN BY JOSEPH A. SHUDT & ASSOC. DATED 12/30/94

THIS PLAN HAS BEEN UPDATED BY USING A CIVIL PLAN BY V3 DATED 06/15/18

BUILDING DATA:

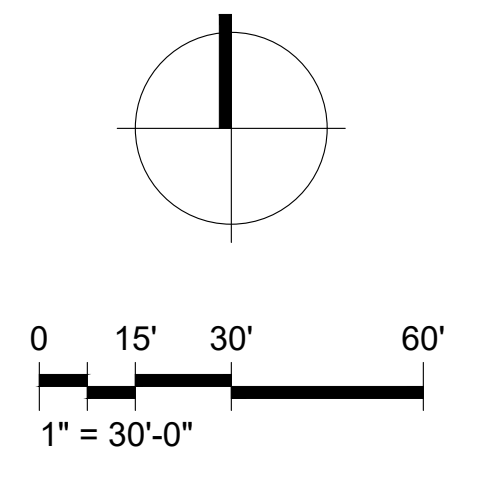
BUILDING AREA	136,625 SF
TIRE CENTER	5,200 SF
TOTAL COSTCO BUILDING	141,825 SF
ENTRANCE VESTIBULE	3,480 SF

COSTCO PARKING DATA:

# EXISTING STALLS	*564 STALLS
# EXISTING ACCESSIBLE STALLS	14 STALLS
TOTAL EXISTING PARKING	578 STALLS
* 4 REGULAR STALLS REMOVED FOR ADA SCOPE	
# PROPOSED PARKING 10' WIDE STALLS	216 STALLS
# PROPOSED ACCESSIBLE STALLS	2 STALLS
TOTAL PROPOSED PARKING	796 STALLS

NO. OF STALLS PER 1000 SF OF COSTCO BLDG AREA:(141,825 SF) 5.61 STALLS

NOTES:  
 EXISTING CONDITIONS TO BE FIELD VERIFIED.



7311 MELVINA AVE. NILES, ILLINOIS 60714

1101 Second Ave. Ste 100  
 Seattle, WA 98101  
 206 962 6500  
 MG2.com

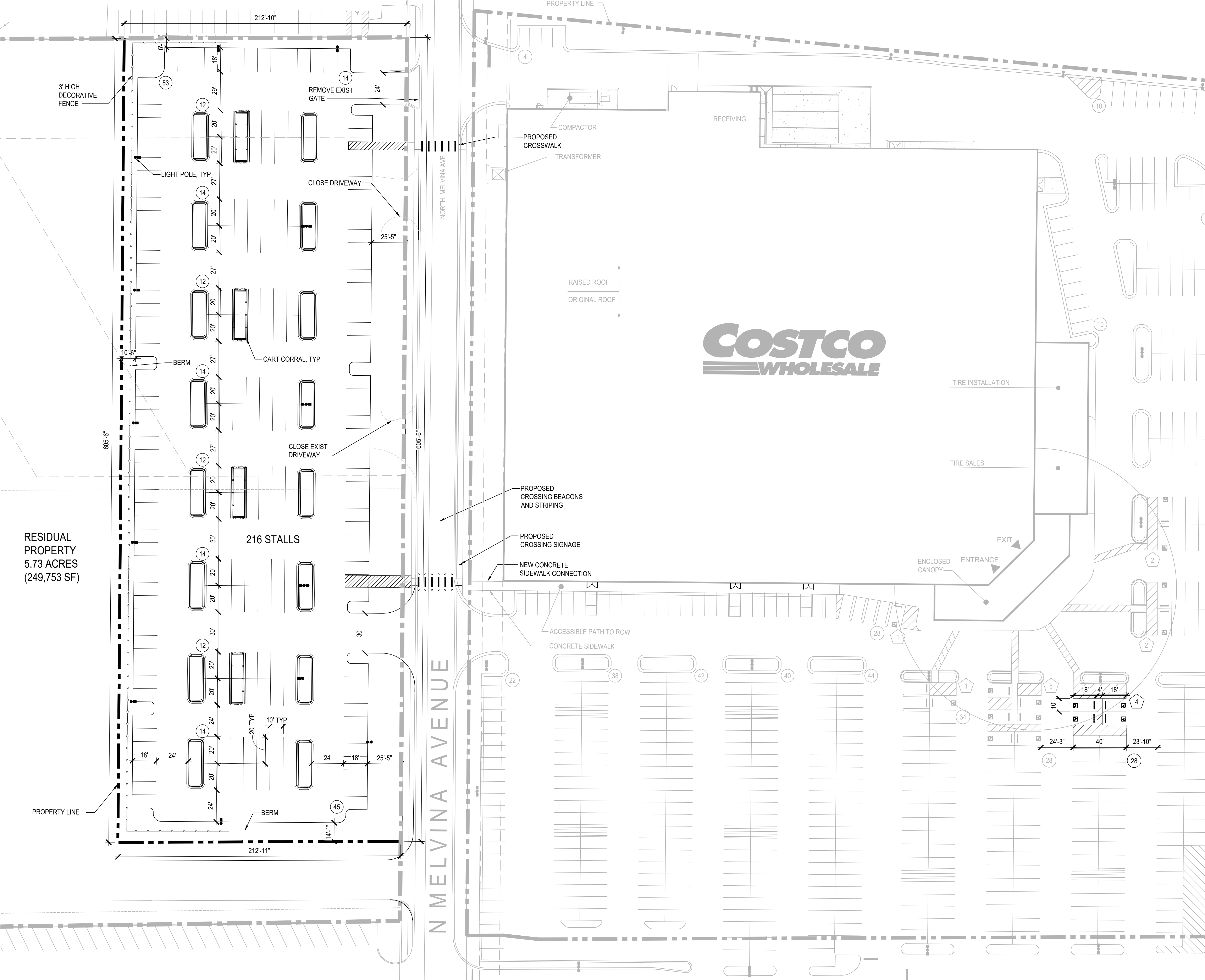


98-5090-16  
 AUGUST 31, 2022

PRELIMINARY  
 SITE PLAN

P12-13

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# COSTCO WHOLESALE

NILES, ILLINOIS

# ENLARGED SITE PLAN

AUGUST 31, 2022

---

# Appendix C

## Existing Signal Timing Data

Configuration

	Controller Sequence Priority											
	1	2	3	4	5	6	7	8	9	10	11	12
Ring 1 Phases . .	1	2	3	4	9	10	0	0	0	0	0	0
Ring 2 Phases . .	5	6	7	8	11	12	0	0	0	0	0	0

	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
In Use. . . . .	X	X	.	.	X	X	.	X	.	.	.	.
Exclusive Ped . .	.	.	.	.	.	.	.	.	.	.	.	.
Direction . . . .												

	Overlap			
	A	B	C	D
Direction . . . .				

Load Switch Channel/Driver Group Assign (Info Only):

Load Switch Channel (MMU)	Driver Phase/Ovlap	Signal Group Ped
1 . . . . .	1	.
2 . . . . .	2	.
3 . . . . .	3	.
4 . . . . .	4	.
5 . . . . .	5	.
6 . . . . .	6	.
7 . . . . .	7	.
8 . . . . .	8	.
9 . . . . .	2	X
10 . . . . .	4	X
11 . . . . .	6	X
12 . . . . .	8	X
13 . . . . .	0	.
14 . . . . .	0	.
15 . . . . .	0	.
16 . . . . .	0	.

Configuration Continued  
 -----

```

                Enable BIU: 1  2  3  4  5  6  7  8
Terminal/Facilities. . . . . . . . . . . . . . . . . .
Detector Rack. . . . . . . . . . . . . . . . . . . . .
    
```

```

Type 2 Runs as Type 1. . . . . .
MMU Disable. . . . . . . . . . . . X
Diagnostic Enable. . . . . . . . . . . .
Peer-Peer Comm Enable. . . . . . . . . . . .
    
```

```

                1    2    3    4    5    6    7    8    9    10
Peer To Peer Addresses . . 255  255  255  255  255  255  255  255  255  255
    
```

Port 2:

```

Port 2 Protocol . . . . . . . . . . Terminal
Port 2 Enable . . . . . . . . . . YES
AB3418 Address. . . . . . . . . . 6
AB3418 Group Address. . . . . . . . . . 0
AB3418 Response Delay . . . . . . . . . . 0
AB3418 Single Flag Enable . . . . . NO
AB3418 Drop-Out Time. . . . . . . . . . 0
AB3418 TOD SF Select. . . . . . . . . . 0
Data Rate . . . . . . . . . . 1200 bps
Data, Parity, Stop. . . . . . . . . . 8, 0, 1
    
```

Port 3:

```

Port 3 Protocol . . . . . . . . . . Telemetry
Port 3 Enable . . . . . . . . . . YES
Telemetry Address . . . . . . . . . . 6
System Detector 9-16 Address. . . . . 0
Telemetry Response Delay. . . . . . 1
AB3418 Address. . . . . . . . . . 0
AB3418 Group Address. . . . . . . . . . 0
AB3418 Response Delay . . . . . . . . . . 0
AB3418 Single Flag Enable . . . . . NO
AB3418 Drop-Out Time. . . . . . . . . . 0
AB3418 TOD SF Select. . . . . . . . . . 0
Duplex. . . . . . . . . . . . . . Full
Data Rate . . . . . . . . . . . . 9600 bps
Data, Parity, Stop. . . . . . . . . . 8, 0, 1
    
```

Configuration Continued

Event Enabling		Alarm Enabling	
Critical RFE'S (MMU/TF)	X	ALARM 1	X
Non-Critical RFE'S (DET/TEST)	X	ALARM 2	X
Detector Errors	X	ALARM 3	.
Coordination Errors	X	ALARM 4	.
MMU Flash Faults	X	ALARM 5	.
Local Flash Faults	X	ALARM 6	.
Preempt	X	ALARM 7	.
Power On/Off	X	ALARM 8	.
Low Battery	X	ALARM 9	.
		ALARM 10	.
		ALARM 11	.
		ALARM 12	.
		ALARM 13	.
		ALARM 14	.
		ALARM 15	.
		ALARM 16	.

Supervisor Access Code . . . \*\*\*\*  
 Data Change Access Code . . . \*\*\*\*

MMU Compatibility Program (Info Only)

Channel	Is Allowed to Time With Channel														
	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Version Info:		
Software Assy.	Part No.	Version
Boot	27831	2.23
Program	27871	4.9
Application		. 3
Help	27891	4.63
Configuration	27908	C000

## By-Phase Timing Data

Direction	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
Minimum Green	3	15	0	0	3	15	0	8	0	0	0	0
Bike Min Green	0	0	0	0	0	0	0	0	0	0	0	0
Cond Serv Min Grn	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	12	0	0	0	0	0	7	0	0	0	0
Ped Clearance	0	10	0	0	0	0	0	18	0	0	0	0
Veh Extension	3.0	7.0	0.0	0.0	3.0	7.0	0.0	4.0	0.0	0.0	0.0	0.0
Alt Veh Exten	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Extension	0	0	0	0	0	0	0	0	0	0	0	0
Max 1	15	60	0	0	15	60	0	20	0	0	0	0
Max 2	15	60	0	0	15	60	0	20	0	0	0	0
Max 3	0	0	0	0	0	0	0	0	0	0	0	0
Det. Fail Max	9	30	0	0	9	30	0	20	0	0	0	0
Yellow Change	3.5	4.5	3.5	3.0	3.5	4.5	3.5	4.5	3.0	3.0	3.0	3.0
Red Clearance	0.0	1.5	0.0	0.0	0.0	1.5	0.0	1.5	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0
Act. B4 Init	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0
Time B4 Reduction	0	25	0	0	0	25	0	9	0	0	0	0
Cars Waiting	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	20	0	0	0	20	0	6	0	0	0	0
Minimum Gap	0.0	4.0	0.0	0.0	0.0	4.0	0.0	2.0	0.0	0.0	0.0	0.0

Coordination Patterns

-----

Pattern 1  
Cycle Length . . . 130 COS . . . . . 111  
Offset . . . . . 77  
Vehicle Permissive . . [1] 0 [2] 0  
Vehicle Perm 2 Displacement 0 Phase Reservice. . NO  
Splits: Phase 1- 11 2- 68 3- 0 4- 0  
Phase 5- 11 6- 68 7- 0 8- 21  
Phase 9- 0 10- 0 11- 0 12- 0 Split Sum: 0  
Split Extension/Ring [1] 0 [2] 0  
Split Demand Pattern [1] 0 [2] 0  
XRT Pattern. . . 0  
Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12  
Coord Phases . . . X . . . X . . . . .  
Veh Recall . . . . .  
Veh Max Recall . . . . .  
Ped Recall . . . . .  
Veh Omit . . . . .  
Alt Sequence . . A: . B: . C: . D: . E: . F: .

-----

Pattern 2  
Cycle Length . . . 130 COS . . . . . 211  
Offset . . . . . 48  
Vehicle Permissive . . [1] 0 [2] 0  
Vehicle Perm 2 Displacement 0 Phase Reservice. . NO  
Splits: Phase 1- 10 2- 71 3- 0 4- 0  
Phase 5- 10 6- 71 7- 0 8- 19  
Phase 9- 0 10- 0 11- 0 12- 0 Split Sum: 0  
Split Extension/Ring [1] 0 [2] 0  
Split Demand Pattern [1] 0 [2] 0  
XRT Pattern. . . 0  
Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12  
Coord Phases . . . X . . . X . . . . .  
Veh Recall . . . . .  
Veh Max Recall . . . . .  
Ped Recall . . . . .  
Veh Omit . . . . .  
Alt Sequence . . A: . B: . C: . D: . E: . F: .

-----

Pattern 3  
Cycle Length . . . 150 COS . . . . . 311  
Offset . . . . . 32  
Vehicle Permissive . . [1] 0 [2] 0  
Vehicle Perm 2 Displacement 0 Phase Reservice. . NO  
Splits: Phase 1- 9 2- 74 3- 0 4- 0  
Phase 5- 9 6- 74 7- 0 8- 17  
Phase 9- 0 10- 0 11- 0 12- 0 Split Sum: 0  
Split Extension/Ring [1] 0 [2] 0  
Split Demand Pattern [1] 0 [2] 0  
XRT Pattern. . . 0  
Phase Number: 1 2 3 4 5 6 7 8 9 10 11 12  
Coord Phases . . . X . . . X . . . . .  
Veh Recall . . . X . . . X . . . . .  
Veh Max Recall . . . . .  
Ped Recall . . . . .  
Veh Omit . . . . .  
Alt Sequence . . A: . B: . C: . D: . E: . F: .

-----

NIC Program Steps

-----

Step	Program	Step Begins	Pattern	Override
1	1	0600	2	NO
2	1	0930	1	NO
3	1	1400	3	NO
4	1	1900	1	NO
5	1	2300	0	NO
6	2	0700	1	NO
7	2	2300	0	NO
8	3	0900	1	NO
9	3	2200	0	NO



Configuration

	Controller Sequence Priority											
	1	2	3	4	5	6	7	8	9	10	11	12
Ring 1 Phases . .	1	2	3	4	9	10	0	0	0	0	0	0
Ring 2 Phases . .	5	6	7	8	11	12	0	0	0	0	0	0

	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
In Use. . . . .	X	X	.	X	X	X	X	X	.	.	.	.
Exclusive Ped . . .	.	.	.	.	.	.	.	.	.	.	.	.
Direction . . . . .												

	Overlap			
	A	B	C	D
Direction . . . . .				

Load Switch Channel/Driver Group Assign (Info Only):

Load Switch Channel (MMU)	Driver Phase/Ovlap	Signal Group Ped
1 . . . . .	1	.
2 . . . . .	2	.
3 . . . . .	3	.
4 . . . . .	4	.
5 . . . . .	5	.
6 . . . . .	6	.
7 . . . . .	7	.
8 . . . . .	8	.
9 . . . . .	2	X
10 . . . . .	4	X
11 . . . . .	6	X
12 . . . . .	8	X
13 . . . . .	0	.
14 . . . . .	0	.
15 . . . . .	0	.
16 . . . . .	0	.



Configuration Continued

Event Enabling	Alarm Enabling
Critical RFE'S (MMU/TF) . . . . . X	ALARM 1 . . . . . X
Non-Critical RFE'S (DET/TEST) . . X	ALARM 2 . . . . . X
Detector Errors . . . . . X	ALARM 3 . . . . . .
Coordination Errors . . . . . X	ALARM 4 . . . . . .
MMU Flash Faults. . . . . X	ALARM 5 . . . . . .
Local Flash Faults. . . . . X	ALARM 6 . . . . . .
Preempt . . . . . X	ALARM 7 . . . . . .
Power On/Off. . . . . X	ALARM 8 . . . . . .
Low Battery . . . . . X	ALARM 9 . . . . . .
	ALARM 10. . . . . .
	ALARM 11. . . . . .
	ALARM 12. . . . . .
	ALARM 13. . . . . .
	ALARM 14. . . . . .
	ALARM 15. . . . . .
	ALARM 16. . . . . .

Supervisor Access Code. . . \*\*\*\*  
 Data Change Access Code . . \*\*\*\*

MMU Compatibility Program (Info Only)

Channel	Is Allowed to Time With Channel														
	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9 . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10. . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11. . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12. . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13. . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14. . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15. . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Version Info:		
Software Assy.	Part No.	Version
Boot	27831	2.23
Program	27871	4.9
Application		. 3
Help	27891	4.63
Configuration	27908	C000

## By-Phase Timing Data

	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
Direction												
Minimum Green	3	15	0	8	3	15	3	6	0	0	0	0
Bike Min Green	0	0	0	0	0	0	0	0	0	0	0	0
Cond Serv Min Grn	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	0	0	0	0	0
Ped Clearance	0	13	0	18	0	20	0	7	0	0	0	0
Veh Extension	2.5	7.0	0.0	4.0	2.5	7.0	2.5	4.0	0.0	0.0	0.0	0.0
Alt Veh Exten	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Extension	0	0	0	0	0	0	0	0	0	0	0	0
Max 1	20	55	0	30	20	55	20	20	0	0	0	0
Max 2	20	55	0	30	20	55	20	20	0	0	0	0
Max 3	0	0	0	0	0	0	0	0	0	0	0	0
Det. Fail Max	9	30	0	20	9	30	9	20	0	0	0	0
Yellow Change	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5	3.0	3.0	3.0	3.0
Red Clearance	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0
Act. B4 Init	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0
Time B4 Reduction	0	25	0	9	0	25	9	9	0	0	0	0
Cars Waiting	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	20	0	6	0	20	6	6	0	0	0	0
Minimum Gap	0.0	3.5	0.0	2.0	0.0	3.5	2.0	2.5	0.0	0.0	0.0	0.0

Coordination Patterns

```

-----
Pattern 1
Cycle Length . . . 130   COS . . . . . 111
Offset . . . . . 49
Vehicle Permissive . . [1]    0   [2]    0
Vehicle Perm 2 Displacement 0   Phase Reservice. . NO
Splits:   Phase 1- 10 2- 51 3- 0 4- 39
           Phase 5- 18 6- 43 7- 22 8- 17
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1]    0   [2]    0
Split Demand Pattern [1]    0   [2]    0
XRT Pattern. . . 0
  Phase Number: 1  2  3  4  5  6  7  8  9 10 11 12
Coord Phases . . . X . . . X . . . . .
Veh Recall . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
    
```

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-----
Pattern 2
Cycle Length . . . 130   COS . . . . . 211
Offset . . . . . 4
Vehicle Permissive . . [1]    0   [2]    0
Vehicle Perm 2 Displacement 0   Phase Reservice. . NO
Splits:   Phase 1- 10 2- 67 3- 0 4- 23
           Phase 5- 12 6- 65 7- 9 8- 14
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1]    0   [2]    0
Split Demand Pattern [1]    0   [2]    0
XRT Pattern. . . 0
  Phase Number: 1  2  3  4  5  6  7  8  9 10 11 12
Coord Phases . . . X . . . X . . . . .
Veh Recall . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
    
```

```

-----
Pattern 3
Cycle Length . . . 150   COS . . . . . 311
Offset . . . . . 8
Vehicle Permissive . . [1]    0   [2]    0
Vehicle Perm 2 Displacement 0   Phase Reservice. . NO
Splits:   Phase 1- 9 2- 55 3- 0 4- 36
           Phase 5- 16 6- 48 7- 20 8- 16
           Phase 9- 0 10- 0 11- 0 12- 0   Split Sum: 0
Split Extension/Ring [1]    0   [2]    0
Split Demand Pattern [1]    0   [2]    0
XRT Pattern. . . 0
  Phase Number: 1  2  3  4  5  6  7  8  9 10 11 12
Coord Phases . . . X . . . X . . . . .
Veh Recall . . . . . . . . . . . . . .
Veh Max Recall . . . . . . . . . . . . .
Ped Recall . . . . . . . . . . . . . .
Veh Omit . . . . . . . . . . . . . .
Alt Sequence . . A: . B: . C: . D: . E: . F: .
    
```

NIC Program Steps

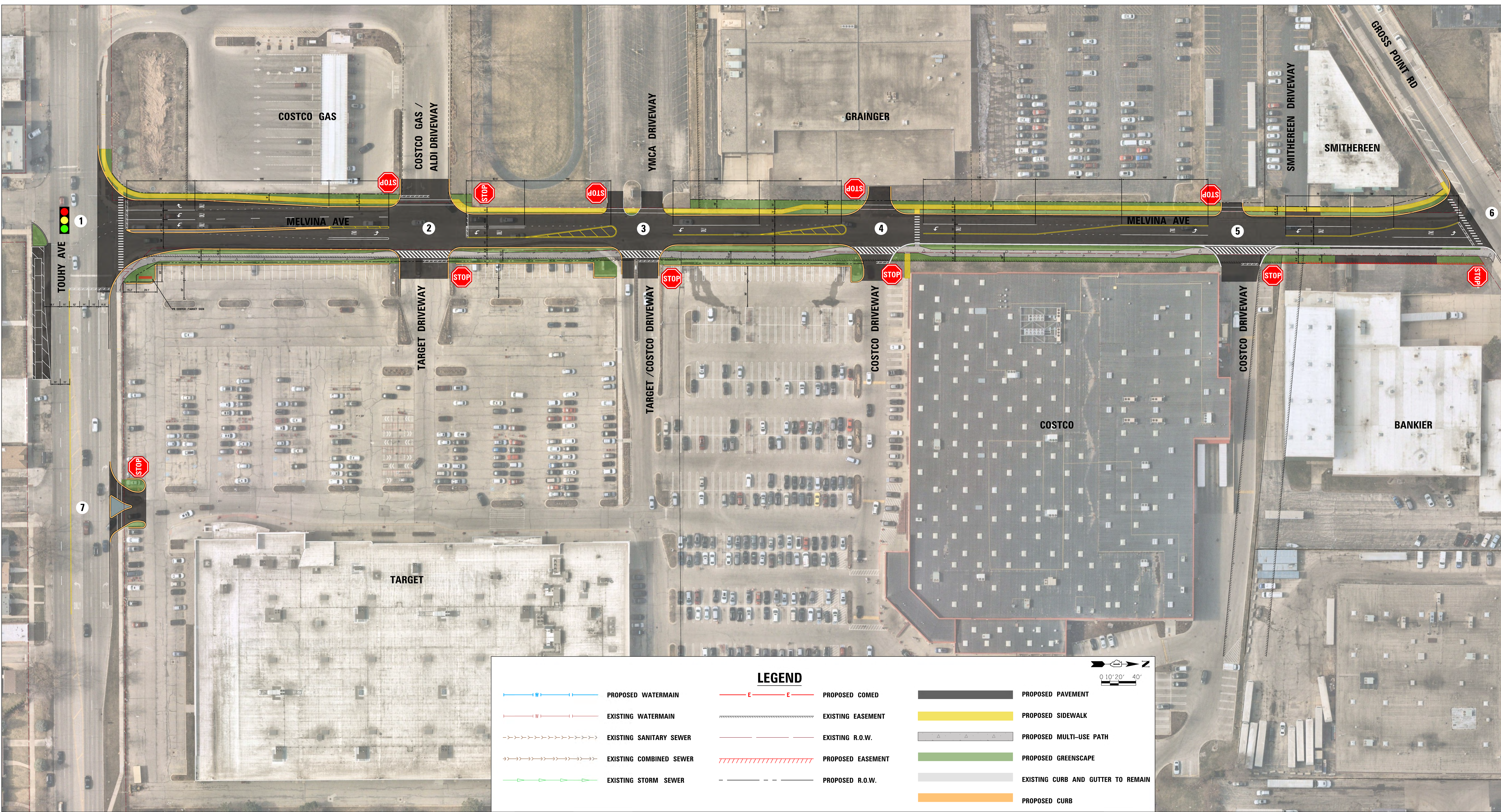
---

Step	Program	Step Begins	Pattern	Override
1	1	0600	2	NO
2	1	0930	1	NO
3	1	1400	3	NO
4	1	1900	1	NO
5	1	2300	0	NO
6	2	0700	1	NO
7	2	2300	0	NO
8	3	0900	1	NO
9	3	2200	0	NO

---

# Appendix D

Melvina Avenue Exhibit Alternative 3.1



**LEGEND**

	PROPOSED WATERMAIN		PROPOSED COMED		PROPOSED PAVEMENT
	EXISTING WATERMAIN		EXISTING EASEMENT		PROPOSED SIDEWALK
	EXISTING SANITARY SEWER		EXISTING R.O.W.		PROPOSED MULTI-USE PATH
	EXISTING COMBINED SEWER		PROPOSED EASEMENT		PROPOSED GREENSCAPE
	EXISTING STORM SEWER		PROPOSED R.O.W.		EXISTING CURB AND GUTTER TO REMAIN
					PROPOSED CURB



---

# Appendix E

## Existing Conditions Traffic Count Data

Leg Direction Start Time	Gross Point Eastbound					Gross Point Westbound					Melvina Northbound					North Southbound					Northwest Southeastbound					App Total	Peds	CW	Peds	CC	Int Total																			
	Hard left	Left	Thru	Right	U-Turn	App Total	Peds	CW	Peds	CC	Left	Thru	Bear right	Right	U-Turn	App Total	Peds	CW	Peds	CC	Left	Thru	Right	Hard right	U-Turn							App Total	Peds	CW	Peds	CC	Hard left	Bear left	Bear right	Hard right	U-Turn	App Total	Peds	CW	Peds	CC				
	2021-07-03 11:00:00	0	0	5	36	0	41	0	0	38	9	0	0	0	0	47	3	0	43	0	0	20	0	0	0							0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	151	0	0	0
2021-07-03 11:15:00	0	0	9	43	0	52	0	0	36	18	0	0	0	0	54	0	0	75	0	0	23	0	0	0	0	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204	0	0	0	0					
2021-07-03 11:30:00	0	0	10	26	0	36	0	0	33	14	0	0	0	0	47	0	0	52	0	0	26	0	0	0	0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	161	0	0	0	0					
2021-07-03 11:45:00	0	0	9	35	0	44	0	0	32	11	0	0	0	0	43	0	0	55	0	0	16	0	0	0	0	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	158	0	0	0	0					
2021-07-03 12:00:00	0	0	12	45	0	57	0	0	37	24	0	0	0	0	61	1	0	66	0	0	28	0	0	0	0	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212	0	0	0	0					
2021-07-03 12:15:00	0	0	12	41	0	53	0	0	32	10	0	0	0	0	42	0	0	55	0	0	30	0	0	0	0	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180	0	0	0	0					
2021-07-03 12:30:00	0	0	4	38	0	42	0	0	31	18	0	0	0	0	49	0	0	53	0	1	30	0	0	0	0	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	175	0	0	0	0					
2021-07-03 12:45:00	0	0	3	34	0	37	0	0	33	7	0	0	0	0	40	0	0	62	0	0	24	0	0	0	0	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	163	0	0	0	0					
<b>Grand Total</b>	0	0	64	298	0	362	0	0	272	111	0	0	0	0	383	4	0	461	0	1	197	0	0	0	0	659	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1404	0	0	0	0					
<b>% Approach</b>	0.0%	0.0%	17.7%	82.3%	0.0%	<b>25.8%</b>			71.0%	29.0%	0.0%	0.0%	0.0%		<b>27.3%</b>			70.0%	0.0%	0.2%	29.9%	0.0%			<b>46.9%</b>			0.0%	0.0%	0.0%	0.0%	0.0%																		
<b>% Total</b>	0.0%	0.0%	4.6%	21.2%	0.0%	<b>25.8%</b>			19.4%	7.9%	0.0%	0.0%	0.0%		<b>27.3%</b>			32.8%	0.0%	0.1%	14.0%	0.0%			<b>46.9%</b>			0.0%	0.0%	0.0%	0.0%	0.0%	<b>0.0%</b>																	
<b>Lights</b>	0	0	63	297	0	360			271	105	0	0	0	0	376			459	0	1	196	0	0	0	0	656			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1392							
<b>% Lights</b>	0.0%	0.0%	98.4%	99.7%	0.0%	<b>99.4%</b>			99.6%	94.6%	0.0%	0.0%	0.0%		<b>98.2%</b>			99.6%	0.0%	100.0%	99.5%	0.0%			<b>99.5%</b>			0.0%	0.0%	0.0%	0.0%	0.0%																		
<b>Articulated Trucks</b>	0	0	1	0	0	1			0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1							
<b>% Articulated Trucks</b>	0.0%	0.0%	1.6%	0.0%	0.0%	<b>0.3%</b>			0.0%	0.0%	0.0%	0.0%	0.0%		<b>0.0%</b>			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			<b>0.0%</b>			0.0%	0.0%	0.0%	0.0%	0.0%																	
<b>Buses and Single-Unit Trucks</b>	0	0	0	1	0	1			1	6	0	0	0	0	7			2	0	0	1	0	0	0	0	3			0	0	0	0	0	0	0	0	0	0	0	0	0	0	11							
<b>% Buses and Single-Unit Trucks</b>	0.0%	0.0%	0.0%	0.3%	0.0%	<b>0.3%</b>			0.4%	5.4%	0.0%	0.0%	0.0%		<b>1.8%</b>			0.4%	0.0%	0.0%	0.5%	0.0%			<b>0.5%</b>			0.0%	0.0%	0.0%	0.0%	0.0%																		
<b>Pedestrians</b>							0	0								4	0									0	0																							
<b>% Pedestrians</b>							0.0%	0.0%								100.0%	0.0%									0.0%	0.0%																							
<b>Bicycles on Crosswalk</b>							0	0								0	0									0	0																							
<b>% Bicycles on Crosswalk</b>							0.0%	0.0%								0.0%	0.0%									0.0%	0.0%																							

Leg Direction Start Time	Gross Point Eastbound					Gross Point Westbound					Melvina Northbound					Access Southbound					ABC Supply Co Southeastbound					App Total	Peds	CW	Peds	CC	Int Total																			
	Hard left	Left	Thru	Right	U-Turn	App Total	Peds	CW	Peds	CC	Left	Thru	Bear right	Right	U-Turn	App Total	Peds	CW	Peds	CC	Left	Thru	Right	Hard right	U-Turn							App Total	Peds	CW	Peds	CC	Hard left	Bear left	Bear right	Hard right	U-Turn	App Total	Peds	CW	Peds	CC				
	2021-07-01 07:00:00	0	0	10	2	0	12	0	0	3	11	0	0	0	0	14	0	0	6	2	0	2	0	0	0							0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
2021-07-01 07:15:00	1	0	3	3	0	7	0	0	4	9	0	0	0	0	13	0	0	6	0	0	1	0	0	0	0	7	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27							
2021-07-01 07:30:00	1	1	7	6	0	15	0	0	3	16	0	0	0	0	19	0	0	9	0	2	3	0	0	0	0	14	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	50							
2021-07-01 07:45:00	1	1	10	10	0	22	0	0	8	17	0	0	0	0	25	0	0	16	0	2	10	0	0	0	0	28	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	76								
2021-07-01 08:00:00	1	0	9	17	0	27	0	0	12	22	0	0	0	0	34	0	1	13	0	0	4	0	0	0	0	17	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	78								
2021-07-01 08:15:00	1	0	10	14	0	25	0	0	6	12	1	0	0	0	19	0	0	10	0	0	5	0	0	0	0	15	1	0	0	0	0	0	0	0	2	0	0	2	0	0	61									
2021-07-01 08:30:00	2	0	8	7	0	17	0	0	10	18	0	0	0	0	28	0	2	15	0	1	4	0	0	0	0	20	0	2	0	0	1	0	0	0	3	0	0	3	0	0	69									
2021-07-01 08:45:00	1	0	7	16	0	24	0	0	19	15	1	0	0	0	35	0	0	15	0	0	5	0	0	0	0	20	0	0	0	0	0	0	0	1	0	0	1	0	0	80										
2021-07-01 16:00:00	0	0	13	37	0	50	0	0	49	25	0	0	0	0	74	0	0	49	0	21	0	0	0	0	0	70	0	0	0	0	0	0	0	1	3	0	0	4	1	0	198									
2021-07-01 16:15:00	0	0	8	41	0	49	0	0	37	33	0	0	0	0	70	0	0	60	0	2	11	0	0	0	0	73	0	0	0	0	0	0	0	0	5	0	0	5	0	0	197									
2021-07-01 16:30:00	0	0	11	46	0	57	0	0	40	36	1	0	0	0	77	0	0	49	0	0	15	0	0	0	0	64	0	0	1	2	0	0	0	0	1	0	1	0	0	202										
2021-07-01 16:45:00	0	0	9	24	0	33	0	0	28	24	0	0	0	0	52	0	0	58	0	1	13	0	0	0	0	72	0	0	0	1	2	0	0	0	1	0	0	1	0	0	161									
2021-07-01 17:00:00	0	0	11	36	0	47	0	0	38	42	0	0	0	0	80	0	0	67	0	0	17	1	0	0	0	85	0	0	1	0	0	0	0	0	0	0	0	0	0	214										
2021-07-01 17:15:00	0	0	13	48	0	61	0	0	28	34	0	0	0	0	62	0	0	48	0	0	17	0	0	0	0	65	0	0	0	2	1	0	0	0	0	0	0	0	0	191										
2021-07-01 17:30:00	0	0	10	30	0	40	0	0	26	30	0	0	0	0	56	0	0	54	0	0	19	0	0	0	0	73	0	0	0	0	1	0	0	0	0	0	0	0	0	170										
2021-07-01 17:45:00	1	0	12	35	0	48	0	0	25	30	0	1	0	0	56	0	0	55	0	0	14	0	0	0	0	69	0	1	0	0	0	0	0	0	1	0	0	1	0	0	174									
<b>Grand Total</b>	9	2	151	372	0	534	0	0	336	374	3	1	0	0	714	0	3	530	2	8	161	1	0	0	0	702	3	5	2	5	6	0	0	0	13	1	0	0	1	2	18	0	21	1	0	1984				

Leg Direction Start Time	Access Westbound			Melvina Northbound						Melvina Southbound						Int	Total				
	Left	Right	U-Turn	App Total	Peds	CW	Peds	CC\Thru	Right	U-Turn	App Total	Peds	CW	Peds	CC\Left			Thru	U-Turn	App Total	Peds
2021-07-03 11:00:00		43	17	0	60	3	0	37	42	0	79	0	0	29	36	0	65	0	1	204	
2021-07-03 11:15:00		41	22	0	63	0	0	59	54	0	113	0	0	26	28	0	54	3	1	230	
2021-07-03 11:30:00		40	17	0	57	0	0	42	34	0	76	0	0	17	29	0	46	5	1	179	
2021-07-03 11:45:00		36	14	0	50	0	2	39	46	0	85	0	1	17	34	0	51	1	2	186	
2021-07-03 12:00:00		38	20	0	58	1	0	57	43	0	100	0	0	27	36	0	63	0	2	221	
2021-07-03 12:15:00		41	19	0	60	0	0	45	39	0	84	0	0	13	37	0	50	12	1	194	
2021-07-03 12:30:00		38	21	0	59	0	0	40	36	0	76	0	0	22	32	0	54	0	8	189	
2021-07-03 12:45:00		32	43	0	75	0	0	16	24	0	40	0	0	23	29	0	52	0	2	167	
<b>Grand Total</b>		309	173	0	482	4	2	335	318	0	653	0	1	174	261	0	435	21	18	1570	
<b>% Approach</b>		64.1%	35.9%	0.0%				51.3%	48.7%	0.0%				40.0%	60.0%	0.0%					
<b>% Total</b>		19.7%	11.0%	0.0%	30.7%			21.3%	20.3%	0.0%	41.6%			11.1%	16.6%	0.0%	27.7%				
<b>Lights</b>		309	173	0	482			331	318	0	649			174	260	0	434			1565	
<b>% Lights</b>		100.0%	100.0%	0.0%	100.0%			98.8%	100.0%	0.0%	99.4%			100.0%	99.6%	0.0%	99.8%			99.7%	
<b>Articulated Trucks</b>		0	0	0	0			0	0	0	0			0	0	0	0			0	
<b>% Articulated Trucks</b>		0.0%	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%			0.0%	
<b>Buses and Single-Unit Trucks</b>		0	0	0	0			4	0	0	4			0	1	0	1			5	
<b>% Buses and Single-Unit Trucks</b>		0.0%	0.0%	0.0%	0.0%			1.2%	0.0%	0.0%	0.6%			0.0%	0.4%	0.0%	0.2%			0.3%	
<b>Pedestrians</b>						4	2					0	1					21	18		
<b>% Pedestrians</b>						100.0%	100.0%					0.0%	100.0%					100.0%	100.0%		
<b>Bicycles on Crosswalk</b>						0	0					0	0					0	0		
<b>% Bicycles on Crosswalk</b>						0.0%	0.0%					0.0%	0.0%					0.0%	0.0%		

Leg Direction Start Time	Access Westbound			Melvina Northbound						Melvina Southbound						Int	Total				
	Left	Right	U-Turn	App Total	Peds	CW	Peds	CC\Thru	Right	U-Turn	App Total	Peds	CW	Peds	CC\Left			Thru	U-Turn	App Total	Peds
2021-07-01 07:00:00		1	0	0	1	1	0	11	0	0	11	0	0	0	7	0	7	0	0	19	
2021-07-01 07:15:00		1	0	0	1	0	0	7	0	0	7	0	0	0	6	0	6	0	1	14	
2021-07-01 07:30:00		0	0	0	0	0	0	17	3	0	20	0	0	0	8	0	8	0	0	28	
2021-07-01 07:45:00		2	1	0	3	0	0	29	1	0	30	0	0	0	14	0	14	0	0	47	
2021-07-01 08:00:00		0	0	0	0	0	1	17	0	0	17	0	0	0	25	0	25	0	0	42	
2021-07-01 08:15:00		1	1	0	2	0	1	17	2	0	19	0	0	2	15	0	17	0	1	38	
2021-07-01 08:30:00		2	1	0	3	0	0	25	5	0	30	0	0	0	17	0	17	0	0	50	
2021-07-01 08:45:00		3	1	0	4	0	0	24	5	0	29	0	0	3	28	0	31	0	0	64	
2021-07-01 16:00:00		20	16	0	36	0	0	42	24	0	66	0	0	26	48	0	74	0	0	176	
2021-07-01 16:15:00		41	16	0	57	0	0	46	23	0	69	0	0	20	41	0	61	2	2	187	
2021-07-01 16:30:00		30	7	0	37	0	0	40	27	0	67	0	0	25	47	0	72	0	3	176	
2021-07-01 16:45:00		36	16	0	52	0	0	45	22	0	67	0	0	18	29	0	47	0	0	166	
2021-07-01 17:00:00		47	26	0	73	0	0	46	29	0	75	0	0	11	54	0	65	1	4	213	
2021-07-01 17:15:00		29	12	0	41	0	0	41	28	0	69	0	0	23	49	0	72	0	4	182	
2021-07-01 17:30:00		31	23	0	54	1	0	35	36	0	71	0	0	12	33	0	45	0	4	170	
2021-07-01 17:45:00		21	12	0	33	0	0	43	42	0	85	0	0	16	36	0	52	0	0	170	
<b>Grand Total</b>		265	132	0	397	2	2	485	247	0	732	0	0	156	457	0	613	3	19	1742	
<b>% Approach</b>		66.8%	33.2%	0.0%				66.3%	33.7%	0.0%				25.4%	74.6%	0.0%					
<b>% Total</b>		15.2%	7.6%	0.0%	22.8%			27.8%	14.2%	0.0%	42.0%			9.0%	26.2%	0.0%	35.2%				
<b>Lights</b>		262	131	0	393			477	243	0	720			156	448	0	604			1717	
<b>% Lights</b>		98.9%	99.2%	0.0%	99.0%			98.4%	98.4%	0.0%	98.4%			100.0%	98.0%	0.0%	98.5%			98.6%	
<b>Articulated Trucks</b>		2	0	0	2			0	2	0	2			0	3	0	3			7	
<b>% Articulated Trucks</b>		0.8%	0.0%	0.0%	0.5%			0.0%	0.8%	0.0%	0.3%			0.0%	0.7%	0.0%	0.5%			0.4%	
<b>Buses and Single-Unit Trucks</b>		1	1	0	2			8	2	0	10			0	6	0	6			18	
<b>% Buses and Single-Unit Trucks</b>		0.4%	0.8%	0.0%	0.5%			1.6%	0.8%	0.0%	1.4%			0.0%	1.3%	0.0%	1.0%			1.0%	
<b>Pedestrians</b>						2	2					0	0					3	18		
<b>% Pedestrians</b>						100.0%	100.0%					0.0%	0.0%					100.0%	94.7%		
<b>Bicycles on Crosswalk</b>						0	0					0	0					0	1		
<b>% Bicycles on Crosswalk</b>						0.0%	0.0%					0.0%	0.0%					0.0%	5.3%		

Leg Direction Start Time	Access				App Total	Peds CW	Peds CCW	Target				App Total	Peds CW	Peds CCW	Melvina				App Total	Peds CW	Peds CCW	Melvina				App Total	Peds CW	Peds CCW	Int Total
	Eastbound							Westbound							Northbound							Southbound							
	Left	Thru	Right	U-Turn				Left	Thru	Right	U-Turn				Left	Thru	Right	U-Turn				Left	Thru	Right	U-Turn				
2021-07-01 07:00:00	0	0	0	0	0	0	0	1	0	0	0	1	0	0	12	1	0	0	13	0	0	0	8	0	0	8	0	0	22
2021-07-01 07:15:00	0	0	0	0	0	0	2	1	0	0	0	1	0	0	7	0	0	0	7	0	0	2	5	0	0	7	0	0	15
2021-07-01 07:30:00	0	0	0	0	0	1	0	1	0	1	0	2	0	0	20	0	0	0	20	0	0	0	8	0	0	8	0	0	30
2021-07-01 07:45:00	0	0	1	0	1	1	1	1	0	0	0	1	0	0	31	0	0	0	31	0	0	4	12	0	0	16	0	0	49
2021-07-01 08:00:00	0	0	1	0	1	0	0	0	0	0	0	0	0	17	0	0	0	17	0	0	9	16	0	0	25	0	0	43	
2021-07-01 08:15:00	0	0	0	0	0	1	0	2	0	2	0	4	0	1	15	0	1	1	16	0	0	1	15	0	0	16	0	0	36
2021-07-01 08:30:00	0	0	0	0	0	0	0	4	0	1	0	5	0	0	29	2	0	0	31	0	0	4	16	0	0	20	0	0	56
2021-07-01 08:45:00	0	0	1	0	1	0	0	2	0	3	0	5	0	0	27	3	0	0	30	0	0	6	23	2	0	31	0	0	67
2021-07-01 16:00:00	1	1	2	0	4	0	1	53	0	14	0	67	0	0	53	36	0	0	89	0	0	11	56	0	0	67	0	0	227
2021-07-01 16:15:00	0	0	0	0	0	0	0	41	0	14	0	55	0	0	53	28	0	0	81	0	0	7	76	0	0	83	0	0	219
2021-07-01 16:30:00	0	0	0	0	0	0	5	40	0	18	0	58	0	0	49	24	0	0	73	0	0	11	65	1	0	77	0	0	208
2021-07-01 16:45:00	1	0	3	0	4	0	0	42	0	13	0	55	0	0	56	21	0	1	78	0	0	6	55	2	0	63	0	0	200
2021-07-01 17:00:00	0	1	4	0	5	0	0	42	0	20	0	62	0	0	51	22	0	1	74	0	0	18	85	0	0	103	0	0	244
2021-07-01 17:15:00	1	0	1	0	2	0	0	53	0	13	0	66	0	0	55	23	0	0	78	0	0	9	67	0	0	76	0	0	222
2021-07-01 17:30:00	0	0	2	0	2	0	1	47	1	6	0	54	1	0	69	14	0	0	83	0	0	7	55	1	0	63	0	0	202
2021-07-01 17:45:00	0	0	0	0	0	0	0	46	0	12	0	58	0	0	74	16	0	0	90	0	0	6	54	0	0	60	0	0	208
<b>Grand Total</b>	<b>3</b>	<b>2</b>	<b>15</b>	<b>0</b>	<b>20</b>	<b>3</b>	<b>10</b>	<b>376</b>	<b>1</b>	<b>117</b>	<b>0</b>	<b>494</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>618</b>	<b>190</b>	<b>0</b>	<b>811</b>	<b>0</b>	<b>0</b>	<b>101</b>	<b>616</b>	<b>6</b>	<b>0</b>	<b>723</b>	<b>0</b>	<b>0</b>	<b>2048</b>
<b>% Approach</b>	<b>15.0%</b>	<b>10.0%</b>	<b>75.0%</b>	<b>0.0%</b>				<b>76.1%</b>	<b>0.2%</b>	<b>23.7%</b>	<b>0.0%</b>		<b>0.4%</b>	<b>76.2%</b>	<b>23.4%</b>	<b>0.0%</b>			<b>14.0%</b>	<b>85.2%</b>	<b>0.8%</b>	<b>0.0%</b>							
<b>% Total</b>	<b>0.1%</b>	<b>0.1%</b>	<b>0.7%</b>	<b>0.0%</b>	<b>1.0%</b>			<b>18.4%</b>	<b>0.0%</b>	<b>5.7%</b>	<b>0.0%</b>	<b>24.1%</b>	<b>0.1%</b>	<b>30.2%</b>	<b>9.3%</b>	<b>0.0%</b>		<b>39.6%</b>	<b>4.9%</b>	<b>30.1%</b>	<b>0.3%</b>	<b>0.0%</b>				<b>35.3%</b>			
<b>Lights</b>	<b>3</b>	<b>2</b>	<b>13</b>	<b>0</b>	<b>18</b>			<b>369</b>	<b>1</b>	<b>116</b>	<b>0</b>	<b>486</b>	<b>3</b>	<b>609</b>	<b>190</b>	<b>0</b>		<b>802</b>	<b>101</b>	<b>607</b>	<b>5</b>	<b>0</b>			<b>713</b>			<b>2019</b>	
<b>% Lights</b>	<b>100.0%</b>	<b>100.0%</b>	<b>86.7%</b>	<b>0.0%</b>	<b>90.0%</b>			<b>98.1%</b>	<b>100.0%</b>	<b>99.1%</b>	<b>0.0%</b>	<b>98.4%</b>	<b>100.0%</b>	<b>98.5%</b>	<b>100.0%</b>	<b>0.0%</b>		<b>98.9%</b>	<b>100.0%</b>	<b>98.5%</b>	<b>83.3%</b>	<b>0.0%</b>			<b>98.6%</b>			<b>98.6%</b>	
<b>Articulated Trucks</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>		<b>1</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>			<b>5</b>			<b>8</b>	
<b>% Articulated Trucks</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>			<b>0.5%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.4%</b>	<b>0.0%</b>	<b>0.2%</b>	<b>0.0%</b>	<b>0.0%</b>		<b>0.1%</b>	<b>0.0%</b>	<b>0.8%</b>	<b>0.0%</b>	<b>0.0%</b>			<b>0.7%</b>			<b>0.4%</b>	
<b>Buses and Single-Unit Trucks</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>			<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>		<b>8</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>0</b>			<b>5</b>			<b>21</b>	
<b>% Buses and Single-Unit Trucks</b>	<b>0.0%</b>	<b>0.0%</b>	<b>13.3%</b>	<b>0.0%</b>	<b>10.0%</b>			<b>1.3%</b>	<b>0.0%</b>	<b>0.9%</b>	<b>0.0%</b>	<b>1.2%</b>	<b>0.0%</b>	<b>1.3%</b>	<b>0.0%</b>	<b>0.0%</b>		<b>1.0%</b>	<b>0.0%</b>	<b>0.6%</b>	<b>16.7%</b>	<b>0.0%</b>			<b>0.7%</b>			<b>1.0%</b>	
<b>Pedestrians</b>						<b>3</b>	<b>10</b>						<b>1</b>	<b>1</b>					<b>0</b>	<b>0</b>					<b>0</b>	<b>0</b>			
<b>% Pedestrians</b>						<b>100.0%</b>	<b>100.0%</b>						<b>100.0%</b>	<b>100.0%</b>					<b>0.0%</b>	<b>0.0%</b>					<b>0.0%</b>	<b>0.0%</b>			
<b>Bicycles on Crosswalk</b>						<b>0</b>	<b>0</b>						<b>0</b>	<b>0</b>					<b>0</b>	<b>0</b>					<b>0</b>	<b>0</b>			
<b>% Bicycles on Crosswalk</b>						<b>0.0%</b>	<b>0.0%</b>						<b>0.0%</b>	<b>0.0%</b>					<b>0.0%</b>	<b>0.0%</b>					<b>0.0%</b>	<b>0.0%</b>			

Leg Direction Start Time	Access				App Total	Peds CW	Peds CCW	Target				App Total	Peds CW	Peds CCW	Melvina				App Total	Peds CW	Peds CCW	Melvina				App Total	Peds CW	Peds CCW	Int Total
	Eastbound							Westbound							Northbound							Southbound							
	Left	Thru	Right	U-Turn				Left	Thru	Right	U-Turn				Left	Thru	Right	U-Turn				Left	Thru	Right	U-Turn				
2021-07-03 11:00:00	0	1	4	0	5	0	0	54	0	11	0	65	1	0	1	63	25	0	89	0	0	11	69	2	0	82	0	0	241
2021-07-03 11:15:00	1	0	0	0	1	0	0	51	2	19	0	72	0	0	0	93	30	0	123	0	0	4	63	1	0	68	0	0	264
2021-07-03 11:30:00	0	0	2	0	2	1	0	60	2	22	1	85	0	0	0	52	36	0	88	0	0	10	62	4	0	76	0	0	251
2021-07-03 11:45:00	0	1	3	0	4	1	0	42	1	16	0	59	0	2	0	71	29	0	100	0	0	5	61	2	0	68	0	0	231
2021-07-03 12:00:00	0	1	2	0	3	0	0	55	3	34	2	94	0	0	0	71	53	0	124	0	0	11	59	6	0	76	0	0	297
2021-07-03 12:15:00	1	1	1	0	3	0	0	51	2	18	1	72	0	0	0	69	35	0	104	0	0	7	75	1	0	83	0	1	262
2021-07-03 12:30:00	2	0	3	0	5	0	0	56	3	10	0	69	0	0	1	66	41	0	108	0	0	7	62	2	0	71	0	0	253
2021-07-03 12:45:00	0	2	4	0	6	0	0	46	8	8	7	69	0	0	2	44	36	1	83	0	0	4	51	9	0	64	0	2	222
<b>Grand Total</b>	<b>4</b>	<b>6</b>	<b>19</b>	<b>0</b>	<b>29</b>	<b>2</b>	<b>0</b>	<b>415</b>	<b>21</b>	<b>138</b>	<b>11</b>	<b>585</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>529</b>	<b>285</b>	<b>1</b>	<b>819</b>	<b>0</b>	<b>0</b>	<b>59</b>	<b>502</b>	<b>27</b>	<b>0</b>	<b>588</b>	<b>0</b>	<b>3</b>	<b>2021</b>
<b>% Approach</b>	<b>13.8%</b>	<b>20.7%</b>	<b>65.5%</b>	<b>0.0%</b>				<b>70.9%</b>	<b>3.6%</b>	<b>23.6%</b>	<b>1.9%</b>		<b>0.5%</b>	<b>64.6%</b>	<b>34.8%</b>	<b>0.1%</b>			<b>10.0%</b>	<b>85.4%</b>	<b>4.6%</b>	<b>0.0%</b>							
<b>% Total</b>	<b>0.2%</b>	<b>0.3%</b>	<b>0.9%</b>	<b>0.0%</b>	<b>1.4%</b>			<b>20.5%</b>	<b>1.0%</b>	<b>6.8%</b>	<b>0.5%</b>	<b>28.9%</b>	<b>0.2%</b>	<b>26.2%</b>	<b>14.1%</b>	<b>0.0%</b>		<b>40.5%</b>	<b>2.9%</b>	<b>24.8%</b>	<b>1.3%</b>	<b>0.0%</b>			<b>29.1%</b>				
<b>Lights</b>	<b>4</b>	<b>6</b>	<b>19</b>	<b>0</b>	<b>29</b>			<b>413</b>	<b>21</b>	<b>138</b>	<b>11</b>	<b>583</b>	<b>4</b>	<b>526</b>	<b>283</b>	<b>1</b>		<b>814</b>	<b>58</b>	<b>502</b>	<b>27</b>	<b>0</b>			<b>587</b>			<b>2013</b>	
<b>% Lights</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>100.0%</b>			<b>99.5%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>99.7%</b>	<b>100.0%</b>	<b>99.4%</b>	<b>99.3%</b>	<b>100.0%</b>		<b>99.4%</b>	<b>98.3%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>			<b>99.8%</b>			<b>99.6%</b>	
<b>Articulated Trucks</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>0</b>			<b>2</b>	
<b>% Articulated Trucks</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>			<b>0.5%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.3%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>		<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>			<b>0.0%</b>			<b>0.1%</b>	
<b>Buses and Single-Unit Trucks</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>0</b>		<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>1</b>			<b>6</b>	
<b>% Buses and Single-Unit Trucks</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>			<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.6%</b>	<b>0.7%</b>	<b>0.0%</b>		<b>0.6%</b>	<b>1.7%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>			<b>0.2%</b>			<b>0.3%</b>	
<b>Pedestrians</b>						<b>2</b>	<b>0</b>						<b>1</b>	<b>2</b>					<b>0</b>	<b>0</b>					<b>0</b>	<b>2</b>			
<b>% Pedestrians</b>						<b>100.0%</b>	<b>0.0%</b>						<b>100.0%</b>	<b>100.0%</b>					<b>0.0%</b>	<b>0.0%</b>					<b>0.0%</b>	<b>66.7%</b>		</	

Leg Direction Start Time	Gas Eastbound					App Total	Peds CW	Peds CCW	Target Westbound					App Total	Peds CW	Peds CCW	Melvina Northbound					App Total	Peds CW	Peds CCW	Melvina Southbound					App Total	Peds CW	Peds CCW	Int Total
	Left	Thru	Right	U-Turn	Left				Thru	Right	U-Turn	Left	Thru				Right	U-Turn	Left	Thru	Right				U-Turn	Left	Thru	Right	U-Turn				
2021-07-03 11:00:00	26		6	39	0	<b>71</b>	0	0	46	7	11	0	<b>64</b>	1	0	22	50	26	0	<b>98</b>	0	1	3	75	59	0	<b>137</b>	0	0	<b>370</b>			
2021-07-03 11:15:00	26		3	35	1	<b>65</b>	0	0	41	4	21	0	<b>66</b>	0	0	27	79	23	0	<b>129</b>	0	0	3	76	34	0	<b>113</b>	0	0	<b>373</b>			
2021-07-03 11:30:00	19		2	39	1	<b>61</b>	1	0	36	8	10	0	<b>54</b>	0	0	26	58	26	0	<b>110</b>	0	0	1	82	41	1	<b>125</b>	0	0	<b>350</b>			
2021-07-03 11:45:00	25		6	34	0	<b>65</b>	0	0	38	4	11	0	<b>53</b>	0	2	18	64	28	0	<b>110</b>	0	0	1	57	53	0	<b>111</b>	0	0	<b>339</b>			
2021-07-03 12:00:00	30		8	35	1	<b>74</b>	0	0	53	11	16	0	<b>80</b>	0	1	14	80	19	0	<b>113</b>	0	0	0	75	39	1	<b>115</b>	0	1	<b>382</b>			
2021-07-03 12:15:00	28		4	22	1	<b>55</b>	0	0	43	9	16	0	<b>68</b>	0	0	26	60	25	0	<b>111</b>	0	0	2	76	55	0	<b>133</b>	0	0	<b>367</b>			
2021-07-03 12:30:00	22		6	38	0	<b>66</b>	0	0	48	6	18	0	<b>72</b>	0	0	21	68	24	0	<b>113</b>	0	0	4	79	42	0	<b>125</b>	0	0	<b>376</b>			
2021-07-03 12:45:00	28		9	34	0	<b>71</b>	0	0	57	10	10	0	<b>77</b>	0	0	30	40	37	0	<b>107</b>	0	0	2	66	32	0	<b>100</b>	0	0	<b>355</b>			
<b>Grand Total</b>	204	44	276	4	<b>528</b>	1	0	362	59	113	0	<b>534</b>	1	3	184	499	208	0	<b>891</b>	0	1	16	586	355	2	<b>959</b>	0	1	<b>2912</b>				
<b>% Approach</b>	38.6%	8.3%	52.3%	0.8%				67.8%	11.0%	21.2%	0.0%				20.7%	56.0%	23.3%	0.0%			1.7%	61.1%	37.0%	0.2%									
<b>% Total</b>	7.0%	1.5%	9.5%	0.1%	<b>18.1%</b>			12.4%	2.0%	3.9%	0.0%	<b>18.3%</b>			6.3%	17.1%	7.1%	0.0%	<b>30.6%</b>		0.5%	20.1%	12.2%	0.1%	<b>32.9%</b>								
<b>Lights</b>	204	44	275	4	<b>527</b>			360	59	111	0	<b>530</b>			183	495	208	0	<b>886</b>		16	584	355	2	<b>957</b>					<b>2900</b>			
<b>% Lights</b>	100.0%	100.0%	99.6%	100.0%	<b>99.8%</b>			99.4%	100.0%	98.2%	0.0%	<b>99.3%</b>			99.5%	99.2%	100.0%	0.0%	<b>99.4%</b>		100.0%	99.7%	100.0%	100.0%	<b>99.8%</b>					<b>99.6%</b>			
<b>Articulated Trucks</b>	0	0	0	0	<b>0</b>			0	0	0	0	<b>0</b>			0	0	0	0	<b>0</b>		0	2	0	0	<b>2</b>					<b>2</b>			
<b>% Articulated Trucks</b>	0.0%	0.0%	0.0%	0.0%	<b>0.0%</b>			0.0%	0.0%	0.0%	0.0%	<b>0.0%</b>			0.0%	0.0%	0.0%	0.0%	<b>0.0%</b>		0.0%	0.3%	0.0%	0.0%	<b>0.2%</b>					<b>0.1%</b>			
<b>Buses and Single-Unit Trucks</b>	0	0	1	0	<b>1</b>			2	0	2	0	<b>4</b>			1	4	0	0	<b>5</b>		0	0	0	0	<b>0</b>					<b>10</b>			
<b>% Buses and Single-Unit Trucks</b>	0.0%	0.0%	0.4%	0.0%	<b>0.2%</b>			0.6%	0.0%	1.8%	0.0%	<b>0.7%</b>			0.5%	0.8%	0.0%	0.0%	<b>0.6%</b>		0.0%	0.0%	0.0%	0.0%	<b>0.0%</b>					<b>0.3%</b>			
<b>Pedestrians</b>						1	0						1	3						0	1					0	1						
<b>% Pedestrians</b>						100.0%	0.0%						100.0%	100.0%						0.0%	100.0%					0.0%	100.0%						
<b>Bicycles on Crosswalk</b>						0	0						0	0						0	0					0	0						
<b>% Bicycles on Crosswalk</b>						0.0%	0.0%						0.0%	0.0%						0.0%	0.0%					0.0%	0.0%						

Leg Direction Start Time	Gas Eastbound					App Total	Peds CW	Peds CCW	Target Westbound					App Total	Peds CW	Peds CCW	Melvina Northbound					App Total	Peds CW	Peds CCW	Melvina Southbound					App Total	Peds CW	Peds CCW	Int Total
	Left	Thru	Right	U-Turn	Left				Thru	Right	U-Turn	Left	Thru				Right	U-Turn	Left	Thru	Right				U-Turn	Left	Thru	Right	U-Turn				
2021-07-01 07:00:00	3	0	13	0	<b>16</b>	0	2	0	0	0	0	<b>0</b>	0	0	4	10	0	0	<b>14</b>	0	0	0	4	5	0	<b>9</b>	0	0	<b>39</b>				
2021-07-01 07:15:00	3	0	14	0	<b>17</b>	0	0	0	0	0	0	<b>0</b>	0	0	9	3	1	0	<b>13</b>	0	0	0	3	3	0	<b>6</b>	0	0	<b>36</b>				
2021-07-01 07:30:00	5	1	15	0	<b>21</b>	1	2	1	0	0	0	<b>1</b>	0	0	10	14	3	0	<b>27</b>	0	0	0	3	6	0	<b>9</b>	0	0	<b>58</b>				
2021-07-01 07:45:00	7	0	13	0	<b>20</b>	1	1	4	0	1	0	<b>5</b>	0	0	10	22	3	0	<b>35</b>	0	0	2	4	7	0	<b>13</b>	0	0	<b>73</b>				
2021-07-01 08:00:00	5	0	13	0	<b>18</b>	0	0	1	2	1	0	<b>4</b>	0	0	11	12	13	0	<b>36</b>	0	0	4	4	9	0	<b>17</b>	0	0	<b>75</b>				
2021-07-01 08:15:00	7	1	26	0	<b>34</b>	1	0	20	1	2	0	<b>23</b>	0	1	11	7	4	0	<b>22</b>	0	1	1	4	11	0	<b>16</b>	0	1	<b>95</b>				
2021-07-01 08:30:00	5	6	13	0	<b>24</b>	0	0	12	3	6	0	<b>21</b>	0	0	17	23	9	0	<b>49</b>	0	0	1	8	12	0	<b>21</b>	0	0	<b>115</b>				
2021-07-01 08:45:00	11	5	22	0	<b>38</b>	0	0	14	2	3	0	<b>19</b>	0	0	18	17	17	0	<b>52</b>	0	0	1	6	19	0	<b>26</b>	0	0	<b>135</b>				
2021-07-01 16:00:00	20	5	40	0	<b>65</b>	0	0	42	9	15	0	<b>66</b>	0	0	20	58	21	0	<b>99</b>	0	0	3	67	43	0	<b>113</b>	0	0	<b>343</b>				
2021-07-01 16:15:00	22	5	31	0	<b>58</b>	0	0	45	4	15	0	<b>64</b>	0	0	25	50	21	0	<b>96</b>	0	0	4	73	42	0	<b>119</b>	0	0	<b>337</b>				
2021-07-01 16:30:00	25	1	37	0	<b>63</b>	0	4	41	10	7	0	<b>58</b>	0	0	13	40	15	0	<b>68</b>	0	0	4	56	45	0	<b>105</b>	0	0	<b>294</b>				
2021-07-01 16:45:00	29	2	34	0	<b>65</b>	0	0	36	7	11	0	<b>54</b>	0	0	26	39	18	0	<b>83</b>	0	0	3	73	27	0	<b>103</b>	0	0	<b>305</b>				
2021-07-01 17:00:00	18	8	39	0	<b>65</b>	0	0	34	2	14	0	<b>50</b>	0	0	15	49	21	0	<b>85</b>	0	0	2	80	51	0	<b>133</b>	0	0	<b>333</b>				
2021-07-01 17:15:00	19	6	26	0	<b>51</b>	0	0	46	6	14	0	<b>66</b>	0	0	24	46	21	0	<b>91</b>	0	1	4	66	45	0	<b>115</b>	0	0	<b>323</b>				
2021-07-01 17:30:00	24	3	38	0	<b>65</b>	0	1	31	5	10	0	<b>46</b>	1	0	16	47	15	0	<b>78</b>	1	0	8	67	34	0	<b>109</b>	0	0	<b>298</b>				
2021-07-01 17:45:00	30	2	34	0	<b>66</b>	0	0	30	1	10	0	<b>41</b>	0	0	20	57	12	0	<b>89</b>	0	0	1	58	39	3	<b>101</b>	0	0	<b>297</b>				
<b>Grand Total</b>	233	45	408	0	<b>686</b>	3	10	357	52	109	0	<b>518</b>	1	1	249	494	194	0	<b>937</b>	1	2	38	576	398	3	<b>1015</b>	0	1	<b>3156</b>				
<b>% Approach</b>	34.0%	6.6%	59.5%	0.0%				68.9%	10.0%	21.0%	0.0%				26.6%	52.7%	20.7%	0.0%			3.7%	56.7%	39.2%	0.3%									
<b>% Total</b>	7.4%	1.4%	12.9%	0.0%	<b>21.7%</b>			11.3%	1.6%	3.5%	0.0%	<b>16.4%</b>			7.9%	15.7%	6.1%	0.0%	<b>29.7%</b>		1.2%	18.3%	12.6%	0.1%	<b>32.2%</b>								
<b>Lights</b>	232	45	406	0	<b>683</b>			356	52	108	0	<b>516</b>			249	485	192	0	<b>926</b>		36	556	398	3	<b>993</b>					<b>3118</b>			
<b>% Lights</b>	99.6%	100.0%	99.5%	0.0%	<b>99.6%</b>			99.7%	100.0%	99.1%	0.0%	<b>99.6%</b>			100.0%	98.2%	99.0%	0.0%	<b>98.8%</b>		94.7%	96.5%	100.0%	100.0%	<b>97.8%</b>					<b>98.8%</b>			
<b>Articulated Trucks</b>	0	0	1	0	<b>1</b>			0	0	0	0	<b>0</b>			0	1	0	0	<b>1</b>		1												

# Melvina Ave & Touhy Ave

## Road Volumes

TMV Interval	Movement Eastbound				Westbound				Northbound				Southbound				Grand Total
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
7/1/2021 7:00	0	0	4	0	0	0	3	0	0	0	0	0	0	1	0	0	8
7/1/2021 7:15	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	1	8
7/1/2021 7:30	0	1	4	0	0	0	3	0	0	0	0	0	0	0	0	0	8
7/1/2021 7:45	0	0	2	1	0	0	3	0	0	0	0	0	0	0	0	1	7
7/1/2021 8:00	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	1	7
7/1/2021 8:15	0	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	7
7/1/2021 8:30	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	1	14
7/1/2021 8:45	0	0	7	0	0	0	4	0	0	0	0	0	0	1	0	0	12
7/1/2021 16:00	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	1	6
7/1/2021 16:15	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4
7/1/2021 16:30	0	0	2	0	0	0	6	0	0	0	0	0	0	0	0	0	8
7/1/2021 16:45	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4
7/1/2021 17:00	0	0	3	0	0	0	7	0	0	0	0	0	0	0	0	0	10
7/1/2021 17:15	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5
7/1/2021 17:30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7/1/2021 17:45	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5
7/3/2021 11:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2
7/3/2021 11:15	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1	5
7/3/2021 11:30	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7/3/2021 11:45	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4
7/3/2021 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/3/2021 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/3/2021 12:30	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5
7/3/2021 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	54	1	0	0	67	0	0	0	0	0	0	3	0	6	132

Melvina Ave & Touhy Ave

Crosswalk Volumes

Interval	Movement				Grand Total
	Eastbound	Westbound	Northbound	Southbound	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	1	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	1	0	0	0	1
8:45 AM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	2	1	3
5:00 PM	0	0	1	0	1
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0
11:30 AM	0	0	0	0	0
11:45 AM	0	0	0	1	1
12:00 PM	0	0	1	0	1
12:15 PM	0	0	0	0	0
12:30 PM	0	0	0	0	0
12:45 PM	0	0	0	0	0
Grand Total	1	0	4	3	8

Road Volumes

TMV Interval	Movement Eastbound			Westbound			Southbound			Grand Total
	U	L	T	U	T	R	U	L	R	
10/14/2021 7:00	0	0	2	0	4	0	0	0	0	6
10/14/2021 7:15	0	0	3	0	4	0	0	0	0	7
10/14/2021 7:30	0	0	7	0	5	0	0	0	0	12
10/14/2021 7:45	0	0	5	0	3	0	0	0	0	8
10/14/2021 8:00	0	0	3	0	1	0	0	0	0	4
10/14/2021 8:15	0	0	3	0	4	0	0	0	0	7
10/14/2021 8:30	0	0	7	0	2	0	0	0	0	9
10/14/2021 8:45	0	0	5	0	5	0	0	0	0	10
10/14/2021 16:00	0	0	6	0	1	0	0	0	0	7
10/14/2021 16:15	0	0	4	0	2	0	0	0	0	6
10/14/2021 16:30	0	0	2	0	3	0	0	0	0	5
10/14/2021 16:45	0	0	2	0	4	0	0	0	0	6
10/14/2021 17:00	0	0	5	0	3	0	0	0	0	8
10/14/2021 17:15	0	0	4	0	6	0	0	0	0	10
10/14/2021 17:30	0	0	2	0	2	0	0	0	0	4
10/14/2021 17:45	0	0	0	0	3	0	0	0	0	3
10/16/2021 11:00	0	0	1	0	0	0	0	0	0	1
10/16/2021 11:15	0	0	2	0	1	0	0	0	0	3
10/16/2021 11:30	0	0	1	0	3	0	0	0	0	4
10/16/2021 11:45	0	0	1	0	0	0	0	0	0	1
10/16/2021 12:00	0	0	0	0	0	0	0	0	0	0
10/16/2021 12:15	0	0	2	0	1	0	0	0	0	3
10/16/2021 12:30	0	0	0	0	2	0	0	0	0	2
10/16/2021 12:45	0	0	3	0	1	0	0	0	0	4
Grand Total	0	0	70	0	60	0	0	0	0	130

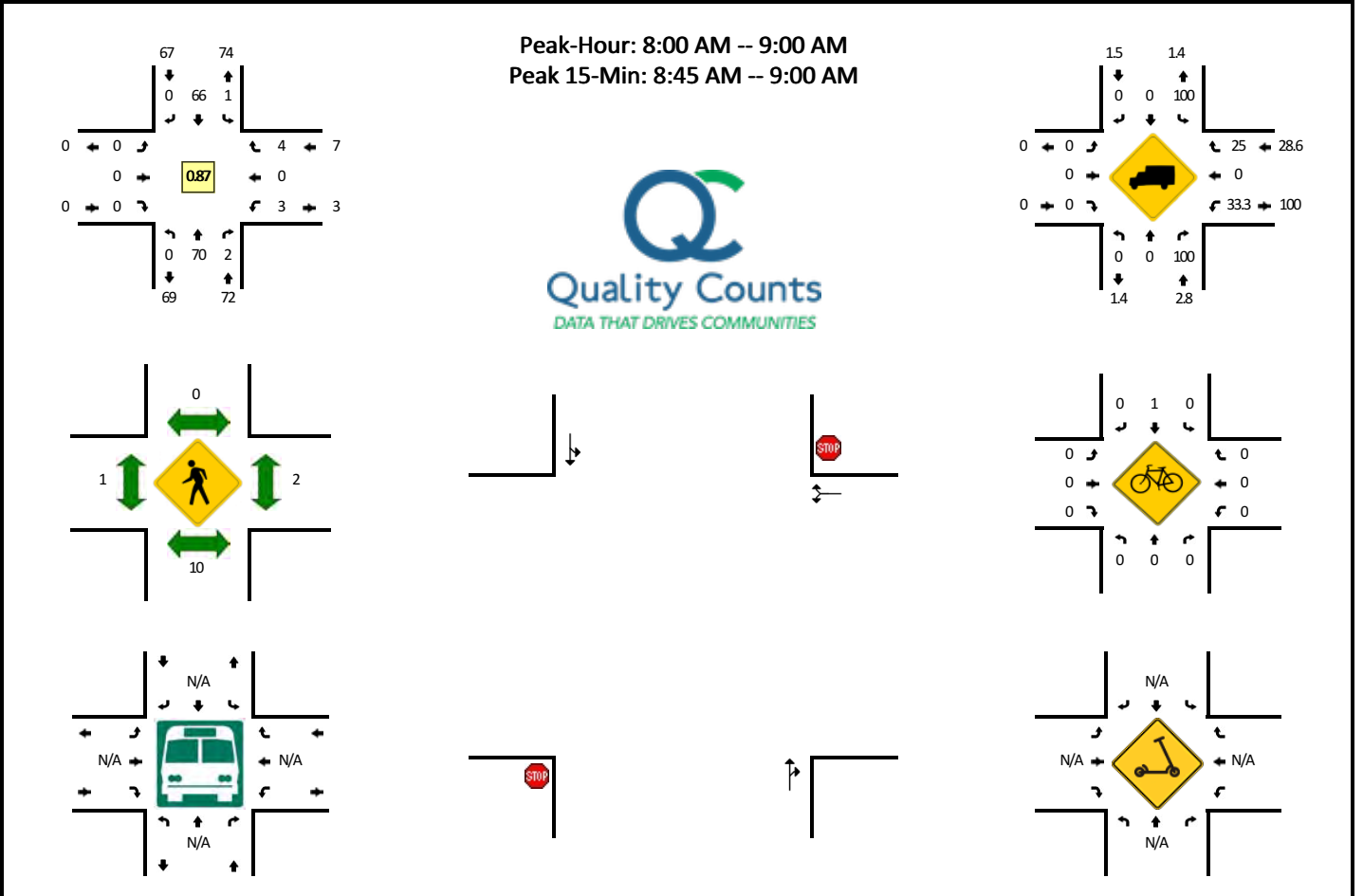


Crosswalk Volumes

Interval	Movement			Grand Total
	Eastbound	Westbound	Southbound	
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	1	1
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
11:00 AM	0	0	0	0
11:15 AM	0	0	0	0
11:30 AM	0	0	0	0
11:45 AM	0	0	0	0
12:00 PM	0	0	0	0
12:15 PM	0	0	0	0
12:30 PM	0	0	0	0
12:45 PM	0	0	0	0
Grand Total	0	0	1	1

**LOCATION:** N Melvina Ave -- North Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892901  
**DATE:** Tue, Aug 2 2022



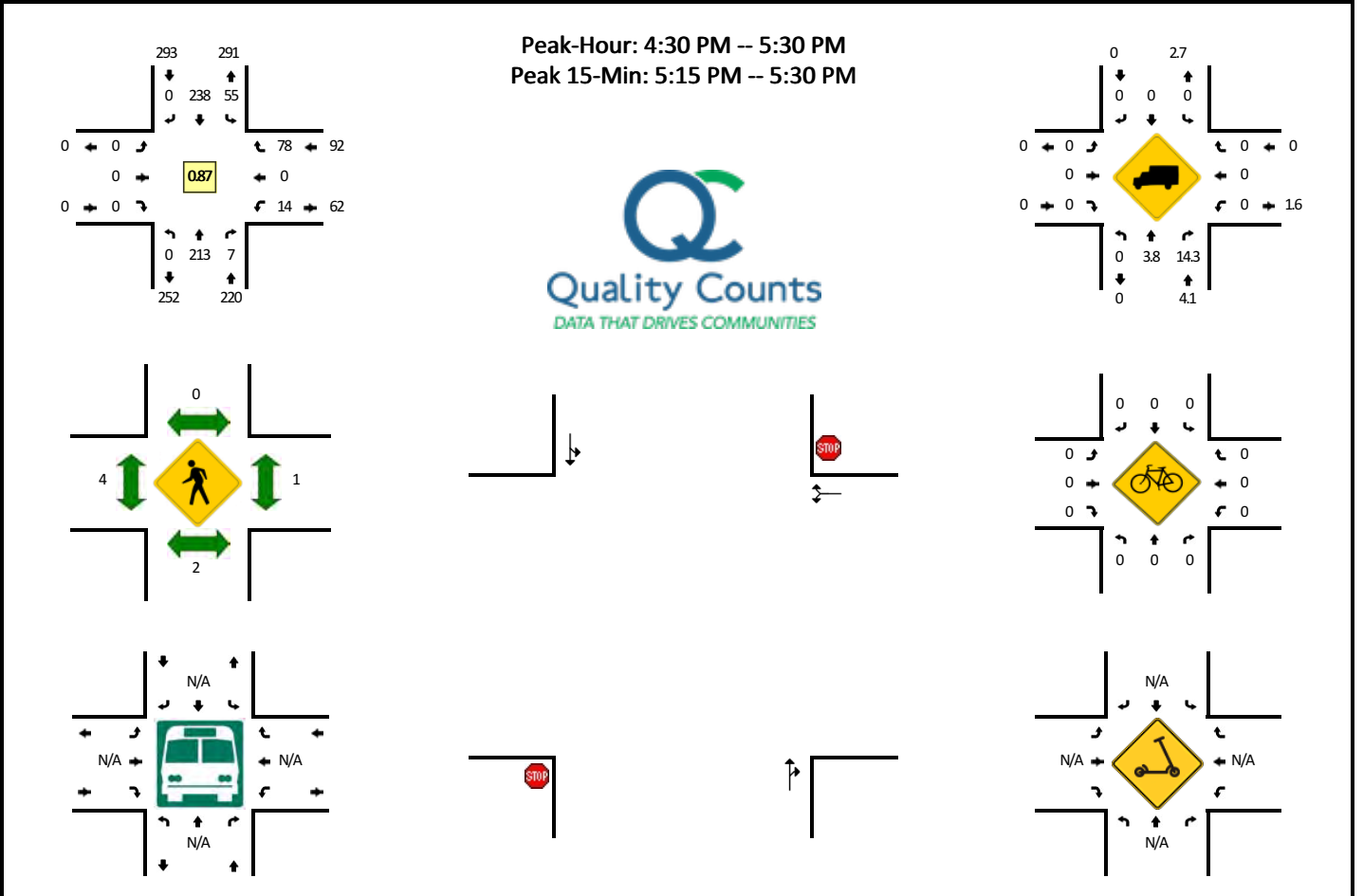
15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				North Access (Eastbound)				North Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	18	2	0	1	11	0	0	0	0	0	0	0	0	0	0	32	
7:15 AM	0	16	1	0	0	12	0	0	0	0	0	0	0	0	0	0	29	
7:30 AM	0	11	0	0	0	14	0	0	0	0	0	0	0	0	0	0	25	
7:45 AM	0	17	0	0	0	14	0	0	0	0	0	0	0	0	0	0	31	117
8:00 AM	0	17	1	0	0	15	0	0	0	0	0	0	0	0	0	0	33	118
8:15 AM	0	12	1	0	1	18	0	0	0	0	0	0	0	0	1	0	33	122
8:30 AM	0	22	0	0	0	13	0	0	0	0	0	0	2	0	1	0	38	135
8:45 AM	0	19	0	0	0	20	0	0	0	0	0	0	1	0	2	0	42	146

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	76	0	0	0	80	0	0	0	0	0	0	4	0	8	0	168
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
Buses																	
Pedestrians		28				0				0				0			28
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

*Comments:*

**LOCATION:** N Melvina Ave -- North Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892902  
**DATE:** Tue, Aug 9 2022

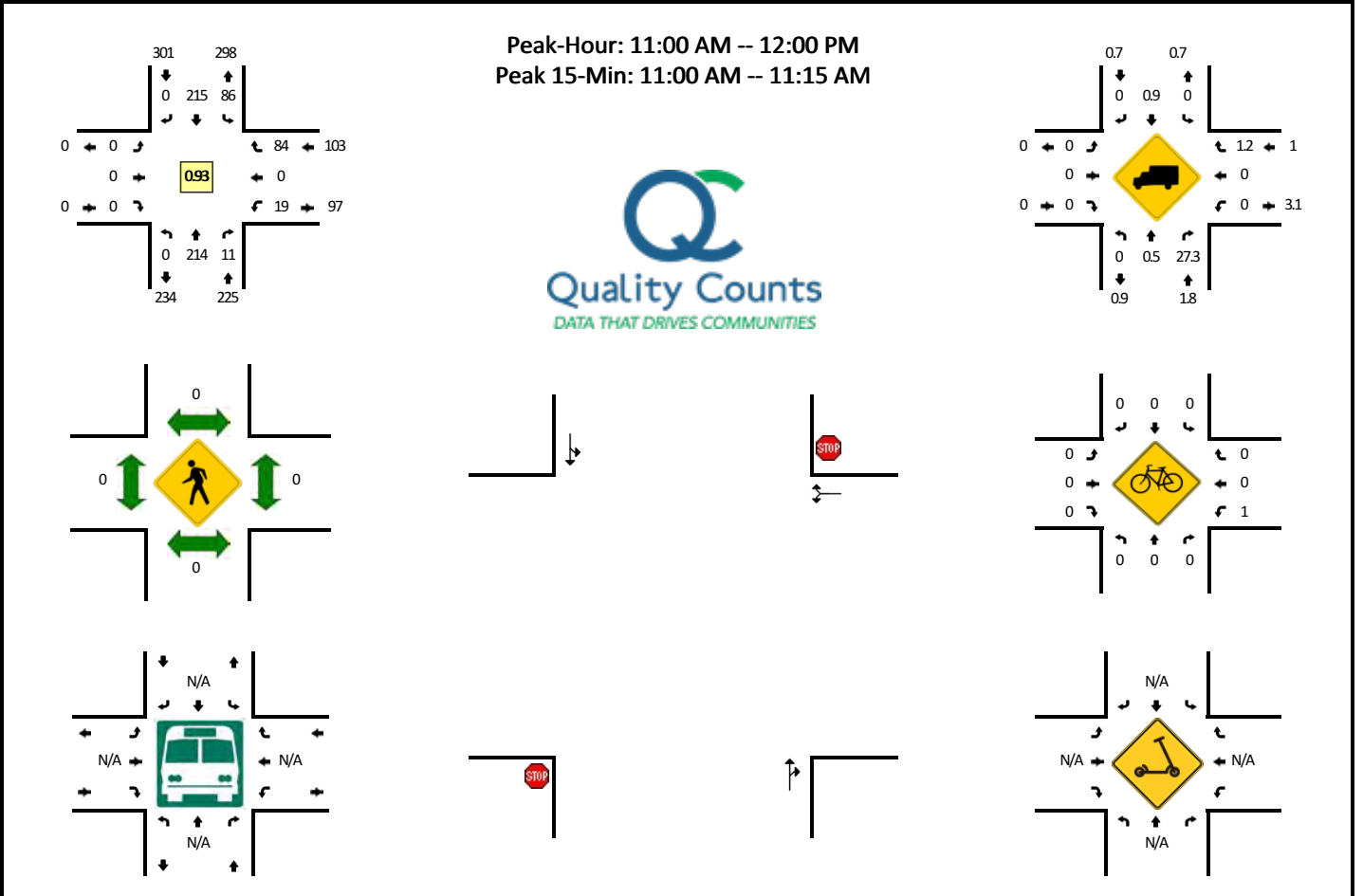


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				North Access (Eastbound)				North Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	47	2	0	17	65	0	0	0	0	0	0	6	0	16	0	153	
4:15 PM	0	49	1	0	17	55	0	0	0	0	0	0	2	0	14	0	138	
4:30 PM	0	57	1	0	16	58	0	0	0	0	0	0	4	0	16	0	152	
4:45 PM	0	53	1	0	19	61	0	0	0	0	0	0	1	0	19	0	154	597
5:00 PM	0	46	0	0	6	56	0	0	0	0	0	0	4	0	13	0	125	569
5:15 PM	0	57	5	0	14	63	0	0	0	0	0	0	5	0	30	0	174	605
5:30 PM	0	47	2	0	20	56	1	0	0	0	0	0	3	0	12	0	141	594
5:45 PM	0	38	1	0	5	64	0	0	0	0	0	0	3	0	20	0	131	571
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	228	20	0	56	252	0	0	0	0	0	0	20	0	120	0	696	
Heavy Trucks	0	12	4		0	0	0		0	0	0		0	0	0		16	
Buses																		
Pedestrians		4				0				4				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

*Comments:*

**LOCATION:** N Melvina Ave -- North Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892903  
**DATE:** Sat, Jul 30 2022

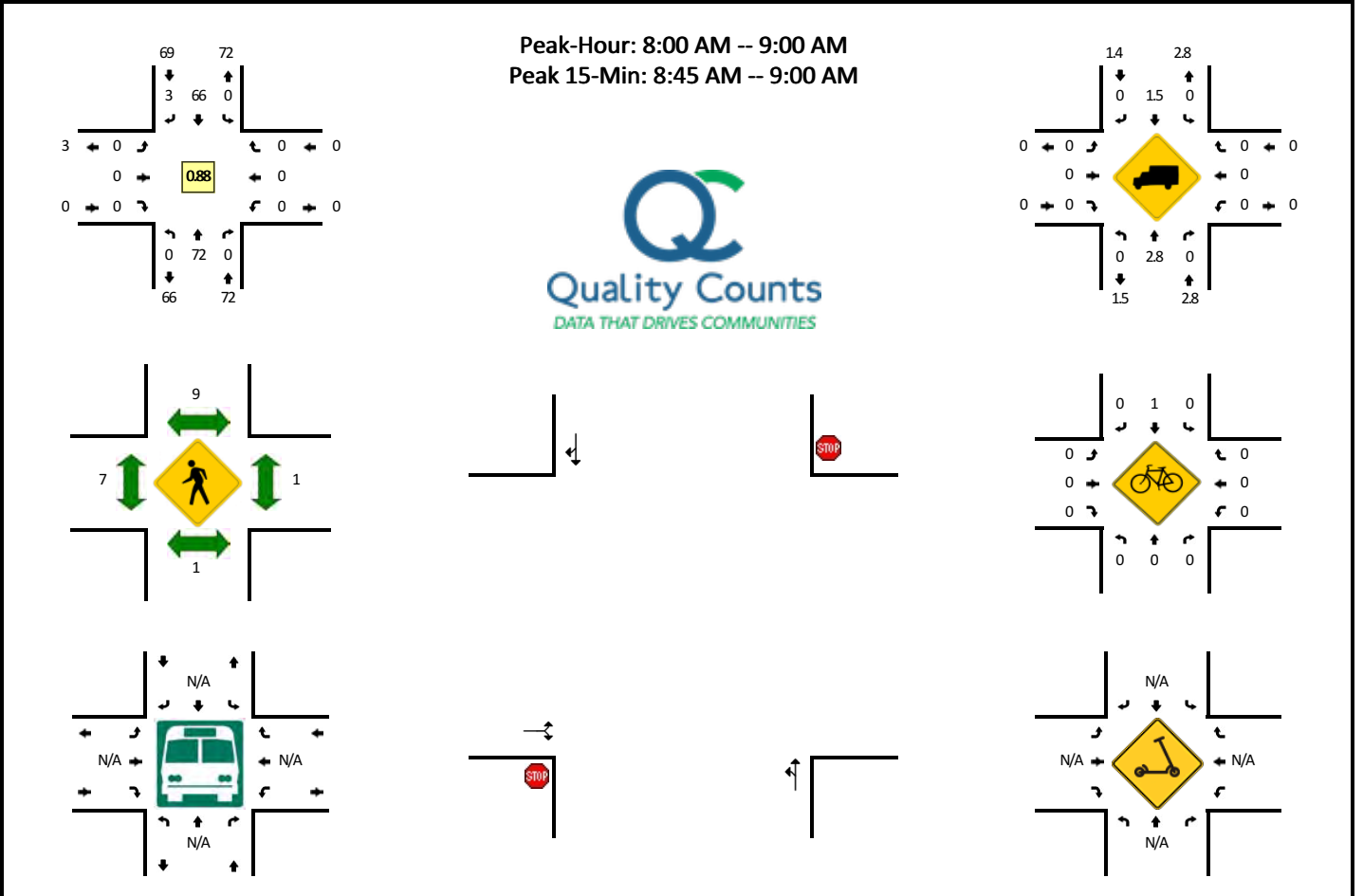


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				North Access (Eastbound)				North Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	58	1	0	29	63	0	0	0	0	0	0	3	0	16	0	170	
11:15 AM	0	50	7	0	23	54	0	0	0	0	0	0	7	0	24	0	165	
11:30 AM	0	61	1	0	18	46	0	0	0	0	0	0	7	0	26	0	159	
11:45 AM	0	45	2	0	16	52	0	0	0	0	0	0	2	0	18	0	135	629
12:00 PM	0	52	3	0	21	46	0	0	0	0	0	0	4	0	20	0	146	605
12:15 PM	0	34	2	0	23	53	0	0	0	0	0	0	2	0	25	0	139	579
12:30 PM	0	52	2	0	24	51	0	0	0	0	0	0	7	0	21	0	157	577
12:45 PM	0	50	2	0	12	50	0	0	0	0	0	0	7	0	24	0	145	587
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	232	4	0	116	252	0	0	0	0	0	0	12	0	64	0	680	
Heavy Trucks	0	0	4		0	4	0		0	0	0		0	0	0		8	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

*Comments:*

**LOCATION:** N Melvina Ave -- Central Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892904  
**DATE:** Tue, Aug 2 2022



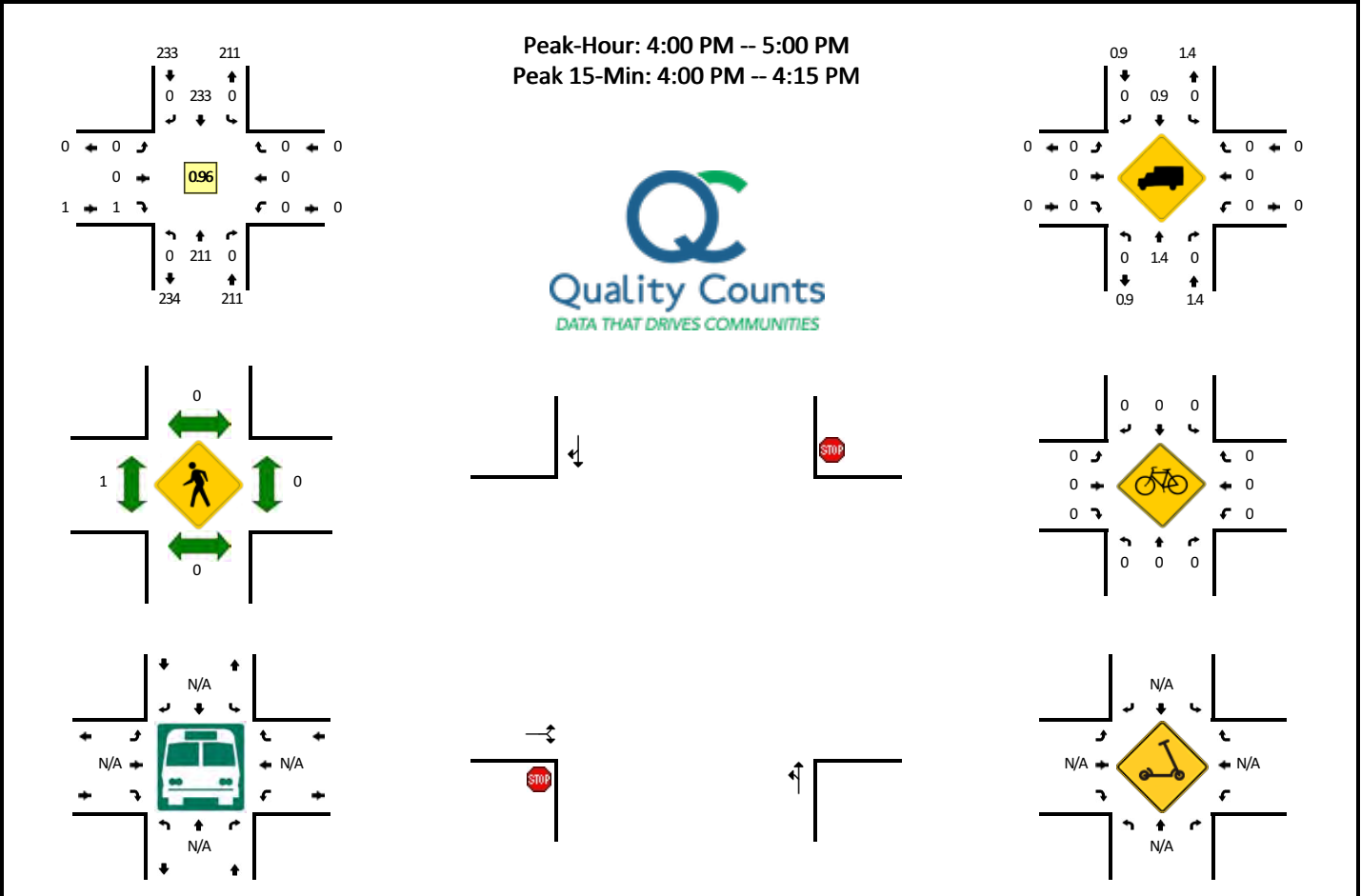
15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				Central Access (Eastbound)				Central Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	20	0	0	0	9	0	0	0	0	0	0	0	0	0	0	30	
7:15 AM	0	17	0	0	0	12	0	0	0	0	0	0	0	0	0	0	29	
7:30 AM	0	11	0	0	0	14	0	0	0	0	0	0	0	0	0	0	25	
7:45 AM	0	17	0	0	0	14	0	0	0	0	0	0	0	0	0	0	31	115
8:00 AM	0	18	0	0	0	15	0	0	0	0	0	0	0	0	0	0	33	118
8:15 AM	0	13	0	0	0	17	1	0	0	0	0	0	0	0	0	0	31	120
8:30 AM	0	22	0	0	0	14	1	0	0	0	0	0	0	0	0	0	37	132
8:45 AM	0	19	0	0	0	20	1	0	0	0	0	0	0	0	0	0	40	141

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	76	0	0	0	80	4	0	0	0	0	0	0	0	0	0	160
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Buses																	
Pedestrians		4				24				12				4			44
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

*Comments:*

**LOCATION:** N Melvina Ave -- Central Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892905  
**DATE:** Tue, Aug 2 2022

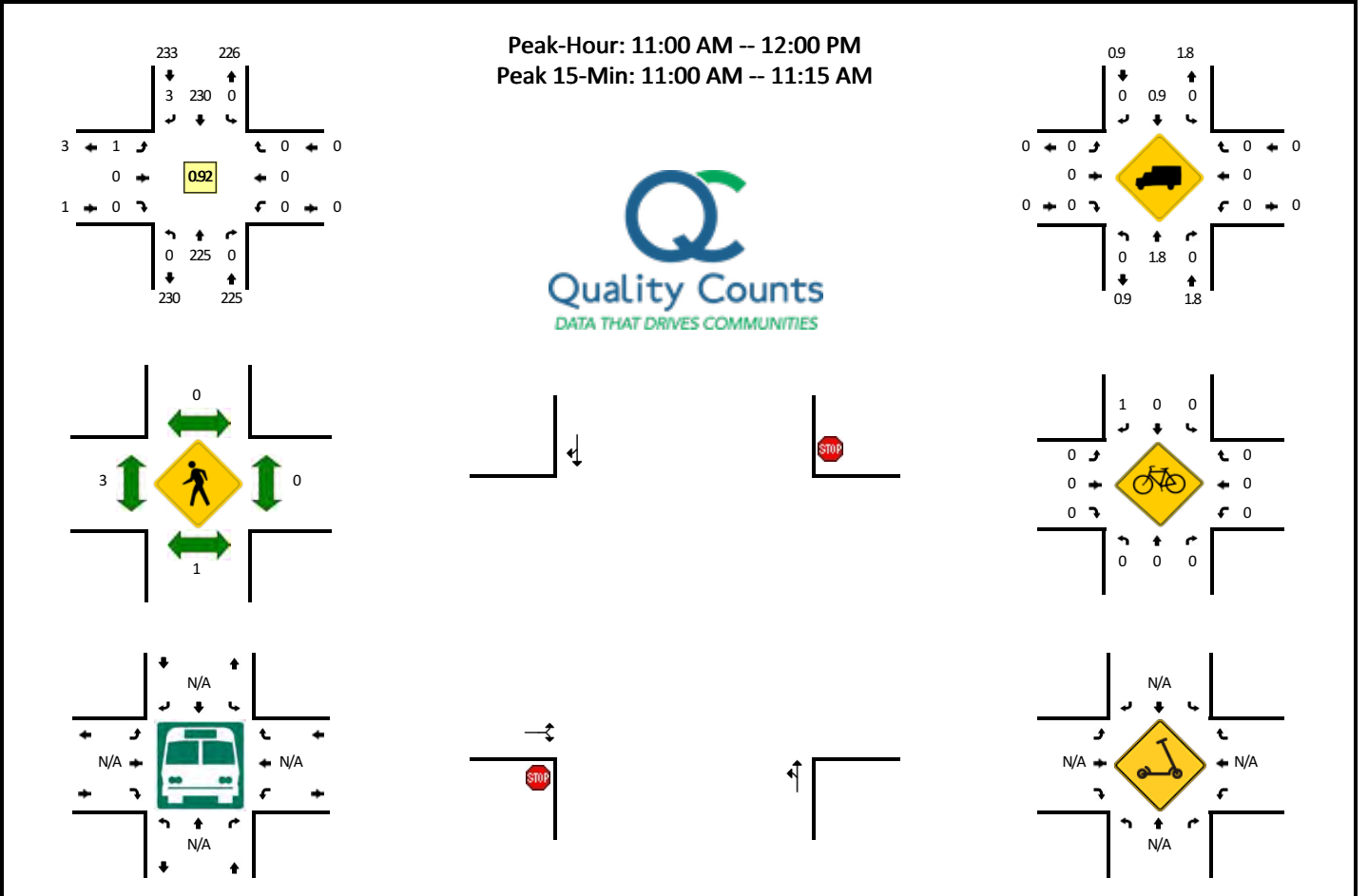


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				Central Access (Eastbound)				Central Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	55	0	0	0	61	0	0	0	0	0	0	0	0	0	0	116	
4:15 PM	0	54	0	0	0	58	0	0	0	0	0	0	0	0	0	0	112	
4:30 PM	0	54	0	0	0	59	0	0	0	0	0	0	0	0	0	0	113	
4:45 PM	0	48	0	0	0	55	0	0	0	0	0	1	0	0	0	0	104	445
5:00 PM	0	41	0	0	0	61	0	0	0	0	0	0	0	0	0	0	102	431
5:15 PM	0	43	0	0	0	49	0	0	0	0	0	0	0	0	0	0	92	411
5:30 PM	0	53	0	0	0	63	0	0	0	0	0	1	0	0	0	0	117	415
5:45 PM	0	37	0	0	0	54	0	0	0	1	0	0	0	0	0	0	92	403
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	220	0	0	0	244	0	0	0	0	0	0	0	0	0	0	464	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians		0				0					4			0			4	
Bicycles	0	0	0		0	0	0			0	0	0	0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** N Melvina Ave -- Central Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892906  
**DATE:** Sat, Jul 30 2022

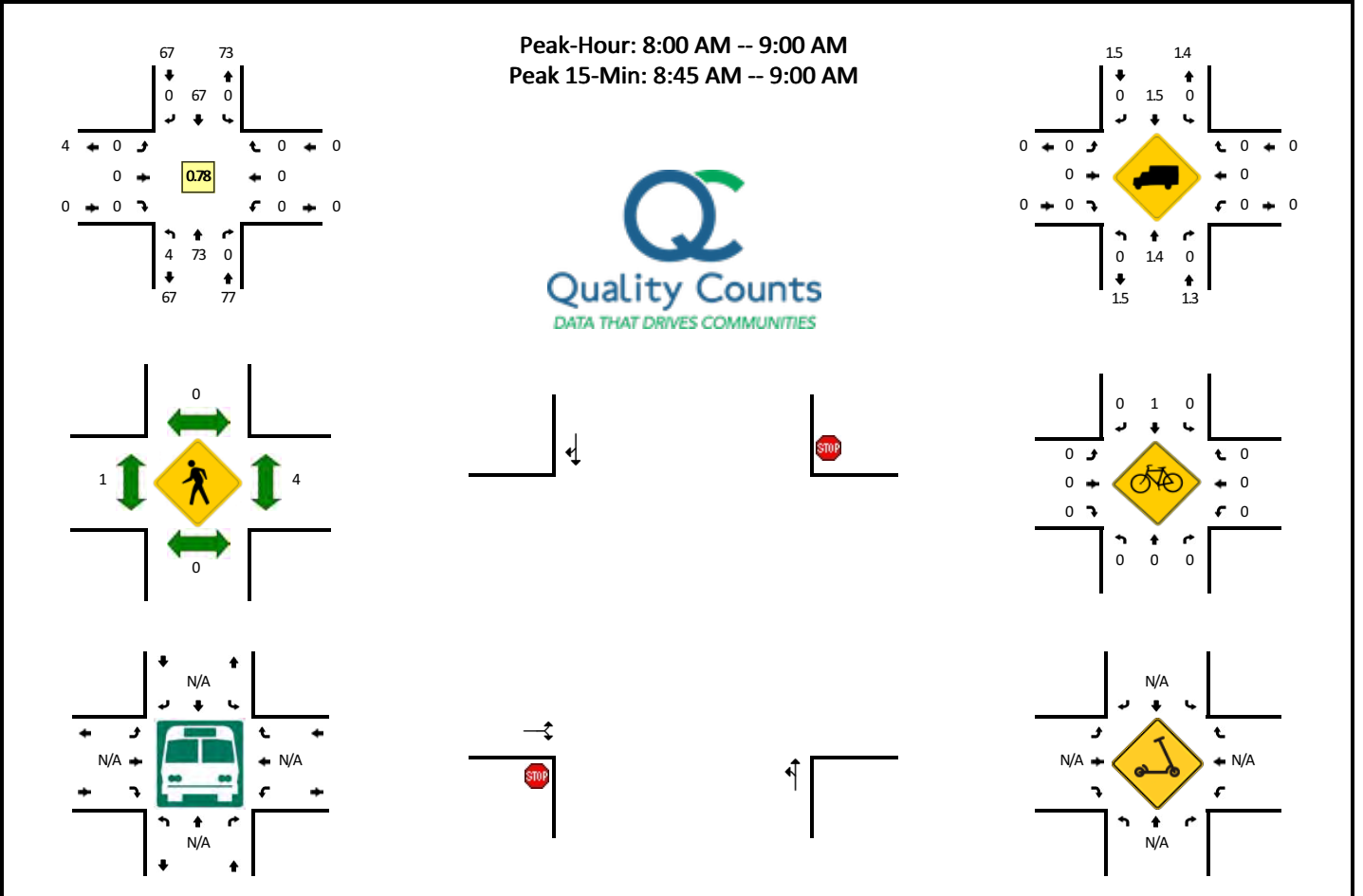


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				Central Access (Eastbound)				Central Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	59	0	0	0	66	0	0	0	0	0	0	0	0	0	0	125	
11:15 AM	0	57	0	0	0	60	1	0	0	0	0	0	0	0	0	0	118	
11:30 AM	0	62	0	0	0	51	2	0	0	0	0	0	0	0	0	0	115	
11:45 AM	0	47	0	0	0	53	0	0	1	0	0	0	0	0	0	0	101	459
12:00 PM	0	55	0	0	0	49	1	0	0	0	0	0	0	0	0	0	105	439
12:15 PM	3	35	0	0	0	54	1	0	0	0	0	0	0	0	0	0	93	414
12:30 PM	0	50	0	0	0	58	0	0	0	0	1	0	0	0	0	0	109	408
12:45 PM	1	51	0	0	0	59	0	0	0	0	0	0	0	0	0	0	111	418
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	236	0	0	0	264	0	0	0	0	0	0	0	0	0	0	500	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	
Buses																		
Pedestrians		0				0				4				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** N Melvina Ave -- South Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892907  
**DATE:** Tue, Aug 2 2022



15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				South Access (Eastbound)				South Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	21	0	0	0	11	0	0	0	0	0	0	0	0	0	0	34	
7:15 AM	0	17	0	0	0	12	0	0	0	0	0	0	0	0	0	0	29	
7:30 AM	1	10	0	0	0	14	0	0	0	0	0	1	0	0	0	0	26	
7:45 AM	2	18	0	0	0	14	0	0	0	0	0	0	0	0	0	0	34	123
8:00 AM	0	17	0	0	0	16	0	0	0	0	0	0	0	0	0	0	33	122
8:15 AM	0	13	0	0	0	17	0	0	0	0	0	0	0	0	0	0	30	123
8:30 AM	0	22	0	0	0	13	0	0	0	0	0	0	0	0	0	0	35	132
8:45 AM	4	21	0	0	0	21	0	0	0	0	0	0	0	0	0	0	46	144

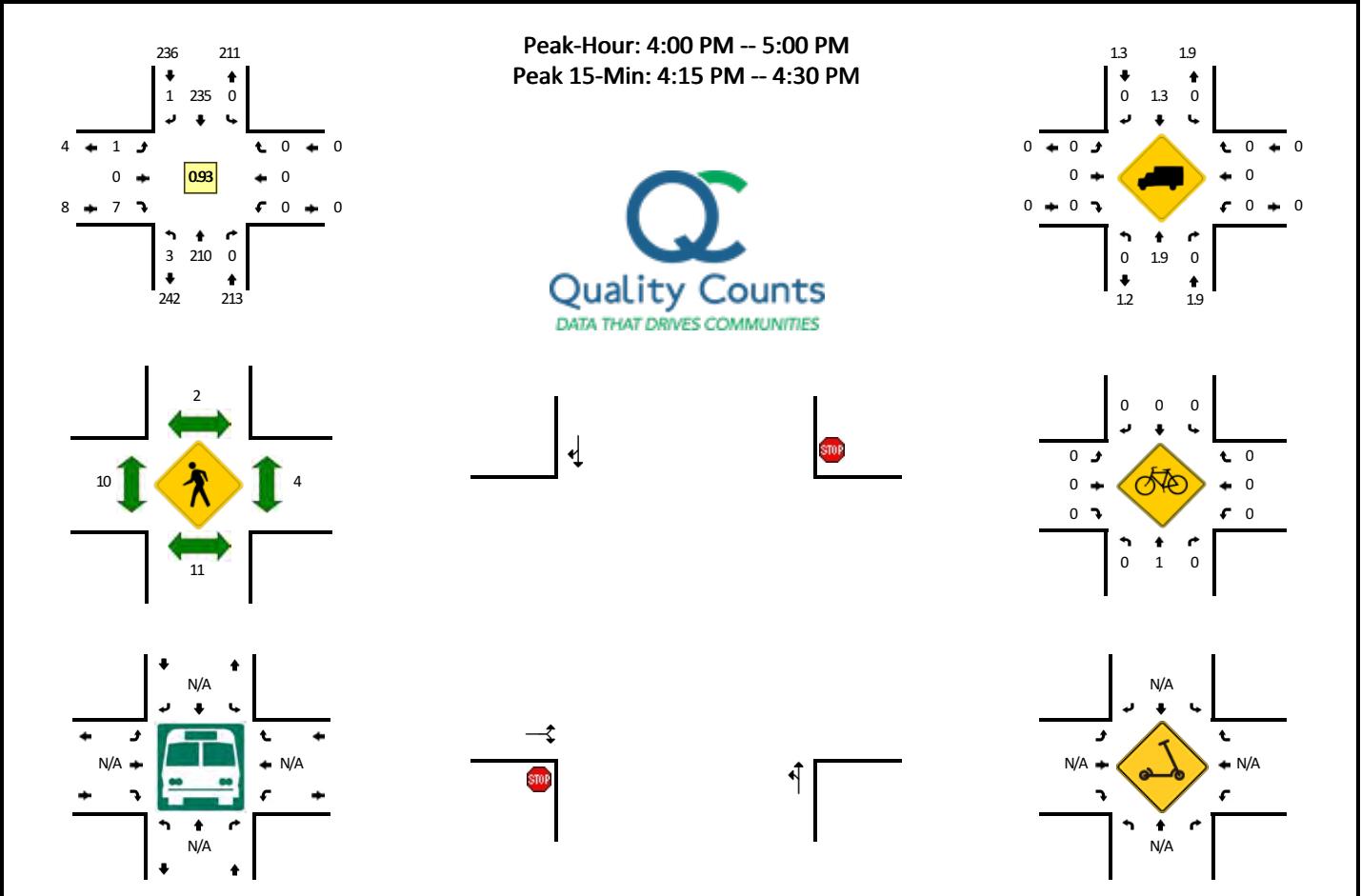
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	84	0	0	0	84	0	0	0	0	0	0	0	0	0	0	184
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Buses																	
Pedestrians		0				0					0			0			0
Bicycles	0	0	0		0	0	0			0	0	0		0	0		0
Scoters																	

*Comments:*



**LOCATION:** N Melvina Ave -- South Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892908  
**DATE:** Tue, Aug 2 2022

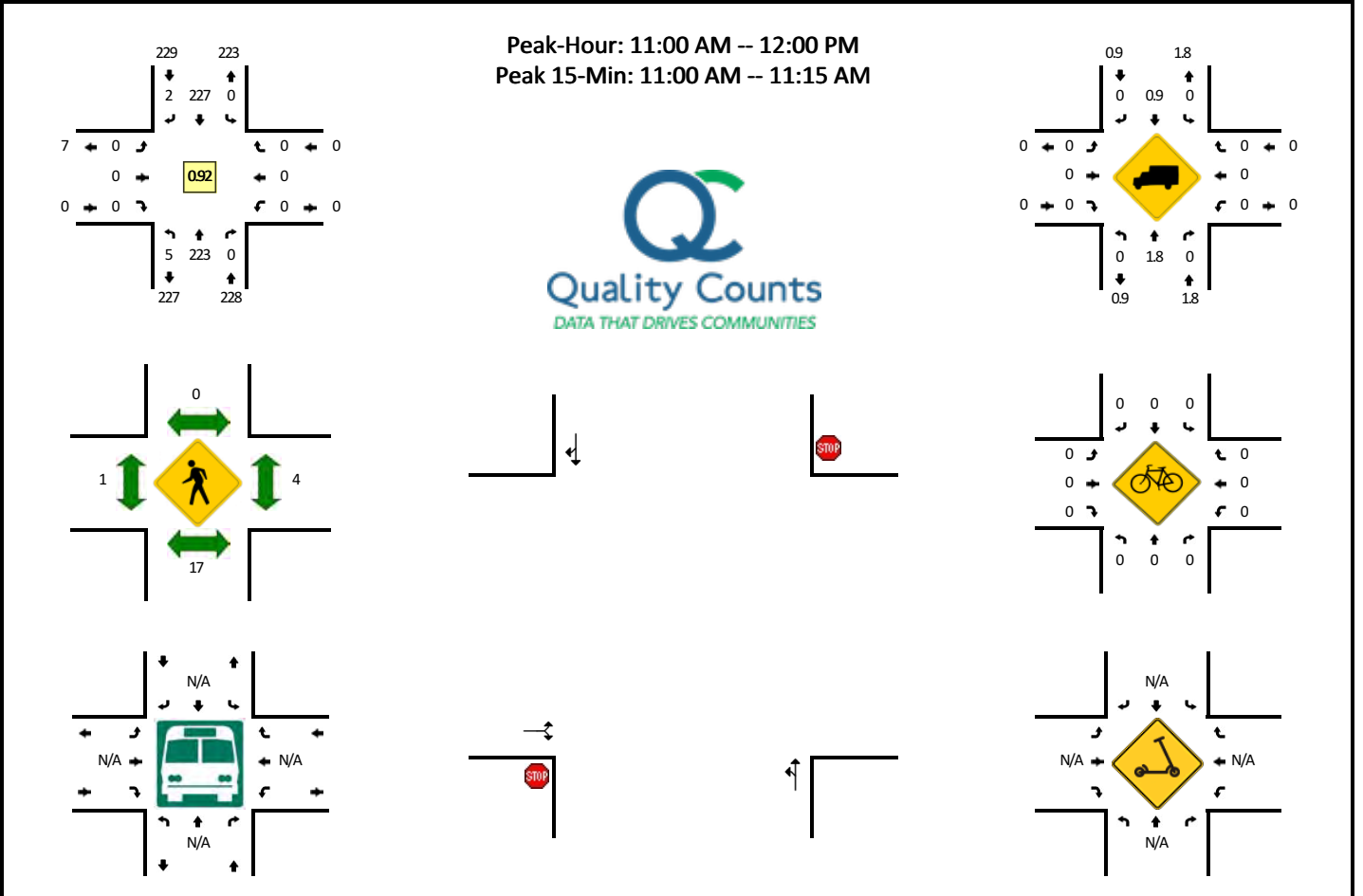


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				South Access (Eastbound)				South Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	55	0	0	0	62	0	0	0	0	0	0	0	0	0	0	118	
4:15 PM	1	58	0	0	0	60	0	0	0	0	4	0	0	0	0	0	123	
4:30 PM	0	49	0	0	0	57	0	0	0	0	2	0	0	0	0	0	108	
4:45 PM	1	48	0	0	0	56	1	0	1	0	1	0	0	0	0	0	108	457
5:00 PM	0	40	0	0	0	60	0	0	1	0	0	0	0	0	0	0	101	440
5:15 PM	2	43	0	0	0	51	0	0	0	0	2	0	0	0	0	0	98	415
5:30 PM	0	54	0	0	0	63	0	0	0	0	0	0	0	0	0	0	117	424
5:45 PM	1	38	0	0	0	57	0	0	0	0	0	0	0	0	0	0	96	412
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	232	0	0	0	240	0	0	0	0	16	0	0	0	0	0	492	
Heavy Trucks	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		12				4				8				4			28	
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4	
Scoters																		

*Comments:*

**LOCATION:** N Melvina Ave -- South Access  
**CITY/STATE:** Niles, IL

**QC JOB #:** 15892909  
**DATE:** Sat, Jul 30 2022

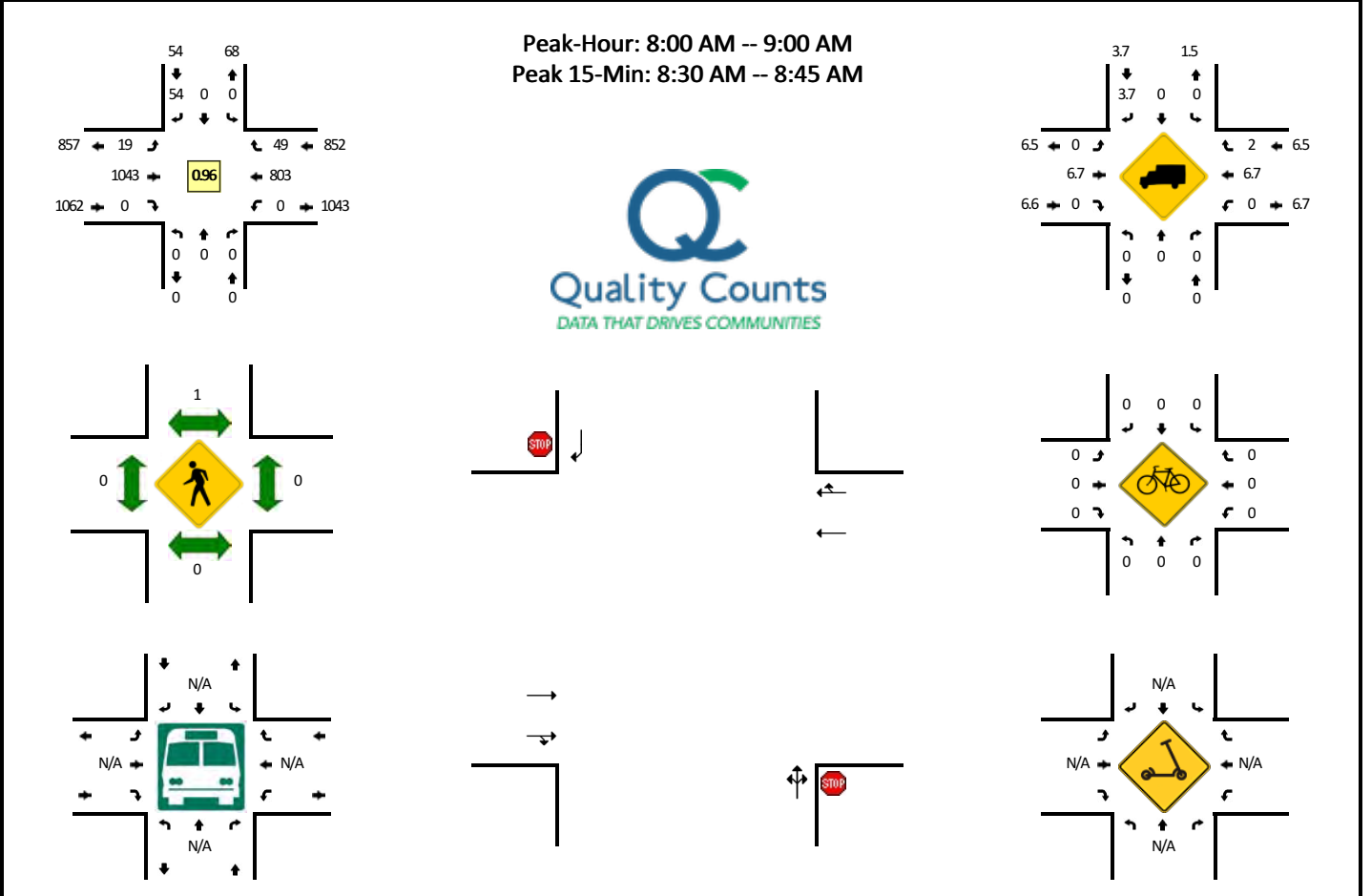


15-Min Count Period Beginning At	N Melvina Ave (Northbound)				N Melvina Ave (Southbound)				South Access (Eastbound)				South Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	2	57	0	0	0	64	1	0	0	0	0	0	0	0	0	0	124	
11:15 AM	0	60	0	0	0	60	0	0	0	0	0	0	0	0	0	0	120	
11:30 AM	3	58	0	0	0	50	0	0	0	0	0	0	0	0	0	0	111	
11:45 AM	0	48	0	0	0	53	1	0	0	0	0	0	0	0	0	0	102	457
12:00 PM	2	53	0	0	0	50	0	0	0	0	0	0	0	0	0	0	105	438
12:15 PM	3	40	0	0	0	54	0	0	0	0	0	0	0	0	0	0	97	415
12:30 PM	2	56	0	0	0	59	0	0	0	0	0	0	0	0	0	0	117	421
12:45 PM	0	55	0	0	0	56	0	0	0	0	0	1	0	0	0	0	112	431
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	228	0	0	0	256	4	0	0	0	0	0	0	0	0	0	496	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	
Buses																		
Pedestrians		16				0				0				0			16	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** Gas Station Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892910  
**DATE:** Tue, Aug 2 2022

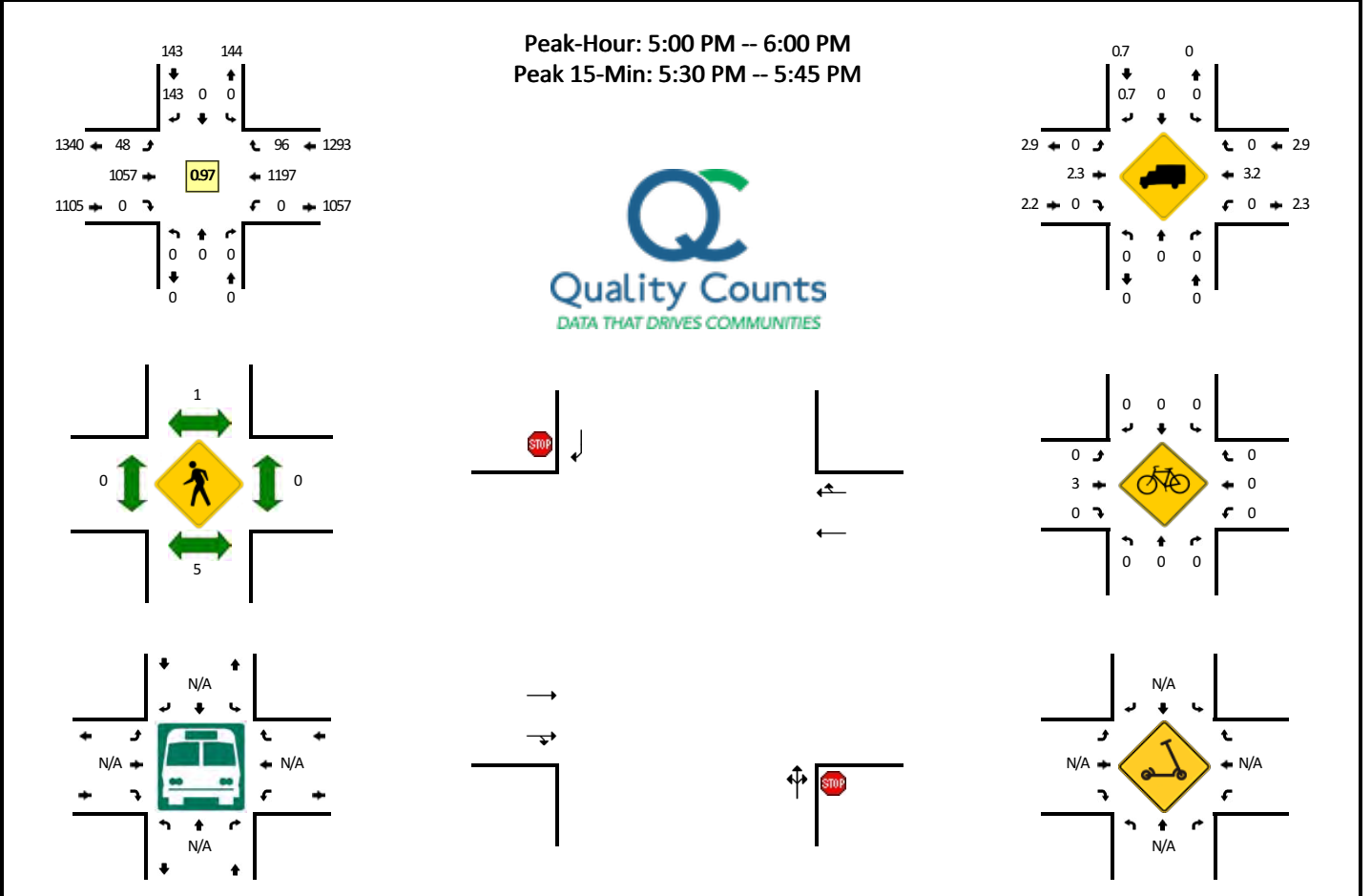


15-Min Count Period Beginning At	Gas Station Access (Northbound)				Gas Station Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	9	0	7	204	0	0	0	195	15	0	430	
7:15 AM	0	0	0	0	0	0	12	0	2	216	0	0	0	195	14	0	439	
7:30 AM	0	0	0	0	0	0	14	0	3	222	0	0	0	234	11	0	484	
7:45 AM	0	0	0	0	0	0	13	0	6	263	0	0	0	173	7	0	462	1815
8:00 AM	0	0	0	0	0	0	17	0	5	221	0	0	0	213	10	0	466	1851
8:15 AM	0	0	0	0	0	0	10	0	6	279	0	0	0	199	9	0	503	1915
8:30 AM	0	0	0	0	0	0	13	0	4	276	0	0	0	203	16	0	512	1943
8:45 AM	0	0	0	0	0	0	14	0	4	267	0	0	0	188	14	0	487	1968
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	52	0	16	1104	0	0	0	812	64	0	2048	
Heavy Trucks	0	0	0	0	0	0	4	0	0	52	0	0	0	64	0	0	120	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** Gas Station Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892911  
**DATE:** Tue, Aug 2 2022

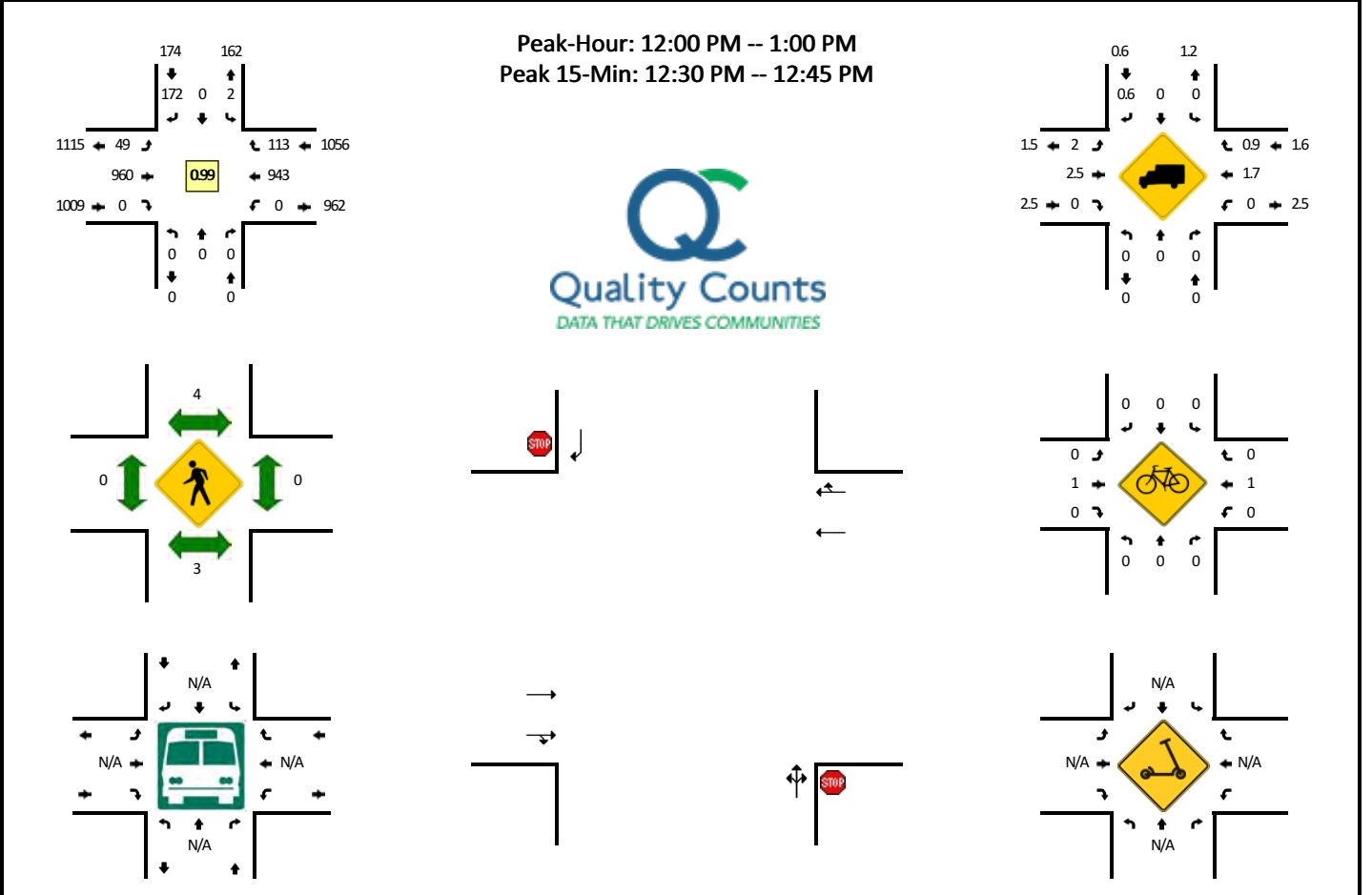


15-Min Count Period Beginning At	Gas Station Access (Northbound)				Gas Station Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	38	0	8	223	0	0	0	302	28	0	599	
4:15 PM	0	0	0	0	0	0	30	0	11	219	0	0	0	313	32	0	605	
4:30 PM	0	0	0	0	1	0	38	0	14	216	0	1	0	310	28	0	608	
4:45 PM	0	0	0	0	0	0	45	0	6	235	0	0	0	280	19	0	585	2397
5:00 PM	0	0	0	0	0	0	43	0	10	246	0	0	0	320	21	0	640	2438
5:15 PM	0	0	0	0	0	0	25	0	9	274	0	0	0	293	22	0	623	2456
5:30 PM	0	0	0	0	0	0	38	0	19	302	0	0	0	274	24	0	657	2505
5:45 PM	0	0	0	0	0	0	37	0	10	235	0	0	0	310	29	0	621	2541
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	152	0	76	1208	0	0	0	1096	96	0	2628	
Heavy Trucks	0	0	0	0	0	0	0	0	0	24	0	0	0	28	0	0	52	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** Gas Station Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892912  
**DATE:** Sat, Jul 30 2022

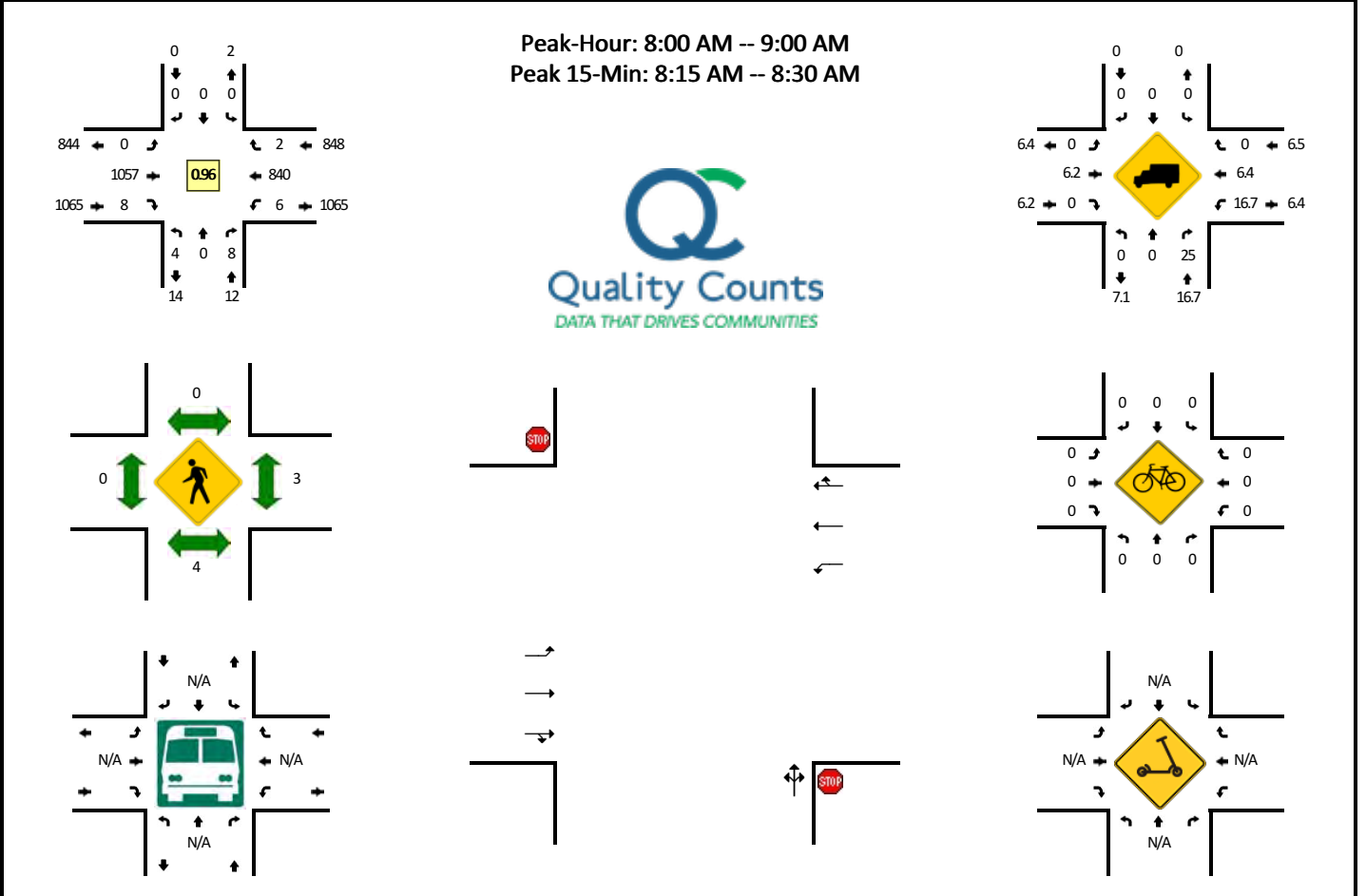


15-Min Count Period Beginning At	Gas Station Access (Northbound)				Gas Station Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	1	0	46	0	3	217	0	0	0	194	23	0	484	
11:15 AM	0	0	0	0	1	0	40	0	6	260	0	0	0	216	38	0	561	
11:30 AM	0	0	0	0	2	0	31	0	9	278	0	0	0	213	26	0	559	
11:45 AM	0	0	0	0	0	0	41	0	12	220	0	0	0	205	35	0	513	2117
12:00 PM	0	0	0	0	0	0	37	0	17	232	0	0	0	241	26	0	553	2186
12:15 PM	0	0	0	0	0	0	46	0	13	242	0	0	0	230	30	0	561	2186
12:30 PM	0	0	0	0	0	0	38	0	11	234	0	0	0	251	29	0	563	2190
12:45 PM	0	0	0	0	2	0	51	0	8	252	0	0	0	221	28	0	562	2239
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	152	0	44	936	0	0	0	1004	116	0	2252	
Heavy Trucks	0	0	0	0	0	0	0	0	4	28	0	0	0	24	0	0	56	
Buses																		
Pedestrians		0				8				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** N Mobile Ave/Parking Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892913  
**DATE:** Tue, Aug 2 2022

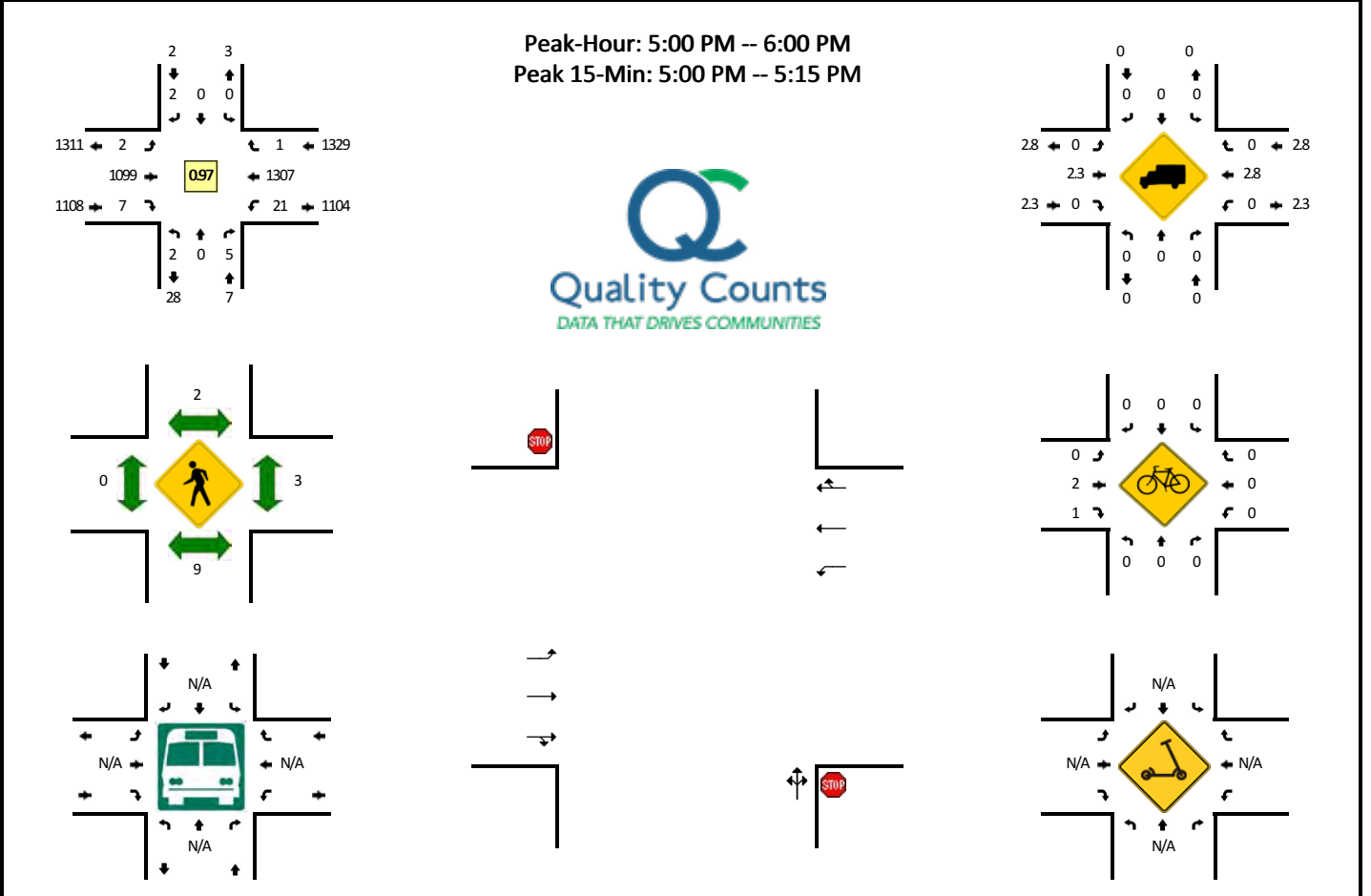


15-Min Count Period Beginning At	N Mobile Ave/Parking Access (Northbound)				N Mobile Ave/Parking Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	0	0	0	212	0	0	3	202	0	0	419	
7:15 AM	1	0	1	0	0	0	0	0	0	218	2	0	1	207	0	0	430	
7:30 AM	1	0	1	0	0	0	0	0	0	220	0	0	3	239	0	0	464	
7:45 AM	1	0	2	0	0	0	0	0	0	270	2	0	1	185	0	0	461	1774
8:00 AM	0	0	2	0	0	0	0	0	0	224	3	0	1	225	1	0	456	1811
8:15 AM	1	0	4	0	0	0	0	0	0	283	2	0	2	211	0	0	503	1884
8:30 AM	2	0	1	0	0	0	0	0	0	280	1	0	2	213	1	0	500	1920
8:45 AM	1	0	1	0	0	0	0	0	0	270	2	0	1	191	0	0	466	1925
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	0	16	0	0	0	0	0	0	1132	8	0	8	844	0	0	2012	
Heavy Trucks	0	0	0	0	0	0	0	0	0	64	0	0	4	44	0	0	112	
Buses																		
Pedestrians		8				0				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

**LOCATION:** N Mobile Ave/Parking Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892914  
**DATE:** Tue, Aug 2 2022



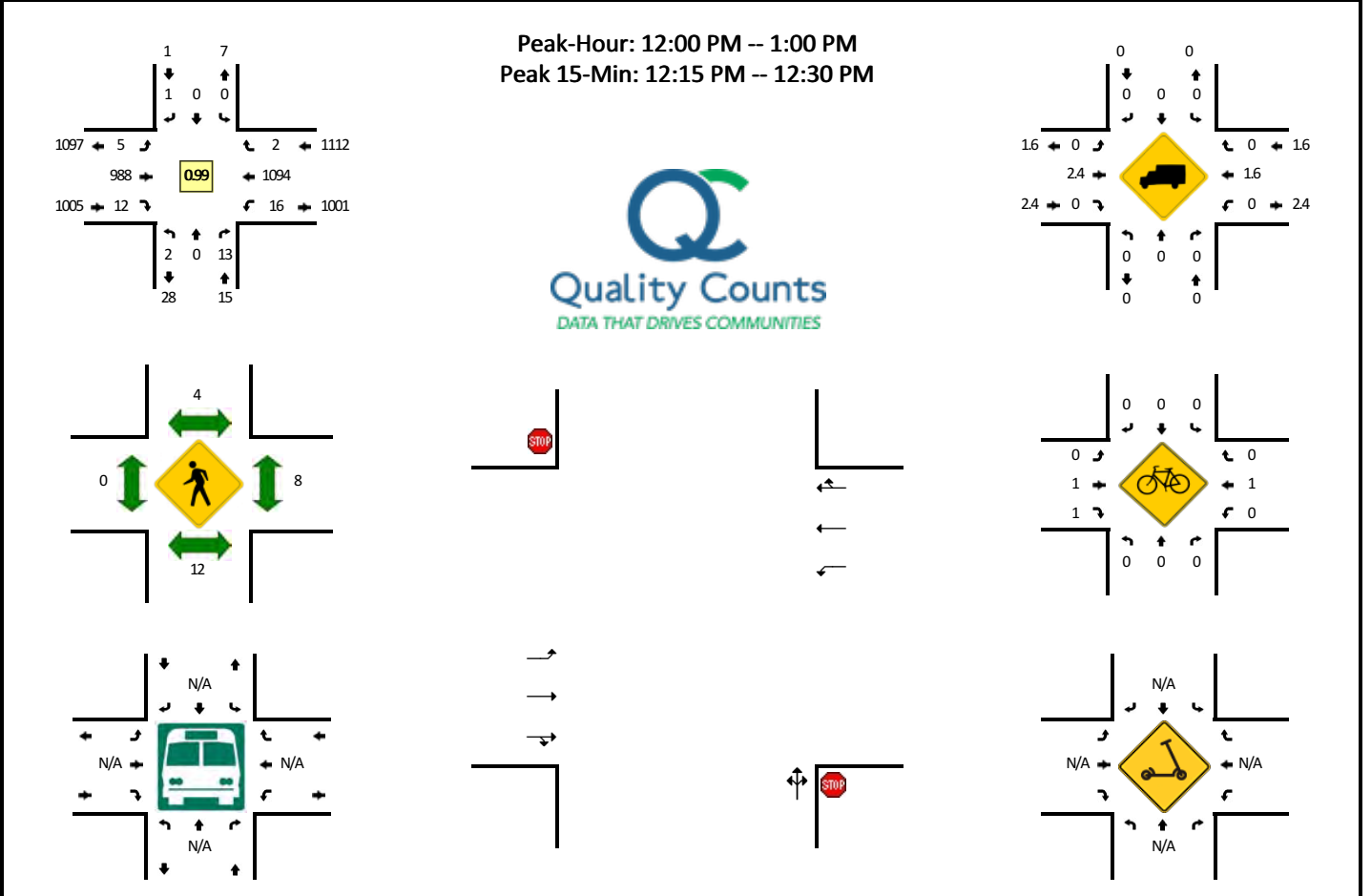
15-Min Count Period Beginning At	N Mobile Ave/Parking Access (Northbound)				N Mobile Ave/Parking Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	4	0	0	0	0	0	1	210	4	0	2	335	1	0	558	
4:15 PM	1	0	5	0	0	0	0	0	1	229	1	0	3	337	0	0	577	
4:30 PM	0	0	1	0	0	0	1	0	1	227	3	0	2	340	1	0	576	
4:45 PM	2	0	3	0	1	0	0	0	1	233	3	0	5	320	1	0	569	2280
5:00 PM	0	0	0	0	0	0	0	0	1	264	4	0	7	354	0	0	630	2352
5:15 PM	2	0	2	0	0	0	0	0	0	289	1	0	4	312	0	0	610	2385
5:30 PM	0	0	0	0	0	0	2	0	1	305	2	0	5	301	1	0	617	2426
5:45 PM	0	0	3	0	0	0	0	0	0	241	0	0	5	340	0	0	589	2446

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	4	1056	16	0	28	1416	0	0	2520
Heavy Trucks	0	0	0	0	0	0	0	0	0	28	0	0	0	44	0	0	72
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	4	4		0	0	0		8
Scoters																	

*Comments:*

**LOCATION:** N Mobile Ave/Parking Access -- W Touhy Ave  
**CITY/STATE:** Chicago, IL

**QC JOB #:** 15892915  
**DATE:** Sat, Jul 30 2022



15-Min Count Period Beginning At	N Mobile Ave/Parking Access (Northbound)				N Mobile Ave/Parking Access (Southbound)				W Touhy Ave (Eastbound)				W Touhy Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	7	0	0	0	1	0	1	217	4	0	7	239	0	0	476	
11:15 AM	1	0	3	0	0	0	1	0	0	269	0	1	6	256	0	0	537	
11:30 AM	1	0	4	0	0	0	0	0	3	270	3	0	5	242	1	1	530	
11:45 AM	3	0	2	0	0	0	0	0	2	229	3	0	5	238	0	0	482	2025
12:00 PM	1	0	3	0	0	0	1	0	1	246	2	0	7	267	0	0	528	2077
12:15 PM	0	0	3	0	0	0	0	0	1	253	3	0	4	273	0	0	537	2077
12:30 PM	1	0	2	0	0	0	0	0	3	239	4	0	2	283	1	0	535	2082
12:45 PM	0	0	5	0	0	0	0	0	0	250	3	0	3	271	1	0	533	2133
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	12	0	0	0	0	0	4	1012	12	0	16	1092	0	0	2148	
Heavy Trucks	0	0	0		0	0	0		0	28	0		0	20	0		48	
Buses																		
Pedestrians		24				4				0				20			48	
Bicycles	0	0	0		0	0	0		0	4	4		0	0	0		8	
Scoters																		

*Comments:*



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# Appendix F

CMAP 2050 ADT Forecast Letter



Chicago Metropolitan Agency for Planning

433 West Van Buren Street  
Suite 450  
Chicago, IL 60607  
312-454-0400  
cmap.illinois.gov

July 25, 2022

Adam Burghdoff  
Principal  
Kittelson & Associates, Inc  
225 East Robinson Street,  
Suite 355  
Orlando, FL 32801

**Subject: Touhy Avenue between N. Caldwell Avenue and N. Lehigh Avenue**  
Village of Niles

Dear Mr. Burghdoff:

In response to a request made on your behalf and dated July 25,2022, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current ADT	Year 2050 ADT
Touhy Avenue	30,500	34,800

Traffic projections are developed using existing ADT data provided in the request letter and the results from the December 2021 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP  
Senior Planner, Research & Analysis

cc: Rios (IDOT)  
2022\_ForecastTraffic\Niles\ck-101-22\ck-101-22.docx

**TRAFFIC FORECAST RECORD**

**Record Number:** ck-101-22

**Type of Report:** Projection

**Year Sought:** 2050

**Analyst:** JAR

**Organization requesting forecast:** Kittelson & Associates, Inc.

**Contact:** Adam Burghdoff, P.E.

**Email or Phone** aburghdoff@kittelson.com

**Sponsor:** Village of Niles

**Date request was received:** July 25,2022

**Date that response was emailed:** July 25, 2022

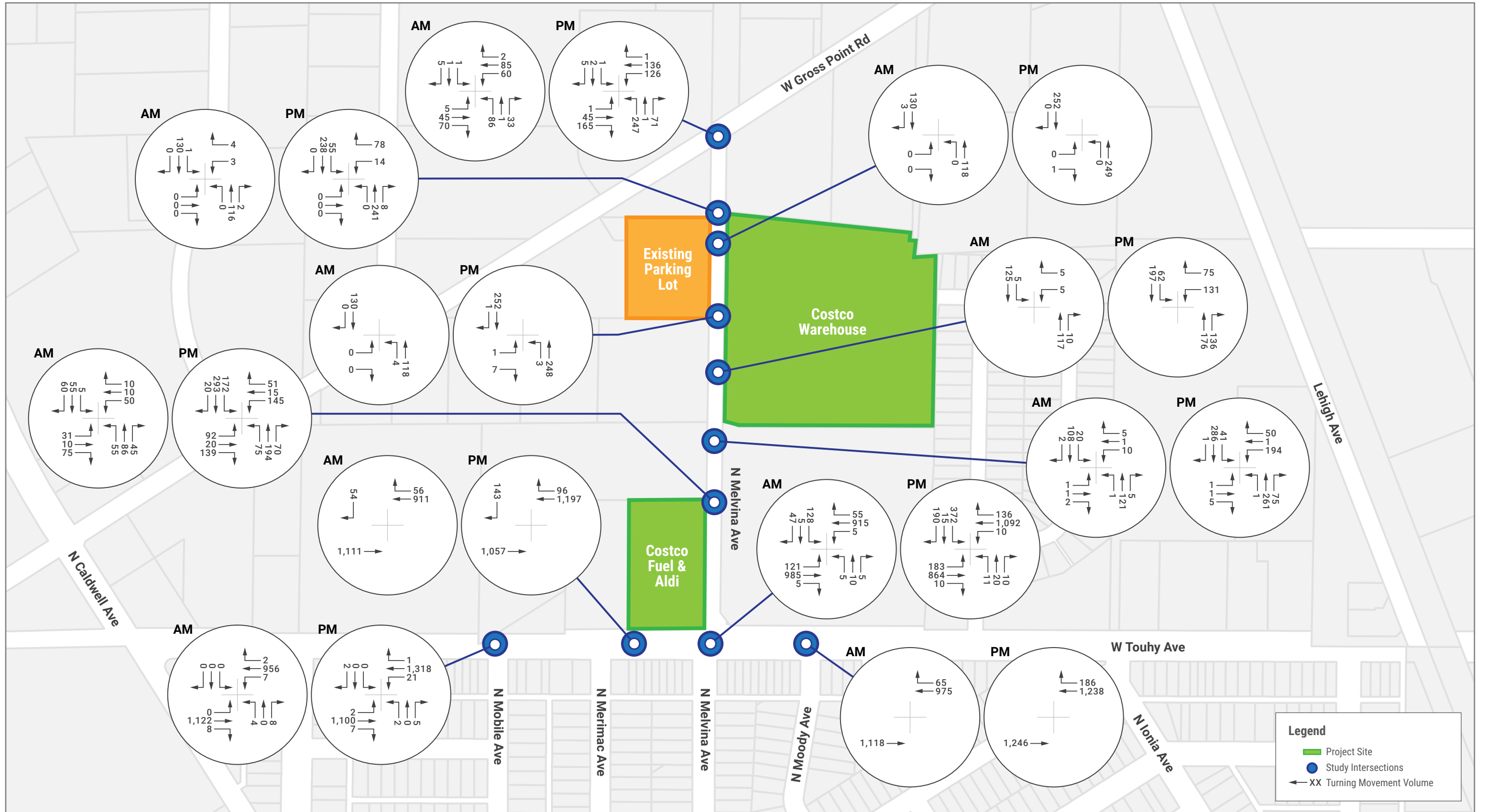
**Facility Location:** Touhy Avenue between N. Caldwell Avenue and N. Lehigh Avenue

**Municipality:** Niles

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# Appendix G

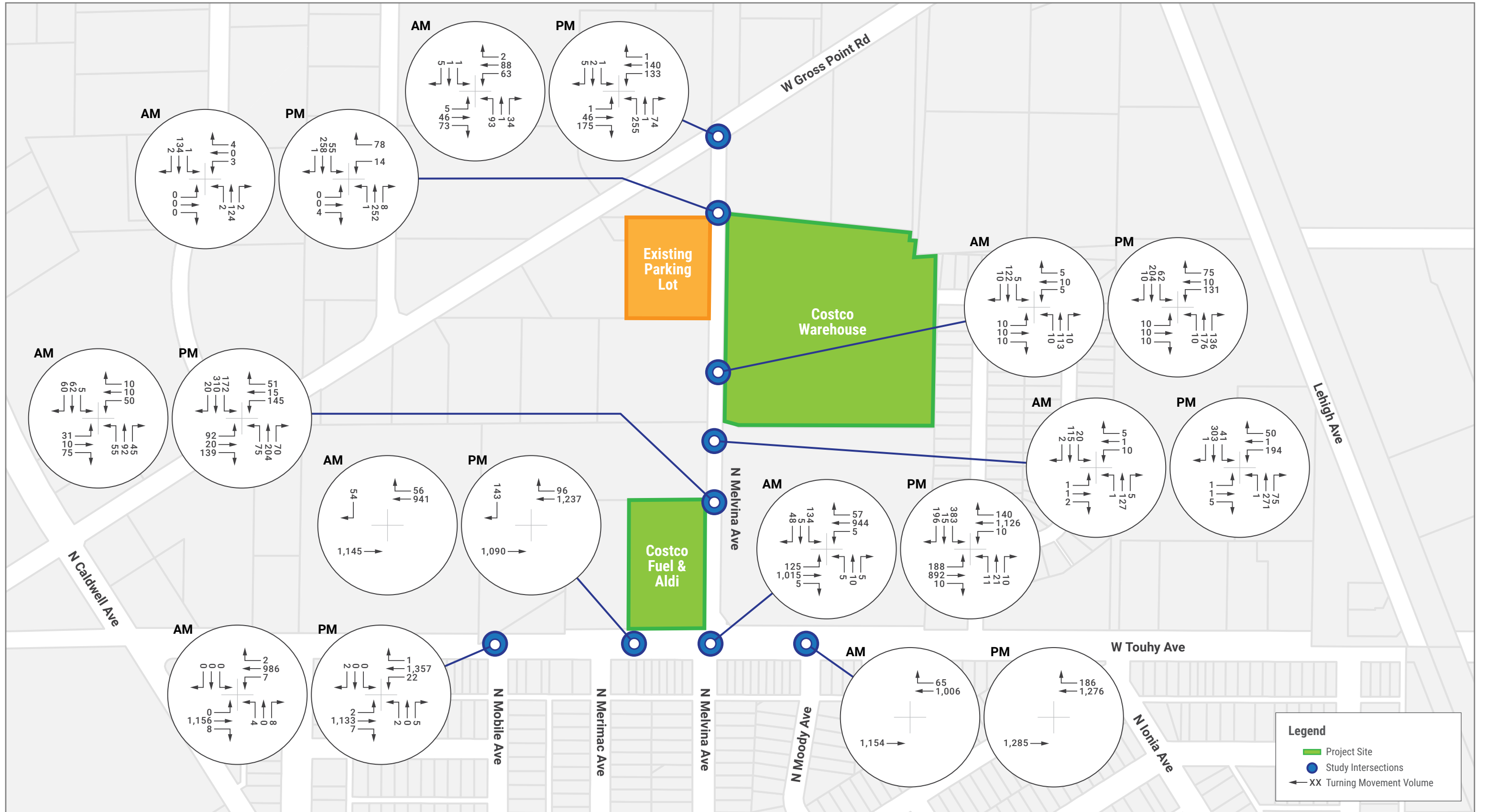
Existing, Background, and Background Plus  
Project Peak Hour Traffic Volumes



Niles Costco | Traffic Impact Study

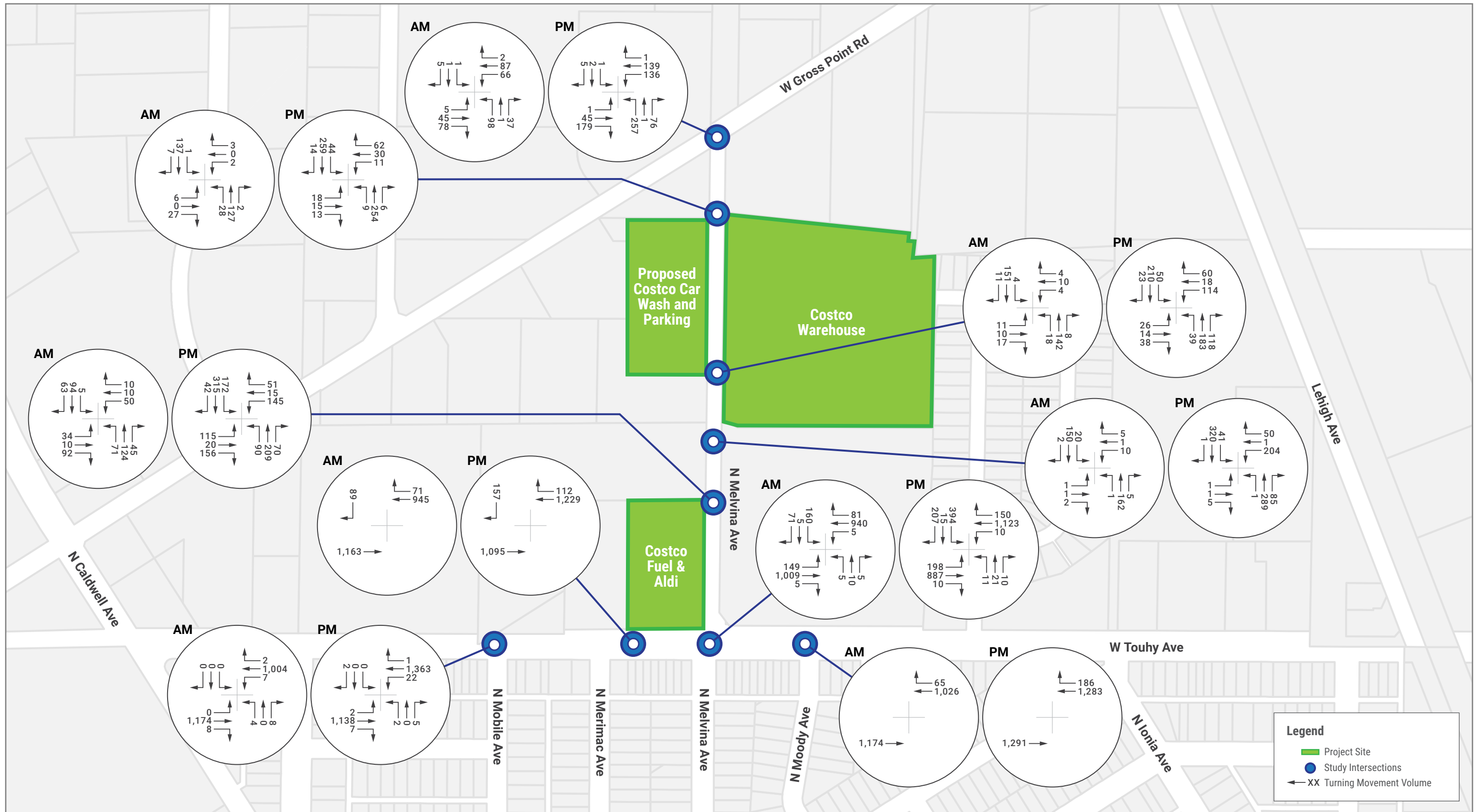
Figure 2 | Existing Peak AM and PM Hour (2022) Turning Movement Volumes











Niles Costco | Traffic Impact Study

Figure 6 | Peak AM and PM Hour (Build) Turning Movement Volumes



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# Appendix H

## Trip Generation and Trip Distribution Analysis

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# Project Trip Generation Estimates

This chapter provides a description of the Costco Trip Generation Database.

## Costco Trip Generation Database

Kittelton has maintained a traffic information and travel characteristics database for Costco Wholesale over the past 20 years. Costco fuel facilities are included in this database. The database contains transportation information such as trip rates, trip types, 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 Kittelton.

The Costco transportation database (the “database”) contains a large quantity of data related to Costco fuel stations. Trip generation rates and trip type information for over 60 Costco fuel facilities located throughout the U.S. are included in the database. Costco has invested significant time and effort into developing this use-specific trip generation data for its warehouses, business centers, and fuel facilities. Due to membership requirements and the nature of Costco sales, Costco members have unique travel characteristics and patterns which are different when compared to other supermarket and fuel facility customers. These unique characteristics and patterns are present in the trip generation rates as well as the interaction between Costco warehouses and Costco fuel facilities.

The Costco-specific trip generation data presented in this study 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 predict the likely changes in peak hour trip generation estimates for Costco fuel facility expansions.

## Fuel Expansion Trip Generation

The Fuel Expansion trip generation is outlined in the previously submitted *Niles Costco Gasoline Fuel Station Expansion Trip Generation* memorandum and is included as an attachment. The previously conducted analysis included PM and Saturday Midday trip generation. Since AM peak hour counts were not previously conducted, the trips were estimated on the proportion of AM to PM fuel facility trips based on Costco data from 43 sites. On average, AM peak hour trips are 63.7 percent of PM peak hour trips, and that percentage was applied to estimate existing AM peak hour trips.

Since expansion data for the AM peak hour is limited and varies within the database, the PM peak hour expansion rate was applied to the estimated AM trips to provide a conservative trip generation estimate.

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## Pass-By, Diverted, and Internal Capture Rates

Pass-By, Diverted, and Internal Capture rates are based on five sites with comparable expansion. Before and after expansion data from sites that were expanded from 16 or 20 fueling positions to 30 or 32 fueling positions was collected. The comparable expansion sites identified were:

Santee, CA	South San Francisco (Airport Blvd), CA
Sunnyvale, CA	South San Francisco (El Camino Real), CA
Scottsdale, AZ	

### Trip Type

The data collected at existing Costco Gasoline fuel stations 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 *Trip Generation*, published by the Institute of Transportation Engineers (ITE). The percentages of pass-by or diverted trips at Costco fuel stations is considerably lower than those quoted in the ITE *Trip Generation* manual for typical fuel stations. Correspondingly, membership requirements also have a significant 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 gasoline pumps 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 stations, on average 36%, 36%, and 33% of the members buying gas during the weekday AM, 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 stations, on average 40%, 37%, and 36% of the members buying gas during the weekday AM, 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.

## **Costco Car Wash Trip Generation**

The Costco Trip Generation Database also includes data specific to Costco Car Washes. Trip generation data for Costco Car Washes was based on 2021 count data from three sites:

- Brentwood, TN
- Scottsdale, AZ
- Boise, ID

---

**Table 1** lists the identified comparable Costco Car Wash sites.

**Table 1: Comparable Costco Car Wash Trip Generation**

Location	Average Peak Hour Trips Generated		
	AM Peak	PM Peak	Saturday Midday Peak
Brentwood, TN	74	110	138
Scottsdale, AZ	-	116	154
Boise, ID	-	86	140
<b>Average</b>	<b>74</b>	<b>106</b>	<b>144</b>

Source: Kittelson & Associates, Inc. 2022

Pass-By, Diverted Route, and Internal Capture rates were also calculated based on data collected from these three sites.

Note that no pass-by, diverted route, or internal capture rate was assumed for the AM peak hour since the data is not currently available.

Based on the available Costco Fuel Facility and Car Wash data, **Table 2** summarizes the trip generation.

Table 2: Trip Generation Summary

Land Use	Number of Units	Units	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Midday Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out
<b>Existing Use</b>											
Costco Fuel Facility <sup>1</sup>	20	Fueling Positions	365	183	182	573	287	286	702	351	351
<b>Land Use Average Rates</b>											
Costco Fuel Facility Expansion Data <sup>2</sup>	-	-	1.187	50%	50%	1.187	50%	50%	1.224	50%	50%
<b>Proposed Use</b>											
Costco Fuel Facility Expansion	30	Fueling Positions	433	217	216	680	340	340	860	430	430
<b><i>New Fuel Facility Project Trips (Gross)</i></b>			<b>68</b>	<b>34</b>	<b>34</b>	<b>107</b>	<b>53</b>	<b>54</b>	<b>158</b>	<b>79</b>	<b>79</b>
Costco Car Wash <sup>3</sup>	1	Car Wash Tunnel	74	37	37	106	53	53	144	72	72
<b><i>Total New Gross Project Trips (Fuel + Car Wash)</i></b>			<b>142</b>	<b>71</b>	<b>71</b>	<b>213</b>	<b>106</b>	<b>107</b>	<b>302</b>	<b>151</b>	<b>151</b>
<b><i>Total New Internal Capture Trips (Fuel to/from Warehouse and Car Wash to/from Warehouse)<sup>4</sup></i></b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>114</b>	<b>57</b>	<b>57</b>	<b>204</b>	<b>102</b>	<b>102</b>
<b><i>Total External Project Trips</i></b>			<b>142</b>	<b>71</b>	<b>71</b>	<b>99</b>	<b>49</b>	<b>50</b>	<b>98</b>	<b>49</b>	<b>49</b>
<i>New Costco Fuel Facility Pass-By Trips<sup>5</sup> (AM Peak=36%, PM Peak=36%, Saturday Midday Peak=33%)</i>			26	13	13	26	13	13	18	9	9
<i>New Costco Car Wash Pass-By Trips<sup>6</sup> (AM Peak=0%, PM Peak=35%, Saturday Midday Peak=18%)</i>			*	*	*	12	6	6	10	5	5
<b><i>Total New Pass-By Project Trips</i></b>			<b>26</b>	<b>13</b>	<b>13</b>	<b>38</b>	<b>19</b>	<b>19</b>	<b>28</b>	<b>14</b>	<b>14</b>
<i>New Costco Fuel Facility Diverted Route Trips<sup>7</sup> (AM Peak=40%, PM Peak=37%, Saturday Midday Peak=36%)</i>			28	14	14	26	13	13	20	10	10
<i>New Costco Car Wash Diverted Route Trips<sup>8</sup> (AM Peak=0%, PM Peak=26%, Saturday Midday Peak=20%)</i>			*	*	*	8	4	4	10	5	5
<b><i>Total New Diverted Route Project Trips</i></b>			<b>28</b>	<b>14</b>	<b>14</b>	<b>34</b>	<b>17</b>	<b>17</b>	<b>30</b>	<b>15</b>	<b>15</b>
<b>Trip Generation Estimates Summary</b>											
<i>Project Gross Trips</i>			142	71	71	213	106	107	302	151	151
<i>Project Internal Capture Trips</i>			0	0	0	114	57	57	204	102	102
<i>Project Pass-By Trips</i>			26	13	13	38	19	19	28	14	14
<i>Project Diverted Route Trips</i>			28	14	14	34	17	17	30	15	15
<b><i>Net New Project Trips</i></b>			<b>88</b>	<b>44</b>	<b>44</b>	<b>27</b>	<b>13</b>	<b>14</b>	<b>40</b>	<b>20</b>	<b>20</b>

\*AM Peak Pass-By and Diverted Route Trip percentages are not available for the car wash in the AM Peak.

Note for the Car Wash Internal Capture, it was assumed that 50 percent of trips that would go from the Car Wash to the Costco Warehouse would remain on the same parking lot and walk over versus drive. Additional footnotes are included in the page below.



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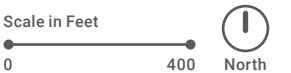
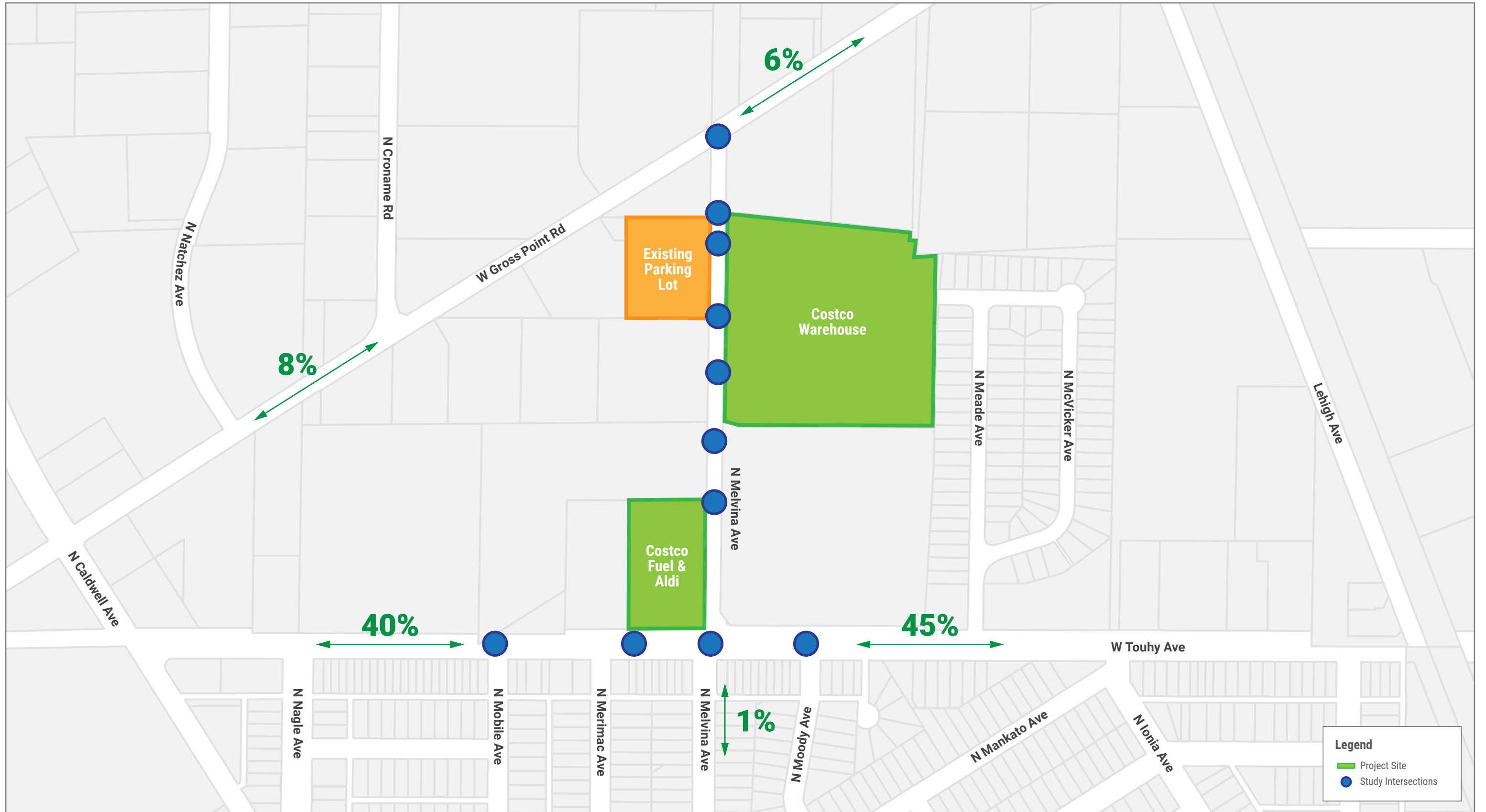
## Trip Generation Table Footnotes

1. Weekday PM and Saturday Midday Trip Generation based on existing counts from Niles Costco Gasoline Fuel Station Expansion Trip Generation and Queueing Technical Memorandum dated May 8, 2018. Weekday AM peak hour data is based on average proportion of AM to PM trips from 43 Costco Fuel Facility driveway counts with between 16 and 22 fueling positions.
2. Weekday PM peak hour and Saturday Midday percent expansion data from Niles Costco Gasoline Fuel Station Expansion Trip Generation and Queueing Technical Memorandum dated May 8, 2018. Weekday AM peak hour increase in trip generation due to expansion was assumed to be equal to the weekday PM trip generation increase.
3. Weekday AM trip generation data based on one site from Boise, Idaho as weekday AM peak hour data is limited. Weekday PM and Saturday Midday data is based on surveys from 3 Costco sites.
4. Internal capture data is based on the average of 5 Costco fuel facility sites and 3 Costco car wash sites surveyed. 70% and 67% of car wash trips are assumed internally captured during the weekday PM and Saturday Midday peak hours, respectively. 34% and 35% of fuel facility trips are assumed internally captured during weekday PM and Saturday Midday peak hours, respectively.
5. Costco fuel facility pass-by rates are based on the average of 5 Costco fuel facilities surveyed.
6. Costco car wash pass-by rates are based on the average of 3 Costco car wash sites surveyed.
7. Costco fuel facility diverted route trip rates are based on the average of 5 Costco fuel facility sites surveyed.
8. Costco car wash diverted route trip rates are based on the average of 3 Costco car wash sites.

---

## **Trip Distribution Estimates**

Trip distribution was estimated based on the existing 2021 and 2022 adjusted and balanced count data for the study network. Incoming and outgoing trips in the study area were totaled across the AM, PM, and Saturday time periods. To calculate the distribution, the distribution was calculated using screen lines at each external intersection. The trip distribution figure is included as an attachment.









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# Appendix I

## Existing Intersection Operations

Table 3 summarizes the overall intersection and worst approach operations for Existing conditions. LOS is not reported for SimTraffic results as microsimulation delay does not directly correlate to HCM defined LOS thresholds.

**Table 3: Intersection Operations, Existing Conditions**

No.	Intersection	Traffic Control <sup>1</sup>	Peak Hour	LOS <sup>2</sup> (Overall Delay) <sup>3</sup>	Approach LOS <sup>4</sup> (Approach Delay) <sup>5</sup>
1	Gross Point Rd & Melvina Ave	TWSC	AM	A (5.1)	B (11.9)
			PM	C (18.6)	<b>E (43.2)</b>
			SAT	C (20.9)	<b>E (40.3)</b>
2	Melvina Ave & Costco Warehouse/Employee Parking Driveway#1 <sup>6</sup>	TWSC	AM	0.2	3.8
			PM	1.1	4.6
			SAT	1.7	6.0
3	Melvina Ave & Costco Employee Parking Driveway #2 <sup>6</sup>	SSSC	AM	0.1	0.1
			PM	0.1	0.2
			SAT	0.2	3.2
4	Melvina Ave & Costco Warehouse Driveway #3 <sup>6</sup>	SSSC	AM	0.1	0.2
			PM	0.3	3.8
			SAT	0.3	0.4
5	Melvina Ave & Costco Warehouse Driveway <sup>6</sup>	SSSC	AM	0.3	3.5
			PM	7.4	2.7
			SAT	4.0	9.5
6	Melvina Ave & Costco Warehouse/Target/YMCA Dwy <sup>6</sup>	TWSC	AM	0.7	4.5
			PM	38.9	<b>113.8</b>
			SAT	47.2	<b>188.0</b>
7	Melvina Ave & Target/Aldi/Costco Fuel Dwy <sup>6</sup>	SSSC	AM	4.0	6.9
			PM	21.1	35.1
			SAT	31.9	59.0
8	Touhy Ave & Mobile Ave	Signal	AM	A (2.3)	-
			PM	A (2.1)	-
			SAT	A (2.7)	-
9	Touhy Ave & Costco Fuel/Aldi Dwy	TWSC	AM	A (0.4)	B (13.0)
			PM	A (1.3)	C (19.0)
			SAT	A (1.6)	C (17.8)
10	Melvina Ave & Touhy Ave	Signal	AM	A (9.0)	-
			PM	C (25.1)	-
			SAT	C (22.2)	-
11	Touhy Ave & Target Dwy	None	AM	A (-)	A (-)
			PM	A (-)	A (-)
			SAT	A (-)	A (-)

Source: Kittelson & Associates, Inc. 2022.

Notes:

<sup>1</sup> Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, SSSC = Side Street Stop Control AWSC = All-Way Stop Control Intersection.

<sup>2</sup> LOS = Level of Service

<sup>3</sup> Delay = Average vehicle delay reported in seconds per vehicle.

<sup>4</sup> Approach LOS = Level of Service for worst approach.

<sup>5</sup> Approach delay = Average vehicle delay reported in seconds per vehicle for the worst approach.

<sup>6</sup> SimTraffic Delay reported.



Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	45	70	60	85	2	86	1	33	1	1	5
Future Vol, veh/h	5	45	70	60	85	2	86	1	33	1	1	5
Conflicting Peds, #/hr	0	0	4	4	0	0	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	60	9	9	0	9	50	4	0	0	0	100	17
Mvmt Flow	6	50	78	67	94	2	96	1	37	1	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	132	0	0	338	335	96	352	373	95
Stage 1	-	-	-	-	-	-	105	105	-	229	229	-
Stage 2	-	-	-	-	-	-	233	230	-	123	144	-
Critical Hdwy	4.7	-	-	4.1	-	-	7.14	6.5	6.2	7.1	7.5	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.74	-	-	2.2	-	-	3.536	4	3.3	3.5	4.9	3.453
Pot Cap-1 Maneuver	1202	-	-	1466	-	-	612	589	966	607	431	922
Stage 1	-	-	-	-	-	-	896	812	-	778	566	-
Stage 2	-	-	-	-	-	-	766	718	-	886	624	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1202	-	-	1460	-	-	580	555	960	558	406	922
Mov Cap-2 Maneuver	-	-	-	-	-	-	580	555	-	558	406	-
Stage 1	-	-	-	-	-	-	888	805	-	774	538	-
Stage 2	-	-	-	-	-	-	723	683	-	845	618	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			3.1			11.9			10		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	651	1202	-	-	1460	-	-	723
HCM Lane V/C Ratio	0.205	0.005	-	-	0.046	-	-	0.011
HCM Control Delay (s)	11.9	8	0	-	7.6	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.1	0.1
Total Del/Veh (s)	0.7	1.6	5.0	3.5	2.4

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.8	0.0	0.2	0.2

3: Melvina Ave. & Costco Employee Parking Dwy #2 Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.1	0.0	0.1

4: Melvina Ave. & Costco Employee Parking Dwy #3 Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.1	0.1

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.5	0.1	0.2	0.3

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	2.0	0.0	0.0	0.1
Total Del/Veh (s)	3.2	4.5	0.3	0.5	0.7

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.1	0.0	0.0	0.2
Total Del/Veh (s)	6.9	6.2	0.8	4.7	4.0

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	1.9	3.0	29.2	2.6

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.7	1.5	1.2	1.6

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	5.7	6.2	64.2	63.5	11.5

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.5	0.3
Total Del/Veh (s)	1.2	0.6	0.9

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	14.5

**Intersection: 1: Melvina Ave. & Gross Point Rd.**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	9	56	70	45
Average Queue (ft)	0	10	24	6
95th Queue (ft)	6	35	51	27
Link Distance (ft)	1156	417	188	140
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1**

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	55
Average Queue (ft)	6
95th Queue (ft)	30
Link Distance (ft)	257
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

**Intersection: 3: Melvina Ave. & Costco Employee Parking Dwy #2**

Movement	NB	SB
Directions Served	LT	TR
Maximum Queue (ft)	18	11
Average Queue (ft)	1	0
95th Queue (ft)	8	8
Link Distance (ft)	124	38
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Intersection: 4: Melvina Ave. & Costco Employee Parking Dwy #3**

Movement	NB
Directions Served	LT
Maximum Queue (ft)	18
Average Queue (ft)	1
95th Queue (ft)	8
Link Distance (ft)	114
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

**Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2**

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	51	17
Average Queue (ft)	11	1
95th Queue (ft)	40	9
Link Distance (ft)	282	114
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	LTR
Maximum Queue (ft)	47	54	31	34
Average Queue (ft)	5	10	7	3
95th Queue (ft)	26	42	27	19
Link Distance (ft)	219	286		212
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			130	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	L	TR	L	TR
Maximum Queue (ft)	48	86	57	42	37	101
Average Queue (ft)	21	37	25	13	3	46
95th Queue (ft)	47	72	50	39	19	78
Link Distance (ft)	278	278	295			163
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				45	25	
Storage Blk Time (%)			1	0	0	10
Queuing Penalty (veh)			0	0	0	1

Intersection: 8: Mobile Ave. & Touhy Ave.

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	TR	LTR
Maximum Queue (ft)	245	175	72	251	232	66
Average Queue (ft)	35	20	6	32	30	14
95th Queue (ft)	151	101	39	140	128	48
Link Distance (ft)	582	582		361	361	482
Upstream Blk Time (%)				0		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)			100			
Storage Blk Time (%)	2			2		
Queuing Penalty (veh)	0			0		

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	WB	SB
Directions Served	LT	T	T	R
Maximum Queue (ft)	180	150	9	33
Average Queue (ft)	27	8	0	1
95th Queue (ft)	103	65	7	14
Link Distance (ft)	361	361	211	226
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	TR
Maximum Queue (ft)	145	230	224	30	232	216	53	62	226	240
Average Queue (ft)	53	106	87	3	120	80	12	25	112	72
95th Queue (ft)	104	202	185	19	219	176	42	58	204	199
Link Distance (ft)		211	211		259	259	259	562		304
Upstream Blk Time (%)	0	1	1		0	0				2
Queuing Penalty (veh)	0	4	3		0	0				5
Storage Bay Dist (ft)	180			100					165	
Storage Blk Time (%)		1			10				9	0
Queuing Penalty (veh)		2			0				5	0

Intersection: 11: Touhy Ave. & Target Dwy

Movement	EB	EB	WB	WB
Directions Served	T	T	T	TR
Maximum Queue (ft)	21	26	12	6
Average Queue (ft)	1	1	1	0
95th Queue (ft)	13	20	8	4
Link Distance (ft)	259	259	479	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 20
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Existing Conditions  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1122	8	7	956	2	4	0	8	0	0	0
Future Volume (veh/h)	0	1122	8	7	956	2	4	0	8	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1811	1900	1648	1811	1900	1900	1900	1530	1900	1900	1900
Adj Flow Rate, veh/h	0	1169	8	7	996	2	4	0	8	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	6	0	17	6	0	0	0	25	0	0	0
Cap, veh/h	539	2946	20	383	3076	6	51	4	36	0	80	0
Arrive On Green	0.00	0.84	0.85	0.01	1.00	1.00	0.06	0.00	0.03	0.00	0.00	0.00
Sat Flow, veh/h	1810	3503	24	1570	3523	7	407	111	1038	0	1900	0
Grp Volume(v), veh/h	0	574	603	7	486	512	12	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1721	1807	1570	1721	1810	1556	0	0	0	1900	0
Q Serve(g_s), s	0.0	10.4	10.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.4	10.3	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.00	0.33		0.67	0.00		0.00
Lane Grp Cap(c), veh/h	539	1447	1519	383	1502	1580	127	0	0	0	80	0
V/C Ratio(X)	0.00	0.40	0.40	0.02	0.32	0.32	0.09	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	670	1447	1519	490	1502	1580	297	0	0	0	248	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	2.5	2.5	1.8	0.0	0.0	60.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.8	0.0	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.0	4.7	4.9	0.0	0.4	0.4	0.7	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.3	3.2	1.9	0.6	0.5	61.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	A
Approach Vol, veh/h		1177			1005			12				0
Approach Delay, s/veh		3.3			0.6			61.0				0.0
Approach LOS		A			A			E				A
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.2	115.3		10.5	0.0	119.5		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	9.5	86.0		16.0	9.5	86.0		19.0				
Max Q Clear Time (g_c+I), s	12.4	12.4		0.0	0.0	2.0		2.9				
Green Ext Time (p_c), s	0.0	34.8		0.0	0.0	27.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.



Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	19	1111	911	56	0	54
Future Vol, veh/h	19	1111	911	56	0	54
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	7	7	2	0	4
Mvmt Flow	20	1157	949	58	0	56





















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1008	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	695	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	694	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	694	-	-	-	507
HCM Lane V/C Ratio	0.029	-	-	-	0.111
HCM Control Delay (s)	10.3	-	-	-	13
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Existing Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	985	5	5	915	55	5	10	5	128	5	47
Future Volume (veh/h)	121	985	5	5	915	55	5	10	5	128	5	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1796	1900	1900	1891	1900	1900	1900	1900	1841	1900	1737
Adj Flow Rate, veh/h	133	1082	5	5	1005	60	5	11	5	141	5	52
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	7	0	0	7	0	0	0	0	4	0	11
Cap, veh/h	433	2582	12	436	2544	1139	47	43	18	260	19	201
Arrive On Green	0.07	1.00	1.00	0.00	0.71	0.71	0.07	0.04	0.04	0.07	0.14	0.14
Sat Flow, veh/h	1767	3484	16	1810	3593	1609	294	1000	404	1753	142	1480
Grp Volume(v), veh/h	133	530	557	5	1005	60	21	0	0	141	0	57
Grp Sat Flow(s),veh/h/ln	1767	1706	1793	1810	1796	1609	1698	0	0	1753	0	1623
Q Serve(g_s), s	2.7	0.0	0.0	0.1	14.7	1.5	0.0	0.0	0.0	8.5	0.0	4.1
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.1	14.7	1.5	1.4	0.0	0.0	8.5	0.0	4.1
Prop In Lane	1.00		0.01	1.00		1.00	0.24		0.24	1.00		0.91
Lane Grp Cap(c), veh/h	433	1265	1329	436	2544	1139	147	0	0	260	0	220
V/C Ratio(X)	0.31	0.42	0.42	0.01	0.40	0.05	0.14	0.00	0.00	0.54	0.00	0.26
Avail Cap(c_a), veh/h	538	1265	1329	561	2544	1139	228	0	0	260	0	300
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.3	0.0	0.0	5.4	7.7	5.8	59.8	0.0	0.0	54.2	0.0	49.9
Incr Delay (d2), s/veh	0.3	1.0	1.0	0.0	0.5	0.1	0.6	0.0	0.0	1.9	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	0.6	0.6	0.1	9.2	0.9	1.2	0.0	0.0	8.1	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	1.0	1.0	5.4	8.1	5.8	60.5	0.0	0.0	56.1	0.0	50.8
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	D
Approach Vol, veh/h		1220			1070			21			198	
Approach Delay, s/veh		1.5			8.0			60.5			54.6	
Approach LOS		A			A			E			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.0	102.4		23.6	8.3	98.1	12.0	11.6				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0	3.5	6.0				
Max Green Setting (Gmax), s	9.5	81.0		24.0	12.5	78.0	8.5	12.0				
Max Q Clear Time (g_c+I1), s	2.1	2.0		6.1	4.7	16.7	10.5	3.4				
Green Ext Time (p_c), s	0.0	31.3		0.2	0.2	28.2	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			9.0									
HCM 6th LOS			A									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1118	0	0	975	65	0	0	0	0	0	0
Future Vol, veh/h	0	1118	0	0	975	65	0	0	0	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	6	2	2	5	2	0	2	0	0	2	0
Mvmt Flow	0	1141	0	0	995	66	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1539	2203	572
Stage 1	-	-	-	-	-	-	1141	1141	-
Stage 2	-	-	-	-	-	-	398	1062	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	135	44	468
Stage 1	0	-	0	0	-	-	265	274	-
Stage 2	0	-	0	0	-	-	617	298	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	135	0	468
Mov Cap-2 Maneuver	-	-	-	-	-	-	135	0	-
Stage 1	-	-	-	-	-	-	265	0	-
Stage 2	-	-	-	-	-	-	617	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	18.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	45	165	126	136	1	247	1	71	1	2	5
Future Vol, veh/h	1	45	165	126	136	1	247	1	71	1	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	11	0	1	8	0	0	0	0	0	0	0
Mvmt Flow	1	51	188	143	155	1	281	1	81	1	2	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	239	0	0	593	589	146	631	683	156
Stage 1	-	-	-	-	-	-	147	147	-	442	442	-
Stage 2	-	-	-	-	-	-	446	442	-	189	241	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1436	-	-	1334	-	-	420	423	906	396	374	895
Stage 1	-	-	-	-	-	-	860	779	-	598	580	-
Stage 2	-	-	-	-	-	-	595	580	-	817	710	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1436	-	-	1334	-	-	378	373	905	327	330	895
Mov Cap-2 Maneuver	-	-	-	-	-	-	378	373	-	327	330	-
Stage 1	-	-	-	-	-	-	859	778	-	597	512	-
Stage 2	-	-	-	-	-	-	520	512	-	742	709	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			3.8			43.2			11.7		
HCM LOS							E			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	434	1436	-	-	1334	-	-	544
HCM Lane V/C Ratio	0.835	0.001	-	-	0.107	-	-	0.017
HCM Control Delay (s)	43.2	7.5	0	-	8	0	-	11.7
HCM Lane LOS	E	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	8	0	-	-	0.4	-	-	0.1

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.1	0.1
Total Del/Veh (s)	0.9	2.5	10.1	5.8	5.2

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	4.6	0.2	0.8	1.1

3: Melvina Ave. & Costco Employee Parking Dwy #2 Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.1	0.1

4: Melvina Ave. & Costco Employee Parking Dwy #3 Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.8	0.4	0.1	0.3

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.1
Total Del/Veh (s)	7.4	0.8	1.4	2.7

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	87.1	0.0	0.0	26.4
Total Del/Veh (s)	25.3	113.8	0.8	8.6	38.9

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.4	0.0	1.9	1.0
Total Del/Veh (s)	17.7	23.2	1.4	35.1	21.1

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	1.8	4.7	30.9	5.4	3.5

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	5.2	3.0	1.9	3.9

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.3	0.1
Total Del/Veh (s)	15.9	17.1	82.4	67.7	26.9

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.9	0.5
Total Del/Veh (s)	1.7	2.8	2.3

Total Network Performance

Denied Del/Veh (s)	6.0
Total Del/Veh (s)	39.4

**Intersection: 1: Melvina Ave. & Gross Point Rd.**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	16	48	157	12
Average Queue (ft)	1	23	66	1
95th Queue (ft)	5	50	130	7
Link Distance (ft)	1156	416	188	139
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1**

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	72	66	32
Average Queue (ft)	32	5	9
95th Queue (ft)	51	31	32
Link Distance (ft)	257	38	188
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection: 3: Melvina Ave. & Costco Employee Parking Dwy #2**

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

**Intersection: 4: Melvina Ave. & Costco Employee Parking Dwy #3**

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	31
Average Queue (ft)	10	2
95th Queue (ft)	33	15
Link Distance (ft)	216	114
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2**

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	98	75
Average Queue (ft)	52	28
95th Queue (ft)	83	65
Link Distance (ft)	282	114
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	LTR
Maximum Queue (ft)	29	301	190	194
Average Queue (ft)	10	248	118	56
95th Queue (ft)	31	396	256	141
Link Distance (ft)	219	286		212
Upstream Blk Time (%)		66		0
Queuing Penalty (veh)		0		0
Storage Bay Dist (ft)			130	
Storage Blk Time (%)		70		
Queuing Penalty (veh)		36		



**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	L	TR	L	TR
Maximum Queue (ft)	92	160	149	100	60	180
Average Queue (ft)	34	64	65	40	59	161
95th Queue (ft)	64	107	120	85	65	201
Link Distance (ft)	278	278	295			163
Upstream Blk Time (%)						23
Queuing Penalty (veh)						110
Storage Bay Dist (ft)				45	25	
Storage Blk Time (%)			27	2	39	80
Queuing Penalty (veh)			18	3	123	138

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	27	182	176	53	310	328	31	31
Average Queue (ft)	1	37	17	15	41	45	11	2
95th Queue (ft)	9	139	85	46	184	197	34	15
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		2			2			
Queuing Penalty (veh)		0			0			

**Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy**

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	R
Maximum Queue (ft)	267	223	165	83
Average Queue (ft)	90	49	7	18
95th Queue (ft)	219	175	57	65
Link Distance (ft)	361	361	210	208
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	TR
Maximum Queue (ft)	204	226	225	199	284	285	160	118	240	319
Average Queue (ft)	99	163	148	21	245	213	50	38	232	288
95th Queue (ft)	169	254	229	105	304	299	116	92	254	365
Link Distance (ft)		210	210		259	259	259	562		304
Upstream Blk Time (%)	0	4	2		6	2				21
Queuing Penalty (veh)	0	19	9		24	9				119
Storage Bay Dist (ft)	180			100					165	
Storage Blk Time (%)	0	7			30				44	15
Queuing Penalty (veh)	0	14			3				90	56

Intersection: 11: Touhy Ave. & Target Dwy

Movement	EB	EB	WB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	97	133	281	235
Average Queue (ft)	5	7	54	19
95th Queue (ft)	38	49	160	104
Link Distance (ft)	259	259	479	479
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				1
Queuing Penalty (veh)				4

Network Summary

Network wide Queuing Penalty: 775
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Existing Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1100	7	21	1318	1	2	0	5	0	0	2
Future Volume (veh/h)	2	1100	7	21	1318	1	2	0	5	0	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1856	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	2	1134	7	22	1359	1	2	0	5	0	0	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	0	3	0	0	0	0	0	0	0
Cap, veh/h	398	3095	19	464	3128	2	41	3	33	0	0	47
Arrive On Green	0.00	0.85	0.86	0.02	1.00	1.00	0.05	0.00	0.03	0.00	0.00	0.04
Sat Flow, veh/h	1810	3620	22	1810	3615	3	335	110	1115	0	0	1570
Grp Volume(v), veh/h	2	557	584	22	663	697	7	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1810	1777	1866	1810	1763	1855	1561	0	0	0	0	1570
Q Serve(g_s), s	0.0	9.9	9.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.0	9.9	9.9	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00		0.01	1.00		0.00	0.29		0.71	0.00		1.00
Lane Grp Cap(c), veh/h	398	1519	1595	464	1525	1605	109	0	0	0	0	47
V/C Ratio(X)	0.01	0.37	0.37	0.05	0.43	0.43	0.06	0.00	0.00	0.00	0.00	0.04
Avail Cap(c_a), veh/h	522	1519	1595	569	1525	1605	257	0	0	0	0	168
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	1.5	2.3	2.3	1.7	0.0	0.0	70.5	0.0	0.0	0.0	0.0	70.2
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.9	0.9	0.4	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	2.7	2.8	0.1	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	3.0	3.0	1.7	0.9	0.9	70.8	0.0	0.0	0.0	0.0	70.6
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1143			1382			7				2
Approach Delay, s/veh		3.0			0.9			70.8				70.6
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	134.2		10.5	3.7	135.8		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	105.0		16.0	10.5	105.0		19.0				
Max Q Clear Time (g_c+1/2), s	11.9	11.9		2.2	2.0	2.0		2.6				
Green Ext Time (p_c), s	0.0	35.8		0.0	0.0	52.1		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	48	1057	1197	96	0	143
Future Vol, veh/h	48	1057	1197	96	0	143
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	2	3	0	0	1
Mvmt Flow	49	1090	1234	99	0	147





















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1334	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	524	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	524	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	524	-	-	-	403
HCM Lane V/C Ratio	0.094	-	-	-	0.366
HCM Control Delay (s)	12.6	-	-	-	19
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.6

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Existing Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	864	10	10	1092	136	11	20	10	372	15	190
Future Volume (veh/h)	183	864	10	10	1092	136	11	20	10	372	15	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.97	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1856	1767	1900	1953	1885	1900	1900	1900	1870	1900	1900
Adj Flow Rate, veh/h	201	949	11	11	1200	149	12	22	11	409	16	209
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	9	0	3	1	0	0	0	2	0	0
Cap, veh/h	323	2315	27	415	2211	945	44	35	16	431	28	362
Arrive On Green	0.12	1.00	1.00	0.01	0.60	0.60	0.06	0.04	0.05	0.18	0.24	0.25
Sat Flow, veh/h	1810	3569	41	1810	3711	1586	346	859	390	1781	115	1505
Grp Volume(v), veh/h	201	469	491	11	1200	149	45	0	0	409	0	225
Grp Sat Flow(s),veh/h/ln	1810	1763	1848	1810	1856	1586	1595	0	0	1781	0	1620
Q Serve(g_s), s	6.6	0.0	0.0	0.4	29.0	6.3	2.5	0.0	0.0	26.5	0.0	18.3
Cycle Q Clear(g_c), s	6.6	0.0	0.0	0.4	29.0	6.3	4.0	0.0	0.0	26.5	0.0	18.3
Prop In Lane	1.00		0.02	1.00		1.00	0.27		0.24	1.00		0.93
Lane Grp Cap(c), veh/h	323	1143	1199	415	2211	945	127	0	0	431	0	390
V/C Ratio(X)	0.62	0.41	0.41	0.03	0.54	0.16	0.35	0.00	0.00	0.95	0.00	0.58
Avail Cap(c_a), veh/h	461	1143	1199	516	2211	945	250	0	0	431	0	519
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	0.0	11.9	18.1	13.5	70.4	0.0	0.0	57.9	0.0	49.8
Incr Delay (d2), s/veh	1.5	1.1	1.0	0.0	1.0	0.4	2.4	0.0	0.0	30.8	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.3	0.3	0.2	12.5	2.4	1.8	0.0	0.0	6.5	0.0	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	1.1	1.0	11.9	19.1	13.9	72.7	0.0	0.0	88.7	0.0	51.7
LnGrp LOS	B	A	A	B	B	B	E	A	A	F	A	D
Approach Vol, veh/h		1161			1360			45				634
Approach Delay, s/veh		3.6			18.4			72.7				75.6
Approach LOS		A			B			E				E
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	103.3		42.1	12.5	95.4	30.0	12.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0	3.5	6.0				
Max Green Setting (Gmax), s	9.5	77.0		48.0	20.5	66.0	26.5	18.0				
Max Q Clear Time (g_c+I1), s	2.4	2.0		20.3	8.6	31.0	28.5	6.0				
Green Ext Time (p_c), s	0.0	24.9		1.6	0.4	25.8	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				25.1								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1246	0	0	1238	186	0	0	0	0	0	0
Future Vol, veh/h	0	1246	0	0	1238	186	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	2	0	2	2	0	0	0	0	2	0
Mvmt Flow	0	1285	0	0	1276	192	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1798	2753	646
Stage 1	-	-	-	-	-	-	1285	1285	-
Stage 2	-	-	-	-	-	-	513	1468	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	95	20	419
Stage 1	0	-	0	0	-	-	223	237	-
Stage 2	0	-	0	0	-	-	538	194	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	95	0	418
Mov Cap-2 Maneuver	-	-	-	-	-	-	95	0	-
Stage 1	-	-	-	-	-	-	223	0	-
Stage 2	-	-	-	-	-	-	537	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	20.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	30	164	138	60	1	251	1	118	1	1	1
Future Vol, veh/h	1	30	164	138	60	1	251	1	118	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	3	0	1	0	0	0	0	0
Mvmt Flow	1	35	191	160	70	1	292	1	137	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	71	0	0	226	0	0	525	524	132	594	619	71
Stage 1	-	-	-	-	-	-	133	133	-	391	391	-
Stage 2	-	-	-	-	-	-	392	391	-	203	228	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.11	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.509	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1542	-	-	1354	-	-	465	461	923	420	407	997
Stage 1	-	-	-	-	-	-	873	790	-	637	611	-
Stage 2	-	-	-	-	-	-	635	611	-	804	719	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1542	-	-	1354	-	-	419	404	922	323	357	997
Mov Cap-2 Maneuver	-	-	-	-	-	-	419	404	-	323	357	-
Stage 1	-	-	-	-	-	-	872	789	-	636	536	-
Stage 2	-	-	-	-	-	-	555	536	-	682	718	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			5.6			40.3			13.3		
HCM LOS							E			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	507	1542	-	-	1354	-	-	435
HCM Lane V/C Ratio	0.849	0.001	-	-	0.119	-	-	0.008
HCM Control Delay (s)	40.3	7.3	0	-	8	-	-	13.3
HCM Lane LOS	E	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	8.8	0	-	-	0.4	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.4	0.1	0.3
Total Del/Veh (s)	1.1	3.9	11.9	7.3	7.0

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	6.0	0.3	1.2	1.7

3: Melvina Ave. & Costco Employee Parking Dwy #2 Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.2	0.2	0.2	0.2

4: Melvina Ave. & Costco Employee Parking Dwy #3 Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.4	0.2	0.3

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.0	0.1
Total Del/Veh (s)	9.5	0.8	2.0	4.0

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	524.8	0.0	0.1	151.8
Total Del/Veh (s)	73.1	188.0	1.1	17.4	47.2

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	7.4	0.0	9.9	4.3
Total Del/Veh (s)	27.9	59.0	1.5	49.2	31.9

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	3.2	5.5	11.8	11.7	4.5



9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	3.7	3.1	2.7	3.3

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.0	0.0
Total Del/Veh (s)	15.6	20.3	63.9	61.2	27.8

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	1.2	0.7
Total Del/Veh (s)	1.3	2.0	1.7

Total Network Performance

Denied Del/Veh (s)	38.2
Total Del/Veh (s)	45.9

Intersection: 1: Melvina Ave. & Gross Point Rd.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	16	105	180	17
Average Queue (ft)	2	25	71	1
95th Queue (ft)	10	67	148	9
Link Distance (ft)	1156	417	188	140
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			4	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	87	31	79
Average Queue (ft)	39	2	22
95th Queue (ft)	63	16	58
Link Distance (ft)	257	38	188
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Melvina Ave. & Costco Employee Parking Dwy #2

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	12	23
Average Queue (ft)	1	1
95th Queue (ft)	8	11
Link Distance (ft)	207	124
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Melvina Ave. & Costco Employee Parking Dwy #3

Movement	NB	SB
Directions Served	LT	TR
Maximum Queue (ft)	40	20
Average Queue (ft)	4	1
95th Queue (ft)	22	12
Link Distance (ft)	114	124
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	132	28	90
Average Queue (ft)	65	2	29
95th Queue (ft)	112	12	69
Link Distance (ft)	282	212	114
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	76	301	190	50	225
Average Queue (ft)	24	256	95	3	84
95th Queue (ft)	70	387	242	20	192
Link Distance (ft)	219	286		163	212
Upstream Blk Time (%)		74			1
Queuing Penalty (veh)		0			4
Storage Bay Dist (ft)			130		
Storage Blk Time (%)		81			
Queuing Penalty (veh)		70			

Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	122	209	310	100	19	22	60	183
Average Queue (ft)	46	94	162	73	1	1	15	172
95th Queue (ft)	89	180	325	130	8	11	55	201
Link Distance (ft)	278	278	295			304		163
Upstream Blk Time (%)		0	12					40
Queuing Penalty (veh)		0	0					189
Storage Bay Dist (ft)				45	50		25	
Storage Blk Time (%)			67	5		0	2	97
Queuing Penalty (veh)			64	11		0	11	11

Intersection: 8: Mobile Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	34	250	178	73	290	298	31	19
Average Queue (ft)	4	58	30	12	46	50	11	1
95th Queue (ft)	22	195	115	48	188	191	36	9
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	0		
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		5			2			
Queuing Penalty (veh)		0			0			

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	R
Maximum Queue (ft)	278	227	33	62	118
Average Queue (ft)	65	23	0	1	27
95th Queue (ft)	188	117	8	15	86
Link Distance (ft)	361	361	211	211	242
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	TR
Maximum Queue (ft)	210	239	223	165	274	266	182	69	240	324
Average Queue (ft)	117	135	114	10	215	178	91	24	235	282
95th Queue (ft)	195	224	195	60	294	278	161	59	254	380
Link Distance (ft)		211	211		261	261	261	562		304
Upstream Blk Time (%)	0	1	1		4	1				16
Queuing Penalty (veh)	0	7	2		14	2				101
Storage Bay Dist (ft)	180			100					165	
Storage Blk Time (%)	2	3			31				47	6
Queuing Penalty (veh)	8	6			3				98	25

Intersection: 11: Touhy Ave. & Target Dwy

Movement	WB	WB	WB
Directions Served	T	T	TR
Maximum Queue (ft)	157	52	17
Average Queue (ft)	20	4	1
95th Queue (ft)	91	39	9
Link Distance (ft)	480	480	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Network Summary

Network wide Queuing Penalty: 632
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Existing Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1005	12	16	1183	2	2	0	13	0	0	1
Future Volume (veh/h)	5	1005	12	16	1183	2	2	0	13	0	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.97		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1015	12	16	1195	2	2	0	13	0	0	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	446	2910	34	483	2969	5	38	6	83	0	0	107
Arrive On Green	0.00	0.81	0.82	0.02	1.00	1.00	0.08	0.00	0.06	0.00	0.00	0.07
Sat Flow, veh/h	1810	3596	43	1810	3640	6	115	92	1345	0	0	1554
Grp Volume(v), veh/h	5	502	525	16	583	614	15	0	0	0	0	1
Grp Sat Flow(s),veh/h/ln	1810	1777	1861	1810	1777	1869	1552	0	0	0	0	1554
Q Serve(g_s), s	0.1	9.8	9.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	9.8	9.7	0.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		0.02	1.00		0.00	0.13		0.87	0.00		1.00
Lane Grp Cap(c), veh/h	446	1438	1506	483	1449	1524	162	0	0	0	0	107
V/C Ratio(X)	0.01	0.35	0.35	0.03	0.40	0.40	0.09	0.00	0.00	0.00	0.00	0.01
Avail Cap(c_a), veh/h	585	1438	1506	611	1449	1524	315	0	0	0	0	203
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	2.3	3.3	3.3	2.5	0.0	0.0	57.6	0.0	0.0	0.0	0.0	56.4
Incr Delay (d2), s/veh	0.0	0.7	0.6	0.0	0.8	0.8	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	2.9	3.0	0.1	0.3	0.3	0.5	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.3	4.0	3.9	2.5	0.8	0.8	58.0	0.0	0.0	0.0	0.0	56.4
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1032			1213			15				1
Approach Delay, s/veh		3.9			0.8			58.0				56.4
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	111.2		14.0	4.0	112.0		14.0				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	83.0		16.0	10.5	83.0		21.0				
Max Q Clear Time (g_c+1/2), s	11.8	11.8		2.1	2.1	2.0		3.2				
Green Ext Time (p_c), s	0.0	27.4		0.0	0.0	37.2		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				2.7								
HCM 6th LOS				A								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	49	969	1029	123	2	172
Future Vol, veh/h	49	969	1029	123	2	172
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	1	0	1
Mvmt Flow	49	979	1039	124	2	174





















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1167	0	-	0	1693 586
Stage 1	-	-	-	-	1105 -
Stage 2	-	-	-	-	588 -
Critical Hdwy	4.14	-	-	-	6.8 6.92
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.22	-	-	-	3.5 3.31
Pot Cap-1 Maneuver	594	-	-	-	86 456
Stage 1	-	-	-	-	283 -
Stage 2	-	-	-	-	524 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	592	-	-	-	70 454
Mov Cap-2 Maneuver	-	-	-	-	70 -
Stage 1	-	-	-	-	231 -
Stage 2	-	-	-	-	522 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	592	-	-	-	454
HCM Lane V/C Ratio	0.084	-	-	-	0.383
HCM Control Delay (s)	11.6	-	-	-	17.8
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.8

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Existing Conditions  
Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	734	5	10	950	196	5	10	5	418	10	197
Future Volume (veh/h)	232	734	5	10	950	196	5	10	5	418	10	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1604	1900	1969	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	239	757	5	10	979	202	5	10	5	431	10	203
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	20	0	2	0	0	0	0	0	0	0
Cap, veh/h	373	2188	14	447	1983	850	48	44	19	506	20	414
Arrive On Green	0.16	1.00	1.00	0.01	0.53	0.53	0.07	0.05	0.05	0.20	0.27	0.28
Sat Flow, veh/h	1781	3619	24	1810	3741	1603	285	943	409	1810	76	1539
Grp Volume(v), veh/h	239	372	390	10	979	202	20	0	0	431	0	213
Grp Sat Flow(s),veh/h/ln	1781	1777	1866	1810	1870	1603	1638	0	0	1810	0	1615
Q Serve(g_s), s	8.1	0.0	0.0	0.3	21.6	8.8	0.0	0.0	0.0	25.5	0.0	14.3
Cycle Q Clear(g_c), s	8.1	0.0	0.0	0.3	21.6	8.8	1.4	0.0	0.0	25.5	0.0	14.3
Prop In Lane	1.00		0.01	1.00		1.00	0.25		0.25	1.00		0.95
Lane Grp Cap(c), veh/h	373	1074	1128	447	1983	850	148	0	0	506	0	435
V/C Ratio(X)	0.64	0.35	0.35	0.02	0.49	0.24	0.14	0.00	0.00	0.85	0.00	0.49
Avail Cap(c_a), veh/h	495	1074	1128	566	1983	850	269	0	0	506	0	559
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	0.0	14.0	19.4	16.4	59.3	0.0	0.0	47.0	0.0	39.6
Incr Delay (d2), s/veh	1.4	0.9	0.8	0.0	0.9	0.7	0.6	0.0	0.0	12.8	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.3	0.3	0.1	9.4	3.5	0.6	0.0	0.0	15.4	0.0	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.6	0.9	0.8	14.0	20.3	17.1	59.9	0.0	0.0	59.8	0.0	40.8
LnGrp LOS	B	A	A	B	C	B	E	A	A	E	A	D
Approach Vol, veh/h		1001			1191			20			644	
Approach Delay, s/veh		4.1			19.7			59.9			53.5	
Approach LOS		A			B			E			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.4	84.6		41.0	14.1	74.9	29.0	12.0				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0	3.5	6.0				
Max Green Setting (Gmax), s	9.5	60.0		45.0	19.5	50.0	25.5	16.0				
Max Q Clear Time (g_c+I1), s	2.3	2.0		16.3	10.1	23.6	27.5	3.4				
Green Ext Time (p_c), s	0.0	16.3		1.5	0.5	18.5	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.2								
HCM 6th LOS				C								



Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1157	0	0	1156	281	0	0	0	0	0	0
Future Vol, veh/h	0	1157	0	0	1156	281	0	0	0	0	0	0
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	2	0	0	2	0	0	2	0
Mvmt Flow	0	1231	0	0	1230	299	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1723	2763	616
Stage 1	-	-	-	-	-	-	1231	1231	-
Stage 2	-	-	-	-	-	-	492	1532	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	105	19	438
Stage 1	0	-	0	0	-	-	238	248	-
Stage 2	0	-	0	0	-	-	552	177	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	105	0	438
Mov Cap-2 Maneuver	-	-	-	-	-	-	105	0	-
Stage 1	-	-	-	-	-	-	238	0	-
Stage 2	-	-	-	-	-	-	552	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

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# Appendix J

## Background Intersection Operations

Table 4 summarizes the overall intersection and worst approach operations for Background conditions. LOS is not reported for SimTraffic results as microsimulation delay does not directly correlate to HCM defined LOS thresholds.

**Table 4: Intersection Operations, Background Conditions**

No.	Intersection	Traffic Control <sup>1</sup>	Peak Hour	LOS <sup>2</sup> (Overall Delay) <sup>3</sup>	Approach LOS <sup>4</sup> (Approach Delay) <sup>5</sup>
1	Gross Point Rd & Melvina Ave	TWSC	AM	A (5.0)	B (11.7)
			PM	C (16.6)	<b>E (38.6)</b>
			SAT	C (15.4)	D (29.0)
2	Melvina Ave & Costco Warehouse/Employee Parking Driveway#1 <sup>6</sup>	TWSC	AM	0.3	3.1
			PM	1.1	4.0
			SAT	1.5	5.1
3	Melvina Ave & Costco Employee Parking Driveway #2 <sup>6</sup>	SSSC	AM	N/A	N/A
			PM	N/A	N/A
			SAT	N/A	N/A
4	Melvina Ave & Costco Warehouse Driveway #3 <sup>6</sup>	SSSC	AM	N/A	N/A
			PM	N/A	N/A
			SAT	N/A	N/A
5	Melvina Ave & Costco Warehouse Driveway <sup>6</sup>	SSSC	AM	0.9	5.2
			PM	2.9	8.2
			SAT	4.2	10.5
6	Melvina Ave & Costco Warehouse/Target/YMCA Dwy <sup>6</sup>	TWSC	AM	0.6	5.4
			PM	3.8	13.1
			SAT	11.4	33.1
7	Melvina Ave & Target/Aldi/Costco Fuel Dwy <sup>6</sup>	SSSC	AM	3.1	5.2
			PM	7.7	10.9
			SAT	10.3	15.6
8	Touhy Ave & Mobile Ave	Signal	AM	A (2.4)	-
			PM	A (2.1)	-
			SAT	A(2.7)	-
9	Touhy Ave & Costco Fuel/Aldi Dwy	TWSC	AM	A (0.4)	B (13.2)
			PM	A (1.3)	C (19.7)
			SAT	A (1.6)	C (18.3)
10	Melvina Ave & Touhy Ave	Signal	AM	A (9.9)	-
			PM	C (24.1)	-
			SAT	C (29.4)	-
11	Touhy Ave & Target Dwy	None	AM	A (-)	A (-)
			PM	A (-)	A (-)
			SAT	A (-)	A (-)

Source: Kittelson & Associates, Inc. 2022.

Notes:

<sup>1</sup> Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, SSSC = Side Street Stop Control AWSC = All-Way Stop Control Intersection.

<sup>2</sup> LOS = Level of Service

<sup>3</sup> Delay = Average vehicle delay reported in seconds per vehicle.

<sup>4</sup>Approach LOS = Level of Service for worst approach.

<sup>5</sup>Approach delay = Average vehicle delay reported in seconds per vehicle for the worst approach.

<sup>6</sup>SimTraffic Delay reported.

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	5	46	73	63	88	2	93	1	34	1	1	5
Future Vol, veh/h	5	46	73	63	88	2	93	1	34	1	1	5
Conflicting Peds, #/hr	0	0	4	4	0	0	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	60	9	9	0	9	50	4	0	0	0	100	17
Mvmt Flow	6	51	81	70	98	2	103	1	38	1	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	0	136	0	0	351	348	99	365	387	99
Stage 1	-	-	-	-	-	-	108	108	-	239	239	-
Stage 2	-	-	-	-	-	-	243	240	-	126	148	-
Critical Hdwy	4.7	-	-	4.1	-	-	7.14	6.5	6.2	7.1	7.5	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.74	-	-	2.2	-	-	3.536	4	3.3	3.5	4.9	3.453
Pot Cap-1 Maneuver	1197	-	-	1461	-	-	600	579	962	595	422	917
Stage 1	-	-	-	-	-	-	893	810	-	769	559	-
Stage 2	-	-	-	-	-	-	756	711	-	883	621	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1197	-	-	1455	-	-	568	544	956	545	397	917
Mov Cap-2 Maneuver	-	-	-	-	-	-	568	544	-	545	397	-
Stage 1	-	-	-	-	-	-	885	803	-	765	530	-
Stage 2	-	-	-	-	-	-	712	675	-	841	615	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			3.1			11.7			10.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	568	936	1197	-	-	1455	-	-	714
HCM Lane V/C Ratio	0.182	0.042	0.005	-	-	0.048	-	-	0.011
HCM Control Delay (s)	12.7	9	8	0	-	7.6	0	-	10.1
HCM Lane LOS	B	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0.1	0	-	-	0.2	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.1	0.1	0.1
Total Del/Veh (s)	0.9	1.8	4.8	2.6	2.5

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.1	0.3	0.2	0.3

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.2	5.2	0.3	0.2	0.9

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.6	0.0	0.0	0.1
Total Del/Veh (s)	2.9	5.4	0.3	0.4	0.6

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.3	0.1	0.0	0.2
Total Del/Veh (s)	4.0	5.2	0.9	4.4	3.1

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	1.6	3.4	24.9	2.6

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	2.0	1.8	1.2	1.9

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.0	8.5	61.5	55.1	12.3

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.5	0.3
Total Del/Veh (s)	1.3	0.8	1.0

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	15.2

**Intersection: 1: Melvina Ave. & Gross Point Rd.**

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	25	50	55	18	32
Average Queue (ft)	1	10	23	4	3
95th Queue (ft)	12	35	46	9	16
Link Distance (ft)	1149	411		186	138
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

**Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1**

Movement	WB	NB	NB	SB
Directions Served	LTR	L	TR	TR
Maximum Queue (ft)	56	12	24	12
Average Queue (ft)	8	1	1	0
95th Queue (ft)	37	8	10	7
Link Distance (ft)	251		384	186
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	L
Maximum Queue (ft)	35	51	28	19
Average Queue (ft)	20	15	1	1
95th Queue (ft)	44	43	12	9
Link Distance (ft)	174	276	218	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				130
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	L
Maximum Queue (ft)	63	64	31	29
Average Queue (ft)	4	11	6	4
95th Queue (ft)	27	43	25	19
Link Distance (ft)	213	280		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			130	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	TR	L	TR
Maximum Queue (ft)	42	57	54	36	9	37	103
Average Queue (ft)	16	31	23	14	0	4	48
95th Queue (ft)	36	50	46	40	5	22	79
Link Distance (ft)	266	266	294		306		164
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				45		65	
Storage Blk Time (%)			1	0		0	1
Queuing Penalty (veh)			0	0		0	0

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	TR	LTR
Maximum Queue (ft)	213	190	38	289	275	54
Average Queue (ft)	33	20	5	42	39	13
95th Queue (ft)	142	98	23	183	172	44
Link Distance (ft)	582	582		361	361	482
Upstream Blk Time (%)				0	0	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			100			
Storage Blk Time (%)	2			2		
Queuing Penalty (veh)	0			0		



Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	R
Maximum Queue (ft)	203	145	6	11	32
Average Queue (ft)	43	13	0	1	2
95th Queue (ft)	142	77	5	10	16
Link Distance (ft)	361	361	198	198	226
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	156	205	207	96	262	242	64	65	132	149	154
Average Queue (ft)	57	113	101	6	144	111	16	21	57	67	54
95th Queue (ft)	108	207	199	47	258	224	48	52	105	121	115
Link Distance (ft)		198	198		248	248	248	562	306	306	
Upstream Blk Time (%)	0	1	0		1	0					
Queuing Penalty (veh)	0	5	3		2	0					
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	0	2			14					7	9
Queuing Penalty (veh)	0	2			1					4	6

Intersection: 11: Touhy Ave. & Target Dwy

Movement	EB	WB	WB
Directions Served	T	T	T
Maximum Queue (ft)	6	100	23
Average Queue (ft)	0	6	1
95th Queue (ft)	4	44	17
Link Distance (ft)	248	479	479
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Network Summary

Network wide Queuing Penalty: 25

HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background Conditions  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1156	8	7	986	2	4	0	8	0	0	0
Future Volume (veh/h)	0	1156	8	7	986	2	4	0	8	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1811	1900	1648	1811	1900	1900	1900	1530	1900	1900	1900
Adj Flow Rate, veh/h	0	1204	8	7	1027	2	4	0	8	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	6	0	17	6	0	0	0	25	0	0	0
Cap, veh/h	525	2947	20	371	3076	6	51	4	36	0	80	0
Arrive On Green	0.00	0.84	0.85	0.01	1.00	1.00	0.06	0.00	0.03	0.00	0.00	0.00
Sat Flow, veh/h	1810	3504	23	1570	3523	7	407	111	1038	0	1900	0
Grp Volume(v), veh/h	0	591	621	7	501	528	12	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1721	1807	1570	1721	1810	1556	0	0	0	1900	0
Q Serve(g_s), s	0.0	10.8	10.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.8	10.8	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.00	0.33		0.67	0.00		0.00
Lane Grp Cap(c), veh/h	525	1447	1519	371	1502	1580	127	0	0	0	80	0
V/C Ratio(X)	0.00	0.41	0.41	0.02	0.33	0.33	0.09	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	656	1447	1519	478	1502	1580	297	0	0	0	248	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	2.5	2.5	1.9	0.0	0.0	60.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.8	0.0	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	2.8	0.0	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.4	3.3	1.9	0.6	0.6	61.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	A
Approach Vol, veh/h		1212			1036			12				0
Approach Delay, s/veh		3.3			0.6			61.0				0.0
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.2	115.3		10.5	0.0	119.5		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	9.5	86.0		16.0	9.5	86.0		19.0				
Max Q Clear Time (g_c+I), s	12.8	12.8		0.0	0.0	2.0		2.9				
Green Ext Time (p_c), s	0.0	36.5		0.0	0.0	28.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.4
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	19	1145	941	56	0	54
Future Vol, veh/h	19	1145	941	56	0	54
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	7	7	2	0	4
Mvmt Flow	20	1193	980	58	0	56






















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1039	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	677	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	676	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	676	-	-	-	496
HCM Lane V/C Ratio	0.029	-	-	-	0.113
HCM Control Delay (s)	10.5	-	-	-	13.2
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1015	5	5	944	57	5	10	5	134	5	48
Future Volume (veh/h)	125	1015	5	5	944	57	5	10	5	134	5	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1796	1900	1900	1891	1900	1900	1900	1900	1841	1900	1737
Adj Flow Rate, veh/h	137	1115	5	5	1037	63	5	11	5	147	5	53
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	7	0	0	7	0	0	0	0	4	0	11
Cap, veh/h	421	2580	12	423	2538	1137	10	23	10	223	9	97
Arrive On Green	0.08	1.00	1.00	0.00	0.71	0.71	0.05	0.02	0.02	0.07	0.07	0.07
Sat Flow, veh/h	1767	3484	16	1810	3593	1609	427	939	427	3401	139	1474
Grp Volume(v), veh/h	137	546	574	5	1037	63	21	0	0	147	0	58
Grp Sat Flow(s),veh/h/ln	1767	1706	1793	1810	1796	1609	1792	0	0	1700	0	1613
Q Serve(g_s), s	2.8	0.0	0.0	0.1	15.5	1.6	1.5	0.0	0.0	5.5	0.0	4.5
Cycle Q Clear(g_c), s	2.8	0.0	0.0	0.1	15.5	1.6	1.5	0.0	0.0	5.5	0.0	4.5
Prop In Lane	1.00		0.01	1.00		1.00	0.24		0.24	1.00		0.91
Lane Grp Cap(c), veh/h	421	1264	1328	423	2538	1137	44	0	0	223	0	106
V/C Ratio(X)	0.33	0.43	0.43	0.01	0.41	0.06	0.48	0.00	0.00	0.66	0.00	0.55
Avail Cap(c_a), veh/h	551	1264	1328	479	2538	1137	110	0	0	392	0	186
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.4	0.0	0.0	5.5	7.9	5.8	62.2	0.0	0.0	59.3	0.0	58.4
Incr Delay (d2), s/veh	0.3	1.1	1.0	0.0	0.5	0.1	11.0	0.0	0.0	4.6	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	0.4	0.0	5.6	0.5	0.8	0.0	0.0	2.5	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	1.1	1.0	5.5	8.4	5.9	73.2	0.0	0.0	63.9	0.0	64.5
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	E
Approach Vol, veh/h		1257			1105			21			205	
Approach Delay, s/veh		1.6			8.2			73.2			64.1	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.0	102.3		14.5	8.4	97.8		9.2				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	4.5	81.0		15.0	14.5	71.0		8.0				
Max Q Clear Time (g_c+I1), s	2.1	2.0		7.5	4.8	17.5		3.5				
Green Ext Time (p_c), s	0.0	33.0		0.7	0.2	27.7		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				9.9								
HCM 6th LOS				A								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1154	0	0	1006	65	0	0	0	0	0	0
Future Vol, veh/h	0	1154	0	0	1006	65	0	0	0	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	6	2	2	5	2	0	2	0	0	2	0
Mvmt Flow	0	1178	0	0	1027	66	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1589	2272	590
Stage 1	-	-	-	-	-	-	1178	1178	-
Stage 2	-	-	-	-	-	-	411	1094	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	126	40	456
Stage 1	0	-	0	0	-	-	253	263	-
Stage 2	0	-	0	0	-	-	608	288	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	126	0	456
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	0	-
Stage 1	-	-	-	-	-	-	253	0	-
Stage 2	-	-	-	-	-	-	608	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	16.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	1	46	177	135	140	1	255	1	74	1	2	5
Future Vol, veh/h	1	46	177	135	140	1	255	1	74	1	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	11	0	1	8	0	0	0	0	0	0	0
Mvmt Flow	1	52	201	153	159	1	290	1	84	1	2	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	160	0	0	253	0	0	625	621	154	664	721	160
Stage 1	-	-	-	-	-	-	155	155	-	466	466	-
Stage 2	-	-	-	-	-	-	470	466	-	198	255	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1432	-	-	1318	-	-	400	406	897	377	356	890
Stage 1	-	-	-	-	-	-	852	773	-	581	566	-
Stage 2	-	-	-	-	-	-	578	566	-	808	700	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1432	-	-	1318	-	-	356	354	896	307	310	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	356	354	-	307	310	-
Stage 1	-	-	-	-	-	-	851	772	-	580	494	-
Stage 2	-	-	-	-	-	-	499	494	-	730	699	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			4			38.6			12		
HCM LOS							E			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	356	878	1432	-	-	1318	-	-	522
HCM Lane V/C Ratio	0.814	0.097	0.001	-	-	0.116	-	-	0.017
HCM Control Delay (s)	47.1	9.5	7.5	0	-	8.1	0	-	12
HCM Lane LOS	E	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	7.1	0.3	0	-	-	0.4	-	-	0.1

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.1	0.1	0.1
Total Del/Veh (s)	1.1	3.3	9.6	4.7	5.3

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	2.7	4.0	0.5	0.7	1.1

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	6.7	8.2	0.7	1.0	2.9

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.2	0.0	0.0	0.3
Total Del/Veh (s)	8.0	13.1	0.7	0.9	3.8

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.3	0.0	0.0	0.3
Total Del/Veh (s)	8.7	10.9	1.4	10.0	7.7

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.6	4.7	23.1	8.4	3.9

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	6.7	3.3	2.7	4.7

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.1	0.0	0.2
Total Del/Veh (s)	17.4	19.0	81.8	59.2	27.1

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.8	0.4
Total Del/Veh (s)	2.0	3.7	2.9

Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	30.4



**Intersection: 1: Melvina Ave. & Gross Point Rd.**

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	17	86	124	162	6
Average Queue (ft)	2	26	53	13	2
95th Queue (ft)	12	69	106	62	6
Link Distance (ft)	1149	410		186	138
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			5		
Queuing Penalty (veh)			4		

**Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1**

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	30	55	53
Average Queue (ft)	2	33	13
95th Queue (ft)	15	47	41
Link Distance (ft)	234	251	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2**

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	31	117	50	53	29
Average Queue (ft)	18	54	4	19	1
95th Queue (ft)	42	89	22	46	10
Link Distance (ft)	174	276	218		384
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				130	
Storage Blk Time (%)					
Queuing Penalty (veh)					

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	L
Maximum Queue (ft)	28	149	53	29
Average Queue (ft)	7	65	24	12
95th Queue (ft)	27	110	50	35
Link Distance (ft)	213	280		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			130	100
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	TR	L	TR
Maximum Queue (ft)	87	94	178	100	50	79	138
Average Queue (ft)	33	50	56	35	2	45	74
95th Queue (ft)	61	84	124	78	17	74	119
Link Distance (ft)	266	266	294		306		164
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				45		65	
Storage Blk Time (%)			11	1	0	2	10
Queuing Penalty (veh)			7	2	0	7	17

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	29	302	220	199	296	289	31	31
Average Queue (ft)	2	43	26	21	30	36	11	1
95th Queue (ft)	14	175	117	82	153	156	35	11
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		3			1			
Queuing Penalty (veh)		0			0			

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	SB
Directions Served	LT	T	R
Maximum Queue (ft)	361	340	101
Average Queue (ft)	132	79	24
95th Queue (ft)	292	243	79
Link Distance (ft)	361	361	208
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	196	229	220	200	270	287	157	138	238	278	234
Average Queue (ft)	107	172	164	26	238	217	63	45	169	206	162
95th Queue (ft)	203	242	239	127	311	299	124	95	231	279	254
Link Distance (ft)		197	197		248	248	248	562	306	306	
Upstream Blk Time (%)	0	6	5		11	5					
Queuing Penalty (veh)	0	30	25		47	23					
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	1	9			32					39	49
Queuing Penalty (veh)	6	16			3					83	92

Intersection: 11: Touhy Ave. & Target Dwy

Movement	EB	EB	WB	WB	WB
Directions Served	T	T	T	T	TR
Maximum Queue (ft)	75	31	289	277	30
Average Queue (ft)	5	3	87	50	2
95th Queue (ft)	30	18	234	180	15
Link Distance (ft)	248	248	479	479	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				1	
Queuing Penalty (veh)				4	

Network Summary

Network wide Queuing Penalty: 369
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1133	7	22	1357	1	2	0	5	0	0	2
Future Volume (veh/h)	2	1133	7	22	1357	1	2	0	5	0	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1856	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	2	1168	7	23	1399	1	2	0	5	0	0	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	0	3	0	0	0	0	0	0	0
Cap, veh/h	385	3094	19	451	3128	2	41	3	33	0	0	47
Arrive On Green	0.00	0.85	0.86	0.02	1.00	1.00	0.05	0.00	0.03	0.00	0.00	0.04
Sat Flow, veh/h	1810	3621	22	1810	3615	3	335	110	1115	0	0	1570
Grp Volume(v), veh/h	2	573	602	23	682	718	7	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1810	1777	1866	1810	1763	1855	1561	0	0	0	0	1570
Q Serve(g_s), s	0.0	10.4	10.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.0	10.4	10.4	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00		0.01	1.00		0.00	0.29		0.71	0.00		1.00
Lane Grp Cap(c), veh/h	385	1518	1594	451	1525	1605	109	0	0	0	0	47
V/C Ratio(X)	0.01	0.38	0.38	0.05	0.45	0.45	0.06	0.00	0.00	0.00	0.00	0.04
Avail Cap(c_a), veh/h	509	1518	1594	555	1525	1605	257	0	0	0	0	168
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	1.6	2.3	2.3	1.7	0.0	0.0	70.5	0.0	0.0	0.0	0.0	70.2
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	1.0	0.9	0.4	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	2.9	0.1	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	3.1	3.0	1.7	1.0	0.9	70.8	0.0	0.0	0.0	0.0	70.6
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1177			1423			7				2
Approach Delay, s/veh		3.0			0.9			70.8				70.6
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	134.2		10.5	3.7	135.8		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	105.0		16.0	10.5	105.0		19.0				
Max Q Clear Time (g_c+1/3), s	12.4	12.4		2.2	2.0	2.0		2.6				
Green Ext Time (p_c), s	0.0	37.8		0.0	0.0	55.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	48	1090	1237	96	0	143
Future Vol, veh/h	48	1090	1237	96	0	143
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	2	3	0	0	1
Mvmt Flow	49	1124	1275	99	0	147






















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1375	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	505	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	505	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	19.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	505	-	-	-	391
HCM Lane V/C Ratio	0.098	-	-	-	0.377
HCM Control Delay (s)	12.9	-	-	-	19.7
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.7

HCM 6th Signalized Intersection Summary  
 10: Melvina Ave. & Touhy Ave.

Background Conditions  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	892	10	10	1126	140	11	21	10	383	15	196
Future Volume (veh/h)	188	892	10	10	1126	140	11	21	10	383	15	196
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1856	1767	1900	1953	1885	1900	1900	1900	1870	1900	1900
Adj Flow Rate, veh/h	207	980	11	11	1237	154	12	23	11	421	16	215
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	9	0	3	1	0	0	0	2	0	0
Cap, veh/h	312	2294	26	399	2178	930	16	30	15	597	19	260
Arrive On Green	0.13	1.00	1.00	0.01	0.59	0.59	0.05	0.03	0.04	0.17	0.17	0.18
Sat Flow, veh/h	1810	3571	40	1810	3711	1585	466	892	427	3456	112	1505
Grp Volume(v), veh/h	207	484	507	11	1237	154	46	0	0	421	0	231
Grp Sat Flow(s),veh/h/ln	1810	1763	1848	1810	1856	1585	1785	0	0	1728	0	1617
Q Serve(g_s), s	7.0	0.0	0.0	0.4	31.0	6.7	3.8	0.0	0.0	17.2	0.0	20.6
Cycle Q Clear(g_c), s	7.0	0.0	0.0	0.4	31.0	6.7	3.8	0.0	0.0	17.2	0.0	20.6
Prop In Lane	1.00		0.02	1.00		1.00	0.26		0.24	1.00		0.93
Lane Grp Cap(c), veh/h	312	1132	1187	399	2178	930	61	0	0	597	0	279
V/C Ratio(X)	0.66	0.43	0.43	0.03	0.57	0.17	0.76	0.00	0.00	0.70	0.00	0.83
Avail Cap(c_a), veh/h	445	1132	1187	422	2178	930	107	0	0	737	0	345
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	0.0	12.4	19.2	14.2	71.3	0.0	0.0	58.4	0.0	59.4
Incr Delay (d2), s/veh	1.8	1.2	1.1	0.0	1.1	0.4	23.2	0.0	0.0	2.9	0.0	14.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.4	0.4	0.2	13.4	2.5	2.2	0.0	0.0	7.9	0.0	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	1.2	1.1	12.4	20.3	14.6	94.5	0.0	0.0	61.3	0.0	73.5
LnGrp LOS	B	A	A	B	C	B	F	A	A	E	A	E
Approach Vol, veh/h		1198			1402			46			652	
Approach Delay, s/veh		4.0			19.6			94.5			65.6	
Approach LOS		A			B			F			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	102.4		31.9	12.9	94.0		11.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	3.0	84.5		32.0	20.5	67.0		9.0				
Max Q Clear Time (g_c+I1), s	2.4	2.0		22.6	9.0	33.0		5.8				
Green Ext Time (p_c), s	0.0	26.9		3.1	0.4	25.9		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.1								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1285	0	0	1276	186	0	0	0	0	0	0
Future Vol, veh/h	0	1285	0	0	1276	186	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	2	0	2	2	0	0	0	0	2	0
Mvmt Flow	0	1325	0	0	1315	192	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1854	2832	666
Stage 1	-	-	-	-	-	-	1325	1325	-
Stage 2	-	-	-	-	-	-	529	1507	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	88	18	407
Stage 1	0	-	0	0	-	-	212	227	-
Stage 2	0	-	0	0	-	-	528	185	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	88	0	406
Mov Cap-2 Maneuver	-	-	-	-	-	-	88	0	-
Stage 1	-	-	-	-	-	-	212	0	-
Stage 2	-	-	-	-	-	-	527	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	15.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	1	31	173	146	62	1	262	1	123	1	1	1
Future Vol, veh/h	1	31	173	146	62	1	262	1	123	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	3	0	1	0	0	0	0	0
Mvmt Flow	1	36	201	170	72	1	305	1	143	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	73	0	0	237	0	0	553	552	138	625	652	73
Stage 1	-	-	-	-	-	-	139	139	-	413	413	-
Stage 2	-	-	-	-	-	-	414	413	-	212	239	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.11	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.509	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1540	-	-	1342	-	-	445	444	916	400	390	995
Stage 1	-	-	-	-	-	-	866	785	-	620	597	-
Stage 2	-	-	-	-	-	-	618	597	-	795	711	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1540	-	-	1342	-	-	398	385	915	302	338	995
Mov Cap-2 Maneuver	-	-	-	-	-	-	398	385	-	302	338	-
Stage 1	-	-	-	-	-	-	865	784	-	619	518	-
Stage 2	-	-	-	-	-	-	535	518	-	669	710	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			5.6			29			13.8		
HCM LOS							D			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	398	905	1540	-	-	1342	-	-	412
HCM Lane V/C Ratio	0.765	0.159	0.001	-	-	0.127	-	-	0.008
HCM Control Delay (s)	38.1	9.7	7.3	0	-	8.1	-	-	13.8
HCM Lane LOS	E	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	6.3	0.6	0	-	-	0.4	-	-	0



1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.2	0.1	0.1	0.2
Total Del/Veh (s)	1.2	3.6	9.9	4.8	6.1

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.1	4.9	0.7	0.9	1.5

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	8.9	10.5	1.1	1.9	4.2

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	4.1	0.0	0.0	1.3
Total Del/Veh (s)	12.3	33.1	1.2	1.7	11.4

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.6	0.0	0.2	0.4
Total Del/Veh (s)	10.2	15.5	1.6	15.6	10.3

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.4	6.7	6.4	16.5	4.8

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	4.4	3.3	3.6	3.8

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	16.2	20.8	68.6	47.7	25.5

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	1.2	0.6
Total Del/Veh (s)	1.5	2.3	1.9

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	30.1

**Intersection: 1: Melvina Ave. & Gross Point Rd.**

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	17	134	124	172	7
Average Queue (ft)	2	28	66	25	0
95th Queue (ft)	10	75	117	102	3
Link Distance (ft)	1149	411		186	138
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			9	0	
Queuing Penalty (veh)			11	0	

**Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1**

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	30	79	51
Average Queue (ft)	2	38	20
95th Queue (ft)	15	61	49
Link Distance (ft)	234	251	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2**

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	56	132	70	94	31
Average Queue (ft)	24	65	7	30	2
95th Queue (ft)	49	107	33	63	15
Link Distance (ft)	174	276	218		384
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				130	
Storage Blk Time (%)					
Queuing Penalty (veh)					

**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	L	TR	LTR	L	TR
Maximum Queue (ft)	52	295	190	23	50	50
Average Queue (ft)	13	140	75	3	14	6
95th Queue (ft)	40	280	186	16	39	28
Link Distance (ft)	213	280		164		218
Upstream Blk Time (%)		9				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			130		100	
Storage Blk Time (%)		21				
Queuing Penalty (veh)		20				

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	90	117	184	100	26	19	30	181
Average Queue (ft)	41	47	71	50	1	1	11	127
95th Queue (ft)	76	81	134	99	9	6	35	189
Link Distance (ft)	266	266	294			306		164
Upstream Blk Time (%)								2
Queuing Penalty (veh)								11
Storage Bay Dist (ft)				45	50		65	
Storage Blk Time (%)			20	9				42
Queuing Penalty (veh)			19	17				5

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	29	248	211	31	351	388	55	31
Average Queue (ft)	1	44	21	10	58	59	11	2
95th Queue (ft)	10	149	98	34	214	225	38	12
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	2		
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		3			4			
Queuing Penalty (veh)		0			1			

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	SB
Directions Served	LT	T	R
Maximum Queue (ft)	277	178	142
Average Queue (ft)	91	38	41
95th Queue (ft)	226	136	113
Link Distance (ft)	361	361	242
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	181	230	198	199	269	263	220	74	241	259	234
Average Queue (ft)	119	137	117	32	231	187	103	27	146	178	150
95th Queue (ft)	184	241	193	130	290	275	194	60	229	263	245
Link Distance (ft)		198	198		250	250	250	562	306	306	
Upstream Blk Time (%)	0	2	0		5	1					
Queuing Penalty (veh)	0	9	2		18	2					
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	1	2			32					33	37
Queuing Penalty (veh)	4	6			3					70	80

Intersection: 11: Touhy Ave. & Target Dwy

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	231	147
Average Queue (ft)	29	10
95th Queue (ft)	116	68
Link Distance (ft)	480	480
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Network Summary

Network wide Queuing Penalty: 281
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1035	12	16	1218	2	2	0	13	0	0	1
Future Volume (veh/h)	5	1035	12	16	1218	2	2	0	13	0	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.97		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1045	12	16	1230	2	2	0	13	0	0	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	434	2911	33	470	2969	5	38	6	83	0	0	107
Arrive On Green	0.00	0.81	0.82	0.02	1.00	1.00	0.08	0.00	0.06	0.00	0.00	0.07
Sat Flow, veh/h	1810	3597	41	1810	3640	6	115	92	1345	0	0	1554
Grp Volume(v), veh/h	5	516	541	16	600	632	15	0	0	0	0	1
Grp Sat Flow(s),veh/h/ln	1810	1777	1862	1810	1777	1869	1552	0	0	0	0	1554
Q Serve(g_s), s	0.1	10.2	10.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	10.2	10.1	0.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		0.02	1.00		0.00	0.13		0.87	0.00		1.00
Lane Grp Cap(c), veh/h	434	1438	1507	470	1449	1524	162	0	0	0	0	107
V/C Ratio(X)	0.01	0.36	0.36	0.03	0.41	0.41	0.09	0.00	0.00	0.00	0.00	0.01
Avail Cap(c_a), veh/h	573	1438	1507	598	1449	1524	315	0	0	0	0	203
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	2.3	3.3	3.3	2.5	0.0	0.0	57.6	0.0	0.0	0.0	0.0	56.4
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.9	0.8	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	3.0	3.1	0.1	0.4	0.4	0.5	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.3	4.0	4.0	2.5	0.9	0.8	58.0	0.0	0.0	0.0	0.0	56.4
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1062			1248			15				1
Approach Delay, s/veh		4.0			0.9			58.0				56.4
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	111.2		14.0	4.0	112.0		14.0				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	83.0		16.0	10.5	83.0		21.0				
Max Q Clear Time (g_c+1/2), s	12.2	12.2		2.1	2.1	2.0		3.2				
Green Ext Time (p_c), s	0.0	28.6		0.0	0.0	39.1		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	49	999	1064	123	2	172
Future Vol, veh/h	49	999	1064	123	2	172
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	1	0	1
Mvmt Flow	49	1009	1075	124	2	174






















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1203	0	-	0	1744 604
Stage 1	-	-	-	-	1141 -
Stage 2	-	-	-	-	603 -
Critical Hdwy	4.14	-	-	-	6.8 6.92
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.22	-	-	-	3.5 3.31
Pot Cap-1 Maneuver	576	-	-	-	79 444
Stage 1	-	-	-	-	271 -
Stage 2	-	-	-	-	515 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	574	-	-	-	63 443
Mov Cap-2 Maneuver	-	-	-	-	63 -
Stage 1	-	-	-	-	218 -
Stage 2	-	-	-	-	513 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	574	-	-	-	443
HCM Lane V/C Ratio	0.086	-	-	-	0.392
HCM Control Delay (s)	11.9	-	-	-	18.3
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.8

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background Conditions  
Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	757	5	10	979	202	5	10	5	431	10	203
Future Volume (veh/h)	239	757	5	10	979	202	5	10	5	431	10	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1604	1900	1969	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	246	780	5	10	1009	208	5	10	5	444	10	209
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	20	0	2	0	0	0	0	0	0	0
Cap, veh/h	369	2276	15	380	2106	903	11	21	11	614	13	269
Arrive On Green	0.02	0.21	0.21	0.01	0.56	0.56	0.05	0.02	0.03	0.17	0.17	0.18
Sat Flow, veh/h	1781	3620	23	1810	3741	1603	446	892	446	3510	74	1538
Grp Volume(v), veh/h	246	383	402	10	1009	208	20	0	0	444	0	219
Grp Sat Flow(s),veh/h/ln	1781	1777	1866	1810	1870	1603	1783	0	0	1755	0	1611
Q Serve(g_s), s	6.9	23.9	23.9	0.3	21.0	8.5	1.4	0.0	0.0	15.5	0.0	16.8
Cycle Q Clear(g_c), s	6.9	23.9	23.9	0.3	21.0	8.5	1.4	0.0	0.0	15.5	0.0	16.8
Prop In Lane	1.00		0.01	1.00		1.00	0.25		0.25	1.00		0.95
Lane Grp Cap(c), veh/h	369	1117	1174	380	2106	903	42	0	0	614	0	282
V/C Ratio(X)	0.67	0.34	0.34	0.03	0.48	0.23	0.47	0.00	0.00	0.72	0.00	0.78
Avail Cap(c_a), veh/h	534	1117	1174	410	2106	903	82	0	0	810	0	372
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	28.6	28.6	13.0	17.0	14.3	62.2	0.0	0.0	50.6	0.0	50.7
Incr Delay (d2), s/veh	1.5	0.8	0.8	0.0	0.8	0.6	11.2	0.0	0.0	2.8	0.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	11.6	12.2	0.1	9.0	3.2	0.8	0.0	0.0	7.1	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	29.4	29.4	13.0	17.8	14.9	73.4	0.0	0.0	53.4	0.0	59.5
LnGrp LOS	B	C	C	B	B	B	E	A	A	D	A	E
Approach Vol, veh/h		1031			1227			20				663
Approach Delay, s/veh		26.2			17.2			73.4				55.5
Approach LOS		C			B			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.4	87.8		28.7	13.0	79.2		9.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	3.1	69.4		30.0	21.5	51.0		6.0				
Max Q Clear Time (g_c+I1), s	2.3	25.9		18.8	8.9	23.0		3.4				
Green Ext Time (p_c), s	0.0	15.6		3.5	0.6	19.9		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				29.4								
HCM 6th LOS				C								



Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1193	0	0	1191	281	0	0	0	0	0	0
Future Vol, veh/h	0	1193	0	0	1191	281	0	0	0	0	0	0
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	2	0	0	2	0	0	2	0
Mvmt Flow	0	1269	0	0	1267	299	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1776	2838	635
Stage 1	-	-	-	-	-	-	1269	1269	-
Stage 2	-	-	-	-	-	-	507	1569	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	97	17	426
Stage 1	0	-	0	0	-	-	227	238	-
Stage 2	0	-	0	0	-	-	542	170	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	97	0	426
Mov Cap-2 Maneuver	-	-	-	-	-	-	97	0	-
Stage 1	-	-	-	-	-	-	227	0	-
Stage 2	-	-	-	-	-	-	542	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

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# Appendix K

Background plus Project Intersection Operations

Table 5 summarizes the overall intersection operations for Background plus Project conditions and compares the overall intersection operations to Background conditions. LOS is not reported for SimTraffic results as microsimulation delay does not directly correlate to HCM defined LOS thresholds.

**Table 5: Overall Intersection Operations, Background plus Project Conditions**

No.	Intersection	Traffic Control <sup>1</sup>	Peak Hour	Background LOS <sup>2</sup> (Background Overall Delay) <sup>3</sup>	Background plus Project LOS (Background plus Project Overall Delay)
1	Gross Point Rd & Melvina Ave	TWSC	AM	A (5.0)	A (5.2)
			PM	C (16.6)	C (17.2)
			SAT	C (15.4)	C (15.9)
2	Melvina Ave & Costco Warehouse/Employee Parking Driveway#1 <sup>4</sup>	TWSC	AM	0.3	0.8
			PM	1.1	2.0
			SAT	1.5	3.9
3	Melvina Ave & Costco Employee Parking Driveway #2 <sup>4</sup>	SSSC	AM	N/A	N/A
			PM	N/A	N/A
			SAT	N/A	N/A
4	Melvina Ave & Costco Warehouse Driveway #3 <sup>4</sup>	SSSC	AM	N/A	N/A
			PM	N/A	N/A
			SAT	N/A	N/A
5	Melvina Ave & Costco Warehouse Driveway <sup>4</sup>	SSSC	AM	0.9	1.1
			PM	2.9	4.8
			SAT	4.2	4.3
6	Melvina Ave & Costco Warehouse/Target/YMCA Dwy <sup>4</sup>	TWSC	AM	0.6	0.7
			PM	3.8	7.1
			SAT	11.4	14.5
7	Melvina Ave & Target/Aldi/Costco Fuel Dwy <sup>4</sup>	SSSC	AM	3.1	3.3
			PM	7.7	9.2
			SAT	10.3	15.0
8	Touhy Ave & Mobile Ave	Signal	AM	A (2.4)	A (2.4)
			PM	A (2.1)	A (2.1)
			SAT	A(2.7)	A (2.7)
9	Touhy Ave & Costco Fuel/Aldi Dwy	TWSC	AM	A (0.4)	A (0.5)
			PM	A (1.3)	A (1.4)
			SAT	A (1.6)	A (1.7)
10	Melvina Ave & Touhy Ave	Signal	AM	A (9.9)	B (11.5)
			PM	C (24.1)	C (24.9)
			SAT	C (29.4)	C (30.1)
11	Touhy Ave & Target Dwy	None	AM	A (-)	A (-)
			PM	A (-)	A (-)
			SAT	A (-)	A (-)

Source: Kittelson & Associates, Inc. 2022.

Notes:

<sup>1</sup> Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, SSSC = Side Street Stop Control AWSC = All-Way Stop Control Intersection.

<sup>2</sup> LOS = Level of Service

<sup>3</sup> Delay = Average vehicle delay reported in seconds per vehicle.

<sup>4</sup> SimTraffic Delay reported.

Table 6 summarizes the intersection by worst approach operations for Background plus Project conditions and compares the intersection operations to Background conditions. LOS is not reported for SimTraffic results as microsimulation delay does not directly correlate to HCM defined LOS thresholds.

**Table 6: Intersection Operations by Approach, Background plus Project Conditions**

No.	Intersection	Traffic Control <sup>1</sup>	Peak Hour	Background Approach LOS <sup>2</sup> (Approach Delay) <sup>3</sup>	Background plus Project Approach LOS (Approach Delay)
1	Gross Point Rd & Melvina Ave	TWSC	AM	B (11.7)	B (11.9)
			PM	<b>E (38.6)</b>	<b>E (39.8)</b>
			SAT	D (29.0)	D (29.9)
2	Melvina Ave & Costco Warehouse/Employee Parking Driveway#1	TWSC	AM	3.1	4.7
			PM	4.0	8.1
			SAT	5.1	16.0
5	Melvina Ave & Costco Warehouse Driveway	SSSC	AM	5.2	5.8
			PM	8.2	13
			SAT	10.5	10.4
6	Melvina Ave & Costco Warehouse/Target/YMCA Dwy	TWSC	AM	5.4	5.4
			PM	13.1	24.4
			SAT	33.1	48.2
7	Melvina Ave & Target/Aldi/Costco Fuel Dwy <sup>4</sup>	SSSC	AM	5.2	5.7
			PM	10.9	12.9
			SAT	15.6	24.0
9	Touhy Ave & Costco Fuel/Aldi Dwy	TWSC	AM	B (13.2)	B (13.6)
			PM	C (19.7)	C (20.7)
			SAT	C (18.3)	C (18.9)

Source: Kittelson & Associates, Inc. 2022.

Notes:

<sup>1</sup> Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, SSSC = Side Street Stop Control, AWSC = All-Way Stop Control Intersection.

<sup>2</sup>Approach LOS = Level of Service for worst approach.

<sup>3</sup>Approach delay = Average vehicle delay reported in seconds per vehicle for the worst approach.

<sup>4</sup>SimTraffic Delay reported.

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	5	45	78	66	87	2	98	1	37	1	1	5
Future Vol, veh/h	5	45	78	66	87	2	98	1	37	1	1	5
Conflicting Peds, #/hr	0	0	4	4	0	0	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	60	9	9	0	9	50	4	0	0	0	100	17
Mvmt Flow	6	50	87	73	97	2	109	1	41	1	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	99	0	0	141	0	0	358	355	101	374	397	98
Stage 1	-	-	-	-	-	-	110	110	-	244	244	-
Stage 2	-	-	-	-	-	-	248	245	-	130	153	-
Critical Hdwy	4.7	-	-	4.1	-	-	7.14	6.5	6.2	7.1	7.5	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.74	-	-	2.2	-	-	3.536	4	3.3	3.5	4.9	3.453
Pot Cap-1 Maneuver	1199	-	-	1455	-	-	594	574	960	587	416	918
Stage 1	-	-	-	-	-	-	890	808	-	764	556	-
Stage 2	-	-	-	-	-	-	751	707	-	878	617	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1199	-	-	1449	-	-	561	538	954	535	390	918
Mov Cap-2 Maneuver	-	-	-	-	-	-	561	538	-	535	390	-
Stage 1	-	-	-	-	-	-	882	801	-	760	527	-
Stage 2	-	-	-	-	-	-	705	670	-	833	611	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			3.2			11.9			10.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	561	935	1199	-	-	1449	-	-	709
HCM Lane V/C Ratio	0.194	0.045	0.005	-	-	0.051	-	-	0.011
HCM Control Delay (s)	13	9	8	0	-	7.6	0	-	10.1
HCM Lane LOS	B	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0.1	0	-	-	0.2	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.1	0.1	0.1
Total Del/Veh (s)	0.7	1.8	4.6	2.4	2.3

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.1	0.0	0.0
Total Del/Veh (s)	3.5	4.7	0.7	0.3	0.8

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.8	5.0	0.6	0.2	1.1

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.9	0.0	0.0	0.0
Total Del/Veh (s)	4.4	5.4	0.3	0.3	0.7

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.2	0.1	0.0	0.2
Total Del/Veh (s)	4.5	5.7	1.0	4.9	3.3

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.2
Total Del/Veh (s)	1.6	2.1	28.0	1.9

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	2.7	2.0	1.2	2.3

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	8.5	9.2	50.5	57.7	14.2

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.6	0.3
Total Del/Veh (s)	1.4	1.0	1.2

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	16.8

Intersection: 1: Melvina Ave. & Gross Point Rd.

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	24	67	118	26	7
Average Queue (ft)	1	12	26	4	1
95th Queue (ft)	6	42	64	12	6
Link Distance (ft)	1149	411		186	138
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1

Movement	EB	WB	NB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	55	66	32
Average Queue (ft)	18	8	8
95th Queue (ft)	46	38	30
Link Distance (ft)	234	251	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	53	77	50
Average Queue (ft)	20	18	6
95th Queue (ft)	48	49	28
Link Distance (ft)	174	276	218
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			



**Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3**

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	L
Maximum Queue (ft)	47	67	31	26
Average Queue (ft)	8	15	3	1
95th Queue (ft)	31	50	19	9
Link Distance (ft)	213	280		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			130	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy**

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	TR	L	TR
Maximum Queue (ft)	66	54	54	69	28	30	93
Average Queue (ft)	18	34	26	18	1	5	59
95th Queue (ft)	43	51	50	50	10	23	87
Link Distance (ft)	266	266	294		306		164
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				45		65	
Storage Blk Time (%)			1	1			3
Queuing Penalty (veh)			0	0			0

**Intersection: 8: Mobile Ave. & Touhy Ave.**

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	TR	LTR
Maximum Queue (ft)	348	343	67	203	211	51
Average Queue (ft)	33	25	3	20	14	12
95th Queue (ft)	161	152	25	99	89	42
Link Distance (ft)	582	582		361	361	482
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100			
Storage Blk Time (%)	2			1		
Queuing Penalty (veh)	0			0		

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB
Directions Served	LT	T
Maximum Queue (ft)	298	216
Average Queue (ft)	62	29
95th Queue (ft)	206	121
Link Distance (ft)	361	361
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	130	203	225	28	264	213	73	96	128	200	155
Average Queue (ft)	61	125	112	0	159	117	21	21	63	87	84
95th Queue (ft)	109	220	213	0	266	217	58	62	116	157	132
Link Distance (ft)		198	198		248	248	248	562	306	306	
Upstream Blk Time (%)		1	1		1						
Queuing Penalty (veh)		9	7		3						
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)		2			15					15	14
Queuing Penalty (veh)		4			1					12	11

Intersection: 11: Touhy Ave. & Target Dwy

Movement	WB
Directions Served	T
Maximum Queue (ft)	97
Average Queue (ft)	10
95th Queue (ft)	53
Link Distance (ft)	479
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 46
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background plus Project Conditions  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1174	8	7	1004	2	4	0	8	0	0	0
Future Volume (veh/h)	0	1174	8	7	1004	2	4	0	8	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1811	1900	1648	1811	1900	1900	1900	1530	1900	1900	1900
Adj Flow Rate, veh/h	0	1223	8	7	1046	2	4	0	8	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	6	0	17	6	0	0	0	25	0	0	0
Cap, veh/h	517	2947	19	365	3076	6	51	4	36	0	80	0
Arrive On Green	0.00	0.84	0.85	0.01	1.00	1.00	0.06	0.00	0.03	0.00	0.00	0.00
Sat Flow, veh/h	1810	3504	23	1570	3524	7	407	111	1038	0	1900	0
Grp Volume(v), veh/h	0	600	631	7	511	537	12	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1721	1807	1570	1721	1810	1556	0	0	0	1900	0
Q Serve(g_s), s	0.0	11.1	11.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	11.1	11.1	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.00	0.33		0.67	0.00		0.00
Lane Grp Cap(c), veh/h	517	1447	1520	365	1502	1580	127	0	0	0	80	0
V/C Ratio(X)	0.00	0.41	0.42	0.02	0.34	0.34	0.09	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	648	1447	1520	471	1502	1580	297	0	0	0	248	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	2.5	2.5	1.9	0.0	0.0	60.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.8	0.0	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	2.8	2.9	0.0	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.4	3.4	1.9	0.6	0.6	61.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	A
Approach Vol, veh/h		1231			1055			12				0
Approach Delay, s/veh		3.4			0.6			61.0				0.0
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.2	115.3		10.5	0.0	119.5		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	9.5	86.0		16.0	9.5	86.0		19.0				
Max Q Clear Time (g_c+1/2, s)	13.1	13.1		0.0	0.0	2.0		2.9				
Green Ext Time (p_c), s	0.0	37.3		0.0	0.0	29.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.4
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	19	1163	945	71	0	68
Future Vol, veh/h	19	1163	945	71	0	68
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	7	7	2	0	4
Mvmt Flow	20	1211	984	74	0	71






















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1059	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	6.98
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	3.34
Pot Cap-1 Maneuver	665	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	664	-	488
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	664	-	-	-	488
HCM Lane V/C Ratio	0.03	-	-	-	0.145
HCM Control Delay (s)	10.6	-	-	-	13.6
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background plus Project Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	1009	5	5	940	81	5	10	5	160	5	71
Future Volume (veh/h)	149	1009	5	5	940	81	5	10	5	160	5	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1796	1900	1900	1891	1900	1900	1900	1900	1841	1900	1737
Adj Flow Rate, veh/h	164	1109	5	5	1033	89	5	11	5	176	5	78
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	7	0	0	7	0	0	0	0	4	0	11
Cap, veh/h	416	2549	11	417	2483	1112	10	23	10	254	7	113
Arrive On Green	0.09	1.00	1.00	0.00	0.69	0.69	0.05	0.02	0.02	0.07	0.07	0.08
Sat Flow, veh/h	1767	3484	16	1810	3593	1609	427	939	427	3401	97	1511
Grp Volume(v), veh/h	164	543	571	5	1033	89	21	0	0	176	0	83
Grp Sat Flow(s),veh/h/ln	1767	1706	1793	1810	1796	1609	1792	0	0	1700	0	1608
Q Serve(g_s), s	3.5	0.0	0.0	0.1	16.2	2.4	1.5	0.0	0.0	6.6	0.0	6.5
Cycle Q Clear(g_c), s	3.5	0.0	0.0	0.1	16.2	2.4	1.5	0.0	0.0	6.6	0.0	6.5
Prop In Lane	1.00		0.01	1.00		1.00	0.24		0.24	1.00		0.94
Lane Grp Cap(c), veh/h	416	1249	1312	417	2483	1112	44	0	0	254	0	120
V/C Ratio(X)	0.39	0.44	0.44	0.01	0.42	0.08	0.48	0.00	0.00	0.69	0.00	0.69
Avail Cap(c_a), veh/h	535	1249	1312	473	2483	1112	110	0	0	392	0	186
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	6.1	8.7	6.6	62.2	0.0	0.0	58.7	0.0	58.2
Incr Delay (d2), s/veh	0.5	1.1	1.1	0.0	0.5	0.1	11.0	0.0	0.0	4.8	0.0	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.4	0.4	0.0	6.0	0.8	0.8	0.0	0.0	3.0	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	1.1	1.1	6.1	9.2	6.7	73.2	0.0	0.0	63.5	0.0	67.9
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	E
Approach Vol, veh/h		1278			1127			21			259	
Approach Delay, s/veh		1.8			9.0			73.2			64.9	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.0	101.1		15.7	9.3	95.8		9.2				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	4.5	81.0		15.0	14.5	71.0		8.0				
Max Q Clear Time (g_c+I1), s	2.1	2.0		8.6	5.5	18.2		3.5				
Green Ext Time (p_c), s	0.0	32.7		0.8	0.3	28.0		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				11.5								
HCM 6th LOS				B								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1174	0	0	1026	65	0	0	0	0	0	0
Future Vol, veh/h	0	1174	0	0	1026	65	0	0	0	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	6	2	2	5	2	0	2	0	0	2	0
Mvmt Flow	0	1198	0	0	1047	66	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1617	2312	600
Stage 1	-	-	-	-	-	-	1198	1198	-
Stage 2	-	-	-	-	-	-	419	1114	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	121	38	449
Stage 1	0	-	0	0	-	-	247	257	-
Stage 2	0	-	0	0	-	-	602	282	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	121	0	449
Mov Cap-2 Maneuver	-	-	-	-	-	-	121	0	-
Stage 1	-	-	-	-	-	-	247	0	-
Stage 2	-	-	-	-	-	-	602	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection												
Int Delay, s/veh	17.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Vol, veh/h	1	45	179	136	139	1	257	1	76	1	2	5
Future Vol, veh/h	1	45	179	136	139	1	257	1	76	1	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	11	0	1	8	0	0	0	0	0	0	0
Mvmt Flow	1	51	203	155	158	1	292	1	86	1	2	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	159	0	0	254	0	0	628	624	154	668	725	159
Stage 1	-	-	-	-	-	-	155	155	-	469	469	-
Stage 2	-	-	-	-	-	-	473	469	-	199	256	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1433	-	-	1317	-	-	398	404	897	375	354	892
Stage 1	-	-	-	-	-	-	852	773	-	579	564	-
Stage 2	-	-	-	-	-	-	576	564	-	807	699	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1433	-	-	1317	-	-	354	351	896	304	308	892
Mov Cap-2 Maneuver	-	-	-	-	-	-	354	351	-	304	308	-
Stage 1	-	-	-	-	-	-	851	772	-	578	491	-
Stage 2	-	-	-	-	-	-	496	491	-	727	698	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			4			39.8			12		
HCM LOS							E			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	354	878	1433	-	-	1317	-	-	520
HCM Lane V/C Ratio	0.825	0.1	0.001	-	-	0.117	-	-	0.017
HCM Control Delay (s)	48.8	9.6	7.5	0	-	8.1	0	-	12
HCM Lane LOS	E	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	7.3	0.3	0	-	-	0.4	-	-	0.1

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.3	0.1	0.1	0.2
Total Del/Veh (s)	1.3	3.4	12.6	5.9	6.5

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0
Total Del/Veh (s)	8.1	6.9	0.9	0.7	2.0

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	10.7	13.0	1.8	1.4	4.8

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	3.9	0.0	0.0	1.0
Total Del/Veh (s)	11.0	24.4	0.9	1.6	7.1

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.5	0.0	0.0	0.3
Total Del/Veh (s)	10.0	12.2	1.5	12.9	9.2

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.0	4.4	28.3	21.6	3.4

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	7.0	3.3	4.1	4.9

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.1
Total Del/Veh (s)	18.9	21.5	74.0	57.9	28.8



11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	0.9	0.4
Total Del/Veh (s)	2.0	3.8	2.9

Total Network Performance

Denied Del/Veh (s)	0.8
Total Del/Veh (s)	32.7

Intersection: 1: Melvina Ave. & Gross Point Rd.

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	31	102	123	182	6
Average Queue (ft)	2	31	64	18	1
95th Queue (ft)	12	76	116	87	5
Link Distance (ft)	1149	410		186	138
Upstream Blk Time (%)				1	
Queuing Penalty (veh)				3	
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			11	0	
Queuing Penalty (veh)			9	0	

Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	47	66	19	55	36	6
Average Queue (ft)	24	36	2	2	10	0
95th Queue (ft)	48	58	13	30	34	5
Link Distance (ft)	234	251		384		186
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100		75	
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	75	124	109	45	70
Average Queue (ft)	35	62	29	18	13
95th Queue (ft)	61	105	80	45	45
Link Distance (ft)	174	276	218		384
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				130	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	L	TR	LTR	L	TR
Maximum Queue (ft)	28	202	109	5	43	56
Average Queue (ft)	7	89	33	0	13	4
95th Queue (ft)	27	188	93	4	37	41
Link Distance (ft)	213	280		164		218
Upstream Blk Time (%)		2				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			130		100	
Storage Blk Time (%)		8				1
Queuing Penalty (veh)		4				0

Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	93	150	121	92	6	26	109	166
Average Queue (ft)	38	53	52	37	1	2	55	84
95th Queue (ft)	70	99	97	72	7	14	105	147
Link Distance (ft)	266	266	294			306		164
Upstream Blk Time (%)		0					0	1
Queuing Penalty (veh)		0					0	6
Storage Bay Dist (ft)				45	50		65	
Storage Blk Time (%)			13	3		0	5	20
Queuing Penalty (veh)			9	4		0	18	33

Intersection: 8: Mobile Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	30	253	189	49	209	220	36	31
Average Queue (ft)	2	29	22	14	19	21	8	2
95th Queue (ft)	14	143	112	40	122	135	30	15
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	3		
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		2			1			
Queuing Penalty (veh)		0			0			

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	R
Maximum Queue (ft)	323	286	38	55	141
Average Queue (ft)	124	79	2	3	42
95th Queue (ft)	283	235	16	31	114
Link Distance (ft)	361	361	197	197	208
Upstream Blk Time (%)	0	0		0	0
Queuing Penalty (veh)	1	0		0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	197	233	228	136	271	279	164	108	294	310	235
Average Queue (ft)	123	171	162	13	245	220	69	46	177	219	171
95th Queue (ft)	205	245	237	69	300	304	139	92	267	316	261
Link Distance (ft)		197	197		248	248	248	562	306	306	
Upstream Blk Time (%)	1	5	5		12	5			0	2	
Queuing Penalty (veh)	0	30	25		53	22			0	5	
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	3	8			35					40	47
Queuing Penalty (veh)	16	16			4					88	92

Intersection: 11: Touhy Ave. & Target Dwy

Movement	EB	EB	WB	WB	WB
Directions Served	T	T	T	T	TR
Maximum Queue (ft)	105	118	322	273	101
Average Queue (ft)	6	6	85	40	5
95th Queue (ft)	50	52	236	169	47
Link Distance (ft)	248	248	479	479	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)				100	
Storage Blk Time (%)				1	
Queuing Penalty (veh)				7	

Network Summary

Network wide Queuing Penalty: 448

HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background plus Project Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1138	7	22	1363	1	2	0	5	0	0	2
Future Volume (veh/h)	2	1138	7	22	1363	1	2	0	5	0	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1856	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	2	1173	7	23	1405	1	2	0	5	0	0	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	0	3	0	0	0	0	0	0	0
Cap, veh/h	383	3094	18	449	3128	2	41	3	33	0	0	47
Arrive On Green	0.00	0.85	0.86	0.02	1.00	1.00	0.05	0.00	0.03	0.00	0.00	0.04
Sat Flow, veh/h	1810	3621	22	1810	3615	3	335	110	1115	0	0	1570
Grp Volume(v), veh/h	2	576	604	23	685	721	7	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1810	1777	1866	1810	1763	1855	1561	0	0	0	0	1570
Q Serve(g_s), s	0.0	10.5	10.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.0	10.5	10.5	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00		0.01	1.00		0.00	0.29		0.71	0.00		1.00
Lane Grp Cap(c), veh/h	383	1518	1594	449	1525	1605	109	0	0	0	0	47
V/C Ratio(X)	0.01	0.38	0.38	0.05	0.45	0.45	0.06	0.00	0.00	0.00	0.00	0.04
Avail Cap(c_a), veh/h	507	1518	1594	553	1525	1605	257	0	0	0	0	168
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	1.6	2.3	2.3	1.7	0.0	0.0	70.5	0.0	0.0	0.0	0.0	70.2
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	1.0	0.9	0.4	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr	0.0	2.8	3.0	0.1	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	3.1	3.0	1.7	1.0	0.9	70.8	0.0	0.0	0.0	0.0	70.6
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1182			1429			7				2
Approach Delay, s/veh		3.0			0.9			70.8				70.6
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	134.2		10.5	3.7	135.8		10.5				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	105.0		16.0	10.5	105.0		19.0				
Max Q Clear Time (g_c+1/3), s	12.5	12.5		2.2	2.0	2.0		2.6				
Green Ext Time (p_c), s	0.0	38.1		0.0	0.0	55.4		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				2.1								
HCM 6th LOS				A								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	48	1095	1229	112	0	157
Future Vol, veh/h	48	1095	1229	112	0	157
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	2	3	0	0	1
Mvmt Flow	49	1129	1267	115	0	162






















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1383	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	502	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	502	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	502	-	-	-	389
HCM Lane V/C Ratio	0.099	-	-	-	0.416
HCM Control Delay (s)	13	-	-	-	20.7
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2

HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background plus Project Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	198	887	10	10	1123	150	11	21	10	394	15	207
Future Volume (veh/h)	198	887	10	10	1123	150	11	21	10	394	15	207
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1856	1767	1900	1953	1885	1900	1900	1900	1870	1900	1900
Adj Flow Rate, veh/h	218	975	11	11	1234	165	12	23	11	433	16	227
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	9	0	3	1	0	0	0	2	0	0
Cap, veh/h	312	2272	26	395	2141	915	16	30	15	618	19	270
Arrive On Green	0.13	1.00	1.00	0.01	0.58	0.58	0.05	0.03	0.04	0.18	0.18	0.19
Sat Flow, veh/h	1810	3570	40	1810	3711	1585	466	892	427	3456	106	1510
Grp Volume(v), veh/h	218	481	505	11	1234	165	46	0	0	433	0	243
Grp Sat Flow(s),veh/h/ln	1810	1763	1848	1810	1856	1585	1785	0	0	1728	0	1617
Q Serve(g_s), s	7.6	0.0	0.0	0.4	31.6	7.4	3.8	0.0	0.0	17.6	0.0	21.8
Cycle Q Clear(g_c), s	7.6	0.0	0.0	0.4	31.6	7.4	3.8	0.0	0.0	17.6	0.0	21.8
Prop In Lane	1.00		0.02	1.00		1.00	0.26		0.24	1.00		0.93
Lane Grp Cap(c), veh/h	312	1122	1176	395	2141	915	61	0	0	618	0	289
V/C Ratio(X)	0.70	0.43	0.43	0.03	0.58	0.18	0.76	0.00	0.00	0.70	0.00	0.84
Avail Cap(c_a), veh/h	439	1122	1176	418	2141	915	107	0	0	737	0	345
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	0.0	0.0	13.0	20.1	15.0	71.3	0.0	0.0	57.8	0.0	59.1
Incr Delay (d2), s/veh	2.1	1.2	1.1	0.0	1.1	0.4	23.2	0.0	0.0	2.9	0.0	15.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.4	0.4	0.2	13.8	2.8	2.2	0.0	0.0	8.1	0.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	1.2	1.1	13.1	21.2	15.4	94.5	0.0	0.0	60.7	0.0	75.0
LnGrp LOS	B	A	A	B	C	B	F	A	A	E	A	E
Approach Vol, veh/h		1204			1410			46			676	
Approach Delay, s/veh		4.4			20.5			94.5			65.8	
Approach LOS		A			C			F			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	101.5		32.8	13.5	92.5		11.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	3.0	84.5		32.0	20.5	67.0		9.0				
Max Q Clear Time (g_c+I1), s	2.4	2.0		23.8	9.6	33.6		5.8				
Green Ext Time (p_c), s	0.0	26.6		3.0	0.4	25.6		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.9								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1291	0	0	1283	186	0	0	0	0	0	0
Future Vol, veh/h	0	1291	0	0	1283	186	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	3	2	0	2	2	0	0	0	0	2	0
Mvmt Flow	0	1331	0	0	1323	192	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1863	2846	669
Stage 1	-	-	-	-	-	-	1331	1331	-
Stage 2	-	-	-	-	-	-	532	1515	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	86	17	405
Stage 1	0	-	0	0	-	-	211	226	-
Stage 2	0	-	0	0	-	-	526	184	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	86	0	404
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	0	-
Stage 1	-	-	-	-	-	-	211	0	-
Stage 2	-	-	-	-	-	-	525	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-



Intersection												
Int Delay, s/veh	15.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↗		↖			↕		
Traffic Vol, veh/h	1	30	176	148	61	1	265	1	125	1	1	1
Future Vol, veh/h	1	30	176	148	61	1	265	1	125	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	3	0	1	0	0	0	0	0
Mvmt Flow	1	35	205	172	71	1	308	1	145	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	72	0	0	240	0	0	557	556	139	630	658	72
Stage 1	-	-	-	-	-	-	140	140	-	416	416	-
Stage 2	-	-	-	-	-	-	417	416	-	214	242	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.11	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.509	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1541	-	-	1339	-	-	443	442	915	397	387	996
Stage 1	-	-	-	-	-	-	865	785	-	618	595	-
Stage 2	-	-	-	-	-	-	615	595	-	793	709	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1541	-	-	1339	-	-	396	382	914	299	335	996
Mov Cap-2 Maneuver	-	-	-	-	-	-	396	382	-	299	335	-
Stage 1	-	-	-	-	-	-	864	784	-	617	515	-
Stage 2	-	-	-	-	-	-	531	515	-	665	708	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			5.7			29.9			13.9		
HCM LOS							D			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	396	904	1541	-	-	1339	-	-	409
HCM Lane V/C Ratio	0.778	0.162	0.001	-	-	0.129	-	-	0.009
HCM Control Delay (s)	39.5	9.8	7.3	0	-	8.1	-	-	13.9
HCM Lane LOS	E	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	6.6	0.6	0	-	-	0.4	-	-	0

1: Melvina Ave. & Gross Point Rd. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.3	0.1	0.1	0.2
Total Del/Veh (s)	1.4	3.5	12.5	15.7	7.3

2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.4	16.0	1.4	0.9	3.9

5: Melvina Ave. & Costco Warehouse Dwy #2 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.1
Total Del/Veh (s)	9.3	10.4	1.3	1.5	4.3

6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	6.4	0.0	0.0	1.7
Total Del/Veh (s)	14.0	48.2	1.4	2.1	14.5

7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.4	0.0	4.0	1.6
Total Del/Veh (s)	13.8	20.5	1.6	24.0	15.0

8: Mobile Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.0	5.3	6.4	31.7	3.8

9: Touhy Ave. & Costco Fuel/Aldi Dwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.4	3.3	2.6	3.3

10: Melvina Ave. & Touhy Ave. Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.0	0.0
Total Del/Veh (s)	15.4	20.7	52.8	50.1	25.9

11: Touhy Ave. & Target Dwy Performance by approach

Approach	EB	WB	All
Denied Del/Veh (s)	0.0	1.2	0.7
Total Del/Veh (s)	1.5	2.4	2.0

Total Network Performance

Denied Del/Veh (s)	1.5
Total Del/Veh (s)	31.9

**Intersection: 1: Melvina Ave. & Gross Point Rd.**

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	71	93	125	188	7
Average Queue (ft)	4	26	57	30	0
95th Queue (ft)	28	71	112	126	2
Link Distance (ft)	1149	411		186	138
Upstream Blk Time (%)				2	
Queuing Penalty (veh)				10	
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			13		
Queuing Penalty (veh)			18		

**Intersection: 2: Melvina Ave. & Costco Employee Parking Dwy #1/Costco Warehouse Dwy #1**

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	53	204	32	94	55
Average Queue (ft)	29	50	6	3	16
95th Queue (ft)	52	106	27	31	44
Link Distance (ft)	234	251		384	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		75
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

**Intersection: 5: Melvina Ave. & Costco Warehouse Dwy #2**

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	L
Maximum Queue (ft)	104	135	54	54
Average Queue (ft)	41	61	15	21
95th Queue (ft)	75	93	39	53
Link Distance (ft)	174	276	218	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				130
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Melvina Ave. & Target/YMCA Dwy/Costco Warehouse Dwy #3

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	L	TR	LTR	L	TR
Maximum Queue (ft)	28	295	190	85	29	75
Average Queue (ft)	13	153	81	4	9	15
95th Queue (ft)	35	301	204	30	30	56
Link Distance (ft)	213	280		164		218
Upstream Blk Time (%)		9				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			130		100	
Storage Blk Time (%)		35				
Queuing Penalty (veh)		31				

Intersection: 7: Melvina Ave. & Aldi/Costco Fuel Dwy/Target Dwy

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	TR	L	TR
Maximum Queue (ft)	137	115	301	100	20	50	177
Average Queue (ft)	60	53	100	60	1	9	150
95th Queue (ft)	109	85	214	109	9	32	191
Link Distance (ft)	266	266	294		306		164
Upstream Blk Time (%)			0				7
Queuing Penalty (veh)			0				38
Storage Bay Dist (ft)				45		65	
Storage Blk Time (%)			31	6		0	76
Queuing Penalty (veh)			30	13		0	8

Intersection: 8: Mobile Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	31	192	127	31	205	204	31	31
Average Queue (ft)	4	34	16	10	37	42	8	1
95th Queue (ft)	20	133	67	33	139	147	30	11
Link Distance (ft)		582	582		361	361	482	386
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	90			100				
Storage Blk Time (%)		2			4			
Queuing Penalty (veh)		0			1			

Intersection: 9: Touhy Ave. & Costco Fuel/Aldi Dwy

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	R
Maximum Queue (ft)	237	226	22	98
Average Queue (ft)	59	30	2	32
95th Queue (ft)	161	128	11	88
Link Distance (ft)	361	361	198	242
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Melvina Ave. & Touhy Ave.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	LTR	L	L	TR
Maximum Queue (ft)	198	218	204	200	270	270	245	74	262	286	235
Average Queue (ft)	124	121	106	16	227	197	96	24	151	187	159
95th Queue (ft)	199	218	193	78	295	272	180	59	229	274	238
Link Distance (ft)		198	198		250	250	250	562	306	306	
Upstream Blk Time (%)	0	1	0		6	1	0				
Queuing Penalty (veh)	0	6	2		25	5	0				
Storage Bay Dist (ft)	180			100							80
Storage Blk Time (%)	3	2			33					40	42
Queuing Penalty (veh)	10	5			3					89	93

Intersection: 11: Touhy Ave. & Target Dwy

Movement	WB	WB	WB
Directions Served	T	T	TR
Maximum Queue (ft)	137	116	54
Average Queue (ft)	28	9	2
95th Queue (ft)	99	59	19
Link Distance (ft)	480	480	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Network Summary

Network wide Queuing Penalty: 388
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HCM 6th Signalized Intersection Summary  
8: Mobile Ave. & Touhy Ave.

Background plus Project Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Volume (veh/h)	5	1043	12	16	1226	2	2	0	13	0	0	1
Future Volume (veh/h)	5	1043	12	16	1226	2	2	0	13	0	0	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.97		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1054	12	16	1238	2	2	0	13	0	0	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	431	2911	33	466	2969	5	38	6	83	0	0	107
Arrive On Green	0.00	0.81	0.82	0.02	1.00	1.00	0.08	0.00	0.06	0.00	0.00	0.07
Sat Flow, veh/h	1810	3597	41	1810	3640	6	115	92	1345	0	0	1554
Grp Volume(v), veh/h	5	521	545	16	604	636	15	0	0	0	0	1
Grp Sat Flow(s),veh/h/ln	1810	1777	1862	1810	1777	1869	1552	0	0	0	0	1554
Q Serve(g_s), s	0.1	10.3	10.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	10.3	10.3	0.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.1
Prop In Lane	1.00		0.02	1.00		0.00	0.13		0.87	0.00		1.00
Lane Grp Cap(c), veh/h	431	1438	1507	466	1449	1524	162	0	0	0	0	107
V/C Ratio(X)	0.01	0.36	0.36	0.03	0.42	0.42	0.09	0.00	0.00	0.00	0.00	0.01
Avail Cap(c_a), veh/h	570	1438	1507	594	1449	1524	315	0	0	0	0	203
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	2.3	3.3	3.3	2.5	0.0	0.0	57.6	0.0	0.0	0.0	0.0	56.4
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.9	0.8	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	3.2	0.1	0.4	0.4	0.5	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.3	4.1	4.0	2.6	0.9	0.8	58.0	0.0	0.0	0.0	0.0	56.4
LnGrp LOS	A	A	A	A	A	A	E	A	A	A	A	E
Approach Vol, veh/h		1071			1256			15				1
Approach Delay, s/veh		4.0			0.9			58.0				56.4
Approach LOS		A			A			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	111.2		14.0	4.0	112.0		14.0				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	10.5	83.0		16.0	10.5	83.0		21.0				
Max Q Clear Time (g_c+I), s	12.2	12.3		2.1	2.1	2.0		3.2				
Green Ext Time (p_c), s	0.0	29.0		0.0	0.0	39.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	2.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	49	1007	1062	134	2	182
Future Vol, veh/h	49	1007	1062	134	2	182
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	1	0	1
Mvmt Flow	49	1017	1073	135	2	184

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1212	0	-	0	1752 608
Stage 1	-	-	-	-	1145 -
Stage 2	-	-	-	-	607 -
Critical Hdwy	4.14	-	-	-	6.8 6.92
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.22	-	-	-	3.5 3.31
Pot Cap-1 Maneuver	571	-	-	-	78 441
Stage 1	-	-	-	-	270 -
Stage 2	-	-	-	-	512 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	569	-	-	-	62 440
Mov Cap-2 Maneuver	-	-	-	-	62 -
Stage 1	-	-	-	-	216 -
Stage 2	-	-	-	-	510 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	18.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	569	-	-	-	440
HCM Lane V/C Ratio	0.087	-	-	-	0.418
HCM Control Delay (s)	11.9	-	-	-	18.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2



HCM 6th Signalized Intersection Summary  
10: Melvina Ave. & Touhy Ave.

Background plus Project Conditions  
Saturday Midday Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	251	753	5	10	977	213	5	10	5	444	10	214
Future Volume (veh/h)	251	753	5	10	977	213	5	10	5	444	10	214
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1604	1900	1969	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	259	776	5	10	1007	220	5	10	5	458	10	221
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	20	0	2	0	0	0	0	0	0	0
Cap, veh/h	369	2253	15	377	2066	885	11	21	11	637	13	280
Arrive On Green	0.03	0.21	0.21	0.01	0.55	0.55	0.05	0.02	0.03	0.18	0.18	0.19
Sat Flow, veh/h	1781	3620	23	1810	3741	1603	446	892	446	3510	70	1541
Grp Volume(v), veh/h	259	381	400	10	1007	220	20	0	0	458	0	231
Grp Sat Flow(s),veh/h/ln	1781	1777	1866	1810	1870	1603	1783	0	0	1755	0	1611
Q Serve(g_s), s	7.4	23.8	23.8	0.3	21.4	9.3	1.4	0.0	0.0	16.0	0.0	17.8
Cycle Q Clear(g_c), s	7.4	23.8	23.8	0.3	21.4	9.3	1.4	0.0	0.0	16.0	0.0	17.8
Prop In Lane	1.00		0.01	1.00		1.00	0.25		0.25	1.00		0.96
Lane Grp Cap(c), veh/h	369	1106	1162	377	2066	885	42	0	0	637	0	292
V/C Ratio(X)	0.70	0.34	0.34	0.03	0.49	0.25	0.47	0.00	0.00	0.72	0.00	0.79
Avail Cap(c_a), veh/h	526	1106	1162	407	2066	885	82	0	0	810	0	372
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	29.0	29.0	13.5	17.8	15.1	62.2	0.0	0.0	50.1	0.0	50.4
Incr Delay (d2), s/veh	1.8	0.9	0.8	0.0	0.8	0.7	11.2	0.0	0.0	2.8	0.0	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	11.6	12.2	0.1	9.2	3.5	0.8	0.0	0.0	7.3	0.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	29.8	29.8	13.6	18.7	15.8	73.4	0.0	0.0	52.9	0.0	60.4
LnGrp LOS	B	C	C	B	B	B	E	A	A	D	A	E
Approach Vol, veh/h		1040			1237			20				689
Approach Delay, s/veh		26.7			18.1			73.4				55.4
Approach LOS		C			B			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.4	86.9		29.6	13.5	77.8		9.1				
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0				
Max Green Setting (Gmax), s	3.1	69.4		30.0	21.5	51.0		6.0				
Max Q Clear Time (g_c+I1), s	2.3	25.8		19.8	9.4	23.4		3.4				
Green Ext Time (p_c), s	0.0	15.5		3.5	0.6	19.7		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				30.1								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑			↔				
Traffic Vol, veh/h	0	1202	0	0	1200	281	0	0	0	0	0	0
Future Vol, veh/h	0	1202	0	0	1200	281	0	0	0	0	0	0
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	2	0	0	2	0	0	2	0
Mvmt Flow	0	1279	0	0	1277	299	0	0	0	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	1790	2858	640
Stage 1	-	-	-	-	-	-	1279	1279	-
Stage 2	-	-	-	-	-	-	511	1579	-
Critical Hdwy	-	-	-	-	-	-	6.25	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	5.8	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6	5.54	-
Follow-up Hdwy	-	-	-	-	-	-	3.65	4.02	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	-	96	17	423
Stage 1	0	-	0	0	-	-	224	235	-
Stage 2	0	-	0	0	-	-	539	168	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	96	0	423
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	0	-
Stage 1	-	-	-	-	-	-	224	0	-
Stage 2	-	-	-	-	-	-	539	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	WBR
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-



BOARD AGENDA ITEM EXPLANATION FORM



**Ordinance Approving a Change Order Number 1 for Four Flaggs Tank Rehab, Painting and Tower Facilities Lightning Protection and Oriole Tower Lightning Protection Project from Jetco Ltd., By Decreasing the Contract Price by \$204,585.22 for a Total Contract Amount of \$962,400.78**

Meeting Date: 10/25/2022

Item Number **11.d**

Requested By: Public Works

Action Requested: Board Approval

Prepared By: Tom Powers, Interim Public Works Director

Assigned to: Trustee Matyas

**ATTACHMENTS:**

- [Ordinance 2022-xx Approving a Change Order No.1 for Jetco Four Flaggs Tank Rehab.docx](#)
- [Exhibit "A" Change Order No 1.pdf](#)

**MOTION**

I move for Board approval of an Ordinance Approving a Change Order Number 1 for Four Flaggs Tank Rehab, Painting and Tower Facilities Lightning Protection and Oriole Tower Lightning Protection Project from Jetco Ltd., by Decreasing the Contract Price by \$204,585.22 for a Total Contract Amount of \$962,400.78

**REASON FOR REQUEST / BACKGROUND**

Once emptied, the steel within the Four Flaggs tank was found to be in better condition than anticipated. Therefore less weld repairs and special painting procedures were required.

Will this action involve an expenditure of funds?

No

If yes, is this a budgeted item?

Yes

Impact on future budget(s) No

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project No

Grant Source

ORG#	Total Amount for Approval	\$(204,585.22)
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ACCT#	Budget Amount	\$1,000,000
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Line Item Budget Amount

Variance

## **ORDINANCE 2022-**

### **ORDINANCE APPROVING A CHANGE ORDER NUMBER 1 FOR FOUR FLAGGS TANK REHAB, PAINTING AND TOWER FACILITIES LIGHTNING PROTECTION AND ORIOLE TOWER LIGHTNING PROTECTION PROJECT FROM JETCO LTD. BY DECREASING THE CONTRACT PRICE BY \$204,585.22 FOR A TOTAL CONTRACT AMOUNT OF \$962,400.78**

**WHEREAS**, the Village President and Board of Trustees (hereinafter collectively referred to as the “Village Board”) of the Village of Niles, Cook County, Illinois (hereinafter the “Village”), find that the Village is a home rule municipal corporation as provided in Article VII, Section 6 of the 1970 Constitution of the State of Illinois and pursuant to said constitutional authority, may exercise and perform any function pertaining to its governmental affairs; and

**WHEREAS**, Jetco, Ltd, was awarded the 2022 Four Flaggs Tank Rehab Painting and Tower Facilities Lightning Protection and Oriole Tower Lightning Protection with a total Contract Price of \$1,166,986.00 (“Project”); and

**WHEREAS**, the project is almost complete with a final project cost of \$962,400.78; and

**WHEREAS**, a change order is necessary to reflect a decrease in the final price by \$204,585.22 for a total contract amount of \$962,400.78; and

**WHEREAS**, the Corporate Authorities of the Village agree to authorize and approve Change Order Number 1 for the Project; and

**WHEREAS**, based on the recommendation of the Public Works Director, the Corporate Authorities of the Village make the following findings and determinations in accordance with the Illinois Compiled Statutes, Chapter 720, Section 5/33E-9 regarding changes to the Contract:

1. The change order (or series of change orders) recommended in Exhibit "A", which is attached hereto and made a part hereof, modifies the Contract.
2. The change order (or series of change orders): is made necessary by circumstances not foreseeable at the time the Contract was signed; is germane to the Contract as originally signed; and
3. The change is in the best interests of the Village.

In addition, the Corporate Authorities of the Village make the following finding and determination pursuant to Section 5 of the Public Works Contract Change Order Act (50 ILCS 525/5): the amount of the Change Order (or series of change orders) does not increase the original contract price by 50% or more of the original contract price and thus the Village is not obligated to re-bid the additional work proposed under the Change Order.

**NOW, THEREFORE BE IT ORDAINED** by the President and Board of Trustees of the Village of Niles, Cook County, Illinois, as follows:

**SECTION 1:** Each Whereas paragraph set forth above is incorporated by reference into this Section 1.

**SECTION 2:** The Corporate Authorities of the Village of Niles approve Change Order Number 1 for the original Contract price decrease in the final price by \$204,585.22 for a total contract amount of \$962,400.78 and Authorizing the Expenditure of Funds to Pay for Such Change Order (the “Amended Contract Term”).

**SECTION 3:** The Corporate Authorities of the Village of Niles authorize and direct the Village President, the Village Clerk, the Village Treasurer, the Village Manager and the Public Works Director, or their designees, to execute, process and deliver the necessary checks, wire transactions, change order documents and such other instruments necessary to comply with the authorization and direction set forth in this Ordinance.

**SECTION 4:** Each section, paragraph, clause and provision of this Ordinance is separable, and if any provision is held unconstitutional or invalid for any reason, such decision shall not affect the remainder of this Ordinance, nor any part thereof, other than that part affected by such decision.

**SECTION 5:** This Ordinance shall be in full force and effect from and after its adoption, approval and publication in the manner provided by law.

**PASSED:** This 25<sup>th</sup> day of October, 2022  
**YEAS:**  
**NAYS:**  
**ABSENT:**  
**ABSTAIN:**

**APPROVED** by me this 25<sup>th</sup> day of October, 2022.

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President of the Village of Niles  
Cook County, Illinois

**ATTESTED AND FILED** in my office this 25<sup>th</sup> day of October, 2022, and published in pamphlet form as provided by law in the Village of Niles, Illinois.

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Village Clerk

**Exhibit "A"**

**Change Order Number 1**

(attached)



THE VILLAGE OF

# NILES

*It's possible here*

CHANGE ORDER #: \_\_\_\_\_

VENDOR #: \_\_\_\_\_

DEPARTMENT: \_\_\_\_\_

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

P.O. #: \_\_\_\_\_

\_\_\_\_\_

P.O. AMOUNT: \_\_\_\_\_

Previous Change Order Amounts:

\_\_\_\_\_

This Change Order Amount:

\_\_\_\_\_

Purchase Order Amount with all Approved Change Orders: \_\_\_\_\_

Org: \_\_\_\_\_ Object: \_\_\_\_\_

Reason for Change Order:

Requested by: \_\_\_\_\_

Date: \_\_\_\_\_





**BOARD AGENDA ITEM EXPLANATION FORM**



**Resolution Authorizing a Contractual Agreement with Baxter & Woodman, Inc. for the Design of the Dobson Street Storm Water Conveyance Improvements in the Amount \$189,606**

Meeting Date: 10/25/2022

Item Number **11.e**

Requested By: Public Works

Action Requested: Resolution

Prepared By: Tom Powers, Interim Public Works Director

Assigned to: Trustee Matyas

**ATTACHMENTS:**

[Resolution\\_2022-xxAuthorizing\\_a\\_Contract\\_between\\_baxter\\_and\\_woodman\\_stormwater design.docx](#)

**MOTION**

I move for Board approval of the Resolution Authorizing a Contractual Agreement with Baxter & Woodman, Inc. for the Design of the Dobson Street Storm Water Conveyance Improvements in the Amount \$189,606.

**REASON FOR REQUEST / BACKGROUND**

The United States Army Corps of Engineers has programmed the Village of Niles for \$1,000,000 in Section 219 funds for Federal FY 24. In addition, the Village is in talks with IDOT to attempt to obtain additional funding for Harlem Avenue drainage improvements. This design contract will design the entire improvement from Nordica and Dobson to Octavia and Mulford which will likely be built in phases.

Will this action involve an expenditure of funds?

Yes

If yes, is this a budgeted item?

Yes

Impact on future budget(s)

Yes

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

TBD - \$6,000,000 Total Estimated Project Construction Cost

Grant Funded Project

Yes

Grant Source

USACE 219 \$1,000,000

ORG# 50600

Total Amount for Approval 189,606

ACCT# 580120

Budget Amount 205,000

Line Item Budget Amount

Variance (\$15,394)

## **RESOLUTION 2022-xx**

### **RESOLUTION AUTHORIZING A CONTRACTUAL AGREEMENT WITH BAXTER AND WOODMAN, INC., FOR THE DESIGN OF THE DOBSON STREET STORM WATER CONVEYANCE IMPROVEMENTS IN THE AMOUNT OF \$194,200**

**WHEREAS**, the Village President and Board of Trustees (hereinafter collectively referred to as the “Village Board”) of the Village of Niles, Cook County, Illinois (hereinafter the “Village”), find that the Village is a home rule municipal corporation as provided in Article VII, Section 6 of the 1970 Constitution of the State of Illinois and pursuant to said constitutional authority, may exercise and perform any function pertaining to its governmental affairs; and

**WHEREAS**, the Village requires storm water management and infrastructure planning with project 17-7A (“Design”); and

**WHEREAS**, Project 17-7A (“Project”) is a top priority project identified by the storm water commission; and

**WHEREAS**, The project would provide relief to the frequently the areas of Mulford, Octavia and Oconto; and

**WHEREAS**, the United States Army Corps of Engineers has programmed the Village of Niles for \$1,000,000 in Section 219 funds for Federal FY 24; and

**WHEREAS**, in addition the Village is in talks with IDOT to attempt to obtain additional funding for Harlem Avenue drainage improvements; and

**WHEREAS**, this Design contract will be for the entire improvement from Nordica and Dobson to Octavia and Mulford which will likely be built in phases; and

**WHEREAS**, staff recommends the design of the entire sewer is completed now so it is shovel ready as funding opportunities present themselves; and

**WHEREAS**, Baxter and Woodman was selected due to their experience working on USACE contracts. The Village’s trusted storm water consultant Hey and Associates will be involved as a subconsultant.

**WHEREAS**, Baxter and Woodman, Inc. agrees to furnish all services, material, supplies tools, equipment necessary to commence and complete the services in accordance with the conditions and prices stated in the Contract dated September 9, 2022, all of which are made a part hereof (herein the “Contract Document” or “Agreement”); and

**WHEREAS**, the Village will pay Baxter and Woodman, Inc. in the amounts, manner and at times set forth in the Agreement; and

**WHEREAS**, the President and the Board of Trustees of the Village of Niles, determined it is in the best interest of the Village to enter into the Agreement and further the Project.

**NOW, THEREFORE, BE IT RESOLVED** that the President and Board of Trustees of the Village of Niles, Cook County, Illinois, do hereby approve the following:

**SECTION 1:** The Agreement and Contract Documents are attached to this Resolution as Exhibit “A”.

**SECTION 2:** That this Resolution shall be in full force and effect from and after its passage, approval and publication as provided by law.

**SECTION 3:** The President and Board of Trustees of the Village of Niles authorize and direct the Village President, or his designee, to execute the final version of the Agreement, which may contain certain non-substantive and non-financial modifications that are approved by the Village Attorney, and to execute and deliver all other instruments and documents and pay all costs that are necessary to fulfill Niles’ obligation under the Agreement. The Village Clerk shall attest, on behalf of the Village, upon receipt of at least one original copy of the Agreement executed by Baxter and Woodman, Inc.; provided, however, that if the executed copy of the Agreement is not received by the Village Clerk within 60 days after the effective date of this Resolution, then this authority to execute and attest shall, at the option of the President and Board of Trustees, be null and void.

**SECTION 4:** That all resolution or parts of resolution in conflict herewith are hereby repealed to the extent of any such conflict.

**SECTION 5:** That any section or provision of this resolution that is construed to be invalid or void shall not affect the remaining sections or provisions which shall remain in full force and effect thereafter.

**PASSED:** This 25<sup>th</sup> day of October, 2022  
**AYES:**  
**NAYS:**  
**ABSENT:**  
**ABSTAIN:**

**APPROVED** by me this 25<sup>th</sup> day of October, 2022.

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President of the Village of Niles  
Cook County, Illinois

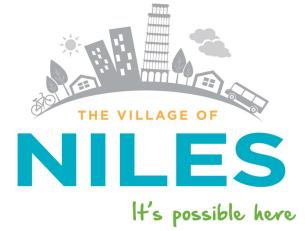
**ATTESTED AND FILED** in my office this 25<sup>th</sup> day of October, 2022, and published in pamphlet form as provided by law in the Village of Niles, Illinois.

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Village Clerk



BOARD AGENDA ITEM EXPLANATION FORM



Treasurer's Report - September 2022

Meeting Date: 10/25/2022

Item Number 12.a

Requested By: Finance Department

Action Requested: Board Approval

Prepared By: Conor Schultz, Management Budget Analyst

Assigned to: Trustee LoVerde

ATTACHMENTS:

22-09 Treasurers Report Complete (Signed).pdf

MOTION

I move to approve the accounts payable, including payroll in the amount of \$4,945,183 for the month ending September 2022.

Second motion. I move that the Treasurer's Report for the month ending September 30, 2022 be approved and filed for audit with a beginning cash balance of \$51,739,154 receipts of \$18,594,771 disbursements of \$14,035,272 and ending cash balance of \$56,298,653.

REASON FOR REQUEST / BACKGROUND

Will this action involve an expenditure of funds?

If yes, is this a budgeted item?

Impact on future budget(s)

If yes, Projected Cost(s), Projected Fiscal Year, Project Name

Grant Funded Project

Grant Source

ORG#

Total Amount for  
Approval

ACCT#

Budget Amount

Line Item Budget  
Amount

Variance

# Village of Niles Treasurer's Report

As of September 30, 2022

## ACCOUNTS PAYABLE

ORG	FUND	AMOUNT
10000	General	\$ 983,691
20000	Motor Fuel Tax	\$ 1,912
21000	Street and Bridge	\$ 6,762
23000	DUI Fund	\$ 12,750
24000	Drug Asset Forfeiture	\$ 12,750
25000	Art 36 Asset Forfeiture	
25500	Fed Equity Sharing	
26000	Municipal Waste	\$ 188,059
30000	Cap Projects	\$ 445,963
31000	Milwaukee/Touhy TIF	
32000	Gross Pt/Touhy TIF	\$ 32,043
34000	Milwaukee/Harlem TIF	
36000	Milwaukee/Dempster TIF	\$ 4,698
40000	Debt Serv 1/4%	
46000	Milwaukee TIF	
50000	Water	\$ 689,546
51000	Fitness	\$ 49,436
60000	Automotive	\$ 220,618
61000	Risk Management	\$ 2,566
Total A/P		\$ 2,650,794
Total Payroll		\$ 2,294,389
<b>Grand Total</b>		<b>\$ 4,945,183</b>

## CHANGES IN CASH/INVESTMENT BALANCES

FUND	Beginning Balance			Ending Balance	
	Cash/Investments	Receipts	Disbursements	Cash/Investments	Cash/Investments
GENERAL(plus)	\$ 25,997,087	\$ 18,270,718	\$ 14,009,622	\$	30,258,183
WATER	\$ 4,369,505	\$ 132,778	\$ 150	\$	4,502,133
MOTOR FUEL TAX	\$ 4,047,726	\$ 103,551	\$ -	\$	4,151,278
DEBT SERVICE 1/4%	\$ 70,037	\$ -	\$ -	\$	70,037
DUI FUND	\$ 40,840	\$ 25	\$ 12,750	\$	28,115
DRUG ASSET (STATE)	\$ 33,123	\$ 18	\$ 12,750	\$	20,391
ARTICLE 36	\$ 8,394	\$ 7	\$ -	\$	8,401
POLICE SEIZURE	\$ 32,186	\$ -	\$ -	\$	32,186
FED EQUITY	\$ 30,844	\$ 25	\$ -	\$	30,869
FITNESS	\$ 4,600,365	\$ 69,975	\$ -	\$	4,670,340
CAP PRJCT (POLICE BUILDING & SSAs)	\$ 2,954,224	\$ 4,480	\$ -	\$	2,958,704
GROSS PT/TOUHY TIF	\$ 7,333,526	\$ 13,194	\$ -	\$	7,346,720
MILW/TOUHY TIF	\$ 2,221,297	\$ 0	\$ -	\$	2,221,298
<b>TOTAL</b>	<b>\$ 51,739,154</b>	<b>\$ 18,594,771</b>	<b>\$ 14,035,272</b>	<b>\$</b>	<b>56,298,653</b>

\_\_\_\_\_, Finance Director

\_\_\_\_\_  
Treasurer



## Statement of Cash/Investments As of September 30, 2022\*\*

ACCOUNT*	ACCOUNT NAME	Beginning Balance	Receipts	Disbursements	Net Change	Ending Balance
900 10010	Cash	\$ (6,862,465.17)	3,830,440.17	2,651,071.23	1,179,368.94	\$ (5,683,096.23)
900 10011	AP Disb. Credit Card	\$ 2,125,290.76	4,550,753.93	5,300,926.77	-750,172.84	\$ 1,375,117.92
900 10012	Illinois Funds - General	\$ 8,868,230.05	3,468,869.12	2,600,000.00	868,869.12	\$ 9,737,099.17
900 10014	Illinois Funds E-pay split	\$ 365,823.58	11,400.81	0.00	11,400.81	\$ 377,224.39
900 10016	Illinois Funds On-Line E-Pay	\$ 524,950.13	1,085.43	0.00	1,085.43	\$ 526,035.56
900 10018	PNC Underground	\$ 20,000.00	0.00	0.00	0.00	\$ 20,000.00
900 10019	PNC General Disb.	\$ 3,474.40	1,321,813.44	1,323,300.86	-1,487.42	\$ 1,986.98
900 10020	PNC General	\$ 287,781.72	4,703,241.43	1,994,384.52	2,708,856.91	\$ 2,996,638.63
900 10022	PNC Senior Ctr.	\$ 691,822.95	8,518.02	377.25	8,140.77	\$ 699,963.72
900 10024	Amalgamated General	\$ 1,060,406.67	7,226.80	0.00	7,226.80	\$ 1,067,633.47
900 10026	5/3 Risk	\$ 48,429.28	45,737.17	46,005.64	-268.47	\$ 48,160.81
900 10027	5/3 Lockbox	\$ 193,080.00	0.00	0.00	0.00	\$ 193,080.00
900 10028	5/3 Claims	\$ 102,491.52	29,164.38	26,281.53	2,882.85	\$ 105,374.37
900 10030	2018 TIFs PNC	\$ 3,635,389.56	2,987.99	0.00	2,987.99	\$ 3,638,377.55
900 10032	Glenview Emergency Phone	\$ 76.72	53,215.82	53,215.80	0.02	\$ 76.74
900 10333	MaxSafe Assist. Fund	\$ 246,124.44	508.90	0.00	508.90	\$ 246,633.34
900 10034	Suburban/Wintrust	\$ 6,416,969.55	208,052.46	0.00	208,052.46	\$ 6,625,022.01
900 10035	Des Plaines Trust Assist. Fund	\$ 32,482.50	150.00	0.00	150.00	\$ 32,632.50
900 10036	Hinsdale - F/S***	\$ 103,603.40	2,811.81	0.00	2,811.81	\$ 106,415.21
900 10041	PMA SDA Water	\$ 841,610.36	1,501.14	0.00	1,501.14	\$ 843,111.50
900 10042	PMA - SDA	\$ 7,291,044.58	13,004.83	0.00	13,004.83	\$ 7,304,049.41
900 10043	PMA SDA Cap Proj	\$ 2,511,757.50	4,480.16	0.00	4,480.16	\$ 2,516,237.66
900 10044	Amalgamated Water	\$ 33,712.14	60.21	0.00	60.21	\$ 33,772.35
900 10046	Illinois Funds - Water	\$ 67,341.78	139.24	0.00	139.24	\$ 67,481.02
900 10048	PNC Water	\$ 314,064.83	0.00	0.00	0.00	\$ 314,064.83
900 10050	Chase Water	\$ 3,107,948.51	131,077.08	140.69	130,936.39	\$ 3,238,884.90
900 10052	INB Water	\$ 4,827.83	0.00	9.26	-9.26	\$ 4,818.57
900 10053	INB G/F	\$ 5,000.00	10,795.00	10,795.00	0.00	\$ 5,000.00
900 10056	PNC DUJ	\$ 40,839.71	24.84	12,750.00	-12,725.16	\$ 28,114.55
900 10058	PNC Drug	\$ 33,122.85	18.49	12,750.00	-12,731.51	\$ 20,391.34
900 10059	PNC Police Seizure	\$ 32,185.53	0.00	0.00	0.00	\$ 32,185.53
900 10060	PNC Art. 36	\$ 8,394.10	6.90	0.00	6.90	\$ 8,401.00
900 10061	PNC Police Operations	\$ 1,735.00	0.00	0.00	0.00	\$ 1,735.00
900 10062	Illinois Funds MFT	\$ 2,784,281.45	103,551.39	0.00	103,551.39	\$ 2,887,832.84
900 10064	PNC MFT	\$ 1,263,444.83	0.00	0.00	0.00	\$ 1,263,444.83
900 10068	PNC Debt	\$ 70,037.21	0.00	0.00	0.00	\$ 70,037.21
900 10070	PNC Fitness	\$ 4,600,364.86	69,974.74	0.00	69,974.74	\$ 4,670,339.60
900 10072	PNC Cap. Proj.	\$ 442,466.76	0.00	0.00	0.00	\$ 442,466.76
900 10074	PNC G/P TIF	\$ 7,333,525.58	13,194.01	0.00	13,194.01	\$ 7,346,719.59
900 10076	PNC M/T TIF	\$ 2,221,136.67	0.00	0.00	0.00	\$ 2,221,136.67
900 10080	Illinois Funds M/T TIF	\$ 160.55	0.31	0.00	0.31	\$ 160.86
900 10082	JP Morgan/Deutsche	\$ 713,209.61	940.03	0.00	940.03	\$ 714,149.64
900 10084	PNC Fed Equity	\$ 30,843.81	25.35	0.00	25.35	\$ 30,869.16
		<b>51,617,018.11</b>	<b>18,594,771.40</b>	<b>14,032,008.55</b>	<b>4,562,762.85</b>	<b>56,179,781</b>
100 12010	PMA Investments - General	-	-	-	-	-
500 12010	PMA Investments - Water	-	-	-	-	-
100 12010	Amalgamated Securities	122,135.81	-	3,263.34	(3,263.34)	\$ 118,872.47
		<b>122,135.81</b>	<b>-</b>	<b>3,263.34</b>	<b>(3,263.34)</b>	<b>118,872</b>
<b>Total Treasury.....</b>		<b>51,739,153.92</b>	<b>18,594,771.40</b>	<b>14,035,271.89</b>	<b>4,559,499.51</b>	<b>56,298,653</b>

<b>Bloomberg 90 Days</b>	<b>3.72</b>
<b>Bloomberg 24 Months</b>	<b>3.02</b>

Institution	Amount	Percent of Portfolio	Current Rate/Yield	Investment Policy Limit (1)
Illinois Funds	13,595,834	24.36%	1.05%	40%
PNC	19,498,895	34.93%	0.30%	50%
Amalgamated	1,101,406	1.52%	1.52%	50%
PMA	10,663,399	19.10%	0.43%	50%
IMET	0	0.00%	n/a	40%
Others	10,838,084	19.42%	0.00%	
Securities	118,872	0.21%	1.92%-4.44%	
<b>Total Portfolio</b>	<b>55,816,489</b>	<b>100%</b>	<b>1.12%</b>	

\*Accounts 10010 and 10011 are separated for the purposes of reporting, and are combined to establish an accurate account balance.  
\*\*Account totals reflect those data most accurate at time of reporting and may change as adjustments are made subsequent to this report.  
\*\*\*Monthly Bank statement not received by time of printing.