Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

SUBDIVISION-MAJOR / PRELIMINARY

Application submittals must include all documents on this checklist as well as this page. Please use the reference guide (pg. 3) included in this packet for more information on each submittal item.

All applications shall be submitted electronically to epermitcenter@adcogov.org. If the submittal is too large to email as an attachment, the application may be sent as an unlocked OneDrive link. Alternatively, the application may be delivered on a flash drive to the One-Stop Customer Service Center. All documents should be combined in a single PDF. Once a complete application has been received, fees will be invoiced and payable online at https://permits.adcogov.org/CitizenAccess/.

- [x] 1. Development Application Form (pg. 4)
- [x] 2. Application Fees (pg. 2)
- [x] 3. Written Explanation of the Project
- [x] 4. Site Plan Showing Proposed Development
- [x] 5. Copy of Plat prepared by Registered Land Surveyor (pg. 7)
- [ ] 6. School Impact Analysis (contact applicable District)
- [ ] 7. Fire Protection Report (required prior to public hearing)
- [x] 8. Proof of Ownership (title policy dated within 30 days of submittal)
- [x] 9. Proof of Water and Sewer Services
- [ ] 10. Proof of Utilities (e.g. electric, gas)
- [x] 11. Legal Description
- [x] 12. Statement of Taxes Paid
- [ ] 13. Certificate of Notice to Mineral Estate Owners/and Lessees (pg. 12)
- [ ] 14. Certificate of Surface Development (pg. 13)

Required Engineering Documents (see notes on next page)

- [x] 1. Preliminary Drainage Report
- [x] 2. Preliminary Traffic Impact Study
- [x] 3. Preliminary Erosion and Sediment Control Plans
- [x] 4. Preliminary Construction/ Engineering Design Plans

continued on next page...

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Application Fees	Amount	Due
Major Subdivision (preliminary plat)	$1,300	After complete application received
Tri-County Health Department	$210 (with central utilities - TCHD Level 2) $360 (with indv. septic - TCHD Level 3)	After complete application received
Soil Conservation	$100 (less than 5 lots) $150 (more than 5 lots)	After complete application received[1]
Colorado Geological Survey	$600 (1-3 dwellings and >100 acres) $900 (< 3 dwellings and > 100 acres) $1,550 (between 100 and 500 acres) $2,500 (500 acres or more)	After complete application received[1]
Engineering Review	$1,000 (less than 5 lots) $2,500 (5-25 lots) $7,500 (greater than 25 lots)	Separate application[1, 2]

[1] - These notated fees are one-time. The Colorado Geological Survey and Soils Conservation District will honor the fee from Preliminary to Final Plat. Engineering Review will include both preliminary and final and does not need to be submitted a second time. Tri-County Health Department will require a review fee for both preliminary and final.

[2] - A subdivision engineering review may not be required if the project is determined not to require public improvements

Major Subdivision (Preliminary Plat) - Guide to Development Application Submittal

The submittal documents for all Land Use/Development Applications are listed below. Detailed explanations of the submittal documents are also provided.

All development application submittals shall comprise of one (1) electronic copy (emailed or delivered on a USB).**Application submittals that do not conform to these guidelines shall not be accepted.**

3. Written Explanation of the Project:

- A clear and concise, yet thorough, description of the proposal. Please include, if applicable, timeframe, purpose of project, and improvements that will be made to the site

4. Site Plan Showing Proposed Development:

- A detailed drawing of existing and proposed improvements
- Including:
  - Streets, roads, and intersections
  - Driveways, access points, and parking areas
  - Existing and proposed structures, wells, and septic systems,
  - Easements, utility lines, and no build or hazardous areas
  - Scale, north arrow, and date of preparation
- An Improvement Location Certificate or Survey may be required during the official review

5. Copy of Plat Prepared by Registered Land Surveyor

- A map or maps together with supporting documentation of certain described land providing permanent and accurate record of the legal description, dedications, exact size, shape, and location of lots, blocks, streets, easements, and parcels

6. School Impact Analysis:

- Contact the applicable school district for the analysis
- Should include the increase in elementary, middle, and high school students and the existing school sites and structure of the applicable district in which the subdivision is proposed to be located

7. Fire Protection Report:

- Shall discuss the adequacy of protection within the propose subdivision and be approved by the appropriate fire district

8. Proof of Ownership:

- A deed may be found in the Office of the Clerk and Recorder
- A title commitment is prepared by a professional title company

9. Proof of Water:

- Public utilities - A written statement from the appropriate water district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider
- Private utilities - Well permit(s) information can be obtained from the Colorado State Division of Water Resources at (303) 866-3587

Proof of Sewer:

- Public utilities - A written statement from the appropriate sanitation district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider
- Private utilities - A written statement from Tri-County Health indicating the viability of obtaining Onsite Wastewater Treatment Systems

10. Proof of Utilities (Gas, Electric, etc):

- A written statement from the appropriate utility provider indicating that they will provide service to the property
- Copy of a current bill from the service provider

11. Legal Description:

- Geographical description used to locate and identify a property
- Visit http://gisapp.adcogov.org/quicksearch/ to find the legal description for your property

12. Statement of Taxes Paid:

- All taxes on the subject property must be paid in full. Please contact the Adams County Treasurer's Office
- Or https://adcotax.com/treasurer/web/

13-14. Certificate of Notice to Mineral Estate Owners/ Certificate of Surface Development:

- The State of Colorado requires notification to mineral rights owners of applications for surface development (i.e. zoning, plats, etc.)
- Mineral or Surface right owners may be found in the title commitment for the subject property
- You may also search the Office of the Clerk and Recorder for any recorded deeds, easements, or other documents.

Required Engineering Documents

1. Level 1-Storm Drainage Plan:

- A level 1 Storm Drainage Plan is a preliminary design plan showing existing and proposed site drainage features or improvements and, is intended to show how the storm drainage will be mitigated.
- See Appendix B of the Development Standards for a plan preparation checklist

Level 2-Storm Drainage Study (SDS):

- A level 2 SDS is a preliminary design report that describes the existing and proposed drainage features and, includes a hydrologic analysis of the proposed site. A Level 2 SDS also includes a drainage plan.
- See Appendix B of the Development Standards for a plan preparation checklist

Level 3-Storm Drainage Study (SDS):

- A level 3 SDS is a preliminary design report that describes the existing and proposed drainage features, includes a hydrologic analysis of the proposed site and hydraulic analysis of all proposed drainage mitigation measures. A Level 3 SDS also includes a drainage plan and construction plans for all drainage mitigation features.
- See Appendix B of the Development Standards for a plan preparation checklist

2. Traffic Impact Study:

- Intended to forecast and mitigate the transportation and traffic impacts of a proposed land use development or redevelopment project
- See Chapter 8 of the Adams County Development Standards for requirements

3. Erosion and Sediment Control Plans:

- Erosion and Sediment Control (ESC) plans are construction plans showing the proposed Best Management Practices (BMP) that will be used to mitigate erosion and the transport of sediment from a site under construction.
- ESC plans are often done in three (3) phases: Initial, Interim and, Final.
- These plans must also include installation details for each of the BMP's.

4. Construction / Engineering Design Plans:

- A set of maps and/or drawings showing how a proposed development is to be constructed.
- The plans must include:
  - site maps of the existing conditions and proposed improvements,
  - installation/construction details for all proposed improvements,
  - survey control (horizontal and vertical) for locating the improvements and,
  - all necessary specification for the products to be used.
- Construction plans are often broken out for specific improvements; for example: site plan, grading plan, waterline improvement plans, roadways improvements plans, etc.

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DEVELOPMENT APPLICATION FORM

Application Type:

☐ Conceptual Review	☐ Preliminary PUD	☐ Temporary Use
☒ Subdivision, Preliminary	☐ Final PUD	☐ Variance
☐ Subdivision, Final	☐ Rezone	☐ Conditional Use
☐ Plat Correction/ Vacation	☐ Special Use	☐ Other: _____

PROJECT NAME: Mendoza York Street Subdivision

APPLICANT

Name(s): Rick Rome P.E. - IMEG Corp. Phone #: 303-796-6067

Address: 7600 E. Orchard Rd. Ste. 250-S

City, State, Zip: Greenwood Village, Colorado 80111

2nd Phone #: 720-219-7763 Email: Rick.a.rome@IMEGCorp.com

OWNER

Name(s): Rafael and Florence Mendoza Phone #: 303.598.4002

Address: 1955 E. 75th St.

City, State, Zip: Denver, Colorado 80229

2nd Phone #: Email: mendozaservices@msn.com

TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: Lawrence Depenbusch - Depenbusch Arch. Phone #: 303-981-8790

Address: 4260 E. Freemont Ave.

City, State, Zip: Centennial, Colorado 80122

2nd Phone #: Email: lawrence@pedenver.com

DESCRIPTION OF SITE

Address:	7330 York St. & 2480 E. 74th Ave.
City, State, Zip:	
Area (acres or square feet):	7.1
Tax Assessor Parcel Number	0171936300074, 171936300075
Existing Zoning:	A-1
Existing Land Use:	Ag. - Residential
Proposed Land Use:	Retail, Fuel, Warehouse, Event Center

Have you attended a Conceptual Review? YES [Y] NO [ ]

If Yes, please list PRE#: PRE2022-00064

I hereby certify that I am making this application as owner of the above described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name: Rafael Mendoza Date: 5/22/23

Owner's Printed Name

Name: Rafael Mendoza

Owner's Signature

`Lawrence Depenbusch
DEPENBUSCH ARCHITECTURE, PC
4260 East Fremont Avenue
Centennial, Colorado 80122
303-981-8790 Cell

May 22, 2023

Adams County Planning

PROJECT: 7330 Fuel and Retail Center and Warehouse/Events Center at SH 224 & York St

NARRATIVE

Landowners Ralph and Florence Mendoza have a vision to create a Subdivision to allow a three-phase fuel station retail center with warehouse and pad site on a total of 7.1 acres at the northeast corner of intersection of Highway 224 and York Street

Recent improvements on York Street in 2022 with new a new sidewalk and transformer on York and 74th, will allow development and sitework to begin after plan approval in 2023 or 2024. Highway 224 has a steady flow of mostly truck traffic which will support a truck fueling operation with a side area for passenger car and SUV fueling.

Site access and circulation aspects

The site currently exists as two existing lots defined by meets and bounds descriptions. This proposal maintains the existing lots in their current configuration. Reciprocal access easements are proposed to allow truck traffic to enter the site from the west and the east corners. Our vision and concept plan will require the existing exit from 224 at the east corner to be improved to serve both the existing abutting site and our site. East bound trucks can access the site from York Street and then exit back to York or drive through to the east corner exit to 224.
We are including a truck circulation routing exhibit to show probable movements.

A north south access spine will be located on the center of the previous Property Line to provide easy access to all the uses planned on the east and west sides of the property line.

Site uses and features and occupancy

The site will be subdivided into 4 lots.
Lot 1 represents a 1 acre retail lot that may include a stand alone use compatible with the proposed zoning.
Lot 2 represents a 2 acre lot that will include a fuel station and retail center of 10,200 sf allowing multiple tenants north of the C-Store fuel sales. This will allow a QSR food franchise to occupy the north end cap. QSR food franchises with D/T are the most successful and most in demand by the major franchises, so we show a D/T layout concept without an order/menu board. Parking for the first phase travel retail center will be adequate as shown in the parking count shown.
Lot 3 includes a proposed event center on a 1.5 acre lot.

Lot 4 includes a flex space that may be a warehouse/ distribution center type uses or an alternative use at such time as the tenant makes application for the finish of the facility.

Site Drainage and utilities

Drainage of the East and West sides will all flow to two ponds along Highway 224 that drain to the existing culvert under 224 as shown on the site plan.

We are working with North Washington Water and Sanitation District to determine the impacts and availability for water and sewer service. We are including the letter from North Washington Water and Sanitation indicating their willingness and ability to serve the proposed development.

Fire service and circulation will be formalized at the proposed site plans develop. Strategies for fire suppression and emergency access may include water connections for sprinklers depending on occupancy and construction types. Site circulation and emergency access will be coordinated in conjunction with the Fire District.

There is an existing overbank floodplain identified on the property. This area will have restricted uses. Buildings will not be constructed in this area. The area may however be improved to allow for vehicular access and parking with proper public notification as negotiated through the design process.

Site Landscaping, materials and design

Landscaping will meet standards from street fronts and abundant landscaping will be provided in the parking islands and medians. Mature Landscape trees along 224 will be preserved.

Materials to be used for construction shall include masonry, architectural siding and stucco. All RTU equipment will be screened from the street. All Electrical panels will be shielded by landscape buffers.

Dumpsters will be provided on site for the areas noted above.

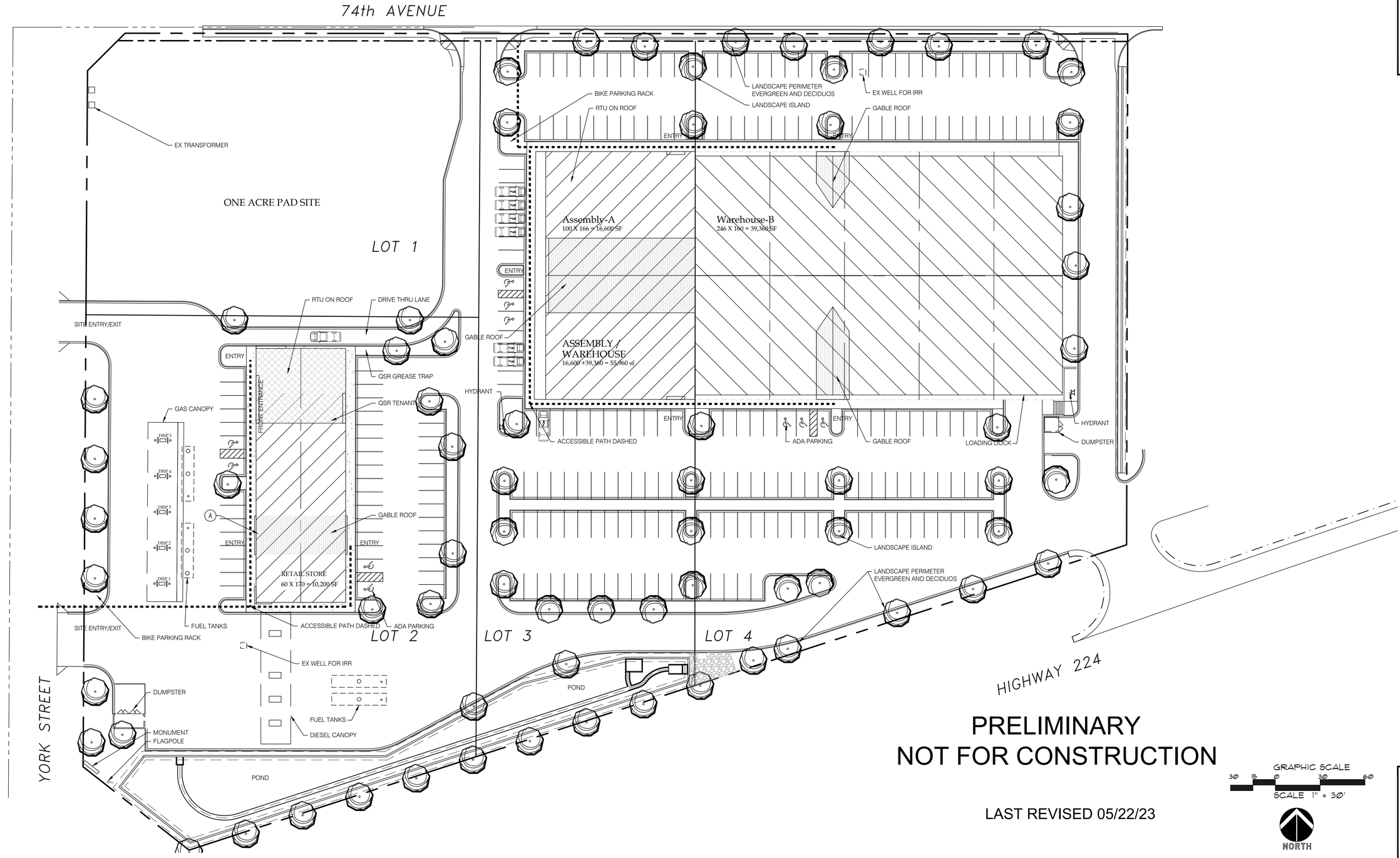
Site Amenities include entry sidewalk on east and west, bike parking, and flagpole.
Parking is more than adequate for all the uses.

Design aspects

Site Design shows truck route.
The roof will have parapet to conceal the RTU.
Site Lighting for parking of 25' aff height max. downcast, cut-off at the Property Line.
Trash Enclosure located near access drive.
Detention Ponds sized as required to flow to ditch on south
Architecture will be masonry and stucco or metal siding.
Building will be ADA accessible as required with an Accessible path to Public Way

CONCEPTUAL SITE PLAN

7330 YORK STREET COMPLEX



PRELIMINARY
NOT FOR CONSTRUCTION

LAST REVISED 05/22/23

GRAPHIC SCALE
30 15 0 30 60
SCALE 1" = 30'

NORTH

DEPENBUSCH Architecture, PC
Urban Planning
Facilities
Architecture
Landscape
Forensics
6898 South University Blvd, 220
Centennial, Colorado 80121
Cell: (303) 981-8790
E-Mail: lawrence@pedenver.com

Sheet Title

P-1

Sheet Number

MENDOZA YORK STREET SUBDIVISION

A PART OF THE SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO

SHEET 1 OF 2

CASE NO. _____

OWNERSHIP AND DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT RAFAEL MENDOZA AND FLORENCE MENDOZA, BEING THE SOLE OWNERS OF THE FOLLOWING DESCRIBED TRACT OF LAND:

A PART OF THE SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36; THENCE ALONG THE WEST LINE OF SAID SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36 S00°22'00"W 49.82 FEET; THENCE S89°38'00"E 50.00 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF YORK STREET AND THE POINT OF BEGINNING; THENCE N45°05'50"E 35.53 FEET TO A POINT ON THE SOUTH RIGHT OF WAY LINE OF EAST 74TH AVENUE; THENCE ALONG SAID SOUTH RIGHT OF WAY LINE S89°57'14"E 671.33 FEET TO THE NORTHWEST CORNER OF EVANS TRACT; THENCE ALONG THE WEST LINE OF EVANS TRACT S00°07'40"W 342.03 FEET TO THE SOUTHWEST CORNER OF EVANS TRACT AND A POINT ON THE NORTH RIGHT OF WAY LINE OF COLORADO STATE HIGHWAY 224; THENCE ALONG SAID NORTH RIGHT OF WAY LINE S71°58'00"W 660.12 FEET; THENCE N51°51'30"W 90.30 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF YORK STREET; THENCE ALONG SAID EAST RIGHT OF WAY LINE N00°22'00"E 466.08 FEET TO THE POINT OF BEGINNING, COUNTY OF ADAMS, STATE OF COLORADO.

CONTAINING 7.229 ACRES, MORE OR LESS

HAVE BY THESE PRESENT LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS AND EASEMENTS AS SHOWN ON THIS PLAT UNDER THE NAME AND STYLE OF MENDOZA SUBDIVISION.

ALL PUBLIC STREETS ARE HEREBY DEDICATED TO ADAMS COUNTY FOR PUBLIC USE. THE UNDERSIGNED DOES HEREBY DEDICATE, GRANT AND CONVEY TO ADAMS COUNTY THOSE PUBLIC EASEMENTS AS SHOWN ON THE PLAT; AND FURTHER RESTRICTS THE USE OF ALL PUBLIC EASEMENT TO ADAMS COUNTY AND/OR ITS ASSIGNS, PROVIDED HOWEVER, THAT THE SOLE RIGHT AND AUTHORITY TO RELEASE OR QUITCLAIM ALL OR ANY SUCH PUBLIC EASEMENTS SHALL REMAIN EXCLUSIVELY VESTED IN ADAMS COUNTY.

EXECUTED THIS _____ DAY OF _____, 20_____.

_____
RAFAEL MENDOZA

ACKNOWLEDGEMENT:

STATE OF COLORADO)
COUNTY OF ADAMS)

THE FOREGOING WAS ACKNOWLEDGED BY ME THIS _____ DAY OF _____, 20_____, BY RAFAEL MENDOZA

_____
NOTARY PUBLIC
MY COMMISSION EXPIRES: _____

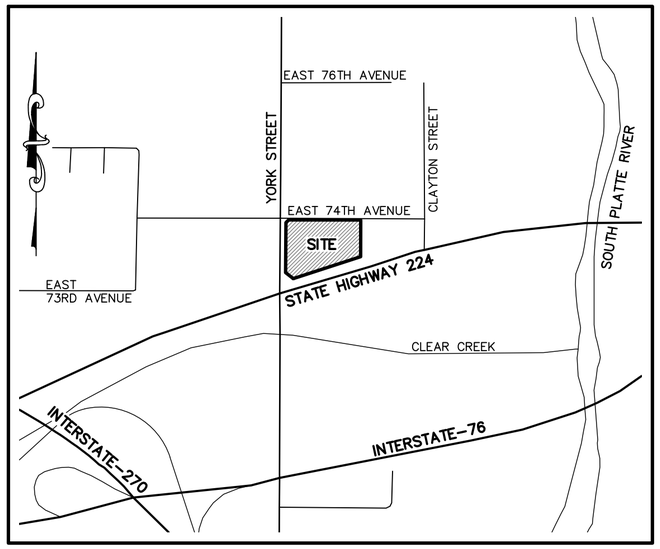
_____
FLORENCE MENDOZA

ACKNOWLEDGEMENT:

STATE OF COLORADO)
COUNTY OF ADAMS)

THE FOREGOING WAS ACKNOWLEDGED BY ME THIS _____ DAY OF _____, 20_____, BY FLORENCE MENDOZA

_____
NOTARY PUBLIC
MY COMMISSION EXPIRES: _____



VICINITY MAP
SCALE: 1" = 1000'

PLAT NOTES

1. NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

2. THE LINEAL UNIT USED AND SHOWN HEREON IS U.S. SURVEY FOOT AND DECIMALS THEREOF. A U.S. SURVEY FOOT IS DEFINED AS EXACTLY 1200/3937 METERS. THE BEARINGS AND DISTANCES SHOWN HEREON ARE AS MEASURED UNLESS OTHERWISE NOTED.

3. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY R.W. BAYER & ASSOCIATES, INC. OF THE PROPERTY SHOWN AND DESCRIBED HEREON TO DETERMINE OWNERSHIP, COMPATIBILITY OF THIS DESCRIPTION WITH THOSE OF ADJACENT TRACTS OF LAND OR RIGHTS-OF-WAY, EASEMENTS OR ENCUMBRANCES OF RECORD AFFECTING THIS TRACT OF LAND.

4. THIS PARCEL OF LAND LIES WITHIN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 1% ANNUAL CHANCE FLOODPLAIN) AS DELINEATED IN THE FEMA FLOOD INSURANCE RATE MAP, MAP NO. 08001C0604H EFFECTIVE MARCH 5, 2007.

5. BASIS OF BEARINGS: THE SOUTH LINE OF THE PROPERTY DESCRIBED HEREIN, BEING MONUMENTED ON THE WEST END BY A SET 5/8" REBAR & 1-1/4" YELLOW PLASTIC CAP, PLS 6973, AND ON THE EAST END BY A FOUND 1/2" REBAR & 1" YELLOW PLASTIC CAP, PLS 6973, BEARS S71°58'00"W.

6. THE POLICY OF THE COUNTY REQUIRES THAT MAINTENANCE ACCESS BE PROVIDED TO ALL STORM DRAINAGE FACILITIES TO ASSURE CONTINUOUS OPERATIONAL CAPABILITY OF THE SYSTEM. THE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL DRAINAGE FACILITIES INCLUDING INLETS, PIPES, CULVERTS, CHANNELS, DITCHES, HYDRAULIC STRUCTURES, AND DETENTION BASINS LOCATED ON THEIR LAND UNLESS MODIFIED BY SUBDIVISION DEVELOPMENT AGREEMENT. SHOULD THE OWNER FAIL TO ADEQUATELY MAINTAIN SAID FACILITIES, THE COUNTY SHALL HAVE THE RIGHT TO ENTER SAID LAND FOR THE SOLE PURPOSE OF OPERATIONS AND MAINTENANCE. ALL SUCH MAINTENANCE COSTS WILL BE ASSESSED TO THE PROPERTY OWNER.

7. FORMAL DEDICATION OF THE EXISTING EAST 74TH AVENUE RIGHT OF WAY AS SHOWN HEREIN COULD NOT BE FOUND IN THE PUBLIC RECORDS OF ADAMS COUNTY. THE NORTH 25' OF THE SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE 6TH P.M. ADJACENT TO THE PROPERTY DESCRIBED HEREIN WAS EXCEPTED SINCE APRIL 8, 1940 IN DEED RECORDED IN BOOK 262 AT PAGE 187. THE SOUTH 5' OF THE NORTH 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 36 WAS EXCEPTED SINCE AUGUST 2, 1945 IN DEED RECORDED IN BOOK 308 AT PAGE 379. NEITHER CONVEYANCE TO ADAMS COUNTY COULD BE FOUND IN THE ADAMS COUNTY RECORDS.

SURVEYOR'S CERTIFICATE:

I, RAYMOND W. BAYER, A REGISTERED LAND SURVEYOR, REGISTERED IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THERE ARE NO ROADS, PIPELINES, IRRIGATION DITCHES OR OTHER EASEMENTS IN EVIDENCE OR KNOWN BY ME TO EXIST ON OR ACROSS THE HEREIN BEFORE DESCRIBED PROPERTY, EXCEPT AS SHOWN ON THIS PLAT. I FURTHER CERTIFY THAT THIS SURVEY WAS PERFORMED BY ME OR UNDER MY DIRECT RESPONSIBILITY, SUPERVISION AND CHECKING, AND THAT THIS PLAT ACCURATELY REPRESENTS SAID SURVEY, AND THAT ALL MONUMENTS EXIST AS SHOWN HEREON.

RAYMOND W. BAYER,
REG P.L.S. NO. 6973

APPROVALS:

PLANNING COMMISSION APPROVAL:

APPROVED BY THE ADAMS COUNTY PLANNING COMMISSION
THIS _____ DAY OF _____, 20_____.

_____
CHAIR

BOARD OF COUNTY COMMISSIONERS APPROVAL:

APPROVED BY THE ADAMS COUNTY BOARD OF COUNTY COMMISSIONERS
THIS _____ DAY OF _____, 20_____.

_____
CHAIR

CERTIFICATE OF THE CLERK AND RECORDER:

THIS PLAT WAS FILED FOR RECORD IN THE OFFICE OF THE ADAMS COUNTY CLERK AND RECORDED, IN THE STATE OF COLORADO,
AT _____:_____.M., ON THE _____ DAY
OF _____, A.D., 20_____.

BY: _____ _____
DEPUTY COUNTY CLERK AND RECORDER

RECEPTION NO.: _____

PREPARED BY:

R.W. BAYER & ASSOCIATES, INC.
12170 TEJON STREET, UNIT 700
WESTMINSTER, COLORADO 80234
(303)452-4433
RWBSURVEYING@HOTMAIL.COM

CAD FILE: 22139/22139P.DWG
SHEET 1 OF 2
DATE PREPARED: MARCH 28, 2023

MENDOZA YORK STREET SUBDIVISION

A PART OF THE SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO

SHEET 2 OF 2

CASE NO. _____

POINT OF COMMENCEMENT
NORTHWEST COR. S-1/2 SW-1/4 SEC. 36 T.2S. R.68W.
NOTHING FOUND – DESTROYED BY ROAD CONSTRUCTION
RECEPTION NO. 2018000030796

NORTH LINE S-1/2 SW-1/4 SEC. 36 T.2S. R.68W.

EAST 74TH AVENUE
PUBLIC R.O.W. VARIES – SEE NOTE 7

S89°57'14"E 671.33'

S00°22'00"W 49.82'

35.53'
N45°05'50"E
28.45'

50.00'
N89°38'00"W

POINT OF BEGINNING

100'
50' 50'

242.98'

143.87'

289.47'

5' RIGHT OF WAY DEDICATED BY THIS PLAT
3,369 SQUARE FEET, MORE OR LESS

S89°57'14"E 247.50'
25' WATER & SEWER EASEMENT PER
BOOK 981 AT PAGE 449

32' 25' 7' 2' 32' 30' 5' 25' 30'

15' 15'

4.0'
30'

4" WITNESS CORNER SOUTH OF TRUE CORNER
TRUE CORNER OBSTRUCTED BY LANDSCAPE BOULDER AT TIME OF SURVEY

WEST LINE S-1/2 SW-1/4 SEC. 36 T.2S. R.68W.

30.00'
50.00'
83.45'

20'X50' UTILITY EASEMENT PER
RECEPTION NO. 2020000032891

WATER EASEMENT
DEDICATED BY THIS PLAT

LOT 4
1.108 ACRES ±
48,267 SQUARE FEET ±

185.02'

N00°22'00"E 311.41'

S00°22'00"W 253.52'

N89°38'00"W 263.00'

N00°07'40"E 232.58'

N00°07'40"E 237.62'

S00°07'40"W 342.03'

YORK STREET
PUBLIC R.O.W. VARIES
BOOK 1070 AT PAGE 175, BOOK 1052 AT PAGE 245, BOOK 1735 AT PAGE 164,
BOOK 1753 AT PAGE 167, RECEPTION NOS. 972789, 2018000017717,
2018000017803, AND 2018000040942

N00°22'00"E 466.08'

PARCEL LINE VACATED BY THIS PLAT

LOT 2
1.517 ACRES ±
66,083 SQUARE FEET ±

S00°22'00"W 479.22'

S89°38'00"E 6.00'
S00°22'00"W 10.00'
N89°38'00"W 6.00'

S00°22'00"W 48.06'

N89°38'00"W 30.00'

294.20'

N00°02'46"E 431.37'

LOT 1
2.551 ACRES ±
111,112 SQUARE FEET ±

N89°52'20"W 5.00'
35.00'
N00°07'40"E 5.00'
N89°52'20"W

EVANS TRACT
RECEPTION NO. 851959

302.63'

LOT 3
1.976 ACRES ±
86,058 SQUARE FEET ±

304.00'

Δ=28°04'46"
R=149.50'
L=73.27'

N89°57'14"W
46.53'

21.87'

Δ=28°04'46"
R=45.50'
L=22.30'

S61°58'00"W 91.45'

154.17'

S71°58'00"W 660.12'
BASIS OF BEARINGS

200'

50' 50'
100'

24.14'
S38°18'27"W
32.57'

N89°57'14"W 151.43'

DETENTION POND EASEMENT
DEDICATED BY THIS PLAT

N51°51'30"W 66.16'
90.30'

201.95'

COLORADO STATE HIGHWAY 224
200' PUBLIC R.O.W.
BOOK 986 AT PAGE 547 AND BOOK 990 AT PAGE 27

N

0 40 80 Feet

SCALE: 1" = 40'

LEGEND

- ● FOUND 1/2" REBAR & 1" YELLOW CAP – PLS 6973
- ■ SET 5/8" REBAR & 1-1/4" YELLOW CAP – PLS 6973
- ▲ SET 5/8" REBAR & 1-1/2" ALUM. CAP – PLS 6973

PREPARED BY:

R.W. BAYER & ASSOCIATES, INC.
12170 TEJON STREET, UNIT 700
WESTMINSTER, COLORADO 80234
(303)452-4433
RWBSURVEYING@HOTMAIL.COM

CAD FILE: 22139/22139P.DWG
SHEET 2 OF 2
DATE PREPARED: MARCH 28, 2023

LAND TITLE GUARANTEE COMPANY

Date: May 09, 2023

Subject: Attached Title Policy/Guarantee

Enclosed please find your product relating to the property located at 2480 EAST 74TH AVENUE, Denver, CO 80229.

If you have any inquiries or require further assistance, please contact Land Title Residential Title Team at (303) 850-4141 or response@ltgc.com

Chain of Title Documents:

Adams county recorded 11/09/2022 under reception no. 2022000090434

Adams county recorded 01/26/2015 under reception no. 2015000005645

Adams county recorded 04/20/1993 at book 4057 page 426

Adams county recorded 09/06/1962 at book 1011 page 517

Adams county recorded 02/11/1947 at book 331 page 362

Adams county recorded 04/08/1940 under reception no. 248721

Adams county recorded 10/03/1918 at book 95 page 423

Adams county recorded 02/06/1912 at book 47 page 229

Adams county recorded 12/12/1910 at book 47 page 129

Adams county recorded 02/07/1910 at book 47 page 40

Property Information Binder

CONDITIONS AND STIPULATIONS

1. Definition of Terms

The following terms when used in this Binder mean:

(a) "Land": The land described, specifically or by reference, in this Binder and improvements affixed thereto which by law constitute real property;

(b) "Public Records"; those records which impart constructive notice of matters relating to said land;

(c) "Date": the effective date;

(d) "the Assured": the party or parties named as the Assured in this Binder, or in a supplemental writing executed by the Company;

(e) "the Company" means Old Republic National Title Insurance Company, a Minnesota stock company.

2. Exclusions from Coverage of this Binder

The company assumes no liability including cost of defense by reason of the following:

(a) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; taxes and assessments not yet due or payable and special assessments not yet certified to the Treasurer's office.

(b) Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

(c) Title to any property beyond the lines of the Land, or title to streets, roads, avenues, lanes, ways or waterways on which such land abuts, or the right to maintain therein vaults, tunnels, ramps, or any other structure or improvement; or any rights or easements therein unless such property, rights or easements are expressly and specifically set forth in said description.

(d) Mechanic's lien(s), judgment(s) or other lien(s).

(e) Defects, liens, encumbrances, adverse claims or other matters: (a) created, suffered or agreed to by the Assured;(b) not known to the Company, not recorded in the Public Records as of the Date, but known to the Assured as ofthe Date; or (c) attaching or creating subsequent to the Date.

3. Prosecution of Actions

1. The Company shall have the right at its own costs to institute and prosecute any action or proceeding or do any other act which in its opinion may be necessary or desirable to establish or confirm the matters herein assured; and the Company may take any appropriate action under the terms of this Binder, whether or not it shall be liable thereunder and shall not thereby concede liability or waive any provision hereof.
2. In all cases where the Company does not institute and prosecute any action or proceeding, the Assured shall permit the Company to use, at its option, the name of the Assured for this purpose. Whenever requested by the Company, the Assured shall give the Company all reasonable aid in prosecuting such action or proceeding, and the Company shall reimburse the Assured for any expense so incurred.

4. Notice of Loss - Limitation of Action

A statement in writing of any loss or damage for which it is claimed the Company is liable under this Binder shall be furnished to the Company within sixty days after such loss or damage shall have been determined, and no right of action shall accrue to the Assured under this Binder until thirty days after such statement shall have been furnished, and no recovery shall be had by the Assured under this Binder unless action shall be commenced thereon with two years after expiration of the thirty day period. Failure to furnish the statement of loss or damage or to commence the action within the time herinbefore specified, shall be conclusive bar against maintenance by the Assured of any action under this Binder.

5. Option to Pay, Settle or Compromise Claims

The Company shall have the option to pay, settle or compromise for or in the name of the Assured any claim which could result in loss to the Assured within the coverage of this Binder, or to pay the full amount of this Binder. Such payment or tender of payment of the full amount of the Binder shall terminate all liability of the Company hereunder.

6. Limitation of Liability - Payment of Loss

(a) The liability of the Company under this Binder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurances herein set forth, but in no event shall the liability exceed the amount of the liability stated on the face page hereof.

(b) The Company will pay all costs imposed upon the Assured in litigation carried on by the Company for the Assured, and all costs and attorneys' fees in litigation carried on by the Assured with the written authorization of the Company.

(c) No claim for loss or damages shall arise or be maintainable under this Binder (1) if the Company after having received notice of any alleged defect, lien or encumbrance not shown as an Exception or excluded herein removes such defect, lien or encumbrance within a reasonable time after receipt of such notice, or (2) for liability voluntarily assumed by the Assured in settling any claim or suit without written consent of the Company.

(d) All payments under this Binder, except for attorney's fees as provided for in paragraph 6(b) thereof, shall reduce the amount of the liability hereunder pro tanto, and no payment shall be made without producing this Binder or an acceptable copy thereof for endorsement of the payment unless the Binder be lost or destroyed, in which case proof of the loss or destruction shall be furnished to the satisfaction of the Company.

(e) When liability has been definitely fixed in accordance with the conditions of this Binder, the loss or damage shall be payable within thirty days thereafter.

7. Subrogation Upon Payment or Settlement

Whenever the Company shall have settled a claim under this Binder, all right of subrogation shall vest in the Company unaffected by any act of the Assured, and it shall be subrogated to and be entitled to all rights and remedies which the Assured would have had against any person or property in respect to the claim had this Binder not been issued. If the payment does not cover the loss of the Assured, the Company shall be subrogated to the rights and remedies in the proportion which the payment bears to the amount of said loss. The Assured, if requested by the Company, shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect the right of subrogation, and shall permit the Company to use the name of the Assured in any transaction or litigation involving the rights or remedies.

8. Binder Entire Contract

Any action or actions or rights of action that the Assured may have or may bring against the Company arising out of the subject matter hereof must be based on the provisions of this Binder. No provision or condition of this Binder can be waived or changed except by a writing endorsed or attached hereto signed by the President, a Vice President, the Secretary, an Assistant Secretary or other validating officer of the Company.

9. Notices. Where Sent

All notices required to be given the Company and any statement in writing required to be furnished the Company shall be addressed to it at 400 Second Avenue South, Minneapolis, Minnesota 55401, (612) 371-1111.

10. Arbitration

Unless prohibited by applicable law, either the Company or the insured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association.

ANTI-FRAUD STATEMENT: Pursuant to CRS 10-1-128(6)(a), it is unlawful to knowingly provide false, incomplete or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

This anti-fraud statement is affixed and made a part of this policy.

Issued by:
Land Title Guarantee Company
3033 East First Avenue Suite 600
Denver, Colorado 80206
303-321-1880

Craig B. Rants, Senior Vice President

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
A Stock Company
400 Second Avenue South, Minneapolis, Minnesota 55401
(612) 371-1111

By *President*

Attest *Secretary*

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805490 **Policy No.:** PIB70805490.24993235

Liability: $1.00

Fee: $500.00

Subject to the exclusions from coverage, the limits of liability and other provisions of the Conditions and Stipulations hereto annexed and made a part of this Binder,

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY a Corporation, herein called the Company,

GUARANTEES

RAFAEL MENDOZA AND FLORENCE MENDOZA

Herein called the Assured, against loss, not exceeding the liability amount stated above, which the assured shall sustain by reason of any incorrectness in the assurance which the Company hereby gives that, according to the public records as of

May 02, 2023 at 5:00 P.M.

1. Title to said estate or interest at the date hereof is vested in:

RAFAEL MENDOZA AND FLORENCE MENDOZA

2. The estate or interest in the land hereinafter described or referred to covered by this Binder :

FEE SIMPLE

3. The Land referred to in this Binder is described as follows:

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805490 **Policy No.:** PIB70805490.24993235

THAT PART OF THE SOUTH ONE-HALF SOUTHWEST ONE-QUARTER OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, ADAMS COUNTY, COLORADO, DESCRIBED AS:

BEGINNING AT THE NORTHWEST CORNER OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER;
THENCE SOUTH 00 DEGREES 22 MINUTES 00 SECONDS WEST ON AN ASSUMED BEARING ALONG THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER A DISTANCE OF 25.00 FEET;
THENCE SOUTH 89 DEGREES 57 MINUTES 14 SECONDS EAST PARALLEL WITH SAID NORTH LINE OF SOUTH ONE-HALF OF SOUTHWEST ONE-QUARTER A DISTSANCE OF 308.78 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING SOUTH 89 DEGREES 57 MINUTES 14 SECONDS EAST A DISTANCE OF 437.55 FEET TO THE NORTHWEST CORNER OF EVANS TRACT, A SUBDIVISION OF A PART OF SAID SOUTHWEST ONE-QUARTER;
THENCE SOUTH 00 DEGREES 07 MINUTES 40 SECONDS WEST ALONG THE WEST LINE OF SAID EVANS TRACT A DISTANCE OF 342.03 FEET TO THE SOUTHWEST CORNER OF SAID EVANS TRACT;
THENCE SOUTH 71 DEGREES 58 MINUTES 00 SECONDS WEST ALONG THE NORTHWESTERLY RIGHT OF WAY LINE OF COLORADO STATE HIGHWAY NO. 224 A DISTANCE OF 462.62 FEET;
THENCE NORTH 00 DEGREES 22 MINUTES 00 SECONDS EAST PARALLEL WITH THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER A DISTANCE OF 485.60 FEET TO THE TRUE POINT OF BEGINNING, COUNTY OF ADAMS, STATE OF COLORADO.

4. The following documents affect the land:

1. RIGHTS OF WAY AS CONTAINED IN DEED RECORDED FEBRUARY 06, 1912 IN BOOK 47 AT PAGE **229**.
2. RESERVATIONS AS CONTAINED IN DEED RECORDED FEBRUARY 7, 1910 IN BOOK 47 AT PAGE **40**.
3. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT AS CONTAINED IN DOCUMENT RECORDED NOVEMBER 07, 1955 IN BOOK 579 AT PAGE **173**.
4. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED MAY 01, 1962 UNDER RECEPTION NO. **661669**.
5. TERMS, CONDITIONS AND PROVISIONS OF RESOLUTION GRANTING AN EASEMENT FOR THE CONSTRUCTION AND MAINTENANCE OF A WASTEWATER PIPELINE TO THE METRO WASTEWATER RECLAMATION DISTRICT, A METROPOLITAN SEWAGE DISPOSAL DISTRICT ON COUNTY OWNED PROPERTY RECORDED APRIL 06, 2005 UNDER RECEPTION NO. **20050406000354580**.
6. DEED OF TRUST DATED NOVEMBER 04, 2022 FROM RAFAEL MENDOZA AND FLORENCE MENDOZA TO THE PUBLIC TRUSTEE OF ADAMS COUNTY FOR THE USE OF BANK OF COLORADO TO SECURE THE SUM OF $2,408,000.00, AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF, RECORDED NOVEMBER 09, 2022, UNDER RECEPTION NO. **2022000090435**.

   SAID DEED OF TRUST WAS FURTHER SECURED IN ASSIGNMENT OF RENTS RECORDED NOVEMBER 10, 2022, UNDER RECEPTION NO. **2022000090691**.

   NOTE: ADDITIONAL UPDATES TO THE EFFECTIVE DATE OF THE BINDER MAY BE REQUESTED BY THE PROPOSED INSURED. ONE UPDATE IS INCLUDED WITH THIS BINDER AT NO ADDITIONAL COST. ANY ADDITIONAL UPDATES WILL BE ISSUED AT THE COST OF $135 PER UPDATE. FOR EACH UPDATE PROVIDED, A REVISED BINDER WILL BE ISSUED SHOWING A NEW EFFECTIVE DATE AND ANY MATTERS RECORDED SINCE THE EFFECTIVE DATE OF THE PREVIOUS BINDER.

   THIS PRODUCT WILL ONLY BE UPDATED FOR 24 MONTHS FOLLOWING THE EFFECTIVE DATE OF THE ORIGINAL BINDER.

   NOTE: THIS BINDER DOES NOT REFLECT THE STATUS OF TITLE TO WATER RIGHTS OR REPRESENTATION OF SAID RIGHTS, RECORDED OR NOT.

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805490 **Policy No.:** PIB70805490.24993235

NOTE: THIS BINDER IS NOT A REPORT OR REPRESENTATION AS TO MINERAL INTERESTS, AND SHOULD NOT BE USED, OR RELIED UPON, IN CONNECTION WITH THE NOTICE REQUIREMENTS THAT ARE SET FORTH IN CRS 24-65.5-103.

INVOICE

Land Title Guarantee Company
5975 Greenwood Plaza Blvd Suite 125
Greenwood Village, CO 80111
(303) 270-0445
Tax ID: 84-0572036

RAFAEL MENDOZA AND FLORENCE MENDOZA
ATTN: RAFAEL MENDOZA AND FLORENCE MENDOZA
2480 E. 74TH AVE
Denver, CO 80229

Reference

Your Reference Number:	
Our Order Number:	70805490
Our Customer Number:	89595.1
Invoice (Process) Date:	05/09/2023
Transaction Invoiced By:	Jessica Taylor
Email Address:	jtaylor@ltgc.com

Invoice Number: 70805490
Property Address: 2480 EAST 74TH AVENUE, DENVER, CO 80229
Parties: RAFAEL MENDOZA AND FLORENCE MENDOZA

- Charges -

Property Information Binder	$500.00
Amount Credited	$0.00
Total Invoice Amount	$500.00
Total Amount Due	$500.00

Payment due upon receipt

Please reference Invoice No. 70805490 on payment
Please make check payable and send to:
Land Title Guarantee Company
5975 Greenwood Plaza Blvd Suite 125
Greenwood Village, CO 80111

LAND TITLE GUARANTEE COMPANY

Date: May 09, 2023

Subject: Attached Title Policy/Guarantee

Enclosed please find your product relating to the property located at 7330 YORK STREET, Denver, CO 80229.

If you have any inquiries or require further assistance, please contact Land Title Residential Title Team at (303) 850-4141 or response@ltgc.com

Chain of Title Documents:

Adams county recorded 06/21/1996 at book 4777 page 928

Adams county recorded 04/20/1993 at book 4057 page 424

Adams county recorded 09/06/1962 at book 1011 page 517

Property Information Binder

CONDITIONS AND STIPULATIONS

1. Definition of Terms

The following terms when used in this Binder mean:

(a) "Land": The land described, specifically or by reference, in this Binder and improvements affixed thereto which by law constitute real property;

(b) "Public Records"; those records which impart constructive notice of matters relating to said land;

(c) "Date": the effective date;

(d) "the Assured": the party or parties named as the Assured in this Binder, or in a supplemental writing executed by the Company;

(e) "the Company" means Old Republic National Title Insurance Company, a Minnesota stock company.

2. Exclusions from Coverage of this Binder

The company assumes no liability including cost of defense by reason of the following:

(a) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; taxes and assessments not yet due or payable and special assessments not yet certified to the Treasurer's office.

(b) Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

(c) Title to any property beyond the lines of the Land, or title to streets, roads, avenues, lanes, ways or waterways on which such land abuts, or the right to maintain therein vaults, tunnels, ramps, or any other structure or improvement; or any rights or easements therein unless such property, rights or easements are expressly and specifically set forth in said description.

(d) Mechanic's lien(s), judgment(s) or other lien(s).

(e) Defects, liens, encumbrances, adverse claims or other matters: (a) created, suffered or agreed to by the Assured;(b) not known to the Company, not recorded in the Public Records as of the Date, but known to the Assured as ofthe Date; or (c) attaching or creating subsequent to the Date.

3. Prosecution of Actions

1. The Company shall have the right at its own costs to institute and prosecute any action or proceeding or do any other act which in its opinion may be necessary or desirable to establish or confirm the matters herein assured; and the Company may take any appropriate action under the terms of this Binder, whether or not it shall be liable thereunder and shall not thereby concede liability or waive any provision hereof.
2. In all cases where the Company does not institute and prosecute any action or proceeding, the Assured shall permit the Company to use, at its option, the name of the Assured for this purpose. Whenever requested by the Company, the Assured shall give the Company all reasonable aid in prosecuting such action or proceeding, and the Company shall reimburse the Assured for any expense so incurred.

4. Notice of Loss - Limitation of Action

A statement in writing of any loss or damage for which it is claimed the Company is liable under this Binder shall be furnished to the Company within sixty days after such loss or damage shall have been determined, and no right of action shall accrue to the Assured under this Binder until thirty days after such statement shall have been furnished, and no recovery shall be had by the Assured under this Binder unless action shall be commenced thereon with two years after expiration of the thirty day period. Failure to furnish the statement of loss or damage or to commence the action within the time herinbefore specified, shall be conclusive bar against maintenance by the Assured of any action under this Binder.

5. Option to Pay, Settle or Compromise Claims

The Company shall have the option to pay, settle or compromise for or in the name of the Assured any claim which could result in loss to the Assured within the coverage of this Binder, or to pay the full amount of this Binder. Such payment or tender of payment of the full amount of the Binder shall terminate all liability of the Company hereunder.

6. Limitation of Liability - Payment of Loss

(a) The liability of the Company under this Binder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurances herein set forth, but in no event shall the liability exceed the amount of the liability stated on the face page hereof.

(b) The Company will pay all costs imposed upon the Assured in litigation carried on by the Company for the Assured, and all costs and attorneys' fees in litigation carried on by the Assured with the written authorization of the Company.

(c) No claim for loss or damages shall arise or be maintainable under this Binder (1) if the Company after having received notice of any alleged defect, lien or encumbrance not shown as an Exception or excluded herein removes such defect, lien or encumbrance within a reasonable time after receipt of such notice, or (2) for liability voluntarily assumed by the Assured in settling any claim or suit without written consent of the Company.

(d) All payments under this Binder, except for attorney's fees as provided for in paragraph 6(b) thereof, shall reduce the amount of the liability hereunder pro tanto, and no payment shall be made without producing this Binder or an acceptable copy thereof for endorsement of the payment unless the Binder be lost or destroyed, in which case proof of the loss or destruction shall be furnished to the satisfaction of the Company.

(e) When liability has been definitely fixed in accordance with the conditions of this Binder, the loss or damage shall be payable within thirty days thereafter.

7. Subrogation Upon Payment or Settlement

Whenever the Company shall have settled a claim under this Binder, all right of subrogation shall vest in the Company unaffected by any act of the Assured, and it shall be subrogated to and be entitled to all rights and remedies which the Assured would have had against any person or property in respect to the claim had this Binder not been issued. If the payment does not cover the loss of the Assured, the Company shall be subrogated to the rights and remedies in the proportion which the payment bears to the amount of said loss. The Assured, if requested by the Company, shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect the right of subrogation, and shall permit the Company to use the name of the Assured in any transaction or litigation involving the rights or remedies.

8. Binder Entire Contract

Any action or actions or rights of action that the Assured may have or may bring against the Company arising out of the subject matter hereof must be based on the provisions of this Binder. No provision or condition of this Binder can be waived or changed except by a writing endorsed or attached hereto signed by the President, a Vice President, the Secretary, an Assistant Secretary or other validating officer of the Company.

9. Notices. Where Sent

All notices required to be given the Company and any statement in writing required to be furnished the Company shall be addressed to it at 400 Second Avenue South, Minneapolis, Minnesota 55401, (612) 371-1111.

10. Arbitration

Unless prohibited by applicable law, either the Company or the insured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association.

ANTI-FRAUD STATEMENT: Pursuant to CRS 10-1-128(6)(a), it is unlawful to knowingly provide false, incomplete or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

This anti-fraud statement is affixed and made a part of this policy.

Issued by:
Land Title Guarantee Company
3033 East First Avenue Suite 600
Denver, Colorado 80206
303-321-1880

Craig B. Rants, Senior Vice President

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
A Stock Company
400 Second Avenue South, Minneapolis, Minnesota 55401
(612) 371-1111

By *President*

Attest *Secretary*

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805487 **Policy No.:** PIB70805487.24992984

Liability: $1.00

Fee: $500.00

Subject to the exclusions from coverage, the limits of liability and other provisions of the Conditions and Stipulations hereto annexed and made a part of this Binder,

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY a Corporation, herein called the Company,

GUARANTEES

RAFAEL MENDOZA AND FLORENCE MENDOZA

Herein called the Assured, against loss, not exceeding the liability amount stated above, which the assured shall sustain by reason of any incorrectness in the assurance which the Company hereby gives that, according to the public records as of

May 02, 2023 at 5:00 P.M.

1. Title to said estate or interest at the date hereof is vested in:

DOMENIC D'AMATO, AS TO A LIFE ESTATE AND RAFAEL MENDOZA AND FLORENCE MENDOZA, AS TO THE REMAINDER

2. The estate or interest in the land hereinafter described or referred to covered by this Binder :

FEE SIMPLE

3. The Land referred to in this Binder is described as follows:

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805487 **Policy No.:** PIB70805487.24992984

THAT PART OF THE SOUTH ONE-HALF SOUTHWEST ONE-QUARTER OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, ADAMS COUNTY, COLORADO DESCRIBED AS:

BEGINNING AT THE NORTHWEST CORNER OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER; THENCE S00°22'00"W ON AN ASSUMED BEARING ALONG THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER, A DISTANCE OF 25.00 FEET; THENCE S89°57'14"E PARALLEL WITH THE NORTH LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER, A DISTANCE OF 30.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING S89°57'14"E PARALLEL WITH SAID NORTH LINE, A DISTANCE OF 278.78 FEET; THENCE S00°22'00"W PARALLEL WITH THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER A DISTANCE OF 485.60 FEET TO A POINT ON THE NORTHWESTERLY RIGHT OF WAY LINE OF COLORADO STATE HIGHWAY NO. 224; THENCE S71°58'00"W ALONG SAID NORTHWESTERLY RIGHT OF WAY LINE A DISTANCE OF 197.50 FEET; THENCE N51°30'W ALONG SAID NORTHWESTERLY RIGHT OF WAY LINE A DISTANCE OF 90.30 FEET TO A POINT 50.00 FEET EAST OF THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER; THENCE N00°22'00"E PARALLEL WITH SAID WEST LINE A DISTANCE OF 328.90 FEET; THENCE N10°56'30"W A DISTANCE OF 102.00 FEET TO A POINT 30.00 FEET EAST OF SAID WEST LINE; THENCE N00°22'00"E PARALLEL WITH SAID WEST LINE A DISTANCE OF 62.15 FEET TO THE TRUE POINT OF BEGINNING; EXCEPT ANY PART IN ROAD OR ROADWAY AND EXCEPT THAT PORTION CONVEYED TO THE COUNTY OF ADAMS, STATE OF COLORADO IN WARRANTY DEED RECORDED MAY 22, 2018 UNDER RECEPTION NO. **2018000040942**, COUNTY OF ADAMS, STATE OF COLORADO.

4. The following documents affect the land:

1. EXISTING LEASES AND TENANCIES, IF ANY.
2. RIGHT OF WAY EASEMENT AS GRANTED TO NORTH WASHINGTON STREET WATER AND SANITATION DISTRICT IN INSTRUMENT RECORDED NOVEMBER 4, 1955 IN BOOK 579 AT PAGE **173** AND RECORDED MAY 01, 1962, IN BOOK 981 AT PAGE **448**.
3. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS OF RESOLUTION NO. 2018-312 RECORDED MAY 22, 2018 UNDER RECEPTION NO. **2018000040942**.
4. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS OF UTILITY EASEMENT RECORDED APRIL 06, 2020 UNDER RECEPTION NO. **2020000031598** AND RECORDED APRIL 9, 2020 UNDER RECEPTION NO. **2020000032891**.

   NOTE: ADDITIONAL UPDATES TO THE EFFECTIVE DATE OF THE BINDER MAY BE REQUESTED BY THE PROPOSED INSURED. ONE UPDATE IS INCLUDED WITH THIS BINDER AT NO ADDITIONAL COST. ANY ADDITIONAL UPDATES WILL BE ISSUED AT THE COST OF $135 PER UPDATE. FOR EACH UPDATE PROVIDED, A REVISED BINDER WILL BE ISSUED SHOWING A NEW EFFECTIVE DATE AND ANY MATTERS RECORDED SINCE THE EFFECTIVE DATE OF THE PREVIOUS BINDER.

   THIS PRODUCT WILL ONLY BE UPDATED FOR 24 MONTHS FOLLOWING THE EFFECTIVE DATE OF THE ORIGINAL BINDER.

   NOTE: THIS BINDER DOES NOT REFLECT THE STATUS OF TITLE TO WATER RIGHTS OR REPRESENTATION OF SAID RIGHTS, RECORDED OR NOT.

   NOTE: THIS BINDER IS NOT A REPORT OR REPRESENTATION AS TO MINERAL INTERESTS, AND SHOULD NOT BE USED, OR RELIED UPON, IN CONNECTION WITH THE NOTICE REQUIREMENTS THAT ARE SET FORTH IN CRS 24-65.5-103.

North Washington Street Water and Sanitation District

3172 E. 78th Avenue, Denver, CO 80229 303 / 288 – 6664

To Whom It May Concern:

Dear Sir/Madame:

The North Washington Street Water and Sanitation District ("District") provides the following in response to your request for water and sanitary sewer service dated August 19th 2022 related to the property located at 7330 York ST. ("Property"). The District can provide water and sewer service to the Property based on conditions set forth herein. The following are general requirements for water and sanitary sewer service. The District Rules and Regulations and the standards and requirements of Denver Water and Metro Wastewater Reclamation District must be complied with as an on-going condition of service.

The subject Property is understood to be entirely within the service and boundary area of the District based on your assertions. The District makes no representation or warranty in regard to the Property boundaries and applicant is responsible for verification of same. If the Property is outside of the District's boundaries, applicant is responsible for undertaking and paying all costs to include the Property within the District's boundaries. Treatment of sewage generated within the District is provided by the Metro Wastewater Reclamation District. Treatment and provision of water within the District is provided by Denver Water. Conditions for water and sanitary service from the District include meeting the requirements contained herein and payment of all fees and costs as provided in District's Rules and Regulations along with those of Denver Water and Metro Wastewater Reclamation District. Timing of water and sanitary availability is subject to further coordinated by the Town and District.

Water and Sanitary availability are subject to review and acceptance of design documents from owner/developer of the Property, by the District. Appropriate right-of-way easements and agreements are required for all water and sanitary sewer extensions. Jurisdictional coordination, approvals, permitting, license agreements and easements are to be completed prior to acceptance of plans. All costs associated with collection and distribution system improvements required to serve the Property are the responsibility of the owner/developer including guarantee of improvements and warranty periods.

Receipt of service is also subject to all costs being paid by owner/developer for engineering, reviews, construction, observation, and inspections at the then current rate fee structure established by the District, including establishing an imprest account with the District as a deposit for such accounts. Please be aware that proper tap connection and development fees are required to be paid, at the most recent fee schedule, prior to connection to the District main.

Mike DeMattee,
District Manager

MENDOZA YORK STREET SUBDIVISION

LEGAL DESCRIPTION

A PART OF THE SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36; THENCE ALONG THE WEST LINE OF SAID SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36 S00°22'00"W 49.82 FEET; THENCE S89°38'00"E 50.00 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF YORK STREET AND THE POINT OF BEGINNING; THENCE N45°05'50"E 35.53 FEET TO A POINT ON THE SOUTH RIGHT OF WAY LINE OF EAST 74TH AVENUE; THENCE ALONG SAID SOUTH RIGHT OF WAY LINE S89°57'14"E 671.33 FEET TO THE NORTHWEST CORNER OF EVANS TRACT; THENCE ALONG THE WEST LINE OF EVANS TRACT S00°07'40"W 342.03 FEET TO THE SOUTHWEST CORNER OF EVANS TRACT AND A POINT ON THE NORTH RIGHT OF WAY LINE OF COLORADO STATE HIGHWAY 224; THENCE ALONG SAID NORTH RIGHT OF WAY LINE S71°58'00"W 660.12 FEET; THENCE N51°51'30"W 90.30 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF YORK STREET; THENCE ALONG SAID EAST RIGHT OF WAY LINE N00°22'00"E 466.08 FEET TO THE POINT OF BEGINNING, COUNTY OF ADAMS, STATE OF COLORADO.

Adams County Treasurer & Public Trustee

RECEIPT OF PAYMENT (Tax, Fees, Costs, Interests, Penalties)

Account	Parcel Number	Receipt Date	Receipt Number
R0071167	0171936300074	Jun 14, 2022	2022-06-14-WEB-28124

MENDOZA RAFAEL AND
1955 E 75TH AVE
DENVER, CO 80229-6513

Situs Address	Payor
7330 YORK ST	Rafael Mendoza

Legal Description

SECT,TWN,RNG:36-2-68 DESC: PT OF THE S2 SW4 SEC 36 DESC AS BEG AT NW COR SD S2 SW4 TH S 25 FT TH E 30 FT TO THE TRUE POB TH CONT E 278/78 FT TH S 485/60 FT TO A PT ON NWLY ROW LN OF COLO S/H NO 224 TH S 71D 58M W 197/50 FT TH N 51D 51M W 90/30 FT TO A PT 50 FT E OF W LN SD S2 SW4 TH N 328/90 FT TH N 10D 56M W 102 FT TO A PT 30 FT E OF SD W LN TH N 62/15 FT TO THE TRUE POB EXC RD (B1735 PG164 & REC NO 2018000040942) 3/0636A

Property Code	Actual	Assessed	Year	Area	Mill Levy
1276 - 1276	228,533	16,340	2021	085	98.659
AG FLOOD IRRG LAND - 4117	943	270	2021	085	98.659

Payments Received

E-check	Multi-Account Payment

Payments Applied

Year	Charges	Billed	Prior Payments	New Payments	Balance
2021	Tax Charge	$1,638.72	$819.36	$819.36	$0.00
				$819.36	$0.00
			Balance Due as of Jun 14, 2022		**$0.00**

WE ARE EXPANDING TO SERVE YOU BETTER! WATCH FOR NEW LOCATIONS ON OUR WEBSITE!

4430 S ADAMS COUNTY PKWY C2436
BRIGHTON CO 80601
[Stay Safe! Please use website services www.adcotax.com]

Email: treasurer@adcogov.org
Telephone: 720-523-6160

ALL CHECKS ARE SUBJECT TO FINAL COLLECTION. THANK YOU FOR YOUR PAYMENT!

CERTIFICATION OF NOTICE TO MINERAL ESTATE OWNERS

I/We, Ralph Mendoza
(the "Applicant") by signing below, hereby declare and certify as follows:

With respect to the property located at:
Physical Address: 2480 E. 74th Avenue
Legal Description: Unplatted

Parcel #(s): 0171936300075

(PLEASE CHECK ONE):

_____ On the _____ day of _____, 20____, which is not less than thirty days before the initial public hearing, notice of application for surface development was provided to mineral estate owners pursuant to section 24-65.5-103 of the Colorado Revised Statutes;

or

x I/We have searched the records of the Adams County Tax Assessor and the Adams County Clerk and Recorder for the above identified parcel and have found that no mineral estate owner is identified therein.

Date: _____ Applicant: _____

By: _____
Print Name: Ralph Mendoza
Address: 1955 E. 75th Ave
Denver, CO 80229

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____

_____
Notary Public

After Recording Return To:

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I/We, Ralph Mendoza, (the "Applicant") by signing below, hereby declare and certify as follows:

Concerning the property located at:

Physical Address: 2480 E. 74th Avenue

Legal Description: Unplatted

Parcel #(s): 0171936300075

With respect to qualifying surface developments, that (PLEASE CHECK ONE):

x No mineral estate owner has entered an appearance or filed an objection to the proposed application for development within thirty days after the initial public hearing on the application; or

_____ The Applicant and any mineral estate owners who have filed an objection to the proposed application for development or have otherwise filed an entry of appearance in the initial public hearing regarding such application no later than thirty days following the initial public hearing on the application have executed a surface use agreement related to the property included in the application for development, the provisions of which have been incorporated into the application for development or are evidenced by a memorandum or otherwise recorded in the records of the clerk and recorder of the county in which the property is located so as to provide notice to transferees of the Applicant, who shall be bound by such surface use agreements; or

_____ The application for development provides:

(i) Access to mineral operations, surface facilities, flowlines, and pipelines in support of such operations existing when the final public hearing on the application for development is held by means of public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements;

(ii) An oil and gas operations area and existing well site locations in accordance with section 24-65.5-103.5 of the Colorado Revised Statutes; and

(iii) That the deposit for incremental drilling costs described in section 24-65.5-103.7 of the Colorado Revised Statutes has been made.

Date: _____ Applicant: _____

After Recording Return To:

By: _____

Print Name: _____

Address: _____

_____

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____ _____
Notary Public

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department within thirty days after the initial public hearing on all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I, _____ (the "Applicant") by signing below, hereby declare and certify as follows concerning the property located at:

Physical Address:

Legal Description:_____

Parcel # (s): _____

With respect to qualifying surface developments:

Access to existing and proposed mineral operations, surface facilities, flowlines, and pipelines in support of such existing and proposed operations for oil and gas exploration and production, including provisions for public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements, were provided for in a "_____" area as recorded in Reception # _____ on _____.

Date: _____ Applicant: _____
By: _____
_____
Address: _____

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____ _____
Notary Public

After Recording Return To: *Name and Address of Person Preparing Legal Description:*

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

CERTIFICATION OF NOTICE TO MINERAL ESTATE OWNERS

I/We, Ralph Mendoza
(the "Applicant") by signing below, hereby declare and certify as follows:

With respect to the property located at:
Physical Address: 7330 York Street
Legal Description: Unplatted

Parcel #(s): 0171936300074

(PLEASE CHECK ONE):

_____ On the _____ day of _____, 20____, which is not less than thirty days before the initial public hearing, notice of application for surface development was provided to mineral estate owners pursuant to section 24-65.5-103 of the Colorado Revised Statutes;

or

_x_ I/We have searched the records of the Adams County Tax Assessor and the Adams County Clerk and Recorder for the above identified parcel and have found that no mineral estate owner is identified therein.

Date: _____ Applicant: _____

By: _____
Print Name: Ralph Mendoza
Address: 1955 E. 75th Ave
Denver, CO 80229

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____

_____
Notary Public

After Recording Return To:

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I/We, Ralph Mendoza, (the "Applicant") by signing below, hereby declare and certify as follows:

Concerning the property located at:

Physical Address: 7330 York Street

Legal Description: Unplatted

Parcel #(s): 0171936300074

With respect to qualifying surface developments, that (PLEASE CHECK ONE):

x No mineral estate owner has entered an appearance or filed an objection to the proposed application for development within thirty days after the initial public hearing on the application; or

_____ The Applicant and any mineral estate owners who have filed an objection to the proposed application for development or have otherwise filed an entry of appearance in the initial public hearing regarding such application no later than thirty days following the initial public hearing on the application have executed a surface use agreement related to the property included in the application for development, the provisions of which have been incorporated into the application for development or are evidenced by a memorandum or otherwise recorded in the records of the clerk and recorder of the county in which the property is located so as to provide notice to transferees of the Applicant, who shall be bound by such surface use agreements; or

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(i) Access to mineral operations, surface facilities, flowlines, and pipelines in support of such operations existing when the final public hearing on the application for development is held by means of public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements;

(ii) An oil and gas operations area and existing well site locations in accordance with section 24-65.5-103.5 of the Colorado Revised Statutes; and

(iii) That the deposit for incremental drilling costs described in section 24-65.5-103.7 of the Colorado Revised Statutes has been made.

Date: _____ Applicant: _____

After Recording Return To:

By: _____

Print Name: _____

Address: _____

_____

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____ _____
Notary Public

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department within thirty days after the initial public hearing on all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I, _____ (the "Applicant") by signing below, hereby declare and certify as follows concerning the property located at:

Physical Address:

Legal Description:_____

Parcel # (s): _____

With respect to qualifying surface developments:

Access to existing and proposed mineral operations, surface facilities, flowlines, and pipelines in support of such existing and proposed operations for oil and gas exploration and production, including provisions for public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements, were provided for in a "_____" area as recorded in Reception # _____ on _____.

Date: _____ Applicant: _____
By: _____
_____
Address: _____

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____ _____
Notary Public

After Recording Return To: *Name and Address of Person Preparing Legal Description:*

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

Final Drainage Report

Mendoza York Street Subdivision

7330 York St

Prepared for:

Mendoza Services LLC
1955 E. 75th Ave
Denver, CO 80229

Prepared by:

IMEG
7600 E. Orchard Road, Suite 250-S
Greenwood Village, CO 80111
Rick Rome P.E. LEED AP
303-796-6067
Rick.a.rome@imegcorp.com

Date:
May 22, 2023

IMEG #22003209

TABLE OF CONTENTS

Engineers Certification
I hereby certify that this report (plan) for the Preliminary Drainage design of Mendoza York Street Subdivision was prepared by me or under my direct supervision in accordance with the provisions of Adams County Storm Drainage Design and Technical Criteria for the owners thereof. I understand that Adams County does not and will not assume liability for drainage facilities designed by others."

_____
date

_____
Rick Rome, PE
Colorado 35103
Registered Professional Engineer

Owners Certification

Mendoza Services hereby certifies that the drainage facilities for Mendoza York Street Subdivision shall be constructed according to the design presented in this report. I understand that Adams County does not and will not assume liability for the drainage facilities designed and/ or certified by my engineer. I understand that Adams County reviews drainage plans pursuant to Colorado Revised Statues Title 30, Article 28; but cannot, on behalf of Mendoza Services LLC, guarantee that final drainage design review will absolve (Mendoza Services) and/ or their successors and/ or assigns the future liability for improper design. I further understand that approval of the Final Plat and/ or Final Development Plan does not imply approval of my engineer's drainage design.

_____
date

_____
Ralph Mendoza

_____
Authorized Signature

Final Drainage Report
Mendoza York Street Subdivision

A. General Location and Description

Location

This project is in the SW ¼ Section 36, Township 2 South Range 68 West of the 6th PM, Adams County, Colorado. The property is currently unplatted lands on two parcels addressed as 7330 York Street (parcel 0171936300074) and 2480 E. 74th Ave. (parcel 0171936300075), Denver, CO 80229. The site is bounded on the north by East 74th Avenue on the south by State Highway 224, on the west by York Street, and on the east by a commercial lot addressed at 2555 E. 74th Avenue. The Clear Creek drainage way is located approximately 400 feet south of the property on the south side of State Highway 224.

Description of Property.

The site being evaluated contains approximately 7.2 acres. Current zoning on the property is A2 and includes residential structures on the property that will be demolished as part of the project. The site has historically been used for agricultural and farming uses. The proposed zoning is an I-1 zoning designation and will be subdivided into four lots. The proposed uses will be a retail center with a fueling station, warehouse type use. An event center, and a lot reserved for future commercial uses. Application processes proposed for the property include a re-zoning application and Minor Subdivision application.

There are no previous drainage reports identified with the property, however the York Street Improvements included a right of way evaluation titled York Street Improvements February 14, 2019 by Drexel Barrell. (Ref 3).

The site has historically been used for agricultural purpose with the property being periodically turned and planted with various crops. Proposed landscape will be provided in accordance with County requirements to include Right of way frontage, detention areas and parking islands.

The site generally slopes to the southeast where an existing 24" CMP culvert crosses State Highway 224 and drains to Clear Creek. The proposed drainage patterns for site development will continue along the historic path and include detention and water quality mitigation.

There are no major irrigation or drainage facilities crossing the property,

Surrounding uses include predominantly light industrial with a few residential properties on the west side of York Street.

Soil type on site is identified as Loamy Alluvial Land which is consistent with Hydrologic soil group C. The site is in a Zone X flood area which represents an area of minimal flood hazard. The area contiguous with the Highway 223 right of way is listed as Zone X Other Flood Area which could be "Area of 0.2% annual chance flood; area of 1% annual chance flood with average depth less than 1 foot or with drainage areas less than 1 square mile; and area protected by Levees from 1% annual chance flood."

B. Objectives

This project is proposed as a light industrial and commercial center for four lots varying in size between 1 acre and 2.5 acres. Circulation through the site will include shared access for vehicular traffic, a right in right out access from Highway 223, There are two proposed access points to York Street together with two proposed access points from 74th Avenue.

The ultimate development of the site will progress as a phased project with the initial use being the retail center with access improvement to the surrounding development areas.

C. Drainage Basins

Major Basin Descriptions

The site is in the lower reaches of the Clear Creek Drainage Basin. Runoff from this site is tributary to the creek through an existing culvert crossing State Highway 224. The York Street drainage improvements are addressed as part of the Drainage Report for York Street Improvements prepared by Drexel Barrell dated February 14, 2019. The areas north of the project generally drain to the east with some flow concentrating along the north side of 74th Avenue to Clayton Street. Where stormwaters are directed in roadside swales to the east ultimately reaching the Platte River.

Sub Basin Descriptions

The drainage system is presented using six general basin designations. Basins A, B, C and D are directly tributary to the detention pond. Basins E and F represent perimeter areas and offsite right of way that flows along its historic flow path to the east.

Basin A represents the western portion of the project area and includes the retail /fuel station lot along York Street. The basin consists of two watersheds what are collected in a proposed storm sewer and drain directly to the proposed pond at Design point 3.

Basin B represents the future commercial lot together with the east half of the retail fuel center. This basin is collected in two inlets with one being a toy c inlet planned for future extension with the Lot 1 development. The second is a combination tyle 13 inlet collection local parking lot runoff. Runoff from these areas will be collected in a proposed storm sewer that drains east combining with Basin C and then into the detention pond.at design point 11.

Basin C is subdivided into five watersheds that are tributary to a proposed storm sewer system. Basin C1 includes the north half of the rooftop drainage and north parking lot for Lots 3 and 4. This flow is conveyed in a curb and gutter around the east side of lot 4 to an open 18" culver in a localized sump at design point 6. The remainder of Basin C is directed south and collected in type R inlets that combined with Basin B runoff at design point 10 before discharging into the detention pond.

Basin D represents the detention pond which collect runoff directly tributary to the pond area. The combined tributary area directed to the pond is 6.8 acres of developed area. The composite impervious coverage for the total basin is 83.3%.

Basin E consists of two sub basins. Basin E1 represents the onsite area immediately adjacent to State Highway 224 together with the south east corner of the property where the drive grade is established based on the shared entrance proposed at the corner of the property. This area sill discharge directly into the roadside swale along State Highway 224 in its historic flow path east toward the outfall to the South Platte River. Basin E2 represents the State Highway frontage that is tributary to a proposed Tyle D inlet (existing culvert_) at design point 14.

Basin F represents the frontage adjacent to 74th Avenue. Basin F1 represents the driveway entrances along 74th together with the landscape embankment that is physically unable to be collected and directed into the proposed detention pond. Flows from this basin combine with Existing Right of way runoff from Basin F2 in 74th Avenue and continue east along their historic flow path.

D. Drainage Design Criteria
Development Criteria Reference Constraints

This project is proposed in conformance with the Adams County Storm Drainage Design and Stormwater Quality Regulations and supporting information from the Mile High Flood District Drainage Criteria Manuals Volumes 1, 2 and 3.

Composite Runoff summary table

Basin	Area	%I
A	1.08 AC	87.2%
B	1.33 AC	83.8%
C	4.02 AC	88.4%
D	0.37 AC	14..4 %
E *	1.73 AC	40.1 %
F *	0.67 AC	84.2 %

* Includes adjacent public ROW in composite calculation

Hydrological Criteria

The design events storms for the project are 5 year for minor event conveyance and 100 year for major event conveyance. The development area will be detained in a proposed pond on the south side of the project area. Developed runoff will be treated for water quality, and release through a proposed outlet structure releasing for EURV and 100 year design flows.

Hydraulic Criteria

Storm system hydraulics for the onsite system is based on surface conveyance to traditional inlet collections systems and piped flow to the proposed detention pond. The site is graded to provided raised building pad sites consistent with retail development. Grades are generally proposed to maintain general historic drainage patterns with developed runoff directed to the proposed pond.

E. Drainage Facility Design

General Concept

Drainage design for development in the Mendoza York Street Subdivision respects existing drainage patterns that are associated with the site and builds on the assumptions presented with the York Street Drainage design at 76th Ave. The system is divided along two general outfall paths to the detention pond. Flows are collected along surface paths in proposed curb and gutter systems and directed to localized low points where storm inlets concentrate surface runoff in a pipe system. These flows are directed to a shared pond where stormwater is attenuated to support water quality capture volume, equivalent urban runoff volume and 100 year peak flow attenuation. Pond discharge is

directed to the existing culvert near the center of the property crossing State Highway 224 and reaching Clear Creek.

Specific Details

The storm sewer capacity and performance is presented in Appendix C of this report using Haesteads StormCAD to evaluate the hydraulic performance of the system. It is noteworthy that the site is presented with a grading concept requiring earthwork import. This is the result of a combination of factors including the existing culvert invert elevation as a controlled outfall elevation, the required pond volume and maintaining reasonable minimum surface slopes and pipe cover for the proposed storm sewer system. The combination of these factors results in a private storm sewer system with a minimum cover of 2 feet at certain locations. The hydraulic grade line for the system is also relatively shallow. This condition is addressed by maintaining overflow paths on the private lot that maintain surface flow paths as overflow to the pond in the event that the hydraulic capacity of the system is exceeded. As a private system this condition is an acceptable variation from public storm sewer system criteria for major event runoff conveyance. The 5-year event is maintained in the system as open channel flow.

Inlet capacity is evaluated using the Mile High Flood District inlet worksheet V5.02.

Detention for the property is evaluated using the Mile High Flood District detention worksheet V4.06. The pond geometry is evaluated using the total site area of 7.16 acres at a composite impervious coverage of 82.3%. As discussed in the Sub Basin Descriptions portion of this report, there are two areas that are physically unable to be directed to the proposed pond due to access and grade restrictions to match existing grades. These basins are identified as Basins E1 and F1.

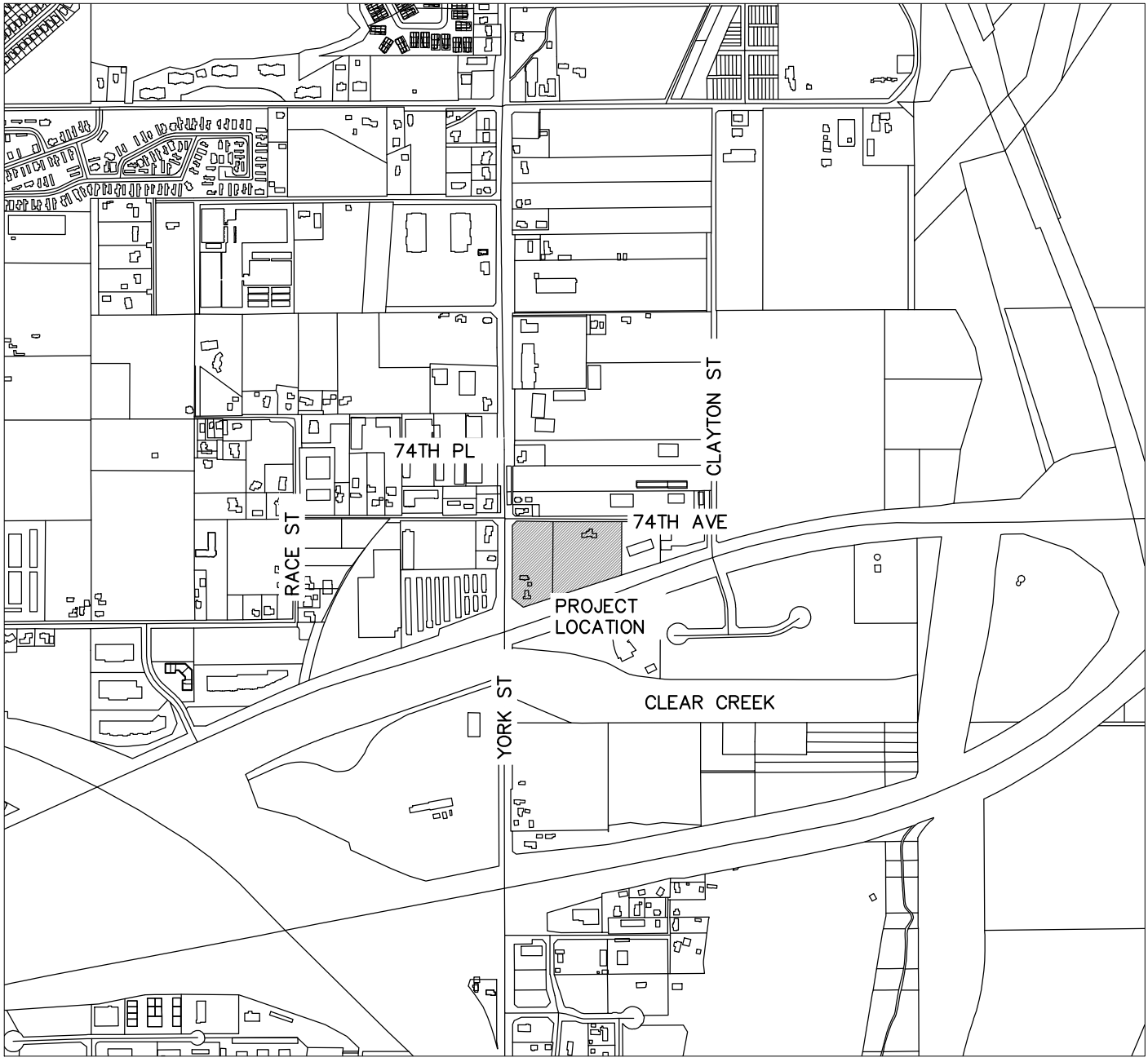
F. Summary

The proposed development is presented in compliance with the Adams County Design Standards and specification for site development. The proposed pond has adequate available volume to accommodate fully developed runoff tributary to the pond. Basin areas and flow patterns are generally respected with the proposed drainage design.

G. References

1. Adams County Storm Drainage Design and water Quality Manual
2. Mile High Flood District Volumes 1, 2 & 3
3. Drainage Report for York Street Improvements Drexel Barrell & Co February 14, 2019

Appendix A



VICINITY MAP

1"=1000'

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC- 3, #9202
1315 East- West Highway
Silver Spring, MD 20910- 3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided by the Adams County and Commerce City GIS departments. The coordinate system used for the production of the digital FIRM is Universe Transverse Mercator, Zone 13N, referenced to North American Datum of 1983 and the GRS 80 spheroid, Western Hemisphere.

This map reflects more detailed and up- to- date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de- annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

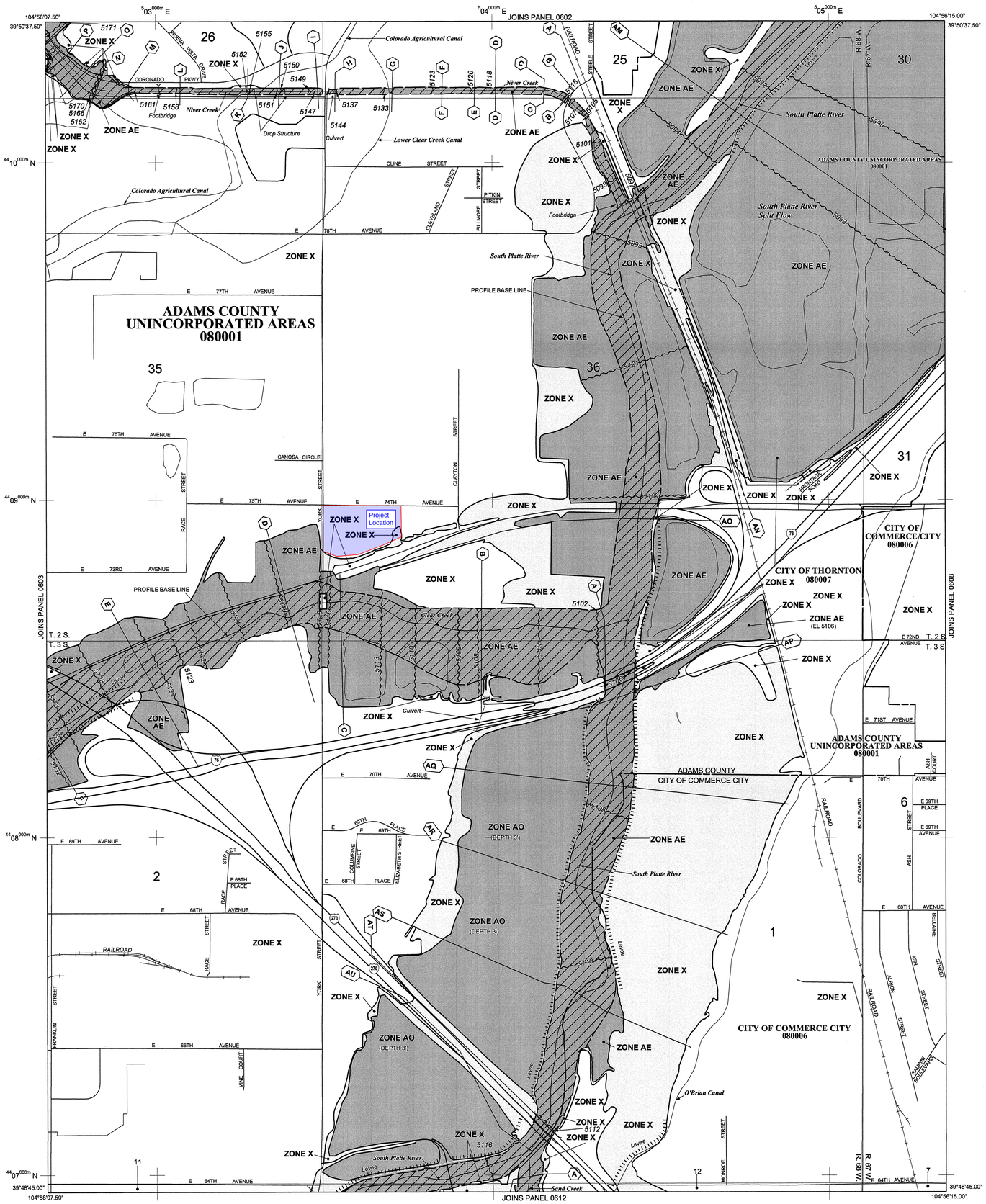
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1- 800- 358- 9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1- 800- 358- 9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1- 877- 336- 2627) or visit the FEMA website at http://www.fema.gov/.

This digital Flood Insurance Rate Map (FIRM) was produced through a cooperative partnership between the State of Colorado Water Conservation Board, the Urban Drainage and Flood Control District, and the Federal Emergency Management Agency (FEMA). The State of Colorado Water Conservation Board and the Urban Drainage and Flood Control District have implemented a long-term approach of floodplain management to reduce the costs associated with flooding. As part of this effort, both the State of Colorado and the Urban Drainage and Flood Control District have joined in Cooperating Technical Partner agreements with FEMA to produce this digital FIRM.

Additional flood hazard information and resources are available from local communities, the Colorado Water Conservation Board, and the Urban Drainage and Flood Control District.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4275000mN — 1000-meter Universal Transverse Mercator grid ticks, zone 13
- 6000000 M — 5000-foot grid ticks: Alabama State Plane coordinate system, east zone (FIPSZONE 0101), Transverse Mercator
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 16, 1995
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
March 5, 2007 - to update map format.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1- 800- 638- 6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0604H

FIRM
FLOOD INSURANCE RATE MAP
ADAMS COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 604 OF 1150
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

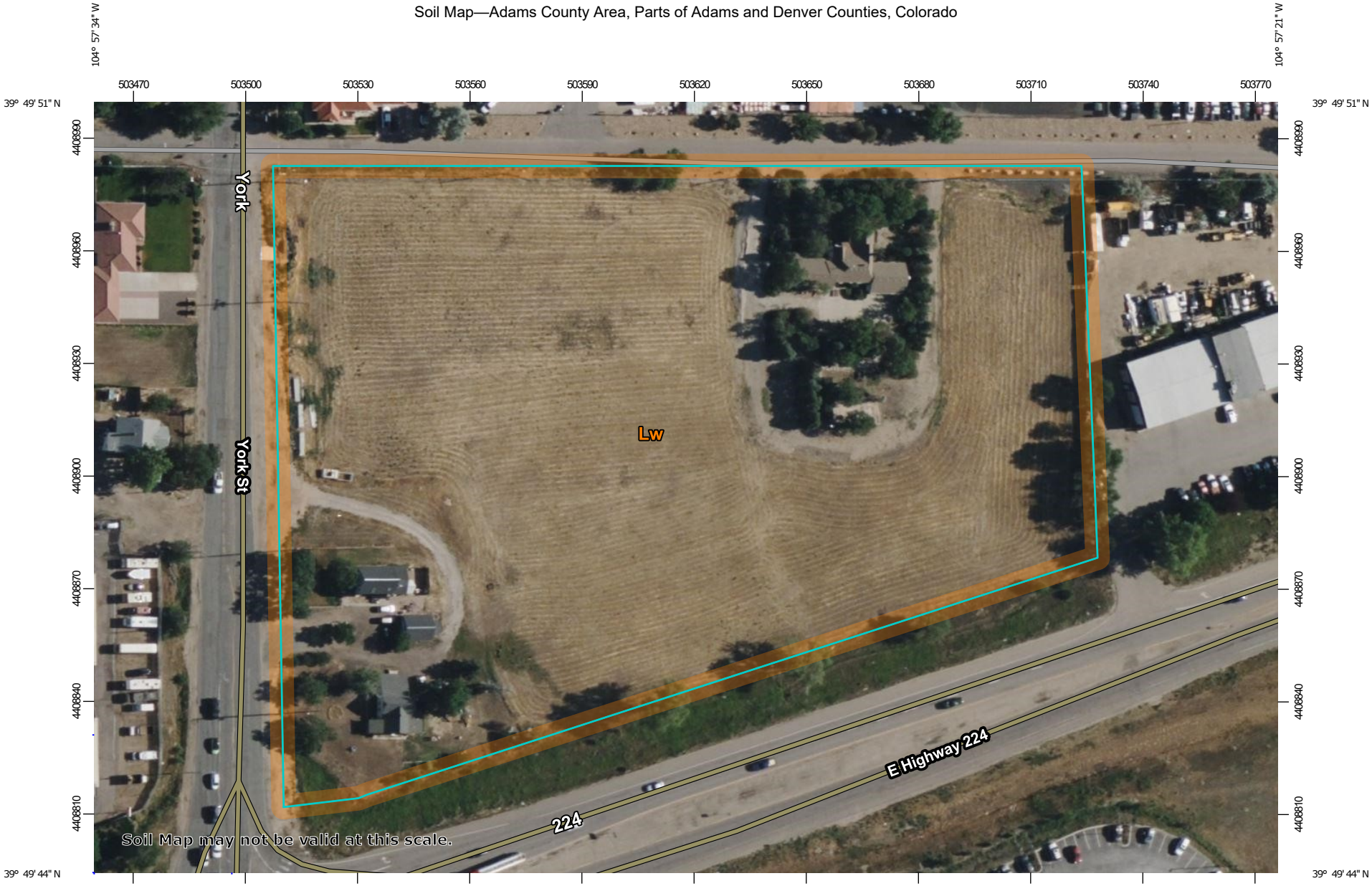
CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ADAMS COUNTY	080001	0604	H
COMMERCE CITY, CITY OF	080006	0604	H
THORNTON, CITY OF	080007	0604	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08001C0604H
MAP REVISED
MARCH 5, 2007

Federal Emergency Management Agency



Map Scale: 1:1,450 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 1, 2020—Jul 2, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Lw	Loamy alluvial land, moderately wet	7.5	100.0%
Totals for Area of Interest		**7.5**	**100.0%**

Map Scale: 1:1,450 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

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Web Soil Survey URL:
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The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Lw	Loamy alluvial land, moderately wet	C	7.5	100.0%
Totals for Area of Interest			**7.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Appendix B

Percent Impervious Calculations

Mendoza York Street Subdivision

Runoff Calculations

			2%	90%	50%	100%		
DESIGN POINT	DRAIN BASIN		Open Space	Roof	Lot Front	Pavement/ Water Surfac	Total Area ac.	Composite I
1	A1	28202	0.072888	0.175918		0.40	0.65	86.2%
2	A2	19224	0.047544	0.040404		0.35	0.44	88.5%
4	B1	44494	0.208907			0.81	1.02	80.0%
5	B2	13735		0.116208		0.20	0.32	96.3%
6	C1	63525	0.103558	0.659252		0.70	1.46	88.5%
7	C2	8836	0.04022			0.16	0.20	80.6%
8	C3	63680	0.112557	0.659252		0.69	1.46	87.9%
9	C4	18534	0.073347			0.35	0.43	83.1%
10	C5	20336	0.010009			0.46	0.47	97.9%
12	D1	16037	0.321648			0.05	0.37	14.4%
13	E1	7845	0.056956			0.12	0.18	69.0%
14	E2	67900	1.005211			0.55	1.56	36.8%
15	F1	7633	0.077319			0.10	0.18	56.8%
16	F2	21715	0.031451			0.47	0.50	93.8%
						4.388407	7.164394	82.3%

STANDARD FORM SF-2

REFERENCE MHFD TABLE 6-2

Runoff Calculations

Time of Concentration

Watercourse Coefficient

Heavy Meadow	2.5	Short Grass Pasture & Lawns	7.0	Grassed Waterway	15.0
Tillage/field	5.0	Nearly Bare Ground	10.0	Paved Area & Shallow Gutter	20.0

	SUB-BASIN DATA				INITIAL / OVERLAND TIME			TRAVEL TIME T(t)					T(c) CHECK (URBANIZED BASINS)			FINAL T(c)
DESIGN POINT	DRAIN BASIN	AREA ac.	% I	C 5	Length ft.	Slope %	T(i) min	Length ft.	Slope %	Coeff.	Velocity fps	T(t) min.	COMP. T(c)	TOTAL LENGTH	EQ 6-5	min.
1	A1	0.65	86.2%	0.74	40	2.0	3.3	145	1.0	20.0	2.0	1.2	5.0	185	11.5	5.0
2	A2	0.44	88.5%	0.76	100	2.0	4.9	140	1.0	20.0	2.0	1.2	6.1	240	11.1	6.1
4	B1	1.02	80.0%	0.69	50	2.0	4.2	200	1.0	20.0	2.0	1.7	5.9	250	12.6	5.9
5	B2	0.32	96.3%	0.82	30	4.0	1.7	130	0.6	20.0	1.5	1.4	5.0	160	9.8	5.0
6	C1	1.46	88.5%	0.76	30	2.0	2.7	300	1.0	20.0	2.0	2.5	5.2	330	11.2	5.2
7	C2	0.20	80.6%	0.70	80	4.0	4.2	160	1.0	20.0	2.0	1.3	5.5	240	12.5	5.5
8	C3	1.46	87.9%	0.76	60	1.5	4.3	70	1.0	20.0	2.0	0.6	5.0	130	11.2	5.0
9	C4	0.43	83.1%	0.72	60	2.0	4.3	550	0.5	20.0	1.4	6.5	10.8	610	12.6	10.8
10	C5	0.47	97.9%	0.84	30	1.0	2.6	120	1.0	20.0	2.0	1.0	5.0	150	9.5	5.0
12	D1	0.37	14.4%	0.15	30	1.0	9.5	330	0.5	20.0	1.4	3.9	13.4	360	24.3	13.4
13	E1	0.18	69.0%	0.60	20	2.0	3.2	40	1.0	20.0	2.0	0.3	5.0	60	14.3	5.0
14	E2	1.56	36.8%	0.34	80	2.0	9.9	400	1.0	20.0	2.0	3.3	13.2	480	20.3	13.2
15	F1	0.18	56.8%	0.50	30	2.0	4.8	700	0.8	20.0	1.8	6.5	11.3	730	17.2	11.3
16	F2	0.50	93.8%	0.80	30	2.0	2.4	700	0.8	20.0	1.8	6.5	8.9	730	10.7	8.9

STANDARD FORM SF-3

REFERENCE: MHFD Volume 1

Runoff Calculations

Rainfall Depth-Duration-Frequency (1-hr) = 1.42

(Rational Method Procedure)

Design Storm 5 Year

BASIN INFORMATON				DIRECT RUNOFF				TOTAL RUNOFF				
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	SUM C x A	I in/hr	Q cfs	REMARKS
1	A1	0.65	0.74	5.0	0.48	4.82	2.3					
2	A2	0.44	0.76	6.1	0.34	4.56	1.5	6.1	0.82	4.56	3.7	A1, A2
4	B1	1.02	0.69	5.9	0.71	4.61	3.3					
5	B2	0.32	0.82	5.0	0.26	4.82	1.3	5.9	0.97	4.61	4.4	B1, B2
6	C1	1.46	0.76	5.2	1.11	4.77	5.3					
7	C2	0.20	0.70	5.5	0.14	4.69	0.7	5.5	1.25	4.69	5.9	C1, C2
8	C3	1.46	0.76	5.0	1.11	4.82	5.3	5.5	2.36	4.69	11.0	C1 thru C3
9	C4	0.43	0.72	10.8	0.30	3.73	1.1					
10	C5	0.47	0.84	5.0	0.39	4.82	1.9	10.8	0.70	3.73	2.6	C4, C5
12	D1	0.37	0.15	13.4	0.06	3.40	0.2	13.4	4.89	3.40	16.6	A thru D
13	E1	0.18	0.60	5.0	0.11	4.82	0.5					
14	E2	1.56	0.34	13.2	0.52	3.41	1.8	13.2	0.63	3.41	2.2	E1, E2
15	F1	0.18	0.50	11.3	0.09	3.65	0.3					
16	F2	0.50	0.80	8.9	0.40	4.01	1.6					

STANDARD FORM SF-3
REFERENCE: MHFD Volume 1

Runoff Calculations *Rainfall Depth-Duration-Frequency (1-hr) =* 2.71

(Rational Method Procedure)

Design Storm 100 Year

BASIN INFORMATON				DIRECT RUNOFF				TOTAL RUNOFF				
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	SUM C x A	I in/hr	Q cfs	REMARKS
1	A1	0.65	0.84	5.0	0.54	9.19	5.0					
2	A2	0.44	0.85	6.1	0.37	8.71	3.3	6.1	0.92	8.71	8.0	A1, A2
4	B1	1.02	0.81	5.9	0.83	8.79	7.3					
5	B2	0.32	0.88	5.0	0.28	9.19	2.5	5.9	1.11	8.79	9.7	B1, B2
6	C1	1.46	0.85	5.2	1.24	9.10	11.2					
7	C2	0.20	0.81	5.5	0.17	8.94	1.5	5.5	1.40	8.94	12.5	C1, C2
8	C3	1.46	0.84	5.0	1.23	9.19	11.3	5.5	2.63	8.94	23.6	C1 thru C3
9	C4	0.43	0.82	10.8	0.35	7.11	2.5					
10	C5	0.47	0.89	5.0	0.41	9.19	3.8	10.8	0.76	7.11	5.4	C4, C5
12	D1	0.37	0.54	13.4	0.20	6.48	1.3	13.4	5.62	6.48	36.4	A thru D
13	E1	0.18	0.77	5.0	0.14	9.19	1.3					
14	E2	1.56	0.63	13.2	0.99	6.52	6.4	13.2	1.13	6.52	7.3	E1, E2
15	F1	0.18	0.72	11.3	0.13	6.97	0.9					
16	F2	0.50	0.87	8.9	0.43	7.66	3.3					

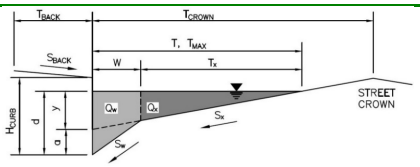
Appendix C

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN A1**



Gutter Geometry:

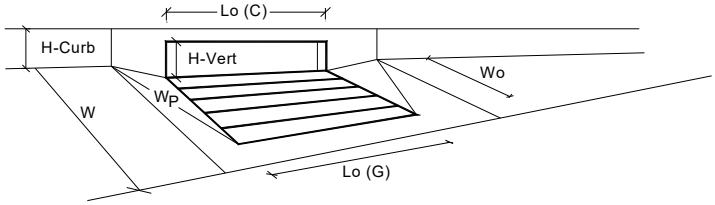
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	50.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	50.0	ft
Gutter Width	W =	4.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	20.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



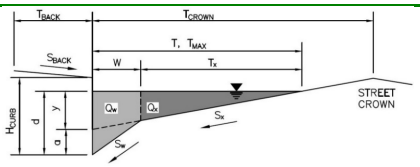
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT/Denver 13 Valley Grate		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	2.00	2.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	6.0	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	3.00	3.00	feet
Width of a Unit Grate	W_o =	1.73	1.73	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	0.43	0.43	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	0.50	0.50	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	3.30	3.30	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	0.60	0.60	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	N/A	N/A	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	N/A	N/A	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	N/A	N/A	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	N/A	N/A	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	N/A	N/A	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	N/A	N/A	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	N/A	N/A	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	N/A	N/A	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	0.56	0.56	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	N/A	N/A	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	0.94	0.94	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	N/A	N/A	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**2.9**	**2.9**	**cfs**
WARNING: Inlet Capacity < Q Peak for Major Storm	$Q_{PEAK\ REQUIRED}$ =	2.3	5.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN A2**



Gutter Geometry:

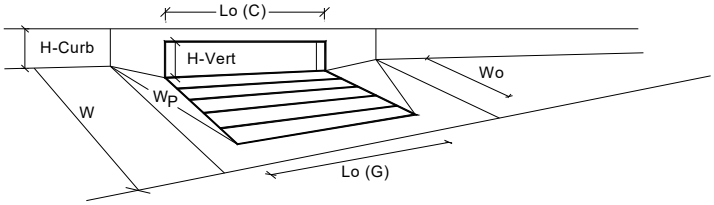
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	50.0	ft
Gutter Width	W =	1.00	ft
Street Transverse Slope	S_X =	0.010	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	50.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



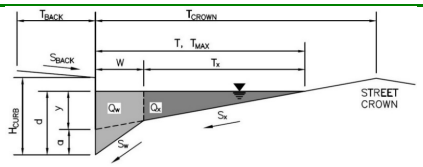
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.5	6.0	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	1.00	1.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.29	0.42	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**3.4**	**5.9**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.5	5.4	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN B1**



Gutter Geometry:

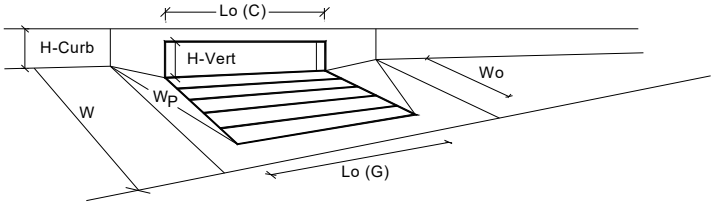
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	20.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	50.0	ft
Gutter Width	W =	3.00	ft
Street Transverse Slope	S_X =	0.010	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	50.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	9.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



	Design Information (Input)		MINOR	MAJOR	
	Type of Inlet	Type =	CDOT Type C Grate		
Warning 1	Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	12.00	12.00	inches
	Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
	Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.0	8.6	inches
	Grate Information		MINOR	MAJOR	☐ Override Depths
	Length of a Unit Grate	L_o (G) =	2.92	2.92	feet
	Width of a Unit Grate	W_o =	2.92	2.92	feet
	Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	0.70	0.70	
	Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	0.50	0.50	
	Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	2.41	2.41	
	Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	0.67	0.67	
	Curb Opening Information		MINOR	MAJOR	
	Length of a Unit Curb Opening	L_o (C) =	N/A	N/A	feet
	Height of Vertical Curb Opening in Inches	H_{vert} =	N/A	N/A	inches
	Height of Curb Orifice Throat in Inches	H_{throat} =	N/A	N/A	inches
	Angle of Throat (see USDCM Figure ST-5)	Theta =	N/A	N/A	degrees
	Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	N/A	N/A	feet
	Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	N/A	N/A	
	Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	N/A	N/A	
	Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	N/A	N/A	
	Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
	Depth for Grate Midwidth	d_{Grate} =	0.73	1.11	ft
	Depth for Curb Opening Weir Equation	d_{Curb} =	N/A	N/A	ft
	Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	0.63	1.00	
	Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	N/A	N/A	
	Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
			MINOR	MAJOR	
	Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**3.5**	**10.4**	**cfs**
	Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	3.3	7.3	cfs

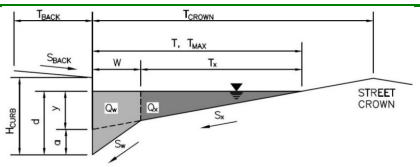
Warning 1: Dimension entered is not a typical dimension for inlet type specified.

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN B2**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.010	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

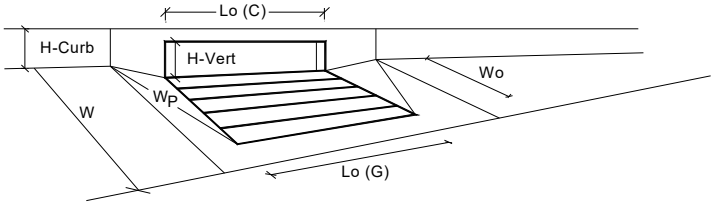
MINOR STORM Allowable Capacity is not applicable to Sump Condition

MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)

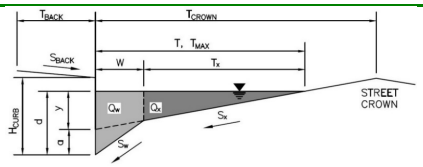


Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT/Denver 13 Combination		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	2.00	2.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	5.4	5.4	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	3.00	3.00	feet
Width of a Unit Grate	W_o =	1.73	1.73	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	0.43	0.43	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	0.50	0.50	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	3.30	3.30	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	0.60	0.60	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	3.00	3.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.50	6.50	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	5.25	5.25	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	0.00	0.00	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.70	3.70	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.66	0.66	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	0.47	0.47	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.28	0.28	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	0.84	0.84	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	N/A	N/A	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.84	0.84	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**3.7**	**3.7**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.3	2.5	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**
Inlet ID: **IN C2**



Gutter Geometry:

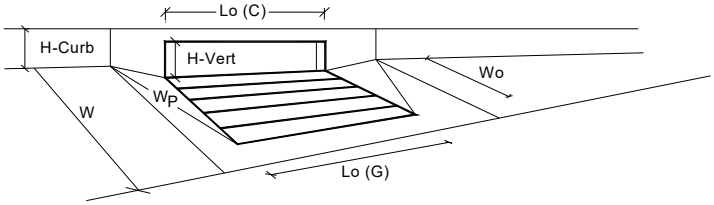
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.010	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



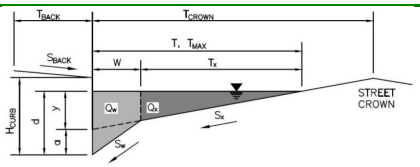
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	5.4	5.4	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.28	0.28	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**4.1**	**4.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.7	1.5	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN C3**



Gutter Geometry:

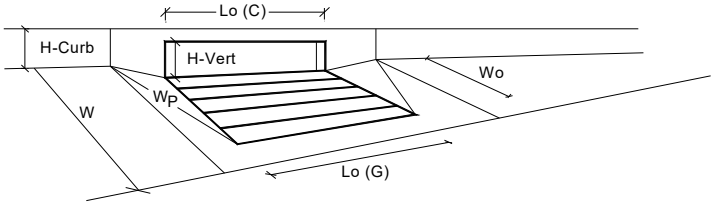
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



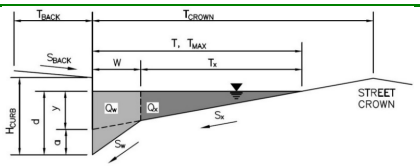
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	5.3	11.3	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN C4**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

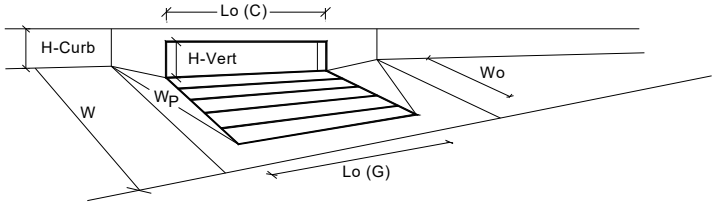
MINOR STORM Allowable Capacity is not applicable to Sump Condition

MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



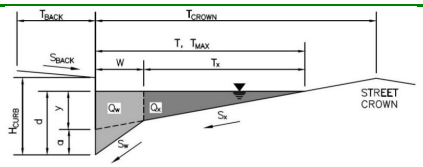
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	6.0	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.33	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**5.4**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.1	2.5	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN C5**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

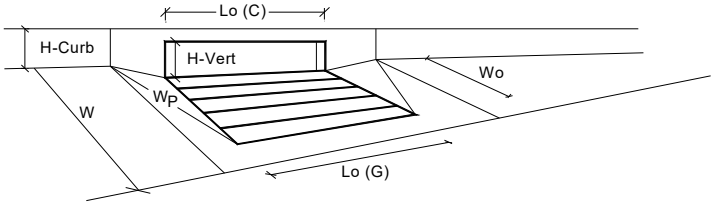
MINOR STORM Allowable Capacity is not applicable to Sump Condition

MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



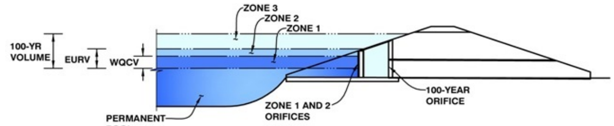
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	6.0	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.33	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**5.4**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.9	3.8	cfs

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: Mendoza York Street Subdivision

Basin ID: Pond 1



Example Zone Configuration (Retention Pond)

Depth Increement = | | ft

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	7.16	acres
Watershed Length =	1,500	ft
Watershed Length to Centroid =	700	ft
Watershed Slope =	0.010	ft/ft
Watershed Imperviousness =	82.30%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	100.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	Commerce City - Civic Center	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	0.205	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	0.580	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 0.84 in.) =	0.394	acre-feet		inches
5-yr Runoff Volume (P1 = 1.12 in.) =	0.556	acre-feet		inches
10-yr Runoff Volume (P1 = 1.37 in.) =	0.709	acre-feet		inches
25-yr Runoff Volume (P1 = 1.75 in.) =	0.957	acre-feet		inches
50-yr Runoff Volume (P1 = 2.08 in.) =	1.169	acre-feet		inches
100-yr Runoff Volume (P1 = 2.43 in.) =	1.400	acre-feet		inches
500-yr Runoff Volume (P1 = 3.35 in.) =	1.992	acre-feet		inches
Approximate 2-yr Detention Volume =	0.372	acre-feet		
Approximate 5-yr Detention Volume =	0.532	acre-feet		
Approximate 10-yr Detention Volume =	0.644	acre-feet		
Approximate 25-yr Detention Volume =	0.762	acre-feet		
Approximate 50-yr Detention Volume =	0.824	acre-feet		
Approximate 100-yr Detention Volume =	0.904	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	0.205	acre-feet
Zone 2 Volume (EURV - Zone 1) =	0.375	acre-feet
Zone 3 (100yr + 1 / 2 WQCV - Zones 1 & 2) =	0.426	acre-feet
Total Detention Basin Volume =	1.006	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	100	0.002		
5110	--	0.50	--	--	--	1,945	0.045	511	0.012
5111	--	1.50	--	--	--	5,848	0.134	4,408	0.101
5112	--	2.50	--	--	--	10,793	0.248	12,728	0.292
5113	--	3.50	--	--	--	11,807	0.271	24,028	0.552
5114	--	4.50	--	--	--	12,043	0.276	35,953	0.825
5115	--	5.50	--	--	--	13,107	0.301	48,528	1.114
5116	--	6.50	--	--	--	14,815	0.340	62,489	1.435
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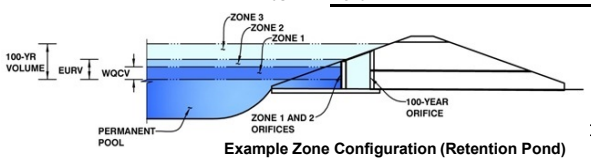
DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: **Mendoza York Street Subdivision**

Basin ID: **Pond 1**



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	2.12	0.205	Orifice Plate
Zone 2 (EURV)	3.61	0.375	Orifice Plate
3 (100+1/2WQCV)	5.14	0.426	Weir&Pipe (Restrict)
Total (all zones)		1.006	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	9.028E-03	ft^2
Depth at top of Zone using Orifice Plate =	3.57	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	14.30	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	1.30	sq. inches (diameter = 1-1/4 inches)	Elliptical Slot Area =	N/A	ft^2

Calculated Parameters for Plate

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.19	2.38					
Orifice Area (sq. inches)	1.30	1.30	1.30					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected			Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	N/A	N/A	ft^2
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	N/A	N/A	feet
Vertical Orifice Diameter =	N/A	N/A	inches				

Calculated Parameters for Vertical Orifice

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	3.57	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	3.57	N/A	feet
Overflow Weir Front Edge Length =	6.67	N/A	feet	Overflow Weir Slope Length =	3.91	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	40.01	N/A	
Horiz. Length of Weir Sides =	3.91	N/A	feet	Overflow Grate Open Area w/o Debris =	20.63	N/A	ft^2
Overflow Grate Type =	Close Mesh Grate	N/A		Overflow Grate Open Area w/ Debris =	10.31	N/A	ft^2
Debris Clogging % =	50%	N/A	%				

Calculated Parameters for Overflow Weir

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.00	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	0.52	N/A	ft^2
Outlet Pipe Diameter =	18.00	N/A	inches	Outlet Orifice Centroid =	0.29	N/A	feet
Restrictor Plate Height Above Pipe Invert =	6.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	1.23	N/A	radians

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

User Input: Emergency Spillway (Rectangular or Trapezoidal)

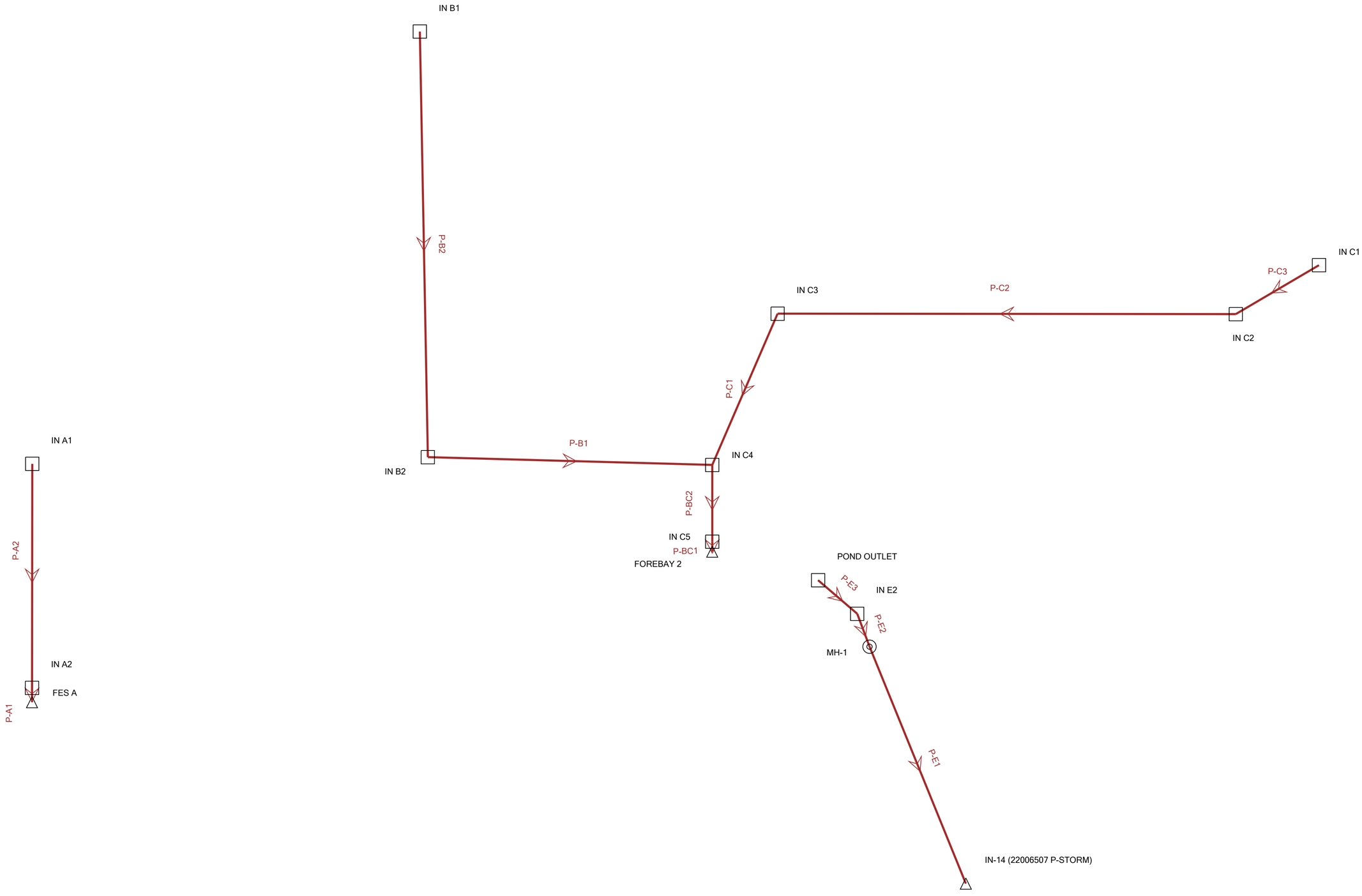
Spillway Invert Stage=	4.80	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.80	feet
Spillway Crest Length =	5.00	feet	Stage at Top of Freeboard =	6.60	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	0.34	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	1.43	acre-ft

Calculated Parameters for Spillway

Routed Hydrograph Results *The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).*

Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	0.84	1.12	1.37	1.75	2.08	2.43	3.35
CUHP Runoff Volume (acre-ft) =	0.205	0.580	0.394	0.556	0.709	0.957	1.169	1.400	1.992
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.394	0.556	0.709	0.957	1.169	1.400	1.992
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.0	0.4	1.1	2.9	4.0	5.5	8.9
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.06	0.15	0.40	0.56	0.77	1.24
Peak Inflow Q (cfs) =	N/A	N/A	4.4	6.1	7.6	11.0	13.4	16.2	22.9
Peak Outflow Q (cfs) =	0.1	0.4	0.2	0.2	1.7	4.7	4.9	5.2	12.8
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.5	1.6	1.6	1.2	0.9	1.4
Structure Controlling Flow =	Plate	Overflow Weir 1	Plate	Plate	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	0.01	N/A	N/A	0.1	0.2	0.2	0.2	0.3
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	39	64	54	64	65	63	61	59	55
Time to Drain 99% of Inflow Volume (hours) =	**41**	68	58	68	71	70	69	68	66
Maximum Ponding Depth (ft) =	2.12	3.61	2.79	3.39	3.69	3.83	4.15	4.70	5.31
Area at Maximum Ponding Depth (acres) =	0.20	0.27	0.25	0.27	0.27	0.27	0.27	0.28	0.30
Maximum Volume Stored (acre-ft) =	0.206	0.581	0.365	0.519	0.603	0.641	0.726	0.881	1.057

Scenario: 100 Year



18: 5 Year
(Catch Basin System Flows)
Mendoza York Street Subdivision
Active Scenario: 5 Year

*	ID	Label	Flow (Additional Subsurface) (cfs)	External CA (acres)	External Tc (hours)	Flow (Known) (cfs)
True	63	IN A1	2.30	0.000	0.000	0.00
True	64	IN A2	1.50	0.000	0.000	0.00
True	72	IN B1	3.30	0.000	0.000	0.00
True	73	IN B2	1.10	0.000	0.000	0.00
True	74	IN C4	1.10	0.000	0.000	0.00
True	78	IN C3	5.30	0.000	0.000	0.00
True	79	IN C1	5.30	0.000	0.000	0.00
True	82	IN C5	1.70	0.000	0.000	0.00
True	85	IN C2	1.50	0.000	0.000	0.00
True	87	POND OUTLET	2.10	0.000	0.000	0.00
True	88	IN E2	4.60	0.000	0.000	0.00

FlexTable: Conduit Table
Mendoza York Street Subdivision
Active Scenario: 5 Year

Label	Invert (Start) (ft)	Invert (Stop) (ft)	Length (Scaled) (ft)	Slope (Calculated) (%)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Normal) / Rise (%)
P-A1	5,111.85	5,111.80	6.4	0.85	18.0	0.013	3.80	5.15	43.5
P-A2	5,113.11	5,112.10	100.7	1.00	15.0	0.013	2.30	4.82	41.2
P-B1	5,111.92	5,111.00	127.9	0.72	18.0	0.013	4.40	5.03	49.6
P-B2	5,113.27	5,112.12	191.4	0.59	18.0	0.013	3.30	4.35	44.4
P-BC1	5,110.06	5,110.03	4.5	0.67	36.0	0.013	19.30	7.05	41.1
P-BC2	5,110.27	5,110.03	34.5	0.70	36.0	0.013	17.60	6.98	38.7
P-C1	5,110.71	5,110.27	74.1	0.59	30.0	0.013	12.10	6.01	42.9
P-C2	5,111.95	5,110.71	206.0	0.60	30.0	0.013	6.80	5.16	31.4
P-C3	5,112.21	5,111.95	43.4	0.60	24.0	0.013	5.30	4.89	37.7
P-E1	5,108.52	5,107.37	115.0	1.00	24.0	0.013	6.70	6.27	37.3
P-E2	5,108.68	5,108.52	15.8	1.00	24.0	0.013	6.70	6.27	37.3
P-E3	5,109.07	5,108.68	23.2	1.71	24.0	0.013	2.10	5.44	18.0

67: 100 Year
(Catch Basin System Flows)
Mendoza York Street Subdivision
Active Scenario: 100 Year

*	ID	Label	Flow (Additional Subsurface) (cfs)	External CA (acres)	External Tc (hours)	Flow (Known) (cfs)
True	63	IN A1	5.10	0.000	0.000	0.00
True	64	IN A2	2.80	0.000	0.000	0.00
True	72	IN B1	7.30	0.000	0.000	0.00
True	73	IN B2	2.50	0.000	0.000	0.00
True	74	IN C4	1.70	0.000	0.000	0.00
True	78	IN C3	11.30	0.000	0.000	0.00
True	79	IN C1	11.30	0.000	0.000	0.00
True	82	IN C5	3.70	0.000	0.000	0.00
True	85	IN C2	9.70	0.000	0.000	0.00
True	87	POND OUTLET	7.00	0.000	0.000	0.00
True	88	IN E2	10.40	0.000	0.000	0.00

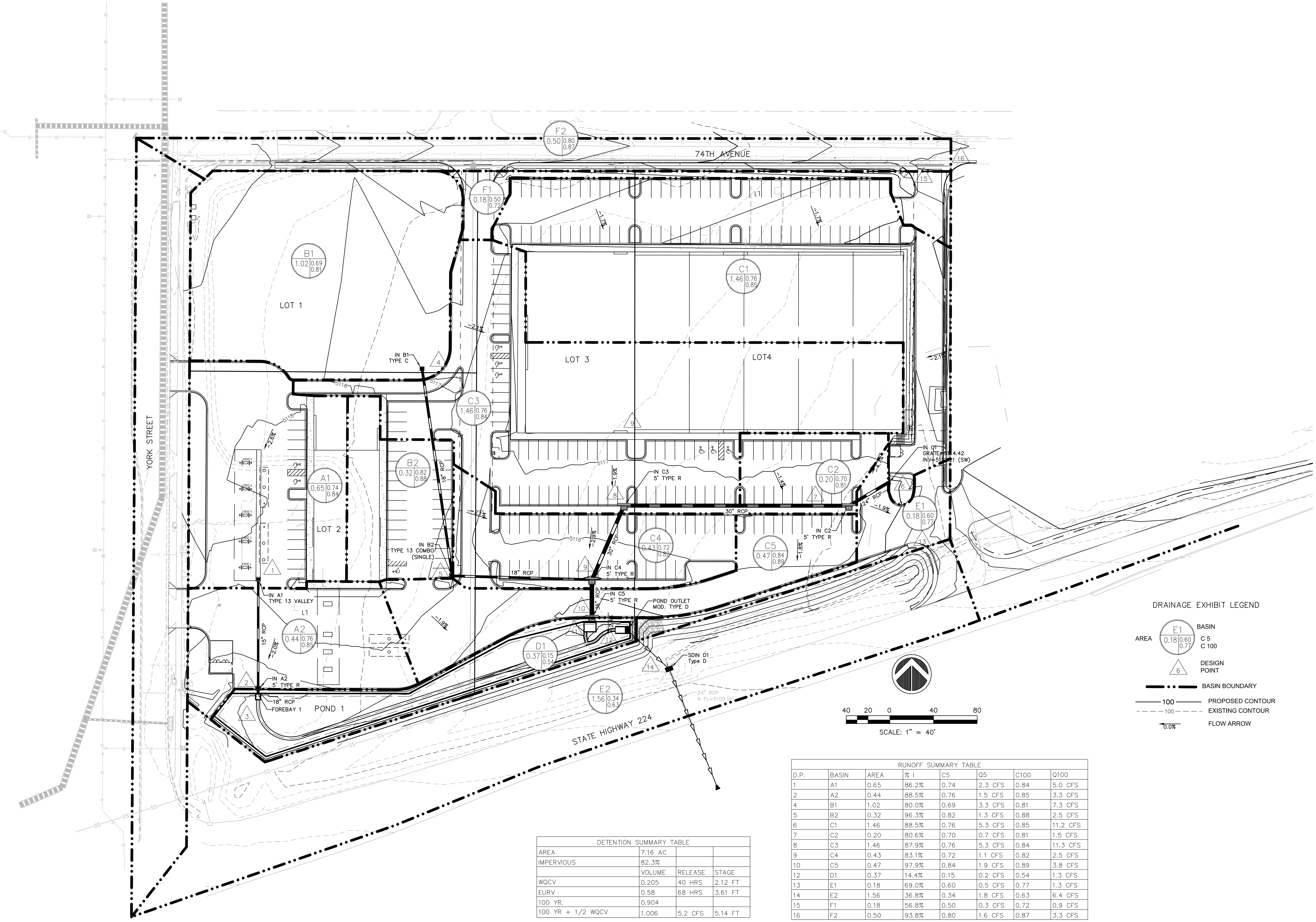
FlexTable: Conduit Table

Mendoza York Street Subdivision

Active Scenario: 100 Year

Label	Invert (Start) (ft)	Invert (Stop) (ft)	Length (Scaled) (ft)	Slope (Calculated) (%)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Normal) / Rise (%)
P-A1	5,111.85	5,111.80	6.4	0.85	18.0	0.013	7.90	4.47	68.6
P-A2	5,113.11	5,112.10	100.7	1.00	15.0	0.013	5.10	4.16	66.9
P-B1	5,111.92	5,111.00	127.9	0.72	18.0	0.013	9.80	5.55	(N/A)
P-B2	5,113.27	5,112.12	191.4	0.59	18.0	0.013	7.30	4.13	74.3
P-BC1	5,110.06	5,110.03	4.5	0.67	36.0	0.013	47.50	6.72	72.3
P-BC2	5,110.27	5,110.03	34.5	0.70	36.0	0.013	43.80	6.20	66.9
P-C1	5,110.71	5,110.27	74.1	0.59	30.0	0.013	32.30	6.58	84.1
P-C2	5,111.95	5,110.71	206.0	0.60	30.0	0.013	21.00	4.28	59.3
P-C3	5,112.21	5,111.95	43.4	0.60	24.0	0.013	11.30	3.60	58.5
P-E1	5,108.52	5,107.37	115.0	1.00	24.0	0.013	17.40	7.94	65.8
P-E2	5,108.68	5,108.52	15.8	1.00	24.0	0.013	17.40	7.94	65.8
P-E3	5,109.07	5,108.68	23.2	1.71	24.0	0.013	7.00	7.71	33.1

Appendix D



DRAINAGE EXHIBIT LEGEND

E1 (0.18, 0.60, 0.77)	BASIN; AREA; C 5; C 100
6 (triangle)	DESIGN POINT
▬ • • ▬	BASIN BOUNDARY
—— 100 ——	PROPOSED CONTOUR
– – 100 – –	EXISTING CONTOUR
← 0.0%	FLOW ARROW

DETENTION SUMMARY TABLE			
AREA	7.16 AC		
IMPERVIOUS	82.3%		
	VOLUME	RELEASE	STAGE
WQCV	0.205	40 HRS	2.12 FT
EURV	0.58	68 HRS	3.61 FT
100 YR.	0.904		
100 YR + 1/2 WQCV	1.006	5.2 CFS	5.14 FT

RUNOFF SUMMARY TABLE

D.P.	BASIN	AREA	% I	C5	Q5	C100	Q100
1	A1	0.65	86.2%	0.74	2.3 CFS	0.84	5.0 CFS
2	A2	0.44	88.5%	0.76	1.5 CFS	0.85	3.3 CFS
4	B1	1.02	80.0%	0.69	3.3 CFS	0.81	7.3 CFS
5	B2	0.32	96.3%	0.82	1.3 CFS	0.88	2.5 CFS
6	C1	1.46	88.5%	0.76	5.3 CFS	0.85	11.2 CFS
7	C2	0.20	80.6%	0.70	0.7 CFS	0.81	1.5 CFS
8	C3	1.46	87.9%	0.76	5.3 CFS	0.84	11.3 CFS
9	C4	0.43	83.1%	0.72	1.1 CFS	0.82	2.5 CFS
10	C5	0.47	97.9%	0.84	1.9 CFS	0.89	3.8 CFS
12	D1	0.37	14.4%	0.15	0.2 CFS	0.54	1.3 CFS
13	E1	0.18	69.0%	0.60	0.5 CFS	0.77	1.3 CFS
14	E2	1.56	36.8%	0.34	1.8 CFS	0.63	6.4 CFS
15	F1	0.18	56.8%	0.50	0.3 CFS	0.72	0.9 CFS
16	F2	0.50	93.8%	0.80	1.6 CFS	0.87	3.3 CFS

REVISIONS		
No.	DESCRIPTION	DATE

IMEG
7600 E ORCHARD RD
SUITE 250-S
GREENWOOD VILLAGE, CO 80111
PH: 303.796.6000
www.imegcorp.com

MENDOZA YORK STREET SUBDIVISION

ADAMS COUNTY, CO

DRAINAGE EXHIBIT

IMEG Project No:

File Name:
22006507 Drainage Exhibit.dwg

Field Book No:

Drawn By:

Checked By:

Date: 5/22/2023

1

Monday, May 22, 2023 3:27:24 PM
G:\2022\22006507.00\DESIGN\CIVIL\C3D\EXHIBITCONCEPT\22006507 DRAINAGE EXHIBIT.DWG

7330 York Street

Adams County, Colorado

Traffic Impact Study

KE Job #2022-050

Prepared for:

Ralph Mendoza
2041 E. 74th Avenue
Denver, CO 80229-6912

Prepared by:

KELLAR ENGINEERING

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970.219.1602 phone

May 18, 2023

Sean K. Kellar, PE, PTOE

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1.0 Introduction

The purpose of this Traffic Impact Study (TIS) is to identify project traffic generation characteristics, to identify potential traffic related impacts on the adjacent street system, and to develop mitigation measures required for identified traffic impacts. This TIS is for the proposed project located at 7330 York Street in Adams County, Colorado. See Figure 1: Vicinity Map.

Kellar Engineering LLC (KE) has prepared the TIS to document the results of the project's anticipated traffic conditions in accordance with Adams County's requirements and to identify projected impacts to the local and regional traffic system.

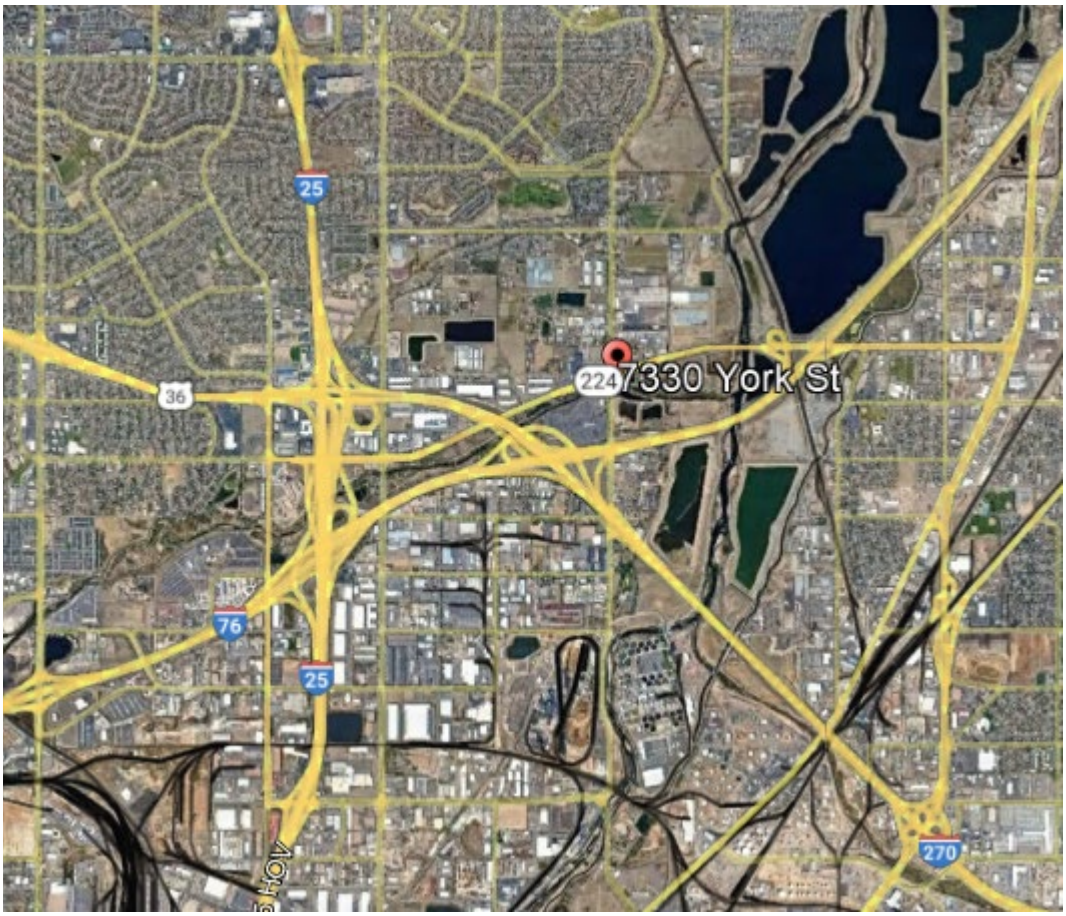
2.0 Existing Conditions and Roadway Network

The project site is located at 7330 York Street at the northeast quadrant of Hwy 224 and York Street in Adams County, CO. Lowell Blvd. is a north-south, 4-lane minor arterial with a posted speed of 35 mph adjacent to the project site. A raised center median exists in York Street adjacent to the project site which appropriately separates traffic and restricts left-turns. State Highway 224 (Hwy 224) is a 4-lane east-west NR-B category roadway with a posted speed of 45 mph. 74th Avenue is an east-west local street located at the north boundary of the project site with a posted speed of 25 mph. The intersection of Hwy 224/York Street is signalized with left-turn and right-turn auxiliary lanes on all approaches, video detection, and 5-section signal heads facing the north-south left-turn lanes. The intersection of York Street/74th Avenue is signalized with left-turn lanes on the north-south approaches, video detection, and 5-section signal heads facing the north-south left-turn lanes. These 5-section signal heads allow for permissive + protected signal phasing. See Figure 2: Site Plan and Appendix B.

2.1 Existing Traffic Volumes

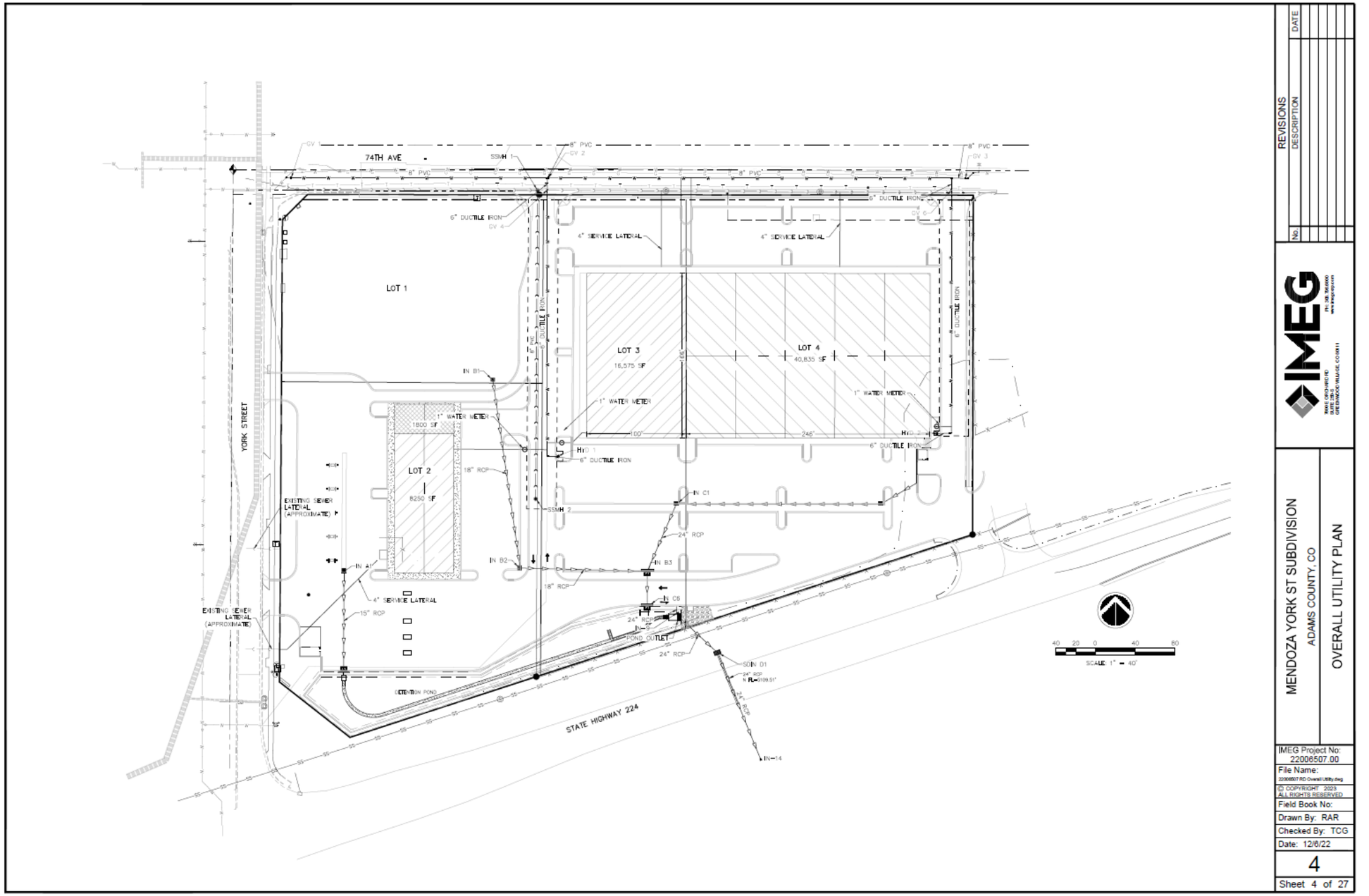
Existing peak hour traffic volume counts were conducted using data collection cameras by All Traffic Data, Inc. on Tuesday, September 27, 2022. The traffic counts were conducted to capture the peak hours of the adjacent street traffic. These traffic counts are shown in Figure 3 with the count sheets provided in Appendix A.

Figure 1: Vicinity Map



Google Earth

Figure 2: Site Plan



3.0 Proposed Development

The proposed project consists of a mixed use development (C-Store/Gas Station, High-Turnover Restaurants, Event Center, and Warehousing). See Table 1: Trip Generation and Figure 2: Site Plan.

4.1 Trip Generation

Site generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the Trip Generation Report published by the Institute of Transportation Engineers (ITE). ITE has established trip generation rates in nationwide studies of similar land uses. The ITE has specific land use categories for all of the project's proposed land uses except for the event center land use. Through previous correspondence with CDOT for previous traffic studies for event center space, KE was able to approximate the proposed event center's peak trip generation using the below information.

The proposed event center was conservatively estimated to have an event size of approximately 300 people for private gatherings (i.e. weddings, funerals, etc.). Arrivals and departures will be staggered throughout the duration of each event and car-pooling of approximately 2.5 attendees to vehicle is anticipated. Traffic volumes will vary on the type of event and number of attendees. Anticipated traffic volumes for a typical event are below:

Passenger vehicles: 120 round-trips/day for passenger cars (240 daily trips)
Vendor vehicles: 3 vehicles, one round-trip per day each (6 daily trips)

The vendor vehicles and a portion (~10%) of other passenger cars will arrive before the event's peak entering hour. Additionally, the vendor vehicles and a portion (~10%) of other passenger cars will leave after the event's peak exiting hour. Therefore, a typical event is projected to generate a maximum of approximately 246 average daily trips, 216 AM peak hour trips, and 216 total PM peak hour trips. In light of the above information,

proposed project is anticipated to generate a combined total of approximately 6,931 daily trips, 763 AM total peak hour trips, and 743 PM total peak hour trips. See Table 1: Trip Generation.

4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns and volumes, anticipated surrounding development areas, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site generated traffic that approaches the site from a given direction and departs the site back to the original source. Figure 6 illustrates the trip distribution used for the project's analysis.

4.3 Traffic Assignment

Traffic assignment was obtained by applying the trip distributions to the estimated trip generation of the development. Figures 7 shows the site generated peak hour traffic assignment.

4.4 Short Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the short range 2025 horizon. These background (2025) and short range (2025) total traffic volumes are shown in Figures 4 and 8. The short range analysis year 2025 includes the proposed development for this project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

4.5 Long Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the long range 2045 horizon. These background (2045) and long range (2045) total traffic volumes are shown in Figures 5 and

9. The long range analysis year 2045 includes the proposed development for the project plus project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

5.0 Traffic Operation Analysis

KE's analysis of traffic operations in the site vicinity was conducted to determine the capacity at the identified intersection. The acknowledged source for determining overall capacity is the Highway Capacity Manual.

5.1 Analysis Methodology

Capacity analysis results are listed in terms of level of service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. LOS ranges from an A (very little delay) to an F (long delays). A description of the level of service (LOS) for signalized and unsignalized intersections from the Highway Capacity Manual are provided in Appendix F.

5.2 Intersection Operational Analysis

Operational analysis was performed for the short range 2025 horizon. The calculations for this analysis are provided in Appendix F. Using the short range total traffic volumes, the project is projected to operate acceptably with all studied intersections and access points meeting Adams County LOS criteria. See Table 4: 2025 Short Range Total Peak Hour Operation.

Table 1: Trip Generation (ITE 11th Edition)

ITE Code	Land Use	Size	Average Daily Trips		AM Peak Hour Trips						PM Peak Hour Trips					
			Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
932	High-Turnover Restaurant	1.8 KSF	107.20	193	9.57	55%	9	45%	8	17	9.05	61%	10	39%	6	16
945	C-Store/Gas Station	8.25 KSF	700.43	5779	56.52	50%	233	50%	233	466	54.52	50%	225	50%	225	450
*	Event Center (Weddings, etc.)	16.6 KSF	*	246	*	*	108	*	108	216	*	*	108	*	108	216
150	Warehousing	40.84 KSF	1.71	70	0.17	77%	5	23%	2	7	0.18	28%	2	72%	5	7
932	High-Turnover Restaurant	6 KSF	107.20	643	9.57	55%	32	45%	25	57	9.05	61%	33	39%	21	54
	Total			**6,931**			**387**		**376**	**763**			**378**		**365**	**743**

KSF = Thousand Square Feet

*See Section 4.1 Trip Generation

Figure 3: Recent Peak Hour Traffic

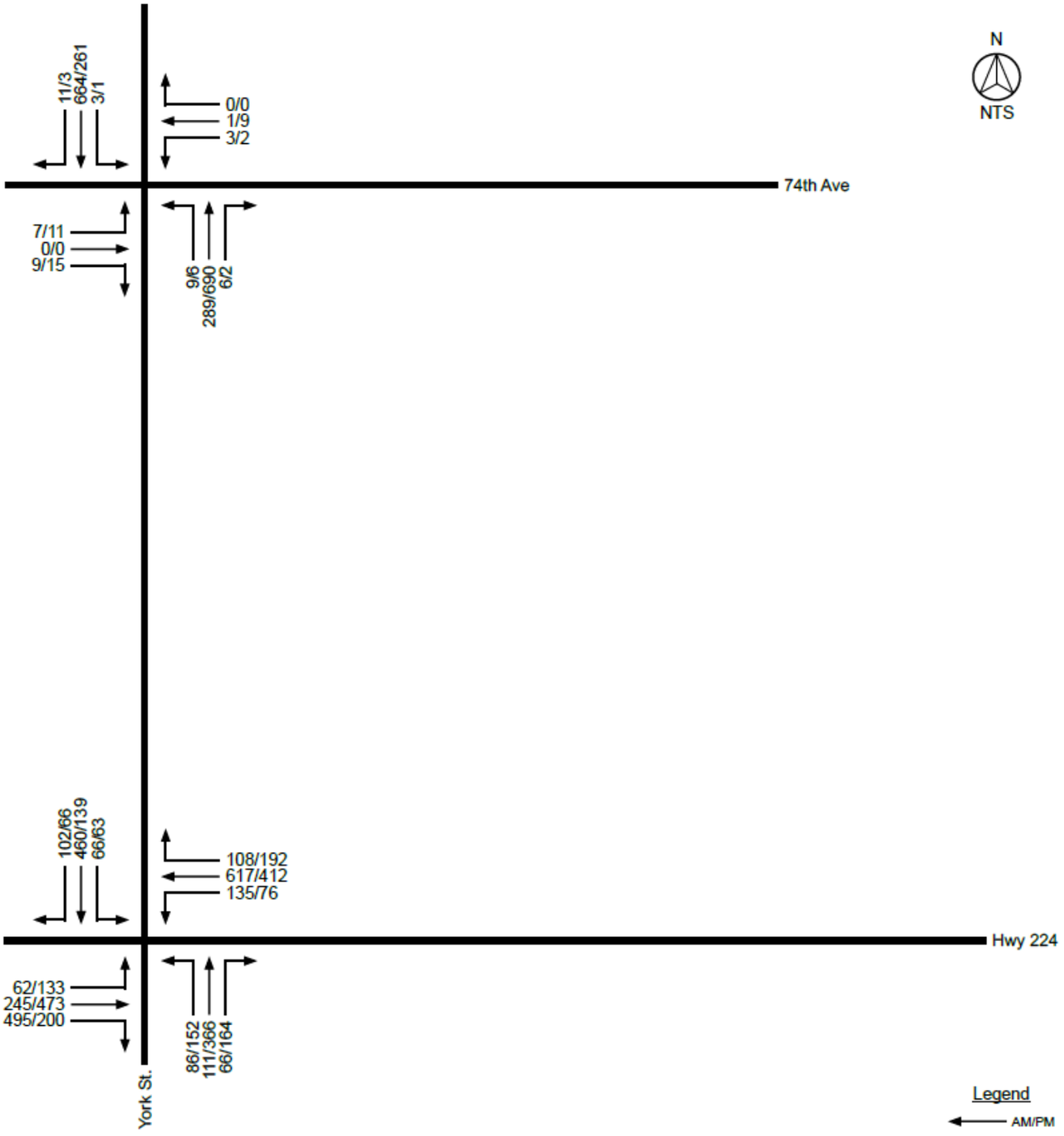


Figure 4: 2025 Background Traffic

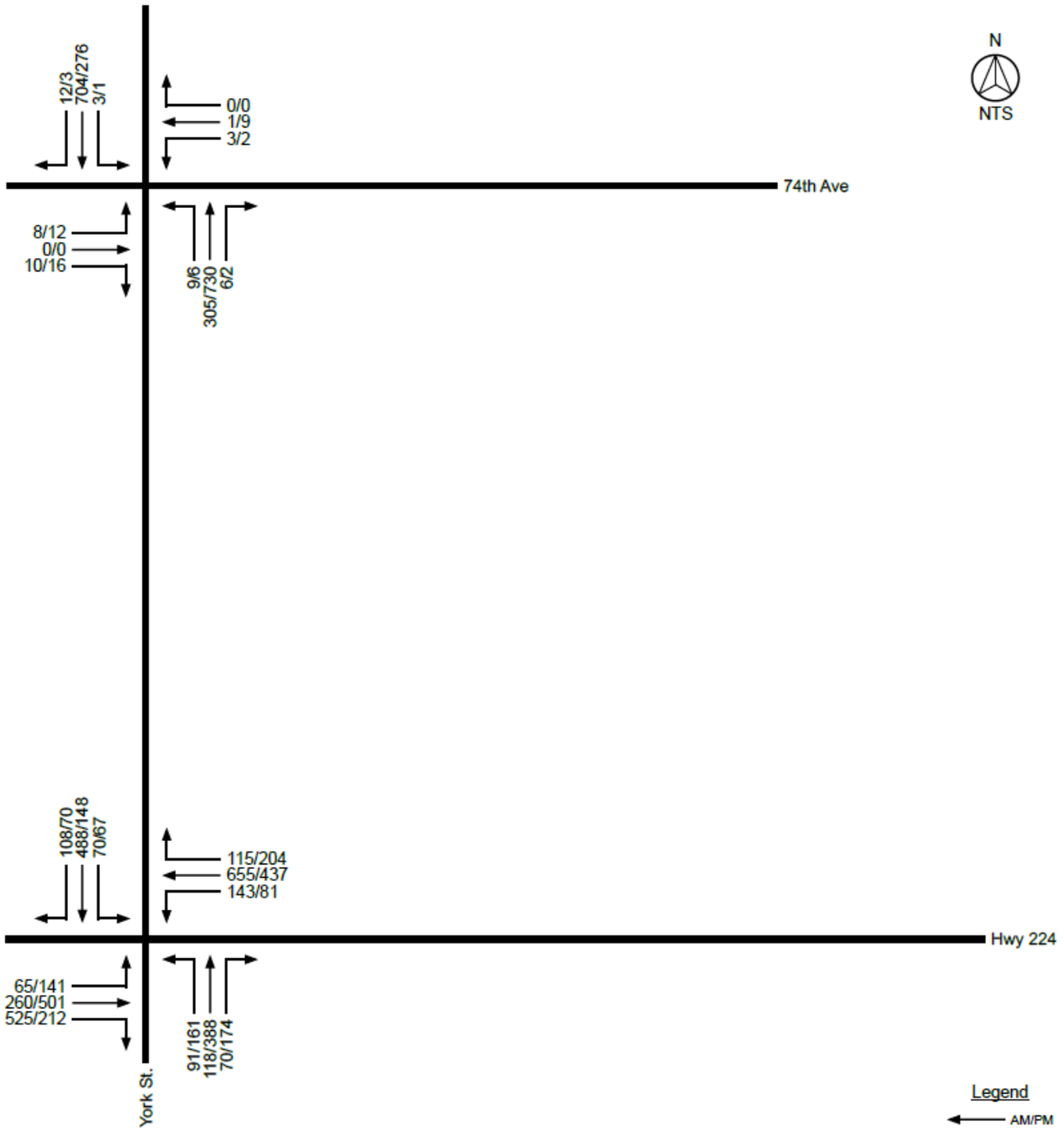


Figure 5: 2045 Background Traffic

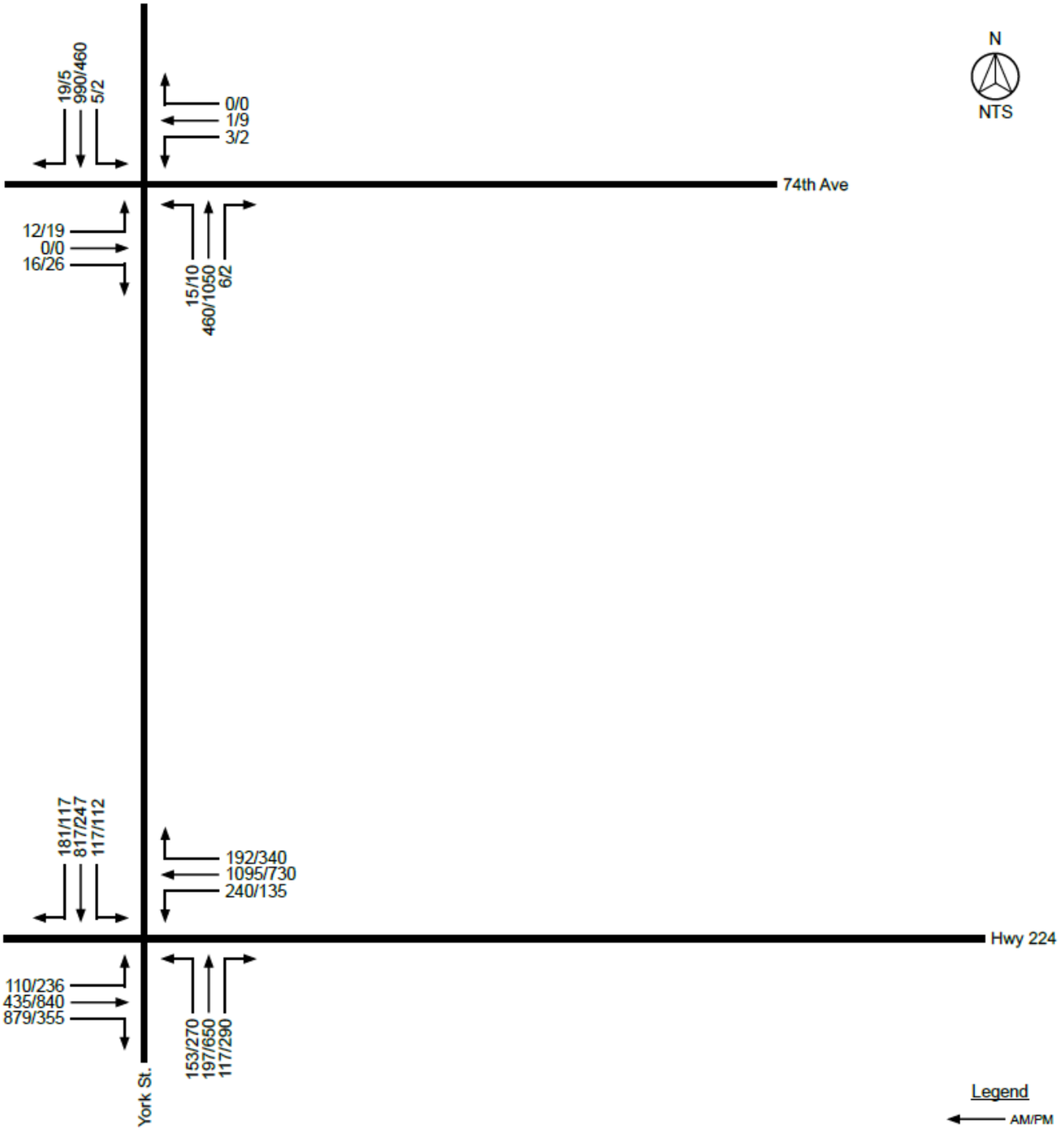


Figure 6: Trip Distribution

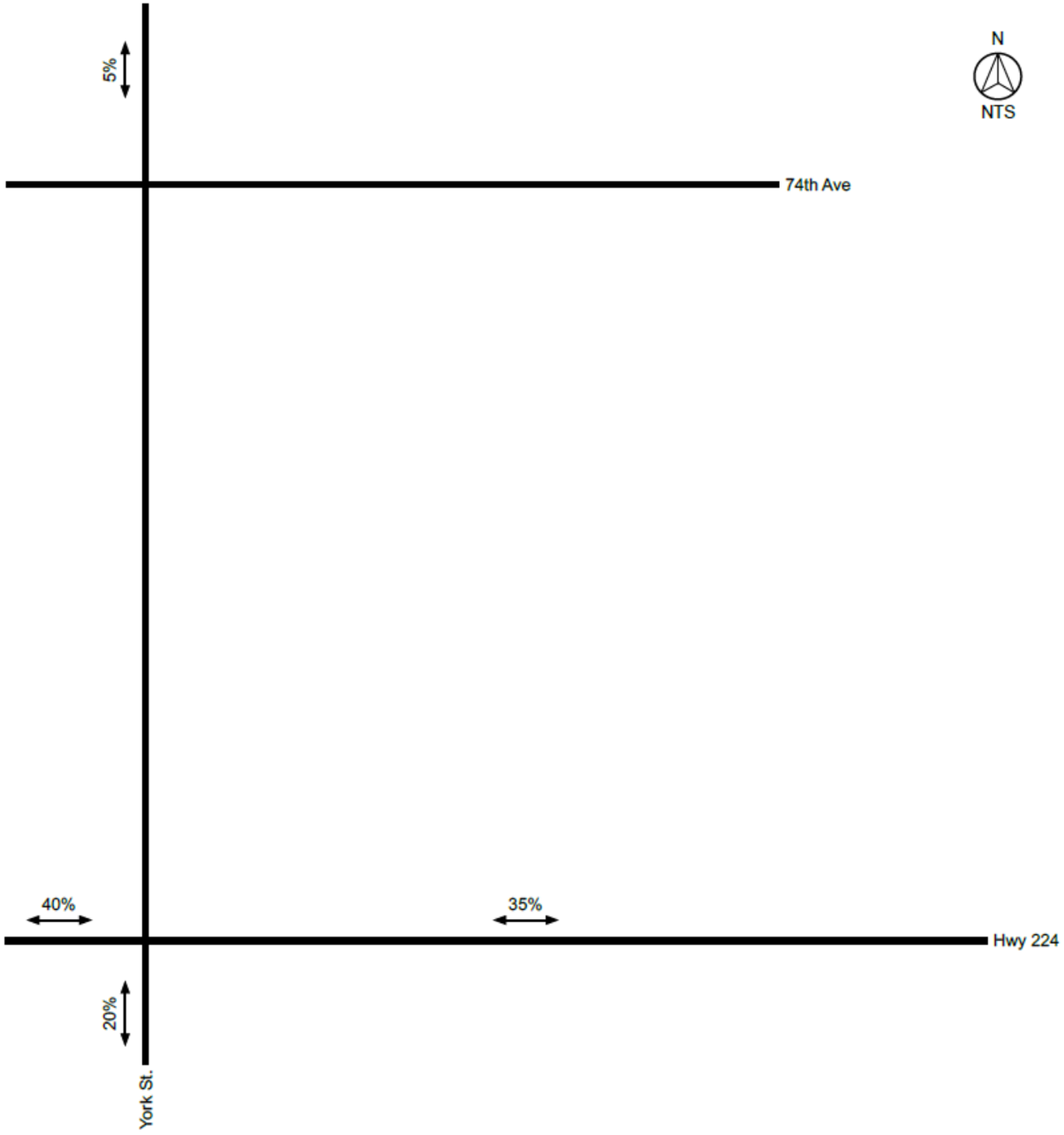


Figure 7: Site Generated Traffic

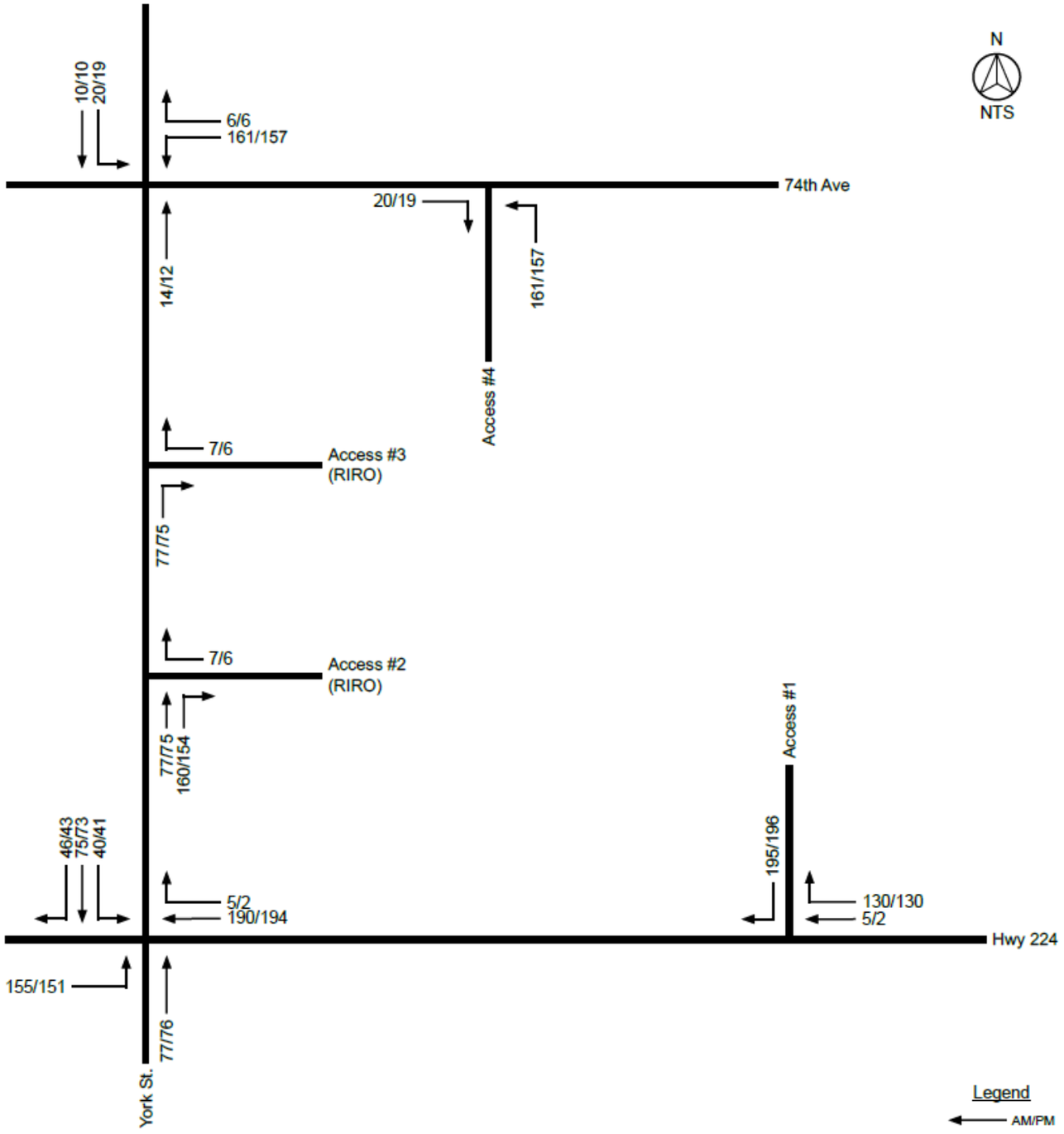


Figure 8: 2025 Short Range Total Traffic

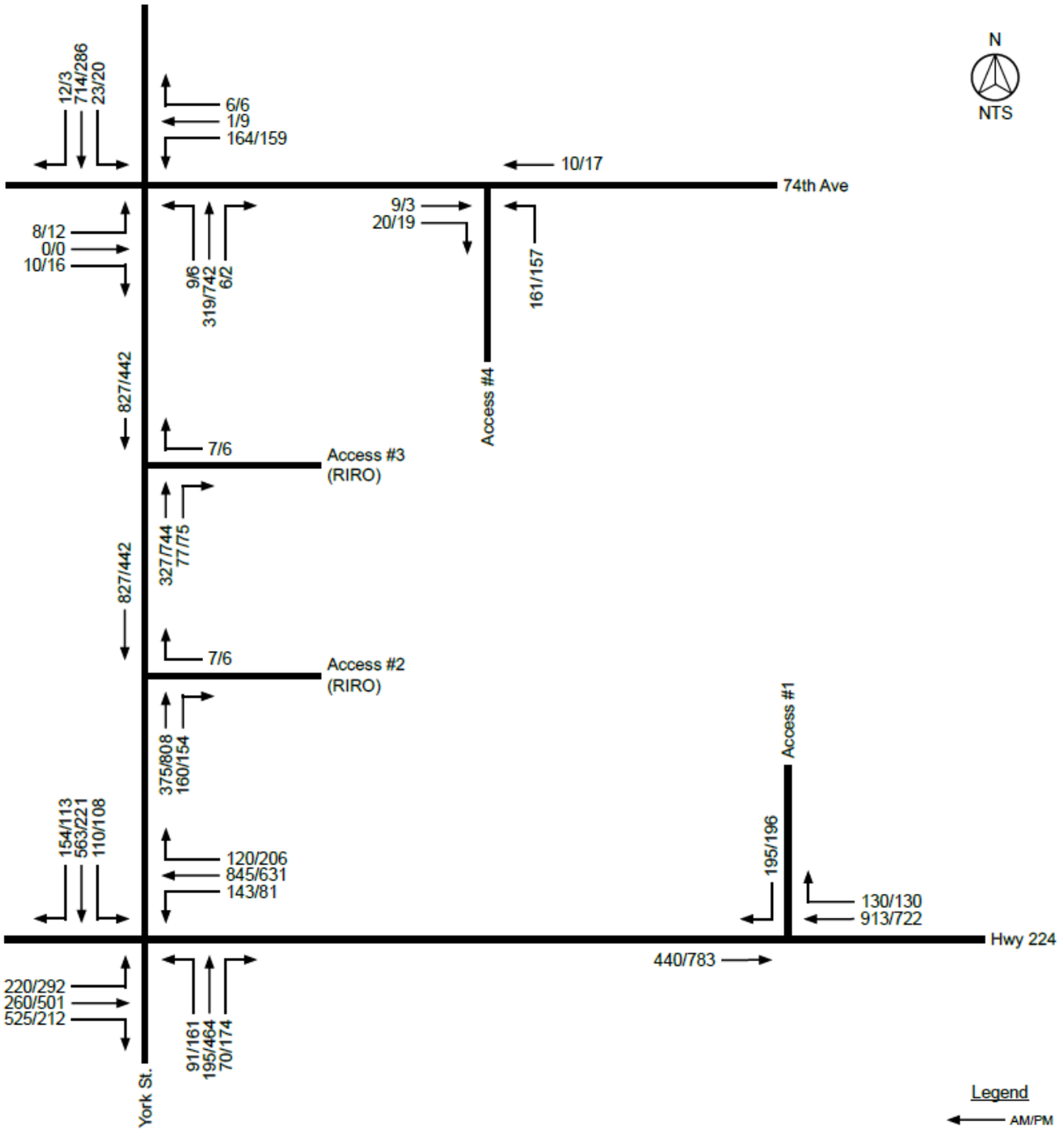


Figure 9: 2045 Long Range Total Traffic

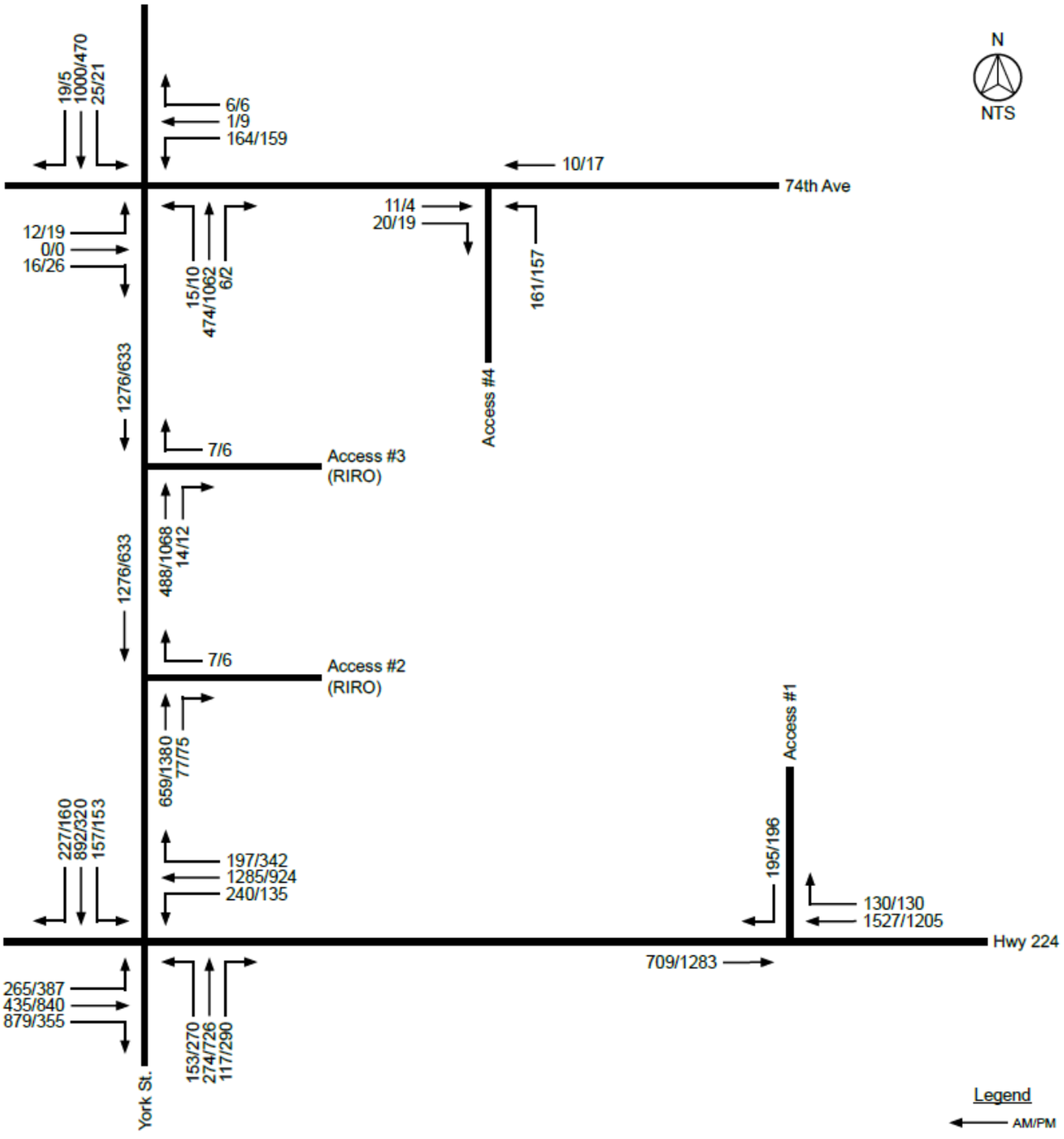


Table 2: Recent Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	B	C
	EB Thru	C	C
	EB Right	B	A
	EB Approach	C	C
	WB Left	B	C
	WB Thru	C	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	B	B
	NB Thru	C	C
	NB Right	A	A
	NB Approach	B	B
	SB Left	B	B
	SB Thru	C	C
	SB Right	A	A
	SB Approach	B	B
	Overall	C	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 3: 2025 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	B	C
	EB Thru	C	C
	EB Right	C	A
	EB Approach	C	C
	WB Left	B	C
	WB Thru	C	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	B	B
	NB Thru	C	C
	NB Right	A	A
	NB Approach	B	B
	SB Left	B	B
	SB Thru	C	C
	SB Right	A	A
	SB Approach	B	B
	Overall	C	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 4: 2045 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	C	C
	EB Thru	B	C
	EB Right	E	A
	EB Approach	E	C
	WB Left	B	C
	WB Thru	C	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	E	C
	NB Thru	C	C
	NB Right	A	A
	NB Approach	D	C
	SB Left	C	C
	SB Thru	E	C
	SB Right	B	A
	SB Approach	D	C
	Overall	D	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 5: 2025 Short Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	C	C
	EB Thru	B	B
	EB Right	B	A
	EB Approach	B	B
	WB Left	B	B
	WB Thru	D	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	C	C
	NB Thru	C	C
	NB Right	A	A
	NB Approach	C	C
	SB Left	C	C
	SB Thru	C	C
	SB Right	A	A
	SB Approach	C	C
	Overall	C	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	B	B

Table 5: 2025 Short Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #3			
Stop Control	WB Right	A	B
Right-In/Right-Out	WB Approach	A	B
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #2			
Stop Control	WB Right	B	B
Right-In/Right-Out	WB Approach	B	B
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Hwy 224/Access #1			
Stop Control	EB Thru	A	A
Right-In/Right-Out	EB Approach	A	A
	WB Thru	A	A
	WB Right	A	A
	WB Approach	A	A
	SB Right	E	C
	SB Approach	E	C

Table 5: 2025 Short Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
74th Ave/Access #4			
Stop Control	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

Table 6: 2045 Long Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	E	D
	EB Thru	B	C
	EB Right	E	A
	EB Approach	D	C
	WB Left	C	C
	WB Thru	D	D
	WB Right	A	A
	WB Approach	D	D
	NB Left	F (84.8 sec)	C
	NB Thru	D	D
	NB Right	A	A
	NB Approach	D	D
	SB Left	C	D
	SB Thru	E	D
	SB Right	B	A
	SB Approach	E	D
	Overall	D	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	B
	NB Approach	A	B
	SB Left	A	A
	SB Thru/Right	B	A
	SB Approach	A	A
	Overall	B	B

Table 6: 2045 Long Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #3			
Stop Control	WB Right	B	B
Right-In/Right-Out	WB Approach	B	B
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #2			
Stop Control	WB Right	B	C
Right-In/Right-Out	WB Approach	B	C
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Hwy 224/Access #1			
Stop Control	EB Thru	A	A
Right-In/Right-Out	EB Approach	A	A
	WB Thru	A	A
	WB Right	A	A
	WB Approach	A	A
	SB Right	E	E
	SB Approach	E	E

Table 6: 2045 Long Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
74th Ave/Access #4			
Stop Control	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

6.0 Findings

Based upon the analysis in this study, the proposed project at 7330 York Street, Adams County, CO will be able to meet Adams County's requirements and not create a negative traffic impact upon the local and regional traffic system. Based upon the findings in this TIS, it can be determined that the proposed use is appropriate from a traffic engineering perspective. The access is appropriate and additional auxiliary lanes are not required based upon Section 8-01-08-01 in Chapter 8, Adams County Development Standards and Regulations.

The findings of the TIS are summarized below:

- The proposed project is anticipated to generate approximately 6,931 daily weekday trips, 763 AM total peak hour trips, and 743 PM total peak hour trips.
- The study intersections will operate acceptably during the AM and PM peak hours with the Proposed Development (per Chapter 8 in Adams County Development Standards and Regulations).
- Additional auxiliary lanes are not required at the: York Street/74th Avenue intersection, York Street/Access #2 intersection, York Street/Access #3 intersection, and 74th Avenue/Access #4 intersection per the Auxiliary Lane Requirements (Section 8-01-08-01 in Chapter 8, Adams County Development Standards and Regulations).
- Per the CDOT State Highway Access Code (SHAC) a westbound right-turn lane is required at the right-in/right-out (RIRO) access to Hwy 224 (NR-B Non-Rural Arterial). This westbound right-turn lane at the Hwy 224/Access #1 intersection should have a geometry with a minimum total length of 362' (162' taper + 200' storage). An acceleration lane is not required per SHAC Section 3.11(4)(d).

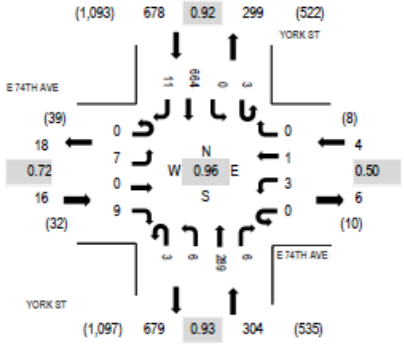
APPENDICES:

Appendix A: Recent Traffic Counts

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

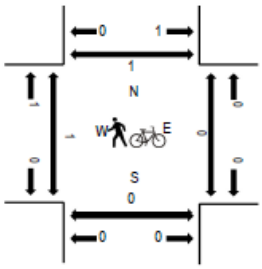
Location: 1 YORK ST & E 74TH AVE AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



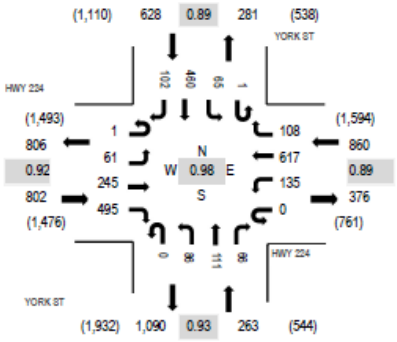
Traffic Counts

Interval Start Time	E 74TH AVE Eastbound				E 74TH AVE Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	0	0	0	1	0	0	0	1	78	3	0	0	176	2	262	1,002	0	0	0	0
7:15 AM	0	1	0	3	0	0	1	0	2	2	68	2	0	0	163	5	247	937	0	0	0	0
7:30 AM	0	2	0	1	0	1	0	0	1	3	67	0	1	0	183	1	260	865	0	0	0	1
7:45 AM	0	3	0	5	0	1	0	0	0	0	76	1	2	0	142	3	233	767	0	0	0	0
8:00 AM	0	0	0	1	0	0	0	0	0	5	57	0	0	2	130	2	197	666	1	0	0	0
8:15 AM	0	3	0	3	0	0	2	0	1	3	59	0	0	1	101	2	175		2	0	0	2
8:30 AM	0	2	0	6	0	0	1	0	0	2	55	0	0	1	94	1	162		0	0	0	0
8:45 AM	0	0	0	1	0	1	0	0	1	1	47	0	0	0	79	2	132		0	0	0	0
Count Total	0	12	0	20	0	4	4	0	5	17	507	6	3	4	1,068	18	1,668		3	0	0	3
Peak Hour	0	7	0	9	0	3	1	0	3	6	289	6	3	0	664	11	1,002		0	0	0	1

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

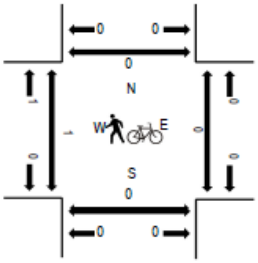
Location: 2 YORK ST & HWY 224 AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



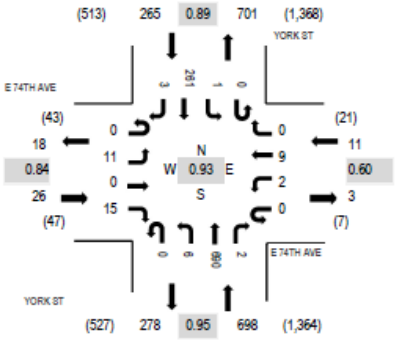
Traffic Counts

Interval Start Time	HWY 224 Eastbound				HWY 224 Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	18	48	98	0	33	123	28	0	29	34	12	0	17	149	27	616	2,535	0	0	0	0
7:15 AM	0	22	69	126	0	37	129	25	0	22	23	11	1	17	124	22	628	2,553	0	0	0	0
7:30 AM	0	10	61	122	0	29	140	26	0	27	32	14	0	11	145	31	648	2,517	1	0	0	0
7:45 AM	1	17	59	105	0	41	174	32	0	17	29	24	0	20	98	26	643	2,397	0	0	0	0
8:00 AM	0	12	56	142	0	28	174	25	0	20	27	17	0	17	93	23	634	2,189	0	0	0	0
8:15 AM	0	15	77	107	0	39	147	26	0	25	25	26	0	18	63	24	592		0	0	0	1
8:30 AM	0	14	71	101	0	37	129	28	0	20	18	14	0	15	61	20	528		0	0	0	0
8:45 AM	0	13	46	66	0	34	93	17	0	30	20	28	1	13	54	20	435		0	0	0	0
Count Total	1	121	487	867	0	278	1,109	207	0	190	208	146	2	128	787	193	4,724		1	0	0	1
Peak Hour	1	61	245	495	0	135	617	108	0	86	111	66	1	65	460	102	2,553		1	0	0	0

(303) 216-2439
www.alltrafficdata.net

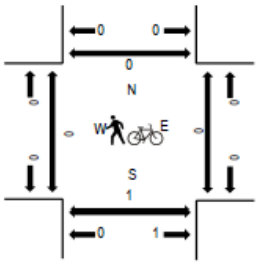
Location: 1 YORK ST & E 74TH AVE PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



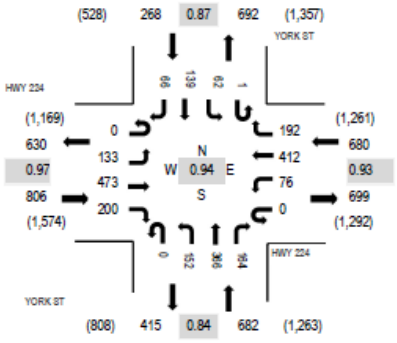
Traffic Counts

Interval Start Time	E 74TH AVE Eastbound				E 74TH AVE Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	2	1	5	0	0	5	0	1	1	171	0	1	2	69	0	258	980	0	0	0	0
4:15 PM	0	2	0	1	0	0	1	0	0	4	163	0	0	0	56	1	228	991	0	0	0	0
4:30 PM	0	2	0	6	0	0	1	0	0	2	178	1	0	1	60	0	251	1,000	0	0	0	0
4:45 PM	0	4	0	4	0	2	1	0	0	1	171	0	0	0	59	1	243	996	0	0	0	0
5:00 PM	0	3	0	1	0	0	5	0	0	0	184	1	0	0	75	0	269	965	0	0	0	0
5:15 PM	0	2	0	4	0	0	2	0	0	3	157	0	0	0	67	2	237		0	0	0	0
5:30 PM	0	6	0	0	0	0	2	0	0	1	174	1	0	0	62	1	247		0	0	0	0
5:45 PM	0	0	0	4	0	0	2	0	0	2	148	0	0	0	51	5	212		0	0	0	0
Count Total	0	21	1	25	0	2	19	0	1	14	1,346	3	1	3	499	10	1,945		0	0	0	0
Peak Hour	0	11	0	15	0	2	9	0	0	6	690	2	0	1	261	3	1,000		0	0	0	0

(303) 216-2439
www.alltrafficdata.net

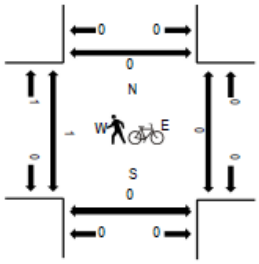
Location: 2 YORK ST & HWY 224 PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

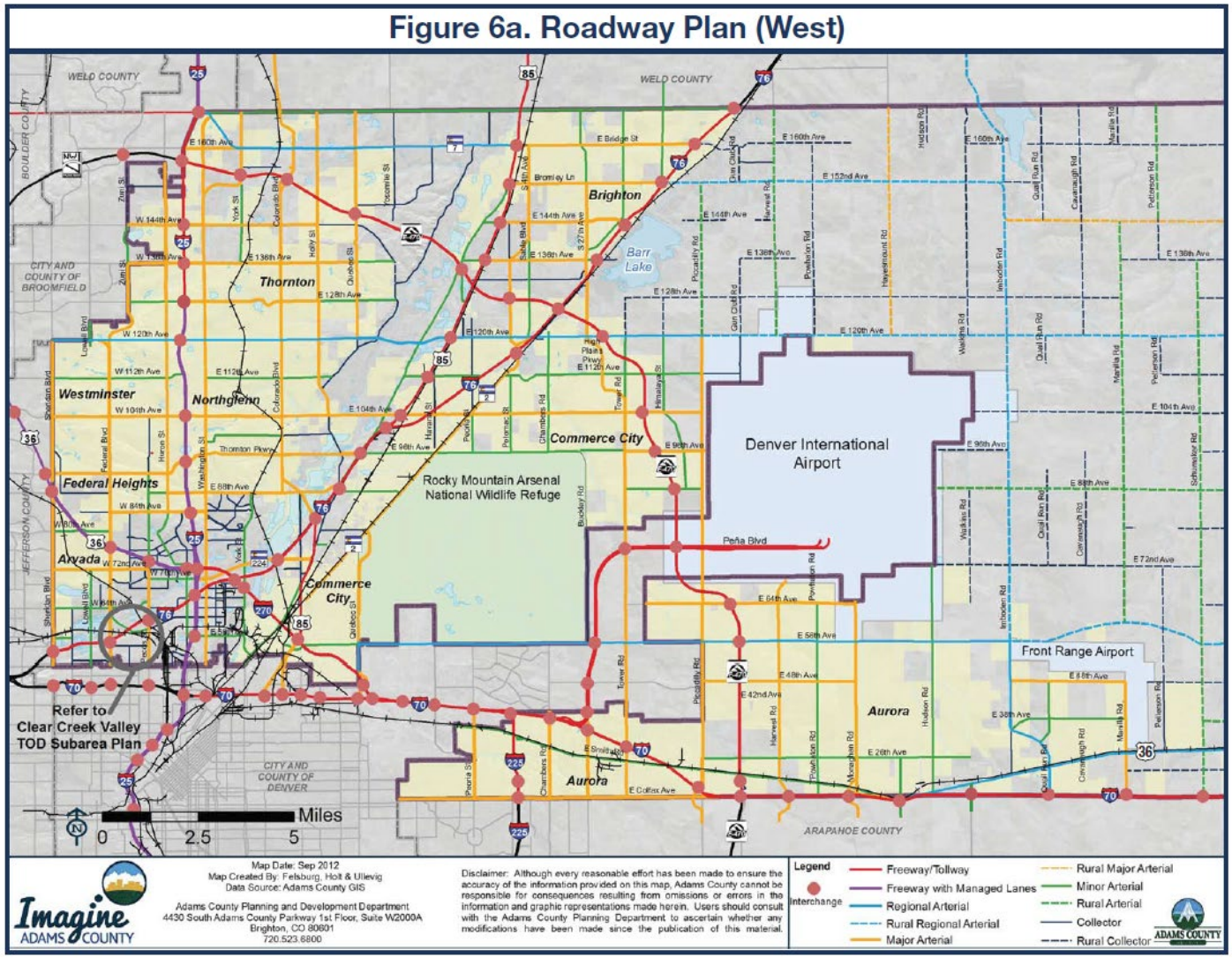
Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	HWY 224 Eastbound				HWY 224 Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	39	106	59	0	19	102	39	0	55	87	62	0	24	34	19	645	2,436	0	0	0	0
4:15 PM	0	30	115	46	0	17	91	52	0	38	90	27	1	12	31	15	565	2,397	0	0	0	0
4:30 PM	0	38	126	43	0	21	113	52	0	35	87	37	0	18	34	10	614	2,392	0	0	0	0
4:45 PM	0	26	126	52	0	19	106	49	0	24	102	38	0	8	40	22	612	2,327	0	0	0	0
5:00 PM	1	41	102	52	0	14	119	39	0	27	100	44	0	12	40	15	606	2,190	0	0	0	0
5:15 PM	0	41	117	36	0	14	78	38	0	30	90	36	2	15	47	16	560		0	0	0	0
5:30 PM	2	30	95	67	0	15	88	48	0	32	87	24	0	13	26	22	549		0	0	0	0
5:45 PM	0	35	102	47	0	10	77	41	0	13	73	25	0	8	25	19	475		1	0	0	0
Count Total	3	280	889	402	0	129	774	358	0	254	716	293	3	110	277	138	4,626		1	0	0	0
Peak Hour	0	133	473	200	0	76	412	192	0	152	366	164	1	62	139	66	2,436		0	0	0	0

Appendix B: Adams County Transportation Plan (Figure 6a)



Appendix C: Level of Service (LOS) Table

Level of Service Definitions

Level of Service (LOS)	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Appendix D: Aerial Image

Google Earth

Appendix E: Street View Images

York Street Looking South at Hwy 224

York Street Looking North at 74th Ave

York Street Looking North at 74th Ave

74th Avenue Looking West at York Street

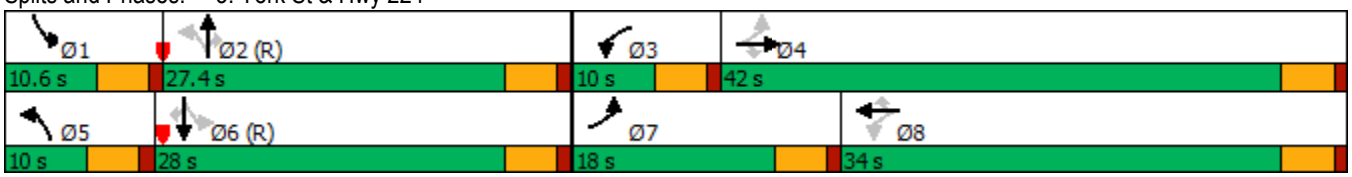
74th Avenue Looking East at York Street

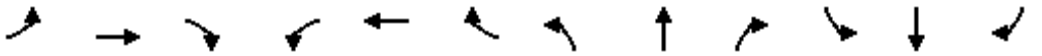
Appendix F: HCM Calculations (Synchro)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	245	495	135	617	108	86	111	66	66	460	102
Future Volume (vph)	62	245	495	135	617	108	86	111	66	66	460	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.0	42.0	10.0	34.0	34.0	10.0	27.4	27.4	10.6	28.0	28.0
Total Split (%)	20.0%	46.7%	46.7%	11.1%	37.8%	37.8%	11.1%	30.4%	30.4%	11.8%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	32.0	24.5	24.5	28.8	24.4	24.4	43.2	37.0	37.0	42.7	36.7	36.7
Actuated g/C Ratio	0.36	0.27	0.27	0.32	0.27	0.27	0.48	0.41	0.41	0.47	0.41	0.41
v/c Ratio	0.26	0.27	0.80	0.37	0.69	0.21	0.21	0.08	0.09	0.11	0.34	0.15
Control Delay	17.1	24.6	19.9	20.0	32.9	1.5	15.6	21.1	0.2	15.0	22.6	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	24.6	19.9	20.0	32.9	1.5	15.6	21.1	0.2	15.0	22.6	1.0
LOS	B	C	B	B	C	A	B	C	A	B	C	A
Approach Delay		21.1			26.9			14.1			18.3	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 21.6	Intersection LOS: C
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	245	495	135	617	108	86	111	66	66	460	102
Future Volume (veh/h)	62	245	495	135	617	108	86	111	66	66	460	102
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	263	0	145	663	0	92	119	0	71	495	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	776		363	832		516	1686		743	1673	
Arrive On Green	0.05	0.22	0.00	0.06	0.23	0.00	0.05	0.47	0.00	0.05	0.47	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	67	263	0	145	663	0	92	119	0	71	495	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.6	5.6	0.0	5.5	15.8	0.0	2.3	1.6	0.0	1.8	7.7	0.0
Cycle Q Clear(g_c), s	2.6	5.6	0.0	5.5	15.8	0.0	2.3	1.6	0.0	1.8	7.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	776		363	832		516	1686		743	1673	
V/C Ratio(X)	0.33	0.34		0.40	0.80		0.18	0.07		0.10	0.30	
Avail Cap(c_a), veh/h	392	1481		363	1165		536	1686		781	1673	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.6	29.7	0.0	25.8	32.4	0.0	11.3	12.9	0.0	11.0	14.6	0.0
Incr Delay (d2), s/veh	0.9	0.3	0.0	0.7	2.7	0.0	0.2	0.1	0.0	0.1	0.5	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	1.1	2.3	0.0	2.4	6.7	0.0	0.9	0.6	0.0	0.7	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	30.0	0.0	26.6	35.1	0.0	11.4	12.9	0.0	11.0	15.1	0.0
LnGrp LOS	C	C		C	D		B	B		B	B	
Approach Vol, veh/h		330			808			211			566	
Approach Delay, s/veh		29.5			33.6			12.3			14.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	47.2	10.0	24.1	9.0	46.9	8.6	25.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	22.9	5.5	37.5	5.5	23.5	13.5	29.5
Max Q Clear Time (g_c+I1), s	3.8	3.6	7.5	7.6	4.3	9.7	4.6	17.8
Green Ext Time (p_c), s	0.0	0.6	0.0	1.6	0.0	2.8	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

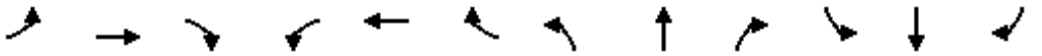
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	7	0	3	1	9	289	3	664
Future Volume (vph)	7	0	3	1	9	289	3	664
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	10.0	27.0	10.0	27.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	16.7%	45.0%	16.7%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.7		5.8	52.5	54.9	52.4	54.9
Actuated g/C Ratio		0.10		0.10	0.88	0.92	0.87	0.92
v/c Ratio		0.07		0.02	0.01	0.10	0.00	0.23
Control Delay		0.5		24.8	1.3	2.0	1.3	2.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.5		24.8	1.3	2.0	1.3	2.2
LOS		A		C	A	A	A	A
Approach Delay		0.5		24.8		2.0		2.2
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.23	
Intersection Signal Delay: 2.2	Intersection LOS: A
Intersection Capacity Utilization 30.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	9	3	1	0	9	289	6	3	664	11
Future Volume (veh/h)	7	0	9	3	1	0	9	289	6	3	664	11
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	0	10	3	1	0	10	314	7	3	722	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	0	22	136	10	0	627	2649	59	890	2635	44
Arrive On Green	0.03	0.00	0.03	0.03	0.03	0.00	0.01	0.75	0.75	0.00	0.74	0.74
Sat Flow, veh/h	681	0	852	1225	408	0	1781	3554	79	1781	3577	59
Grp Volume(v), veh/h	18	0	0	4	0	0	10	157	164	3	359	375
Grp Sat Flow(s),veh/h/ln	1533	0	0	1633	0	0	1781	1777	1856	1781	1777	1860
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	0.1	1.5	1.5	0.0	4.0	4.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	0.1	0.0	0.0	0.1	1.5	1.5	0.0	4.0	4.0
Prop In Lane	0.44		0.56	0.75		0.00	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	126	0	0	147	0	0	627	1324	1383	890	1309	1370
V/C Ratio(X)	0.14	0.00	0.00	0.03	0.00	0.00	0.02	0.12	0.12	0.00	0.27	0.27
Avail Cap(c_a), veh/h	552	0	0	570	0	0	768	1324	1383	1046	1309	1370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	0.0	28.5	0.0	0.0	2.0	2.1	2.1	2.0	2.6	2.6
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.5	0.5
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	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	0.0	28.6	0.0	0.0	2.0	2.3	2.3	2.0	3.1	3.1
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		18			4			331			737	
Approach Delay, s/veh		29.3			28.6			2.3			3.1	
Approach LOS		C			C			A			A	

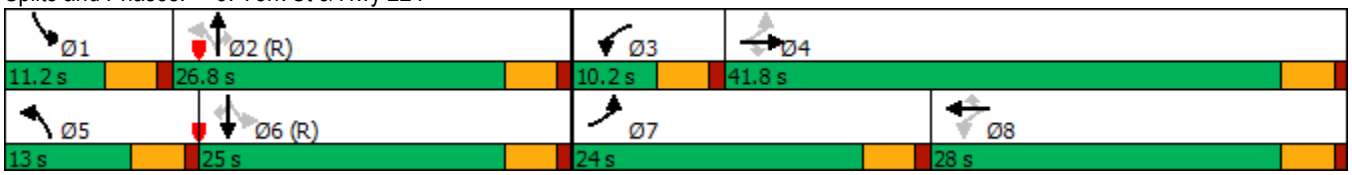
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	49.2		6.0	5.3	48.7		6.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	22.5		18.5	5.5	22.5		18.5				
Max Q Clear Time (g_c+I1), s	2.0	3.5		2.7	2.1	6.0		2.1				
Green Ext Time (p_c), s	0.0	1.7		0.0	0.0	4.2		0.0				

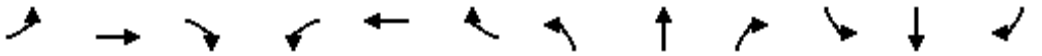
Intersection Summary			
HCM 6th Ctrl Delay		3.4	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	473	200	76	412	192	152	366	164	63	139	66
Future Volume (vph)	133	473	200	76	412	192	152	366	164	63	139	66
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	41.8	41.8	10.2	28.0	28.0	13.0	26.8	26.8	11.2	25.0	25.0
Total Split (%)	26.7%	46.4%	46.4%	11.3%	31.1%	31.1%	14.4%	29.8%	29.8%	12.4%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	32.7	24.7	24.7	23.3	17.6	17.6	47.0	38.3	38.3	40.9	33.5	33.5
Actuated g/C Ratio	0.36	0.27	0.27	0.26	0.20	0.20	0.52	0.43	0.43	0.45	0.37	0.37
v/c Ratio	0.43	0.52	0.36	0.30	0.64	0.43	0.25	0.26	0.23	0.13	0.11	0.10
Control Delay	22.3	29.3	5.1	20.6	37.1	7.2	13.6	20.0	4.4	13.5	22.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	29.3	5.1	20.6	37.1	7.2	13.6	20.0	4.4	13.5	22.0	0.3
LOS	C	C	A	C	D	A	B	C	A	B	C	A
Approach Delay		22.2			26.9			14.9			14.6	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 20.6	Intersection LOS: C
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	473	200	76	412	192	152	366	164	63	139	66
Future Volume (veh/h)	133	473	200	76	412	192	152	366	164	63	139	66
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	143	509	0	82	443	0	163	394	0	68	149	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	705		231	581		769	1791		599	1712	
Arrive On Green	0.09	0.20	0.00	0.05	0.16	0.00	0.07	0.50	0.00	0.05	0.48	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	143	509	0	82	443	0	163	394	0	68	149	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.8	12.1	0.0	3.4	10.7	0.0	4.1	5.6	0.0	1.7	2.0	0.0
Cycle Q Clear(g_c), s	5.8	12.1	0.0	3.4	10.7	0.0	4.1	5.6	0.0	1.7	2.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	277	705		231	581		769	1791		599	1712	
V/C Ratio(X)	0.52	0.72		0.36	0.76		0.21	0.22		0.11	0.09	
Avail Cap(c_a), veh/h	508	1473		250	928		817	1791		650	1712	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.8	33.8	0.0	29.5	36.0	0.0	10.1	12.5	0.0	10.5	12.6	0.0
Incr Delay (d2), s/veh	1.5	1.4	0.0	0.9	2.1	0.0	0.1	0.3	0.0	0.1	0.1	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	2.5	5.1	0.0	1.5	4.6	0.0	1.5	2.2	0.0	0.6	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	35.2	0.0	30.4	38.1	0.0	10.2	12.7	0.0	10.6	12.7	0.0
LnGrp LOS	C	D		C	D		B	B		B	B	
Approach Vol, veh/h		652			525			557			217	
Approach Delay, s/veh		33.9			36.9			12.0			12.1	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	49.9	9.2	22.3	10.6	47.9	12.4	19.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	22.3	5.7	37.3	8.5	20.5	19.5	23.5
Max Q Clear Time (g_c+I1), s	3.7	7.6	5.4	14.1	6.1	4.0	7.8	12.7
Green Ext Time (p_c), s	0.0	2.2	0.0	3.2	0.1	0.7	0.3	2.0

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

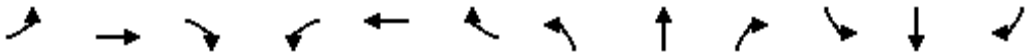
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	11	0	2	9	6	690	1	261
Future Volume (vph)	11	0	2	9	6	690	1	261
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	9.5	27.5	9.5	27.5
Total Split (%)	38.3%	38.3%	38.3%	38.3%	15.8%	45.8%	15.8%	45.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.9		6.0	50.2	51.8	50.1	51.7
Actuated g/C Ratio		0.10		0.10	0.84	0.86	0.84	0.86
v/c Ratio		0.10		0.07	0.01	0.25	0.00	0.09
Control Delay		0.8		25.0	2.0	2.9	2.0	2.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.8		25.0	2.0	2.9	2.0	2.7
LOS		A		C	A	A	A	A
Approach Delay		0.8		25.0		2.9		2.7
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.25	
Intersection Signal Delay: 3.0	Intersection LOS: A
Intersection Capacity Utilization 30.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	15	2	9	0	6	690	2	1	261	3
Future Volume (veh/h)	11	0	15	2	9	0	6	690	2	1	261	3
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	16	2	10	0	7	750	2	1	284	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	0	36	81	62	0	903	2665	7	595	2613	28
Arrive On Green	0.04	0.00	0.04	0.04	0.04	0.00	0.01	0.73	0.73	0.00	0.73	0.73
Sat Flow, veh/h	666	0	887	276	1531	0	1781	3636	10	1781	3602	38
Grp Volume(v), veh/h	28	0	0	12	0	0	7	367	385	1	140	147
Grp Sat Flow(s),veh/h/ln	1553	0	0	1807	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	4.2	4.2	0.0	1.4	1.4
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.4	0.0	0.0	0.1	4.2	4.2	0.0	1.4	1.4
Prop In Lane	0.43		0.57	0.17		0.00	1.00		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	149	0	0	143	0	0	903	1303	1370	595	1289	1352
V/C Ratio(X)	0.19	0.00	0.00	0.08	0.00	0.00	0.01	0.28	0.28	0.00	0.11	0.11
Avail Cap(c_a), veh/h	551	0	0	617	0	0	1035	1303	1370	740	1289	1352
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	0.0	0.0	27.8	0.0	0.0	2.1	2.7	2.7	2.4	2.5	2.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.5	0.5	0.0	0.2	0.2
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	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.9	1.0	0.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	28.0	0.0	0.0	2.1	3.2	3.2	2.4	2.6	2.6
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		28			12			759			288	
Approach Delay, s/veh		28.7			28.0			3.2			2.6	
Approach LOS		C			C			A			A	

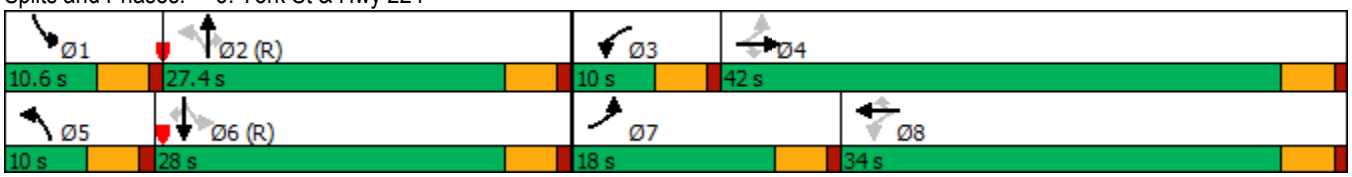
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	48.5		6.9	5.1	48.0		6.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.0		18.5	5.0	23.0		18.5				
Max Q Clear Time (g_c+I1), s	2.0	6.2		3.0	2.1	3.4		2.4				
Green Ext Time (p_c), s	0.0	4.4		0.1	0.0	1.5		0.0				

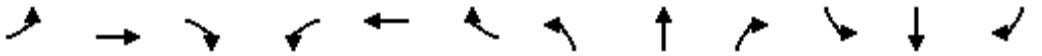
Intersection Summary			
HCM 6th Ctrl Delay		4.0	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	260	525	143	655	115	91	118	70	70	488	108
Future Volume (vph)	65	260	525	143	655	115	91	118	70	70	488	108
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.0	42.0	10.0	34.0	34.0	10.0	27.4	27.4	10.6	28.0	28.0
Total Split (%)	20.0%	46.7%	46.7%	11.1%	37.8%	37.8%	11.1%	30.4%	30.4%	11.8%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	33.2	25.7	25.7	30.1	25.7	25.7	42.0	35.9	35.9	41.4	35.7	35.7
Actuated g/C Ratio	0.37	0.29	0.29	0.33	0.29	0.29	0.47	0.40	0.40	0.46	0.40	0.40
v/c Ratio	0.28	0.28	0.84	0.39	0.70	0.21	0.24	0.09	0.10	0.12	0.37	0.16
Control Delay	16.6	23.8	23.9	19.5	32.1	1.8	16.9	21.7	0.3	15.8	23.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	23.8	23.9	19.5	32.1	1.8	16.9	21.7	0.3	15.8	23.6	1.4
LOS	B	C	C	B	C	A	B	C	A	B	C	A
Approach Delay		23.3			26.3			14.8			19.2	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 22.4	Intersection LOS: C
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	260	525	143	655	115	91	118	70	70	488	108
Future Volume (veh/h)	65	260	525	143	655	115	91	118	70	70	488	108
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	280	0	154	704	0	98	127	0	75	525	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	819		370	873		490	1640		722	1627	
Arrive On Green	0.05	0.23	0.00	0.06	0.25	0.00	0.05	0.46	0.00	0.05	0.46	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	70	280	0	154	704	0	98	127	0	75	525	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.7	5.9	0.0	5.5	16.8	0.0	2.6	1.8	0.0	2.0	8.5	0.0
Cycle Q Clear(g_c), s	2.7	5.9	0.0	5.5	16.8	0.0	2.6	1.8	0.0	2.0	8.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	819		370	873		490	1640		722	1627	
V/C Ratio(X)	0.34	0.34		0.42	0.81		0.20	0.08		0.10	0.32	
Avail Cap(c_a), veh/h	391	1481		370	1165		508	1640		759	1627	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.0	28.9	0.0	25.4	31.9	0.0	11.9	13.5	0.0	11.5	15.5	0.0
Incr Delay (d2), s/veh	1.0	0.2	0.0	0.7	3.2	0.0	0.2	0.1	0.0	0.1	0.5	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	1.1	2.4	0.0	2.5	7.2	0.0	1.0	0.7	0.0	0.8	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	29.2	0.0	26.1	35.1	0.0	12.1	13.6	0.0	11.6	16.1	0.0
LnGrp LOS	C	C		C	D		B	B		B	B	
Approach Vol, veh/h		350			858			225			600	
Approach Delay, s/veh		28.7			33.5			13.0			15.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	46.0	10.0	25.2	9.1	45.7	8.6	26.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	22.9	5.5	37.5	5.5	23.5	13.5	29.5
Max Q Clear Time (g_c+I1), s	4.0	3.8	7.5	7.9	4.6	10.5	4.7	18.8
Green Ext Time (p_c), s	0.0	0.6	0.0	1.7	0.0	2.9	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

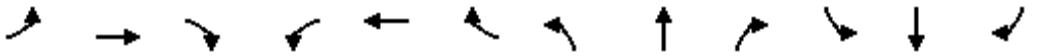
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	0	3	1	9	305	3	704
Future Volume (vph)	8	0	3	1	9	305	3	704
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	10.0	27.0	10.0	27.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	16.7%	45.0%	16.7%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.7		5.8	52.5	54.9	52.4	54.9
Actuated g/C Ratio		0.10		0.10	0.88	0.92	0.87	0.92
v/c Ratio		0.08		0.02	0.01	0.10	0.00	0.24
Control Delay		0.6		24.8	1.3	2.0	1.3	2.3
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.6		24.8	1.3	2.0	1.3	2.3
LOS		A		C	A	A	A	A
Approach Delay		0.6		24.8		2.0		2.3
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.24	
Intersection Signal Delay: 2.2	Intersection LOS: A
Intersection Capacity Utilization 31.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	10	3	1	0	9	305	6	3	704	12
Future Volume (veh/h)	8	0	10	3	1	0	9	305	6	3	704	12
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	0	11	3	1	0	10	332	7	3	765	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	0	23	139	11	0	602	2646	56	874	2627	45
Arrive On Green	0.03	0.00	0.03	0.03	0.03	0.00	0.01	0.74	0.74	0.00	0.73	0.73
Sat Flow, veh/h	688	0	841	1228	409	0	1781	3559	75	1781	3576	61
Grp Volume(v), veh/h	20	0	0	4	0	0	10	166	173	3	380	398
Grp Sat Flow(s),veh/h/ln	1530	0	0	1638	0	0	1781	1777	1857	1781	1777	1859
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	1.6	1.6	0.0	4.3	4.3
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.1	0.0	0.0	0.1	1.6	1.6	0.0	4.3	4.3
Prop In Lane	0.45		0.55	0.75		0.00	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	129	0	0	150	0	0	602	1321	1381	874	1306	1366
V/C Ratio(X)	0.15	0.00	0.00	0.03	0.00	0.00	0.02	0.13	0.13	0.00	0.29	0.29
Avail Cap(c_a), veh/h	552	0	0	570	0	0	743	1321	1381	1030	1306	1366
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	0.0	28.4	0.0	0.0	2.1	2.2	2.2	2.1	2.7	2.7
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.6	0.5
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	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	0.0	28.5	0.0	0.0	2.1	2.4	2.4	2.1	3.3	3.2
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		20			4			349			781	
Approach Delay, s/veh		29.3			28.5			2.4			3.2	
Approach LOS		C			C			A			A	

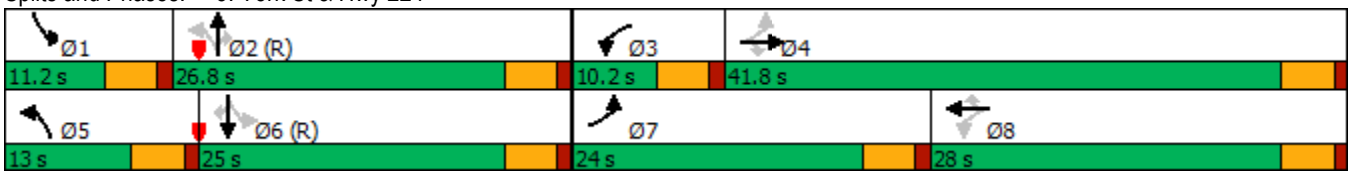
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	49.1		6.1	5.3	48.6		6.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	22.5		18.5	5.5	22.5		18.5				
Max Q Clear Time (g_c+I1), s	2.0	3.6		2.8	2.1	6.3		2.1				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	4.5		0.0				

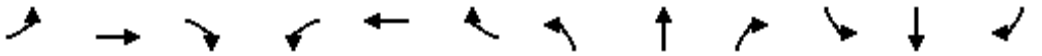
Intersection Summary			
HCM 6th Ctrl Delay		3.5	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	501	212	81	437	204	161	388	174	67	148	70
Future Volume (vph)	141	501	212	81	437	204	161	388	174	67	148	70
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	41.8	41.8	10.2	28.0	28.0	13.0	26.8	26.8	11.2	25.0	25.0
Total Split (%)	26.7%	46.4%	46.4%	11.3%	31.1%	31.1%	14.4%	29.8%	29.8%	12.4%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	33.7	25.7	25.7	24.0	18.3	18.3	45.9	37.2	37.2	40.0	32.6	32.6
Actuated g/C Ratio	0.37	0.29	0.29	0.27	0.20	0.20	0.51	0.41	0.41	0.44	0.36	0.36
v/c Ratio	0.45	0.53	0.37	0.32	0.65	0.44	0.27	0.29	0.25	0.15	0.12	0.11
Control Delay	22.1	28.8	4.9	20.4	37.0	7.0	14.4	21.0	4.9	14.1	22.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	28.8	4.9	20.4	37.0	7.0	14.4	21.0	4.9	14.1	22.5	0.3
LOS	C	C	A	C	D	A	B	C	A	B	C	A
Approach Delay		21.8			26.7			15.7			15.1	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 49.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	501	212	81	437	204	161	388	174	67	148	70
Future Volume (veh/h)	141	501	212	81	437	204	161	388	174	67	148	70
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	539	0	87	470	0	173	417	0	72	159	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	737		235	609		749	1745		573	1654	
Arrive On Green	0.09	0.21	0.00	0.05	0.17	0.00	0.07	0.49	0.00	0.05	0.47	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	152	539	0	87	470	0	173	417	0	72	159	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.1	12.8	0.0	3.6	11.4	0.0	4.5	6.1	0.0	1.9	2.3	0.0
Cycle Q Clear(g_c), s	6.1	12.8	0.0	3.6	11.4	0.0	4.5	6.1	0.0	1.9	2.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	737		235	609		749	1745		573	1654	
V/C Ratio(X)	0.54	0.73		0.37	0.77		0.23	0.24		0.13	0.10	
Avail Cap(c_a), veh/h	507	1473		250	928		789	1745		623	1654	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.1	33.3	0.0	28.9	35.6	0.0	10.7	13.2	0.0	11.3	13.5	0.0
Incr Delay (d2), s/veh	1.6	1.4	0.0	1.0	2.2	0.0	0.2	0.3	0.0	0.1	0.1	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	2.6	5.4	0.0	1.5	4.9	0.0	1.7	2.4	0.0	0.7	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	34.7	0.0	29.9	37.8	0.0	10.8	13.5	0.0	11.4	13.6	0.0
LnGrp LOS	C	C		C	D		B	B		B	B	
Approach Vol, veh/h		691			557			590			231	
Approach Delay, s/veh		33.4			36.6			12.7			12.9	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	48.7	9.4	23.2	11.0	46.4	12.7	19.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	22.3	5.7	37.3	8.5	20.5	19.5	23.5
Max Q Clear Time (g_c+I1), s	3.9	8.1	5.6	14.8	6.5	4.3	8.1	13.4
Green Ext Time (p_c), s	0.0	2.3	0.0	3.4	0.1	0.8	0.3	2.0

Intersection Summary	
HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

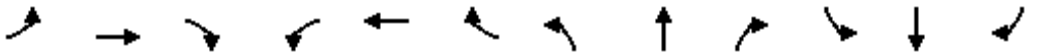
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	2	9	6	730	1	276
Future Volume (vph)	12	0	2	9	6	730	1	276
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	9.5	27.5	9.5	27.5
Total Split (%)	38.3%	38.3%	38.3%	38.3%	15.8%	45.8%	15.8%	45.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.9		6.0	50.2	51.8	50.1	51.7
Actuated g/C Ratio		0.10		0.10	0.84	0.86	0.84	0.86
v/c Ratio		0.11		0.07	0.01	0.26	0.00	0.10
Control Delay		0.9		25.0	2.0	3.0	2.0	2.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.9		25.0	2.0	3.0	2.0	2.7
LOS		A		C	A	A	A	A
Approach Delay		0.9		25.0		3.0		2.7
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.26	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 31.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	2	9	0	6	730	2	1	276	3
Future Volume (veh/h)	12	0	16	2	9	0	6	730	2	1	276	3
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	2	10	0	7	793	2	1	300	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	0	37	81	65	0	888	2661	7	571	2609	26
Arrive On Green	0.04	0.00	0.04	0.04	0.04	0.00	0.01	0.73	0.73	0.00	0.72	0.72
Sat Flow, veh/h	672	0	878	267	1541	0	1781	3636	9	1781	3605	36
Grp Volume(v), veh/h	30	0	0	12	0	0	7	387	408	1	148	155
Grp Sat Flow(s),veh/h/ln	1550	0	0	1808	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.0	0.1	4.5	4.5	0.0	1.5	1.5
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.4	0.0	0.0	0.1	4.5	4.5	0.0	1.5	1.5
Prop In Lane	0.43		0.57	0.17		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	151	0	0	146	0	0	888	1300	1367	571	1286	1349
V/C Ratio(X)	0.20	0.00	0.00	0.08	0.00	0.00	0.01	0.30	0.30	0.00	0.11	0.12
Avail Cap(c_a), veh/h	551	0	0	617	0	0	1021	1300	1367	717	1286	1349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	0.0	0.0	27.7	0.0	0.0	2.2	2.8	2.8	2.4	2.5	2.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.6	0.6	0.0	0.2	0.2
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	0.4	0.0	0.0	0.2	0.0	0.0	0.0	1.0	1.0	0.0	0.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	28.0	0.0	0.0	2.2	3.3	3.3	2.4	2.7	2.7
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			12			802			304	
Approach Delay, s/veh		28.7			28.0			3.3			2.7	
Approach LOS		C			C			A			A	

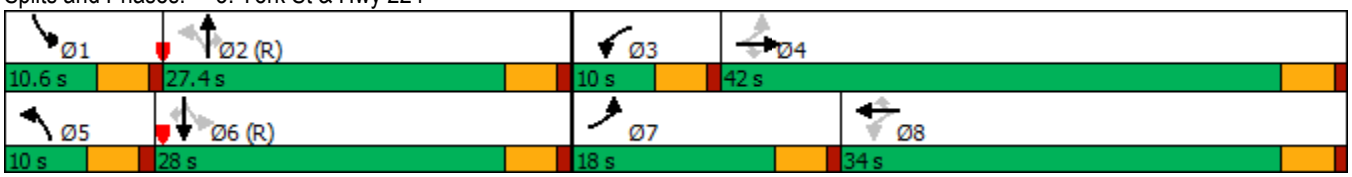
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	48.4		7.0	5.1	47.9		7.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.0		18.5	5.0	23.0		18.5				
Max Q Clear Time (g_c+I1), s	2.0	6.5		3.1	2.1	3.5		2.4				
Green Ext Time (p_c), s	0.0	4.6		0.1	0.0	1.6		0.0				

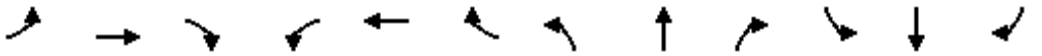
Intersection Summary			
HCM 6th Ctrl Delay		4.1	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	260	525	143	845	120	91	195	70	110	563	154
Future Volume (vph)	220	260	525	143	845	120	91	195	70	110	563	154
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.0	42.0	10.0	34.0	34.0	10.0	27.4	27.4	10.6	28.0	28.0
Total Split (%)	20.0%	46.7%	46.7%	11.1%	37.8%	37.8%	11.1%	30.4%	30.4%	11.8%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	45.1	35.1	35.1	33.4	27.9	27.9	30.8	24.8	24.8	32.7	27.5	27.5
Actuated g/C Ratio	0.50	0.39	0.39	0.37	0.31	0.31	0.34	0.28	0.28	0.36	0.31	0.31
v/c Ratio	0.71	0.20	0.71	0.35	0.83	0.21	0.36	0.22	0.13	0.27	0.56	0.27
Control Delay	29.3	18.0	15.7	15.5	36.2	2.0	23.0	26.7	0.5	20.7	30.2	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	18.0	15.7	15.5	36.2	2.0	23.0	26.7	0.5	20.7	30.2	4.7
LOS	C	B	B	B	D	A	C	C	A	C	C	A
Approach Delay		19.3			29.8			20.6			24.2	
Approach LOS		B			C			C			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	260	525	143	845	120	91	195	70	110	563	154
Future Volume (veh/h)	220	260	525	143	845	120	91	195	70	110	563	154
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	280	0	154	909	0	98	210	0	118	605	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	1231		508	1050		341	1175		529	1206	
Arrive On Green	0.11	0.35	0.00	0.06	0.30	0.00	0.05	0.33	0.00	0.06	0.34	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	237	280	0	154	909	0	98	210	0	118	605	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.9	5.0	0.0	5.5	21.8	0.0	3.2	3.8	0.0	3.9	12.2	0.0
Cycle Q Clear(g_c), s	7.9	5.0	0.0	5.5	21.8	0.0	3.2	3.8	0.0	3.9	12.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	1231		508	1050		341	1175		529	1206	
V/C Ratio(X)	0.76	0.23		0.30	0.87		0.29	0.18		0.22	0.50	
Avail Cap(c_a), veh/h	380	1481		508	1165		355	1175		539	1206	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.1	20.9	0.0	20.4	30.0	0.0	18.9	21.4	0.0	17.9	23.7	0.0
Incr Delay (d2), s/veh	7.0	0.1	0.0	0.3	6.5	0.0	0.5	0.3	0.0	0.2	1.5	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	3.6	2.0	0.0	2.2	9.7	0.0	1.3	1.6	0.0	1.6	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	21.0	0.0	20.7	36.6	0.0	19.4	21.8	0.0	18.1	25.2	0.0
LnGrp LOS	C	C		C	D		B	C		B	C	
Approach Vol, veh/h		517			1063			308			723	
Approach Delay, s/veh		24.2			34.3			21.0			24.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	34.3	10.0	35.7	9.3	35.1	14.6	31.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	22.9	5.5	37.5	5.5	23.5	13.5	29.5
Max Q Clear Time (g_c+I1), s	5.9	5.8	7.5	7.0	5.2	14.2	9.9	23.8
Green Ext Time (p_c), s	0.0	1.1	0.0	1.7	0.0	2.8	0.2	2.8

Intersection Summary	
HCM 6th Ctrl Delay	27.9
HCM 6th LOS	C

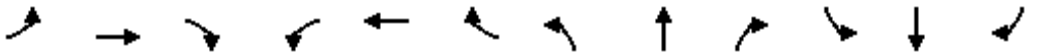
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	0	164	1	9	319	23	714
Future Volume (vph)	8	0	164	1	9	319	23	714
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	10.0	27.0	10.0	27.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	16.7%	45.0%	16.7%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.2		13.2	36.9	35.8	36.9	35.8
Actuated g/C Ratio		0.22		0.22	0.62	0.60	0.62	0.60
v/c Ratio		0.05		0.63	0.02	0.17	0.04	0.37
Control Delay		0.2		29.5	5.9	7.5	5.9	8.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.2		29.5	5.9	7.5	5.9	8.7
LOS		A		C	A	A	A	A
Approach Delay		0.2		29.5		7.4		8.6
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 43.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	10	164	1	6	9	319	6	23	714	12
Future Volume (veh/h)	8	0	10	164	1	6	9	319	6	23	714	12
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	0	11	178	1	7	10	347	7	25	776	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	30	154	340	1	9	479	2082	42	725	2146	36
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.01	0.58	0.58	0.03	0.60	0.60
Sat Flow, veh/h	593	182	947	1373	8	54	1781	3563	72	1781	3577	60
Grp Volume(v), veh/h	20	0	0	186	0	0	10	173	181	25	385	404
Grp Sat Flow(s),veh/h/ln	1722	0	0	1434	0	0	1781	1777	1857	1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	6.8	0.0	0.0	0.1	2.7	2.7	0.3	6.6	6.7
Cycle Q Clear(g_c), s	0.6	0.0	0.0	7.4	0.0	0.0	0.1	2.7	2.7	0.3	6.6	6.7
Prop In Lane	0.45		0.55	0.96		0.04	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	366	0	0	350	0	0	479	1038	1085	725	1066	1116
V/C Ratio(X)	0.05	0.00	0.00	0.53	0.00	0.00	0.02	0.17	0.17	0.03	0.36	0.36
Avail Cap(c_a), veh/h	585	0	0	556	0	0	619	1038	1085	837	1066	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	0.0	24.1	0.0	0.0	5.2	5.7	5.7	4.6	6.1	6.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	0.0	0.3	0.3	0.0	1.0	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(50%),veh/ln	0.2	0.0	0.0	2.5	0.0	0.0	0.0	0.9	0.9	0.1	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	0.0	25.4	0.0	0.0	5.2	6.1	6.1	4.6	7.1	7.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		20			186			364			814	
Approach Delay, s/veh		21.4			25.4			6.1			7.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	39.6		14.2	5.3	40.5		14.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	22.5		18.5	5.5	22.5		18.5				
Max Q Clear Time (g_c+I1), s	2.3	4.7		2.6	2.1	8.7		9.4				
Green Ext Time (p_c), s	0.0	1.9		0.0	0.0	4.2		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	327	77	0	827
Future Vol, veh/h	0	7	327	77	0	827
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	355	84	0	899

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	220	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	784	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	784	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	784	-
HCM Lane V/C Ratio	-	-	0.01	-
HCM Control Delay (s)	-	-	9.6	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	375	160	0	827
Future Vol, veh/h	0	7	375	160	0	827
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	408	174	0	899

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	291	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	706	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	706	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	706	-
HCM Lane V/C Ratio	-	-	0.011	-
HCM Control Delay (s)	-	-	10.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	9	20	0	10	161	0
Future Vol, veh/h	9	20	0	10	161	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	22	0	11	175	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	32	0	32	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1580	-	982	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	1012	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1580	-	982	1056
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	1012	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1580	-
HCM Lane V/C Ratio	0.178	-	-	-	-
HCM Control Delay (s)	9.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	440	913	130	0	195
Future Vol, veh/h	0	440	913	130	0	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	478	992	141	0	212

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	992
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	298
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	298
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

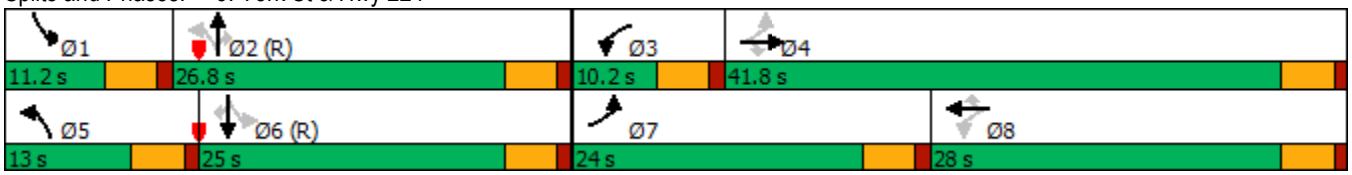
Approach	EB	WB	SB
HCM Control Delay, s	0	0	42
HCM LOS			E

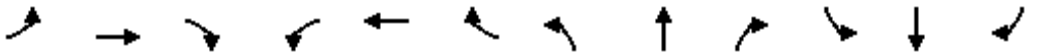
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	298
HCM Lane V/C Ratio	-	-	-	0.711
HCM Control Delay (s)	-	-	-	42
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	501	212	81	631	206	161	464	174	108	221	113
Future Volume (vph)	292	501	212	81	631	206	161	464	174	108	221	113
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	41.8	41.8	10.2	28.0	28.0	13.0	26.8	26.8	11.2	25.0	25.0
Total Split (%)	26.7%	46.4%	46.4%	11.3%	31.1%	31.1%	14.4%	29.8%	29.8%	12.4%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	44.2	36.1	36.1	27.9	22.2	22.2	34.6	27.6	27.6	30.7	23.8	23.8
Actuated g/C Ratio	0.49	0.40	0.40	0.31	0.25	0.25	0.38	0.31	0.31	0.34	0.26	0.26
v/c Ratio	0.73	0.38	0.30	0.27	0.78	0.40	0.38	0.46	0.30	0.35	0.25	0.22
Control Delay	27.7	19.9	3.5	15.4	38.4	6.2	21.8	28.9	5.8	22.0	28.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	19.9	3.5	15.4	38.4	6.2	21.8	28.9	5.8	22.0	28.3	2.3
LOS	C	B	A	B	D	A	C	C	A	C	C	A
Approach Delay		18.7			29.1			22.4			20.1	
Approach LOS		B			C			C			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 22.9	Intersection LOS: C
Intersection Capacity Utilization 67.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	292	501	212	81	631	206	161	464	174	108	221	113
Future Volume (veh/h)	292	501	212	81	631	206	161	464	174	108	221	113
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	314	539	0	87	678	0	173	499	0	116	238	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	390	1168		354	803		558	1272		416	1190	
Arrive On Green	0.16	0.33	0.00	0.05	0.23	0.00	0.08	0.36	0.00	0.06	0.33	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	314	539	0	87	678	0	173	499	0	116	238	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.5	10.8	0.0	3.3	16.4	0.0	5.6	9.4	0.0	3.8	4.3	0.0
Cycle Q Clear(g_c), s	11.5	10.8	0.0	3.3	16.4	0.0	5.6	9.4	0.0	3.8	4.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	390	1168		354	803		558	1272		416	1190	
V/C Ratio(X)	0.81	0.46		0.25	0.84		0.31	0.39		0.28	0.20	
Avail Cap(c_a), veh/h	499	1473		373	928		576	1272		440	1190	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.0	23.9	0.0	24.6	33.3	0.0	17.0	21.6	0.0	17.9	21.3	0.0
Incr Delay (d2), s/veh	7.4	0.3	0.0	0.4	6.4	0.0	0.3	0.9	0.0	0.4	0.4	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	5.2	4.3	0.0	1.4	7.4	0.0	2.3	4.0	0.0	1.6	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	24.2	0.0	25.0	39.8	0.0	17.3	22.5	0.0	18.3	21.7	0.0
LnGrp LOS	C	C		C	D		B	C		B	C	
Approach Vol, veh/h		853			765			672			354	
Approach Delay, s/veh		26.1			38.1			21.2			20.6	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	36.7	9.2	34.1	12.1	34.6	18.5	24.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	22.3	5.7	37.3	8.5	20.5	19.5	23.5
Max Q Clear Time (g_c+I1), s	5.8	11.4	5.3	12.8	7.6	6.3	13.5	18.4
Green Ext Time (p_c), s	0.0	2.5	0.0	3.5	0.0	1.2	0.5	1.9

Intersection Summary	
HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

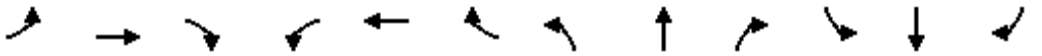
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	159	9	6	742	20	286
Future Volume (vph)	12	0	159	9	6	742	20	286
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	9.5	27.5	9.5	27.5
Total Split (%)	38.3%	38.3%	38.3%	38.3%	15.8%	45.8%	15.8%	45.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.4		13.4	36.7	35.7	36.7	35.7
Actuated g/C Ratio		0.22		0.22	0.61	0.60	0.61	0.60
v/c Ratio		0.07		0.63	0.01	0.38	0.05	0.15
Control Delay		0.4		29.6	5.8	8.7	6.0	7.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.4		29.6	5.8	8.7	6.0	7.4
LOS		A		C	A	A	A	A
Approach Delay		0.4		29.6		8.7		7.3
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 44.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	159	9	6	6	742	2	20	286	3
Future Volume (veh/h)	12	0	16	159	9	6	6	742	2	20	286	3
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	173	10	7	7	807	2	22	311	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	178	30	159	332	13	9	738	2129	5	480	2170	21
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.01	0.59	0.59	0.03	0.60	0.60
Sat Flow, veh/h	559	184	971	1325	77	54	1781	3637	9	1781	3606	35
Grp Volume(v), veh/h	30	0	0	190	0	0	7	394	415	22	153	161
Grp Sat Flow(s),veh/h/ln	1713	0	0	1455	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.0	0.0	0.0	6.6	0.0	0.0	0.1	7.1	7.1	0.3	2.3	2.3
Cycle Q Clear(g_c), s	0.9	0.0	0.0	7.5	0.0	0.0	0.1	7.1	7.1	0.3	2.3	2.3
Prop In Lane	0.43		0.57	0.91		0.04	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	367	0	0	353	0	0	738	1040	1094	480	1069	1122
V/C Ratio(X)	0.08	0.00	0.00	0.54	0.00	0.00	0.01	0.38	0.38	0.05	0.14	0.14
Avail Cap(c_a), veh/h	583	0	0	558	0	0	870	1040	1094	583	1069	1122
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	0.0	24.0	0.0	0.0	5.0	6.6	6.6	5.0	5.2	5.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	0.0	1.1	1.0	0.0	0.3	0.3
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	0.3	0.0	0.0	2.5	0.0	0.0	0.0	2.3	2.4	0.1	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	0.0	25.3	0.0	0.0	5.0	7.7	7.6	5.1	5.5	5.5
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			190			816			336	
Approach Delay, s/veh		21.4			25.3			7.6			5.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	39.6		14.3	5.1	40.6		14.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.0		18.5	5.0	23.0		18.5				
Max Q Clear Time (g_c+I1), s	2.3	9.1		2.9	2.1	4.3		9.5				
Green Ext Time (p_c), s	0.0	4.4		0.1	0.0	1.7		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		9.8	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	744	75	0	442
Future Vol, veh/h	0	6	744	75	0	442
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	809	82	0	480

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	446	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	560	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	560	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	560	-
HCM Lane V/C Ratio	-	-	0.012	-
HCM Control Delay (s)	-	-	11.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	808	154	0	442
Future Vol, veh/h	0	6	808	154	0	442
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	878	167	0	480

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	523	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	499	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	499	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	499	-
HCM Lane V/C Ratio	-	-	0.013	-
HCM Control Delay (s)	-	-	12.3	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3	19	0	17	157	0
Future Vol, veh/h	3	19	0	17	157	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	21	0	18	171	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	24	0	32	14
Stage 1	-	-	-	-	14	-
Stage 2	-	-	-	-	18	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1591	-	982	1066
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	1005	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1591	-	982	1066
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	1005	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1591	-
HCM Lane V/C Ratio	0.174	-	-	-	-
HCM Control Delay (s)	9.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	783	722	130	0	196
Future Vol, veh/h	0	783	722	130	0	196
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	851	785	141	0	213

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	785
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	393
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	393
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

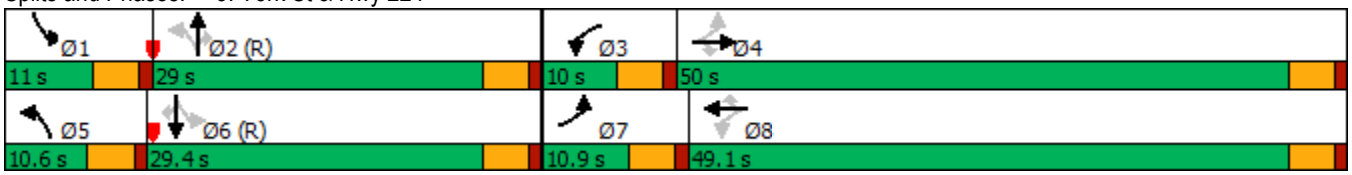
Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.5
HCM LOS			C

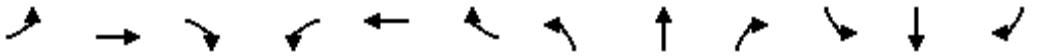
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	393
HCM Lane V/C Ratio	-	-	-	0.542
HCM Control Delay (s)	-	-	-	24.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	3.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	435	879	240	1095	192	153	197	117	117	817	181
Future Volume (vph)	110	435	879	240	1095	192	153	197	117	117	817	181
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	10.9	50.0	50.0	10.0	49.1	49.1	10.6	29.0	29.0	11.0	29.4	29.4
Total Split (%)	10.9%	50.0%	50.0%	10.0%	49.1%	49.1%	10.6%	29.0%	29.0%	11.0%	29.4%	29.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	51.9	45.5	45.5	50.1	44.6	44.6	30.6	24.5	24.5	31.4	24.9	24.9
Actuated g/C Ratio	0.52	0.46	0.46	0.50	0.45	0.45	0.31	0.24	0.24	0.31	0.25	0.25
v/c Ratio	0.56	0.28	1.09	0.53	0.73	0.26	0.88	0.24	0.26	0.31	0.98	0.40
Control Delay	21.9	17.7	78.8	18.1	26.1	6.0	70.5	31.2	7.1	25.2	63.2	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	17.7	78.8	18.1	26.1	6.0	70.5	31.2	7.1	25.2	63.2	15.8
LOS	C	B	E	B	C	A	E	C	A	C	E	B
Approach Delay		55.7			22.3			38.1			51.5	
Approach LOS		E			C			D			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 41.6	Intersection LOS: D
Intersection Capacity Utilization 101.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	435	879	240	1095	192	153	197	117	117	817	181
Future Volume (veh/h)	110	435	879	240	1095	192	153	197	117	117	817	181
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	458	0	253	1153	0	161	207	0	123	860	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	1358		442	1352		248	1134		511	1143	
Arrive On Green	0.06	0.38	0.00	0.05	0.38	0.00	0.06	0.32	0.00	0.06	0.32	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	116	458	0	253	1153	0	161	207	0	123	860	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.9	9.1	0.0	5.5	29.8	0.0	6.1	4.2	0.0	4.6	21.7	0.0
Cycle Q Clear(g_c), s	3.9	9.1	0.0	5.5	29.8	0.0	6.1	4.2	0.0	4.6	21.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	214	1358		442	1352		248	1134		511	1143	
V/C Ratio(X)	0.54	0.34		0.57	0.85		0.65	0.18		0.24	0.75	
Avail Cap(c_a), veh/h	226	1617		442	1585		248	1134		513	1143	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.7	21.9	0.0	22.5	28.4	0.0	24.3	24.6	0.0	20.6	30.3	0.0
Incr Delay (d2), s/veh	2.3	0.1	0.0	1.8	4.2	0.0	5.8	0.4	0.0	0.2	4.6	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	1.7	3.7	0.0	2.2	12.6	0.0	2.9	1.8	0.0	1.9	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	22.0	0.0	24.3	32.6	0.0	30.1	25.0	0.0	20.8	34.9	0.0
LnGrp LOS	C	C		C	C		C	C		C	C	
Approach Vol, veh/h		574			1406			368			983	
Approach Delay, s/veh		22.7			31.1			27.2			33.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	36.4	10.0	42.7	10.6	36.7	10.2	42.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	24.5	5.5	45.5	6.1	24.9	6.4	44.6
Max Q Clear Time (g_c+I1), s	6.6	6.2	7.5	11.1	8.1	23.7	5.9	31.8
Green Ext Time (p_c), s	0.0	1.1	0.0	3.1	0.0	0.7	0.0	6.3

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

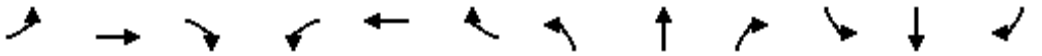
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	3	1	15	460	5	990
Future Volume (vph)	12	0	3	1	15	460	5	990
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	9.6	27.8	9.6	27.8
Total Split (%)	37.7%	37.7%	37.7%	37.7%	16.0%	46.3%	16.0%	46.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.7		5.8	50.4	51.9	50.3	51.9
Actuated g/C Ratio		0.10		0.10	0.84	0.86	0.84	0.86
v/c Ratio		0.11		0.02	0.03	0.17	0.01	0.36
Control Delay		0.9		24.8	1.9	2.6	1.8	3.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.9		24.8	1.9	2.6	1.8	3.4
LOS		A		C	A	A	A	A
Approach Delay		0.9		24.8		2.6		3.3
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.36	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	3	1	0	15	460	6	5	990	19
Future Volume (veh/h)	12	0	16	3	1	0	15	460	6	5	990	19
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	3	1	0	16	500	7	5	1076	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	0	31	150	15	0	462	2627	37	747	2565	50
Arrive On Green	0.04	0.00	0.04	0.04	0.04	0.00	0.02	0.73	0.73	0.01	0.72	0.72
Sat Flow, veh/h	661	0	865	1242	414	0	1781	3588	50	1781	3565	70
Grp Volume(v), veh/h	30	0	0	4	0	0	16	247	260	5	536	561
Grp Sat Flow(s),veh/h/ln	1526	0	0	1656	0	0	1781	1777	1861	1781	1777	1858
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	0.1	2.6	2.6	0.0	7.3	7.3
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.1	0.0	0.0	0.1	2.6	2.6	0.0	7.3	7.3
Prop In Lane	0.43		0.57	0.75		0.00	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	141	0	0	165	0	0	462	1301	1363	747	1278	1337
V/C Ratio(X)	0.21	0.00	0.00	0.02	0.00	0.00	0.03	0.19	0.19	0.01	0.42	0.42
Avail Cap(c_a), veh/h	541	0	0	561	0	0	579	1301	1363	886	1278	1337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	0.0	27.9	0.0	0.0	2.5	2.5	2.5	2.3	3.4	3.4
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	1.0	1.0
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	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.6	0.6	0.0	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	0.0	28.0	0.0	0.0	2.5	2.8	2.8	2.3	4.4	4.4
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			4			523			1102	
Approach Delay, s/veh		29.2			28.0			2.8			4.4	
Approach LOS		C			C			A			A	

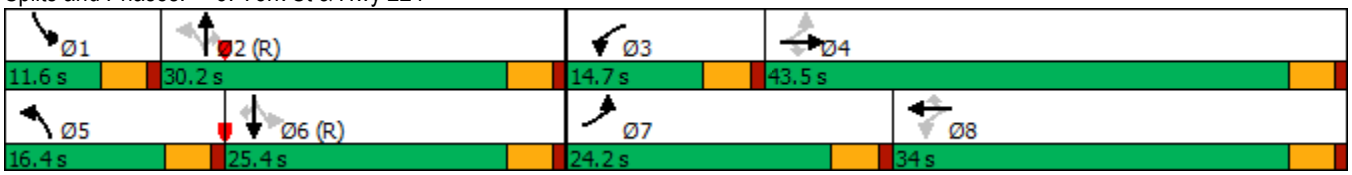
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	48.4		6.7	5.7	47.7		6.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	23.3		18.1	5.1	23.3		18.1				
Max Q Clear Time (g_c+I1), s	2.0	4.6		3.1	2.1	9.3		2.1				
Green Ext Time (p_c), s	0.0	2.9		0.1	0.0	6.2		0.0				

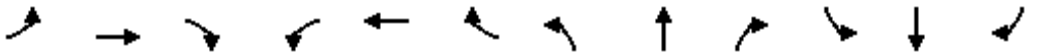
Intersection Summary			
HCM 6th Ctrl Delay		4.4	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	840	355	135	730	340	270	650	290	112	247	117
Future Volume (vph)	236	840	355	135	730	340	270	650	290	112	247	117
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.2	43.5	43.5	14.7	34.0	34.0	16.4	30.2	30.2	11.6	25.4	25.4
Total Split (%)	24.2%	43.5%	43.5%	14.7%	34.0%	34.0%	16.4%	30.2%	30.2%	11.6%	25.4%	25.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	47.1	33.9	33.9	38.2	28.8	28.8	43.0	31.0	31.0	33.6	25.9	25.9
Actuated g/C Ratio	0.47	0.34	0.34	0.38	0.29	0.29	0.43	0.31	0.31	0.34	0.26	0.26
v/c Ratio	0.73	0.74	0.49	0.55	0.76	0.54	0.58	0.62	0.44	0.44	0.28	0.22
Control Delay	31.2	32.7	6.2	24.0	37.6	9.2	26.7	33.9	6.3	25.8	32.5	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	32.7	6.2	24.0	37.6	9.2	26.7	33.9	6.3	25.8	32.5	0.9
LOS	C	C	A	C	D	A	C	C	A	C	C	A
Approach Delay		25.9			28.0			25.7			23.2	
Approach LOS		C			C			C			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 26.1	Intersection LOS: C
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	840	355	135	730	340	270	650	290	112	247	117
Future Volume (veh/h)	236	840	355	135	730	340	270	650	290	112	247	117
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	248	884	0	142	768	0	284	684	0	118	260	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	1069		253	910		586	1353		358	1149	
Arrive On Green	0.12	0.30	0.00	0.08	0.26	0.00	0.12	0.38	0.00	0.06	0.32	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	248	884	0	142	768	0	284	684	0	118	260	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.7	23.2	0.0	5.8	20.5	0.0	10.2	14.8	0.0	4.4	5.3	0.0
Cycle Q Clear(g_c), s	9.7	23.2	0.0	5.8	20.5	0.0	10.2	14.8	0.0	4.4	5.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	324	1069		253	910		586	1353		358	1149	
V/C Ratio(X)	0.76	0.83		0.56	0.84		0.48	0.51		0.33	0.23	
Avail Cap(c_a), veh/h	459	1386		297	1048		586	1353		375	1149	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.5	32.5	0.0	26.4	35.3	0.0	17.6	23.7	0.0	20.8	24.7	0.0
Incr Delay (d2), s/veh	4.8	3.3	0.0	2.0	5.7	0.0	0.6	1.4	0.0	0.5	0.5	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	4.3	10.0	0.0	2.5	9.2	0.0	4.1	6.3	0.0	1.8	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	35.9	0.0	28.4	41.0	0.0	18.2	25.1	0.0	21.3	25.2	0.0
LnGrp LOS	C	D		C	D		B	C		C	C	
Approach Vol, veh/h		1132			910			968			378	
Approach Delay, s/veh		34.5			39.1			23.1			24.0	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	42.6	12.2	34.6	16.4	36.8	16.7	30.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.1	25.7	10.2	39.0	11.9	20.9	19.7	29.5
Max Q Clear Time (g_c+I1), s	6.4	16.8	7.8	25.2	12.2	7.3	11.7	22.5
Green Ext Time (p_c), s	0.0	3.1	0.1	4.9	0.0	1.3	0.4	2.8

Intersection Summary	
HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

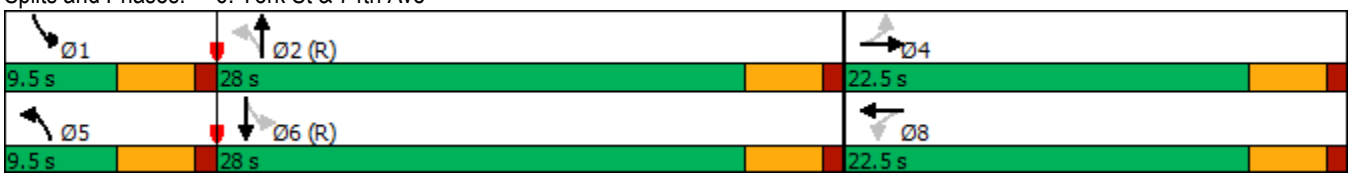
Notes

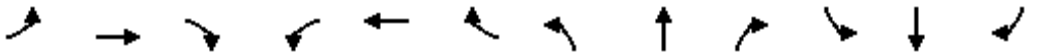
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	0	2	9	10	1050	2	460
Future Volume (vph)	19	0	2	9	10	1050	2	460
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	28.0	9.5	28.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	15.8%	46.7%	15.8%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		6.0		6.0	48.2	48.8	48.0	48.7
Actuated g/C Ratio		0.10		0.10	0.80	0.81	0.80	0.81
v/c Ratio		0.20		0.07	0.01	0.40	0.00	0.18
Control Delay		2.7		25.0	2.2	4.1	2.0	3.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		2.7		25.0	2.2	4.1	2.0	3.2
LOS		A		C	A	A	A	A
Approach Delay		2.7		25.0		4.1		3.2
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.40	
Intersection Signal Delay: 3.9	Intersection LOS: A
Intersection Capacity Utilization 41.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	0	26	2	9	0	10	1050	2	2	460	5
Future Volume (veh/h)	19	0	26	2	9	0	10	1050	2	2	460	5
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	0	28	2	10	0	11	1141	2	2	500	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	1	47	82	85	0	736	2617	5	416	2552	26
Arrive On Green	0.05	0.00	0.05	0.05	0.05	0.00	0.01	0.72	0.72	0.00	0.71	0.71
Sat Flow, veh/h	649	11	879	217	1604	0	1781	3640	6	1781	3605	36
Grp Volume(v), veh/h	49	0	0	12	0	0	11	557	586	2	246	259
Grp Sat Flow(s),veh/h/ln	1538	0	0	1822	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	0.1	7.7	7.7	0.0	2.8	2.8
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.4	0.0	0.0	0.1	7.7	7.7	0.0	2.8	2.8
Prop In Lane	0.43		0.57	0.17		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	168	0	0	167	0	0	736	1278	1344	416	1258	1319
V/C Ratio(X)	0.29	0.00	0.00	0.07	0.00	0.00	0.01	0.44	0.44	0.00	0.20	0.20
Avail Cap(c_a), veh/h	538	0	0	603	0	0	859	1278	1344	559	1258	1319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	0.0	27.1	0.0	0.0	2.4	3.4	3.4	2.9	3.0	3.0
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.2	0.0	0.0	0.0	1.1	1.0	0.0	0.3	0.3
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	0.7	0.0	0.0	0.2	0.0	0.0	0.0	1.8	1.9	0.0	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	27.2	0.0	0.0	2.4	4.5	4.5	2.9	3.3	3.3
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		49			12			1154			507	
Approach Delay, s/veh		28.7			27.2			4.5			3.3	
Approach LOS		C			C			A			A	

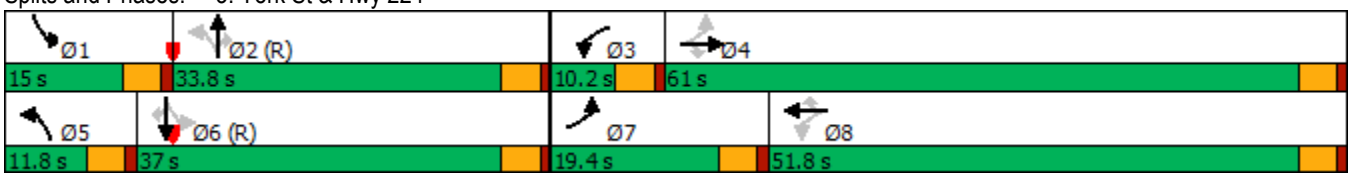
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	47.6		7.7	5.3	47.0		7.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.0	23.5		18.0				
Max Q Clear Time (g_c+I1), s	2.0	9.7		3.8	2.1	4.8		2.4				
Green Ext Time (p_c), s	0.0	6.4		0.1	0.0	2.9		0.0				

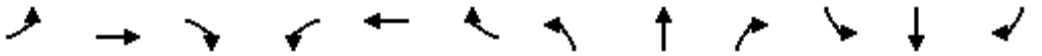
Intersection Summary		
HCM 6th Ctrl Delay		5.0
HCM 6th LOS		A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	435	879	240	1285	197	153	274	117	157	892	227
Future Volume (vph)	265	435	879	240	1285	197	153	274	117	157	892	227
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	19.4	61.0	61.0	10.2	51.8	51.8	11.8	33.8	33.8	15.0	37.0	37.0
Total Split (%)	16.2%	50.8%	50.8%	8.5%	43.2%	43.2%	9.8%	28.2%	28.2%	12.5%	30.8%	30.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	66.7	56.5	56.5	53.0	47.3	47.3	36.9	29.6	29.6	42.7	32.5	32.5
Actuated g/C Ratio	0.56	0.47	0.47	0.44	0.39	0.39	0.31	0.25	0.25	0.36	0.27	0.27
v/c Ratio	0.99	0.27	1.06	0.57	0.97	0.29	0.95	0.33	0.25	0.43	0.98	0.45
Control Delay	85.7	19.9	73.4	24.8	54.1	10.0	90.1	38.4	6.1	29.1	64.7	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	19.9	73.4	24.8	54.1	10.0	90.1	38.4	6.1	29.1	64.7	17.2
LOS	F	B	E	C	D	B	F	D	A	C	E	B
Approach Delay		60.7			44.9			46.0			51.9	
Approach LOS		E			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 51.6	Intersection LOS: D
Intersection Capacity Utilization 103.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	435	879	240	1285	197	153	274	117	157	892	227
Future Volume (veh/h)	265	435	879	240	1285	197	153	274	117	157	892	227
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	279	458	0	253	1353	0	161	288	0	165	939	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	1670		510	1397		174	883		409	966	
Arrive On Green	0.12	0.47	0.00	0.05	0.39	0.00	0.06	0.25	0.00	0.06	0.18	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	279	458	0	253	1353	0	161	288	0	165	939	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	14.1	9.4	0.0	5.7	44.8	0.0	7.3	8.0	0.0	8.1	31.5	0.0
Cycle Q Clear(g_c), s	14.1	9.4	0.0	5.7	44.8	0.0	7.3	8.0	0.0	8.1	31.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	289	1670		510	1397		174	883		409	966	
V/C Ratio(X)	0.96	0.27		0.50	0.97		0.93	0.33		0.40	0.97	
Avail Cap(c_a), veh/h	289	1673		510	1401		174	883		415	966	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.8	19.4	0.0	22.9	35.7	0.0	37.5	36.9	0.0	30.5	48.6	0.0
Incr Delay (d2), s/veh	43.1	0.1	0.0	0.7	17.0	0.0	47.4	1.0	0.0	0.6	23.0	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	11.6	3.8	0.0	2.1	21.7	0.0	5.8	3.6	0.0	3.7	17.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.9	19.4	0.0	23.6	52.7	0.0	84.8	37.9	0.0	31.1	71.6	0.0
LnGrp LOS	E	B		C	D		F	D		C	E	
Approach Vol, veh/h		737			1606			449			1104	
Approach Delay, s/veh		42.3			48.1			54.7			65.6	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	34.3	10.2	60.9	11.8	37.1	19.4	51.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	29.3	5.7	56.5	7.3	32.5	14.9	47.3
Max Q Clear Time (g_c+I1), s	10.1	10.0	7.7	11.4	9.3	33.5	16.1	46.8
Green Ext Time (p_c), s	0.0	1.7	0.0	3.1	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	52.7
HCM 6th LOS	D

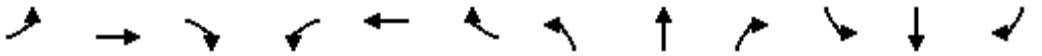
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	164	1	15	474	25	1000
Future Volume (vph)	12	0	164	1	15	474	25	1000
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	9.6	27.8	9.6	27.8
Total Split (%)	37.7%	37.7%	37.7%	37.7%	16.0%	46.3%	16.0%	46.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.2		13.2	35.9	33.7	36.9	35.9
Actuated g/C Ratio		0.22		0.22	0.60	0.56	0.62	0.60
v/c Ratio		0.07		0.63	0.05	0.26	0.05	0.53
Control Delay		0.4		30.1	5.7	7.6	5.8	10.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.4		30.1	5.7	7.6	5.8	10.4
LOS		A		C	A	A	A	B
Approach Delay		0.4		30.1		7.6		10.3
Approach LOS		A		C		A		B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 51.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	164	1	6	15	474	6	25	1000	19
Future Volume (veh/h)	12	0	16	164	1	6	15	474	6	25	1000	19
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	178	1	7	16	515	7	27	1087	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	30	158	341	1	9	366	2092	28	687	2116	41
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.04	1.00	1.00	0.03	0.59	0.59
Sat Flow, veh/h	559	185	974	1378	8	54	1781	3590	49	1781	3566	69
Grp Volume(v), veh/h	30	0	0	186	0	0	16	255	267	27	542	566
Grp Sat Flow(s),veh/h/ln	1719	0	0	1440	0	0	1781	1777	1862	1781	1777	1858
Q Serve(g_s), s	0.0	0.0	0.0	6.5	0.0	0.0	0.2	0.0	0.0	0.4	10.7	10.7
Cycle Q Clear(g_c), s	0.9	0.0	0.0	7.4	0.0	0.0	0.2	0.0	0.0	0.4	10.7	10.7
Prop In Lane	0.43		0.57	0.96		0.04	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	364	0	0	351	0	0	366	1036	1085	687	1055	1103
V/C Ratio(X)	0.08	0.00	0.00	0.53	0.00	0.00	0.04	0.25	0.25	0.04	0.51	0.51
Avail Cap(c_a), veh/h	574	0	0	547	0	0	483	1036	1085	784	1055	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	0.0	24.1	0.0	0.0	5.5	0.0	0.0	4.6	7.1	7.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.2	0.0	0.0	0.0	0.6	0.5	0.0	1.8	1.7
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	0.3	0.0	0.0	2.5	0.0	0.0	0.1	0.2	0.2	0.1	3.5	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	0.0	0.0	25.3	0.0	0.0	5.6	0.6	0.5	4.6	8.9	8.8
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			186			538			1135	
Approach Delay, s/veh		21.5			25.3			0.7			8.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	39.5		14.2	5.7	40.1		14.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	23.3		18.1	5.1	23.3		18.1				
Max Q Clear Time (g_c+I1), s	2.4	2.0		2.9	2.2	12.7		9.4				
Green Ext Time (p_c), s	0.0	3.1		0.1	0.0	5.3		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		8.3	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	488	14	0	1276
Future Vol, veh/h	0	7	488	14	0	1276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	530	15	0	1387

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	273	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	725	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	725	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	725	-
HCM Lane V/C Ratio	-	-	0.01	-
HCM Control Delay (s)	-	-	10	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	659	77	0	1276
Future Vol, veh/h	0	7	659	77	0	1276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	716	84	0	1387

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	400	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	600	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	600	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	600	-
HCM Lane V/C Ratio	-	-	0.013	-
HCM Control Delay (s)	-	-	11.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	11	20	0	10	161	0
Future Vol, veh/h	11	20	0	10	161	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	22	0	11	175	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	34	0	34	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1578	-	979	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1012	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1578	-	979	1054
Mov Cap-2 Maneuver	-	-	-	-	979	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1012	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	979	-	-	1578	-
HCM Lane V/C Ratio	0.179	-	-	-	-
HCM Control Delay (s)	9.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	709	1227	130	0	115
Future Vol, veh/h	0	709	1227	130	0	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	746	1292	137	0	119

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1292
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	199
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	199
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

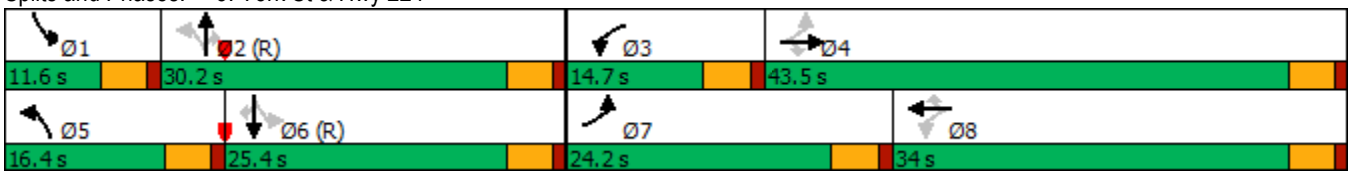
Approach	EB	WB	SB
HCM Control Delay, s	0	0	46.7
HCM LOS			E

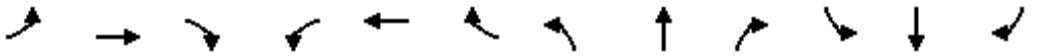
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	199
HCM Lane V/C Ratio	-	-	-	0.596
HCM Control Delay (s)	-	-	-	46.7
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	3.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	387	840	355	135	924	342	270	726	290	153	320	160
Future Volume (vph)	387	840	355	135	924	342	270	726	290	153	320	160
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.2	43.5	43.5	14.7	34.0	34.0	16.4	30.2	30.2	11.6	25.4	25.4
Total Split (%)	24.2%	43.5%	43.5%	14.7%	34.0%	34.0%	16.4%	30.2%	30.2%	11.6%	25.4%	25.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	53.7	40.2	40.2	38.5	29.5	29.5	37.3	25.7	25.7	28.0	20.9	20.9
Actuated g/C Ratio	0.54	0.40	0.40	0.38	0.30	0.30	0.37	0.26	0.26	0.28	0.21	0.21
v/c Ratio	0.96	0.62	0.45	0.47	0.93	0.57	0.75	0.84	0.50	0.81	0.46	0.34
Control Delay	63.1	26.4	5.5	18.7	50.7	14.8	37.7	45.0	8.6	54.4	36.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	26.4	5.5	18.7	50.7	14.8	37.7	45.0	8.6	54.4	36.9	4.0
LOS	E	C	A	B	D	B	D	D	A	D	D	A
Approach Delay		30.7			38.9			35.3			32.8	
Approach LOS		C			D			D			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 34.5	Intersection LOS: C
Intersection Capacity Utilization 90.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	387	840	355	135	924	342	270	726	290	153	320	160
Future Volume (veh/h)	387	840	355	135	924	342	270	726	290	153	320	160
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	407	884	0	142	973	0	284	764	0	161	337	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	1469		342	1038		421	929		240	758	
Arrive On Green	0.20	0.41	0.00	0.07	0.29	0.00	0.12	0.26	0.00	0.07	0.21	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	407	884	0	142	973	0	284	764	0	161	337	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	17.5	19.4	0.0	5.5	26.7	0.0	11.9	20.2	0.0	7.1	8.2	0.0
Cycle Q Clear(g_c), s	17.5	19.4	0.0	5.5	26.7	0.0	11.9	20.2	0.0	7.1	8.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	1469		342	1038		421	929		240	758	
V/C Ratio(X)	0.94	0.60		0.42	0.94		0.68	0.82		0.67	0.44	
Avail Cap(c_a), veh/h	437	1469		391	1048		421	929		240	758	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.0	22.9	0.0	22.2	34.5	0.0	26.0	34.7	0.0	29.7	34.2	0.0
Incr Delay (d2), s/veh	27.5	0.7	0.0	0.8	15.1	0.0	4.2	8.1	0.0	7.1	1.9	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	10.2	7.8	0.0	2.3	13.1	0.0	5.6	9.6	0.0	3.5	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	23.6	0.0	23.0	49.6	0.0	30.2	42.9	0.0	36.8	36.1	0.0
LnGrp LOS	D	C		C	D		C	D		D	D	
Approach Vol, veh/h		1291			1115			1048			498	
Approach Delay, s/veh		33.4			46.2			39.4			36.3	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	30.6	11.9	45.8	16.4	25.8	24.1	33.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.1	25.7	10.2	39.0	11.9	20.9	19.7	29.5
Max Q Clear Time (g_c+I1), s	9.1	22.2	7.5	21.4	13.9	10.2	19.5	28.7
Green Ext Time (p_c), s	0.0	1.7	0.1	5.5	0.0	1.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	39.0
HCM 6th LOS	D

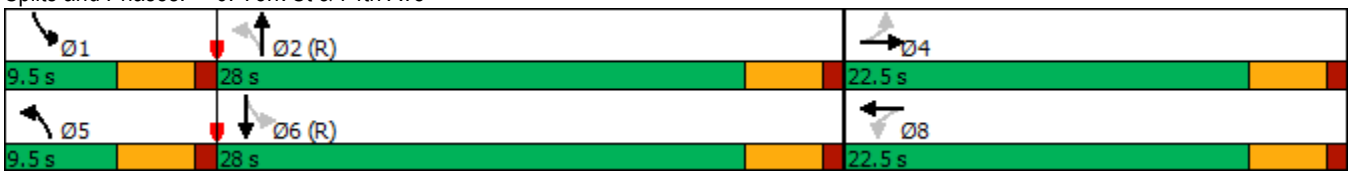
Notes

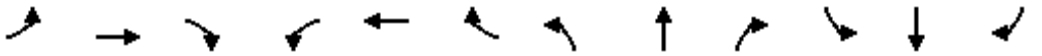
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	0	159	9	10	1062	21	470
Future Volume (vph)	19	0	159	9	10	1062	21	470
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	28.0	9.5	28.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	15.8%	46.7%	15.8%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.3		13.3	36.8	35.8	36.8	35.8
Actuated g/C Ratio		0.22		0.22	0.61	0.60	0.61	0.60
v/c Ratio		0.12		0.65	0.02	0.55	0.07	0.24
Control Delay		1.1		30.6	5.8	10.9	6.1	7.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		1.1		30.6	5.8	10.9	6.1	7.7
LOS		A		C	A	B	A	A
Approach Delay		1.1		30.6		10.9		7.6
Approach LOS		A		C		B		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	0	26	159	9	6	10	1062	2	21	470	5
Future Volume (veh/h)	19	0	26	159	9	6	10	1062	2	21	470	5
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	0	28	173	10	7	11	1154	2	23	511	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	30	160	333	13	9	615	2130	4	358	2156	21
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.01	0.59	0.59	0.03	0.60	0.60
Sat Flow, veh/h	548	185	978	1335	77	54	1781	3640	6	1781	3606	35
Grp Volume(v), veh/h	49	0	0	190	0	0	11	563	593	23	252	264
Grp Sat Flow(s),veh/h/ln	1712	0	0	1466	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.0	0.0	0.0	5.9	0.0	0.0	0.1	11.6	11.6	0.3	4.0	4.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0	7.4	0.0	0.0	0.1	11.6	11.6	0.3	4.0	4.0
Prop In Lane	0.43		0.57	0.91		0.04	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	365	0	0	354	0	0	615	1040	1094	358	1062	1114
V/C Ratio(X)	0.13	0.00	0.00	0.54	0.00	0.00	0.02	0.54	0.54	0.06	0.24	0.24
Avail Cap(c_a), veh/h	570	0	0	547	0	0	739	1040	1094	459	1062	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	0.0	23.9	0.0	0.0	4.9	7.6	7.6	5.7	5.7	5.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	1.3	0.0	0.0	0.0	2.0	1.9	0.1	0.5	0.5
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	0.6	0.0	0.0	2.5	0.0	0.0	0.0	3.9	4.1	0.1	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	0.0	0.0	25.2	0.0	0.0	4.9	9.6	9.5	5.8	6.2	6.2
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		49			190			1167			539	
Approach Delay, s/veh		21.8			25.2			9.5			6.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	39.6		14.3	5.3	40.4		14.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.0	23.5		18.0				
Max Q Clear Time (g_c+I1), s	2.3	13.6		3.5	2.1	6.0		9.4				
Green Ext Time (p_c), s	0.0	5.3		0.1	0.0	2.9		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		10.4	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	1068	12	0	633
Future Vol, veh/h	0	6	1068	12	0	633
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	1161	13	0	688

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	587	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	453	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	453	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	453	-
HCM Lane V/C Ratio	-	-	0.014	-
HCM Control Delay (s)	-	-	13.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	1380	75	0	663
Future Vol, veh/h	0	6	1380	75	0	663
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	1500	82	0	721

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	791	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	332	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	332	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	332	-
HCM Lane V/C Ratio	-	-	0.02	-
HCM Control Delay (s)	-	-	16.1	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	19	0	17	157	0
Future Vol, veh/h	4	19	0	17	157	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	21	0	18	171	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	25	0	33	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	18	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1589	-	980	1065
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1005	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1589	-	980	1065
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1005	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	980	-	-	1589	-
HCM Lane V/C Ratio	0.174	-	-	-	-
HCM Control Delay (s)	9.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	1283	1205	130	0	116
Future Vol, veh/h	0	1283	1205	130	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1351	1268	137	0	120

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1268
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	206
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	206
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	44.2
HCM LOS			E

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	206
HCM Lane V/C Ratio	-	-	-	0.581
HCM Control Delay (s)	-	-	-	44.2
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	3.2

KELLAR ENGINEERING

Sean Kellar, PE, PTOE

Principal Engineer

Education
B.S., Civil Engineering, Arizona State University – Tempe, AZ

Registration
Colorado, Professional Engineer (PE)
Wyoming, Professional Engineer (PE)
Idaho, Professional Engineer (PE)
Arizona, Professional Engineer (PE)
Kansas, Professional Engineer (PE)
Missouri, Professional Engineer (PE)
Professional Traffic Operations Engineer (PTOE)

Professional Memberships
Institute of Transportation Engineers (ITE)

Industry Tenure
23 Years

Sean's wide range of expertise includes: transportation planning, traffic modeling roadway design, bike and pedestrian facilities, traffic impact studies, traffic signal warrant analysis, parking studies, corridor planning and access management. Sean's experience in both the private and public sectors; passion for safety and excellence; and strong communication and collaboration skills can bring great value to any project. Prior to starting Kellar Engineering, Sean was employed at the Missouri Department of Transportation (MoDOT) as the District Traffic Engineer for the Kansas City District. Sean also worked for the City of Loveland, CO for over 10 years as a Senior Civil Engineer supervising a division of transportation/traffic engineers. While at the City of Loveland, Sean managed several capital improvement projects, presented several projects to the City Council and Planning Commission in public hearings, and managed the revisions to the City's Street Standards. Sean is also proficient in Highway Capacity Software, Synchro, PT Vissim, Rodel, GIS, and AutoCAD.

WORK EXPERIENCE:

Kellar Engineering, Principal Engineer/President – January 2016 – Present

Missouri Department of Transportation, District Traffic Engineer, Kansas City District – June 2015 – January 2016

City of Loveland, Colorado, Senior Civil Engineer, Public Works Department – February 2005 – June 2015

Kirkham Michael Consulting Engineers, Project Manager - February 2004 – February 2005

Dibble and Associates Consulting Engineers, Project Engineer – August 1999 – February 2004

MENDOZA YORK STREET SUBDIVISION

7330 YORK EROSION CONTORL PLAN

PARCEL AA, ROTELLO EXEMPTION FROM SUBDIVISION - AMENDED, PARCEL C, ROTELLO EXEMPTION FROM SUBDIVISION, BEING A PART OF THE NORTH ONE-HALF OF THE NORTHEAST ONE-QUARTER OF THE SOUTHEAST ONE-QUARTER OF SECTION 35, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO.

CONTACTS

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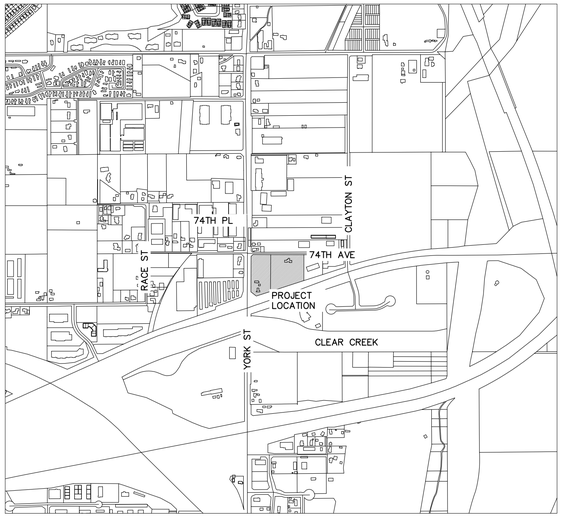
LAWRENCE DEPENBUSCH



VICINITY MAP
1"=1000'

SHEET INDEX

PUBLIC IMPROVEMENTS SHALL CONFORM TO ADAMS COUNTY STANDARDS AND SPECIFICATIONS AND LATEST EDITION OF COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS

BEARINGS ARE BASED ON THE SOUTH LINE OF THJE PROPERTY DESCRIBED HEREIN BEING ON THE WEST END BY A SET $\frac{5}{8}$" REBAR & 1 $\frac{1}{4}$" YELLOW PLASTIC CAP, PLS 6973, AND ON THE EAST END BY A FOUND $\frac{1}{2}$" REBAR & 1" YELLOW PLASTIC CAP, PLS 6973 BEARING S71°58'00"W

BENCHMARK: ADAMS COUNTY CONTROL MONUMENT STATION NO. 0227 BEING A 3-1/4" ALUMINUM CAP, CDOT PLS 11434, LOCATED WEST OF THE INTERSECTION OF COLORADO STATE HIGHWAY NO. 224 AND YORK STREET IN THE MEDIAN OF COLORADO STATE HIGHWAY 224.
ELEVATION 5120.06 NAVD88 DATUM

OWNER/DEVELOPER

RAFAEL MENDOZA
1955 E. 75TH AVE.
DENVER, CO 80229
303-910-5172

I HEREBY CERTIFY THAT THIS EROSION CONTROL DRAWINGS FOR MENDOZA YORK STREET SUBDIVISION WAS PREPARED BY ME OR (UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE PROVISIONS OF ADAMS COUNTY STORM DRAINAGE DESIGN AND STORMWATER QUALITY REGULATIONS FOR THE OWNERS THEREOF.

RICK ROME P.E. LEED AP
STATE OF COLORADO NUMBER 35103

UTILITY NOTE

THE LOCATIONS OF THOSE BURIED AND ABOVE GROUND UTILITIES SHOWN ARE APPROXIMATE, ARE SHOWN FOR CONTRACTOR INFORMATIONAL USE ONLY, AND ARE NOT TO BE REFERENCED FOR CONSTRUCTION PURPOSES. THE IMPLIED PRESENCE OR ABSENCE OF UTILITIES IS NOT TO BE CONSTRUED BY THE OWNER, ENGINEER, CONTRACTOR, OR SUBCONTRACTORS TO BE AN ACCURATE AND COMPLETE REPRESENTATION OF UTILITIES THAT MAY OR MAY NOT EXIST ON THE CONSTRUCTION SITE. BURIED AND ABOVE GROUND UTILITY LOCATION, IDENTIFICATION, AND MARKING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. REROUTING, DISCONNECTION, PROTECTION, ETC. OF ANY UTILITY MUST BE COORDINATED BETWEEN THE CONTRACTOR, UTILITY COMPANY AND OWNER. SITE SAFETY, INCLUDING THE AVOIDANCE OF HAZARDS ASSOCIATED WITH BURIED AND ABOVEGROUND UTILITIES, REMAINS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

Know what's **below.**
Call before you dig.

IMEG CORP. HAS ADOPTED SAFETY PROCEDURES FOR ITS EMPLOYEES WHO PROVIDE PROFESSIONAL ENGINEERING AND SURVEYING SERVICES. A COPY OF THESE PROCEDURES IS AVAILABLE FROM THE SAFETY OFFICER. IMEG CORP. PERSONNEL ARE NOT TRAINED IN CONTRACTOR (CONSTRUCTION) SAFETY AND COMPLIANCE PROCEDURES. THE METHODS AND MEANS TO COMPLY WITH CONSTRUCTION SITE SAFETY ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

REVISIONS

No.	DESCRIPTION	DATE

IMEG
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www.imegcorp.com
7600 E ORCHARD RD
SUITE 250-S
GREENWOOD VILLAGE, CO 80111

MENDOZA YORK ST SUBDIVISION
ADAMS COUNTY, CO
COVER SHEET

IMEG Project No: 22006507
File Name: 22006507 EC Cover.dwg

Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 4/25/2023

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Sheet 1 of 8

Tuesday, May 23, 2023 9:47:11 AM
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GENERAL NOTES

1. ALL IMPROVEMENTS SHOWN ON THESE ENGINEERING PLANS SHALL COMPLY WITH THE ADAMS COUNTY DESIGN AND SPECIFICATIONS, LATEST EDITION.
2. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, REVIEW OF EXISTING PUBLIC RECORDS, AND FIELD INVESTIGATION. THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH PRESENTLY NOT KNOWN OR SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT EACH UTILITY COMPANY FOR THE FIELD LOCATION OF THEIR EXISTING LINES IN OR NEARBY THE CONSTRUCTION AREA PRIOR TO BEGINNING ANY CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES AND PAVED STREETS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF ANY CONFLICTS WITH THE DRAWINGS OCCUR. ANY DAMAGE TO EXISTING UTILITIES AND/OR PAVED STREETS CAUSED BY TRENCHING AND GRADING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE.
4. ALL DEBRIS RESULTING FROM CONSTRUCTION OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE AND IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.
5. THE CONTRACTOR SHALL EXERCISE PROPER CAUTION TO PROTECT THE EXISTING IMPROVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE.

GRADING NOTES

1. ALL ELEVATIONS SHOWN ARE TO FLOWLINE FINISHED GRADE OR TOP OF PAVEMENT UNLESS OTHERWISE STATED.
2. PROVIDE POSITIVE DRAINAGE AT ALL TIMES WITHIN THE CONSTRUCTION AREAS, NOT ALLOWING WATER TO POND. DO NOT ALLOW WATER TO DRAIN OR TO POND ONTO ADJOINING PROPERTY OR PUBLIC RIGHT-OF-WAY.
3. PRIOR TO PLACEMENT OF ANY FILL, THE STRIPPED SITE SHALL BE SCARIFIED TO A DEPTH OF 9 INCHES AND RE-COMPACTED TO DENSITIES SPECIFIED BELOW. ANY UNSUITABLE SOILS FOUND AT THIS TIME SHALL BE DRIED AND RECOMPACTED OR REMOVED IF REQUIRED COMPACTION CANNOT BE OBTAINED.
4. ALL FILL MATERIAL SHALL CONSIST OF APPROVED, SUITABLE SOILS PLACED IN LOOSE LIFTS OF 9 INCHES OR LESS AND COMPACTED TO AT LEAST 95% OF THE MATERIAL'S MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D-698). THE COMPACTION WILL BE FIELD TESTED BY A SOILS ENGINEERING CONSULTANT REPRESENTING THE OWNER.
5. SOIL AMENDED TO SOIL BELOW SURFACE. THE AMENDED SOIL SHALL BE: EXISTING TOPSOIL 20%, COMPOST MULCH 35%, CLEAN SAND 45%. MIX THOROUGHLY AND CLEAN AND CLEAN UN-COMPACTED. LEAVE 3"-6" HIGH TO ALLOW FOR NATURAL SETTLING.
6. PROJECT WILL BE COVERED BY A GENERAL PERMIT REGULATING RUNOFF FROM CONSTRUCTION SITES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THE REQUIRED MONITORING, INSPECTION AND MAINTENANCE AS REQUIRED BY THE PERMIT.
7. ALL DISTURBED EMBANKMENTS GREATER THAN 3:1 SLOPES SHALL BE SEEDED ACCORDING TO A RECOMMENDED SEEDING MIX BY THE LANDSCAPER AND COVERED WITH EROSION CONTROL BLANKETS OR AS DIRECTED BY PLAN DOCUMENTS.
8. CONTRACTOR SHALL ADHERE TO THE CITY OF ***[MUNICIPALITY]*** EROSION AND SEDIMENT CONTROL REGULATIONS AND THE STATE OF ***[____]*** CONSTRUCTION SITE EROSION CONTROL MANUAL.

UTILITY NOTES

1. THE PRIVATE FIREMAIN SHOULD BE PRESSURE TESTED IN ACCORDANCE WITH NFPA 24.
2. ALL GATE VALVES SHALL BE INSTALLED WITH VALVE BOX.
3. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, REVIEW OF EXISTING PUBLIC RECORDS, AND FIELD INVESTIGATION. THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH PRESENTLY NOT KNOWN OR SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT EACH UTILITY COMPANY FOR THE FIELD LOCATION OF THEIR EXISTING LINES IN OR NEARBY THE CONSTRUCTION AREA PRIOR TO BEGINNING ANY CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES AND PAVED STREETS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF ANY CONFLICTS WITH THE DRAWINGS OCCUR. ANY DAMAGE TO EXISTING UTILITIES AND/OR PAVED STREETS CAUSED BY TRENCHING AND GRADING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE.
5. THE CONTRACTOR SHALL EXERCISE PROPER CAUTION TO PROTECT THE EXISTING IMPROVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE.

ADAMS COUNTY EROSION CONTROL PLAN GENERAL NOTES

1 ALL CONSTRUCTION PROJECTS, REGARDLESS OF THE SIZE, SHALL INSTALL, MAINTAIN, AND REPAIR STORMWATER POLLUTION CONTROL MEASURES (CMS) TO EFFECTIVELY MINIMIZE EROSION, SEDIMENT TRANSPORT, AND THE RELEASE OF POLLUTANTS RELATED TO CONSTRUCTION ACTIVITY. CMS EXAMPLE INCLUDE: SEDIMENT CONTROL LOGS (SCL), SILT FENCE (SF), DIKES/SWALES, SEDIMENT TRAPS (ST), INLET PROTECTION (IP), OUTLET PROTECTION (OP), CHECK DAMS (CD), SEDIMENT BASINS (SB), TEMPORARY/PERMANENT SEEDING AND MULCHING (MU), SOIL ROUGHENING, MAINTAINING EXISTING VEGETATION AND PROTECTION OF TREES. CMS MUST BE SELECTED, DESIGNED, ADEQUATELY SIZED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH GOOD ENGINEERING, HYDROLOGIC AND POLLUTION CONTROL PRACTICES. CMS/BMPS INSTALLATION AND MAINTENANCE DETAILS SHALL CONFORM TO URBAN DRAINAGE FLOOD CONTROL CRITERIA MANUAL VOLUME 3, OR THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) ITEM CODE BOOK. CMS MUST FILTER, SETTLE, CONTAIN OR STRAIN POLLUTANTS FROM STORMWATER FLOWS IN ORDER TO PREVENT BYPASS OF FLOWS WITHOUT TREATMENT. CMS MUST BE APPROPRIATE TO TREAT THE RUNOFF FROM THE AMOUNT OF DISTURBED AREA, THE EXPECTED FLOW RATE, DURATION, AND FLOW CONDITIONS (I.E., SHEET OR CONCENTRATED FLOW). CMS/BMPS SHALL BE SPECIFIED IN THE SWMP (IF APPLICABLE), AND THE LOCATIONS SHOWN ON THE EC PLAN.

1) PRIOR TO CONSTRUCTION, PROJECTS DISTURBING 1 OR MORE ACRES OF LAND, OR ANY PROJECT BELONGING TO A COMMON PLAN OF DEVELOPMENT DISTURB 1 OR MORE ACRES, MUST OBTAIN:

- A GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES, FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, AND
- AN ADAMS COUNTY STORMWATER QUALITY PERMIT WITHIN THE UNINCORPORATED ADAMS COUNTY MS4 AREA.

2) PERMITTED PROJECTS SHALL DEVELOP A STORMWATER MANAGEMENT PLAN (SWMP), AKA EROSION AND SEDIMENT CONTROL PLAN (ESCP), IN COMPLIANCE WITH CDPHE MINIMUM REQUIREMENTS. THE APPROVED SWMP, INCLUDING EROSION CONTROL (EC) PLAN (SITE MAP), SHALL BE KEPT ON SITE AND UPDATED AT ALL TIMES. THE QUALIFIED STORMWATER MANAGER IS RESPONSIBLE FOR IMPLEMENTING THE SWMP AND CMS (AKA BMPS) DURING CONSTRUCTION.

3) PERMITTED PROJECTS SHALL PERFORM REGULAR STORMWATER INSPECTIONS EVERY 7 CALENDAR DAYS; OR EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY PRECIPITATION OR SNOWMELT EVENT THAT CAUSES SURFACE EROSION. INSPECTION FREQUENCY CAN BE REDUCED FOR POST-STORM EVENT INSPECTIONS AT TEMPORARILY IDLE SITES AND ALSO FOR STORMWATER INSPECTIONS AT COMPLETED SITES WAITING FOR FINAL STABILIZATION. INSPECTION REPORTS MUST IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE.

4) TRACKING OF DIRT ONTO PAVED PUBLIC OR PRIVATE PAVED ROADS IS NOT ALLOWED. THE USE OF DIRT RAMPS TO ENTER/EXIT FROM AN UNPAVED INTO A PAVED AREA IS PROHIBITED. VEHICLE TRACKING CONTROLS SHALL BE IMPLEMENTED, OTHERWISE ENTRANCE AREA MUST DRAIN THRU A CM TOWARDS THE PRIVATE SITE.

5) TRUCK LOADS OF FILL MATERIAL IMPORTED TO OR CUT MATERIAL EXPORTED FROM THE SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORTATION ON PUBLIC ROW. HAUL ROUTES MUST BE PERMITTED BY THE COUNTY. NO MATERIAL SHALL BE TRANSPORTED TO ANOTHER SITE WITHOUT APPLICABLE PERMITS.

6) CONTROL MEASURES DESIGNED FOR CONCRETE WASHOUT WASTE MUST BE IMPLEMENTED. THIS INCLUDES WASHOUT WASTE DISCHARGED TO THE GROUND AND WASHOUT WASTE FROM CONCRETE TRUCKS AND MASONRY OPERATIONS.

7) TEMPORARY CMS/BMPS SHALL BE REMOVED AFTER THE SITE HAS REACHED FINAL STABILIZATION.

8) DEWATERING OPERATIONS DISCHARGING OFF-SITE INTO ANY WATERS CONVEYANCE SYSTEMS INCLUDING WETLANDS, IRRIGATION DITCHES, CANALS, RIVERS, STREAMS OR STORM SEWER SYSTEMS, REQUIRE A STATE CONSTRUCTION DEWATERING PERMIT.

9) PERMITTED PROJECTS SHALL KEEP THE CDPHE'S STORMWATER DISCHARGE PERMIT, STORMWATER MANAGEMENT PLAN (SWMP) AND INSPECTION LOGS AVAILABLE ON-SITE THROUGHOUT THE DURATION OF THE PROJECT, AND FOR AN ADDITIONAL 3 YEARS AFTER PERMIT CLOSE-OUT.

10) PERMITTED LANDOWNER AND/OR CONTRACTOR SHALL CLOSE THE STATE AND CITY/COUNTY PERMIT ONCE FINAL STABILIZATION IS REACHED. STORMWATER INSPECTIONS SHALL CONTINUE UNTIL INACTIVATION NOTICE IS FILED WITH CDPHE.

MAINTENANCE STANDARD NOTES

1. MAINTAIN AND REPAIR CMS ACCORDING TO APPROVED EROSION CONTROL PLAN (CIVIL DRAWING) TO ASSURE THEY CONTINUE PERFORMING AS ORIGINALLY INTENDED.

2 CMS/BMPS REQUIRING MAINTENANCE OR ADJUSTMENT SHALL BE REPAIRED IMMEDIATELY AFTER OBSERVATION OF THE FAILING BMP.

3 CMS SHALL BE CLEANED WHEN SEDIMENT LEVELS ACCUMULATE TO HALF THE DESIGN UNLESS OTHERWISE SPECIFIED.

4 SWMP AND EC PLAN SHALL BE CONTINUOUSLY UPDATED TO REFLECT NEW OR REVISED CMS/BMPS DUE TO CHANGES IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, TO ACCURATELY REFLECT THE ACTUAL FIELD CONDITIONS. A NOTATION SHALL BE MADE IN THE SWMP, INCLUDING DATE OF CHANGES IN THE FIELD, IDENTIFICATION OF THE CMS REMOVED, MODIFIED OR ADDED, AND THE LOCATIONS OF THOSE CMS. UPDATES MUST BE MADE WITHIN 72-HOURS FOLLOWING THE CHANGE.

5 MAINTAIN VEHICLE TRACKING CONTROL (VTC), IF SEDIMENT TRACKING OCCURS, CLEAN-UP IMMEDIATELY. SWEEP BY HAND OR THE USE STREET SWEEPERS (WITH VACUUM SYSTEM). FLUSHING OFF PAVED SURFACES WITH WATER IS PROHIBITED.

6 CWA MUST BE CLEANED ONCE WASTE ACCUMULATION REACHES ⅔ OF THE WET STORAGE CAPACITY OF THE STRUCTURE. LEGALLY DISPOSED OF CONCRETE WASTE. DO NOT BURY ON-SITE.

7 CLEAN-UP SPILLS IMMEDIATELY AFTER DISCOVERY, OR CONTAIN UNTIL APPROPRIATE CLEANUP METHODS CAN BE EMPLOYED. FOLLOW MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP, ALONG WITH PROPER DISPOSAL METHODS. RECORDS OF SPILLS, LEAKS, OR OVERFLOWS THAT RESULT IN DISCHARGE OF POLLUTANTS MUST BE DOCUMENTED AND MAINTAINED.

8 REMOVE SEDIMENT FROM STORM SEWER INFRASTRUCTURE (PONDS, STORM PIPES, OUTLETS, INLETS, ROADSIDE DITCHES, ETC.), AND RESTORE VOLUME CAPACITY UPON COMPLETION OF PROJECT OR PRIOR TO INITIAL ACCEPTANCE OF PUBLIC IMPROVEMENTS (IF APPLICABLE). DO NOT FLUSH SEDIMENT OFFSITE, CAPTURE ON-SITE AND DISPOSED OF AT AN APPROVED LOCATION.

THESE NOTES ARE NOT INTENDED TO BE ALL-INCLUSIVE, BUT TO HIGHLIGHT THE BASIC STORMWATER POLLUTION PREVENTION REQUIREMENTS FOR CONSTRUCTION ACTIVITIES TO COMPLY WITH CDPS STORMWATER CONSTRUCTION PERMIT AND BE IN CONFORMANCE WITH COUNTY STANDARDS.

PERFORMANCE STANDARD NOTES

STORMWATER RUNOFF FROM DISTURBED AREAS MUST FLOW TO AT LEAST ONE (1) CM TO MINIMIZE SEDIMENT IN THE DISCHARGE. DO NOT ALLOW SEDIMENT TO LEAVE THE SITE. THE BEST WAY TO PREVENT SEDIMENT OR POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM IS TO STABILIZE THE SITE AS QUICKLY AS POSSIBLE, PREVENTING EROSION AND STOPPING SEDIMENT RUN OFF AT ITS SOURCE.

1. PHASE CONSTRUCTION TO MINIMIZE DISTURBED AREAS, INCLUDING DISTURBANCE OF STEEP SLOPES. (I.E. THE ENTIRE PROJECT SITE SHOULD NOT BE DISTURBED IF CONSTRUCTION WILL ONLY BE OCCURRING IN ONE PARTICULAR SECTION OF THE SITE).LIMIT SOIL EXPOSURE TO THE SHORTEST POSSIBLE PERIOD OF TIME. PROTECT NATURAL FEATURES AND EXISTING VEGETATION WHENEVER POSSIBLE. REMOVAL OF EXISTING VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS. MAINTAIN PRE-EXISTING VEGETATION (OR EQUIVALENT CMS) FOR AREAS WITHIN 50 HORIZONTAL FT OF RECEIVING WATERS.
2. SOIL COMPACTION MUST BE MINIMIZED FOR AREAS WHERE INFILTRATION CMS WILL OCCUR OR WHERE FINAL STABILIZATION WILL BE ACHIEVED THROUGH VEGETATIVE COVER.
3. ALL SOIL IMPORTED TO OR EXPORTED FROM THE SITE SHALL BE PROPERLY COVERED TO PREVENT THE LOSS OF MATERIAL DURING TRANSPORT.
4. DUST EMISSIONS RESULTING FROM GRADING ACTIVITIES OR WIND SHALL BE CONTROLLED.
5. INSTALL CONSTRUCTION FENCE (ORANGE) TO PROTECT WETLANDS AND OTHER SENSITIVE AREAS AND TO PREVENT ACCESS, AND TO DELINEATE THE LIMITS OF CONSTRUCTION. DO NOT USE SILT FENCE TO PROTECT WETLANDS SINCE TRENCHING MAY IMPACT THESE AREAS.
6. CMS INTENDED TO CAPTURE OVERLAND, LOW VELOCITY SHEET FLOW AT A FAIRLY LEVEL GRADE SHALL ONLY BE INSTALLED ALONG CONTOURS.
7. INSTALL CMS, SUCH AS CHECK DAMS, PERPENDICULAR TO THE CONCENTRATED FLOWS TO REDUCE FLOW VELOCITY.
8. STORM DRAIN INLETS WITHIN AND ADJACENT TO THE CONSTRUCTION SITE MUST BE PROTECTED. ANY PONDING OF STORMWATER AROUND INLET PROTECTION MUST NOT CAUSE EXCESSIVE FLOODING OR DAMAGE ADJACENT AREAS OR STRUCTURES.
9. INSTALL VEHICLE TRACKING CONTROL (VTC) TO ENTER/EXIT UNPAVED AREA. DO NOT USE RECYCLED CRUSHED CONCRETE OR ASPHALT MILLINGS FOR VEHICLE TRACKING PADS.
10. STRAW BALES SHALL NOT BE USED FOR PRIMARY EROSION OR SEDIMENT CONTROL (I.E. STRAW BALES MAY BE USED FOR REINFORCEMENT BEHIND ANOTHER BMP SUCH AS SILT FENCE).
11. OUTLETS SYSTEMS (SUCH AS SKIMMER OR PERFORATED RISER PIPE) SHALL BE INSTALLED TO WITHDRAW WATER FROM OR NEAR THE SURFACE LEVEL WHEN DISCHARGING FROM BASINS. WATER CANNOT DRAIN FROM THE BOTTOM OF THE POND.
12. TEMPORARY STABILIZATION MUST BE IMPLEMENTED FOR EARTH DISTURBING ACTIVITIES ON ANY PORTION OF THE SITE WHERE LAND DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED (FOR MORE THAN 14 CALENDAR DAYS). TEMPORARY STABILIZATION METHODS EXAMPLES: TARPS, SOIL TACKIFIER, AND HYDROSEED. TEMPORARY STABILIZATION REQUIREMENT MAY EXCEED THE 14-DAY SCHEDULE WHEN EITHER THE FUNCTION OF THE SPECIFIC AREA REQUIRES IT TO REMAIN DISTURBED, OR, PHYSICAL CHARACTERISTICS OF THE TERRAIN AND CLIMATE PREVENT STABILIZATION AS LONG AS THE CONSTRAINTS AND ALTERNATIVE SCHEDULE IS DOCUMENTED ON THE SWMP, AND LOCATIONS ARE IDENTIFIED ON THE EC PLAN (SITE MAP).
13. RUNOFF FROM STOCKPILE AREA MUST BE CONTROLLED. SOILS THAT WILL BE STOCKPILED FOR MORE THAN 30 DAYS SHALL BE PROTECTED FROM WIND AND WATER EROSION WITHIN 14 DAYS OF STOCKPILE CONSTRUCTION. INSTALL CMS/BMPS 5 FT AWAY FROM THE TOE OF THE STOCKPILE'S SLOPE.
14. WATER USE TO CLEAN CONCRETE TRUCKS SHALL BE DISCHARGED INTO A CONCRETE WASHOUT AREA (CWA). THE PREDEFINED CONTAINMENT AREA MUST BE IDENTIFIED WITH A SIGN, AND SHALL ALLOW THE LIQUIDS TO EVAPORATE OR DRY OUT. CWA DISCHARGES THAT MAY REACH GROUNDWATER MUST FLOW THROUGH SOIL THAT HAS BUFFERING CAPACITY PRIOR TO REACHING GROUNDWATER. THE CONCRETE WASHOUT LOCATION SHALL BE NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT AND WOULD RESULT IN BUFFERING CAPACITY NOT BEING ADEQUATE, SUCH AS NEAR NATURAL DRAINAGES, SPRINGS, OR WETLANDS. IN THIS CASE, A LINER UNDERNEATH IS NEEDED FOR AREAS WITH HIGH GROUNDWATER LEVELS. CWA SHALL NOT BE PLACED IN LOW AREAS, DITCHES OR ADJACENT TO STATE WATERS. PLACE CWA 50 FT AWAY FROM STATE WATERS.
15. WASTE, SUCH AS BUILDING MATERIALS, WORKERS TRASH AND CONSTRUCTION DEBRIS, MUST BE PROPERLY MANAGED TO PREVENT STORMWATER POLLUTION.
16. INSTALL STABILIZED STAGING AREA (SSA) TO STORE MATERIALS, CONSTRUCTION TRAILER, ETC.
17. IF CONDITIONS IN THE FIELD WARRANT ADDITIONAL CMS/BMPS TO THE ONES ORIGINALLY APPROVED ON THE SWMP OR EC PLAN (CIVIL DRAWING), THE LANDOWNER OR CONTRACTOR SHALL IMPLEMENT MEASURES DETERMINED NECESSARY, AS DIRECTED BY THE COUNTY.
18. PERMANENT CMS/BMPS FOR SLOPES, CHANNELS, DITCHES, OR DISTURBED LAND AREA SHALL BE PERFORMED IMMEDIATELY AFTER FINAL GRADING. CONSIDER THE USE EROSION CONTROL BLANKETS ON SLOPES 3:1 OR STEEPER AND AREAS WITH CONCENTRATED FLOWS SUCH AS SWALES, LONG CHANNELS AND ROADSIDE DITCHES.
19. THE DISCHARGE OF SANITARY WASTE INTO THE STORM SEWER SYSTEM IS PROHIBITED. PORTABLE TOILETS MUST BE PROVIDED, SECURED AND PLACED ON PERMEABLE SURFACES, AWAY FROM THE CURBSIDE, STORM INLETS AND/OR DRAINAGE WAYS.
20. REMOVE TEMPORARY CMS/BMPS ONCE FINAL STABILIZATION IS REACHED, UNLESS OTHERWISE AUTHORIZED.
21. FINAL STABILIZATION MUST BE IMPLEMENTED. FINAL STABILIZATION IS REACHED WHEN ALL SOIL DISTURBING ACTIVITIES HAVE BEEN COMPLETED, AND EITHER A UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST 70% OF PRE-DISTURBANCE LEVELS, OR EQUIVALENT PERMANENT ALTERNATIVE METHOD HAS BEEN IMPLEMENTED.
22. PROVIDE SPILL PREVENTION AND CONTAINMENT MEASURES FOR CONSTRUCTION MATERIALS, WASTE AND FUEL STORAGE AREAS. BULK STORAGE (55 GALLONS OR GREATER) OF PETROLEUM PRODUCTS AND LIQUID CHEMICALS MUST HAVE SECONDARY CONTAINMENT, OR EQUIVALENT PROTECTION, IN ORDER TO CONTAIN SPILLS AND TO PREVENT SPILLED MATERIAL FROM ENTERING STATE WATERS.
23. REPORT SPILLS OR RELEASES OF CHEMICAL, OIL, PETROLEUM PRODUCT, SEWAGE, ETC., WHICH MAY REACH THE STORM SEWER OR ENTER STATE WATERS WITHIN 24-HOURS FROM TIME OF DISCOVERY. GUIDANCE AVAILABLE AT WWW.CDPHE.STATE.CO.US/EMP/SPILLSANDRELEASED.HTM. STATE OF COLORADO SPILL-LINE: 1-877-518-5608. ADAMS COUNTY STORMWATER HOTLINE: 720-523-6400; PUBLIC WORKS 303-453-8787 AND THE TRI-COUNTY HEALTH DEPARTMENT AT 303-220-9200.

REVISIONS		
No.	DESCRIPTION	DATE

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MENDOZA YORK ST SUBDIVISION
ADAMS COUNTY, CO

EROSION CONTROL NOTES

IMEG Project No: 22006507
File Name: 22006507 EC Notes.dwg

Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 4/25/2023

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Sheet 2 of 8

Tuesday, May 23, 2023 9:47:16 AM
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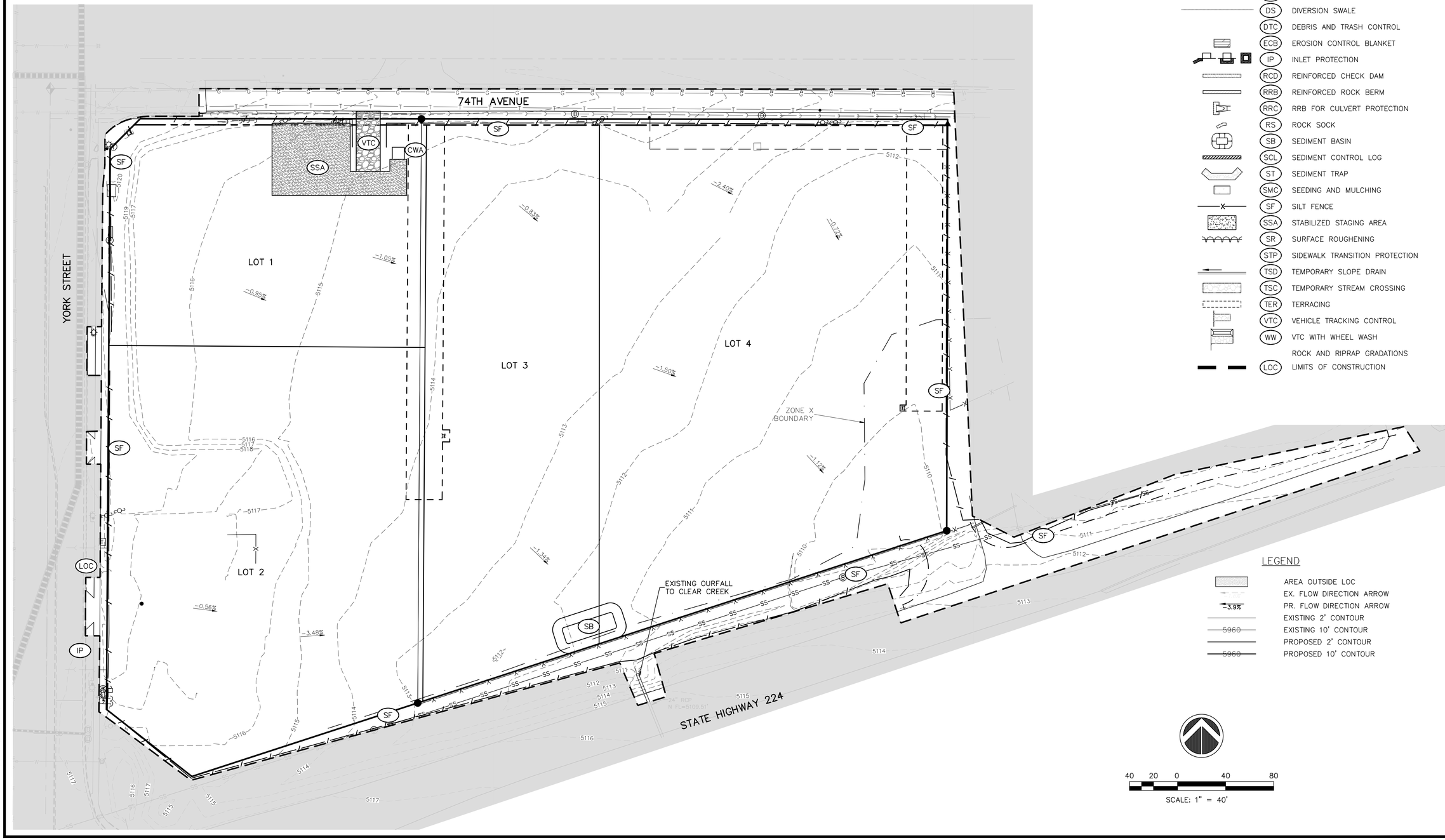
DISTURBED AREA = 7.71 ACRES
UNADJUSTED EARTHWORK
CUT 2,270 CY
FILL 38,340 CY
NET 36,070 CY (IMPORT)

UNADJUSTED VOLUME EXCLUDES STRIPING, COMPACTION, PAVEMENT AND SUBGRADE TREATMENT, FOUNDATION AND UTILITY EXCAVATION.



BMP LEGEND

CD	CHECK DAM
CB	COMPOST BLANKET
CFB	COMPOST FILTER BERM
CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
CM	CONSTRUCTION MARKER
DW	DEWATERING
DS	DIVERSION SWALE
DTC	DEBRIS AND TRASH CONTROL
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RCD	REINFORCED CHECK DAM
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
RS	ROCK SOCK
SB	SEDIMENT BASIN
SCL	SEDIMENT CONTROL LOG
ST	SEDIMENT TRAP
SMC	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
SR	SURFACE ROUGHENING
STP	SIDEWALK TRANSITION PROTECTION
TSD	TEMPORARY SLOPE DRAIN
TSC	TEMPORARY STREAM CROSSING
TER	TERRACING
VTC	VEHICLE TRACKING CONTROL
WW	VTC WITH WHEEL WASH
	ROCK AND RIPRAP GRADATIONS
LOC	LIMITS OF CONSTRUCTION

LEGEND

- AREA OUTSIDE LOC
- EX. FLOW DIRECTION ARROW
- -3.9% PR. FLOW DIRECTION ARROW
- EXISTING 2' CONTOUR
- 5960 EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- 5960 PROPOSED 10' CONTOUR

40 20 0 40 80
SCALE: 1" = 40'

No.	DESCRIPTION	DATE

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MENDOZA YORK ST SUBDIVISION
ADAMS COUNTY, CO

INITIAL EROSION CONTROL PLAN

IMEG Project No: 22006507
File Name: 22006507 EC INITIAL.dwg

Field Book No:
Drawn By: RAR
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Tuesday, May 23, 2023 9:47:39 AM
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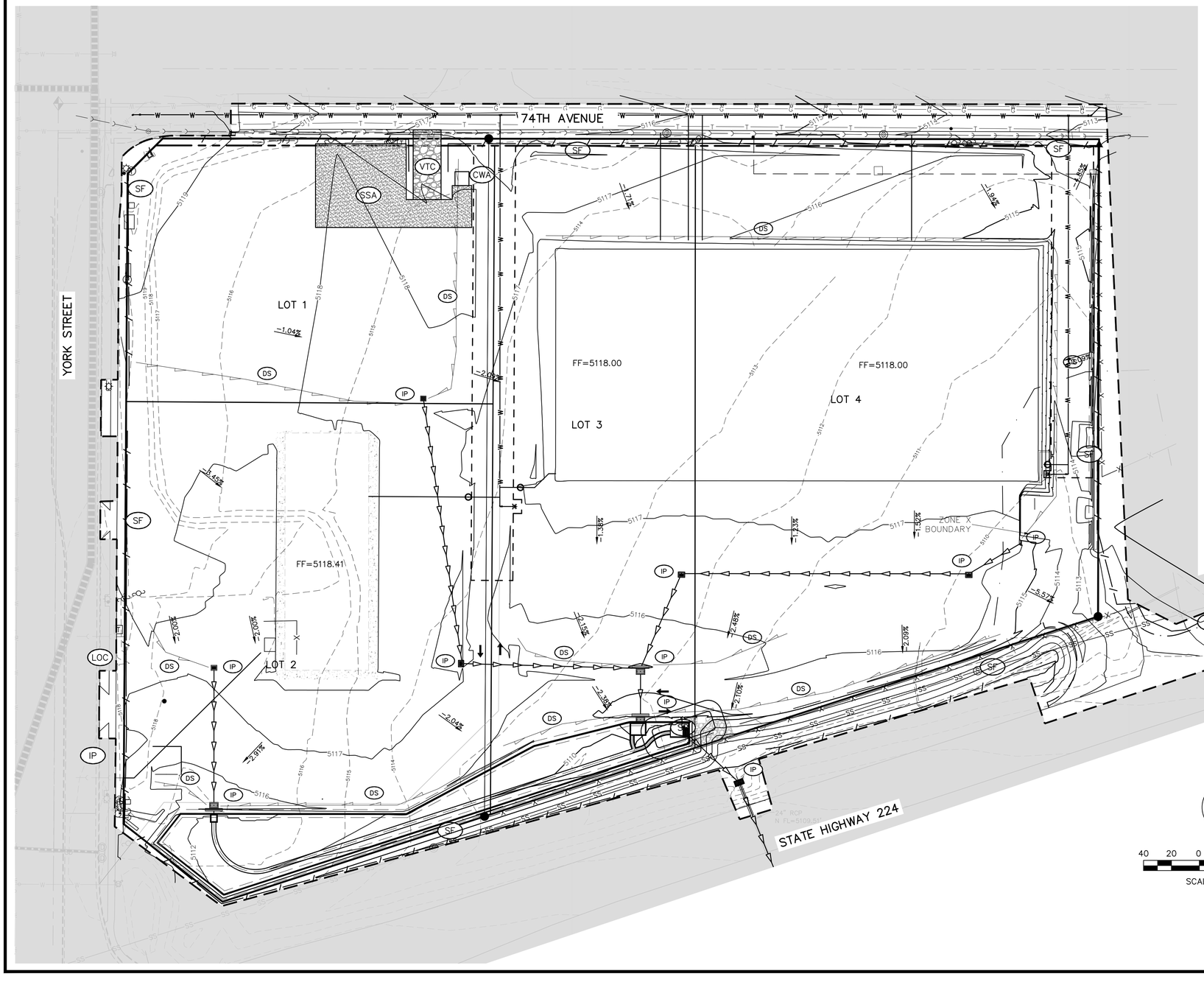

BMP LEGEND

CD	CHECK DAM
CB	COMPOST BLANKET
CFB	COMPOST FILTER BERM
CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
CM	CONSTRUCTION MARKER
DW	DEWATERING
DS	DIVERSION SWALE
DTC	DEBRIS AND TRASH CONTROL
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RCD	REINFORCED CHECK DAM
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
RS	ROCK SOCK
SB	SEDIMENT BASIN
SCL	SEDIMENT CONTROL LOG
ST	SEDIMENT TRAP
SMC	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
SR	SURFACE ROUGHENING
STP	SIDEWALK TRANSITION PROTECTION
TSD	TEMPORARY SLOPE DRAIN
TSC	TEMPORARY STREAM CROSSING
TER	TERRACING
VTC	VEHICLE TRACKING CONTROL
WW	VTC WITH WHEEL WASH
	ROCK AND RIPRAP GRADATIONS
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MENDOZA YORK ST SUBDIVISION
ADAMS COUNTY, CO

INTERIM EROSION CONTROL PLAN

IMEG Project No: 22006507

File Name: 22006507 EC INITERIM.dwg

Field Book No:

Drawn By: RAR

Checked By: TCG

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Sheet 4 of 8

Tuesday, May 23, 2023 9:48:00 AM
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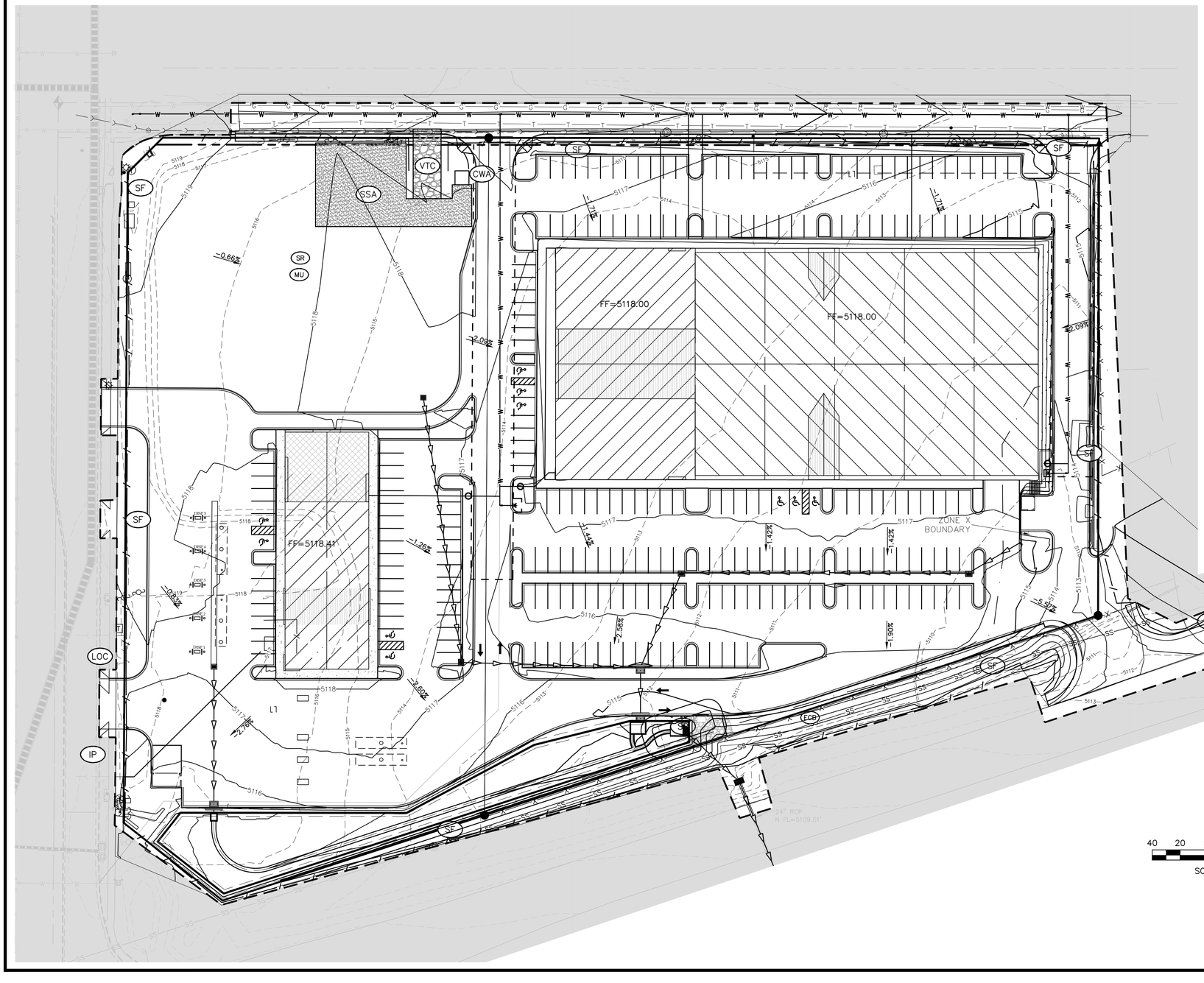

BMP LEGEND

CD	CHECK DAM
CB	COMPOST BLANKET
CFB	COMPOST FILTER BERM
CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
CM	CONSTRUCTION MARKER
DW	DEWATERING
DS	DIVERSION SWALE
DTC	DEBRIS AND TRASH CONTROL
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RCD	REINFORCED CHECK DAM
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
RS	ROCK SOCK
SB	SEDIMENT BASIN
SCL	SEDIMENT CONTROL LOG
ST	SEDIMENT TRAP
SMC	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
SR	SURFACE ROUGHENING
STP	SIDEWALK TRANSITION PROTECTION
TSD	TEMPORARY SLOPE DRAIN
TSC	TEMPORARY STREAM CROSSING
TER	TERRACING
VTC	VEHICLE TRACKING CONTROL
WW	VTC WITH WHEEL WASH
	ROCK AND RIPRAP GRADATIONS
LOC	LIMITS OF CONSTRUCTION

LEGEND

- AREA OUTSIDE LOC
- EX. FLOW DIRECTION ARROW
- PR. FLOW DIRECTION ARROW (-3.9%)
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR (5960)
- PROPOSED 2' CONTOUR
- PROPOSED 10' CONTOUR (5960)

40 20 0 40 80

SCALE: 1" = 40'

REVISIONS

No.	DESCRIPTION	DATE

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7600 E ORCHARD RD
SUITE 250-S
GREENWOOD VILLAGE, CO 80111

MENDOZA YORK ST SUBDIVISION

ADAMS COUNTY, CO

FINAL EROSION CONTROL PLAN

IMEG Project No: 22006507

File Name: 22006507 EC FINAL.dwg

Field Book No:

Drawn By: RAR

Checked By: TCG

Date: 4/25/2023

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Sheet 5 of 8

Tuesday, May 23, 2023 9:48:18 AM
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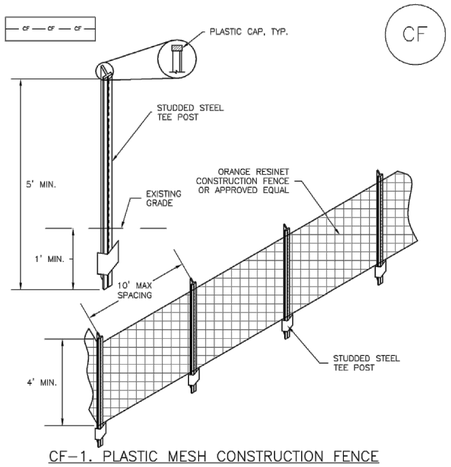


CF–1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONSTRUCTION FENCE.

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR–GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.

4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CONSTRUCTION FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

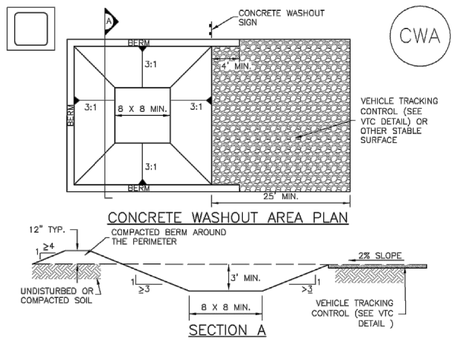
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)



CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

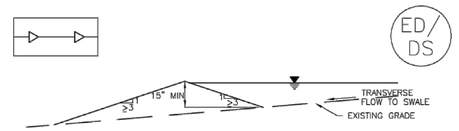
5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER–TIGHT CONTAINER AND DISPOSED OF PROPERLY.

6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.

7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

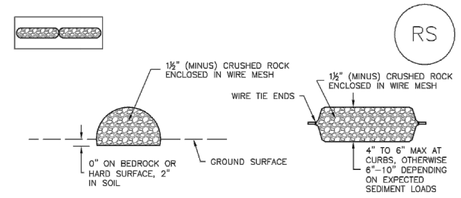
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

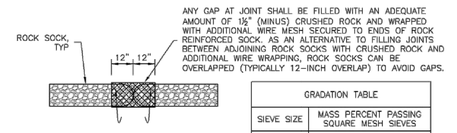
4. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.

5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.





GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1½"	90 – 100
1"	20 – 55
¾"	0 – 15
⅜"	0 – 5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION(S) OF ROCK SOCKS.

2. CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).

3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF ½", RECOMMENDED MINIMUM ROLL WIDTH OF 48"

4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.

5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS–1. ROCK SOCK PERIMETER CONTROL

ROCK SOCK MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.

5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE ROCK SOCK.

6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER NDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

REVISIONS

No.	DESCRIPTION	DATE

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GREENWOOD VILLAGE, CO 80111

MENDOZA YORK ST SUBDIVISION
ADAMS COUNTY, CO

EROSION CONTROL DETAILS

IMEG Project No: 22006507
File Name: 22006507 EC DETAILS.dwg

Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 4/25/2023

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Sheet 6 of 8

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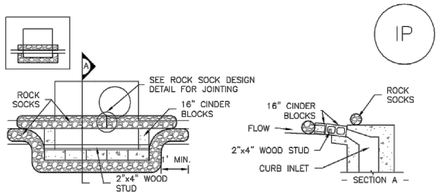


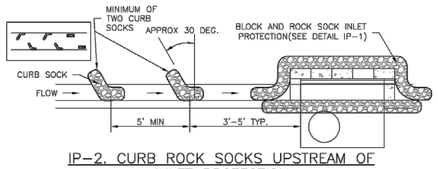
IP–1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.

3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



IP–2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.

2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.

3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.

4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON–GRADE INLETS.

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF INLET PROTECTION.
   –TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)

2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS), IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.

3. MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR ¼ OF THE HEIGHT FOR STRAW BALES.

5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.

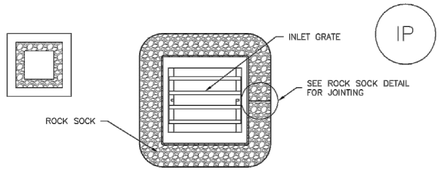
6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

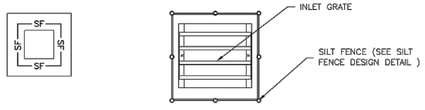
NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.



IP–3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES
1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



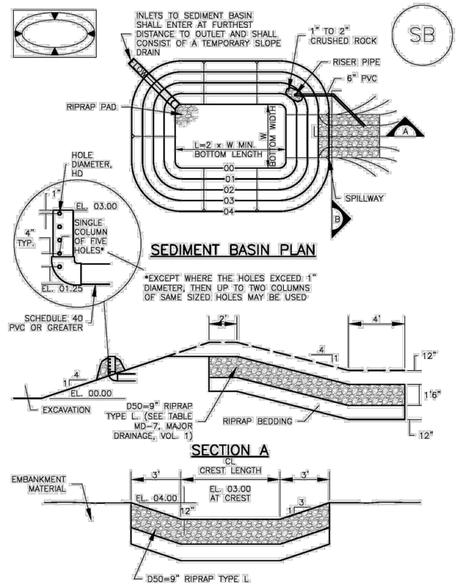
IP–4. SILT FENCE FOR SUMP INLET PROTECTION

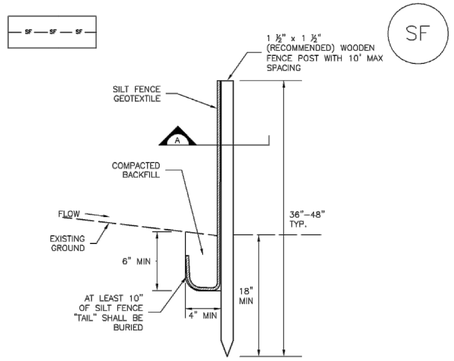
SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

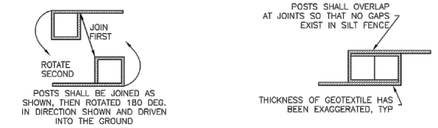
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.

3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.





SILT FENCE



SECTION A

SF–1. SILT FENCE

SEDIMENT BASIN MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).

5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.

6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

TABLE SB–1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 ½	2	9/32
2	21	3	13/16
3	28	5	½
4	33 ½	6	9/16
5	38 ½	8	25/32
6	43	9	25/32
7	47 ¼	11	25/32
8	51	12	25/32
9	55	13	⅞
10	58 ¾	15	15/16
11	61	16	31/32
12	64	18	1
13	67 ½	19	1 1/32
14	70 ½	21	1 ⅛
15	73 ¼	22	1 3/16

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF SEDIMENT BASIN.
   –TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
   –FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
   –FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.

2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.

3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND–DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.

4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.

5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.

6. PIPE SCH 40 OR GREATER SHALL BE USED.

7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J–HOOK." THE "J–HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

No.	DESCRIPTION	DATE

REVISIONS

IMEG
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MENDOZA YORK ST SUBDIVISION
ADAMS COUNTY, CO

EROSION CONTROL DETAILS

IMEG Project No: 22006507
File Name: 22006507 EC DETAILS.dwg

Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 4/25/2023

7

Sheet 7 of 8

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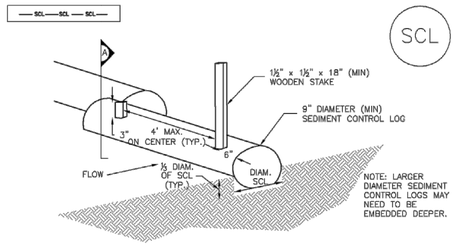
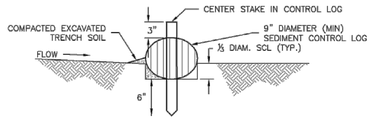
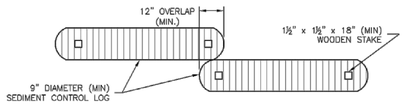


SEDIMENT CONTROL LOG

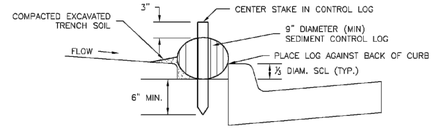


SECTION A

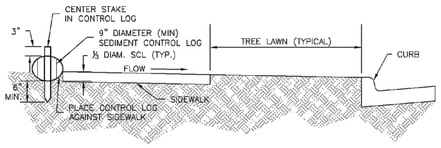


SEDIMENT CONTROL LOG JOINTS

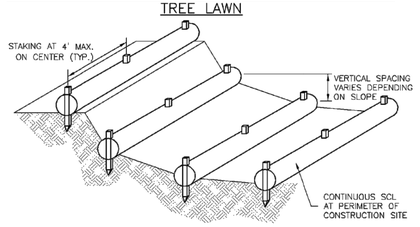
SCL-1. SEDIMENT CONTROL LOG



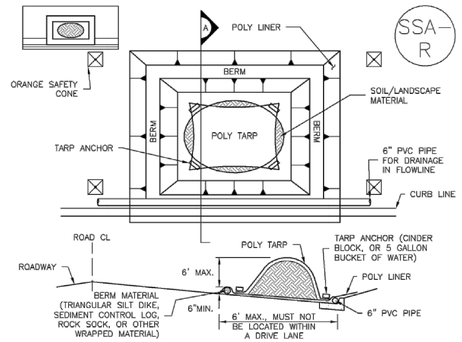
SCL-2. SEDIMENT CONTROL LOG AT BACK OF CURB



SCL-3. SEDIMENT CONTROL LOG AT SIDEWALK WITH TREE LAWN



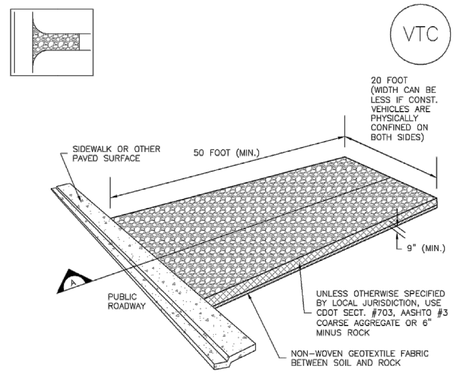
SCL-4. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

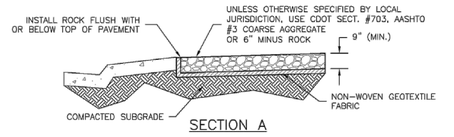


SP-2. MATERIALS STAGING IN ROADWAY

MATERIALS STAGING IN ROADWAYS INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF MATERIAL STAGING AREA(S).
   -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
2. FEATURE MUST BE INSTALLED PRIOR TO EXCAVATION, EARTHWORK OR DELIVERY OF MATERIALS.
3. MATERIALS MUST BE STATIONED ON THE POLY LINER. ANY INCIDENTAL MATERIALS DEPOSITED ON PAVED SECTION OR ALONG CURB LINE MUST BE CLEANED UP PROMPTLY.
4. POLY LINER AND TARP COVER SHOULD BE OF SIGNIFICANT THICKNESS TO PREVENT DAMAGE OR LOSS OF INTEGRITY.
5. SAND BAGS MAY BE SUBSTITUTED TO ANCHOR THE COVER TARP OR PROVIDE BERMING UNDER THE BASE LINER.
6. FEATURE IS NOT INTENDED FOR USE WITH WET MATERIAL THAT WILL BE DRAINING AND/OR SPREADING OUT ON THE POLY LINER OR FOR DEMOLITION MATERIALS.
7. THIS FEATURE CAN BE USED FOR:
   -UTILITY REPAIRS.
   -WHEN OTHER STAGING LOCATIONS AND OPTIONS ARE LIMITED.
   -OTHER LIMITED APPLICATION AND SHORT DURATION STAGING.





SECTION A

VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.
5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ½ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING
6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.
7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

MATERIALS STAGING IN ROADWAY MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS PROMPTLY.
5. CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR VACUUMING.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM AURORA, COLORADO)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   -TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

REVISIONS

No.	DESCRIPTION	DATE

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SUITE 250-S
GREENWOOD VILLAGE, CO 80111

MENDOZA YORK ST SUBDIVISION
ADAMS COUNTY, CO

EROSION CONTROL DETAILS

IMEG Project No: 22006507
File Name: 22006507 EC DETAILS.dwg

Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 4/25/2023

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Sheet 8 of 8

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MENDOZA YORK STREET SUBDIVISION

7330 YORK PUBLIC ROAD IMPROVEMENTS

PARCEL AA, ROTELLO EXEMPTION FROM SUBDIVISION - AMENDED, PARCEL C, ROTELLO EXEMPTION FROM SUBDIVISION, BEING A PART OF THE NORTH ONE-HALF OF THE NORTHEAST ONE-QUARTER OF THE SOUTHEAST ONE-QUARTER OF SECTION 35, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO.

CONTACTS

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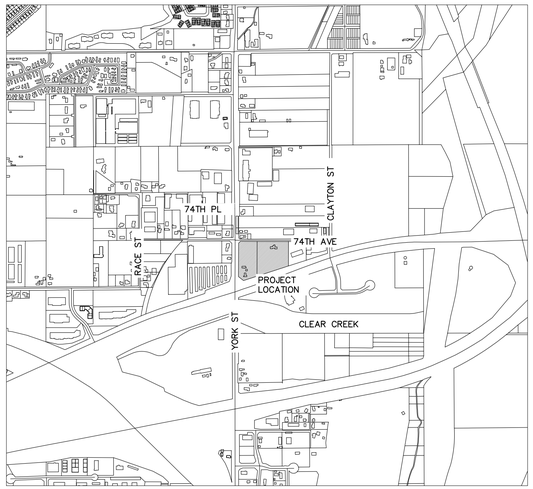
IMEG CORP.
7600 E. ORCHARD ROAD SUITE 250 S
GREENWOOD VILLAGE, CO 80111
RICK ROME P.E.
303-796-6067

ARCHITECT
DEPENBUSCH ARCHITECTURE
6898 S. UNIVERSITY BLVD #220
CENTENNIAL, CO 80122
LAWRENCE DEPENBUSCH



VICINITY MAP
NOT TO SCALE

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	SITE PLAN
4	OVERALL UTILITY PLAN
5	DEMOLITION PLAN
6	OVERALL GRADING PLAN
7	DETAIL GRADING SHEET
8	DETAIL GRADING SHEET
9	DETAIL GRADING SHEET
10	DETAIL GRADING SHEET
11	POND WALL SECTIONS
12	INITIAL EROSION CONTROL PLAN
13	INTERIM EROSION CONTROL PLAN
14	FINAL EROSION CONTROL PLAN
15	EAST STORM SEWER PLAN & PROFILE
16	WEST STORM SEWER PLAN & PROFILE
17	Basin C Storm Profile
18	BASIN B STORM PROFILE
19	POND STRUCTURE DETAILS
20	74TH AVE PLAN & PROFILE
21	74TH AVE PLAN & PROFILE

PUBLIC IMPROVEMENTS SHALL CONFORM TO ADAMS COUNTY STANDARDS AND SPECIFICATIONS AND LATEST EDITION OF COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS

BEARINGS ARE BASED ON THE SOUTH LINE OF THJE PROPERTY DESCRIBED HEREIN BEING ON THE WEST END BY A SET $\frac{5}{8}$" REBAR & 1 $\frac{1}{4}$" YELLOW PLASTIC CAP, PLS 6973, AND ON THE EAST END BY A FOUND $\frac{1}{2}$" REBAR & 1" YELLOW PLASTIC CAP, PLS 6973 BEARING S71°58'00"W

BENCHMARK: ADAMS COUNTY CONTROL MONUMENT STATION NO. 0227 BEING A 3-1/4" ALUMINUM CAP, CDOT PLS 11434, LOCATED WEST OF THE INTERSECTION OF COLORADO STATE HIGHWAY NO. 224 AND YORK STREET IN THE MEDIAN OF COLORADO STATE HIGHWAY 224.
ELEVATION 5120.06 NAVD88 DATUM

OWNER/DEVELOPER

RAFAEL MENDOZA
1955 E. 75TH AVE.
DENVER, CO 80229
303-910-5172

UTILITY NOTE

THE LOCATIONS OF THOSE BURIED AND ABOVE GROUND UTILITIES SHOWN ARE APPROXIMATE, ARE SHOWN FOR CONTRACTOR INFORMATIONAL USE ONLY, AND ARE NOT TO BE REFERENCED FOR CONSTRUCTION PURPOSES. THE IMPLIED PRESENCE OR ABSENCE OF UTILITIES IS NOT TO BE CONSTRUED BY THE OWNER, ENGINEER, CONTRACTOR, OR SUBCONTRACTORS TO BE AN ACCURATE AND COMPLETE REPRESENTATION OF UTILITIES THAT MAY OR MAY NOT EXIST ON THE CONSTRUCTION SITE. BURIED AND ABOVE GROUND UTILITY LOCATION, IDENTIFICATION, AND MARKING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. REROUTING, DISCONNECTION, PROTECTION, ETC. OF ANY UTILITY MUST BE COORDINATED BETWEEN THE CONTRACTOR, UTILITY COMPANY AND OWNER. SITE SAFETY, INCLUDING THE AVOIDANCE OF HAZARDS ASSOCIATED WITH BURIED AND ABOVEGROUND UTILITIES, REMAINS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

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

IMEG CORP. HAS ADOPTED SAFETY PROCEDURES FOR ITS EMPLOYEES WHO PROVIDE PROFESSIONAL ENGINEERING AND SURVEYING SERVICES. A COPY OF THESE PROCEDURES IS AVAILABLE FROM THE SAFETY OFFICER. IMEG CORP. PERSONNEL ARE NOT TRAINED IN CONTRACTOR (CONSTRUCTION) SAFETY AND COMPLIANCE PROCEDURES. THE METHODS AND MEANS TO COMPLY WITH CONSTRUCTION SITE SAFETY ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

REVISIONS

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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

COVER SHEET

IMEG Project No: 22006507.00
File Name: 22006507 RD Cover.dwg

Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 12/6/22

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Sheet 1 of 27

Tuesday, May 23, 2023 9:16:38 AM
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GENERAL NOTES

1. ALL IMPROVEMENTS SHOWN ON THESE ENGINEERING PLANS SHALL COMPLY WITH THE ADAMS COUNTY DESIGN AND SPECIFICATIONS, LATEST EDITION.

2. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, REVIEW OF EXISTING PUBLIC RECORDS, AND FIELD INVESTIGATION. THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH PRESENTLY NOT KNOWN OR SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT EACH UTILITY COMPANY FOR THE FIELD LOCATION OF THEIR EXISTING LINES IN OR NEARBY THE CONSTRUCTION AREA PRIOR TO BEGINNING ANY CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO.

3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES AND PAVED STREETS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF ANY CONFLICTS WITH THE DRAWINGS OCCUR. ANY DAMAGE TO EXISTING UTILITIES AND/OR PAVED STREETS CAUSED BY TRENCHING AND GRADING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE.

4. ALL DEBRIS RESULTING FROM CONSTRUCTION OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE AND IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

5. THE CONTRACTOR SHALL EXERCISE PROPER CAUTION TO PROTECT THE EXISTING IMPROVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE.

GRADING NOTES

1. ALL ELEVATIONS SHOWN ARE TO FLOWLINE FINISHED GRADE OR TOP OF PAVEMENT UNLESS OTHERWISE STATED.

2. PROVIDE POSITIVE DRAINAGE AT ALL TIMES WITHIN THE CONSTRUCTION AREAS, NOT ALLOWING WATER TO POND. DO NOT ALLOW WATER TO DRAIN OR TO POND ONTO ADJOINING PROPERTY OR PUBLIC RIGHT-OF-WAY.

3. PRIOR TO PLACEMENT OF ANY FILL, THE STRIPPED SITE SHALL BE SCARIFIED TO A DEPTH OF 9 INCHES AND RE-COMPACTED TO DENSITIES SPECIFIED BELOW. ANY UNSUITABLE SOILS FOUND AT THIS TIME SHALL BE DRIED AND RECOMPACTED OR REMOVED IF REQUIRED COMPACTION CANNOT BE OBTAINED.

4. ALL FILL MATERIAL SHALL CONSIST OF APPROVED, SUITABLE SOILS PLACED IN LOOSE LIFTS OF 9 INCHES OR LESS AND COMPACTED TO AT LEAST 95% OF THE MATERIAL'S MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D-698). THE COMPACTION WILL BE FIELD TESTED BY A SOILS ENGINEERING CONSULTANT REPRESENTING THE OWNER.

5. SOIL AMENDED TO SOIL BELOW SURFACE. THE AMENDED SOIL SHALL BE: EXISTING TOPSOIL 20%, COMPOST MULCH 35%, CLEAN SAND 45%. MIX THOROUGHLY AND CLEAN AND CLEAN UN-COMPACTED. LEAVE 3"-6" HIGH TO ALLOW FOR NATURAL SETTLING.

6. PROJECT WILL BE COVERED BY A GENERAL PERMIT REGULATING RUNOFF FROM CONSTRUCTION SITES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THE REQUIRED MONITORING, INSPECTION AND MAINTENANCE AS REQUIRED BY THE PERMIT.

7. ALL DISTURBED EMBANKMENTS GREATER THAN 3:1 SLOPES SHALL BE SEEDED ACCORDING TO A RECOMMENDED SEEDING MIX BY THE LANDSCAPER AND COVERED WITH EROSION CONTROL BLANKETS OR AS DIRECTED BY PLAN DOCUMENTS.

8. CONTRACTOR SHALL ADHERE TO THE ADAMS COUNTY EROSION AND SEDIMENT CONTROL REGULATIONS AND THE STATE OF COLORADO NPDES REQUIREMENTS.

UTILITY NOTES

1. THE PRIVATE FIREMAIN SHOULD BE PRESSURE TESTED IN ACCORDANCE WITH NFPA 24.

2. ALL GATE VALVES SHALL BE INSTALLED WITH VALVE BOX.

3. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, REVIEW OF EXISTING PUBLIC RECORDS, AND FIELD INVESTIGATION. THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH PRESENTLY NOT KNOWN OR SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT EACH UTILITY COMPANY FOR THE FIELD LOCATION OF THEIR EXISTING LINES IN OR NEARBY THE CONSTRUCTION AREA PRIOR TO BEGINNING ANY CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO.

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES AND PAVED STREETS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF ANY CONFLICTS WITH THE DRAWINGS OCCUR. ANY DAMAGE TO EXISTING UTILITIES AND/OR PAVED STREETS CAUSED BY TRENCHING AND GRADING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE.

5. THE CONTRACTOR SHALL EXERCISE PROPER CAUTION TO PROTECT THE EXISTING IMPROVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE.

ADAMS COUNTY EROSION CONTROL PLAN GENERAL NOTES

1. ALL CONSTRUCTION PROJECTS, REGARDLESS OF THE SIZE, SHALL INSTALL, MAINTAIN, AND REPAIR STORMWATER POLLUTION CONTROL MEASURES (CMS) TO EFFECTIVELY MINIMIZE EROSION, SEDIMENT TRANSPORT, AND THE RELEASE OF POLLUTANTS RELATED TO CONSTRUCTION ACTIVITY. CMS EXAMPLE INCLUDE: SEDIMENT CONTROL LOGS (SCL), SILT FENCE (SF), DIKES/SWALES, SEDIMENT TRAPS (ST), INLET PROTECTION (IP), OUTLET PROTECTION (OP), CHECK DAMS (CD), SEDIMENT BASINS (SB), TEMPORARY/PERMANENT SEEDING AND MULCHING (MU), SOIL ROUGHENING, MAINTAINING EXISTING VEGETATION AND PROTECTION OF TREES. CMS MUST BE SELECTED, DESIGNED, ADEQUATELY SIZED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH GOOD ENGINEERING, HYDROLOGIC AND POLLUTION CONTROL PRACTICES. CMS/BMPS INSTALLATION AND MAINTENANCE DETAILS SHALL CONFORM TO URBAN DRAINAGE FLOOD CONTROL CRITERIA MANUAL VOLUME 3, OR THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) ITEM CODE BOOK. CMS MUST FILTER, SETTLE, CONTAIN OR STRAIN POLLUTANTS FROM STORMWATER FLOWS IN ORDER TO PREVENT BYPASS OF FLOWS WITHOUT TREATMENT. CMS MUST BE APPROPRIATE TO TREAT THE RUNOFF FROM THE AMOUNT OF DISTURBED AREA, THE EXPECTED FLOW RATE, DURATION, AND FLOW CONDITIONS (I.E., SHEET OR CONCENTRATED FLOW). CMS/BMPS SHALL BE SPECIFIED IN THE SWMP (IF APPLICABLE), AND THE LOCATIONS SHOWN ON THE EC PLAN.
2. PRIOR TO CONSTRUCTION, PROJECTS DISTURBING 1 OR MORE ACRES OF LAND, OR ANY PROJECT BELONGING TO A COMMON PLAN OF DEVELOPMENT DISTURB 1 OR MORE ACRES, MUST OBTAIN:
3. A GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES, FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, AND
4. AN ADAMS COUNTY STORMWATER QUALITY PERMIT WITHIN THE UNINCORPORATED ADAMS COUNTY MS4 AREA.
5. PERMITTED PROJECTS SHALL DEVELOP A STORMWATER MANAGEMENT PLAN (SWMP), AKA EROSION AND SEDIMENT CONTROL PLAN (ESCP), IN COMPLIANCE WITH CDPHE MINIMUM REQUIREMENTS. THE APPROVED SWMP, INCLUDING EROSION CONTROL (EC) PLAN (SITE MAP), SHALL BE KEPT ON SITE AND UPDATED AT ALL TIMES. THE QUALIFIED STORMWATER MANAGER IS RESPONSIBLE FOR IMPLEMENTING THE SWMP AND CMS (AKA BMPS) DURING CONSTRUCTION.
6. PERMITTED PROJECTS SHALL PERFORM REGULAR STORMWATER INSPECTIONS EVERY 7 CALENDAR DAYS; OR EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY PRECIPITATION OR SNOWMELT EVENT THAT CAUSES SURFACE EROSION. INSPECTION FREQUENCY CAN BE REDUCED FOR POST-STORM EVENT INSPECTIONS AT TEMPORARILY IDLE SITES AND ALSO FOR STORMWATER INSPECTIONS AT COMPLETED SITES WAITING FOR FINAL STABILIZATION. INSPECTION REPORTS MUST IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE.
7. TRACKING OF DIRT ONTO PAVED PUBLIC OR PRIVATE PAVED ROADS IS NOT ALLOWED. THE USE OF DIRT RAMPS TO ENTER/EXIT FROM AN UNPAVED INTO A PAVED AREA IS PROHIBITED. VEHICLE TRACKING CONTROLS SHALL BE IMPLEMENTED, OTHERWISE ENTRANCE AREA MUST DRAIN THRU A CM TOWARDS THE PRIVATE SITE.
8. TRUCK LOADS OF FILL MATERIAL IMPORTED TO OR CUT MATERIAL EXPORTED FROM THE SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORTATION ON PUBLIC ROW. HAUL ROUTES MUST BE PERMITTED BY THE COUNTY. NO MATERIAL SHALL BE TRANSPORTED TO ANOTHER SITE WITHOUT APPLICABLE PERMITS.
9. CONTROL MEASURES DESIGNED FOR CONCRETE WASHOUT WASTE MUST BE IMPLEMENTED. THIS INCLUDES WASHOUT WASTE DISCHARGED TO THE GROUND AND WASHOUT WASTE FROM CONCRETE TRUCKS AND MASONRY OPERATIONS.
10. TEMPORARY CMS/BMPS SHALL BE REMOVED AFTER THE SITE HAS REACHED FINAL STABILIZATION.
11. DEWATERING OPERATIONS DISCHARGING OFF-SITE INTO ANY WATERS CONVEYANCE SYSTEMS INCLUDING WETLANDS, IRRIGATION DITCHES, CANALS, RIVERS, STREAMS OR STORM SEWER SYSTEMS, REQUIRE A STATE CONSTRUCTION DEWATERING PERMIT.
12. PERMITTED PROJECTS SHALL KEEP THE CDPHE'S STORMWATER DISCHARGE PERMIT, STORMWATER MANAGEMENT PLAN (SWMP) AND INSPECTION LOGS AVAILABLE ON-SITE THROUGHOUT THE DURATION OF THE PROJECT, AND FOR AN ADDITIONAL 3 YEARS AFTER PERMIT CLOSE-OUT.
13. PERMITTED LANDOWNER AND/OR CONTRACTOR SHALL CLOSE THE STATE AND CITY/COUNTY PERMIT ONCE FINAL STABILIZATION IS REACHED. STORMWATER INSPECTIONS SHALL CONTINUE UNTIL INACTIVATION NOTICE IS FILED WITH CDPHE.

PERFORMANCE STANDARD NOTES

STORMWATER RUNOFF FROM DISTURBED AREAS MUST FLOW TO AT LEAST ONE (1) CM TO MINIMIZE SEDIMENT IN THE DISCHARGE. DO NOT ALLOW SEDIMENT TO LEAVE THE SITE. THE BEST WAY TO PREVENT SEDIMENT OR POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM IS TO STABILIZE THE SITE AS QUICKLY AS POSSIBLE, PREVENTING EROSION AND STOPPING SEDIMENT RUN OFF AT ITS SOURCE.

1. PHASE CONSTRUCTION TO MINIMIZE DISTURBED AREAS, INCLUDING DISTURBANCE OF STEEP SLOPES. (I.E. THE ENTIRE PROJECT SITE SHOULD NOT BE DISTURBED IF CONSTRUCTION WILL ONLY BE OCCURRING IN ONE PARTICULAR SECTION OF THE SITE).LIMIT SOIL EXPOSURE TO THE SHORTEST POSSIBLE PERIOD OF TIME. PROTECT NATURAL FEATURES AND EXISTING VEGETATION WHENEVER POSSIBLE. REMOVAL OF EXISTING VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS. MAINTAIN PRE-EXISTING VEGETATION (OR EQUIVALENT CMS) FOR AREAS WITHIN 50 HORIZONTAL FT OF RECEIVING WATERS.
2. SOIL COMPACTION MUST BE MINIMIZED FOR AREAS WHERE INFILTRATION CMS WILL OCCUR OR WHERE FINAL STABILIZATION WILL BE ACHIEVED THROUGH VEGETATIVE COVER.
3. ALL SOIL IMPORTED TO OR EXPORTED FROM THE SITE SHALL BE PROPERLY COVERED TO PREVENT THE LOSS OF MATERIAL DURING TRANSPORT.
4. DUST EMISSIONS RESULTING FROM GRADING ACTIVITIES OR WIND SHALL BE CONTROLLED.
5. INSTALL CONSTRUCTION FENCE (ORANGE) TO PROTECT WETLANDS AND OTHER SENSITIVE AREAS AND TO PREVENT ACCESS, AND TO DELINEATE THE LIMITS OF CONSTRUCTION. DO NOT USE SILT FENCE TO PROTECT WETLANDS SINCE TRENCHING MAY IMPACT THESE AREAS.
6. CMS INTENDED TO CAPTURE OVERLAND, LOW VELOCITY SHEET FLOW AT A FAIRLY LEVEL GRADE SHALL ONLY BE INSTALLED ALONG CONTOURS.
7. INSTALL CMS, SUCH AS CHECK DAMS, PERPENDICULAR TO THE CONCENTRATED FLOWS TO REDUCE FLOW VELOCITY.
8. STORM DRAIN INLETS WITHIN AND ADJACENT TO THE CONSTRUCTION SITE MUST BE PROTECTED. ANY PONDING OF STORMWATER AROUND INLET PROTECTION MUST NOT CAUSE EXCESSIVE FLOODING OR DAMAGE ADJACENT AREAS OR STRUCTURES.
9. INSTALL VEHICLE TRACKING CONTROL (VTC) TO ENTER/EXIT UNPAVED AREA. DO NOT USE RECYCLED CRUSHED CONCRETE OR ASPHALT MILLINGS FOR VEHICLE TRACKING PADS.
10. STRAW BALES SHALL NOT BE USED FOR PRIMARY EROSION OR SEDIMENT CONTROL (I.E. STRAW BALES MAY BE USED FOR REINFORCEMENT BEHIND ANOTHER BMP SUCH AS SILT FENCE).
11. OUTLETS SYSTEMS (SUCH AS SKIMMER OR PERFORATED RISER PIPE) SHALL BE INSTALLED TO WITHDRAW WATER FROM OR NEAR THE SURFACE LEVEL WHEN DISCHARGING FROM BASINS. WATER CANNOT DRAIN FROM THE BOTTOM OF THE POND.
12. TEMPORARY STABILIZATION MUST BE IMPLEMENTED FOR EARTH DISTURBING ACTIVITIES ON ANY PORTION OF THE SITE WHERE LAND DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED (FOR MORE THAN 14 CALENDAR DAYS). TEMPORARY STABILIZATION METHODS EXAMPLES: TARPS, SOIL TACKIFIER, AND HYDROSEED. TEMPORARY STABILIZATION REQUIREMENT MAY EXCEED THE 14-DAY SCHEDULE WHEN EITHER THE FUNCTION OF THE SPECIFIC AREA REQUIRES IT TO REMAIN DISTURBED, OR, PHYSICAL CHARACTERISTICS OF THE TERRAIN AND CLIMATE PREVENT STABILIZATION AS LONG AS THE CONSTRAINTS AND ALTERNATIVE SCHEDULE IS DOCUMENTED ON THE SWMP, AND LOCATIONS ARE IDENTIFIED ON THE EC PLAN (SITE MAP).
13. RUNOFF FROM STOCKPILE AREA MUST BE CONTROLLED. SOILS THAT WILL BE STOCKPILED FOR MORE THAN 30 DAYS SHALL BE PROTECTED FROM WIND AND WATER EROSION WITHIN 14 DAYS OF STOCKPILE CONSTRUCTION. INSTALL CMS/BMPS 5 FT AWAY FROM THE TOE OF THE STOCKPILE'S SLOPE.
14. WATER USE TO CLEAN CONCRETE TRUCKS SHALL BE DISCHARGED INTO A CONCRETE WASHOUT AREA (CWA). THE PREDEFINED CONTAINMENT AREA MUST BE IDENTIFIED WITH A SIGN, AND SHALL ALLOW THE LIQUIDS TO EVAPORATE OR DRY OUT. CWA DISCHARGES THAT MAY REACH GROUNDWATER MUST FLOW THROUGH SOIL THAT HAS BUFFERING CAPACITY PRIOR TO REACHING GROUNDWATER. THE CONCRETE WASHOUT LOCATION SHALL BE NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT AND WOULD RESULT IN BUFFERING CAPACITY NOT BEING ADEQUATE, SUCH AS NEAR NATURAL DRAINAGES, SPRINGS, OR WETLANDS. IN THIS CASE, A LINER UNDERNEATH IS NEEDED FOR AREAS WITH HIGH GROUNDWATER LEVELS. CWA SHALL NOT BE PLACED IN LOW AREAS, DITCHES OR ADJACENT TO STATE WATERS. PLACE CWA 50 FT AWAY FROM STATE WATERS.
15. WASTE, SUCH AS BUILDING MATERIALS, WORKERS TRASH AND CONSTRUCTION DEBRIS, MUST BE PROPERLY MANAGED TO PREVENT STORMWATER POLLUTION.
16. INSTALL STABILIZED STAGING AREA (SSA) TO STORE MATERIALS, CONSTRUCTION TRAILER, ETC.
17. IF CONDITIONS IN THE FIELD WARRANT ADDITIONAL CMS/BMPS TO THE ONES ORIGINALLY APPROVED ON THE SWMP OR EC PLAN (CIVIL DRAWING), THE LANDOWNER OR CONTRACTOR SHALL IMPLEMENT MEASURES DETERMINED NECESSARY, AS DIRECTED BY THE COUNTY.
18. PERMANENT CMS/BMPS FOR SLOPES, CHANNELS, DITCHES, OR DISTURBED LAND AREA SHALL BE PERFORMED IMMEDIATELY AFTER FINAL GRADING. CONSIDER THE USE EROSION CONTROL BLANKETS ON SLOPES 3:1 OR STEEPER AND AREAS WITH CONCENTRATED FLOWS SUCH AS SWALES, LONG CHANNELS AND ROADSIDE DITCHES.
19. THE DISCHARGE OF SANITARY WASTE INTO THE STORM SEWER SYSTEM IS PROHIBITED. PORTABLE TOILETS MUST BE PROVIDED, SECURED AND PLACED ON PERMEABLE SURFACES, AWAY FROM THE CURBSIDE, STORM INLETS AND/OR DRAINAGE WAYS.
20. REMOVE TEMPORARY CMS/BMPS ONCE FINAL STABILIZATION IS REACHED, UNLESS OTHERWISE AUTHORIZED.
21. FINAL STABILIZATION MUST BE IMPLEMENTED. FINAL STABILIZATION IS REACHED WHEN ALL SOIL DISTURBING ACTIVITIES HAVE BEEN COMPLETED, AND EITHER A UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST 70% OF PRE-DISTURBANCE LEVELS, OR EQUIVALENT PERMANENT ALTERNATIVE METHOD HAS BEEN IMPLEMENTED.
22. PROVIDE SPILL PREVENTION AND CONTAINMENT MEASURES FOR CONSTRUCTION MATERIALS, WASTE AND FUEL STORAGE AREAS. BULK STORAGE (55 GALLONS OR GREATER) OF PETROLEUM PRODUCTS AND LIQUID CHEMICALS MUST HAVE SECONDARY CONTAINMENT, OR EQUIVALENT PROTECTION, IN ORDER TO CONTAIN SPILLS AND TO PREVENT SPILLED MATERIAL FROM ENTERING STATE WATERS.
23. REPORT SPILLS OR RELEASES OF CHEMICAL, OIL, PETROLEUM PRODUCT, SEWAGE, ETC., WHICH MAY REACH THE STORM SEWER OR ENTER STATE WATERS WITHIN 24-HOURS FROM TIME OF DISCOVERY. GUIDANCE AVAILABLE AT WWW.CDPHE.STATE.CO.US/EMP/SPILLSANDRELEASED.HTM. STATE OF COLORADO SPILL-LINE: 1-877-518-5608. ADAMS COUNTY STORMWATER HOTLINE: 720-523-6400; PUBLIC WORKS 303-453-8787 AND THE TRI-COUNTY HEALTH DEPARTMENT AT 303-220-9200.

MAINTENANCE STANDARD NOTES

1. MAINTAIN AND REPAIR CMS ACCORDING TO APPROVED EROSION CONTROL PLAN (CIVIL DRAWING) TO ASSURE THEY CONTINUE PERFORMING AS ORIGINALLY INTENDED.
2. CMS/BMPS REQUIRING MAINTENANCE OR ADJUSTMENT SHALL BE REPAIRED IMMEDIATELY AFTER OBSERVATION OF THE FAILING BMP.
3. CMS SHALL BE CLEANED WHEN SEDIMENT LEVELS ACCUMULATE TO HALF THE DESIGN UNLESS OTHERWISE SPECIFIED.
4. SWMP AND EC PLAN SHALL BE CONTINUOUSLY UPDATED TO REFLECT NEW OR REVISED CMS/BMPS DUE TO CHANGES IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, TO ACCURATELY REFLECT THE ACTUAL FIELD CONDITIONS. A NOTATION SHALL BE MADE IN THE SWMP, INCLUDING DATE OF CHANGES IN THE FIELD, IDENTIFICATION OF THE CMS REMOVED, MODIFIED OR ADDED, AND THE LOCATIONS OF THOSE CMS. UPDATES MUST BE MADE WITHIN 72-HOURS FOLLOWING THE CHANGE.
5. MAINTAIN VEHICLE TRACKING CONTROL (VTC), IF SEDIMENT TRACKING OCCURS, CLEAN-UP IMMEDIATELY. SWEEP BY HAND OR THE USE STREET SWEEPERS (WITH VACUUM SYSTEM). FLUSHING OFF PAVED SURFACES WITH WATER IS PROHIBITED.
6. CWA MUST BE CLEANED ONCE WASTE ACCUMULATION REACHES ¾ OF THE WET STORAGE CAPACITY OF THE STRUCTURE. LEGALLY DISPOSED OF CONCRETE WASTE. DO NOT BURY ON-SITE.
7. CLEAN-UP SPILLS IMMEDIATELY AFTER DISCOVERY, OR CONTAIN UNTIL APPROPRIATE CLEANUP METHODS CAN BE EMPLOYED. FOLLOW MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP, ALONG WITH PROPER DISPOSAL METHODS. RECORDS OF SPILLS, LEAKS, OR OVERFLOWS THAT RESULT IN DISCHARGE OF POLLUTANTS MUST BE DOCUMENTED AND MAINTAINED.
8. REMOVE SEDIMENT FROM STORM SEWER INFRASTRUCTURE (PONDS, STORM PIPES, OUTLETS, INLETS, ROADSIDE DITCHES, ETC.), AND RESTORE VOLUME CAPACITY UPON COMPLETION OF PROJECT OR PRIOR TO INITIAL ACCEPTANCE OF PUBLIC IMPROVEMENTS (IF APPLICABLE). DO NOT FLUSH SEDIMENT OFFSITE, CAPTURE ON-SITE AND DISPOSED OF AT AN APPROVED LOCATION.
9. THESE NOTES ARE NOT INTENDED TO BE ALL-INCLUSIVE, BUT TO HIGHLIGHT THE BASIC STORMWATER POLLUTION PREVENTION REQUIREMENTS FOR CONSTRUCTION ACTIVITIES TO COMPLY WITH CDPS STORMWATER CONSTRUCTION PERMIT AND BE IN CONFORMANCE WITH COUNTY STANDARDS.

LEGEND

PROPOSED	EXISTING	
◉	◎	STORM MANHOLE
■	□	STORM INLET
●	○	STORM INLET
▬	▭	STORM DOUBLE INLET
◀	◁	FLARED END SECTION
⬢	⬡	SANITARY MANHOLE
◉	⊙	SANITARY/STORM CLEANOUT
⋈	⋈	WATER VALVE
		HYDRANT
Ⓦ	Ⓦ	WELL
W	W	WATER METER
		WATER SERVICE
		POWER POLE
		POWER POLE W/ LIGHT
		POWER POLE W/ METER
		GUY WIRE
		GUY POLE
Ⓔ	Ⓔ	ELECTRIC MANHOLE
E	E	ELECTRIC PEDESTAL/TRANSFORMER
E	E	ELECTRIC METER
		TELEPHONE POLE
Ⓣ	Ⓣ	TELEPHONE MANHOLE
T	T	TELEPHONE PEDESTAL
C	C	CABLE TV PEDESTAL
⊗	⊗	GAS VALVE
G	G	GAS METER
	A	AIR CONDITIONING UNIT
		LIGHT POLE
		TRAFFIC SIGNAL
		TRAFFIC CANTILEVER
		TRAFFIC SIGNAL CONTROLLER
		MAIL BOX
		SIGN
		POST/BOLLARD
		ADA STALL
	×100.00	SPOT ELEVATION
	TC=100.00 FL=100.00	GRADE LABEL
	1.0%	DRAINAGE SLOPE
	∫	LINE CONTINUATION
		SURVEY BOUNDARY
		PROPERTY LINE
		CENTERLINE
		HISTORICAL LINE - AS NOTED
		EASEMENT LINE
		SECTION LINE
		R.O.W. LINE
		SETBACK LINE
		FORCE MAIN
		SANITARY SEWER
		STORM SEWER
		COMBINATION SANITARY/STORM SEWER
		PIPE UNDERDRAIN
W	W	WATER LINE
OE	OE	OVERHEAD ELECTRIC
E	E	UNDERGROUND ELECTRIC
G	G	GAS LINE
TV	TV	TELEVISION LINE
T	T	TELEPHONE LINE
FOC	FOC	FIBER OPTIC CABLE
UT	UT	UTILITY LINE
		EDGE OF WATER LINE/DITCH FLOWLINE
		CHAIN LINK FENCE
		WIRE FENCE
		WOOD FENCE
		SILT FENCE
		GUARD RAIL
100	100	CONTOUR
		FLOOD PLAIN
		FLOODWAY
		CONSTRUCTION LIMITS

REVISIONS

No.	DESCRIPTION	DATE

IMEG
PH: 303.796.6000
www.imegcorp.com
7600 E ORCHARD RD
SUITE 250-S
GREENWOOD VILLAGE, CO 80111

MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

GENERAL NOTES

IMEG Project No: 22006507.00

File Name: 22006507 RD Notes.dwg

Field Book No:

Drawn By: RAR

Checked By: TCG

Date: 12/6/22

2

Tuesday, May 23, 2023 9:16:44 AM
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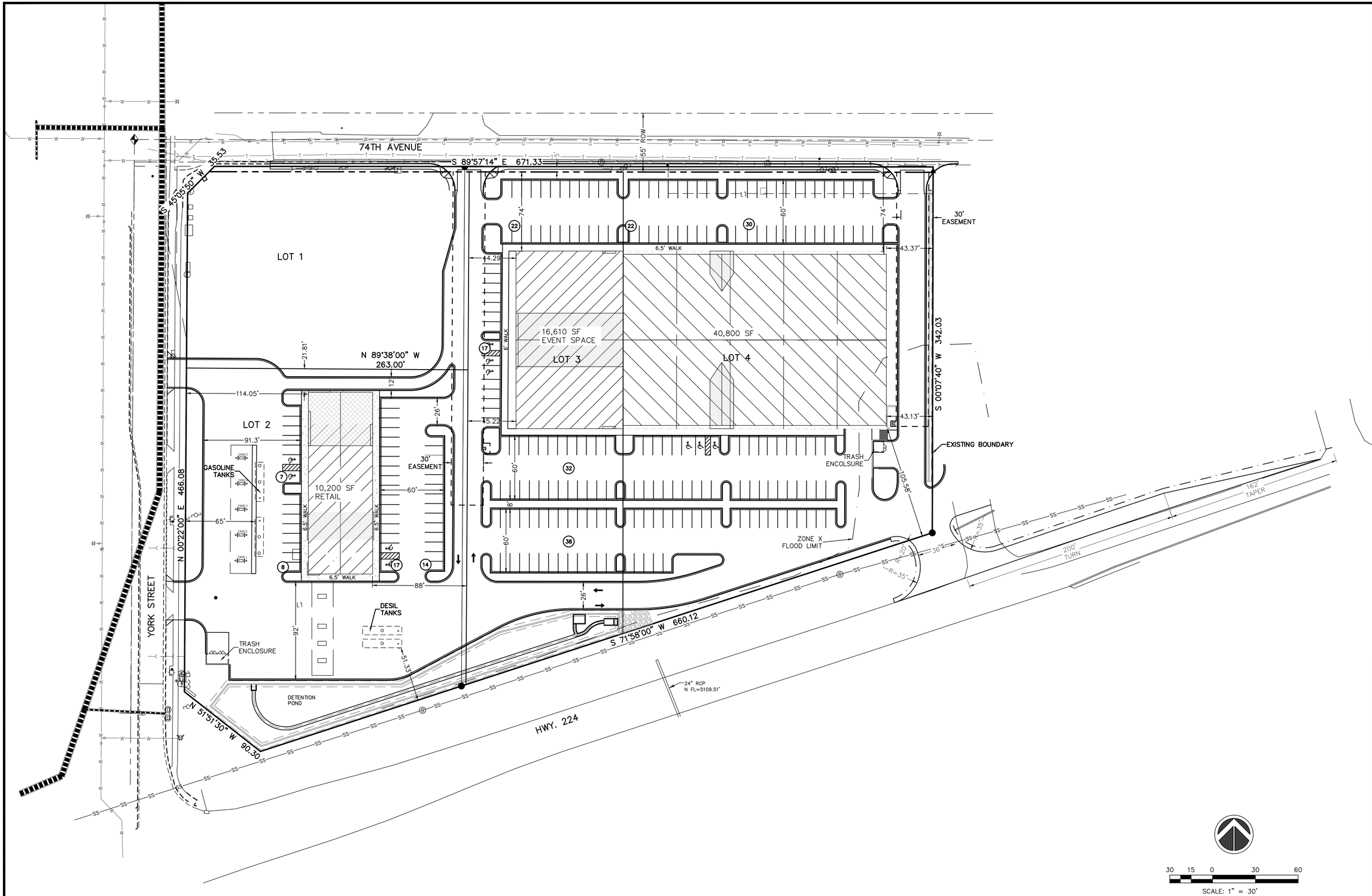

30 15 0 30 60

SCALE: 1" = 30'

No.	REVISIONS DESCRIPTION	DATE

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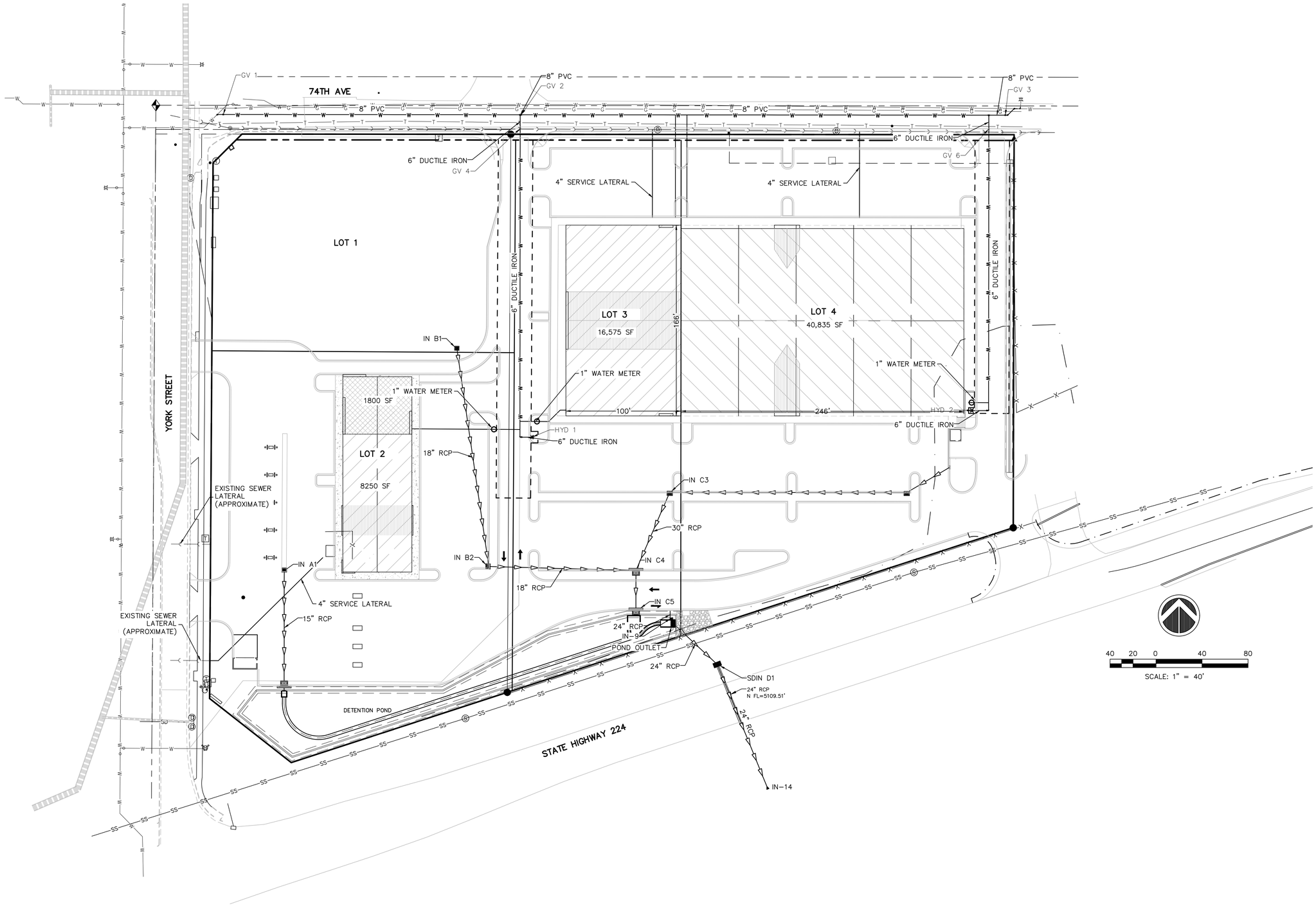
MENDOZA YORK STREET SUBDIVISION

ADAMS COUNTY, CO

SITE PLAN

IMEG Project No:	22006507.00
File Name:	22006507 RD Site.dwg
Field Book No:	
Drawn By:	RAR
Checked By:	TCG
Date:	12/6/22
	3



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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

OVERALL UTILITY PLAN

IMEG Project No:	22006507.00
File Name:	22006507 RD Overall Utility.dwg
Field Book No:	
Drawn By:	RAR
Checked By:	TCG
Date:	12/6/22

4

74TH AVE

YORK STREET

STATE HIGHWAY 224

SAWCUT 620 LF

UTILITY POLE TO REMAIN

UTILITY POLE TO REMAIN

ABANDON 685 LF WATER MAIN

ASJUST SANITARY RIM TO FINISHED GRADE

UTILITY POLE TO REMAIN

ASJUST SANITARY RIM TO FINISHED GRADE

UTILITY POLE TO REMAIN

EXISTING WELL TO BE ABANDON.

EXISTING STRUCTURE TO BE REMOVED

REMOVE AND DISPOSE CONCRETE PAD

REMOVE AND DISPOSE CONCRETE PAD

REMOVE AND DISPOSE CONCRETE PAD

EXISTING WALL TO BE REMOVED

EXISTING STRUCTURE TO BE REMOVED

EXISTING STRUCTURE TO BE REMOVED

EXISTING WELL TO BE ABANDON.

EXISTING STRUCTURE TO BE REMOVED

EXISTING ACCESS AND PIPE TO BE RECONSTRUCTURED 50' WEST

24" RCP
N FL=5109.51'

30 15 0 30 60

SCALE: 1" = 30'

No.	DESCRIPTION	DATE

REVISIONS

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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

DEMOLITION PLAN

IMEG Project No: 22006507.00

File Name: 22006507 RD Demo.dwg

Field Book No:

Drawn By: RAR

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Date: 12/6/22

5

Tuesday, May 23, 2023 9:17:21 AM
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74TH AVE

YORK STREET

STATE HIGHWAY 224

TEMPORARY STOCKPILE AREA

FF=5118.00

FF=5118.00

FF=5118.41

CONCEPTUAL EARTHWORK
UNADJUSTED TO FINISHED GRADE

CUT 1,200 CY

FILL 26,600 CY

TYPE C

TYPE 13 COMBO (SINGLE)

TYPE 13 VALLEY

MOD TYPE D

Type D

5' TYPE R

5' TYPE R

5' TYPE R

5' TYPE R

18" RCP

18" RCP

15" RCP

30" RCP

36" RCP

24" RCP

24" RCP

24" RCP
N FL=5109.51'

Concrete Flared End Section

DISP 5

DISP 4

DISP 3

DISP 2

DISP 1

-1.1%

-0.6%

-0.9%

-2.1%

-2.0%

-1.7%

-1.8%

-2.3%

-2.6%

30 15 0 30 60

SCALE: 1" = 30'

No.	DESCRIPTION	DATE

REVISIONS

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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

OVERALL GRADING PLAN

IMEG Project No: 22006507.00

File Name: 22006507 RD GRADING.dwg

Field Book No:

Drawn By: RAR

Checked By: TCG

Date: 12/6/22

6

Sheet 6 of 27

Tuesday, May 23, 2023 9:17:34 AM
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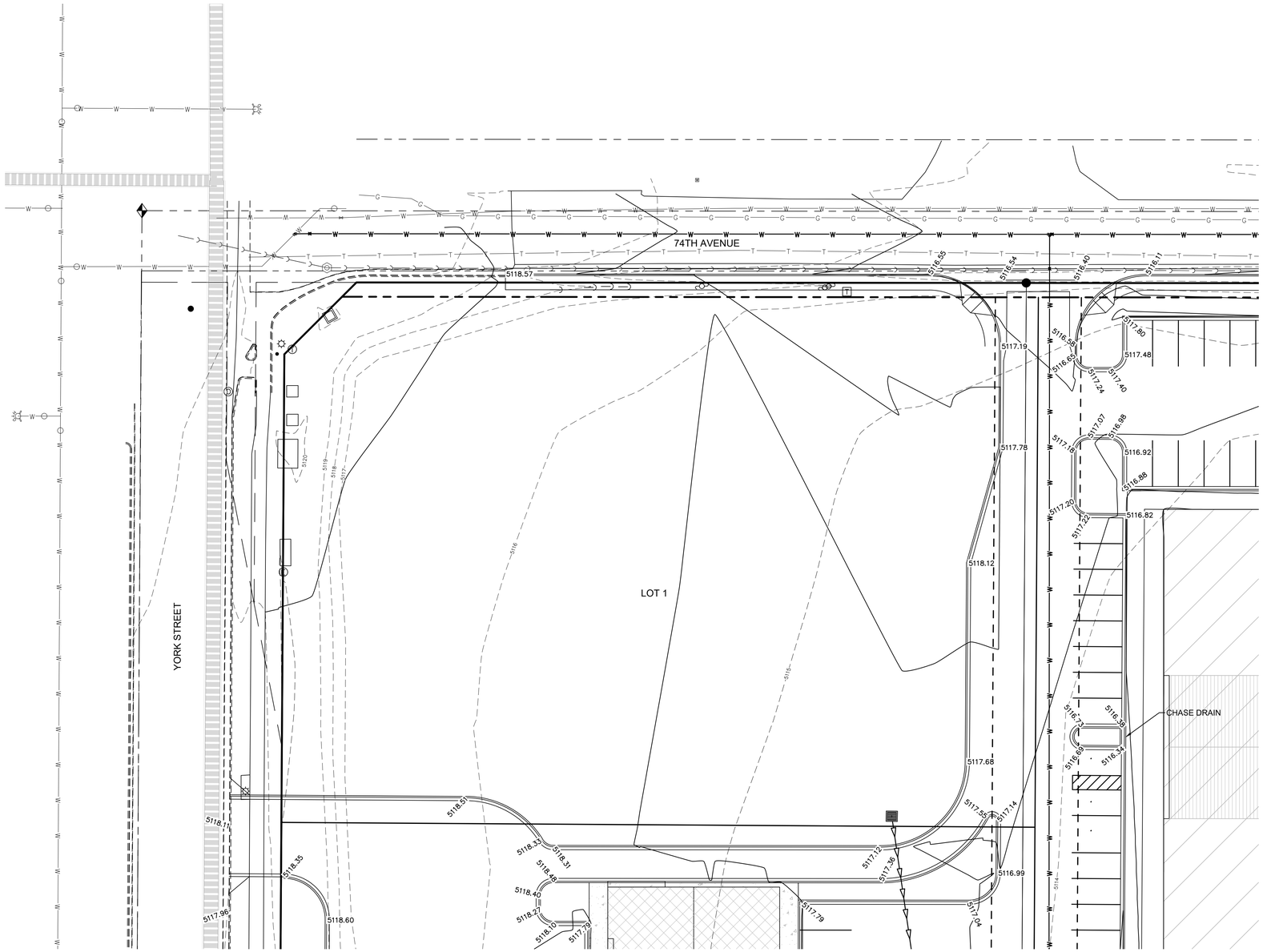

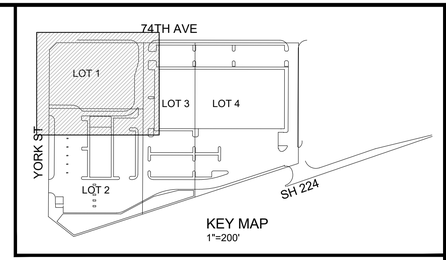

ALL ELEVATIONS ARE FLOW LINE UNLESS OTHERWISE NOTED

20 10 0 20 40

SCALE: 1" = 20'

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ADAMS COUNTY, CO

DETAIL GRADING SHEET

IMEG Project No: 22006507.00

File Name: 22006507 RD GRADING DET.dwg

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Sheet 7 of 27

Tuesday, May 23, 2023 9:17:47 AM
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SCALE: 1" = 20'

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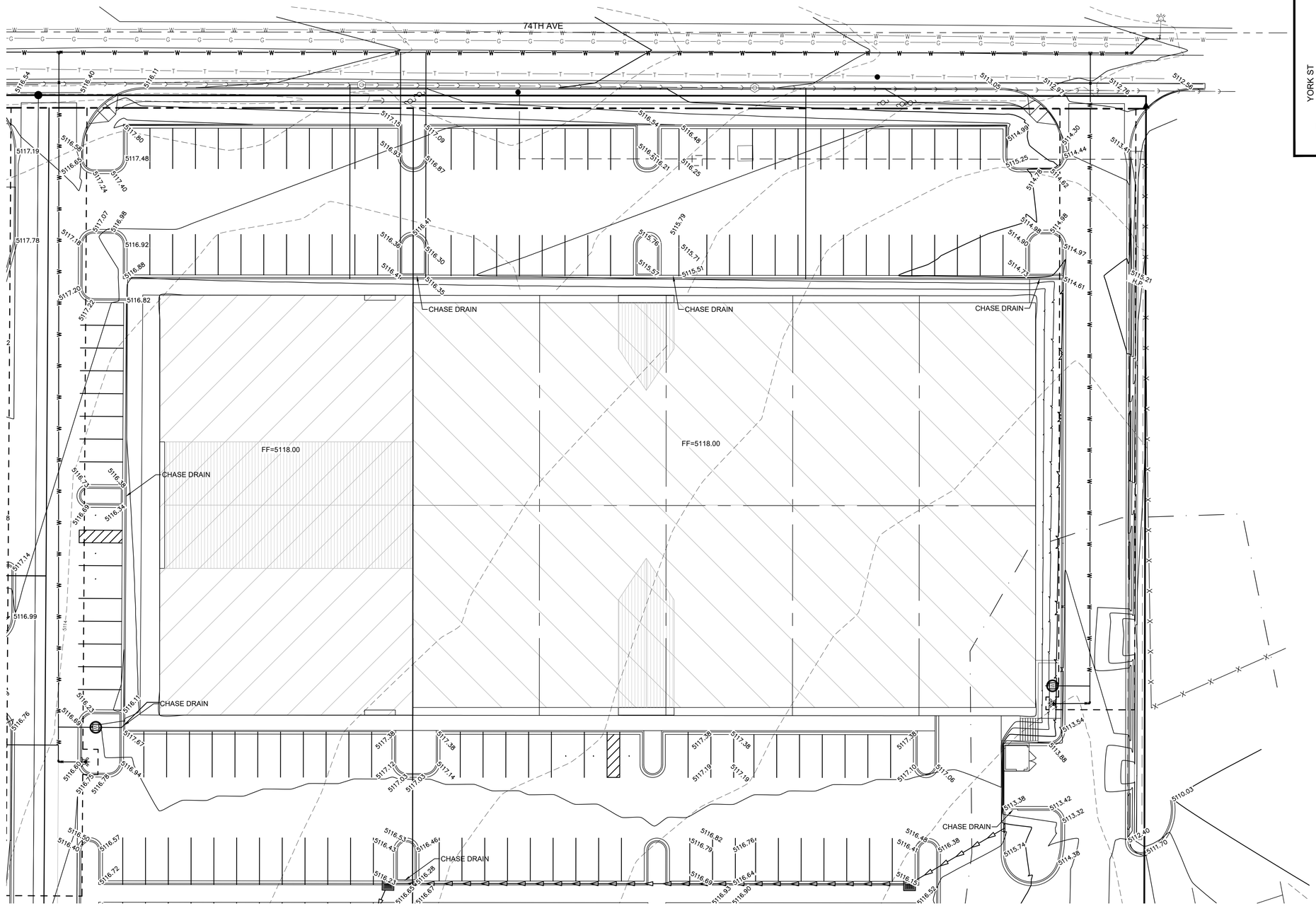
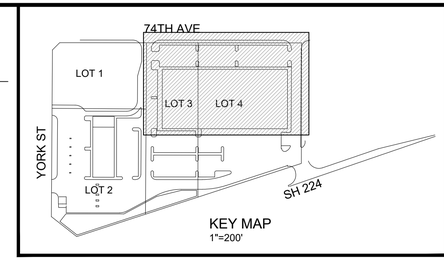
ADAMS COUNTY, CO

DETAIL GRADING SHEET

IMEG Project No:	22006507.00
File Name:	22006507 RD GRADING DET.dwg
Field Book No:	
Drawn By:	RAR
Checked By:	TCG
Date:	12/6/22

8





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20 10 0 20 40

SCALE: 1" = 20'

MENDOZA YORK STREET SUBDIVISION
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DETAIL GRADING SHEET

IMEG Project No: 22006507.00

File Name: 22006507 RD GRADING DET.dwg

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Sheet 9 of 27

Tuesday, May 23, 2023 9:17:56 AM
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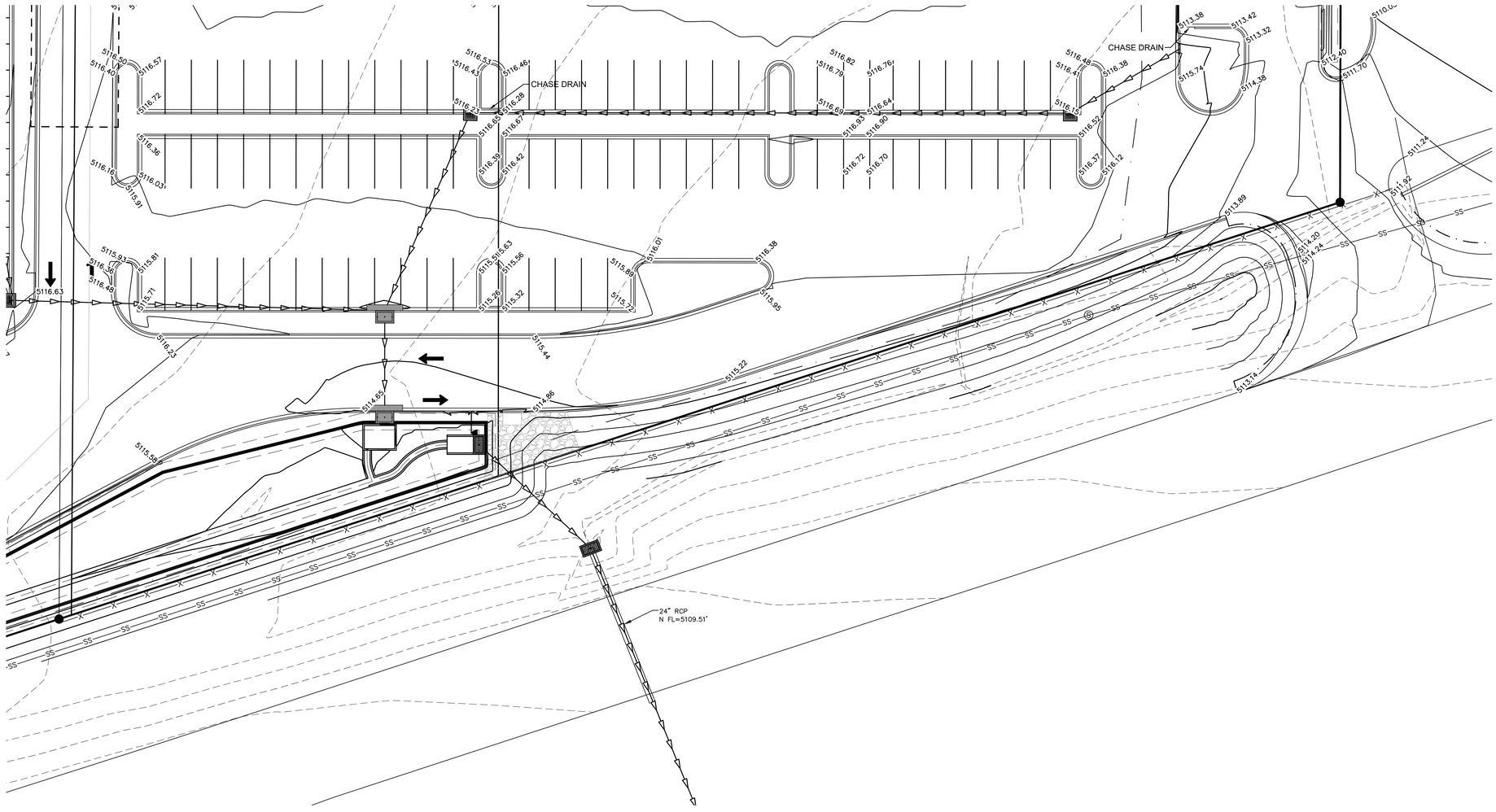

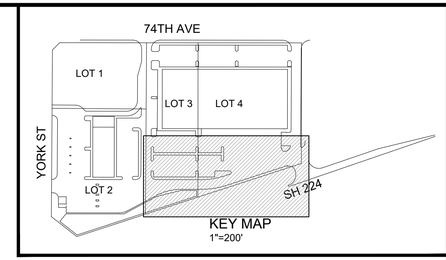

20 10 0 20 40

SCALE: 1" = 20'

REVISIONS

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DETAIL GRADING SHEET

IMEG Project No: 22006507.00

File Name: 22006507 RD GRADING DET.dwg

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10

Tuesday, May 23, 2023 9:18:01 AM
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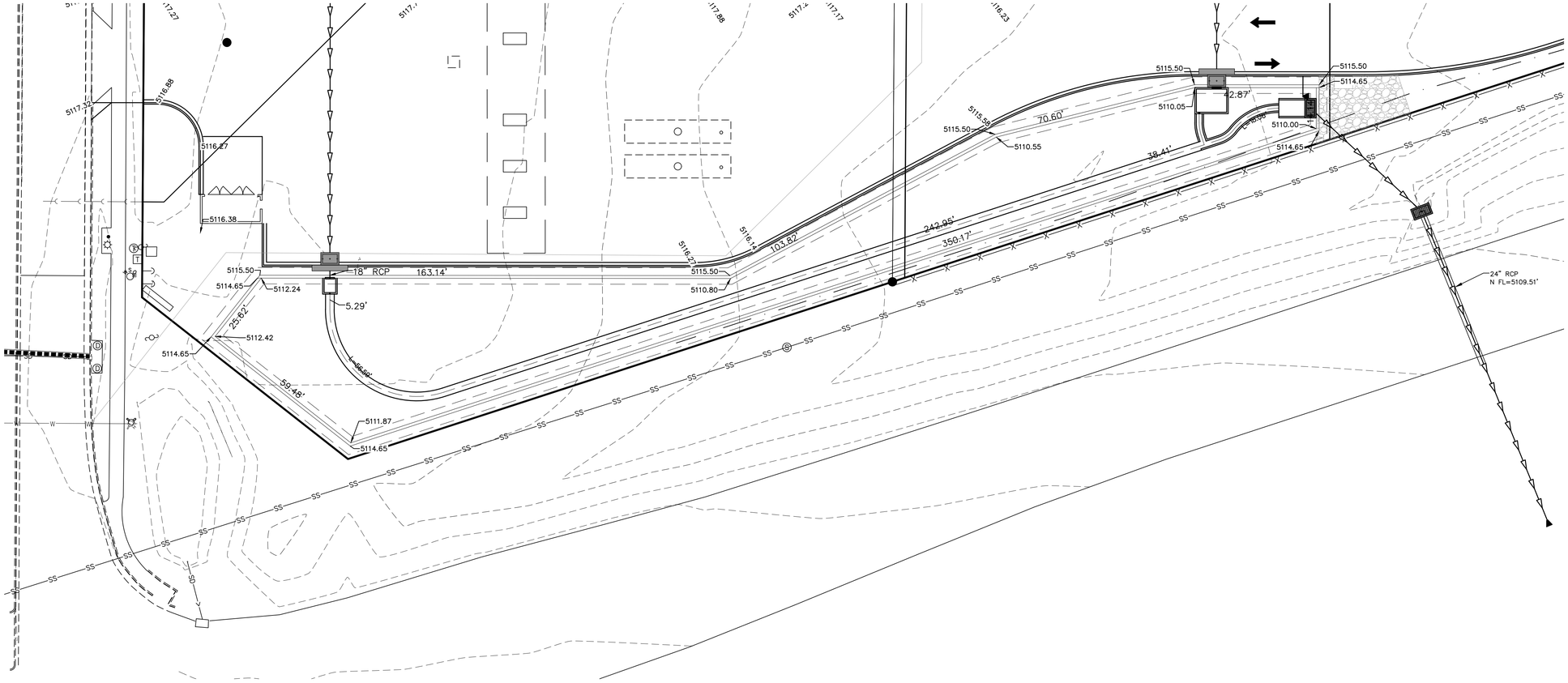

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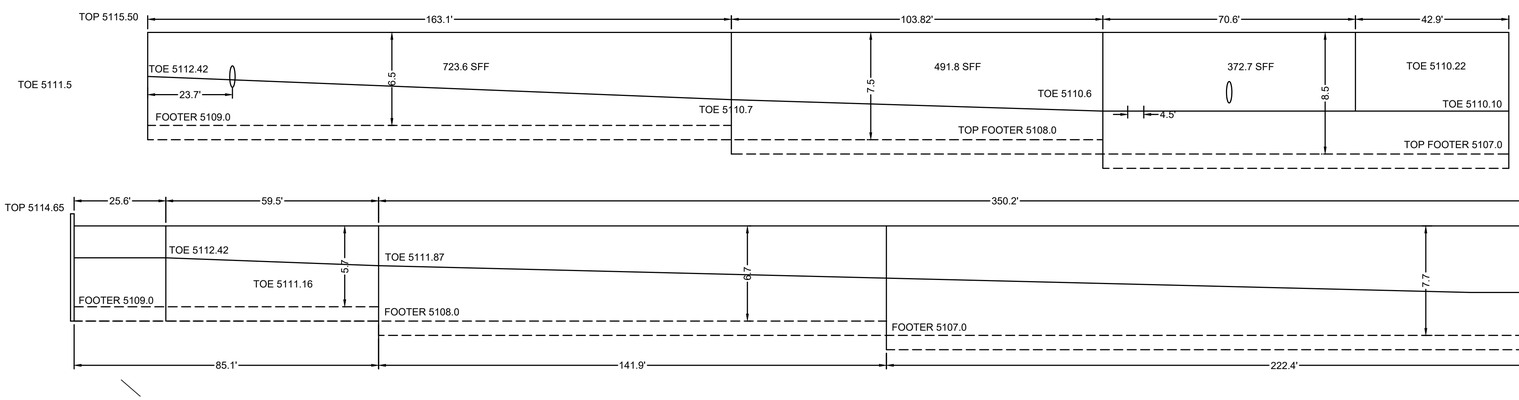

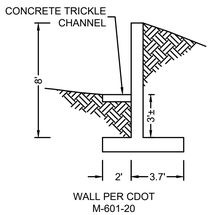

WALL PER CDOT
M-601-20

20 10 0 20 40
SCALE: 1" = 20'

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ADAMS COUNTY, CO

POND WALL SECTIONS

IMEG Project No: 22006507.00
File Name: 22006507 RD GRADING WALLS.dwg

Field Book No:####
Drawn By: RAR
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Date: 12/6/22

11

Sheet VALUE of 27

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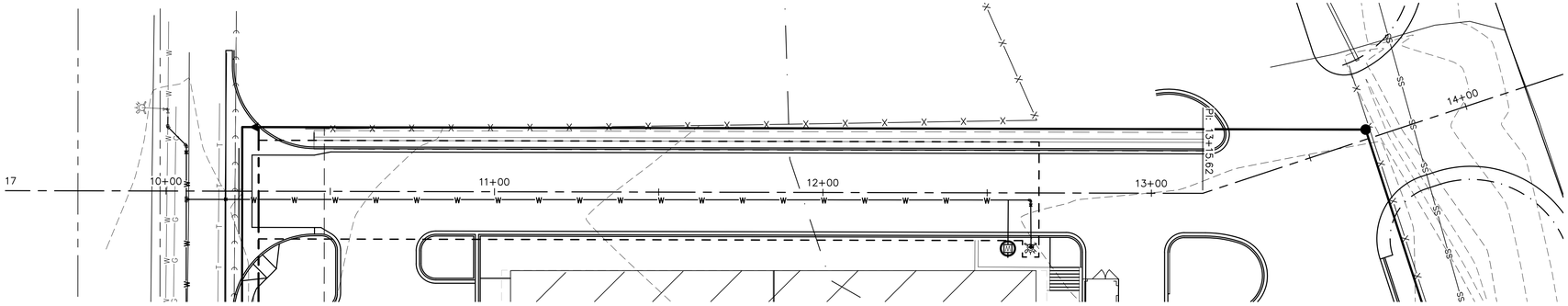

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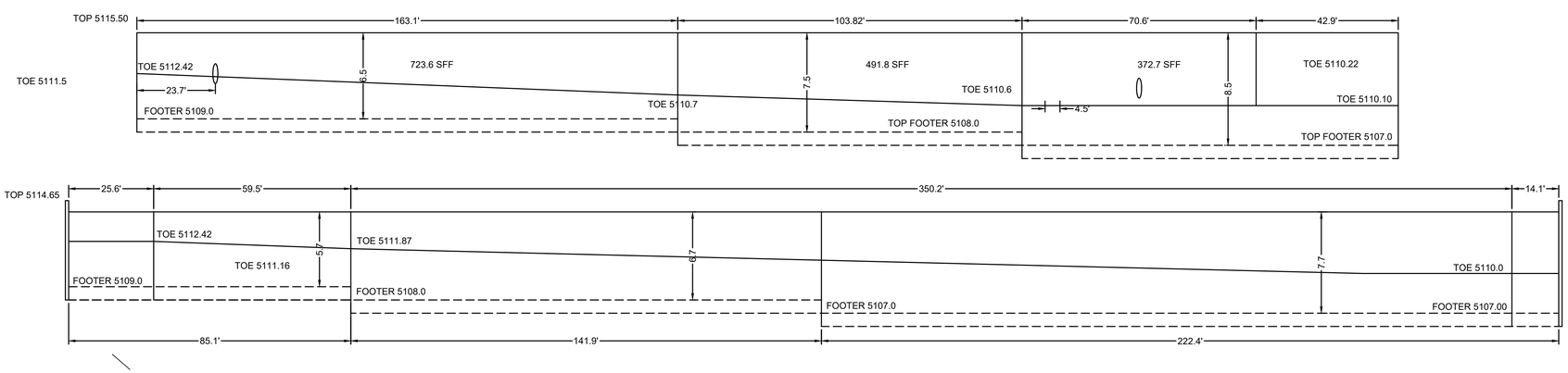

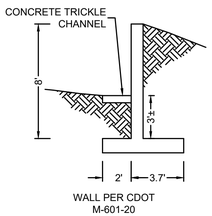

20 10 0 20 40

SCALE: 1" = 20'

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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

EAST WALL SECTIONS

IMEG Project No: 22006507.00

File Name: 22006507 RD GRADING WALLS.dwg

Field Book No:####

Drawn By: RAR

Checked By: TCG

Date: 12/6/22

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Sheet VALUE of 27

Tuesday, May 23, 2023 9:18:27 AM
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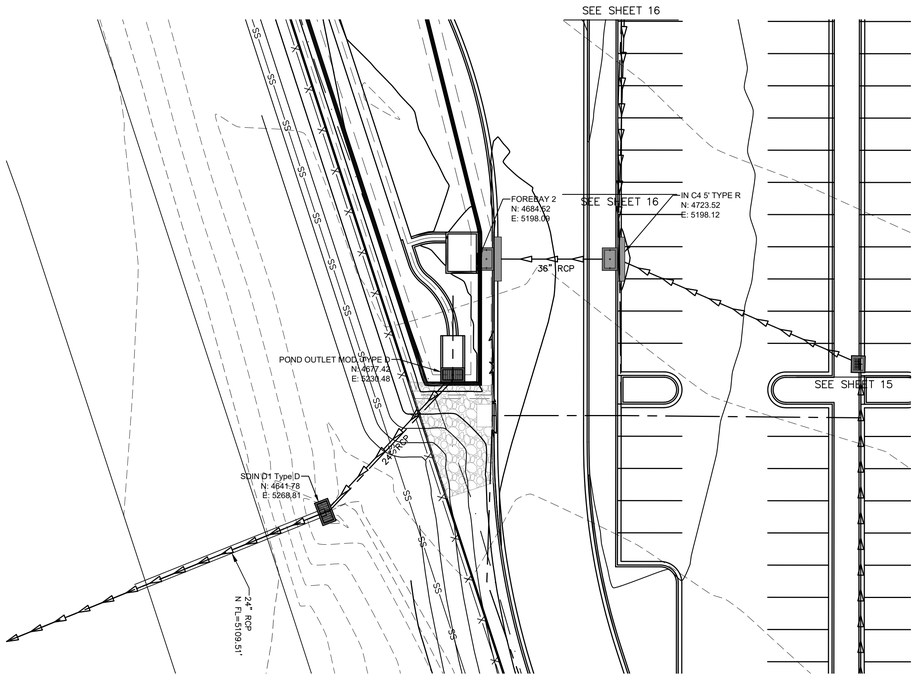

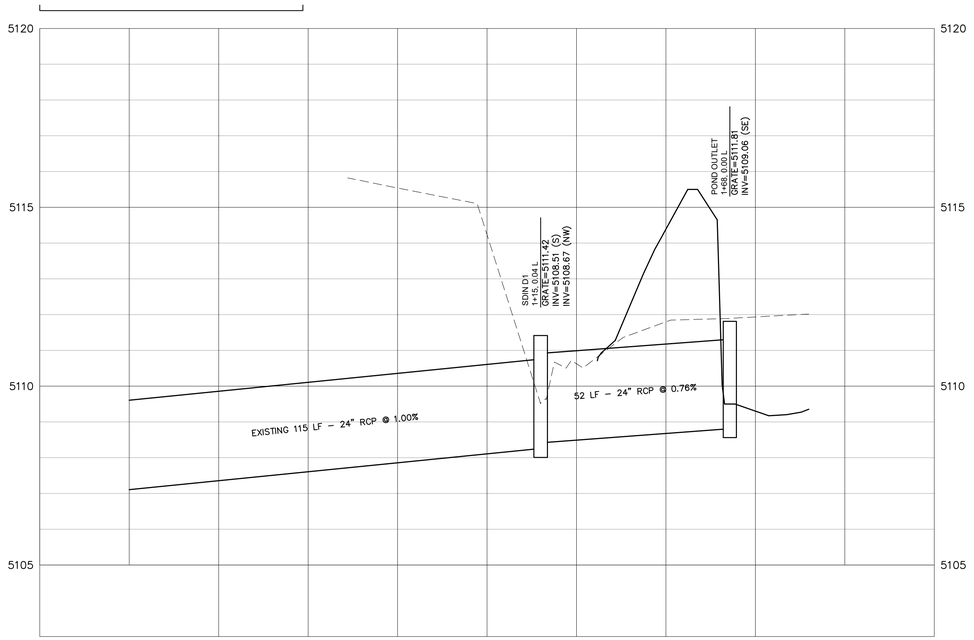

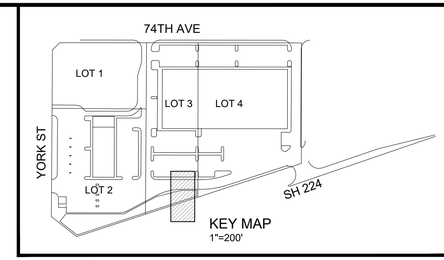

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30 15 0 30 60

SCALE: 1" = 30'

MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

EAST STORM SEWER PLAN & PROFILE

IMEG Project No: 22006507.00

File Name: 22006507 SD P&P1.dwg

Field Book No:

Drawn By: RAR

Checked By: TCG

Date: 12/6/22

13

Tuesday, May 23, 2023 9:18:39 AM
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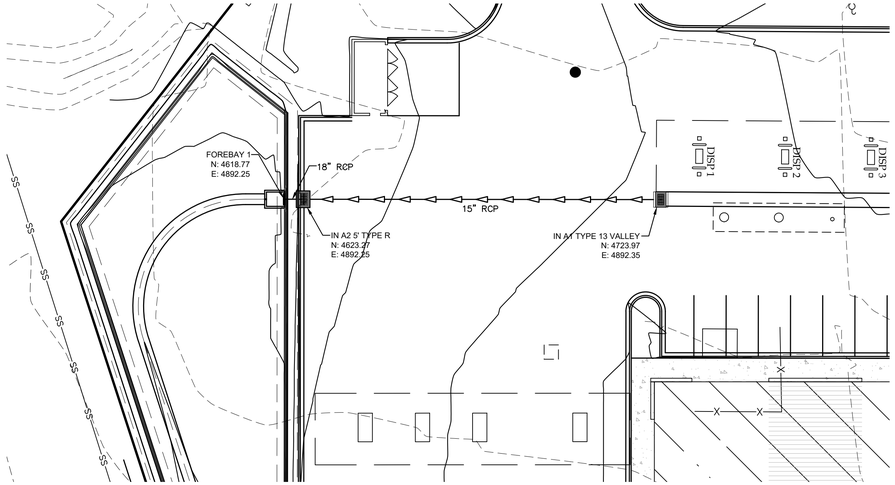

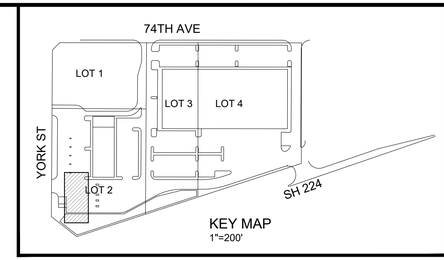

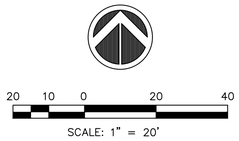

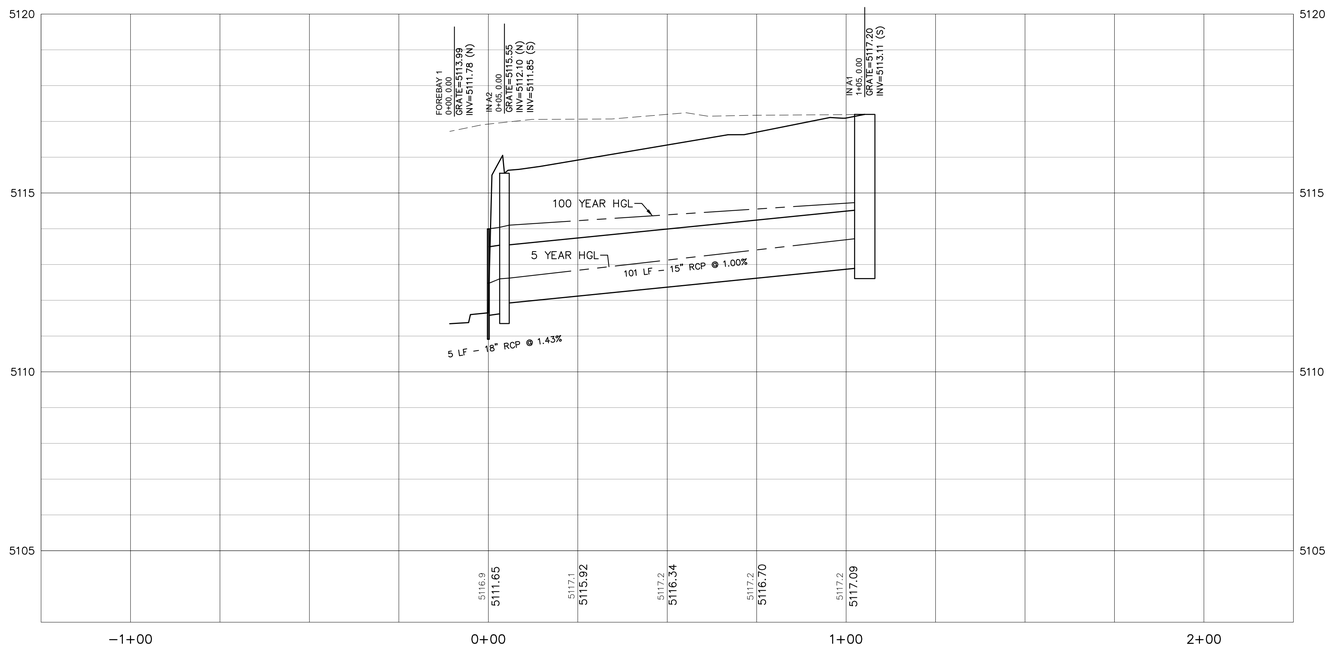

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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

WEST STORM SEWER PLAN & PROFILE

IMEG Project No: 22006507.00

File Name: 22006507 SD P&P1.dwg

Field Book No:

Drawn By: RAR

Checked By: TCG

Date: 12/6/22

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Tuesday, May 23, 2023 9:18:42 AM
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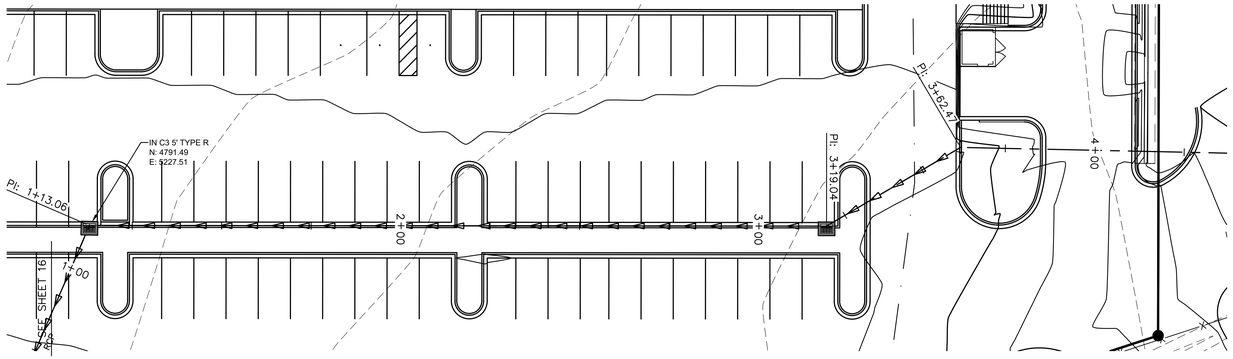

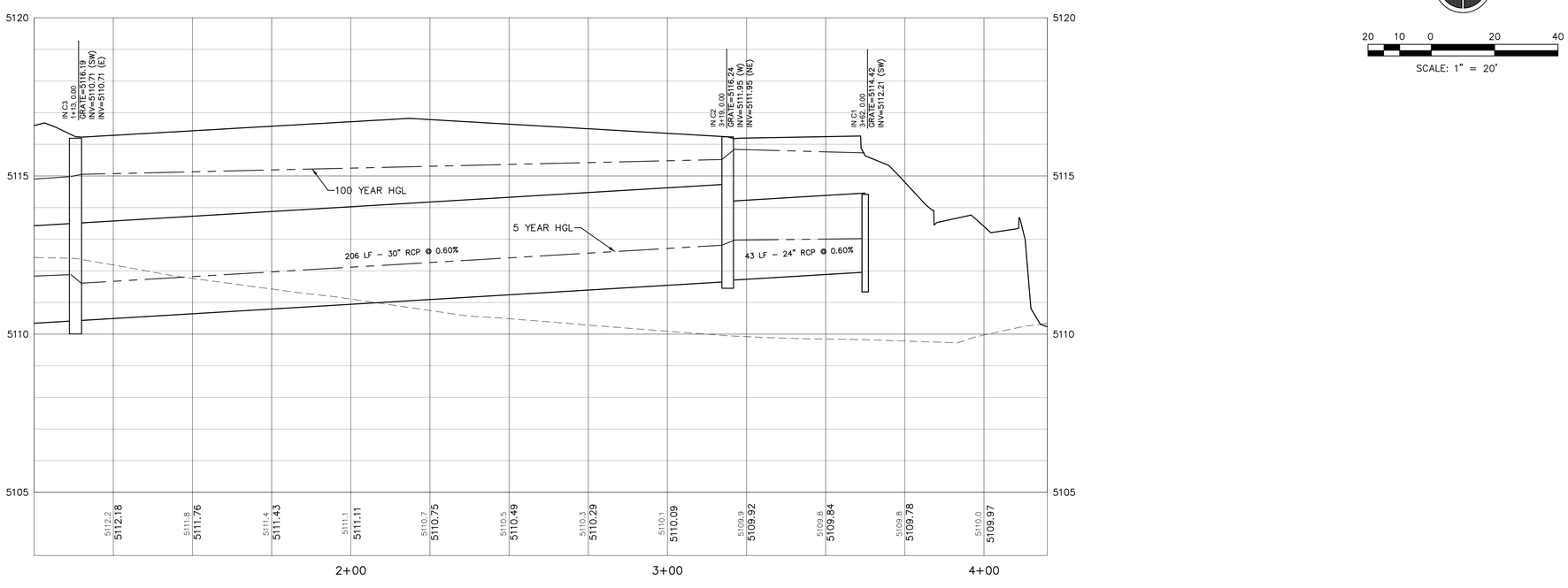

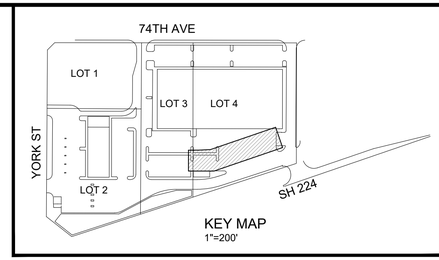

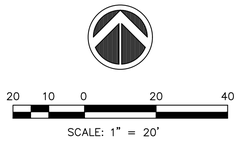

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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

BASIN C STORM PROFILE

IMEG Project No: 22006507.00

File Name: 22006507 SD P&P 2.dwg

Field Book No:

Drawn By: RAR

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15

Tuesday, May 23, 2023 9:19:01 AM
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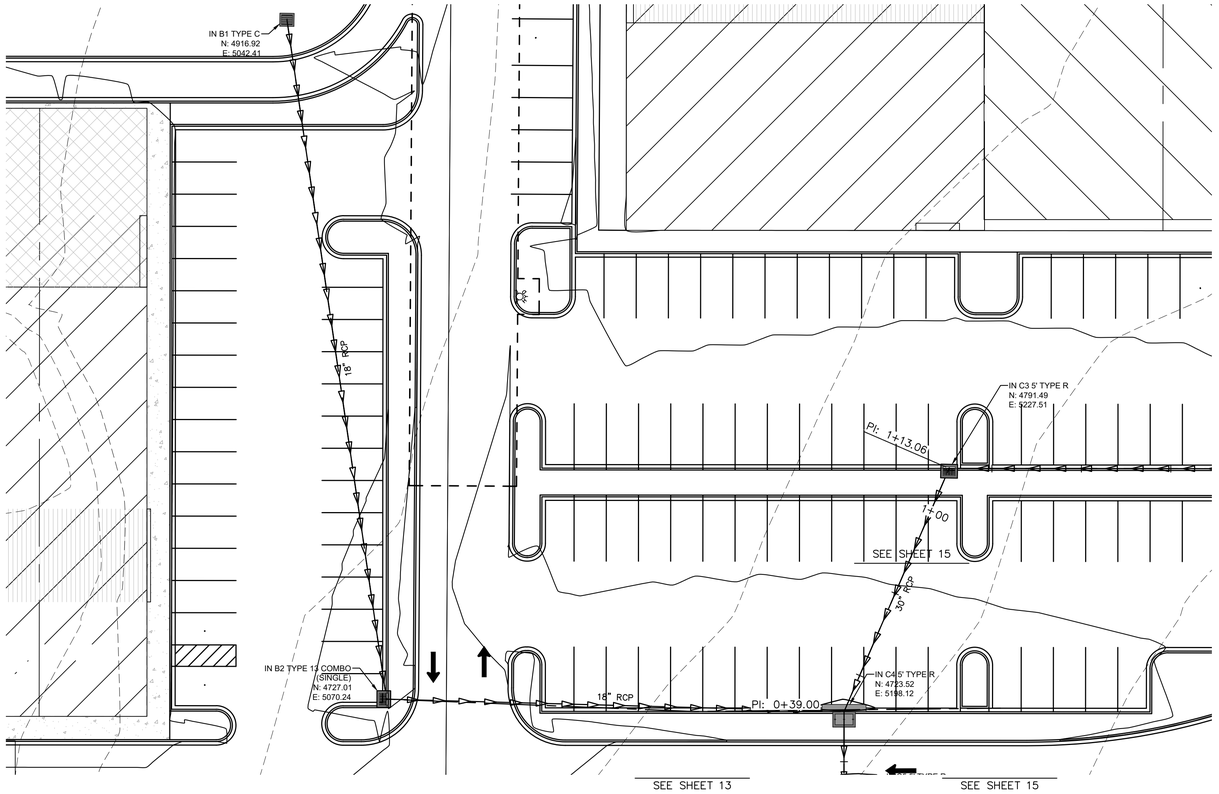

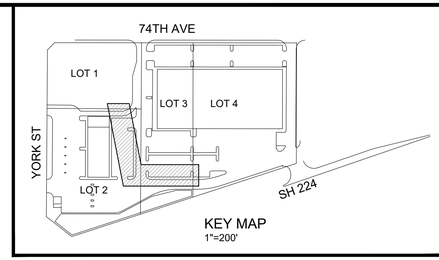

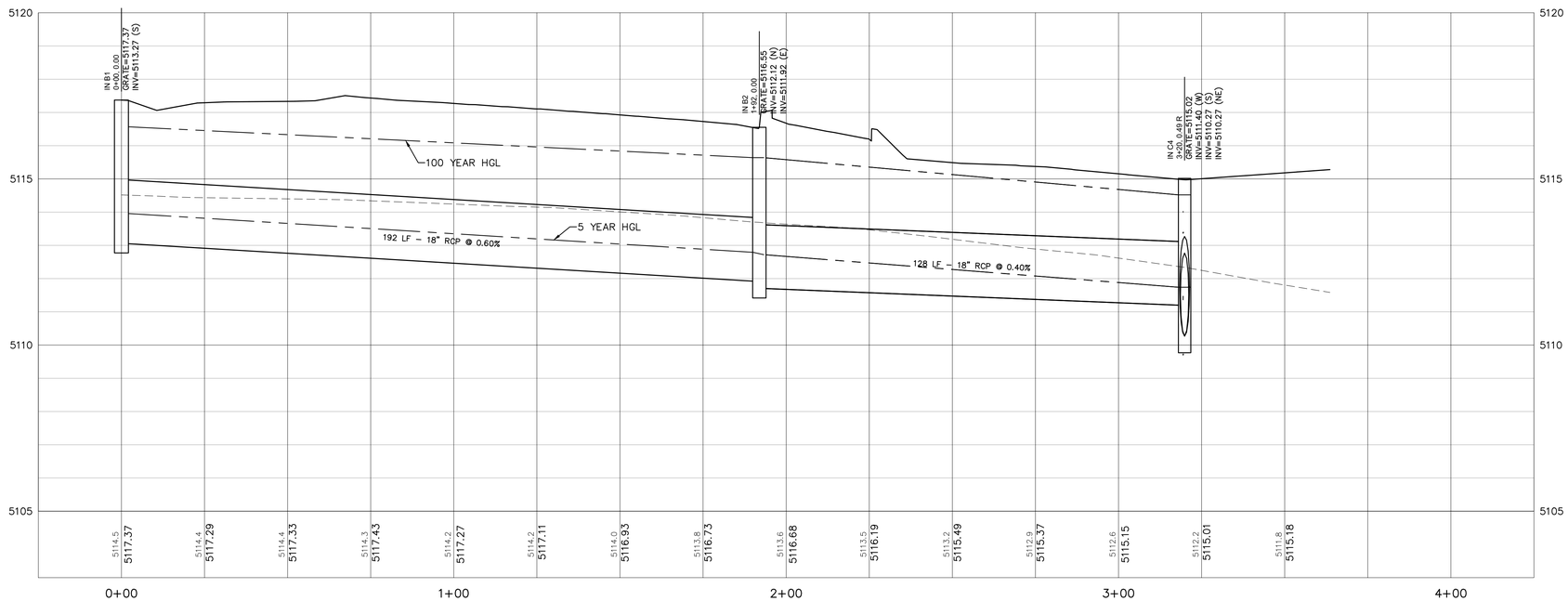

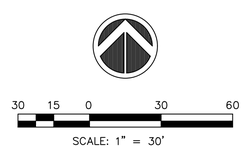

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BASIN B STORM PROFILE

IMEG Project No: 22006507.00

File Name: 22006507 SD P&P 2.dwg

Field Book No:

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Date: 12/6/22

16

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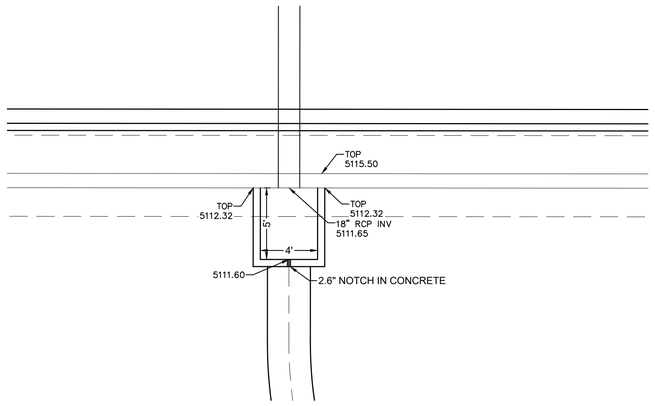
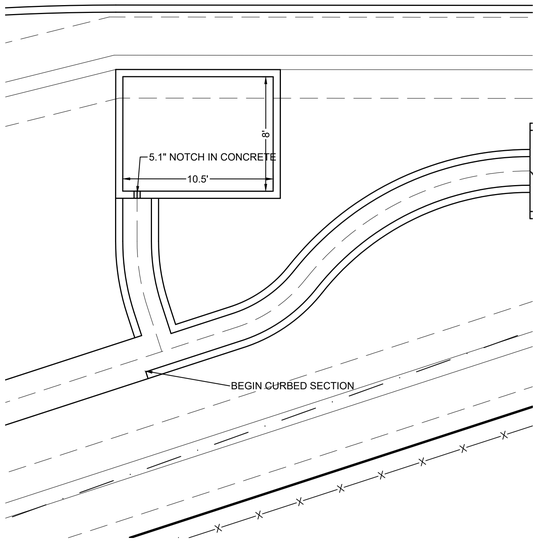


FOREBAY A



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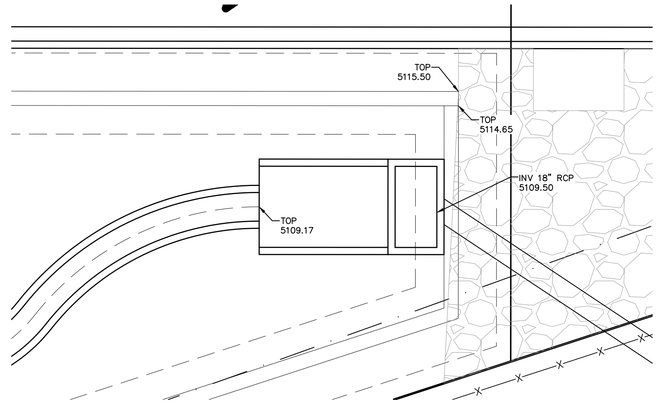

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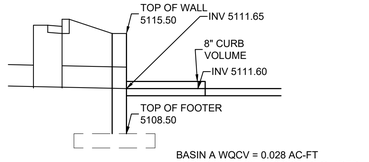
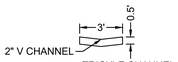
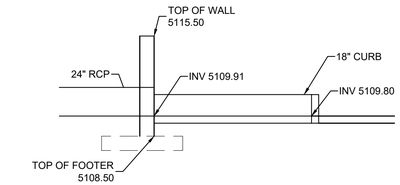
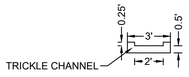


BASIN A WQCV = 0.028 AC-FT
FOREBAY AT 1% = 12.2 CF REQUIRED
VOLUME PROVIDED = 13.4 CF
Q 100 = 6.9 CFS
FOREBAY RELEASE AT 2% = 0.138 CFS



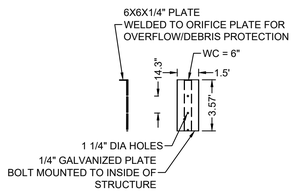
TRICKLE CHANNEL
BASIN A
Q = 0.138 CFS
d = 1.3"
V = 1.27 FPS

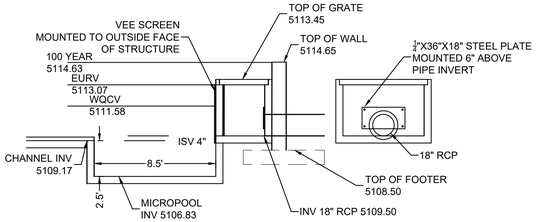


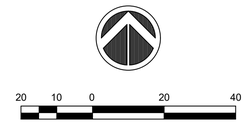


TRICKLE CHANNEL
BASIN A,B,C
Q = 0.808 CFS
d = 2"
V = 2.42 FPS

BASIN BC WQCV = 0.150 AC-FT
FOREBAY AT 2% = 131 CF REQUIRED
VOLUME PROVIDED = 138 CF
Q 100 = 33.5 CFS
FOREBAY RELEASE AT 2% = 0.67 CFS







SCALE: 1" = 20'

No.	DESCRIPTION	DATE

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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

POND STRUCTURE DETAILS

IMEG Project No: 22006507.00

File Name: 22006507 RD Pond Details.dwg

Field Book No:

Drawn By: RAR

Checked By: TCG

Date: 12/6/22

17

Sheet 17 of 27

Tuesday, May 23, 2023 9:19:21 AM
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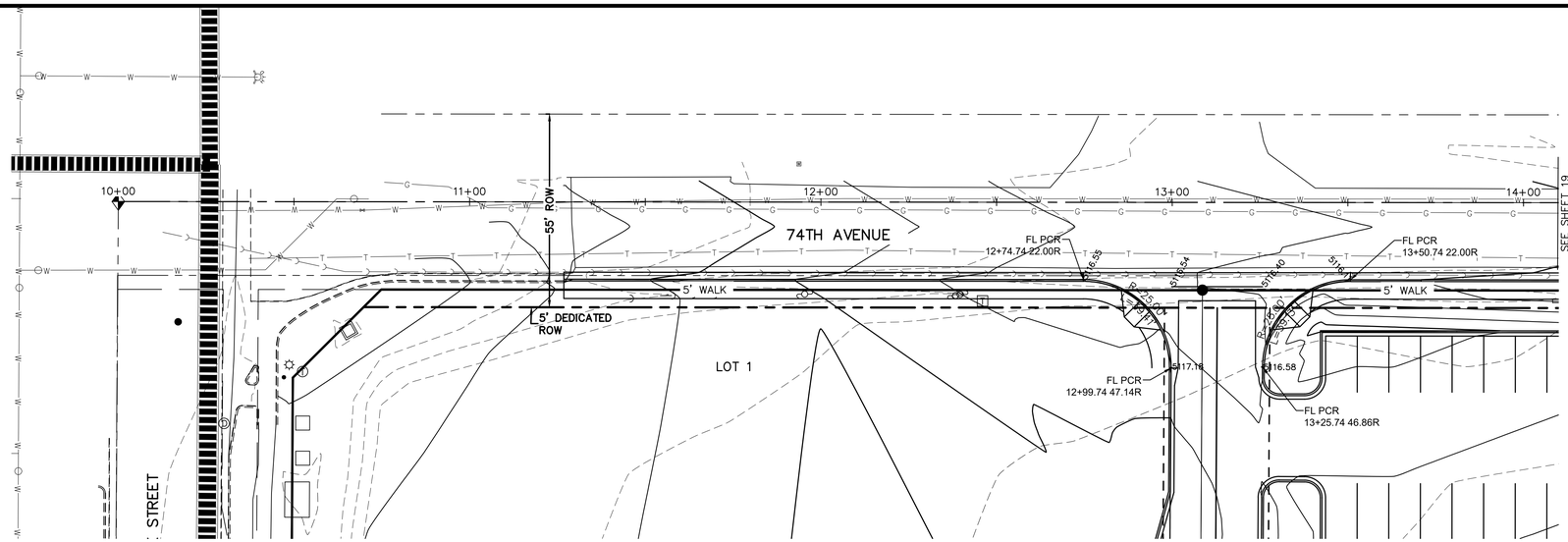
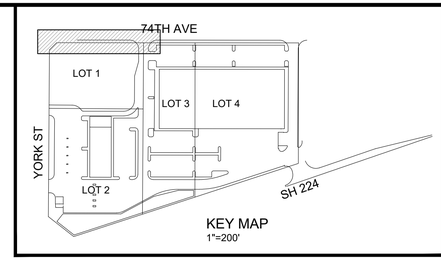
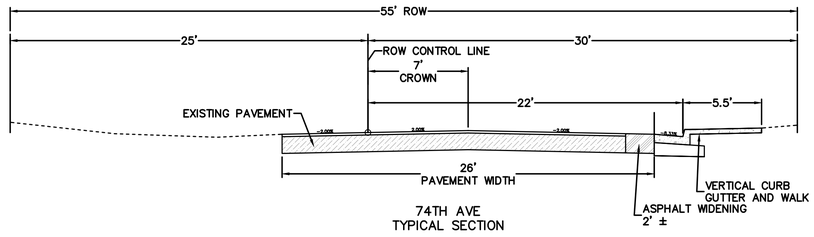
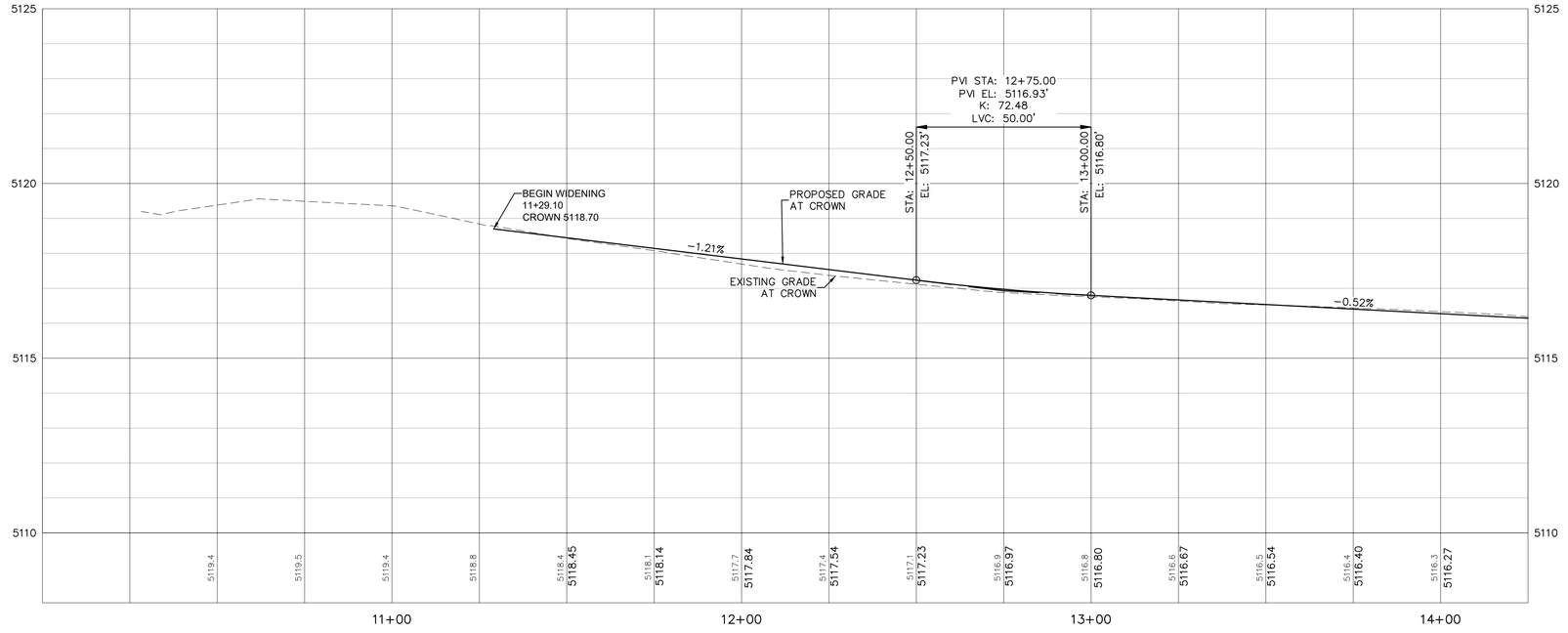






74TH AVE
TYPICAL SECTION



No.	REVISIONS DESCRIPTION	DATE

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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

74TH AVE PLAN & PROFILE

IMEG Project No: 22006507.00

File Name: 22006507 74TH Plan and Profile.dwg

Field Book No:

Drawn By: RAR

Checked By: TCG

Date: 12/6/22

18

Tuesday, May 23, 2023 9:19:36 AM
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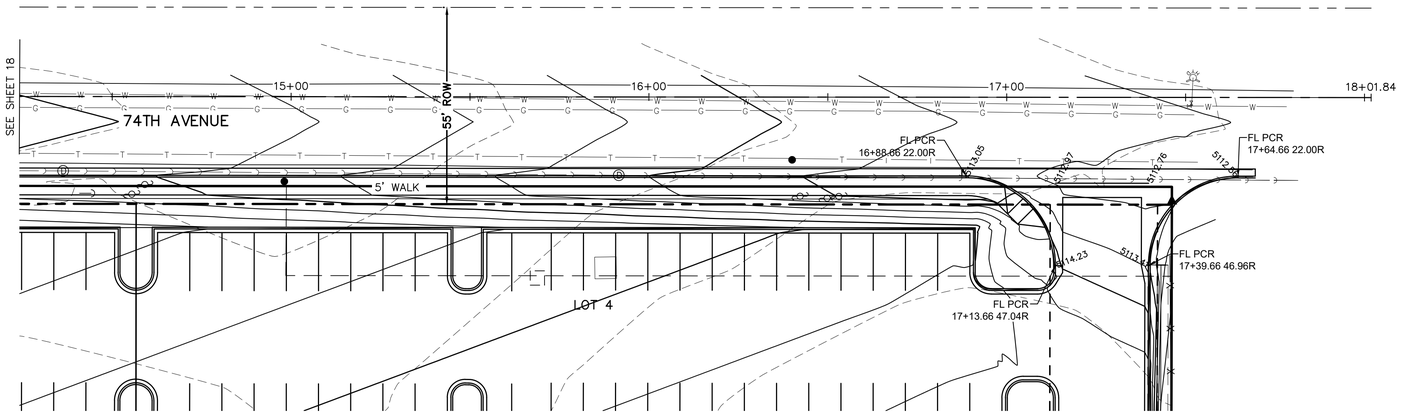
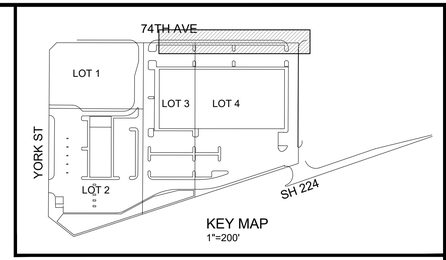
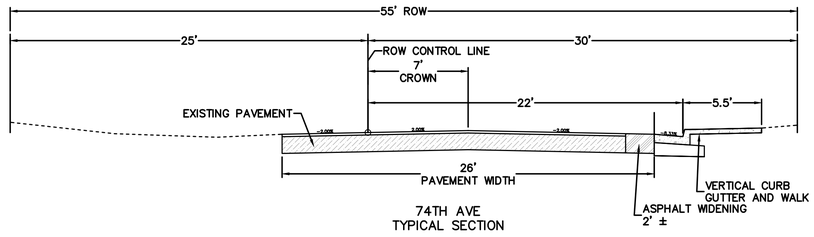
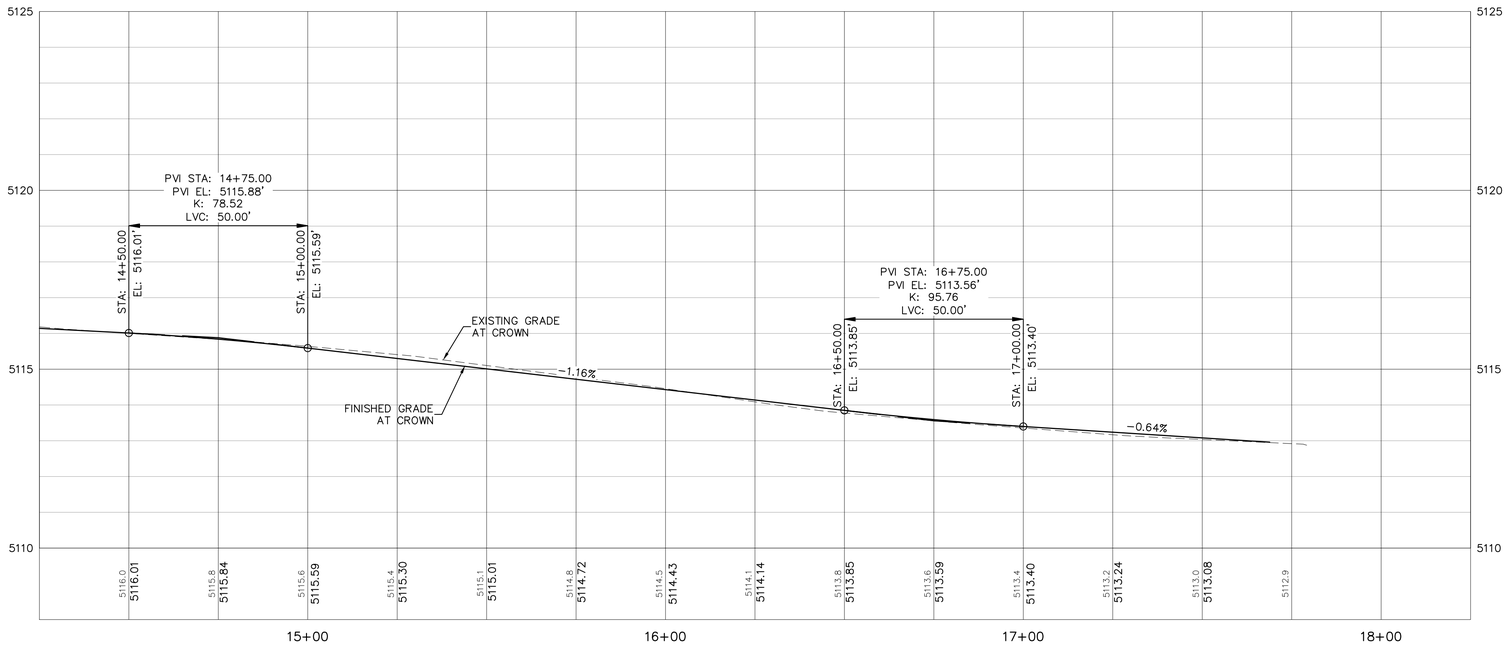






74TH AVE
TYPICAL SECTION



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74TH AVE PLAN & PROFILE

IMEG Project No: 22006507.00

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Tuesday, May 23, 2023 8:19:41 AM
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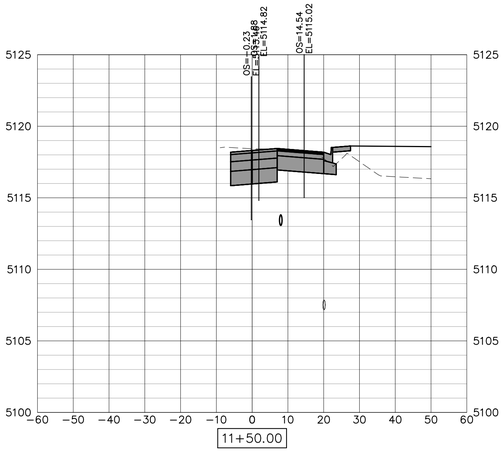

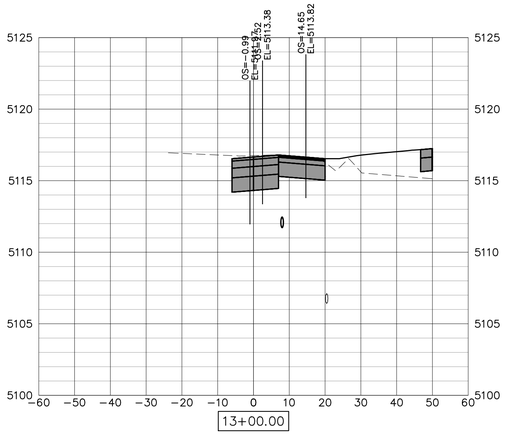

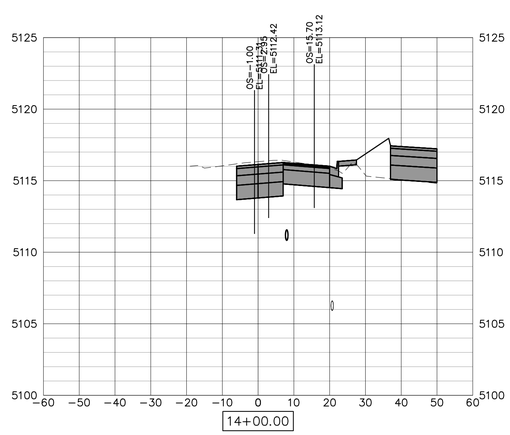

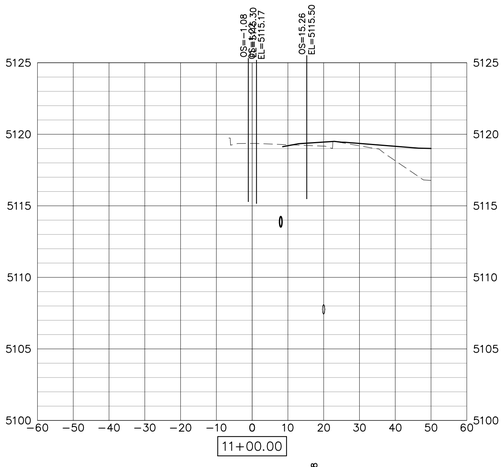

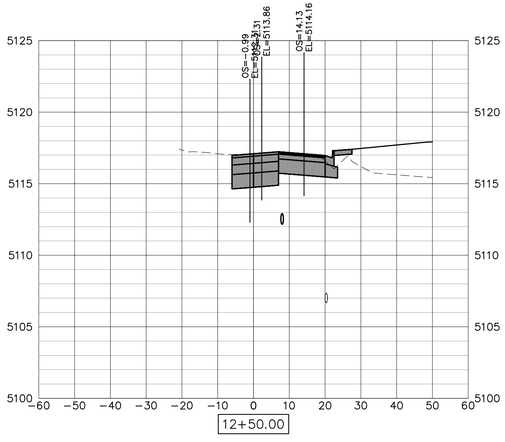

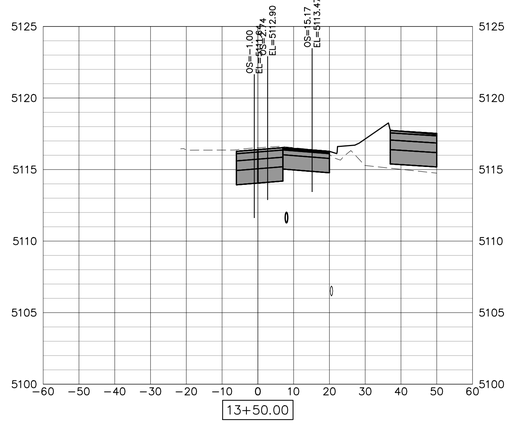

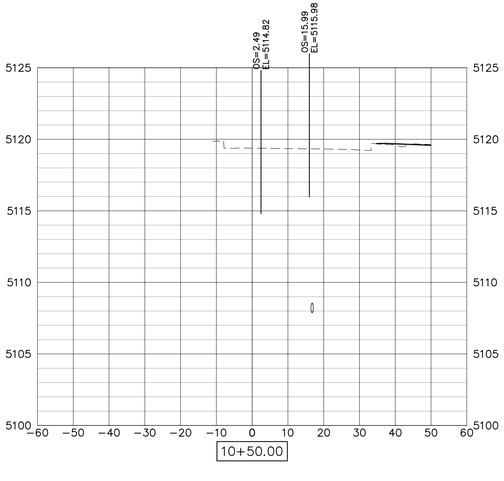

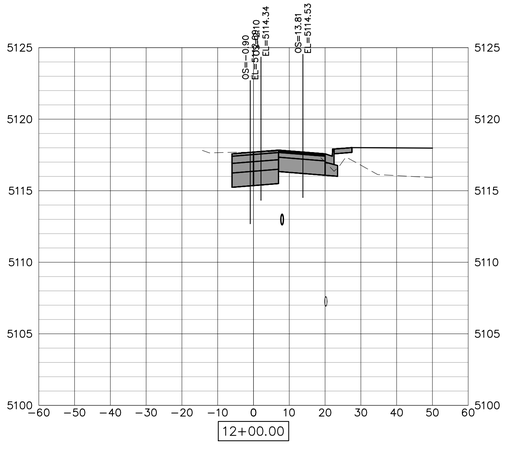

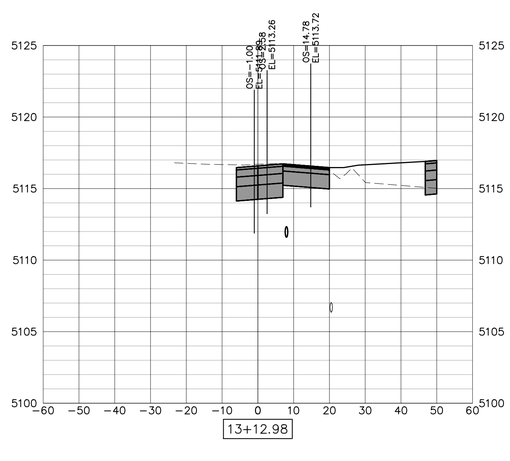

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SCALE: 1" = 20'

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MENDOZA YORK STREET SUBDIVISION

ADAMS COUNTY, CO

74TH AVE SECTIONS

IMEG Project No: 22006507.00

File Name: 22006507 RD Sections 74th.dwg

Field Book No:

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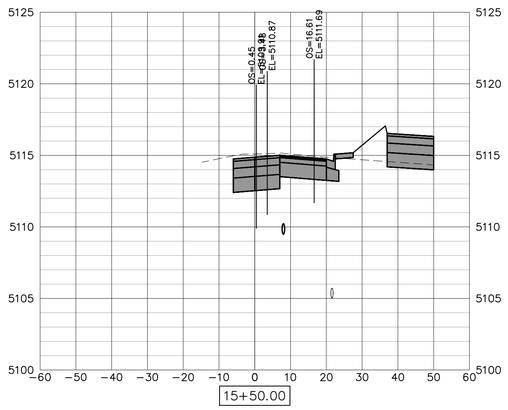

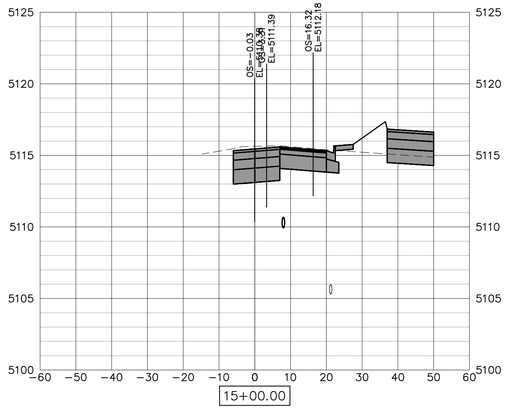

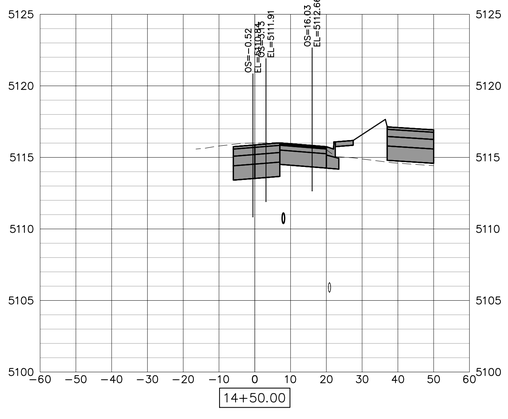

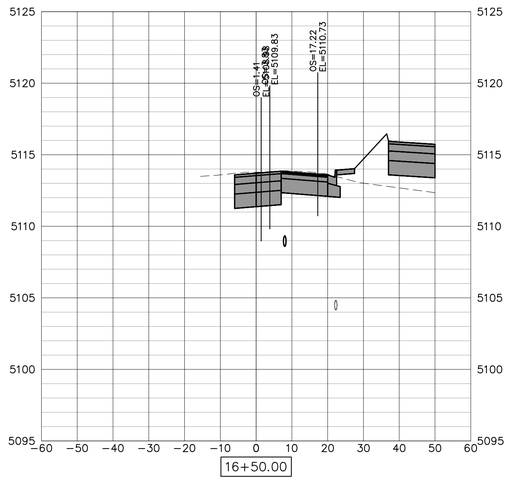

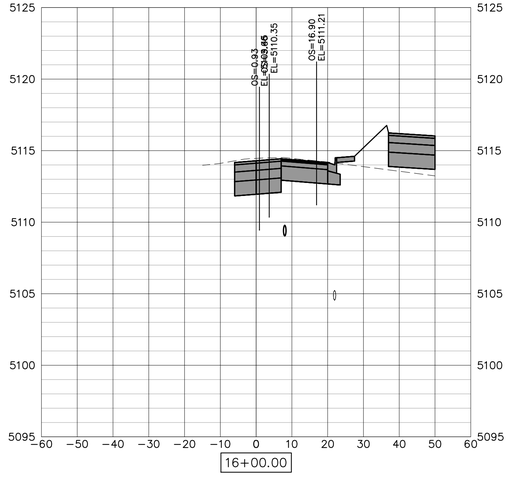

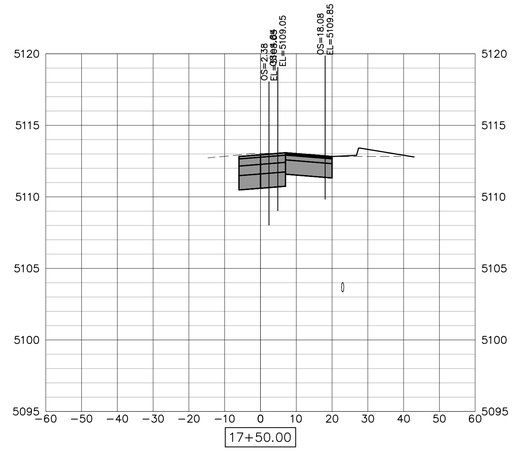

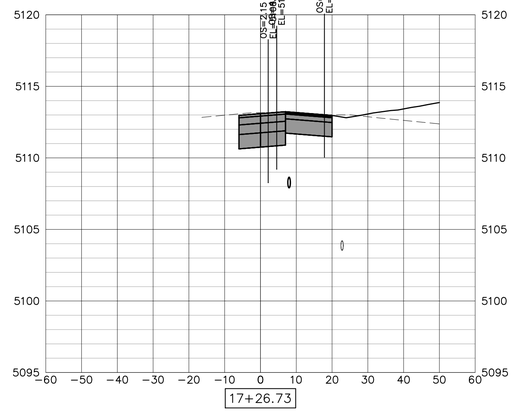

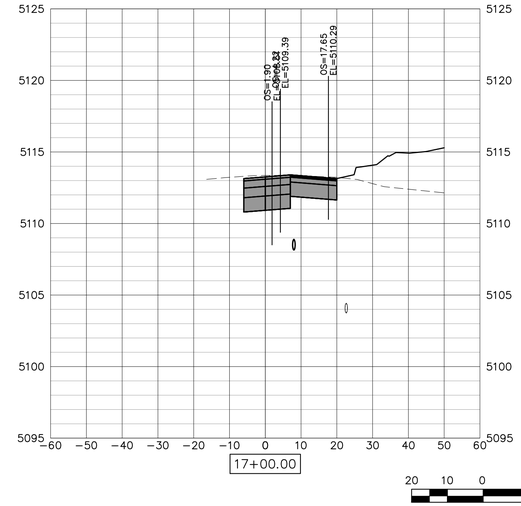

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74TH AVE SECTIONS

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Sheet 18 of 27

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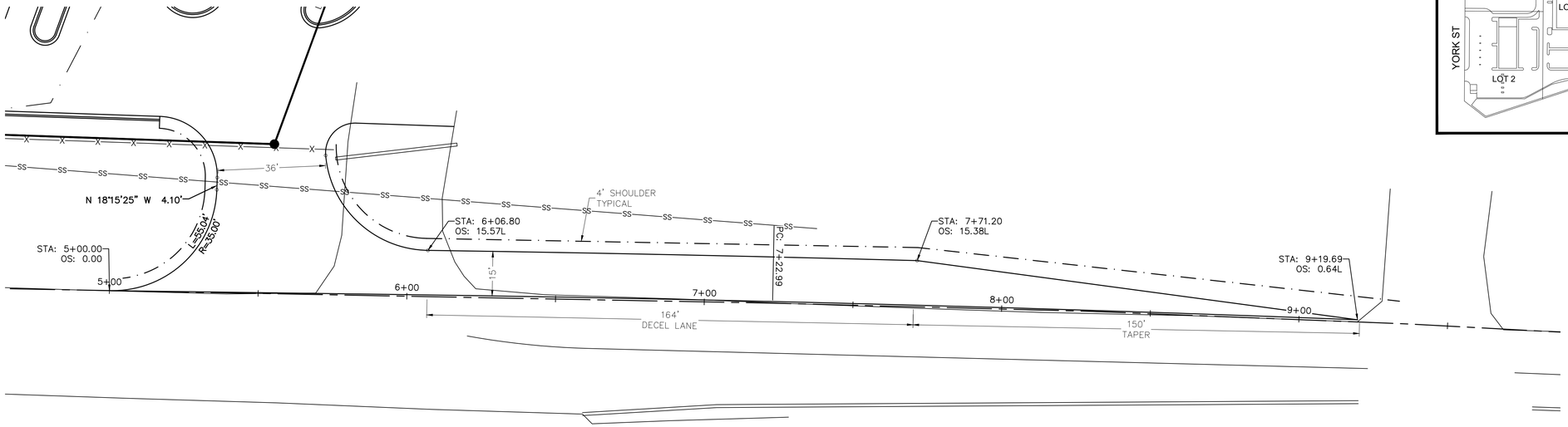

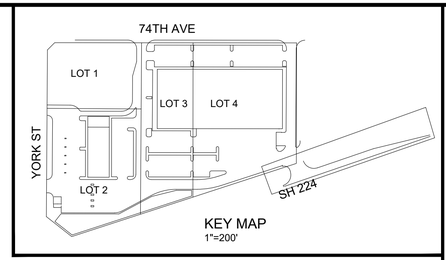

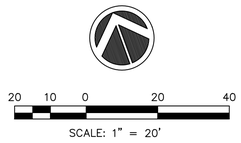

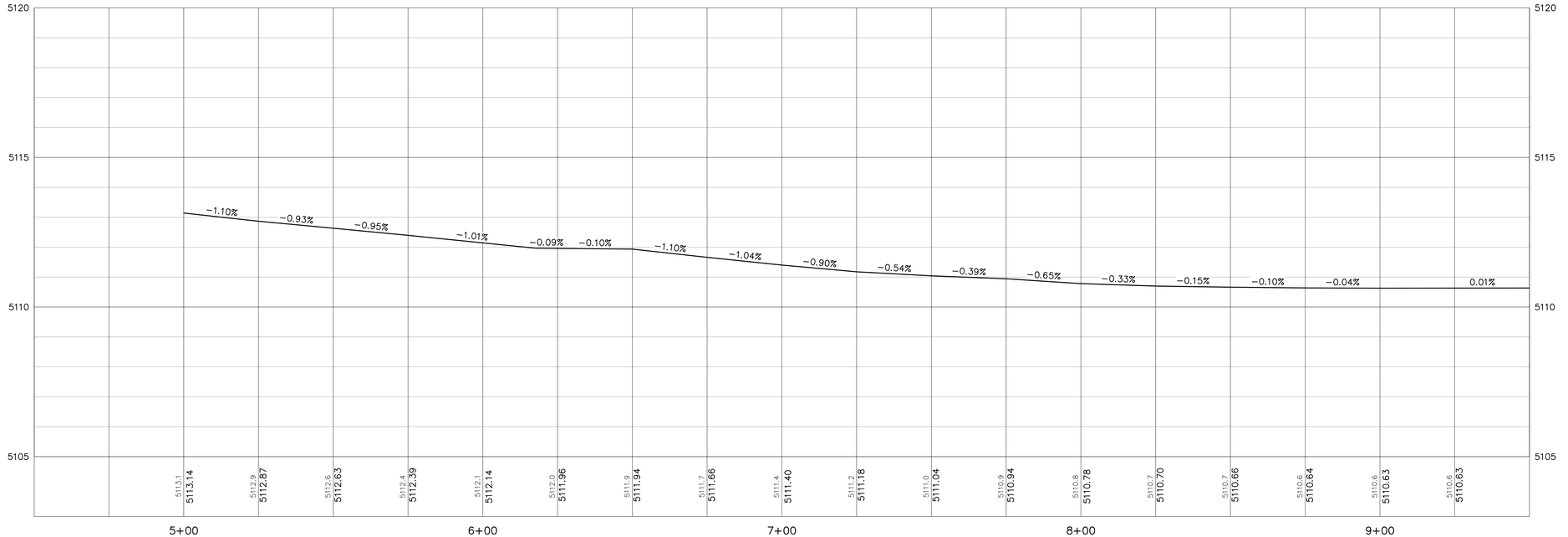

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ADAMS COUNTY, CO

STATE HYW 224 PLAN & PROFILE

IMEG Project No:	22006507.00
File Name:	22006507 RD P-P HYW 224.dwg
Field Book No:	
Drawn By:	RAR
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22

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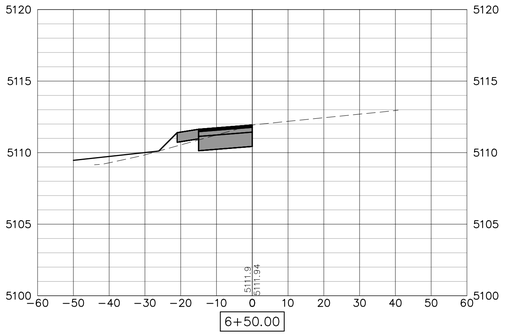

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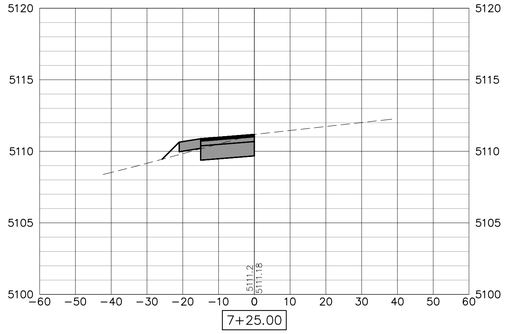

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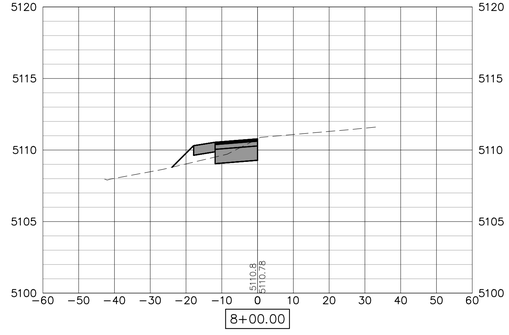

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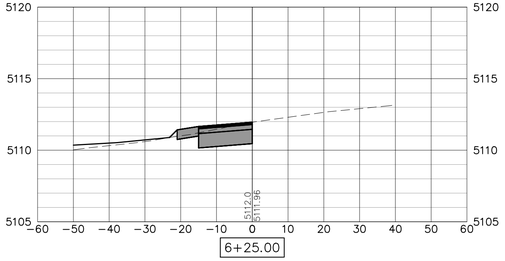

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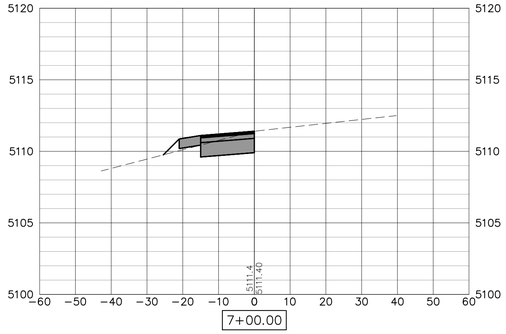

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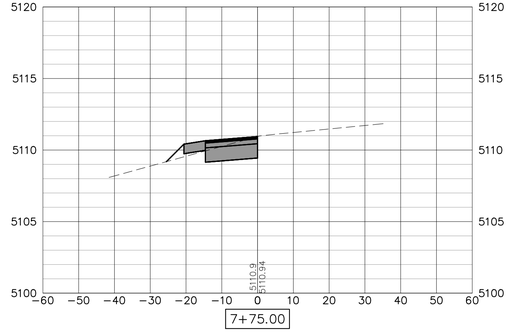

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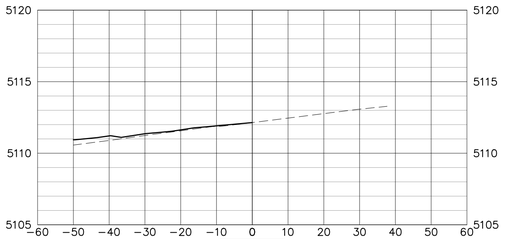

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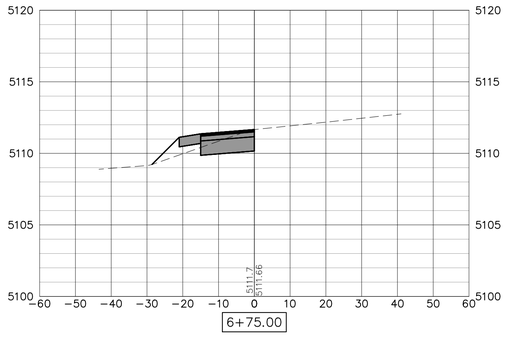

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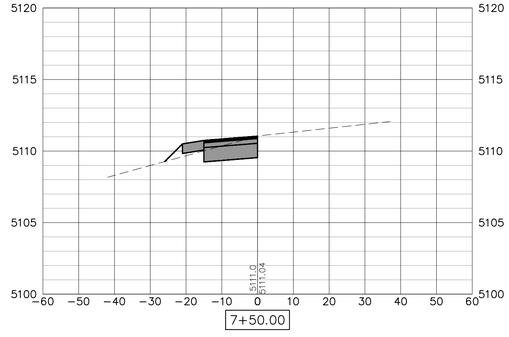

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20 10 0 20 40

SCALE: 1" = 20'

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MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

STATE HWY 224 SECTIONS

IMEG Project No: 22006507.00

File Name: 22006507 RD Sections 74th.dwg

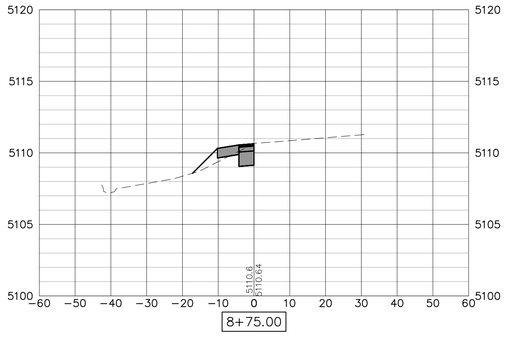
Field Book No:

Drawn By: RAR

Checked By: TCG

Date: 12/6/22

23



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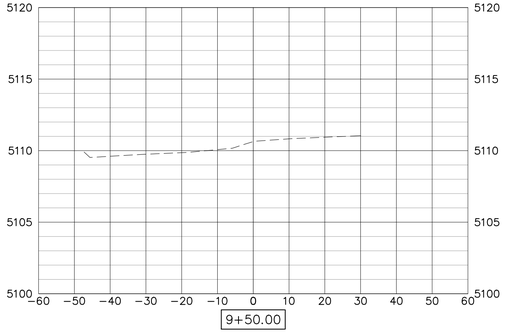

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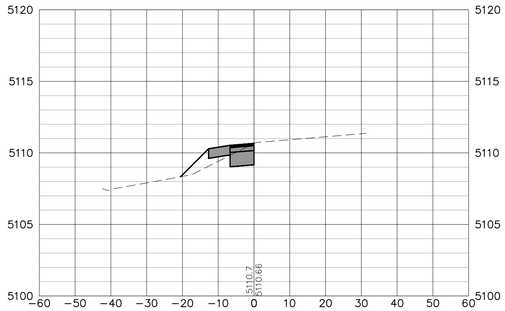

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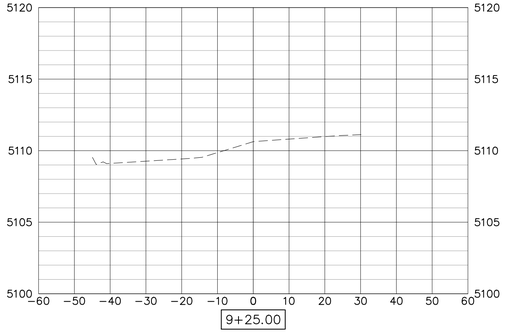

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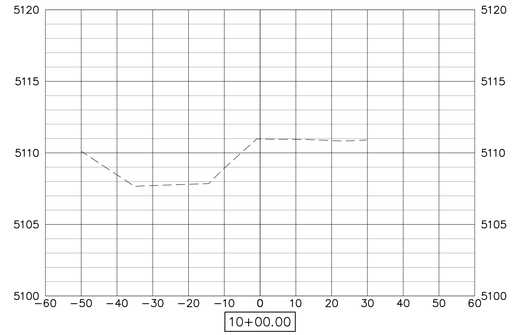

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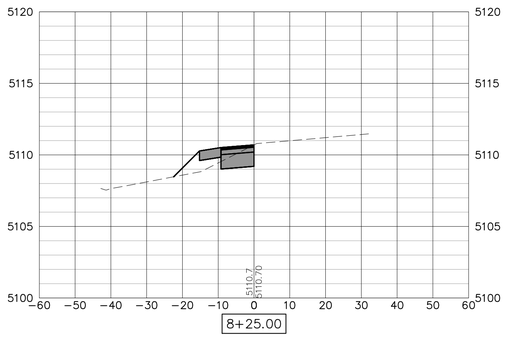

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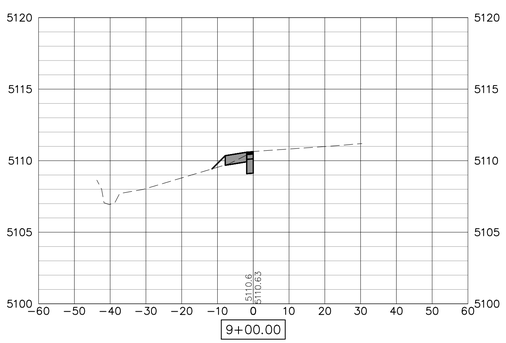

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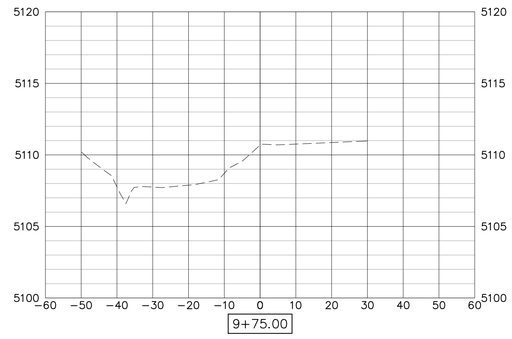

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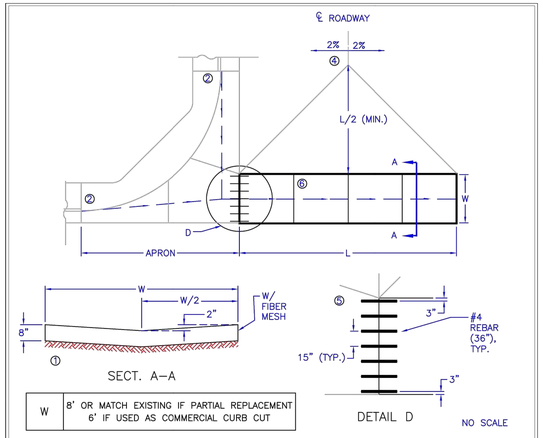
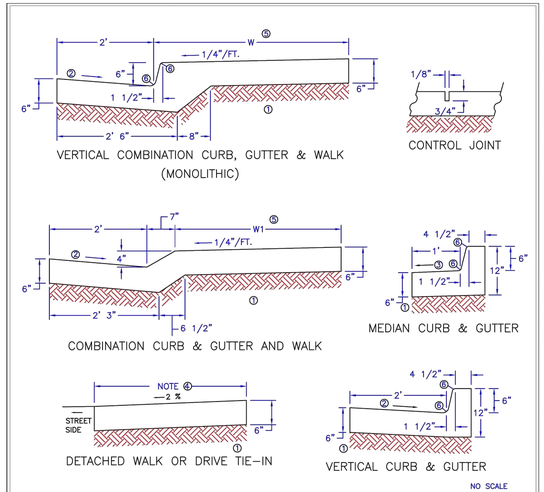


W	8' OR MATCH EXISTING IF PARTIAL REPLACEMENT 6' IF USED AS COMMERCIAL CURB CUT

NOTES:

① COMPACTED SUBGRADE
② 1/8" WIDE CONTROL JOINT WITH 3/4" MINIMUM DEPTH
③ ADAMS COUNTY TO DETERMINE REINFORCEMENT REQUIREMENTS IF REINFORCEMENT IS NEEDED
④ WHERE PAVEMENT IS TO BE RECONSTRUCTED CROWN SHALL BE TRANSITIONED OVER L/2' (MIN). NO CROWN SHALL EXIST AT THE CROSSPAN
⑤ COLD JOINTS SHALL BE DOWELED AS PER "D" (MINIMUM, 2 BARS). JOINT TO BE FILLED WITH JOINT FILLER
⑥ CONTRACTION JOINTS SHALL BE SPACED @ MAXIMUM 10' INTERVALS
⑦ CROSSPANS SHALL BE CONSTRUCTED IN HALVES TO ALLOW TRAFFIC MOVEMENT

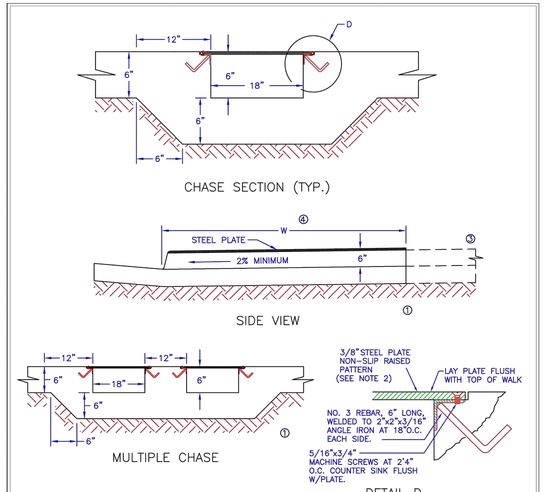
ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	TYPICAL CROSSPAN	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 · FILE NAME: TYP_XPAN_D.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601



NOTES:

① COMPACTED SUBGRADE
② GUTTER CROSS SLOPE SHALL BE 1"/ft
③ GUTTER CROSS SLOPE SHALL BE 1/2"/ft
④ DETACHED SIDEWALK WIDTH SHALL BE 5'–0" FOR NEW CONSTRUCTION
⑤ W=5'–6" AND W1=4'–11" TYPICAL (MIN. REQUIRED FOR NEW CONSTRUCTION)
⑥ 1 1/2" RADIUS

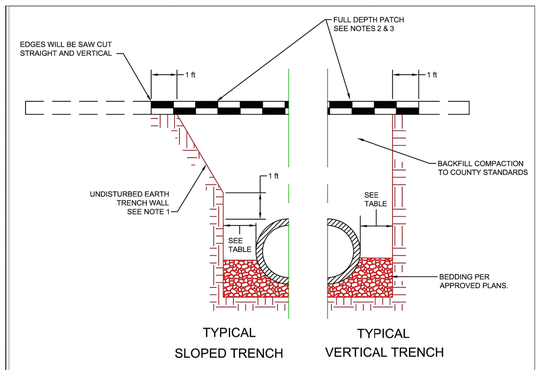
ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	CURB, GUTTER & WALK	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 · FILE NAME: CG&W_D.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601



NOTES:

① COMPACTED SUBGRADE MATERIAL
② CHASE SECTIONS WITHIN 25' OF INTERSECTIONS OR DRIVEWAYS ARE REQUIRED TO USE 1/2" STEEL PLATE
③ CONSTRUCT CONCRETE CHANNEL WHERE REQUIRED
④ W = 5' 6" OR MATCH EXISTING

ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	SIDEWALK CHASE DETAILS	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 · FILE NAME: SWLK_CHASE_D.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601



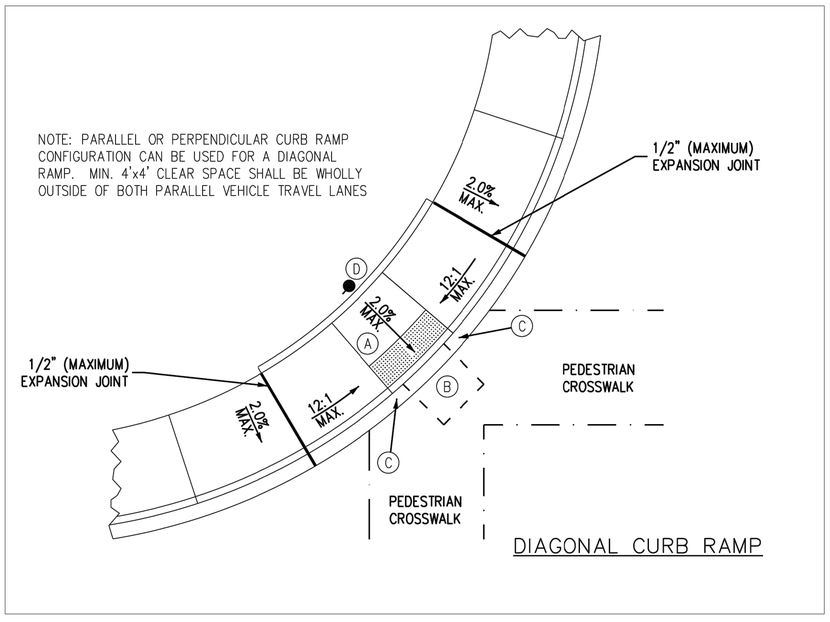
1. TRENCH TO BE SLOPED OR BRACED AND SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF UTILITIES IN COMPLIANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
2. ALL PATCHES SHALL BE HOT MIX ASPHALT GRADING SX.
3. TRENCH WIDTH SHALL MEET TABLE BELOW.
4. SELECT BACKFILL AND DENSITY TESTING BY OTHERS MAY BE REQUIRED BY THE DIRECTOR OF PUBLIC WORKS.
5. FLOWFILL WILL BE REQUIRED ON ALL TRENCH BACKFILL UNLESS OTHERWISE DIRECTED BY THE COUNTY.
6. TEMPORARY COLD PATCHING WILL BE REQUIRED WHEN HOT MIX IS NOT AVAILABLE.
7. OPEN STREET CUTS WILL HAVE THE FOLLOWING MINIMUM PATCH REQUIREMENTS:
   OR MATCH EXISTING PAVEMENT THICKNESS - WHICHEVER IS GREATER
   RESIDENTIAL 5 INCHES
   COLLECTOR 7 INCHES
   ARTERIAL OR INDUSTRIAL - 9 INCHES
8. ALL CUTS WILL BE PATCHED (OR COLD PATCHED) THE SAME DAY THE CUT IS MADE.
9. CONSTRUCTION SIGNING AND BARRICADES WILL BE MAINTAINED BY THE CONTRACTOR.
10. APPROVED TRAFFIC CONTROL PLAN WILL BE REQUIRED PRIOR TO CONSTRUCTION.

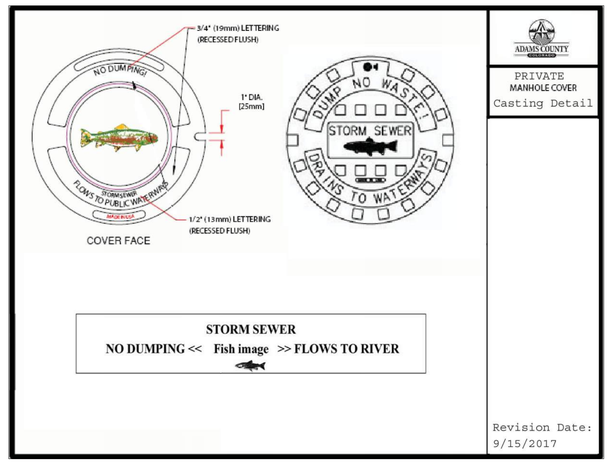
NOMINAL SIZE OF PIPE, I.D.	MAXIMUM TRENCH WIDTH AT TOP OF PIPE	MINIMUM TRENCH WIDTH AT PIPE SPRINGLINE
Less than 18"	Pipe O.D. + 18"	Pipe O.D. + 12"
18" thru 48"	Pipe O.D. + 30"	Pipe O.D. + 24"
49" or more	Must have submitted Engineering Plan	

SOIL CLASSIFICATION	MINIMUM RELATIVE COMPACTION (%)	
	AASHTO M 145	AASHTO T 99 / AASHTO T 180
A-1	100	95
A-3	100	95
A-2-4	100	95
A-2-5	100	95
All Others	95	90

NO SCALE

ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	TRENCH PATCHING DETAIL	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 · FILE NAME: TRENCHPATCH_REV.DWG	4430 S. ADAMS COUNTY PKWY BRIGHTON, CO 80601





No.	DESCRIPTION	DATE
	REVISIONS	

IMEG
PH: 303.796.6000
www.imegcorp.com
7600 E ORCHARD RD
SUITE 250-S
GREENWOOD VILLAGE, CO 80111

MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

ROAD AND STORM DETAILS

IMEG Project No: 22006507.00
File Name: 22006507 RD Details.dwg

Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 12/6/22

25

Sheet 25 of 27

Tuesday, May 23, 2023 9:20:37 AM
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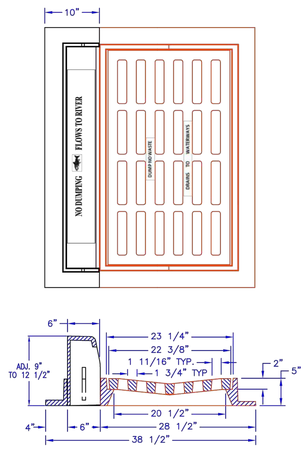
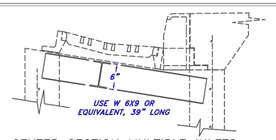


NO SCALE

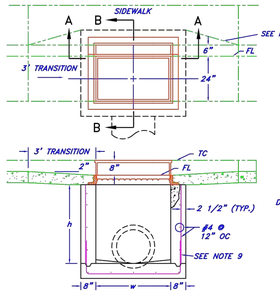
NOTE:

① GRATE SHOWN IS THE DEETER–2502. SIMILAR GRATES BY OTHER MANUFACTURERS MUST BE APPROVED BY THE COUNTY PRIOR TO USE.
② REQUIRED FRAME IS NEENAH R–3362–1 (SINGLE) OR R–3363–1 (DOUBLE). SIMILAR FRAMES BY OTHER MANUFACTURERS MUST BE APPROVED BY THE COUNTY PRIOR TO USE.
③ GRATE & FRAME SHOWN FLAT FOR ILLUSTRATION PURPOSES ONLY.
④ ALSO SEE INLET BOX, TYPES 13 & 16 DETAIL

Adams County Public Works Engineering	TYPE 13 GRATE & FRAME for Public and Private Structures	Adams County Public Works Construction Insp.
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 9/15/2017 · FILE NAME: 13GRATE.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601

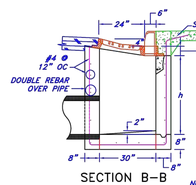


CENTER SECTION MULTIPLE INLETS



SECTION A–A

# OF INLETS	STD. DEPTH (h)	STD. WIDTH (w)
SINGLE	42"	40"
DOUBLE	48"	84"
TRIPLE	52"	128"



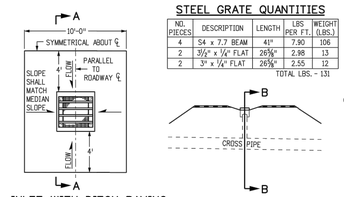
SECTION B–B

NO SCALE

NOTES:

1. *FOR PAVMENT PURPOSES, INLET STRUCTURES SHALL INCLUDE 3'–0" CURB & GUTTER TRANSITION SECTION AT EACH END OF INLET PLUS SIDEWALK SECTIONS WHERE REQUIRED BEHIND INLET STRUCTURE AND TRANSITION SECTIONS.*
2. *FLOOR SLOPE MAY BE POURED MONOLITHICALLY WITH BASE.*
3. *OUTLET PIPES TO BE SET FLUSH WITH INSIDE FACE OF INLET WALL. BELL END TO BE PLACED ON UPSTREAM SIDE.*
4. *UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER, ALL TYPE 16 INLETS SHALL BE CONSTRUCTED WITH AN ADJUSTABLE CURB BOX.*
5. *REQUIRED FRAME IS NEENAH R–3362–1 (SINGLE) OR R–3363–1 (DOUBLE). SIMILAR FRAMES BY OTHER MANUFACTURERS MUST BE APPROVED BY THE COUNTY PRIOR TO USE.*
6. *EXTEND REINFORCING INTO SIDEWALK SECTION A MINIMUM OF 12". WHERE NO SIDEWALK IS TO BE PLACED, EXTEND REINFORCING INTO BACK WALL OF INLET BEHIND CURB FRAME.*
7. *WHERE INVERT ELEVATION IS GIVEN, IT SHALL BE CONSIDERED TO BE LOCATED AT THE FLOW LINE OF THE PIPE (OUT). BOX DIMENSIONS TO BE ADJUSTED ACCORDINGLY.*
8. *ALL INLET BOXES SHALL BE CAST IN PLACE CONCRETE UNLESS OTHERWISE AUTHORIZED BY THE COUNTY.*
9. *WHERE VERTICAL BARS ARE TO BE SPLICED, MINIMUM SPLICE LENGTH =12" OR 25d.*

ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	INLET BOX TYPES 13 & 16	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 · FILE NAME: INLET_BOX.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601



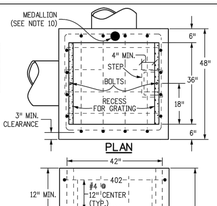
INLET WITH DITCH PAVING

STEEL GRATE QUANTITIES

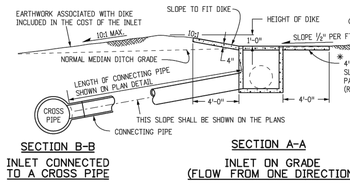
NO. PIECES	DESCRIPTION	LENGTH	LBS PER FT.	WEIGHT (LBS.)
4	S4 x 7.7 BEAM	41"	7.80	106
2	3½" x ¼" FLAT	26⅝"	2.98	13
2	3" x ¼" FLAT	26⅝"	2.55	12

TOTAL LBS. ~ 131

SECTION VIEW

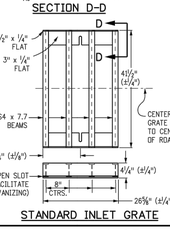


ELEVATION CONCRETE INLET

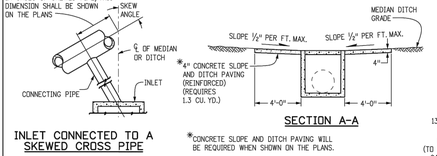


SECTION B–B
INLET CONNECTED TO A CROSS PIPE

SECTION A–A
INLET ON GRADE (FLOW FROM ONE DIRECTION)



SECTION D–D



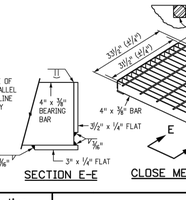
INLET CONNECTED TO A SKEWED CROSS PIPE

SECTION A–A

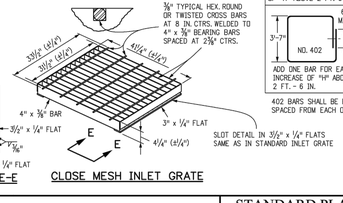
*CONCRETE SLOPE AND DITCH PAVING WILL BE REQUIRED WHEN SHOWN ON THE PLANS.

INLET AT BOTTOM OF VERTICAL CURVE (FLOW FROM TWO DIRECTIONS)

STANDARD INLET GRATE

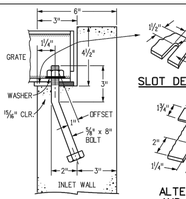


SECTION E–E

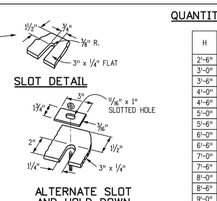


CLOSE MESH INLET GRATE

SLOT DETAIL IN 3½" x ¼" FLATS SAME AS IN STANDARD INLET GRATE



GRATE INSTALLATION DETAIL



ALTERNATE SLOT AND HOLD DOWN PLATE DETAIL

QUANTITIES FOR ONE INLET

H	CONCRETE (CU. YDS.)	STEEL (LBS.)	NO. STEPS REQ'D.
2'–6"	1.0	76	0
3'–0"	1.1	81	0
3'–6"	1.2	97	0
4'–0"	1.3	102	1
4'–6"	1.5	117	2
5'–0"	1.6	123	2
5'–6"	1.7	138	2
6'–0"	1.9	143	3
6'–6"	2.0	159	3
7'–0"	2.1	164	3
7'–6"	2.2	180	4
8'–0"	2.4	185	4
8'–6"	2.5	200	4
9'–0"	2.6	206	5
9'–6"	2.8	221	5
10'–0"	2.9	236	6
11'–6"	3.3	252	6

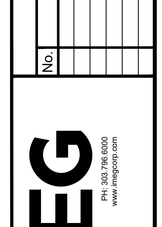
▼ PIPE INSIDE DIAMETER SHALL BE 30 IN. OR LESS. CONCRETE AND STEEL QUANTITIES ARE FOR ONE ENTIRE INLET BEFORE DEDUCTION FOR VOLUME OCCUPIED BY PIPE. WEIGHT OF STEEL INCLUDES A RING FOR THE MAXIMUM PIPE DIAMETER.

GENERAL NOTES

1. INLET TYPE C IS NOT HS–20 RATED AND SHALL NOT BE PLACED IN PAVED ROADWAYS. THIS INLET SHALL BE USED ONLY OUTSIDE PAVED ROADWAYS.
2. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST–IN–PLACE OR PRECAST.
3. REINFORCING BARS SHALL BE GRADE 60, EPOXY COATED, AND DEFORMED #4, AND SHALL HAVE A MIN. 2 INCH CLEARANCE. CUT OR BEND AROUND PIPES AS REQUIRED.
4. CONCRETE SLOPE AND DITCH PAVING SHALL BE IN ACCORDANCE WITH SECTION 507. REINFORCEMENT FOR CONCRETE SLOPE PAVING SHALL BE 6 X 6 – W1.4 X W1.4 OR 6 X 6 – W2.1 X W2.1.
5. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED, AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
6. THE STANDARD INLET GRATES SHALL BE USED ON ALL TYPE C INLETS UNLESS CLOSE MESH INLET GRATES ARE SPECIFIED ON THE PLANS.
7. CLOSE MESH GRATES ARE RECOMMENDED WHERE FOOT TRAFFIC OR BICYCLE ROUTES ARE IN CLOSE PROXIMITY TO GRATE. THIS GRATE IS NOT ADA COMPLIANT OR BICYCLE FRIENDLY AND SHALL NOT BE PLACED DIRECTLY IN SIDEWALKS, CROSSWALKS OR BIKE PATHS.
8. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" IS EQUAL TO OR GREATER THAN 3 FEET – 6 INCHES AND SHALL CONFORM TO AASHTO M 199.
9. SEE STANDARD PLAN M-604-11, FOR REINFORCEMENT AROUND THE PIPE OPENING.
10. ALL INLETS SHALL HAVE A 4 INCH DIA METAL MEDALLION WITH A "NO DUMPING DRAINS TO STREAM" MESSAGE ON IT. THE MEDALLION SHALL HAVE A FISH SYMBOL WITH A BLUE BACKGROUND. IT SHALL BE FIRMLY ATTACHED TO THE TOP OF THE INLET WITH A PERMANENT FASTENER.

BAR LIST FOR H = 2 FT.–6 IN. AND BENDING DIAGRAM

MARK	NO. REQ'D.	HEIGHT	LENGTH
401	2	2'–2½"	8'–0"
401	6	2'–7"	8'–8"
402	4	¼"	15'–4"



ADD ONE BAR FOR EACH FT. INCREASE OF "H" ABOVE 2 FT.– 6 IN.

402 BARS SHALL BE EQUALLY SPACED FROM EACH OTHER.

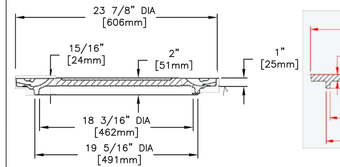
Computer File Information		Sheet Revisions		
Creation Date: 07/31/19		Date:	Comments	
Designer Initials: JBK	R-X			
Last Modification Date: 07/31/19	R-X			
Detailer Initials: LTA	R-X			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X			

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

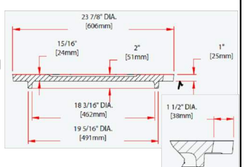
INLET, TYPE C

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-604-10
Standard Sheet No. 1 of 1
Project Sheet Number:



Section for EPIC Pickbar for Closed Pickhole Alternative



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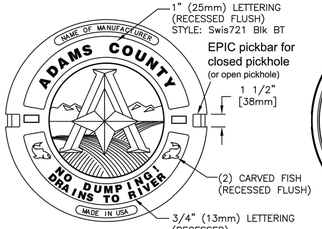
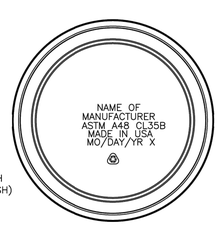
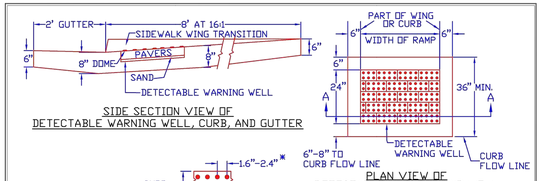


COVER FACE



COVER BOTTOM

ADAMS COUNTY PUBLIC WORKS DEPARTMENT /ENGINEERING	STANDARD MANHOLE COVER for Public Structures	ADAMS COUNTY PUBLIC WORKS DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. Adams County Pkwy. Brighton, CO 80601	REVISION DATE: 1/17/2019 · FILE NAME: STORM MANHOLE	4955 E. 74TH AVE. COMMERCE CITY, CO 80022



SIDE SECTION VIEW OF DETECTABLE WARNING WELL, CURB, AND GUTTER

PLAN VIEW OF DETECTABLE WARNING AND WELL (PAVERS NOT DRAWN TO SCALE)

DOME AND DETECTABLE WARNING DETAILS

SECTION A–A

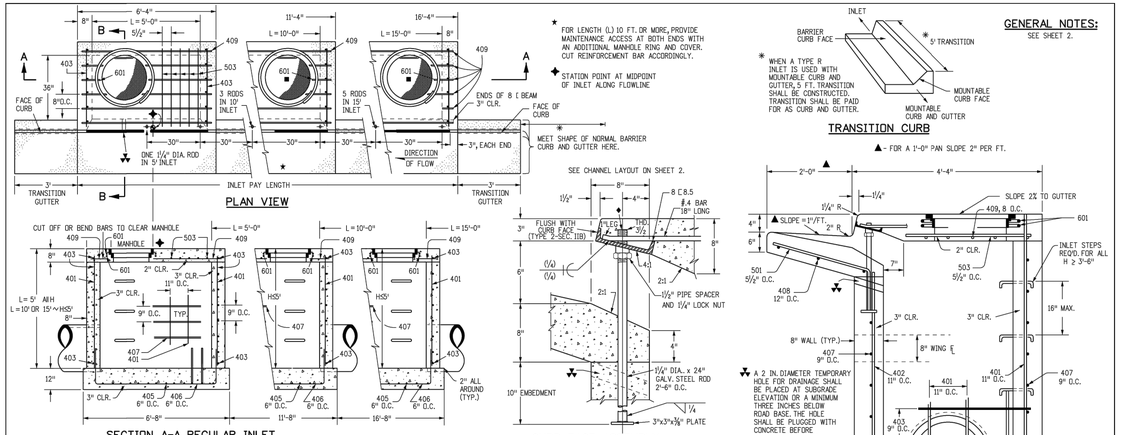
FRONT SECTION VIEW OF DETECTABLE WARNING WELL, CURB, AND GUTTER

NOT TO SCALE

NOTES:

① THE DETECTABLE WARNINGS SHALL BE INSTALLED AT SIDEWALK/STREET TRANSITIONS. THEY SHALL BE MADE IN PAVER FORM WITH A TRUNCATED DOME SURFACE. THE DOMES SHALL BE PLACED IN A SQUARE GRID, ALIGNED IN THE DIRECTION OF TRAVEL.
② THE TOP OF THE DRAINAGE WEEP HOLE SHALL BE LOCATED AT THE LOWEST POINT OF THE DETECTABLE WARNING WELL AND AT THE LOWEST EDGE OF THE RAMP.
③ ALL DETECTABLE WARNING AREAS SHALL START A MINIMUM OF 6 INCHES FROM THE FLOW LINE OF THE CURB AND EXTEND BACK 24 INCHES, AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY.
④ THE DETECTABLE WARNING AREA SHALL BE INCLUDED IN THE COST OF THE CONCRETE CURB RAMP.
⑤ THE TOP DIAMETER OF THE TRUNCATED DOMES SHALL BE 50% TO 65% OF THE BASE DIAMETER.
⑥ WIDTH OF WING, 6' FOR COMBINATION AND 8' FOR VERTICAL CURB AND GUTTER.

ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	VIEWS AND DETAILS OF THE DETECTABLE WARNING	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 · FILE NAME: TRUNC_DOMES.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601



GENERAL NOTES: SEE SHEET 2.

WHEN A TYPE R INLET IS USED WITH MOUNTABLE CURB AND GUTTER, 5 FT. TRANSITION SHALL BE CONSTRUCTED. TRANSITION SHALL BE PAID FOR AS CURB AND GUTTER.

TRANSITION CURB

▲ – FOR A 1'-0" PAN SLOPE 2" PER FT.

A 2 IN. DIAMETER TEMPORARY HOLE FOR DRAINAGE SHALL BE PLACED AT SUBGRADE ELEVATION OR A MINIMUM THREE INCHES BELOW ROAD BASE. THE HOLE SHALL BE PLUGGED WITH CONCRETE BEFORE ACCEPTANCE OF THE INLET.

SECTION B–B END VIEW

NOTE: MANHOLE RING AND COVER, STATION POINT AND OUTFLOW PIPE SHALL BE LOCATED AT THE SAME END OF THE INLET.

Computer File Information		Sheet Revisions		
Creation Date: 07/31/19		Date:	Comments	
Designer Initials: JBK	R-X			
Last Modification Date: 07/31/19	R-X			
Detailer Initials: LTA	R-X			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	R-X			

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CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

CURB INLET TYPE R

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-604-12
Standard Sheet No. 1 of 2
Project Sheet Number:

REVISIONS

No.	DESCRIPTION	DATE

IMEG
7600 E ORCHARD RD SUITE 250-S GREENWOOD VILLAGE, CO 80111
PH: 303.796.6000
www.imegcorp.com

MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

ROAD AND STORM DETAILS

IMEG Project No: 22006507.00
File Name: 22006507 RD Details.dwg

Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 12/6/22

26

Sheet 26 of 27

Tuesday, May 23, 2023 9:20:45 AM
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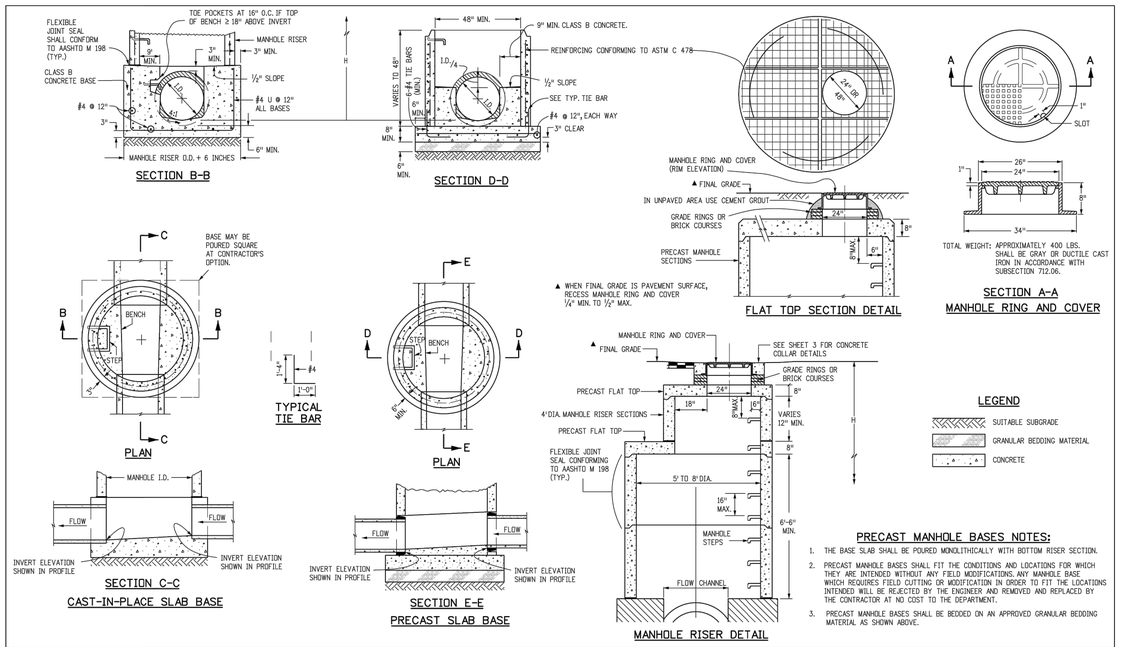

PRECAST MANHOLE BASES NOTES:

1. THE BASE SLAB SHALL BE POURED MONOLITHICALLY WITH BOTTOM RISER SECTION.
2. PRECAST MANHOLE BASES SHALL FIT THE CONDITIONS AND LOCATIONS FOR WHICH THEY ARE INTENDED WITHOUT ANY FIELD MODIFICATIONS. ANY MANHOLE BASE WHICH REQUIRES FIELD CUTTING OR MODIFICATION IN ORDER TO FIT THE LOCATIONS INTENDED WILL BE REJECTED BY THE ENGINEER AND REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT.
3. PRECAST MANHOLE BASES SHALL BE BEDDED ON AN APPROVED GRANULAR BEDDING MATERIAL AS SHOWN ABOVE.

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Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
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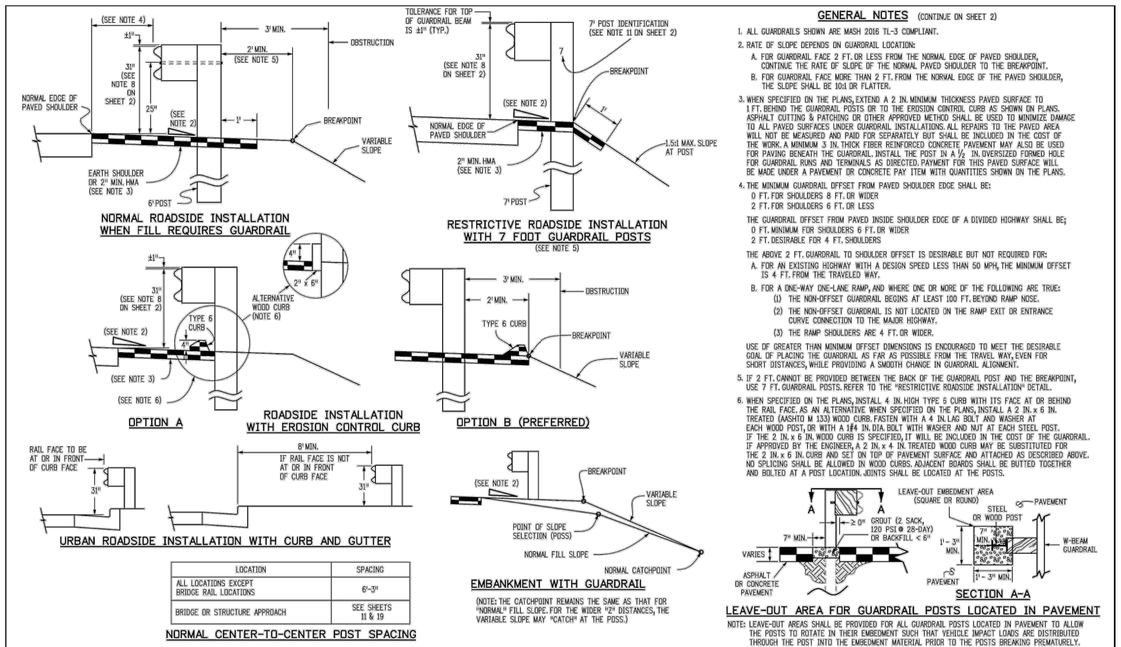
MANHOLES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-604-20
Standard Sheet No. 2 of 3
Project Sheet Number:



LOCATION	SPACING
ALL LOCATIONS EXCEPT BRIDGE RAIL LOCATIONS	6'-3"
BRIDGE OR STRUCTURE APPROACH	SEE SHEETS 11 & 19

NORMAL CENTER-TO-CENTER POST SPACING

GENERAL NOTES (CONTINUE ON SHEET 2)

1. ALL GUARDRAILS SHOWN ARE MASH 2016 TL-3 COMPLIANT.
2. RATE OF SLOPE DEPENDS ON GUARDRAIL LOCATION:
   A. FOR GUARDRAIL FACE 2 FT. OR LESS FROM THE NORMAL EDGE OF PAVED SHOULDER, CONTINUE THE RATE OF SLOPE OF THE NORMAL PAVED SHOULDER TO THE BREAKPOINT.
   B. FOR GUARDRAIL FACE MORE THAN 2 FT. FROM THE NORMAL EDGE OF THE PAVED SHOULDER, THE SLOPE SHALL BE 10:1 OR FLATTER.
3. WHEN SPECIFIED ON THE PLANS, EXTEND A 2 IN. MINIMUM THICKNESS PAVED SURFACE TO 1 FT. BEHIND THE GUARDRAIL POSTS OR TO THE EROSION CONTROL CURB AS SHOWN ON PLANS. ASPHALT CUTTING & PATCHING OR OTHER APPROVED METHOD SHALL BE USED TO MINIMIZE DAMAGE TO ALL PAVED SURFACES UNDER GUARDRAIL INSTALLATIONS. ALL REPAIRS TO THE PAVED AREA WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK. A MINIMUM 3 IN. THICK FIBER REINFORCED CONCRETE PAVEMENT MAY ALSO BE USED FOR PAVING BENEATH THE GUARDRAIL. INSTALL THE POST IN A ½ IN. OVERSIZED FORMED HOLE FOR GUARDRAIL RUNS AND TERMINALS AS DIRECTED. PAYMENT FOR THIS PAVED SURFACE WILL BE MADE UNDER A PAVEMENT OR CONCRETE PAY ITEM WITH QUANTITIES SHOWN ON THE PLANS.
4. THE MINIMUM GUARDRAIL OFFSET FROM PAVED SHOULDER EDGE SHALL BE:
   0 FT. FOR SHOULDERS 8 FT. OR WIDER
   2 FT. FOR SHOULDERS 6 FT. OR LESS
   THE GUARDRAIL OFFSET FROM PAVED INSIDE SHOULDER EDGE OF A DIVIDED HIGHWAY SHALL BE:
   0 FT. MINIMUM FOR SHOULDERS 6 FT. OR WIDER
   2 FT. DESIRABLE FOR 4 FT. SHOULDERS
   THE ABOVE 2 FT. GUARDRAIL TO SHOULDER OFFSET IS DESIRABLE BUT NOT REQUIRED FOR:
   A. FOR AN EXISTING HIGHWAY WITH A DESIGN SPEED LESS THAN 50 MPH, THE MINIMUM OFFSET IS 4 FT. FROM THE TRAVELED WAY.
   B. FOR A ONE-WAY ONE-LANE RAMP, AND WHERE ONE OR MORE OF THE FOLLOWING ARE TRUE:
      (1) THE NON-OFFSET GUARDRAIL BEGINS AT LEAST 100 FT. BEYOND RAMP NOSE.
      (2) THE NON-OFFSET GUARDRAIL IS NOT LOCATED ON THE RAMP EXIT OR ENTRANCE CURVE CONNECTION TO THE MAJOR HIGHWAY.
      (3) THE RAMP SHOULDERS ARE 4 FT. OR WIDER.
   USE OF GREATER THAN MINIMUM OFFSET DIMENSIONS IS ENCOURAGED TO MEET THE DESIRABLE GOAL OF PLACING THE GUARDRAIL AS FAR AS POSSIBLE FROM THE TRAVEL WAY, EVEN FOR SHORT DISTANCES, WHILE PROVIDING A SMOOTH CHANGE IN GUARDRAIL ALIGNMENT.
5. IF 2 FT. CANNOT BE PROVIDED BETWEEN THE BACK OF THE GUARDRAIL POST AND THE BREAKPOINT, USE 7 FT. GUARDRAIL POSTS. REFER TO THE "RESTRICTIVE ROADSIDE INSTALLATION" DETAIL.
6. WHEN SPECIFIED ON THE PLANS, INSTALL 4 IN. HIGH TYPE 5 CURB WITH ITS FACE AT OR BEHIND THE RAIL FACE, AS AN ALTERNATIVE WHEN SPECIFIED ON THE PLANS, INSTALL A 2 IN. x 6 IN. TREATED (AASHTO M 133) WOOD CURB. FASTEN WITH A 4 IN. LAG BOLT AND WASHER AT EACH WOOD POST, OR WITH A 1/2 IN. DIA. BOLT WITH WASHER AND NUT AT EACH STEEL POST. IF THE 2 IN. x 6 IN. WOOD CURB IS SPECIFIED, IT WILL BE INCLUDED IN THE COST OF THE GUARDRAIL. IF APPROVED BY THE ENGINEER, A 2 IN. x 4 IN. TREATED WOOD CURB MAY BE SUBSTITUTED FOR THE 2 IN. x 6 IN. CURB AND SET ON TOP OF PAVEMENT SURFACE AND ATTACHED AS DESCRIBED ABOVE. NO SPLICING SHALL BE ALLOWED IN WOOD CURBS. ADJACENT BOARDS SHALL BE BUTTED TOGETHER AND BOLTED AT A POST LOCATION. JOINTS SHALL BE LOCATED AT THE POSTS.

LEAVE-OUT AREA FOR GUARDRAIL POSTS LOCATED IN PAVEMENT

NOTE: LEAVE-OUT AREAS SHALL BE PROVIDED FOR ALL GUARDRAIL POSTS LOCATED IN PAVEMENT TO ALLOW THE POSTS TO ROTATE IN THEIR EMBEDMENT SUCH THAT VEHICLE IMPACT LOADS ARE DISTRIBUTED THROUGH THE POST INTO THE EMBEDMENT MATERIAL PRIOR TO THE POSTS BREAKING PREMATURELY.

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(RQX)	03/05/20	Revised Gen. Note 1 to show MASH compliant
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Detailer Initials: LTA	(RQX)		
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Colorado Department of Transportation
2829 West Howard Place
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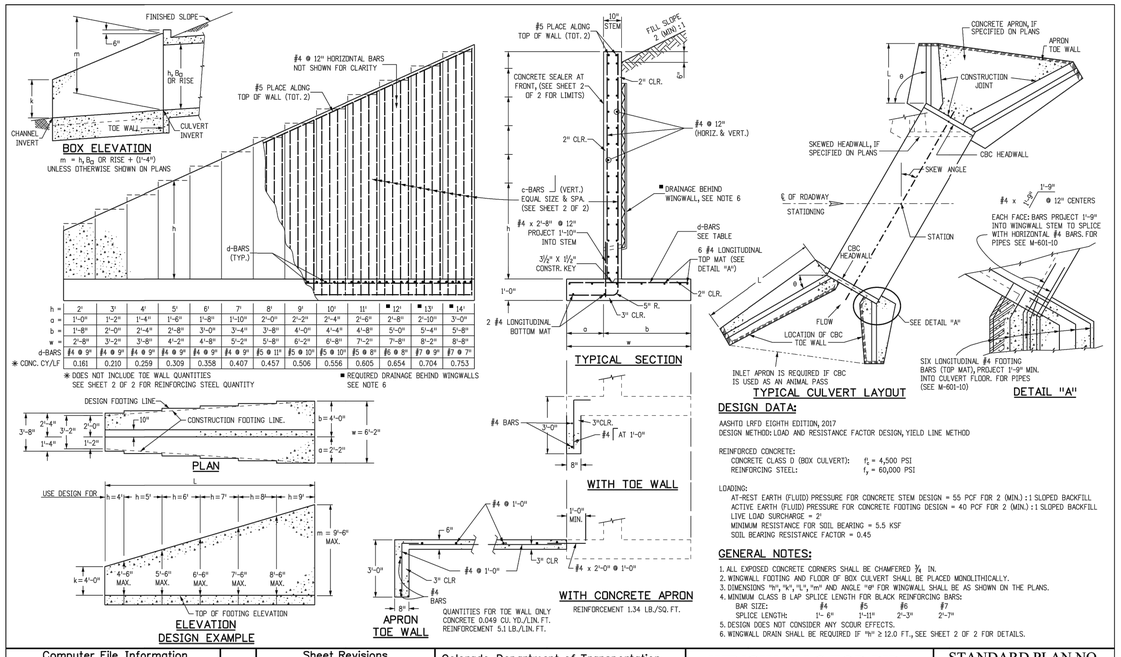
Denver, CO 80204
Phone 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-606-1
Standard Sheet No. 1 of 19
Project Sheet Number:



h =	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	■ 12'	■ 13'	■ 14'
a =	1'-0"	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	2'-2"	2'-4"	2'-6"	2'-8"	2'-10"	3'-0"
b =	1'-8"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-0"	5'-4"	5'-8"
w =	2'-8"	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"	5'-8"	6'-2"	6'-8"	7'-2"	7'-8"	8'-2"	8'-8"
d-BARS	#4 @ 9"	#4 @ 9"	#4 @ 9"	#4 @ 9"	#4 @ 9"	#4 @ 9"	#5 @ 11"	#5 @ 10"	#5 @ 10"	#5 @ 8"	#6 @ 8"	#7 @ 9"	#7 @ 7"
✱ CONC. CY/LF	0.161	0.210	0.259	0.309	0.358	0.407	0.457	0.506	0.556	0.605	0.654	0.704	0.753

✱ DOES NOT INCLUDE TOE WALL QUANTITIES SEE SHEET 2 OF 2 FOR REINFORCING STEEL QUANTITY

■ REQUIRED DRAINAGE BEHIND WINGWALLS SEE NOTE 6

QUANTITIES FOR TOE WALL ONLY
CONCRETE 0.049 CU. YD./LIN. FT.
REINFORCEMENT 5.1 LB./LIN. FT.

REINFORCEMENT 1.34 LB./SQ. FT.

DESIGN DATA:

AASHTO LRFD EIGHTH EDITION, 2017
DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN, YIELD LINE METHOD

REINFORCED CONCRETE:
CONCRETE CLASS D (BOX CULVERT): f'_c = 4,500 PSI
REINFORCING STEEL: f_y = 60,000 PSI

LOADING:
AT-REST EARTH (FLUID) PRESSURE FOR CONCRETE STEM DESIGN = 55 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
ACTIVE EARTH (FLUID) PRESSURE FOR CONCRETE FOOTING DESIGN = 40 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
LIVE LOAD SURCHARGE = 2'
MINIMUM RESISTANCE FOR SOIL BEARING = 5.5 KSF
SOIL BEARING RESISTANCE FACTOR = 0.45

GENERAL NOTES:

1. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.
2. WINGWALL FOOTING AND FLOOR OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
3. DIMENSIONS "h", "k", "L", "m" AND ANGLE "@" FOR WINGWALL SHALL BE AS SHOWN ON THE PLANS.
4. MINIMUM CLASS B LAP SPLICE LENGTH FOR BLACK REINFORCING BARS:

BAR SIZE:	#4	#5	#6	#7
SPLICE LENGTH:	1'- 6"	1'-11"	2'-3"	2'-7"

5. DESIGN DOES NOT CONSIDER ANY SCOUR EFFECTS.
6. WINGWALL DRAIN SHALL BE REQUIRED IF "h" ≥ 12.0 FT., SEE SHEET 2 OF 2 FOR DETAILS.

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WINGWALLS FOR PIPE OR BOX CULVERTS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-601-20
Standard Sheet No. 1 of 2
Project Sheet Number:

No.	DATE	REVISIONS DESCRIPTION

IMEG
7600 E ORCHARD RD
SUITE 250-S
GREENWOOD VILLAGE, CO 80111
PH: 303.796.6000
www.imegcorp.com

MENDOZA YORK STREET SUBDIVISION
ADAMS COUNTY, CO

ROAD AND STORM DETAILS

IMEG Project No: 22006507.00
File Name: 22006507 RD Details.dwg

Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 12/6/22

27

Sheet 27 of 27

Tuesday, May 23, 2023 9:20:49 AM
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Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

REZONING (Zoning Map Amendment)

Application submittals must include all documents on this checklist as well as this page. Please use the reference guide (pg. 2) included in this packet for more information on each submittal item.

All applications shall be submitted electronically to epermitcenter@adcogov.org. If the submittal is too large to email as an attachment, the application may be sent as an unlocked OneDrive link. Alternatively, the application may be delivered on a flash drive to the One-Stop Customer Service Center. All documents should be combined in a single PDF. Once a complete application has been received, fees will be invoiced and payable online at https://permits.adcogov.org/CitizenAccess/.

- [x] 1. Development Application Form (pg. 4)
- [ ] 2. Application Fees (see table)
- [x] 3. Written Explanation of the Project
- [x] 4. Site Plan Showing Proposed Development, including:
    a. Proposed Building Envelope
    b. Parking Areas
    c. Site Access
    d. Landscape Areas
- [x] 5. Trip Generation Letter
- [x] 6. Preliminary Drainage Analysis
- [ ] 7. Neighborhood Meeting Summary
- [x] 8. Proof of Ownership (warranty deed or title policy)
- [x] 9. Proof of Water and Sewer Services
- [x] 10. Legal Description
- [x] 11. Certificate of Taxes Paid
- [x] 12.Certificate of Notice to Mineral Estate Owners/and Lessees (pg. 6)
- [x] 13.Certificate of Surface Development (pg. 7)

Applications Fees	Amount	Due
Application	$1,500	After complete application received
Tri-County Health	$210 (public utilities -TCHD Level 2) $360 (individual septic -TCHD Level 3)	After complete application received

Rezoning Guide to Development Application Submittal

All development application submittals shall comprise of one (1) electronic copy (emailed or delivered on a USB). **Application submittals that do not conform to these guidelines shall not be accepted.**

---

3. Written Explanation of the Project:

- A clear and concise, yet thorough, description of the proposal. Please include, if applicable, timeframe, purpose of project, and improvements that will be made to the site

4. Site Plan Showing Proposed Development:

- A detailed drawing of existing and proposed improvements
- Including:
  - Streets, roads, and intersections
  - Driveways, access points, and parking areas
  - Existing and proposed structures, wells, and septic systems,
  - Easements, utility lines, and no build or hazardous areas
  - Scale, north arrow, and date of preparation
- An Improvement Location Certificate or Survey may be required during the official review

5. Trip Generation Letter:

- Shall be determined based upon the methodologies of the most current, Institute of Transportation Engineers (ITE) Trip Generation Manual for the weekday AM peak hour and weekday PM peak hour

6. Preliminary Drainage Analysis:

- A general narrative discussing the pertinent drainage characteristics and problems, and proposed drainage characteristics if the subdivision is approved

7. Neighborhood Meeting Summary:

- Please refer to Section 2-01-02 of the Adams County Development Standards and Regulations for the specific requirements regarding time, location, and notice
- A written summary shall be prepared including the materials submittal presented at the meeting, any issues identified at the meeting, and how those issues have been addressed

8. Proof of Ownership:

- A deed may be found in the Office of the Clerk and Recorder
- A title commitment is prepared by a professional title company

9. Proof of Water:

- Public utilities-A written statement from the appropriate water district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider
- Private utilities- Well permit(s) information can be obtained from the Colorado State Division of Water Resources at (303) 866-3587

Proof of Sewer:

- Public utilities-A written statement from the appropriate sanitation district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider
- Private utilities-A written statement from Tri-County Health indicating the viability of obtaining Onsite Wastewater Treatment Systems

10. Legal Description:

- Geographical description used to locate and identify a property
- Visit http://gisapp.adcogov.org/quicksearch/ to find the legal description for your property

11. Certificate of Taxes Paid:

- All taxes on the subject property must be paid in full. Please contact the Adams County Treasurer's Office
- Or http://adcogov.org/index.aspx?NID=812

12. and 13. Certificate of Notice to Mineral Estate Owners/ Certificate of Surface Development:

- The State of Colorado requires notification to mineral rights owners of applications for surface development (i.e. zoning, plats, etc.)
- Mineral or Surface right owners may be found in the title commitment for the subject property
- You may also search the Office of the Clerk and Recorder for any recorded deeds, easements, or other documents.

Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

Application Type:

☐ Conceptual Review	☐ Preliminary PUD	☐ Temporary Use
☐ Subdivision, Preliminary	☐ Final PUD	☐ Variance
☐ Subdivision, Final	☒ Rezone	☐ Conditional Use
☐ Plat Correction/ Vacation	☐ Special Use	☐ Other: _____

PROJECT NAME: 7330 Travel Retail Center and Warehouse/Events Center

APPLICANT

Name(s): Rick Rome P.E. - IMEG Corp. Phone #: 303-796-6067

Address: 7600 E. Orchard Rd. Ste. 250-S

City, State, Zip: Greenwood Village, Colorado 80111

2nd Phone #: 720-219-7763 Email: Rick.a.rome@IMEGCorp.com

OWNER

Name(s): Rafael and Florence Medoza Phone #:

Address: 1955 E. 75th St.

City, State, Zip: Denver, Colorado 80229

2nd Phone #: Email:

TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: Lawrence Depenbusch - Depenbusch Arch. Phone #: 303-981-8790

Address: 4260 E. Freemont Ave.

City, State, Zip: Centennial, Colorado 80122

2nd Phone #: Email:

DESCRIPTION OF SITE

Address:	7330 York St. & 2480 E. 74th Ave.
City, State, Zip:	
Area (acres or square feet):	7.1
Tax Assessor Parcel Number	0171936300074, 171936300075
Existing Zoning:	A-1
Existing Land Use:	Ag. - Residential
Proposed Land Use:	Travel Center

Have you attended a Conceptual Review? YES [Y] NO [ ]

If Yes, please list PRE#: PRE2022-00064

I hereby certify that I am making this application as owner of the above described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name: Rick Rome Date: 5/22/23

Owner's Printed Name

Name: Rafael Mendoza

Owner's Signature

`Lawrence Depenbusch
DEPENBUSCH ARCHITECTURE, PC
4260 East Fremont Avenue
Centennial, Colorado 80122
303-981-8790 Cell

May 22, 2023

Adams County Planning

PROJECT: 7330 Fuel and Retail Center and Warehouse/Events Center at SH 224 & York St

NARRATIVE

Landowners Ralph and Florence Mendoza have a vision to create a Subdivision to allow a three-phase fuel station retail center with warehouse and pad site on a total of 7.1 acres at the northeast corner of intersection of Highway 224 and York Street

Recent improvements on York Street in 2022 with new a new sidewalk and transformer on York and 74th, will allow development and sitework to begin after plan approval in 2023 or 2024. Highway 224 has a steady flow of mostly truck traffic which will support a truck fueling operation with a side area for passenger car and SUV fueling.

Site access and circulation aspects

The site currently exists as two existing lots defined by meets and bounds descriptions. This proposal maintains the existing lots in their current configuration. Reciprocal access easements are proposed to allow truck traffic to enter the site from the west and the east corners. Our vision and concept plan will require the existing exit from 224 at the east corner to be improved to serve both the existing abutting site and our site. East bound trucks can access the site from York Street and then exit back to York or drive through to the east corner exit to 224.
We are including a truck circulation routing exhibit to show probable movements.

A north south access spine will be located on the center of the previous Property Line to provide easy access to all the uses planned on the east and west sides of the property line.

Site uses and features and occupancy

The site will be subdivided into 4 lots.
Lot 1 represents a 1 acre retail lot that may include a stand alone use compatible with the proposed zoning.
Lot 2 represents a 2 acre lot that will include a fuel station and retail center of 10,200 sf allowing multiple tenants north of the C-Store fuel sales. This will allow a QSR food franchise to occupy the north end cap. QSR food franchises with D/T are the most successful and most in demand by the major franchises, so we show a D/T layout concept without an order/menu board. Parking for the first phase travel retail center will be adequate as shown in the parking count shown.
Lot 3 includes a proposed event center on a 1.5 acre lot.

Lot 4 includes a flex space that may be a warehouse/ distribution center type uses or an alternative use at such time as the tenant makes application for the finish of the facility.

Site Drainage and utilities

Drainage of the East and West sides will all flow to two ponds along Highway 224 that drain to the existing culvert under 224 as shown on the site plan.

We are working with North Washington Water and Sanitation District to determine the impacts and availability for water and sewer service. We are including the letter from North Washington Water and Sanitation indicating their willingness and ability to serve the proposed development.

Fire service and circulation will be formalized at the proposed site plans develop. Strategies for fire suppression and emergency access may include water connections for sprinklers depending on occupancy and construction types. Site circulation and emergency access will be coordinated in conjunction with the Fire District.

There is an existing overbank floodplain identified on the property. This area will have restricted uses. Buildings will not be constructed in this area. The area may however be improved to allow for vehicular access and parking with proper public notification as negotiated through the design process.

Site Landscaping, materials and design

Landscaping will meet standards from street fronts and abundant landscaping will be provided in the parking islands and medians. Mature Landscape trees along 224 will be preserved.

Materials to be used for construction shall include masonry, architectural siding and stucco. All RTU equipment will be screened from the street. All Electrical panels will be shielded by landscape buffers.

Dumpsters will be provided on site for the areas noted above.

Site Amenities include entry sidewalk on east and west, bike parking, and flagpole.
Parking is more than adequate for all the uses.

Design aspects

Site Design shows truck route.
The roof will have parapet to conceal the RTU.
Site Lighting for parking of 25' aff height max. downcast, cut-off at the Property Line.
Trash Enclosure located near access drive.
Detention Ponds sized as required to flow to ditch on south
Architecture will be masonry and stucco or metal siding.
Building will be ADA accessible as required with an Accessible path to Public Way

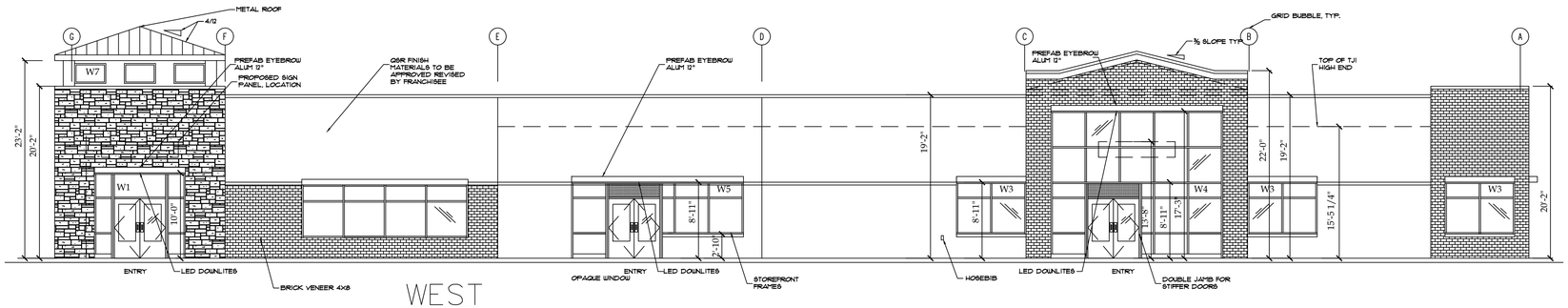
CONCEPTUAL ELEVATIONS

7330 YORK STREET COMPLEX

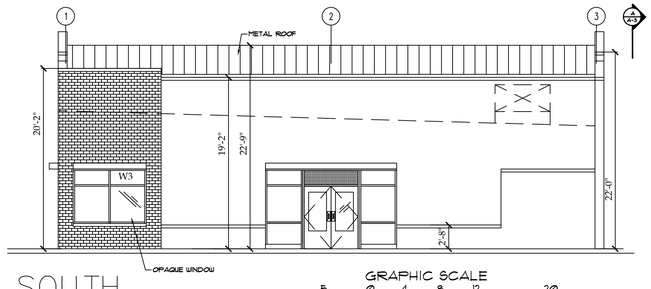
DEPENBUSCH Architecture, PC
Urban Planning
Facilities
Architecture
Landscape
Forensics
6898 South University Blvd, 220
Centennial, Colorado 80121
Cell: (303) 981-8790
E-Mail: lawrence@pedenver.com

FINISH SCHEDULE

TYPE	DESCRIPTION	COLOR	MAKER	REMARKS
1	EIFS STUCCO	WHITE-CREAM	STO	Welcome White SW 6658
2	CMU VENEER	RED/PINK	LAKEWOOD BRICK	SPLIT/GRND
3	TILE 24X24			See sample
4	METAL ROOF	BLUE	METAL SALES	
5	WINDOW FRAMES	WHITE	TBD	FRAME/GRILLE
6	PRECAST LEDGE	GRAY	TBD	Steely Gray SW 7664
7	BRICK VENEER	RED/PINK	LAKEWOOD BRICK	TEXTURE MOD 4X8

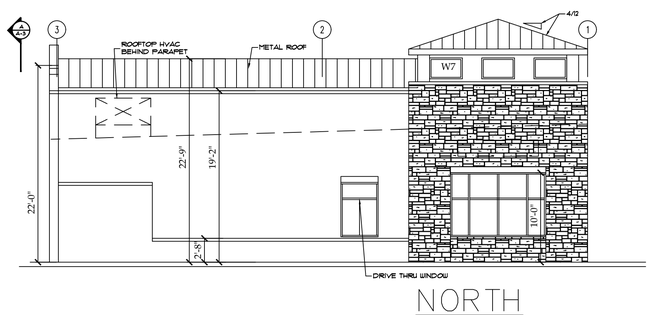


WEST

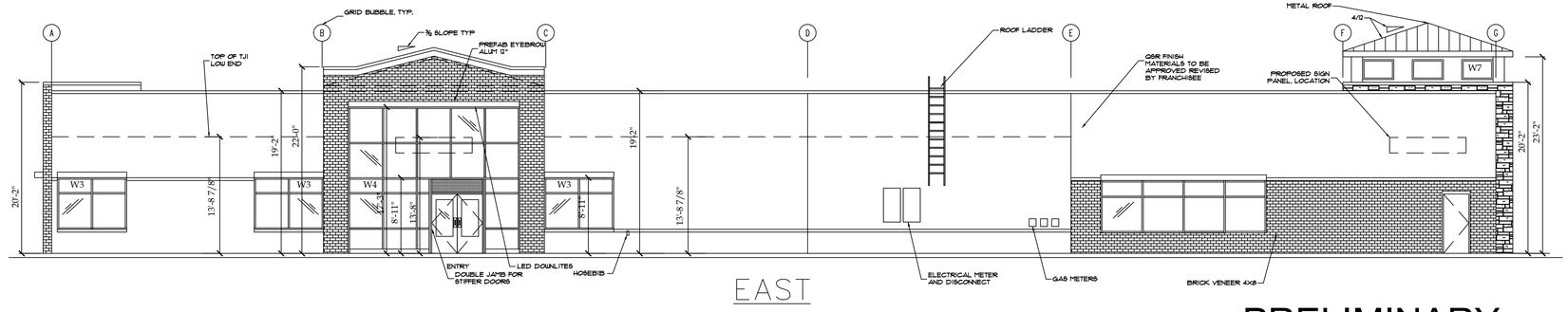


SOUTH

GRAPHIC SCALE
5 0 4 8 12 20
SCALE 1/8" = 1'0"



NORTH



EAST

PRELIMINARY
NOT FOR CONSTRUCTION

DATE 5/16/23

ELEVATIONS C-STORE

SCALE: 1/8" = 1'-0"

CONCEPTUAL ELEVATIONS

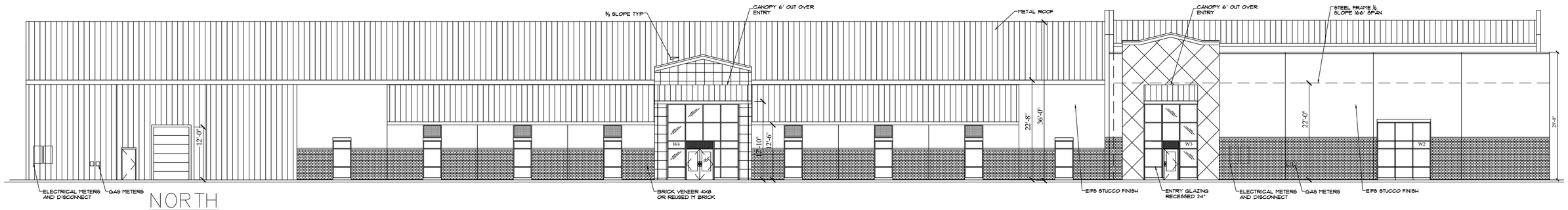
7330 YORK STREET COMPLEX

DEPENBUSCH Architecture, PC

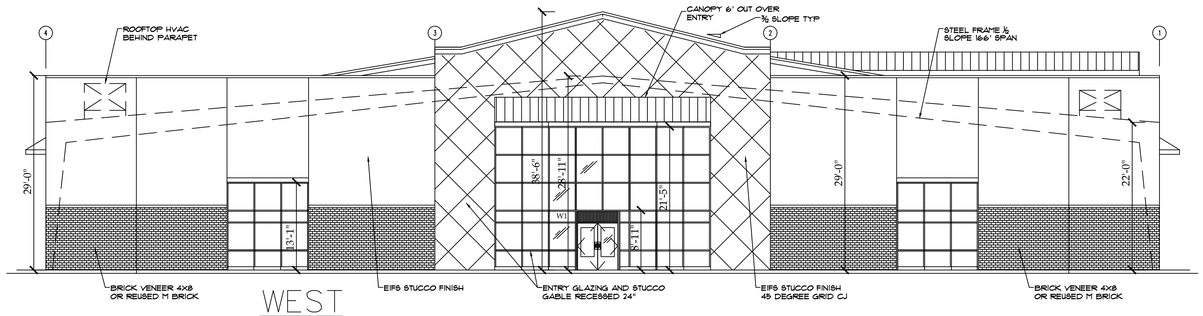
Urban Planning
Facilities
Architecture
Landscape
Forensics

6898 South University Blvd, 220
Centennial, Colorado 80121

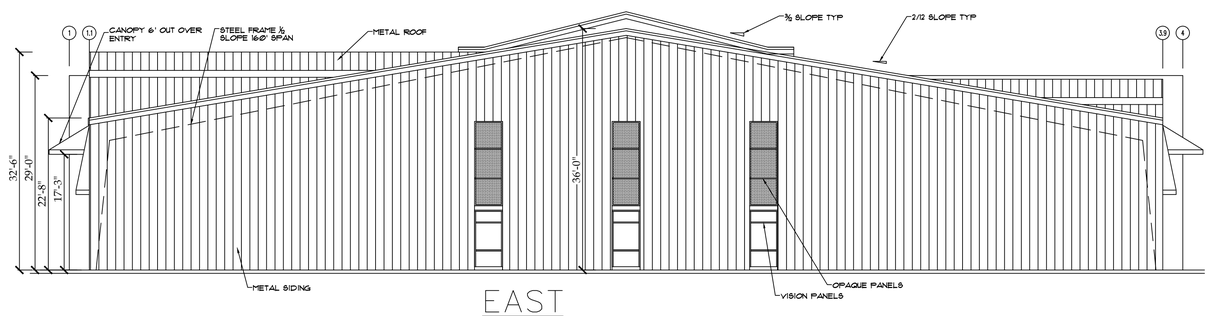
Cell: (303) 981-8790
E-Mail: lawrence@pedenver.com



NORTH



WEST



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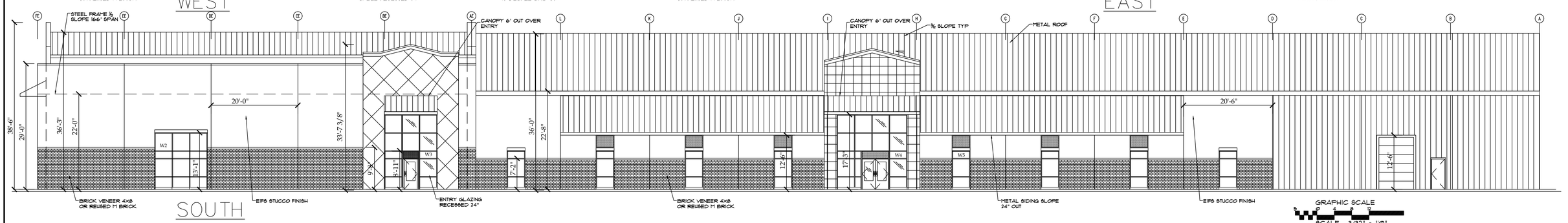


SOUTH

PRELIMINARY
NOT FOR CONSTRUCTION

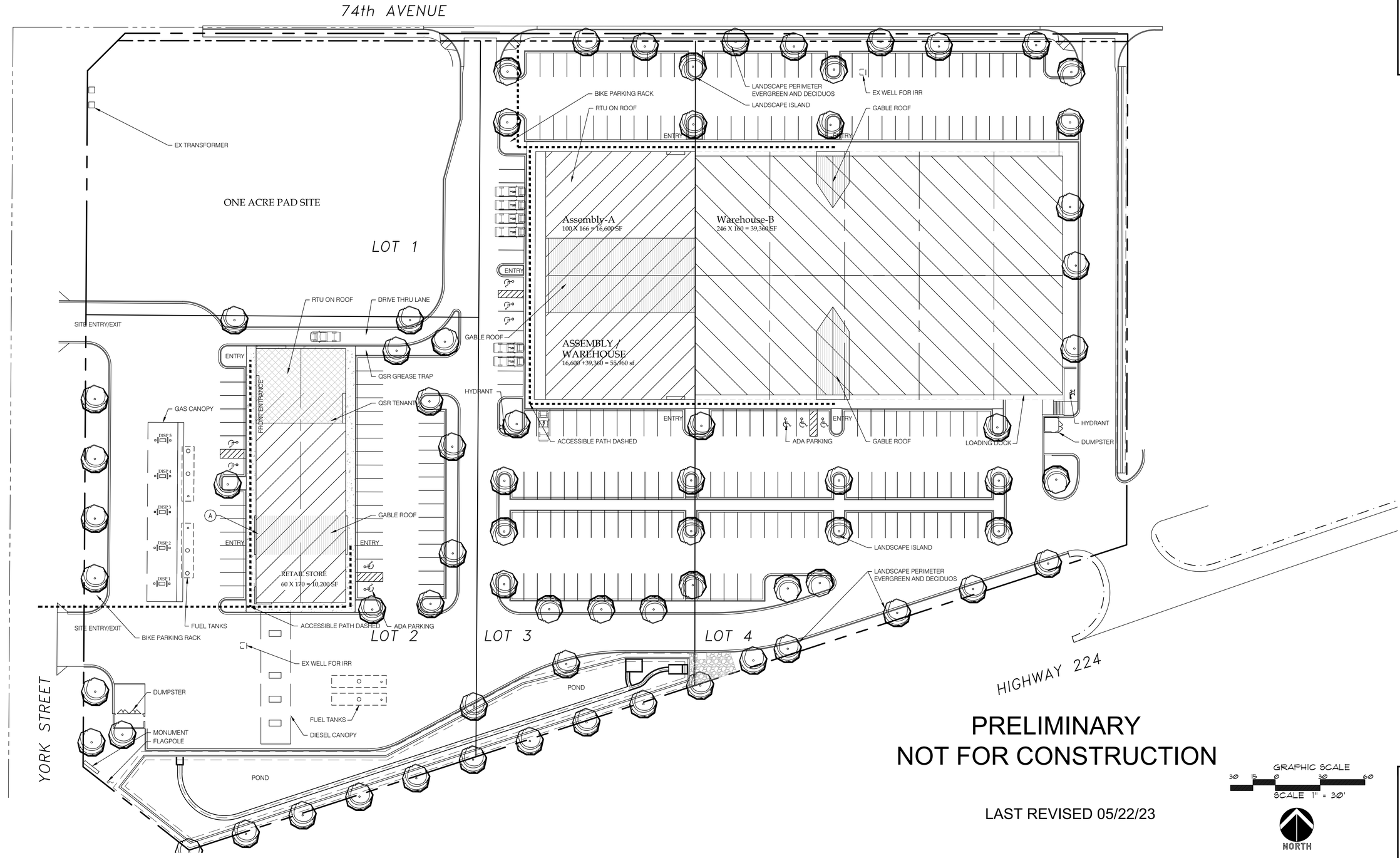
DATE 5/16/23

ELEVATIONS ASSEMBLY/FIELDHOUSE

SCALE: 3/32" = 1'-Ø"

CONCEPTUAL SITE PLAN

7330 YORK STREET COMPLEX



PRELIMINARY
NOT FOR CONSTRUCTION

LAST REVISED 05/22/23

GRAPHIC SCALE
30 15 0 30 60
SCALE 1" = 30'

NORTH

DEPENBUSCH Architecture, PC
Urban Planning
Facilities
Architecture
Landscape
Forensics
6898 South University Blvd, 220
Centennial, Colorado 80121
Cell: (303) 981-8790
E-Mail: lawrence@pedenver.com

Sheet Title

P-1

Sheet Number

7330 York Street

Adams County, Colorado

Traffic Impact Study

KE Job #2022-050

Prepared for:

Ralph Mendoza
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Denver, CO 80229-6912

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970.219.1602 phone

May 18, 2023

Sean K. Kellar, PE, PTOE

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1.0 Introduction

The purpose of this Traffic Impact Study (TIS) is to identify project traffic generation characteristics, to identify potential traffic related impacts on the adjacent street system, and to develop mitigation measures required for identified traffic impacts. This TIS is for the proposed project located at 7330 York Street in Adams County, Colorado. See Figure 1: Vicinity Map.

Kellar Engineering LLC (KE) has prepared the TIS to document the results of the project's anticipated traffic conditions in accordance with Adams County's requirements and to identify projected impacts to the local and regional traffic system.

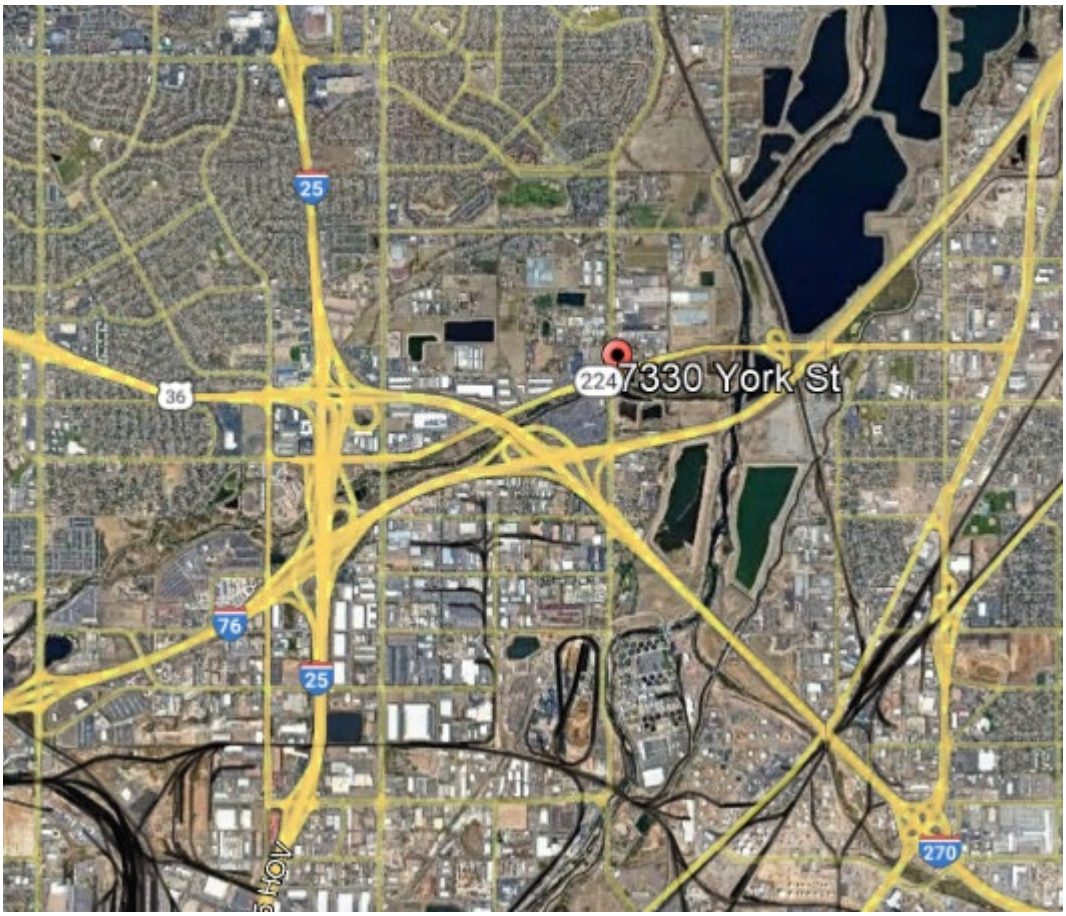
2.0 Existing Conditions and Roadway Network

The project site is located at 7330 York Street at the northeast quadrant of Hwy 224 and York Street in Adams County, CO. Lowell Blvd. is a north-south, 4-lane minor arterial with a posted speed of 35 mph adjacent to the project site. A raised center median exists in York Street adjacent to the project site which appropriately separates traffic and restricts left-turns. State Highway 224 (Hwy 224) is a 4-lane east-west NR-B category roadway with a posted speed of 45 mph. 74th Avenue is an east-west local street located at the north boundary of the project site with a posted speed of 25 mph. The intersection of Hwy 224/York Street is signalized with left-turn and right-turn auxiliary lanes on all approaches, video detection, and 5-section signal heads facing the north-south left-turn lanes. The intersection of York Street/74th Avenue is signalized with left-turn lanes on the north-south approaches, video detection, and 5-section signal heads facing the north-south left-turn lanes. These 5-section signal heads allow for permissive + protected signal phasing. See Figure 2: Site Plan and Appendix B.

2.1 Existing Traffic Volumes

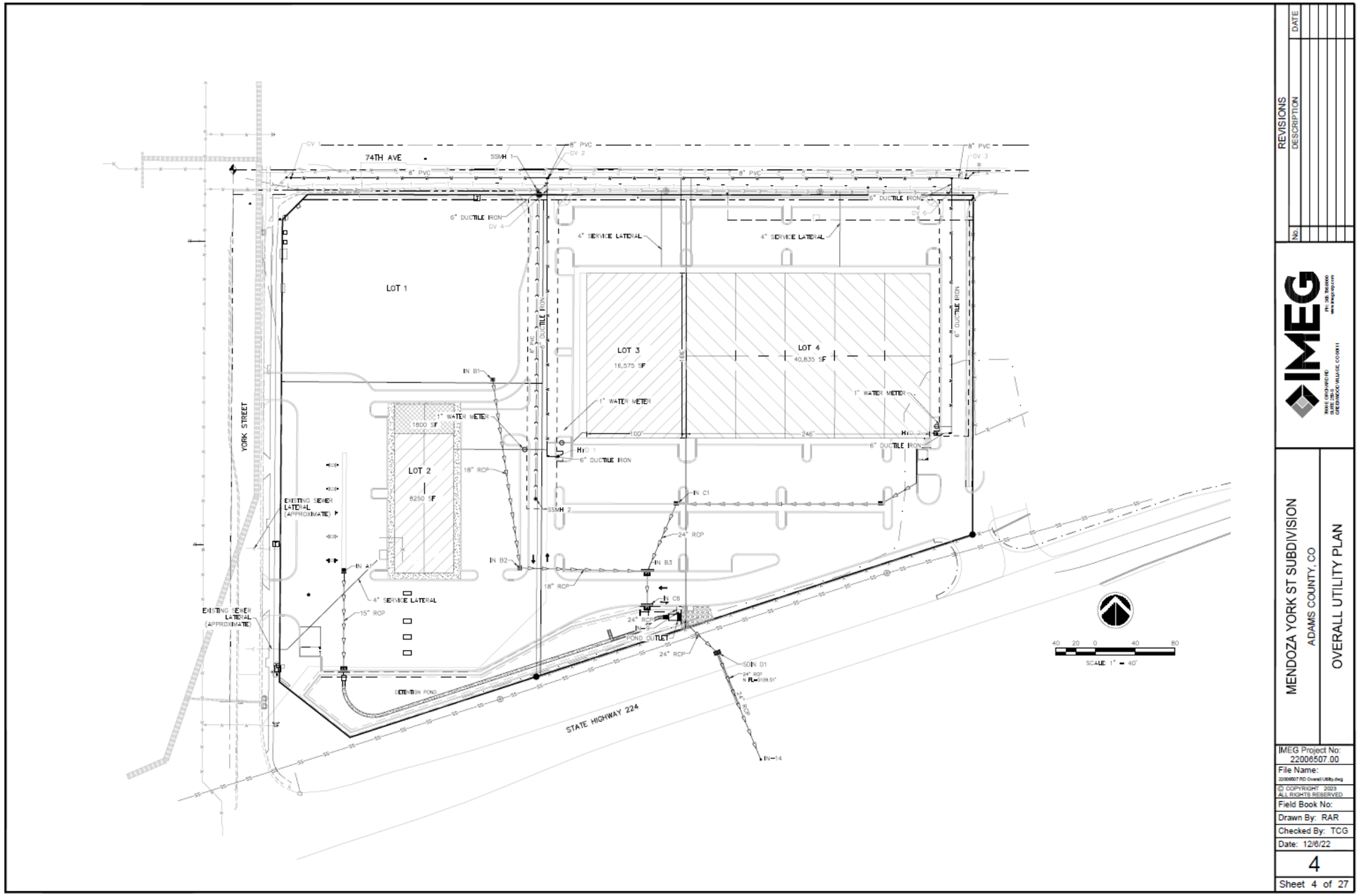
Existing peak hour traffic volume counts were conducted using data collection cameras by All Traffic Data, Inc. on Tuesday, September 27, 2022. The traffic counts were conducted to capture the peak hours of the adjacent street traffic. These traffic counts are shown in Figure 3 with the count sheets provided in Appendix A.

Figure 1: Vicinity Map



Google Earth

Figure 2: Site Plan



3.0 Proposed Development

The proposed project consists of a mixed use development (C-Store/Gas Station, High-Turnover Restaurants, Event Center, and Warehousing). See Table 1: Trip Generation and Figure 2: Site Plan.

4.1 Trip Generation

Site generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the Trip Generation Report published by the Institute of Transportation Engineers (ITE). ITE has established trip generation rates in nationwide studies of similar land uses. The ITE has specific land use categories for all of the project's proposed land uses except for the event center land use. Through previous correspondence with CDOT for previous traffic studies for event center space, KE was able to approximate the proposed event center's peak trip generation using the below information.

The proposed event center was conservatively estimated to have an event size of approximately 300 people for private gatherings (i.e. weddings, funerals, etc.). Arrivals and departures will be staggered throughout the duration of each event and car-pooling of approximately 2.5 attendees to vehicle is anticipated. Traffic volumes will vary on the type of event and number of attendees. Anticipated traffic volumes for a typical event are below:

Passenger vehicles: 120 round-trips/day for passenger cars (240 daily trips)
Vendor vehicles: 3 vehicles, one round-trip per day each (6 daily trips)

The vendor vehicles and a portion (~10%) of other passenger cars will arrive before the event's peak entering hour. Additionally, the vendor vehicles and a portion (~10%) of other passenger cars will leave after the event's peak exiting hour. Therefore, a typical event is projected to generate a maximum of approximately 246 average daily trips, 216 AM peak hour trips, and 216 total PM peak hour trips. In light of the above information,

proposed project is anticipated to generate a combined total of approximately 6,931 daily trips, 763 AM total peak hour trips, and 743 PM total peak hour trips. See Table 1: Trip Generation.

4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns and volumes, anticipated surrounding development areas, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site generated traffic that approaches the site from a given direction and departs the site back to the original source. Figure 6 illustrates the trip distribution used for the project's analysis.

4.3 Traffic Assignment

Traffic assignment was obtained by applying the trip distributions to the estimated trip generation of the development. Figures 7 shows the site generated peak hour traffic assignment.

4.4 Short Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the short range 2025 horizon. These background (2025) and short range (2025) total traffic volumes are shown in Figures 4 and 8. The short range analysis year 2025 includes the proposed development for this project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

4.5 Long Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the long range 2045 horizon. These background (2045) and long range (2045) total traffic volumes are shown in Figures 5 and

9. The long range analysis year 2045 includes the proposed development for the project plus project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

5.0 Traffic Operation Analysis

KE's analysis of traffic operations in the site vicinity was conducted to determine the capacity at the identified intersection. The acknowledged source for determining overall capacity is the Highway Capacity Manual.

5.1 Analysis Methodology

Capacity analysis results are listed in terms of level of service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. LOS ranges from an A (very little delay) to an F (long delays). A description of the level of service (LOS) for signalized and unsignalized intersections from the Highway Capacity Manual are provided in Appendix F.

5.2 Intersection Operational Analysis

Operational analysis was performed for the short range 2025 horizon. The calculations for this analysis are provided in Appendix F. Using the short range total traffic volumes, the project is projected to operate acceptably with all studied intersections and access points meeting Adams County LOS criteria. See Table 4: 2025 Short Range Total Peak Hour Operation.

Table 1: Trip Generation (ITE 11th Edition)

ITE Code	Land Use	Size	Average Daily Trips		AM Peak Hour Trips						PM Peak Hour Trips					
			Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
932	High-Turnover Restaurant	1.8 KSF	107.20	193	9.57	55%	9	45%	8	17	9.05	61%	10	39%	6	16
945	C-Store/Gas Station	8.25 KSF	700.43	5779	56.52	50%	233	50%	233	466	54.52	50%	225	50%	225	450
*	Event Center (Weddings, etc.)	16.6 KSF	*	246	*	*	108	*	108	216	*	*	108	*	108	216
150	Warehousing	40.84 KSF	1.71	70	0.17	77%	5	23%	2	7	0.18	28%	2	72%	5	7
932	High-Turnover Restaurant	6 KSF	107.20	643	9.57	55%	32	45%	25	57	9.05	61%	33	39%	21	54
	Total			**6,931**			**387**		**376**	**763**			**378**		**365**	**743**

KSF = Thousand Square Feet

*See Section 4.1 Trip Generation

Figure 3: Recent Peak Hour Traffic

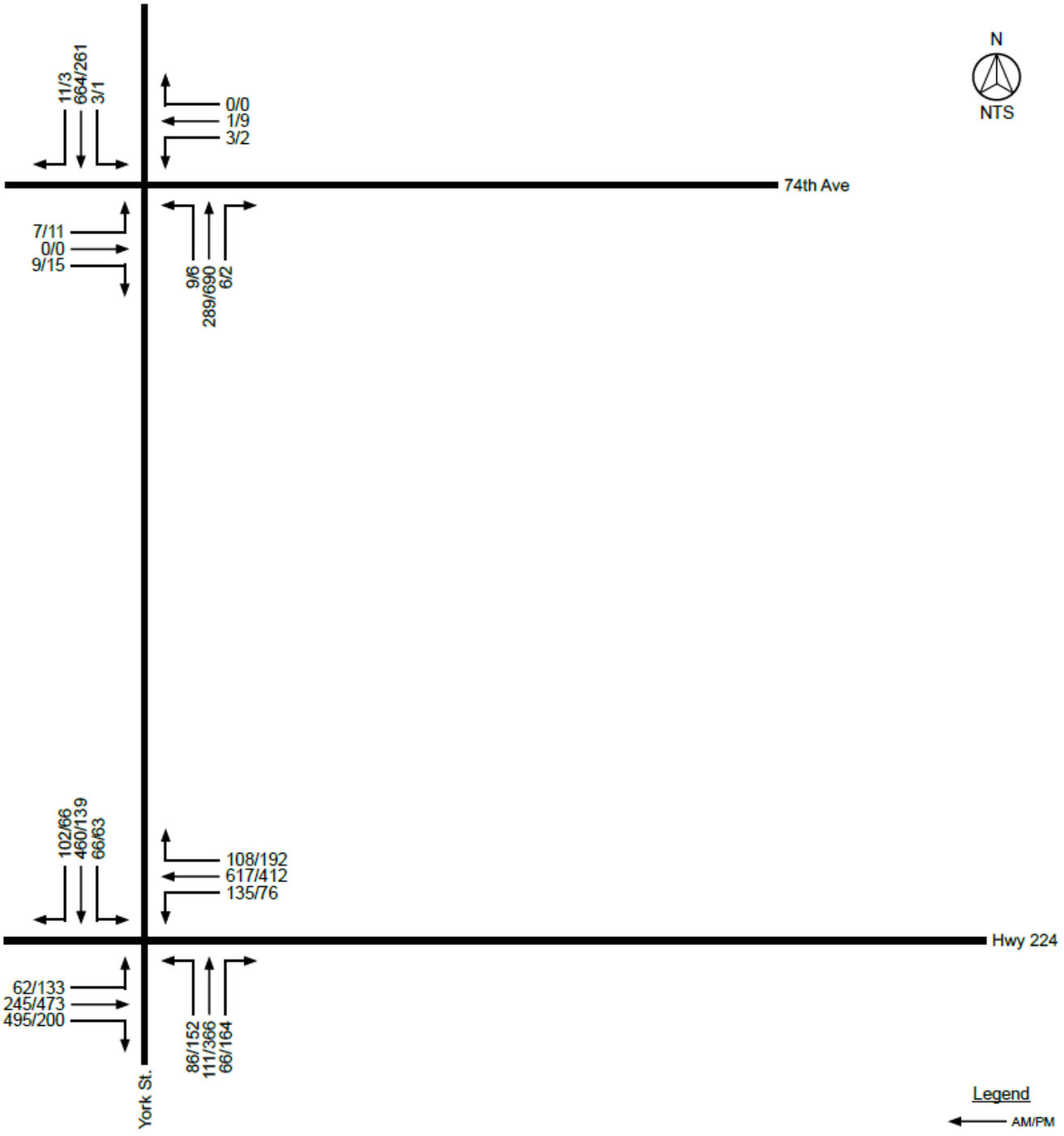


Figure 4: 2025 Background Traffic

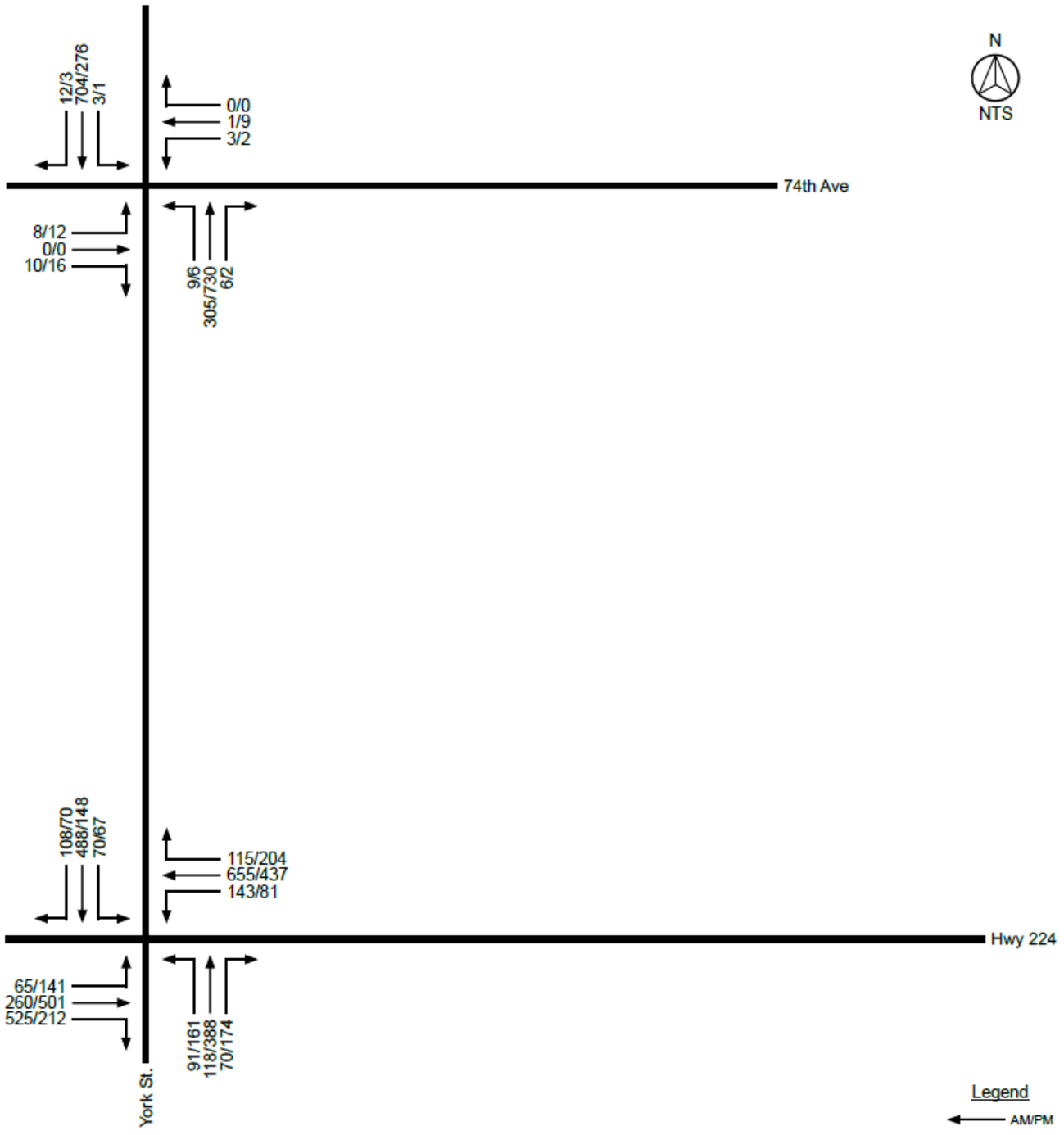


Figure 5: 2045 Background Traffic

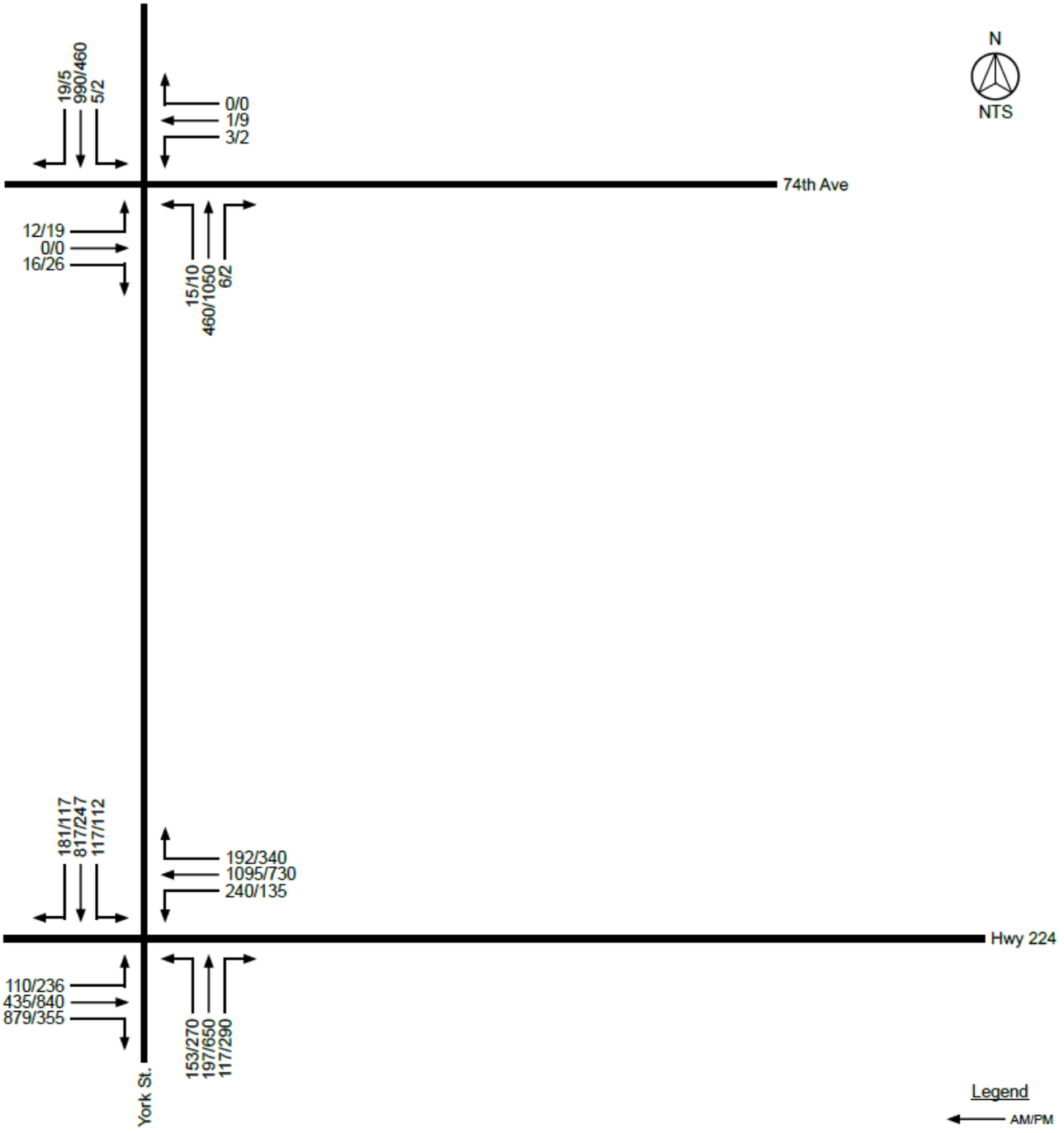


Figure 6: Trip Distribution

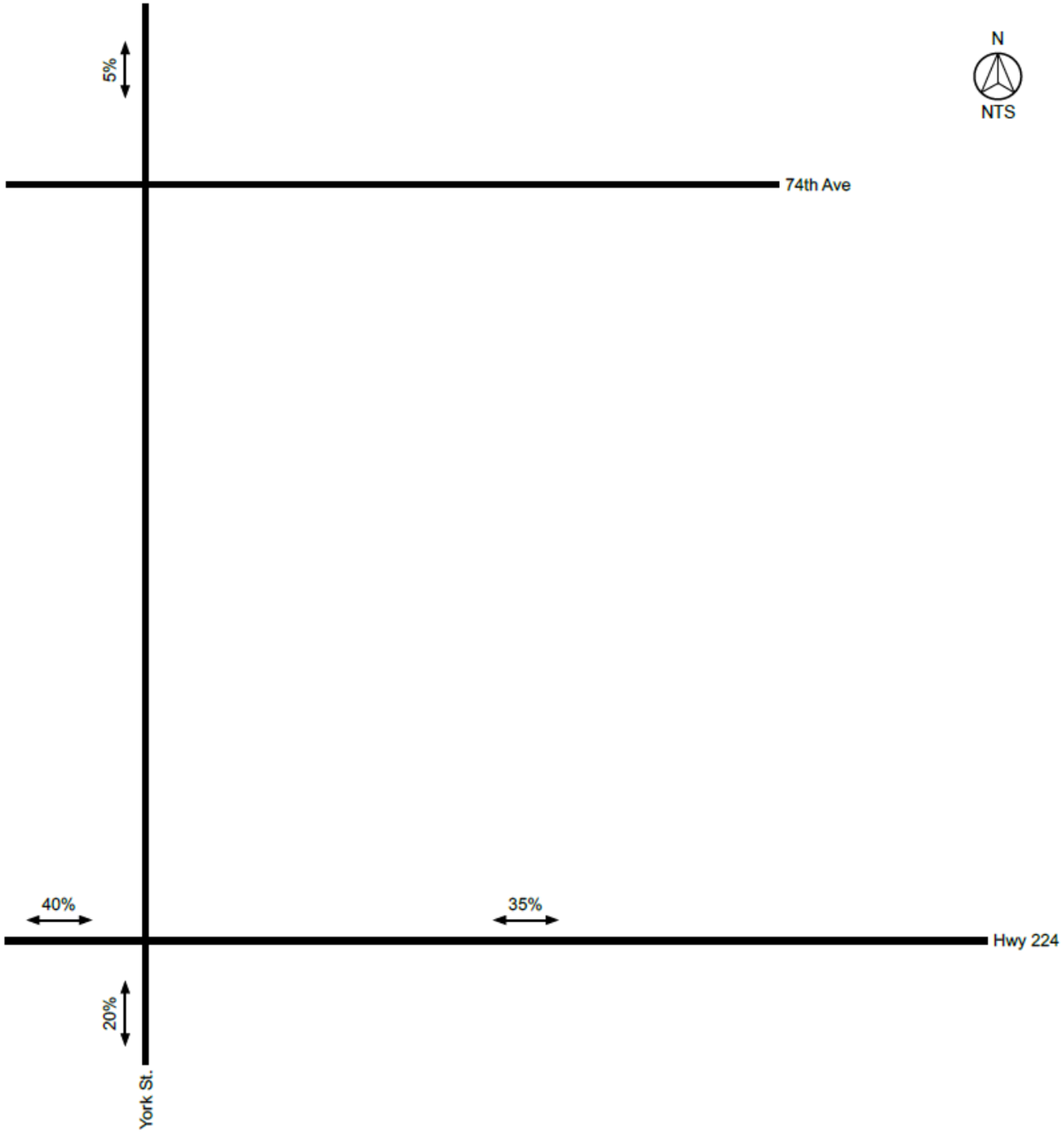


Figure 7: Site Generated Traffic

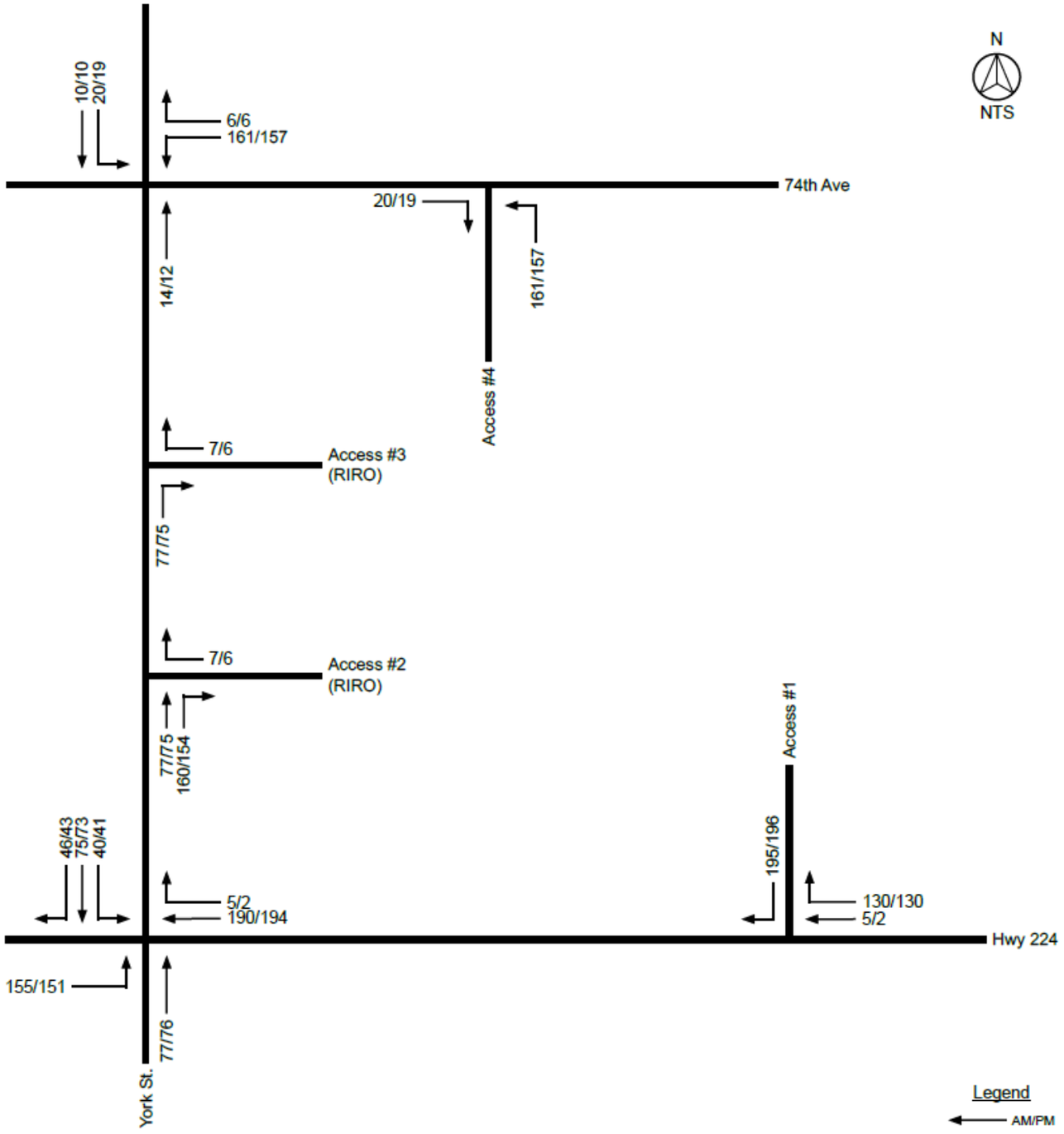


Figure 8: 2025 Short Range Total Traffic

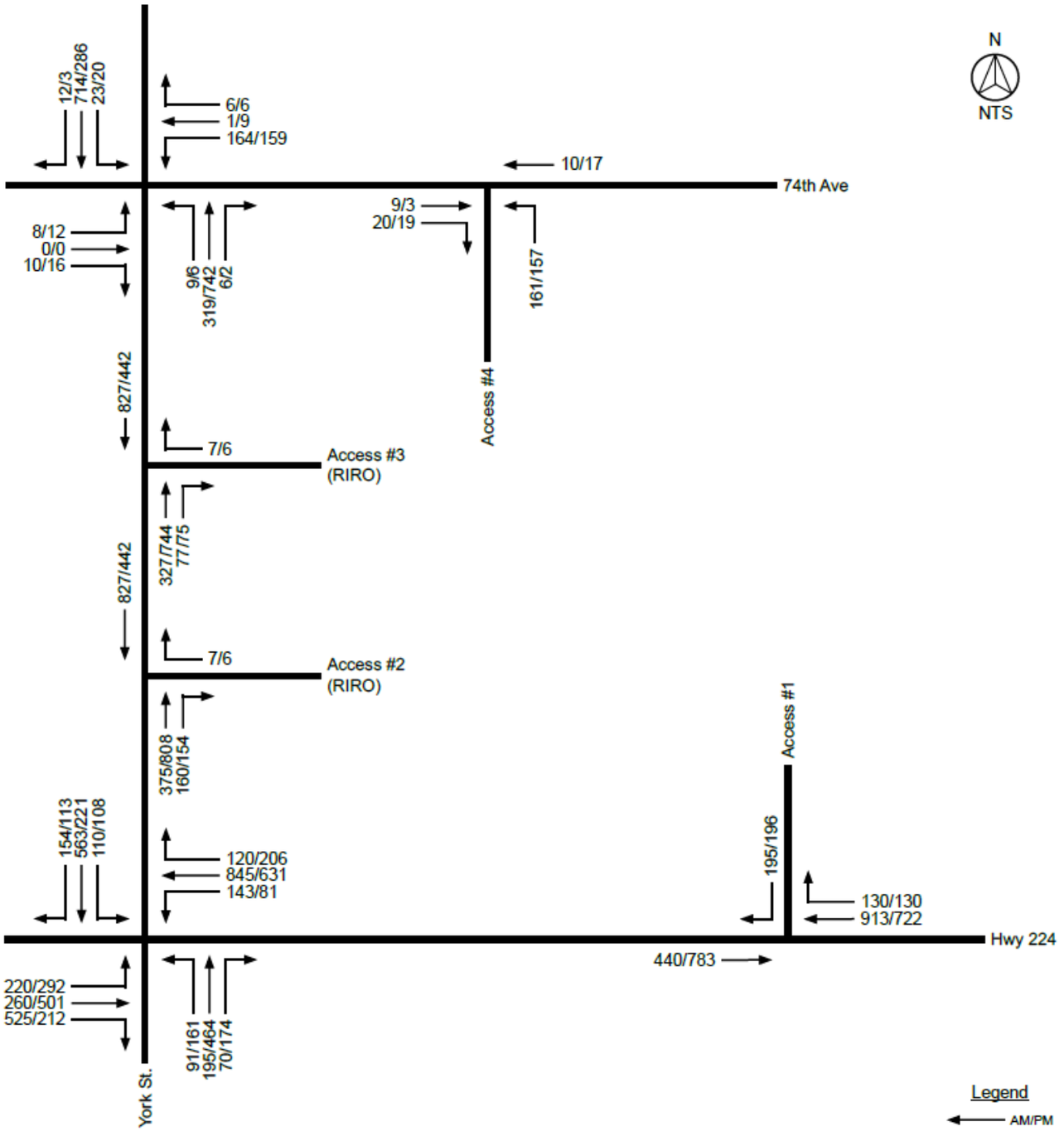


Figure 9: 2045 Long Range Total Traffic

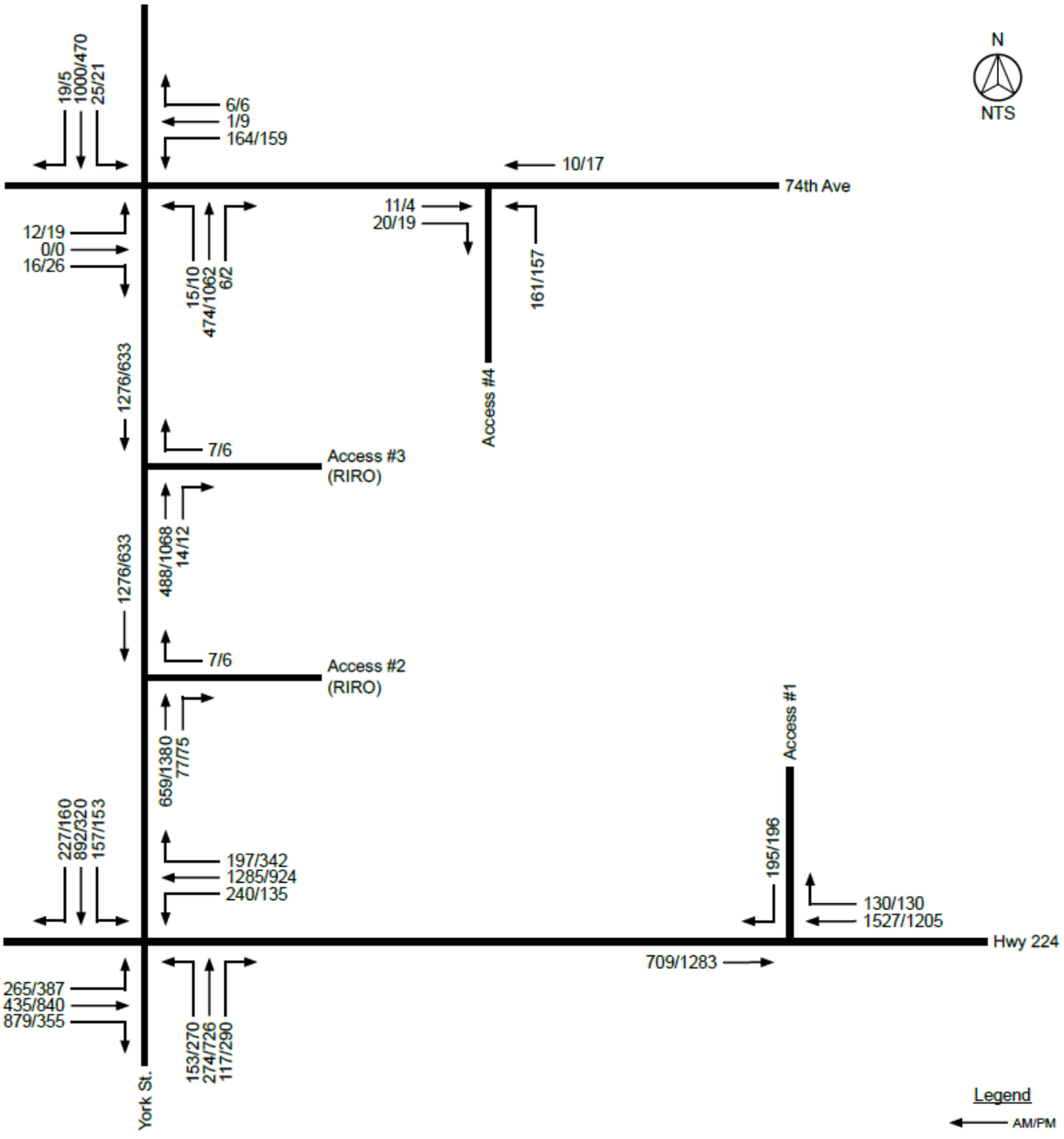


Table 2: Recent Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	B	C
	EB Thru	C	C
	EB Right	B	A
	EB Approach	C	C
	WB Left	B	C
	WB Thru	C	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	B	B
	NB Thru	C	C
	NB Right	A	A
	NB Approach	B	B
	SB Left	B	B
	SB Thru	C	C
	SB Right	A	A
	SB Approach	B	B
	Overall	C	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 3: 2025 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	B	C
	EB Thru	C	C
	EB Right	C	A
	EB Approach	C	C
	WB Left	B	C
	WB Thru	C	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	B	B
	NB Thru	C	C
	NB Right	A	A
	NB Approach	B	B
	SB Left	B	B
	SB Thru	C	C
	SB Right	A	A
	SB Approach	B	B
	Overall	C	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 4: 2045 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	C	C
	EB Thru	B	C
	EB Right	E	A
	EB Approach	E	C
	WB Left	B	C
	WB Thru	C	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	E	C
	NB Thru	C	C
	NB Right	A	A
	NB Approach	D	C
	SB Left	C	C
	SB Thru	E	C
	SB Right	B	A
	SB Approach	D	C
	Overall	D	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 5: 2025 Short Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	C	C
	EB Thru	B	B
	EB Right	B	A
	EB Approach	B	B
	WB Left	B	B
	WB Thru	D	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	C	C
	NB Thru	C	C
	NB Right	A	A
	NB Approach	C	C
	SB Left	C	C
	SB Thru	C	C
	SB Right	A	A
	SB Approach	C	C
	Overall	C	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	B	B

Table 5: 2025 Short Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #3			
Stop Control	WB Right	A	B
Right-In/Right-Out	WB Approach	A	B
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #2			
Stop Control	WB Right	B	B
Right-In/Right-Out	WB Approach	B	B
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Hwy 224/Access #1			
Stop Control	EB Thru	A	A
Right-In/Right-Out	EB Approach	A	A
	WB Thru	A	A
	WB Right	A	A
	WB Approach	A	A
	SB Right	E	C
	SB Approach	E	C

Table 5: 2025 Short Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
74th Ave/Access #4			
Stop Control	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

Table 6: 2045 Long Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	E	D
	EB Thru	B	C
	EB Right	E	A
	EB Approach	D	C
	WB Left	C	C
	WB Thru	D	D
	WB Right	A	A
	WB Approach	D	D
	NB Left	F (84.8 sec)	C
	NB Thru	D	D
	NB Right	A	A
	NB Approach	D	D
	SB Left	C	D
	SB Thru	E	D
	SB Right	B	A
	SB Approach	E	D
	Overall	D	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	B
	NB Approach	A	B
	SB Left	A	A
	SB Thru/Right	B	A
	SB Approach	A	A
	Overall	B	B

Table 6: 2045 Long Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #3			
Stop Control	WB Right	B	B
Right-In/Right-Out	WB Approach	B	B
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #2			
Stop Control	WB Right	B	C
Right-In/Right-Out	WB Approach	B	C
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Hwy 224/Access #1			
Stop Control	EB Thru	A	A
Right-In/Right-Out	EB Approach	A	A
	WB Thru	A	A
	WB Right	A	A
	WB Approach	A	A
	SB Right	E	E
	SB Approach	E	E

Table 6: 2045 Long Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
74th Ave/Access #4			
Stop Control	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

6.0 Findings

Based upon the analysis in this study, the proposed project at 7330 York Street, Adams County, CO will be able to meet Adams County's requirements and not create a negative traffic impact upon the local and regional traffic system. Based upon the findings in this TIS, it can be determined that the proposed use is appropriate from a traffic engineering perspective. The access is appropriate and additional auxiliary lanes are not required based upon Section 8-01-08-01 in Chapter 8, Adams County Development Standards and Regulations.

The findings of the TIS are summarized below:

- The proposed project is anticipated to generate approximately 6,931 daily weekday trips, 763 AM total peak hour trips, and 743 PM total peak hour trips.
- The study intersections will operate acceptably during the AM and PM peak hours with the Proposed Development (per Chapter 8 in Adams County Development Standards and Regulations).
- Additional auxiliary lanes are not required at the: York Street/74th Avenue intersection, York Street/Access #2 intersection, York Street/Access #3 intersection, and 74th Avenue/Access #4 intersection per the Auxiliary Lane Requirements (Section 8-01-08-01 in Chapter 8, Adams County Development Standards and Regulations).
- Per the CDOT State Highway Access Code (SHAC) a westbound right-turn lane is required at the right-in/right-out (RIRO) access to Hwy 224 (NR-B Non-Rural Arterial). This westbound right-turn lane at the Hwy 224/Access #1 intersection should have a geometry with a minimum total length of 362' (162' taper + 200' storage). An acceleration lane is not required per SHAC Section 3.11(4)(d).

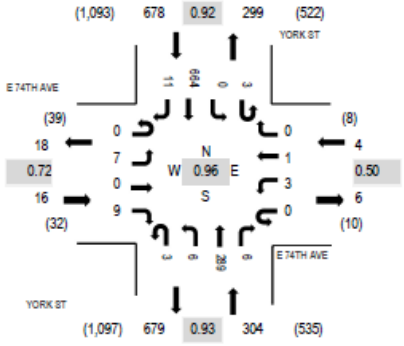
APPENDICES:

Appendix A: Recent Traffic Counts

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

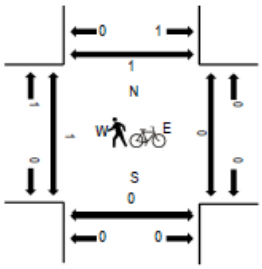
Location: 1 YORK ST & E 74TH AVE AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



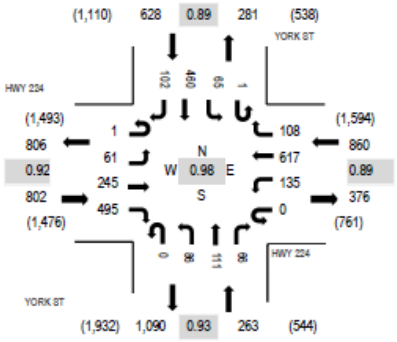
Traffic Counts

Interval Start Time	E 74TH AVE Eastbound				E 74TH AVE Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	0	0	0	1	0	0	0	1	78	3	0	0	176	2	262	1,002	0	0	0	0
7:15 AM	0	1	0	3	0	0	1	0	2	2	68	2	0	0	163	5	247	937	0	0	0	0
7:30 AM	0	2	0	1	0	1	0	0	1	3	67	0	1	0	183	1	260	865	0	0	0	1
7:45 AM	0	3	0	5	0	1	0	0	0	0	76	1	2	0	142	3	233	767	0	0	0	0
8:00 AM	0	0	0	1	0	0	0	0	0	5	57	0	0	2	130	2	197	666	1	0	0	0
8:15 AM	0	3	0	3	0	0	2	0	1	3	59	0	0	1	101	2	175		2	0	0	2
8:30 AM	0	2	0	6	0	0	1	0	0	2	55	0	0	1	94	1	162		0	0	0	0
8:45 AM	0	0	0	1	0	1	0	0	1	1	47	0	0	0	79	2	132		0	0	0	0
Count Total	0	12	0	20	0	4	4	0	5	17	507	6	3	4	1,068	18	1,668		3	0	0	3
Peak Hour	0	7	0	9	0	3	1	0	3	6	289	6	3	0	664	11	1,002		0	0	0	1

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

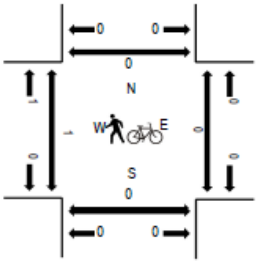
Location: 2 YORK ST & HWY 224 AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



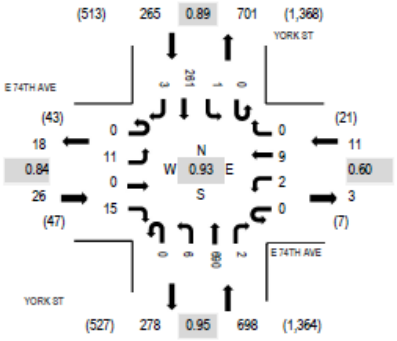
Traffic Counts

Interval Start Time	HWY 224 Eastbound				HWY 224 Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	18	48	98	0	33	123	28	0	29	34	12	0	17	149	27	616	2,535	0	0	0	0
7:15 AM	0	22	69	126	0	37	129	25	0	22	23	11	1	17	124	22	628	2,553	0	0	0	0
7:30 AM	0	10	61	122	0	29	140	26	0	27	32	14	0	11	145	31	648	2,517	1	0	0	0
7:45 AM	1	17	59	105	0	41	174	32	0	17	29	24	0	20	98	26	643	2,397	0	0	0	0
8:00 AM	0	12	56	142	0	28	174	25	0	20	27	17	0	17	93	23	634	2,189	0	0	0	0
8:15 AM	0	15	77	107	0	39	147	26	0	25	25	26	0	18	63	24	592		0	0	0	1
8:30 AM	0	14	71	101	0	37	129	28	0	20	18	14	0	15	61	20	528		0	0	0	0
8:45 AM	0	13	46	66	0	34	93	17	0	30	20	28	1	13	54	20	435		0	0	0	0
Count Total	1	121	487	867	0	278	1,109	207	0	190	208	146	2	128	787	193	4,724		1	0	0	1
Peak Hour	1	61	245	495	0	135	617	108	0	86	111	66	1	65	460	102	2,553		1	0	0	0

(303) 216-2439
www.alltrafficdata.net

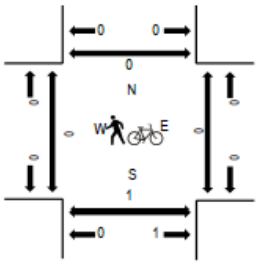
Location: 1 YORK ST & E 74TH AVE PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



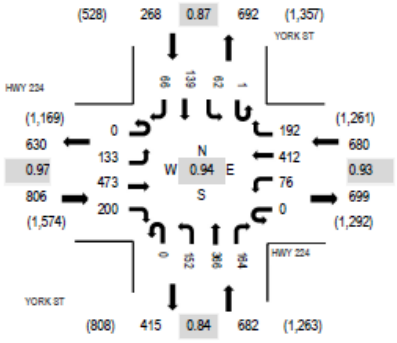
Traffic Counts

Interval Start Time	E 74TH AVE Eastbound				E 74TH AVE Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	2	1	5	0	0	5	0	1	1	171	0	1	2	69	0	258	980	0	0	0	0
4:15 PM	0	2	0	1	0	0	1	0	0	4	163	0	0	0	56	1	228	991	0	0	0	0
4:30 PM	0	2	0	6	0	0	1	0	0	2	178	1	0	1	60	0	251	1,000	0	0	0	0
4:45 PM	0	4	0	4	0	2	1	0	0	1	171	0	0	0	59	1	243	996	0	0	0	0
5:00 PM	0	3	0	1	0	0	5	0	0	0	184	1	0	0	75	0	269	965	0	0	0	0
5:15 PM	0	2	0	4	0	0	2	0	0	3	157	0	0	0	67	2	237		0	0	0	0
5:30 PM	0	6	0	0	0	0	2	0	0	1	174	1	0	0	62	1	247		0	0	0	0
5:45 PM	0	0	0	4	0	0	2	0	0	2	148	0	0	0	51	5	212		0	0	0	0
Count Total	0	21	1	25	0	2	19	0	1	14	1,346	3	1	3	499	10	1,945		0	0	0	0
Peak Hour	0	11	0	15	0	2	9	0	0	6	690	2	0	1	261	3	1,000		0	0	0	0

(303) 216-2439
www.alltrafficdata.net

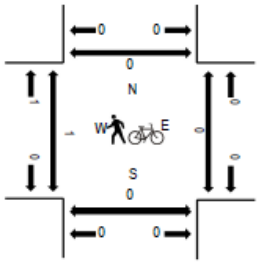
Location: 2 YORK ST & HWY 224 PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

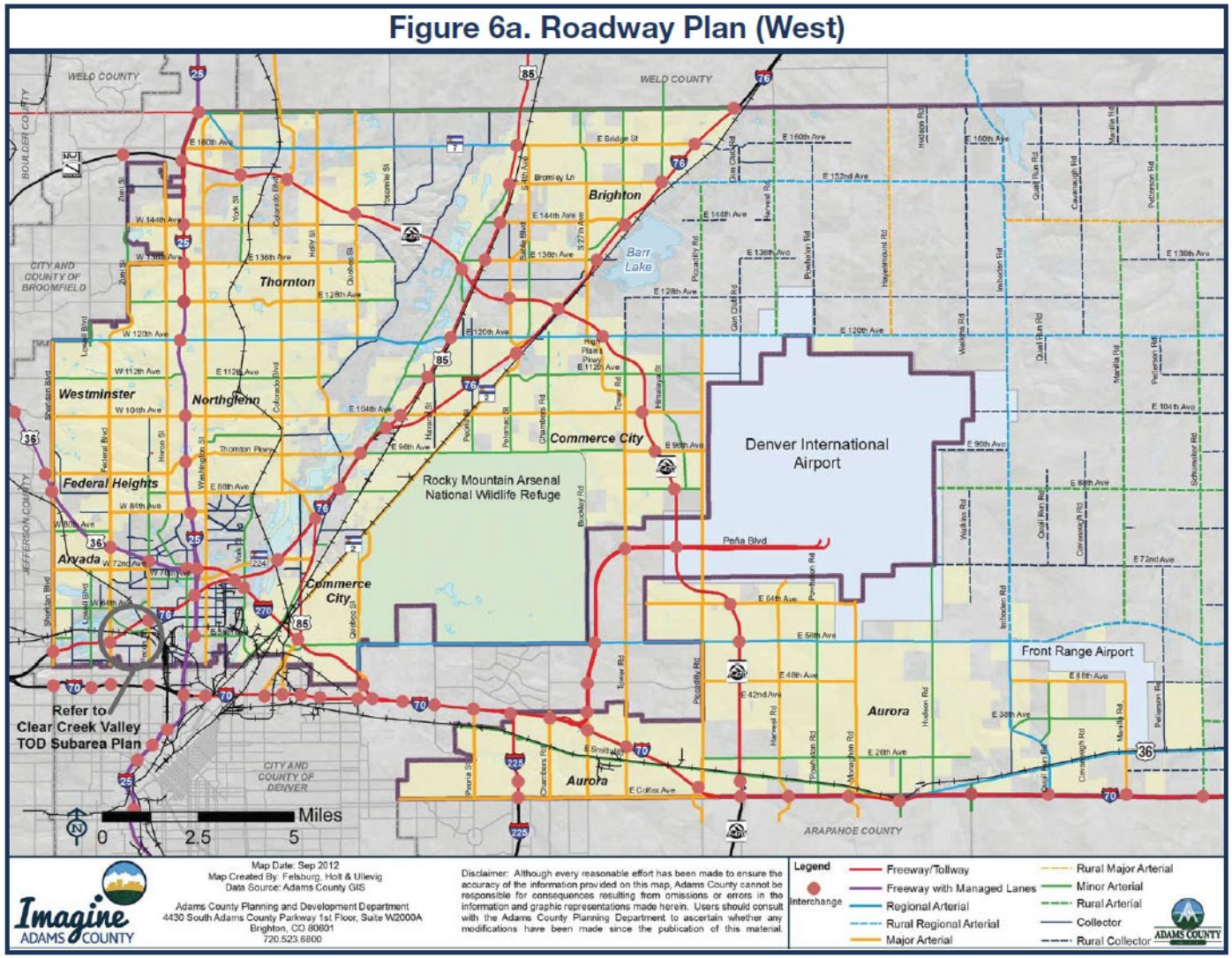
Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	HWY 224 Eastbound				HWY 224 Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	39	106	59	0	19	102	39	0	55	87	62	0	24	34	19	645	2,436	0	0	0	0
4:15 PM	0	30	115	46	0	17	91	52	0	38	90	27	1	12	31	15	565	2,397	0	0	0	0
4:30 PM	0	38	126	43	0	21	113	52	0	35	87	37	0	18	34	10	614	2,392	0	0	0	0
4:45 PM	0	26	126	52	0	19	106	49	0	24	102	38	0	8	40	22	612	2,327	0	0	0	0
5:00 PM	1	41	102	52	0	14	119	39	0	27	100	44	0	12	40	15	606	2,190	0	0	0	0
5:15 PM	0	41	117	36	0	14	78	38	0	30	90	36	2	15	47	16	560		0	0	0	0
5:30 PM	2	30	95	67	0	15	88	48	0	32	87	24	0	13	26	22	549		0	0	0	0
5:45 PM	0	35	102	47	0	10	77	41	0	13	73	25	0	8	25	19	475		1	0	0	0
Count Total	3	280	889	402	0	129	774	358	0	254	716	293	3	110	277	138	4,626		1	0	0	0
Peak Hour	0	133	473	200	0	76	412	192	0	152	366	164	1	62	139	66	2,436		0	0	0	0

Appendix B: Adams County Transportation Plan (Figure 6a)



Appendix C: Level of Service (LOS) Table

Level of Service Definitions

Level of Service (LOS)	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Appendix D: Aerial Image

Google Earth

Appendix E: Street View Images

York Street Looking South at Hwy 224

York Street Looking North at 74th Ave

York Street Looking North at 74th Ave

74th Avenue Looking West at York Street

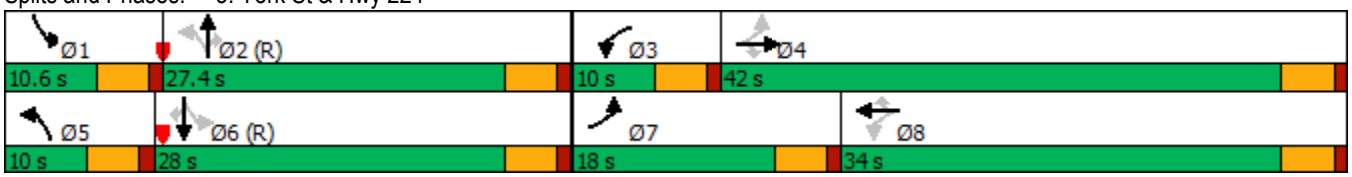
74th Avenue Looking East at York Street

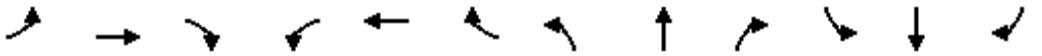
Appendix F: HCM Calculations (Synchro)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	245	495	135	617	108	86	111	66	66	460	102
Future Volume (vph)	62	245	495	135	617	108	86	111	66	66	460	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.0	42.0	10.0	34.0	34.0	10.0	27.4	27.4	10.6	28.0	28.0
Total Split (%)	20.0%	46.7%	46.7%	11.1%	37.8%	37.8%	11.1%	30.4%	30.4%	11.8%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	32.0	24.5	24.5	28.8	24.4	24.4	43.2	37.0	37.0	42.7	36.7	36.7
Actuated g/C Ratio	0.36	0.27	0.27	0.32	0.27	0.27	0.48	0.41	0.41	0.47	0.41	0.41
v/c Ratio	0.26	0.27	0.80	0.37	0.69	0.21	0.21	0.08	0.09	0.11	0.34	0.15
Control Delay	17.1	24.6	19.9	20.0	32.9	1.5	15.6	21.1	0.2	15.0	22.6	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	24.6	19.9	20.0	32.9	1.5	15.6	21.1	0.2	15.0	22.6	1.0
LOS	B	C	B	B	C	A	B	C	A	B	C	A
Approach Delay		21.1			26.9			14.1			18.3	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 21.6	Intersection LOS: C
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	245	495	135	617	108	86	111	66	66	460	102
Future Volume (veh/h)	62	245	495	135	617	108	86	111	66	66	460	102
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	263	0	145	663	0	92	119	0	71	495	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	776		363	832		516	1686		743	1673	
Arrive On Green	0.05	0.22	0.00	0.06	0.23	0.00	0.05	0.47	0.00	0.05	0.47	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	67	263	0	145	663	0	92	119	0	71	495	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.6	5.6	0.0	5.5	15.8	0.0	2.3	1.6	0.0	1.8	7.7	0.0
Cycle Q Clear(g_c), s	2.6	5.6	0.0	5.5	15.8	0.0	2.3	1.6	0.0	1.8	7.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	776		363	832		516	1686		743	1673	
V/C Ratio(X)	0.33	0.34		0.40	0.80		0.18	0.07		0.10	0.30	
Avail Cap(c_a), veh/h	392	1481		363	1165		536	1686		781	1673	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.6	29.7	0.0	25.8	32.4	0.0	11.3	12.9	0.0	11.0	14.6	0.0
Incr Delay (d2), s/veh	0.9	0.3	0.0	0.7	2.7	0.0	0.2	0.1	0.0	0.1	0.5	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	1.1	2.3	0.0	2.4	6.7	0.0	0.9	0.6	0.0	0.7	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	30.0	0.0	26.6	35.1	0.0	11.4	12.9	0.0	11.0	15.1	0.0
LnGrp LOS	C	C		C	D		B	B		B	B	
Approach Vol, veh/h		330			808			211			566	
Approach Delay, s/veh		29.5			33.6			12.3			14.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	47.2	10.0	24.1	9.0	46.9	8.6	25.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	22.9	5.5	37.5	5.5	23.5	13.5	29.5
Max Q Clear Time (g_c+I1), s	3.8	3.6	7.5	7.6	4.3	9.7	4.6	17.8
Green Ext Time (p_c), s	0.0	0.6	0.0	1.6	0.0	2.8	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

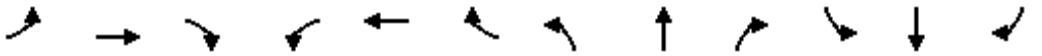
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	7	0	3	1	9	289	3	664
Future Volume (vph)	7	0	3	1	9	289	3	664
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	10.0	27.0	10.0	27.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	16.7%	45.0%	16.7%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.7		5.8	52.5	54.9	52.4	54.9
Actuated g/C Ratio		0.10		0.10	0.88	0.92	0.87	0.92
v/c Ratio		0.07		0.02	0.01	0.10	0.00	0.23
Control Delay		0.5		24.8	1.3	2.0	1.3	2.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.5		24.8	1.3	2.0	1.3	2.2
LOS		A		C	A	A	A	A
Approach Delay		0.5		24.8		2.0		2.2
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.23	
Intersection Signal Delay: 2.2	Intersection LOS: A
Intersection Capacity Utilization 30.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	9	3	1	0	9	289	6	3	664	11
Future Volume (veh/h)	7	0	9	3	1	0	9	289	6	3	664	11
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	0	10	3	1	0	10	314	7	3	722	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	0	22	136	10	0	627	2649	59	890	2635	44
Arrive On Green	0.03	0.00	0.03	0.03	0.03	0.00	0.01	0.75	0.75	0.00	0.74	0.74
Sat Flow, veh/h	681	0	852	1225	408	0	1781	3554	79	1781	3577	59
Grp Volume(v), veh/h	18	0	0	4	0	0	10	157	164	3	359	375
Grp Sat Flow(s),veh/h/ln	1533	0	0	1633	0	0	1781	1777	1856	1781	1777	1860
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	0.1	1.5	1.5	0.0	4.0	4.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	0.1	0.0	0.0	0.1	1.5	1.5	0.0	4.0	4.0
Prop In Lane	0.44		0.56	0.75		0.00	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	126	0	0	147	0	0	627	1324	1383	890	1309	1370
V/C Ratio(X)	0.14	0.00	0.00	0.03	0.00	0.00	0.02	0.12	0.12	0.00	0.27	0.27
Avail Cap(c_a), veh/h	552	0	0	570	0	0	768	1324	1383	1046	1309	1370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	0.0	28.5	0.0	0.0	2.0	2.1	2.1	2.0	2.6	2.6
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.5	0.5
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	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	0.0	28.6	0.0	0.0	2.0	2.3	2.3	2.0	3.1	3.1
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		18			4			331			737	
Approach Delay, s/veh		29.3			28.6			2.3			3.1	
Approach LOS		C			C			A			A	

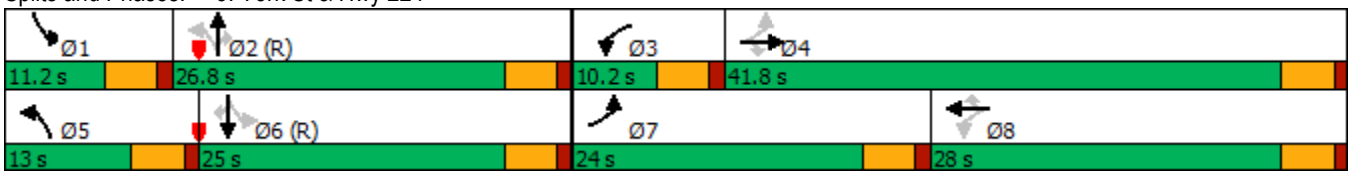
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	49.2		6.0	5.3	48.7		6.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	22.5		18.5	5.5	22.5		18.5				
Max Q Clear Time (g_c+I1), s	2.0	3.5		2.7	2.1	6.0		2.1				
Green Ext Time (p_c), s	0.0	1.7		0.0	0.0	4.2		0.0				

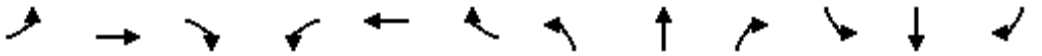
Intersection Summary			
HCM 6th Ctrl Delay		3.4	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	473	200	76	412	192	152	366	164	63	139	66
Future Volume (vph)	133	473	200	76	412	192	152	366	164	63	139	66
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	41.8	41.8	10.2	28.0	28.0	13.0	26.8	26.8	11.2	25.0	25.0
Total Split (%)	26.7%	46.4%	46.4%	11.3%	31.1%	31.1%	14.4%	29.8%	29.8%	12.4%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	32.7	24.7	24.7	23.3	17.6	17.6	47.0	38.3	38.3	40.9	33.5	33.5
Actuated g/C Ratio	0.36	0.27	0.27	0.26	0.20	0.20	0.52	0.43	0.43	0.45	0.37	0.37
v/c Ratio	0.43	0.52	0.36	0.30	0.64	0.43	0.25	0.26	0.23	0.13	0.11	0.10
Control Delay	22.3	29.3	5.1	20.6	37.1	7.2	13.6	20.0	4.4	13.5	22.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	29.3	5.1	20.6	37.1	7.2	13.6	20.0	4.4	13.5	22.0	0.3
LOS	C	C	A	C	D	A	B	C	A	B	C	A
Approach Delay		22.2			26.9			14.9			14.6	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 20.6	Intersection LOS: C
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	473	200	76	412	192	152	366	164	63	139	66
Future Volume (veh/h)	133	473	200	76	412	192	152	366	164	63	139	66
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	143	509	0	82	443	0	163	394	0	68	149	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	705		231	581		769	1791		599	1712	
Arrive On Green	0.09	0.20	0.00	0.05	0.16	0.00	0.07	0.50	0.00	0.05	0.48	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	143	509	0	82	443	0	163	394	0	68	149	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.8	12.1	0.0	3.4	10.7	0.0	4.1	5.6	0.0	1.7	2.0	0.0
Cycle Q Clear(g_c), s	5.8	12.1	0.0	3.4	10.7	0.0	4.1	5.6	0.0	1.7	2.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	277	705		231	581		769	1791		599	1712	
V/C Ratio(X)	0.52	0.72		0.36	0.76		0.21	0.22		0.11	0.09	
Avail Cap(c_a), veh/h	508	1473		250	928		817	1791		650	1712	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.8	33.8	0.0	29.5	36.0	0.0	10.1	12.5	0.0	10.5	12.6	0.0
Incr Delay (d2), s/veh	1.5	1.4	0.0	0.9	2.1	0.0	0.1	0.3	0.0	0.1	0.1	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	2.5	5.1	0.0	1.5	4.6	0.0	1.5	2.2	0.0	0.6	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	35.2	0.0	30.4	38.1	0.0	10.2	12.7	0.0	10.6	12.7	0.0
LnGrp LOS	C	D		C	D		B	B		B	B	
Approach Vol, veh/h		652			525			557			217	
Approach Delay, s/veh		33.9			36.9			12.0			12.1	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	49.9	9.2	22.3	10.6	47.9	12.4	19.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	22.3	5.7	37.3	8.5	20.5	19.5	23.5
Max Q Clear Time (g_c+I1), s	3.7	7.6	5.4	14.1	6.1	4.0	7.8	12.7
Green Ext Time (p_c), s	0.0	2.2	0.0	3.2	0.1	0.7	0.3	2.0

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

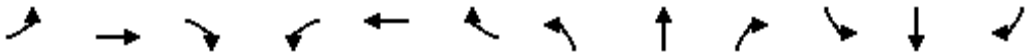
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	11	0	2	9	6	690	1	261
Future Volume (vph)	11	0	2	9	6	690	1	261
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	9.5	27.5	9.5	27.5
Total Split (%)	38.3%	38.3%	38.3%	38.3%	15.8%	45.8%	15.8%	45.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.9		6.0	50.2	51.8	50.1	51.7
Actuated g/C Ratio		0.10		0.10	0.84	0.86	0.84	0.86
v/c Ratio		0.10		0.07	0.01	0.25	0.00	0.09
Control Delay		0.8		25.0	2.0	2.9	2.0	2.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.8		25.0	2.0	2.9	2.0	2.7
LOS		A		C	A	A	A	A
Approach Delay		0.8		25.0		2.9		2.7
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.25	
Intersection Signal Delay: 3.0	Intersection LOS: A
Intersection Capacity Utilization 30.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	15	2	9	0	6	690	2	1	261	3
Future Volume (veh/h)	11	0	15	2	9	0	6	690	2	1	261	3
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	16	2	10	0	7	750	2	1	284	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	0	36	81	62	0	903	2665	7	595	2613	28
Arrive On Green	0.04	0.00	0.04	0.04	0.04	0.00	0.01	0.73	0.73	0.00	0.73	0.73
Sat Flow, veh/h	666	0	887	276	1531	0	1781	3636	10	1781	3602	38
Grp Volume(v), veh/h	28	0	0	12	0	0	7	367	385	1	140	147
Grp Sat Flow(s),veh/h/ln	1553	0	0	1807	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	4.2	4.2	0.0	1.4	1.4
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.4	0.0	0.0	0.1	4.2	4.2	0.0	1.4	1.4
Prop In Lane	0.43		0.57	0.17		0.00	1.00		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	149	0	0	143	0	0	903	1303	1370	595	1289	1352
V/C Ratio(X)	0.19	0.00	0.00	0.08	0.00	0.00	0.01	0.28	0.28	0.00	0.11	0.11
Avail Cap(c_a), veh/h	551	0	0	617	0	0	1035	1303	1370	740	1289	1352
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	0.0	0.0	27.8	0.0	0.0	2.1	2.7	2.7	2.4	2.5	2.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.5	0.5	0.0	0.2	0.2
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	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.9	1.0	0.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	28.0	0.0	0.0	2.1	3.2	3.2	2.4	2.6	2.6
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		28			12			759			288	
Approach Delay, s/veh		28.7			28.0			3.2			2.6	
Approach LOS		C			C			A			A	

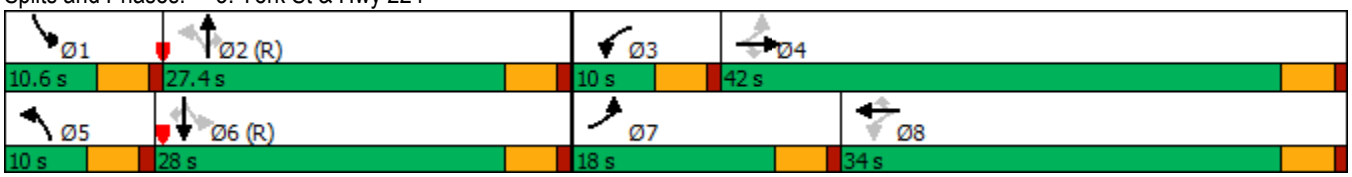
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	48.5		6.9	5.1	48.0		6.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.0		18.5	5.0	23.0		18.5				
Max Q Clear Time (g_c+I1), s	2.0	6.2		3.0	2.1	3.4		2.4				
Green Ext Time (p_c), s	0.0	4.4		0.1	0.0	1.5		0.0				

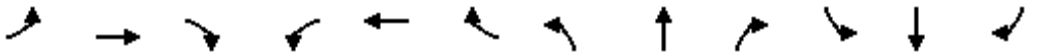
Intersection Summary			
HCM 6th Ctrl Delay		4.0	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	260	525	143	655	115	91	118	70	70	488	108
Future Volume (vph)	65	260	525	143	655	115	91	118	70	70	488	108
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.0	42.0	10.0	34.0	34.0	10.0	27.4	27.4	10.6	28.0	28.0
Total Split (%)	20.0%	46.7%	46.7%	11.1%	37.8%	37.8%	11.1%	30.4%	30.4%	11.8%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	33.2	25.7	25.7	30.1	25.7	25.7	42.0	35.9	35.9	41.4	35.7	35.7
Actuated g/C Ratio	0.37	0.29	0.29	0.33	0.29	0.29	0.47	0.40	0.40	0.46	0.40	0.40
v/c Ratio	0.28	0.28	0.84	0.39	0.70	0.21	0.24	0.09	0.10	0.12	0.37	0.16
Control Delay	16.6	23.8	23.9	19.5	32.1	1.8	16.9	21.7	0.3	15.8	23.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	23.8	23.9	19.5	32.1	1.8	16.9	21.7	0.3	15.8	23.6	1.4
LOS	B	C	C	B	C	A	B	C	A	B	C	A
Approach Delay		23.3			26.3			14.8			19.2	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 22.4	Intersection LOS: C
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	260	525	143	655	115	91	118	70	70	488	108
Future Volume (veh/h)	65	260	525	143	655	115	91	118	70	70	488	108
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	280	0	154	704	0	98	127	0	75	525	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	819		370	873		490	1640		722	1627	
Arrive On Green	0.05	0.23	0.00	0.06	0.25	0.00	0.05	0.46	0.00	0.05	0.46	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	70	280	0	154	704	0	98	127	0	75	525	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.7	5.9	0.0	5.5	16.8	0.0	2.6	1.8	0.0	2.0	8.5	0.0
Cycle Q Clear(g_c), s	2.7	5.9	0.0	5.5	16.8	0.0	2.6	1.8	0.0	2.0	8.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	819		370	873		490	1640		722	1627	
V/C Ratio(X)	0.34	0.34		0.42	0.81		0.20	0.08		0.10	0.32	
Avail Cap(c_a), veh/h	391	1481		370	1165		508	1640		759	1627	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.0	28.9	0.0	25.4	31.9	0.0	11.9	13.5	0.0	11.5	15.5	0.0
Incr Delay (d2), s/veh	1.0	0.2	0.0	0.7	3.2	0.0	0.2	0.1	0.0	0.1	0.5	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	1.1	2.4	0.0	2.5	7.2	0.0	1.0	0.7	0.0	0.8	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	29.2	0.0	26.1	35.1	0.0	12.1	13.6	0.0	11.6	16.1	0.0
LnGrp LOS	C	C		C	D		B	B		B	B	
Approach Vol, veh/h		350			858			225			600	
Approach Delay, s/veh		28.7			33.5			13.0			15.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	46.0	10.0	25.2	9.1	45.7	8.6	26.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	22.9	5.5	37.5	5.5	23.5	13.5	29.5
Max Q Clear Time (g_c+I1), s	4.0	3.8	7.5	7.9	4.6	10.5	4.7	18.8
Green Ext Time (p_c), s	0.0	0.6	0.0	1.7	0.0	2.9	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

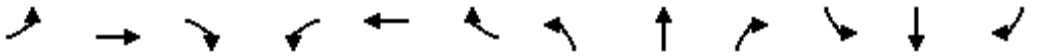
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	0	3	1	9	305	3	704
Future Volume (vph)	8	0	3	1	9	305	3	704
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	10.0	27.0	10.0	27.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	16.7%	45.0%	16.7%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.7		5.8	52.5	54.9	52.4	54.9
Actuated g/C Ratio		0.10		0.10	0.88	0.92	0.87	0.92
v/c Ratio		0.08		0.02	0.01	0.10	0.00	0.24
Control Delay		0.6		24.8	1.3	2.0	1.3	2.3
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.6		24.8	1.3	2.0	1.3	2.3
LOS		A		C	A	A	A	A
Approach Delay		0.6		24.8		2.0		2.3
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.24	
Intersection Signal Delay: 2.2	Intersection LOS: A
Intersection Capacity Utilization 31.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	10	3	1	0	9	305	6	3	704	12
Future Volume (veh/h)	8	0	10	3	1	0	9	305	6	3	704	12
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	0	11	3	1	0	10	332	7	3	765	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	0	23	139	11	0	602	2646	56	874	2627	45
Arrive On Green	0.03	0.00	0.03	0.03	0.03	0.00	0.01	0.74	0.74	0.00	0.73	0.73
Sat Flow, veh/h	688	0	841	1228	409	0	1781	3559	75	1781	3576	61
Grp Volume(v), veh/h	20	0	0	4	0	0	10	166	173	3	380	398
Grp Sat Flow(s),veh/h/ln	1530	0	0	1638	0	0	1781	1777	1857	1781	1777	1859
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	1.6	1.6	0.0	4.3	4.3
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.1	0.0	0.0	0.1	1.6	1.6	0.0	4.3	4.3
Prop In Lane	0.45		0.55	0.75		0.00	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	129	0	0	150	0	0	602	1321	1381	874	1306	1366
V/C Ratio(X)	0.15	0.00	0.00	0.03	0.00	0.00	0.02	0.13	0.13	0.00	0.29	0.29
Avail Cap(c_a), veh/h	552	0	0	570	0	0	743	1321	1381	1030	1306	1366
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	0.0	28.4	0.0	0.0	2.1	2.2	2.2	2.1	2.7	2.7
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.6	0.5
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	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	0.0	28.5	0.0	0.0	2.1	2.4	2.4	2.1	3.3	3.2
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		20			4			349			781	
Approach Delay, s/veh		29.3			28.5			2.4			3.2	
Approach LOS		C			C			A			A	

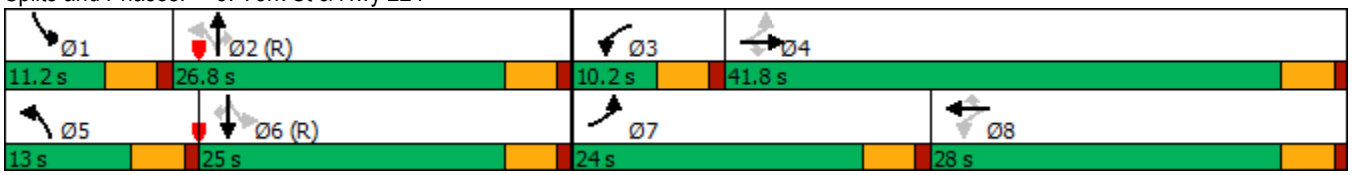
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	49.1		6.1	5.3	48.6		6.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	22.5		18.5	5.5	22.5		18.5				
Max Q Clear Time (g_c+I1), s	2.0	3.6		2.8	2.1	6.3		2.1				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	4.5		0.0				

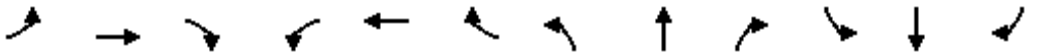
Intersection Summary			
HCM 6th Ctrl Delay		3.5	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	501	212	81	437	204	161	388	174	67	148	70
Future Volume (vph)	141	501	212	81	437	204	161	388	174	67	148	70
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	41.8	41.8	10.2	28.0	28.0	13.0	26.8	26.8	11.2	25.0	25.0
Total Split (%)	26.7%	46.4%	46.4%	11.3%	31.1%	31.1%	14.4%	29.8%	29.8%	12.4%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	33.7	25.7	25.7	24.0	18.3	18.3	45.9	37.2	37.2	40.0	32.6	32.6
Actuated g/C Ratio	0.37	0.29	0.29	0.27	0.20	0.20	0.51	0.41	0.41	0.44	0.36	0.36
v/c Ratio	0.45	0.53	0.37	0.32	0.65	0.44	0.27	0.29	0.25	0.15	0.12	0.11
Control Delay	22.1	28.8	4.9	20.4	37.0	7.0	14.4	21.0	4.9	14.1	22.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	28.8	4.9	20.4	37.0	7.0	14.4	21.0	4.9	14.1	22.5	0.3
LOS	C	C	A	C	D	A	B	C	A	B	C	A
Approach Delay		21.8			26.7			15.7			15.1	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 49.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	501	212	81	437	204	161	388	174	67	148	70
Future Volume (veh/h)	141	501	212	81	437	204	161	388	174	67	148	70
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	539	0	87	470	0	173	417	0	72	159	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	737		235	609		749	1745		573	1654	
Arrive On Green	0.09	0.21	0.00	0.05	0.17	0.00	0.07	0.49	0.00	0.05	0.47	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	152	539	0	87	470	0	173	417	0	72	159	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.1	12.8	0.0	3.6	11.4	0.0	4.5	6.1	0.0	1.9	2.3	0.0
Cycle Q Clear(g_c), s	6.1	12.8	0.0	3.6	11.4	0.0	4.5	6.1	0.0	1.9	2.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	737		235	609		749	1745		573	1654	
V/C Ratio(X)	0.54	0.73		0.37	0.77		0.23	0.24		0.13	0.10	
Avail Cap(c_a), veh/h	507	1473		250	928		789	1745		623	1654	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.1	33.3	0.0	28.9	35.6	0.0	10.7	13.2	0.0	11.3	13.5	0.0
Incr Delay (d2), s/veh	1.6	1.4	0.0	1.0	2.2	0.0	0.2	0.3	0.0	0.1	0.1	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	2.6	5.4	0.0	1.5	4.9	0.0	1.7	2.4	0.0	0.7	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	34.7	0.0	29.9	37.8	0.0	10.8	13.5	0.0	11.4	13.6	0.0
LnGrp LOS	C	C		C	D		B	B		B	B	
Approach Vol, veh/h		691			557			590			231	
Approach Delay, s/veh		33.4			36.6			12.7			12.9	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	48.7	9.4	23.2	11.0	46.4	12.7	19.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	22.3	5.7	37.3	8.5	20.5	19.5	23.5
Max Q Clear Time (g_c+I1), s	3.9	8.1	5.6	14.8	6.5	4.3	8.1	13.4
Green Ext Time (p_c), s	0.0	2.3	0.0	3.4	0.1	0.8	0.3	2.0

Intersection Summary	
HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

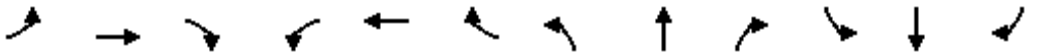
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	2	9	6	730	1	276
Future Volume (vph)	12	0	2	9	6	730	1	276
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	9.5	27.5	9.5	27.5
Total Split (%)	38.3%	38.3%	38.3%	38.3%	15.8%	45.8%	15.8%	45.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.9		6.0	50.2	51.8	50.1	51.7
Actuated g/C Ratio		0.10		0.10	0.84	0.86	0.84	0.86
v/c Ratio		0.11		0.07	0.01	0.26	0.00	0.10
Control Delay		0.9		25.0	2.0	3.0	2.0	2.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.9		25.0	2.0	3.0	2.0	2.7
LOS		A		C	A	A	A	A
Approach Delay		0.9		25.0		3.0		2.7
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.26	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 31.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	2	9	0	6	730	2	1	276	3
Future Volume (veh/h)	12	0	16	2	9	0	6	730	2	1	276	3
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	2	10	0	7	793	2	1	300	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	0	37	81	65	0	888	2661	7	571	2609	26
Arrive On Green	0.04	0.00	0.04	0.04	0.04	0.00	0.01	0.73	0.73	0.00	0.72	0.72
Sat Flow, veh/h	672	0	878	267	1541	0	1781	3636	9	1781	3605	36
Grp Volume(v), veh/h	30	0	0	12	0	0	7	387	408	1	148	155
Grp Sat Flow(s),veh/h/ln	1550	0	0	1808	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.0	0.1	4.5	4.5	0.0	1.5	1.5
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.4	0.0	0.0	0.1	4.5	4.5	0.0	1.5	1.5
Prop In Lane	0.43		0.57	0.17		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	151	0	0	146	0	0	888	1300	1367	571	1286	1349
V/C Ratio(X)	0.20	0.00	0.00	0.08	0.00	0.00	0.01	0.30	0.30	0.00	0.11	0.12
Avail Cap(c_a), veh/h	551	0	0	617	0	0	1021	1300	1367	717	1286	1349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	0.0	0.0	27.7	0.0	0.0	2.2	2.8	2.8	2.4	2.5	2.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.6	0.6	0.0	0.2	0.2
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	0.4	0.0	0.0	0.2	0.0	0.0	0.0	1.0	1.0	0.0	0.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	28.0	0.0	0.0	2.2	3.3	3.3	2.4	2.7	2.7
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			12			802			304	
Approach Delay, s/veh		28.7			28.0			3.3			2.7	
Approach LOS		C			C			A			A	

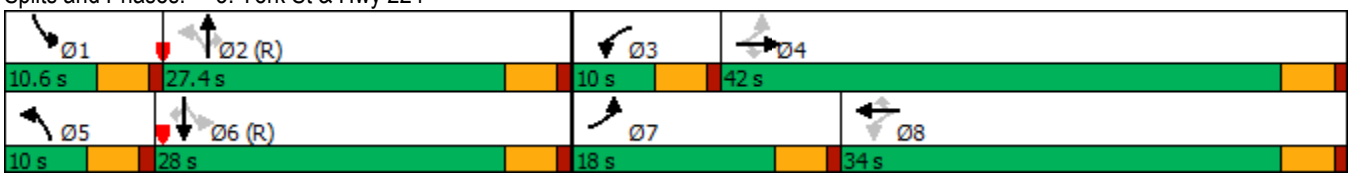
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	48.4		7.0	5.1	47.9		7.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.0		18.5	5.0	23.0		18.5				
Max Q Clear Time (g_c+I1), s	2.0	6.5		3.1	2.1	3.5		2.4				
Green Ext Time (p_c), s	0.0	4.6		0.1	0.0	1.6		0.0				

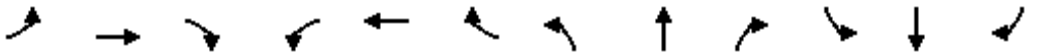
Intersection Summary			
HCM 6th Ctrl Delay		4.1	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	260	525	143	845	120	91	195	70	110	563	154
Future Volume (vph)	220	260	525	143	845	120	91	195	70	110	563	154
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.0	42.0	10.0	34.0	34.0	10.0	27.4	27.4	10.6	28.0	28.0
Total Split (%)	20.0%	46.7%	46.7%	11.1%	37.8%	37.8%	11.1%	30.4%	30.4%	11.8%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	45.1	35.1	35.1	33.4	27.9	27.9	30.8	24.8	24.8	32.7	27.5	27.5
Actuated g/C Ratio	0.50	0.39	0.39	0.37	0.31	0.31	0.34	0.28	0.28	0.36	0.31	0.31
v/c Ratio	0.71	0.20	0.71	0.35	0.83	0.21	0.36	0.22	0.13	0.27	0.56	0.27
Control Delay	29.3	18.0	15.7	15.5	36.2	2.0	23.0	26.7	0.5	20.7	30.2	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	18.0	15.7	15.5	36.2	2.0	23.0	26.7	0.5	20.7	30.2	4.7
LOS	C	B	B	B	D	A	C	C	A	C	C	A
Approach Delay		19.3			29.8			20.6			24.2	
Approach LOS		B			C			C			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	260	525	143	845	120	91	195	70	110	563	154
Future Volume (veh/h)	220	260	525	143	845	120	91	195	70	110	563	154
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	280	0	154	909	0	98	210	0	118	605	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	1231		508	1050		341	1175		529	1206	
Arrive On Green	0.11	0.35	0.00	0.06	0.30	0.00	0.05	0.33	0.00	0.06	0.34	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	237	280	0	154	909	0	98	210	0	118	605	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.9	5.0	0.0	5.5	21.8	0.0	3.2	3.8	0.0	3.9	12.2	0.0
Cycle Q Clear(g_c), s	7.9	5.0	0.0	5.5	21.8	0.0	3.2	3.8	0.0	3.9	12.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	1231		508	1050		341	1175		529	1206	
V/C Ratio(X)	0.76	0.23		0.30	0.87		0.29	0.18		0.22	0.50	
Avail Cap(c_a), veh/h	380	1481		508	1165		355	1175		539	1206	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.1	20.9	0.0	20.4	30.0	0.0	18.9	21.4	0.0	17.9	23.7	0.0
Incr Delay (d2), s/veh	7.0	0.1	0.0	0.3	6.5	0.0	0.5	0.3	0.0	0.2	1.5	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	3.6	2.0	0.0	2.2	9.7	0.0	1.3	1.6	0.0	1.6	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	21.0	0.0	20.7	36.6	0.0	19.4	21.8	0.0	18.1	25.2	0.0
LnGrp LOS	C	C		C	D		B	C		B	C	
Approach Vol, veh/h		517			1063			308			723	
Approach Delay, s/veh		24.2			34.3			21.0			24.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	34.3	10.0	35.7	9.3	35.1	14.6	31.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	22.9	5.5	37.5	5.5	23.5	13.5	29.5
Max Q Clear Time (g_c+I1), s	5.9	5.8	7.5	7.0	5.2	14.2	9.9	23.8
Green Ext Time (p_c), s	0.0	1.1	0.0	1.7	0.0	2.8	0.2	2.8

Intersection Summary	
HCM 6th Ctrl Delay	27.9
HCM 6th LOS	C

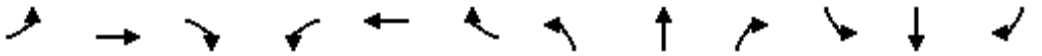
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	0	164	1	9	319	23	714
Future Volume (vph)	8	0	164	1	9	319	23	714
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	10.0	27.0	10.0	27.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	16.7%	45.0%	16.7%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.2		13.2	36.9	35.8	36.9	35.8
Actuated g/C Ratio		0.22		0.22	0.62	0.60	0.62	0.60
v/c Ratio		0.05		0.63	0.02	0.17	0.04	0.37
Control Delay		0.2		29.5	5.9	7.5	5.9	8.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.2		29.5	5.9	7.5	5.9	8.7
LOS		A		C	A	A	A	A
Approach Delay		0.2		29.5		7.4		8.6
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 43.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	10	164	1	6	9	319	6	23	714	12
Future Volume (veh/h)	8	0	10	164	1	6	9	319	6	23	714	12
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	0	11	178	1	7	10	347	7	25	776	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	30	154	340	1	9	479	2082	42	725	2146	36
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.01	0.58	0.58	0.03	0.60	0.60
Sat Flow, veh/h	593	182	947	1373	8	54	1781	3563	72	1781	3577	60
Grp Volume(v), veh/h	20	0	0	186	0	0	10	173	181	25	385	404
Grp Sat Flow(s),veh/h/ln	1722	0	0	1434	0	0	1781	1777	1857	1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	6.8	0.0	0.0	0.1	2.7	2.7	0.3	6.6	6.7
Cycle Q Clear(g_c), s	0.6	0.0	0.0	7.4	0.0	0.0	0.1	2.7	2.7	0.3	6.6	6.7
Prop In Lane	0.45		0.55	0.96		0.04	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	366	0	0	350	0	0	479	1038	1085	725	1066	1116
V/C Ratio(X)	0.05	0.00	0.00	0.53	0.00	0.00	0.02	0.17	0.17	0.03	0.36	0.36
Avail Cap(c_a), veh/h	585	0	0	556	0	0	619	1038	1085	837	1066	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	0.0	24.1	0.0	0.0	5.2	5.7	5.7	4.6	6.1	6.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	0.0	0.3	0.3	0.0	1.0	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(50%),veh/ln	0.2	0.0	0.0	2.5	0.0	0.0	0.0	0.9	0.9	0.1	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	0.0	25.4	0.0	0.0	5.2	6.1	6.1	4.6	7.1	7.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		20			186			364			814	
Approach Delay, s/veh		21.4			25.4			6.1			7.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	39.6		14.2	5.3	40.5		14.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	22.5		18.5	5.5	22.5		18.5				
Max Q Clear Time (g_c+I1), s	2.3	4.7		2.6	2.1	8.7		9.4				
Green Ext Time (p_c), s	0.0	1.9		0.0	0.0	4.2		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	327	77	0	827
Future Vol, veh/h	0	7	327	77	0	827
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	355	84	0	899

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	220	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	784	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	784	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	784	-
HCM Lane V/C Ratio	-	-	0.01	-
HCM Control Delay (s)	-	-	9.6	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	375	160	0	827
Future Vol, veh/h	0	7	375	160	0	827
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	408	174	0	899

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	291	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	706	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	706	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	706	-
HCM Lane V/C Ratio	-	-	0.011	-
HCM Control Delay (s)	-	-	10.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	9	20	0	10	161	0
Future Vol, veh/h	9	20	0	10	161	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	22	0	11	175	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	32	0	32	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1580	-	982	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	1012	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1580	-	982	1056
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	1012	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1580	-
HCM Lane V/C Ratio	0.178	-	-	-	-
HCM Control Delay (s)	9.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	440	913	130	0	195
Future Vol, veh/h	0	440	913	130	0	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	478	992	141	0	212

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	992
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	298
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	298
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

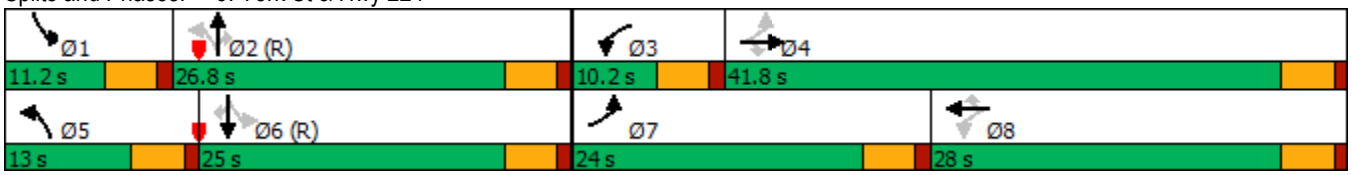
Approach	EB	WB	SB
HCM Control Delay, s	0	0	42
HCM LOS			E

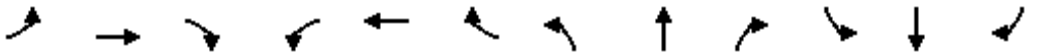
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	298
HCM Lane V/C Ratio	-	-	-	0.711
HCM Control Delay (s)	-	-	-	42
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	501	212	81	631	206	161	464	174	108	221	113
Future Volume (vph)	292	501	212	81	631	206	161	464	174	108	221	113
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	41.8	41.8	10.2	28.0	28.0	13.0	26.8	26.8	11.2	25.0	25.0
Total Split (%)	26.7%	46.4%	46.4%	11.3%	31.1%	31.1%	14.4%	29.8%	29.8%	12.4%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	44.2	36.1	36.1	27.9	22.2	22.2	34.6	27.6	27.6	30.7	23.8	23.8
Actuated g/C Ratio	0.49	0.40	0.40	0.31	0.25	0.25	0.38	0.31	0.31	0.34	0.26	0.26
v/c Ratio	0.73	0.38	0.30	0.27	0.78	0.40	0.38	0.46	0.30	0.35	0.25	0.22
Control Delay	27.7	19.9	3.5	15.4	38.4	6.2	21.8	28.9	5.8	22.0	28.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	19.9	3.5	15.4	38.4	6.2	21.8	28.9	5.8	22.0	28.3	2.3
LOS	C	B	A	B	D	A	C	C	A	C	C	A
Approach Delay		18.7			29.1			22.4			20.1	
Approach LOS		B			C			C			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 22.9	Intersection LOS: C
Intersection Capacity Utilization 67.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	292	501	212	81	631	206	161	464	174	108	221	113
Future Volume (veh/h)	292	501	212	81	631	206	161	464	174	108	221	113
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	314	539	0	87	678	0	173	499	0	116	238	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	390	1168		354	803		558	1272		416	1190	
Arrive On Green	0.16	0.33	0.00	0.05	0.23	0.00	0.08	0.36	0.00	0.06	0.33	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	314	539	0	87	678	0	173	499	0	116	238	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.5	10.8	0.0	3.3	16.4	0.0	5.6	9.4	0.0	3.8	4.3	0.0
Cycle Q Clear(g_c), s	11.5	10.8	0.0	3.3	16.4	0.0	5.6	9.4	0.0	3.8	4.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	390	1168		354	803		558	1272		416	1190	
V/C Ratio(X)	0.81	0.46		0.25	0.84		0.31	0.39		0.28	0.20	
Avail Cap(c_a), veh/h	499	1473		373	928		576	1272		440	1190	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.0	23.9	0.0	24.6	33.3	0.0	17.0	21.6	0.0	17.9	21.3	0.0
Incr Delay (d2), s/veh	7.4	0.3	0.0	0.4	6.4	0.0	0.3	0.9	0.0	0.4	0.4	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	5.2	4.3	0.0	1.4	7.4	0.0	2.3	4.0	0.0	1.6	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	24.2	0.0	25.0	39.8	0.0	17.3	22.5	0.0	18.3	21.7	0.0
LnGrp LOS	C	C		C	D		B	C		B	C	
Approach Vol, veh/h		853			765			672			354	
Approach Delay, s/veh		26.1			38.1			21.2			20.6	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	36.7	9.2	34.1	12.1	34.6	18.5	24.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	22.3	5.7	37.3	8.5	20.5	19.5	23.5
Max Q Clear Time (g_c+I1), s	5.8	11.4	5.3	12.8	7.6	6.3	13.5	18.4
Green Ext Time (p_c), s	0.0	2.5	0.0	3.5	0.0	1.2	0.5	1.9

Intersection Summary	
HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

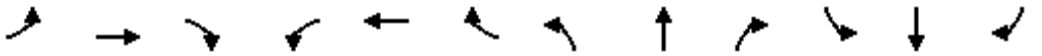
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	159	9	6	742	20	286
Future Volume (vph)	12	0	159	9	6	742	20	286
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	9.5	27.5	9.5	27.5
Total Split (%)	38.3%	38.3%	38.3%	38.3%	15.8%	45.8%	15.8%	45.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.4		13.4	36.7	35.7	36.7	35.7
Actuated g/C Ratio		0.22		0.22	0.61	0.60	0.61	0.60
v/c Ratio		0.07		0.63	0.01	0.38	0.05	0.15
Control Delay		0.4		29.6	5.8	8.7	6.0	7.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.4		29.6	5.8	8.7	6.0	7.4
LOS		A		C	A	A	A	A
Approach Delay		0.4		29.6		8.7		7.3
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 44.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	159	9	6	6	742	2	20	286	3
Future Volume (veh/h)	12	0	16	159	9	6	6	742	2	20	286	3
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	173	10	7	7	807	2	22	311	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	178	30	159	332	13	9	738	2129	5	480	2170	21
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.01	0.59	0.59	0.03	0.60	0.60
Sat Flow, veh/h	559	184	971	1325	77	54	1781	3637	9	1781	3606	35
Grp Volume(v), veh/h	30	0	0	190	0	0	7	394	415	22	153	161
Grp Sat Flow(s),veh/h/ln	1713	0	0	1455	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.0	0.0	0.0	6.6	0.0	0.0	0.1	7.1	7.1	0.3	2.3	2.3
Cycle Q Clear(g_c), s	0.9	0.0	0.0	7.5	0.0	0.0	0.1	7.1	7.1	0.3	2.3	2.3
Prop In Lane	0.43		0.57	0.91		0.04	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	367	0	0	353	0	0	738	1040	1094	480	1069	1122
V/C Ratio(X)	0.08	0.00	0.00	0.54	0.00	0.00	0.01	0.38	0.38	0.05	0.14	0.14
Avail Cap(c_a), veh/h	583	0	0	558	0	0	870	1040	1094	583	1069	1122
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	0.0	24.0	0.0	0.0	5.0	6.6	6.6	5.0	5.2	5.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	0.0	1.1	1.0	0.0	0.3	0.3
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	0.3	0.0	0.0	2.5	0.0	0.0	0.0	2.3	2.4	0.1	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	0.0	25.3	0.0	0.0	5.0	7.7	7.6	5.1	5.5	5.5
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			190			816			336	
Approach Delay, s/veh		21.4			25.3			7.6			5.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	39.6		14.3	5.1	40.6		14.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.0		18.5	5.0	23.0		18.5				
Max Q Clear Time (g_c+I1), s	2.3	9.1		2.9	2.1	4.3		9.5				
Green Ext Time (p_c), s	0.0	4.4		0.1	0.0	1.7		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		9.8	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	744	75	0	442
Future Vol, veh/h	0	6	744	75	0	442
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	809	82	0	480

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	446	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	560	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	560	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	560	-
HCM Lane V/C Ratio	-	-	0.012	-
HCM Control Delay (s)	-	-	11.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	808	154	0	442
Future Vol, veh/h	0	6	808	154	0	442
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	878	167	0	480

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	523	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	499	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	499	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	499	-
HCM Lane V/C Ratio	-	-	0.013	-
HCM Control Delay (s)	-	-	12.3	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3	19	0	17	157	0
Future Vol, veh/h	3	19	0	17	157	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	21	0	18	171	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	24	0	32	14
Stage 1	-	-	-	-	14	-
Stage 2	-	-	-	-	18	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1591	-	982	1066
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	1005	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1591	-	982	1066
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	1005	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1591	-
HCM Lane V/C Ratio	0.174	-	-	-	-
HCM Control Delay (s)	9.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	783	722	130	0	196
Future Vol, veh/h	0	783	722	130	0	196
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	851	785	141	0	213

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	785
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	393
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	393
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

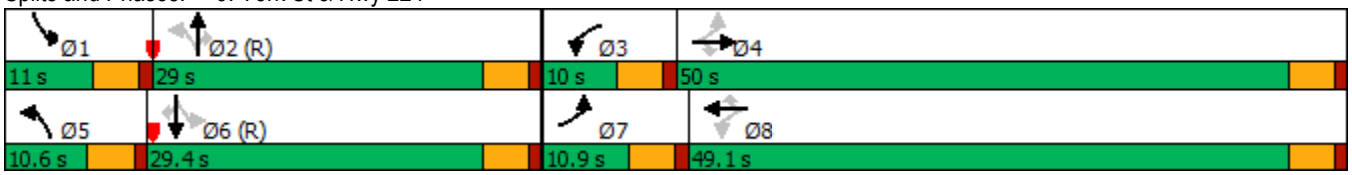
Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.5
HCM LOS			C

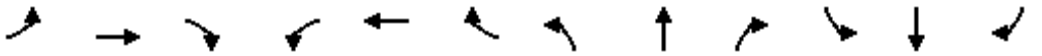
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	393
HCM Lane V/C Ratio	-	-	-	0.542
HCM Control Delay (s)	-	-	-	24.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	3.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	435	879	240	1095	192	153	197	117	117	817	181
Future Volume (vph)	110	435	879	240	1095	192	153	197	117	117	817	181
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	10.9	50.0	50.0	10.0	49.1	49.1	10.6	29.0	29.0	11.0	29.4	29.4
Total Split (%)	10.9%	50.0%	50.0%	10.0%	49.1%	49.1%	10.6%	29.0%	29.0%	11.0%	29.4%	29.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	51.9	45.5	45.5	50.1	44.6	44.6	30.6	24.5	24.5	31.4	24.9	24.9
Actuated g/C Ratio	0.52	0.46	0.46	0.50	0.45	0.45	0.31	0.24	0.24	0.31	0.25	0.25
v/c Ratio	0.56	0.28	1.09	0.53	0.73	0.26	0.88	0.24	0.26	0.31	0.98	0.40
Control Delay	21.9	17.7	78.8	18.1	26.1	6.0	70.5	31.2	7.1	25.2	63.2	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	17.7	78.8	18.1	26.1	6.0	70.5	31.2	7.1	25.2	63.2	15.8
LOS	C	B	E	B	C	A	E	C	A	C	E	B
Approach Delay		55.7			22.3			38.1			51.5	
Approach LOS		E			C			D			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 41.6	Intersection LOS: D
Intersection Capacity Utilization 101.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	435	879	240	1095	192	153	197	117	117	817	181
Future Volume (veh/h)	110	435	879	240	1095	192	153	197	117	117	817	181
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	458	0	253	1153	0	161	207	0	123	860	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	1358		442	1352		248	1134		511	1143	
Arrive On Green	0.06	0.38	0.00	0.05	0.38	0.00	0.06	0.32	0.00	0.06	0.32	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	116	458	0	253	1153	0	161	207	0	123	860	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.9	9.1	0.0	5.5	29.8	0.0	6.1	4.2	0.0	4.6	21.7	0.0
Cycle Q Clear(g_c), s	3.9	9.1	0.0	5.5	29.8	0.0	6.1	4.2	0.0	4.6	21.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	214	1358		442	1352		248	1134		511	1143	
V/C Ratio(X)	0.54	0.34		0.57	0.85		0.65	0.18		0.24	0.75	
Avail Cap(c_a), veh/h	226	1617		442	1585		248	1134		513	1143	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.7	21.9	0.0	22.5	28.4	0.0	24.3	24.6	0.0	20.6	30.3	0.0
Incr Delay (d2), s/veh	2.3	0.1	0.0	1.8	4.2	0.0	5.8	0.4	0.0	0.2	4.6	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	1.7	3.7	0.0	2.2	12.6	0.0	2.9	1.8	0.0	1.9	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	22.0	0.0	24.3	32.6	0.0	30.1	25.0	0.0	20.8	34.9	0.0
LnGrp LOS	C	C		C	C		C	C		C	C	
Approach Vol, veh/h		574			1406			368			983	
Approach Delay, s/veh		22.7			31.1			27.2			33.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	36.4	10.0	42.7	10.6	36.7	10.2	42.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	24.5	5.5	45.5	6.1	24.9	6.4	44.6
Max Q Clear Time (g_c+I1), s	6.6	6.2	7.5	11.1	8.1	23.7	5.9	31.8
Green Ext Time (p_c), s	0.0	1.1	0.0	3.1	0.0	0.7	0.0	6.3

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

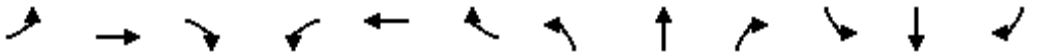
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	3	1	15	460	5	990
Future Volume (vph)	12	0	3	1	15	460	5	990
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	9.6	27.8	9.6	27.8
Total Split (%)	37.7%	37.7%	37.7%	37.7%	16.0%	46.3%	16.0%	46.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.7		5.8	50.4	51.9	50.3	51.9
Actuated g/C Ratio		0.10		0.10	0.84	0.86	0.84	0.86
v/c Ratio		0.11		0.02	0.03	0.17	0.01	0.36
Control Delay		0.9		24.8	1.9	2.6	1.8	3.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.9		24.8	1.9	2.6	1.8	3.4
LOS		A		C	A	A	A	A
Approach Delay		0.9		24.8		2.6		3.3
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.36	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	3	1	0	15	460	6	5	990	19
Future Volume (veh/h)	12	0	16	3	1	0	15	460	6	5	990	19
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	3	1	0	16	500	7	5	1076	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	0	31	150	15	0	462	2627	37	747	2565	50
Arrive On Green	0.04	0.00	0.04	0.04	0.04	0.00	0.02	0.73	0.73	0.01	0.72	0.72
Sat Flow, veh/h	661	0	865	1242	414	0	1781	3588	50	1781	3565	70
Grp Volume(v), veh/h	30	0	0	4	0	0	16	247	260	5	536	561
Grp Sat Flow(s),veh/h/ln	1526	0	0	1656	0	0	1781	1777	1861	1781	1777	1858
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	0.1	2.6	2.6	0.0	7.3	7.3
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.1	0.0	0.0	0.1	2.6	2.6	0.0	7.3	7.3
Prop In Lane	0.43		0.57	0.75		0.00	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	141	0	0	165	0	0	462	1301	1363	747	1278	1337
V/C Ratio(X)	0.21	0.00	0.00	0.02	0.00	0.00	0.03	0.19	0.19	0.01	0.42	0.42
Avail Cap(c_a), veh/h	541	0	0	561	0	0	579	1301	1363	886	1278	1337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	0.0	27.9	0.0	0.0	2.5	2.5	2.5	2.3	3.4	3.4
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	1.0	1.0
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	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.6	0.6	0.0	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	0.0	28.0	0.0	0.0	2.5	2.8	2.8	2.3	4.4	4.4
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			4			523			1102	
Approach Delay, s/veh		29.2			28.0			2.8			4.4	
Approach LOS		C			C			A			A	

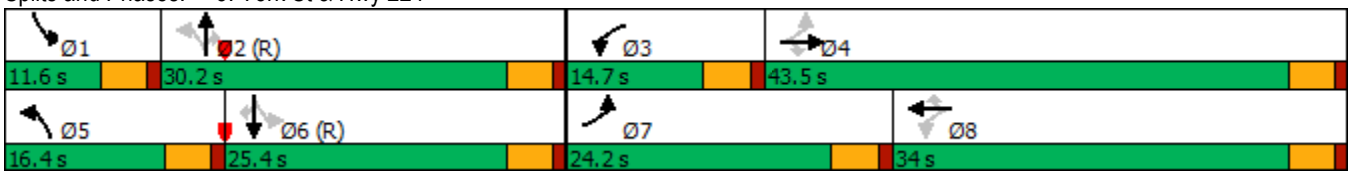
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	48.4		6.7	5.7	47.7		6.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	23.3		18.1	5.1	23.3		18.1				
Max Q Clear Time (g_c+I1), s	2.0	4.6		3.1	2.1	9.3		2.1				
Green Ext Time (p_c), s	0.0	2.9		0.1	0.0	6.2		0.0				

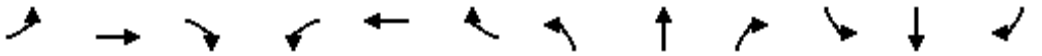
Intersection Summary			
HCM 6th Ctrl Delay		4.4	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	840	355	135	730	340	270	650	290	112	247	117
Future Volume (vph)	236	840	355	135	730	340	270	650	290	112	247	117
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.2	43.5	43.5	14.7	34.0	34.0	16.4	30.2	30.2	11.6	25.4	25.4
Total Split (%)	24.2%	43.5%	43.5%	14.7%	34.0%	34.0%	16.4%	30.2%	30.2%	11.6%	25.4%	25.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	47.1	33.9	33.9	38.2	28.8	28.8	43.0	31.0	31.0	33.6	25.9	25.9
Actuated g/C Ratio	0.47	0.34	0.34	0.38	0.29	0.29	0.43	0.31	0.31	0.34	0.26	0.26
v/c Ratio	0.73	0.74	0.49	0.55	0.76	0.54	0.58	0.62	0.44	0.44	0.28	0.22
Control Delay	31.2	32.7	6.2	24.0	37.6	9.2	26.7	33.9	6.3	25.8	32.5	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	32.7	6.2	24.0	37.6	9.2	26.7	33.9	6.3	25.8	32.5	0.9
LOS	C	C	A	C	D	A	C	C	A	C	C	A
Approach Delay		25.9			28.0			25.7			23.2	
Approach LOS		C			C			C			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 26.1	Intersection LOS: C
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	840	355	135	730	340	270	650	290	112	247	117
Future Volume (veh/h)	236	840	355	135	730	340	270	650	290	112	247	117
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	248	884	0	142	768	0	284	684	0	118	260	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	1069		253	910		586	1353		358	1149	
Arrive On Green	0.12	0.30	0.00	0.08	0.26	0.00	0.12	0.38	0.00	0.06	0.32	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	248	884	0	142	768	0	284	684	0	118	260	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.7	23.2	0.0	5.8	20.5	0.0	10.2	14.8	0.0	4.4	5.3	0.0
Cycle Q Clear(g_c), s	9.7	23.2	0.0	5.8	20.5	0.0	10.2	14.8	0.0	4.4	5.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	324	1069		253	910		586	1353		358	1149	
V/C Ratio(X)	0.76	0.83		0.56	0.84		0.48	0.51		0.33	0.23	
Avail Cap(c_a), veh/h	459	1386		297	1048		586	1353		375	1149	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.5	32.5	0.0	26.4	35.3	0.0	17.6	23.7	0.0	20.8	24.7	0.0
Incr Delay (d2), s/veh	4.8	3.3	0.0	2.0	5.7	0.0	0.6	1.4	0.0	0.5	0.5	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	4.3	10.0	0.0	2.5	9.2	0.0	4.1	6.3	0.0	1.8	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	35.9	0.0	28.4	41.0	0.0	18.2	25.1	0.0	21.3	25.2	0.0
LnGrp LOS	C	D		C	D		B	C		C	C	
Approach Vol, veh/h		1132			910			968			378	
Approach Delay, s/veh		34.5			39.1			23.1			24.0	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	42.6	12.2	34.6	16.4	36.8	16.7	30.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.1	25.7	10.2	39.0	11.9	20.9	19.7	29.5
Max Q Clear Time (g_c+I1), s	6.4	16.8	7.8	25.2	12.2	7.3	11.7	22.5
Green Ext Time (p_c), s	0.0	3.1	0.1	4.9	0.0	1.3	0.4	2.8

Intersection Summary	
HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

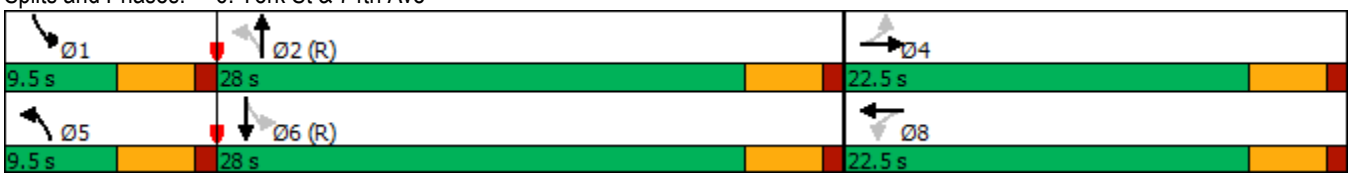
Notes

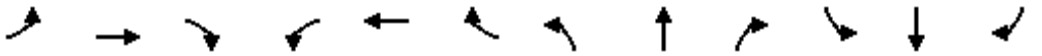
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	0	2	9	10	1050	2	460
Future Volume (vph)	19	0	2	9	10	1050	2	460
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	28.0	9.5	28.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	15.8%	46.7%	15.8%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		6.0		6.0	48.2	48.8	48.0	48.7
Actuated g/C Ratio		0.10		0.10	0.80	0.81	0.80	0.81
v/c Ratio		0.20		0.07	0.01	0.40	0.00	0.18
Control Delay		2.7		25.0	2.2	4.1	2.0	3.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		2.7		25.0	2.2	4.1	2.0	3.2
LOS		A		C	A	A	A	A
Approach Delay		2.7		25.0		4.1		3.2
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.40	
Intersection Signal Delay: 3.9	Intersection LOS: A
Intersection Capacity Utilization 41.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	0	26	2	9	0	10	1050	2	2	460	5
Future Volume (veh/h)	19	0	26	2	9	0	10	1050	2	2	460	5
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	0	28	2	10	0	11	1141	2	2	500	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	1	47	82	85	0	736	2617	5	416	2552	26
Arrive On Green	0.05	0.00	0.05	0.05	0.05	0.00	0.01	0.72	0.72	0.00	0.71	0.71
Sat Flow, veh/h	649	11	879	217	1604	0	1781	3640	6	1781	3605	36
Grp Volume(v), veh/h	49	0	0	12	0	0	11	557	586	2	246	259
Grp Sat Flow(s),veh/h/ln	1538	0	0	1822	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	0.1	7.7	7.7	0.0	2.8	2.8
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.4	0.0	0.0	0.1	7.7	7.7	0.0	2.8	2.8
Prop In Lane	0.43		0.57	0.17		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	168	0	0	167	0	0	736	1278	1344	416	1258	1319
V/C Ratio(X)	0.29	0.00	0.00	0.07	0.00	0.00	0.01	0.44	0.44	0.00	0.20	0.20
Avail Cap(c_a), veh/h	538	0	0	603	0	0	859	1278	1344	559	1258	1319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	0.0	27.1	0.0	0.0	2.4	3.4	3.4	2.9	3.0	3.0
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.2	0.0	0.0	0.0	1.1	1.0	0.0	0.3	0.3
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	0.7	0.0	0.0	0.2	0.0	0.0	0.0	1.8	1.9	0.0	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	27.2	0.0	0.0	2.4	4.5	4.5	2.9	3.3	3.3
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		49			12			1154			507	
Approach Delay, s/veh		28.7			27.2			4.5			3.3	
Approach LOS		C			C			A			A	

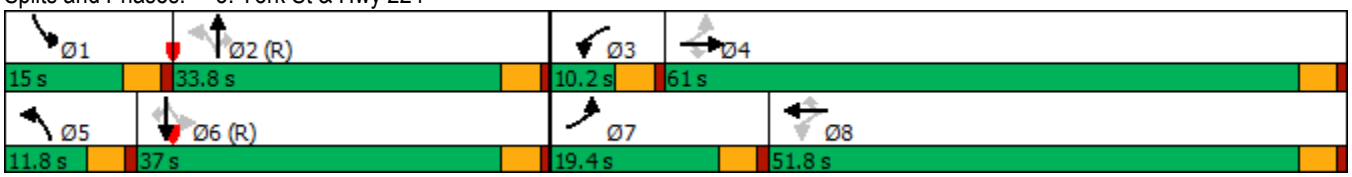
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	47.6		7.7	5.3	47.0		7.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.0	23.5		18.0				
Max Q Clear Time (g_c+I1), s	2.0	9.7		3.8	2.1	4.8		2.4				
Green Ext Time (p_c), s	0.0	6.4		0.1	0.0	2.9		0.0				

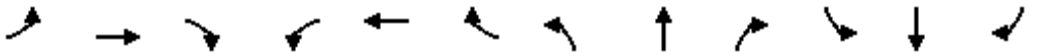
Intersection Summary		
HCM 6th Ctrl Delay		5.0
HCM 6th LOS		A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	435	879	240	1285	197	153	274	117	157	892	227
Future Volume (vph)	265	435	879	240	1285	197	153	274	117	157	892	227
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	19.4	61.0	61.0	10.2	51.8	51.8	11.8	33.8	33.8	15.0	37.0	37.0
Total Split (%)	16.2%	50.8%	50.8%	8.5%	43.2%	43.2%	9.8%	28.2%	28.2%	12.5%	30.8%	30.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	66.7	56.5	56.5	53.0	47.3	47.3	36.9	29.6	29.6	42.7	32.5	32.5
Actuated g/C Ratio	0.56	0.47	0.47	0.44	0.39	0.39	0.31	0.25	0.25	0.36	0.27	0.27
v/c Ratio	0.99	0.27	1.06	0.57	0.97	0.29	0.95	0.33	0.25	0.43	0.98	0.45
Control Delay	85.7	19.9	73.4	24.8	54.1	10.0	90.1	38.4	6.1	29.1	64.7	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	19.9	73.4	24.8	54.1	10.0	90.1	38.4	6.1	29.1	64.7	17.2
LOS	F	B	E	C	D	B	F	D	A	C	E	B
Approach Delay		60.7			44.9			46.0			51.9	
Approach LOS		E			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 51.6	Intersection LOS: D
Intersection Capacity Utilization 103.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	435	879	240	1285	197	153	274	117	157	892	227
Future Volume (veh/h)	265	435	879	240	1285	197	153	274	117	157	892	227
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	279	458	0	253	1353	0	161	288	0	165	939	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	1670		510	1397		174	883		409	966	
Arrive On Green	0.12	0.47	0.00	0.05	0.39	0.00	0.06	0.25	0.00	0.06	0.18	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	279	458	0	253	1353	0	161	288	0	165	939	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	14.1	9.4	0.0	5.7	44.8	0.0	7.3	8.0	0.0	8.1	31.5	0.0
Cycle Q Clear(g_c), s	14.1	9.4	0.0	5.7	44.8	0.0	7.3	8.0	0.0	8.1	31.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	289	1670		510	1397		174	883		409	966	
V/C Ratio(X)	0.96	0.27		0.50	0.97		0.93	0.33		0.40	0.97	
Avail Cap(c_a), veh/h	289	1673		510	1401		174	883		415	966	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.8	19.4	0.0	22.9	35.7	0.0	37.5	36.9	0.0	30.5	48.6	0.0
Incr Delay (d2), s/veh	43.1	0.1	0.0	0.7	17.0	0.0	47.4	1.0	0.0	0.6	23.0	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	11.6	3.8	0.0	2.1	21.7	0.0	5.8	3.6	0.0	3.7	17.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.9	19.4	0.0	23.6	52.7	0.0	84.8	37.9	0.0	31.1	71.6	0.0
LnGrp LOS	E	B		C	D		F	D		C	E	
Approach Vol, veh/h		737			1606			449			1104	
Approach Delay, s/veh		42.3			48.1			54.7			65.6	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	34.3	10.2	60.9	11.8	37.1	19.4	51.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	29.3	5.7	56.5	7.3	32.5	14.9	47.3
Max Q Clear Time (g_c+I1), s	10.1	10.0	7.7	11.4	9.3	33.5	16.1	46.8
Green Ext Time (p_c), s	0.0	1.7	0.0	3.1	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	52.7
HCM 6th LOS	D

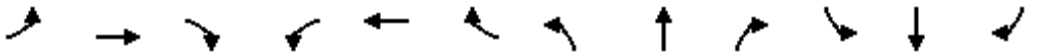
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	164	1	15	474	25	1000
Future Volume (vph)	12	0	164	1	15	474	25	1000
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	9.6	27.8	9.6	27.8
Total Split (%)	37.7%	37.7%	37.7%	37.7%	16.0%	46.3%	16.0%	46.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.2		13.2	35.9	33.7	36.9	35.9
Actuated g/C Ratio		0.22		0.22	0.60	0.56	0.62	0.60
v/c Ratio		0.07		0.63	0.05	0.26	0.05	0.53
Control Delay		0.4		30.1	5.7	7.6	5.8	10.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.4		30.1	5.7	7.6	5.8	10.4
LOS		A		C	A	A	A	B
Approach Delay		0.4		30.1		7.6		10.3
Approach LOS		A		C		A		B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 51.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	164	1	6	15	474	6	25	1000	19
Future Volume (veh/h)	12	0	16	164	1	6	15	474	6	25	1000	19
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	178	1	7	16	515	7	27	1087	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	30	158	341	1	9	366	2092	28	687	2116	41
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.04	1.00	1.00	0.03	0.59	0.59
Sat Flow, veh/h	559	185	974	1378	8	54	1781	3590	49	1781	3566	69
Grp Volume(v), veh/h	30	0	0	186	0	0	16	255	267	27	542	566
Grp Sat Flow(s),veh/h/ln	1719	0	0	1440	0	0	1781	1777	1862	1781	1777	1858
Q Serve(g_s), s	0.0	0.0	0.0	6.5	0.0	0.0	0.2	0.0	0.0	0.4	10.7	10.7
Cycle Q Clear(g_c), s	0.9	0.0	0.0	7.4	0.0	0.0	0.2	0.0	0.0	0.4	10.7	10.7
Prop In Lane	0.43		0.57	0.96		0.04	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	364	0	0	351	0	0	366	1036	1085	687	1055	1103
V/C Ratio(X)	0.08	0.00	0.00	0.53	0.00	0.00	0.04	0.25	0.25	0.04	0.51	0.51
Avail Cap(c_a), veh/h	574	0	0	547	0	0	483	1036	1085	784	1055	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	0.0	24.1	0.0	0.0	5.5	0.0	0.0	4.6	7.1	7.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.2	0.0	0.0	0.0	0.6	0.5	0.0	1.8	1.7
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	0.3	0.0	0.0	2.5	0.0	0.0	0.1	0.2	0.2	0.1	3.5	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	0.0	0.0	25.3	0.0	0.0	5.6	0.6	0.5	4.6	8.9	8.8
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			186			538			1135	
Approach Delay, s/veh		21.5			25.3			0.7			8.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	39.5		14.2	5.7	40.1		14.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	23.3		18.1	5.1	23.3		18.1				
Max Q Clear Time (g_c+I1), s	2.4	2.0		2.9	2.2	12.7		9.4				
Green Ext Time (p_c), s	0.0	3.1		0.1	0.0	5.3		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		8.3	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	488	14	0	1276
Future Vol, veh/h	0	7	488	14	0	1276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	530	15	0	1387

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	273	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	725	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	725	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	725	-
HCM Lane V/C Ratio	-	-	0.01	-
HCM Control Delay (s)	-	-	10	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	659	77	0	1276
Future Vol, veh/h	0	7	659	77	0	1276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	716	84	0	1387

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	400	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	600	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	600	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	600	-
HCM Lane V/C Ratio	-	-	0.013	-
HCM Control Delay (s)	-	-	11.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	11	20	0	10	161	0
Future Vol, veh/h	11	20	0	10	161	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	22	0	11	175	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	34	0	34	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1578	-	979	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1012	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1578	-	979	1054
Mov Cap-2 Maneuver	-	-	-	-	979	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1012	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	979	-	-	1578	-
HCM Lane V/C Ratio	0.179	-	-	-	-
HCM Control Delay (s)	9.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	709	1227	130	0	115
Future Vol, veh/h	0	709	1227	130	0	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	746	1292	137	0	119

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1292
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	199
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	199
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

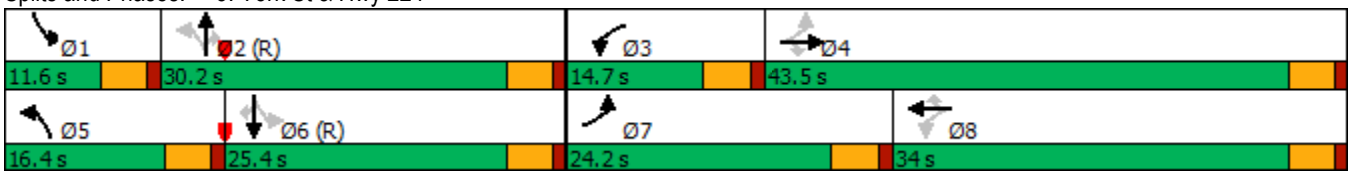
Approach	EB	WB	SB
HCM Control Delay, s	0	0	46.7
HCM LOS			E

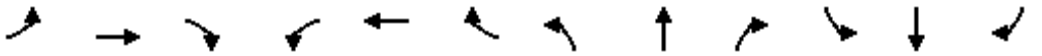
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	199
HCM Lane V/C Ratio	-	-	-	0.596
HCM Control Delay (s)	-	-	-	46.7
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	3.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	387	840	355	135	924	342	270	726	290	153	320	160
Future Volume (vph)	387	840	355	135	924	342	270	726	290	153	320	160
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.2	43.5	43.5	14.7	34.0	34.0	16.4	30.2	30.2	11.6	25.4	25.4
Total Split (%)	24.2%	43.5%	43.5%	14.7%	34.0%	34.0%	16.4%	30.2%	30.2%	11.6%	25.4%	25.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	53.7	40.2	40.2	38.5	29.5	29.5	37.3	25.7	25.7	28.0	20.9	20.9
Actuated g/C Ratio	0.54	0.40	0.40	0.38	0.30	0.30	0.37	0.26	0.26	0.28	0.21	0.21
v/c Ratio	0.96	0.62	0.45	0.47	0.93	0.57	0.75	0.84	0.50	0.81	0.46	0.34
Control Delay	63.1	26.4	5.5	18.7	50.7	14.8	37.7	45.0	8.6	54.4	36.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	26.4	5.5	18.7	50.7	14.8	37.7	45.0	8.6	54.4	36.9	4.0
LOS	E	C	A	B	D	B	D	D	A	D	D	A
Approach Delay		30.7			38.9			35.3			32.8	
Approach LOS		C			D			D			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 34.5	Intersection LOS: C
Intersection Capacity Utilization 90.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	387	840	355	135	924	342	270	726	290	153	320	160
Future Volume (veh/h)	387	840	355	135	924	342	270	726	290	153	320	160
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	407	884	0	142	973	0	284	764	0	161	337	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	1469		342	1038		421	929		240	758	
Arrive On Green	0.20	0.41	0.00	0.07	0.29	0.00	0.12	0.26	0.00	0.07	0.21	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	407	884	0	142	973	0	284	764	0	161	337	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	17.5	19.4	0.0	5.5	26.7	0.0	11.9	20.2	0.0	7.1	8.2	0.0
Cycle Q Clear(g_c), s	17.5	19.4	0.0	5.5	26.7	0.0	11.9	20.2	0.0	7.1	8.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	1469		342	1038		421	929		240	758	
V/C Ratio(X)	0.94	0.60		0.42	0.94		0.68	0.82		0.67	0.44	
Avail Cap(c_a), veh/h	437	1469		391	1048		421	929		240	758	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.0	22.9	0.0	22.2	34.5	0.0	26.0	34.7	0.0	29.7	34.2	0.0
Incr Delay (d2), s/veh	27.5	0.7	0.0	0.8	15.1	0.0	4.2	8.1	0.0	7.1	1.9	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	10.2	7.8	0.0	2.3	13.1	0.0	5.6	9.6	0.0	3.5	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	23.6	0.0	23.0	49.6	0.0	30.2	42.9	0.0	36.8	36.1	0.0
LnGrp LOS	D	C		C	D		C	D		D	D	
Approach Vol, veh/h		1291			1115			1048			498	
Approach Delay, s/veh		33.4			46.2			39.4			36.3	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	30.6	11.9	45.8	16.4	25.8	24.1	33.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.1	25.7	10.2	39.0	11.9	20.9	19.7	29.5
Max Q Clear Time (g_c+I1), s	9.1	22.2	7.5	21.4	13.9	10.2	19.5	28.7
Green Ext Time (p_c), s	0.0	1.7	0.1	5.5	0.0	1.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	39.0
HCM 6th LOS	D

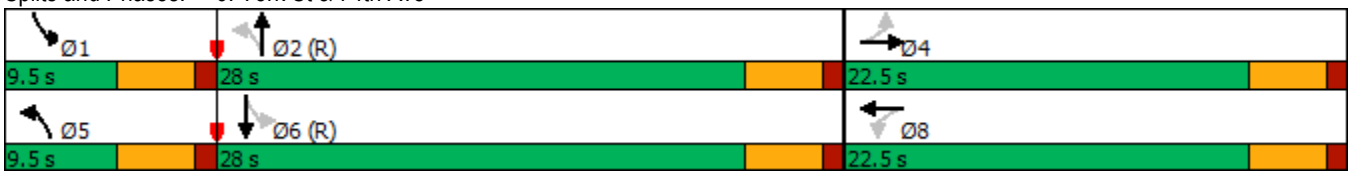
Notes

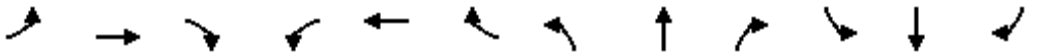
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	0	159	9	10	1062	21	470
Future Volume (vph)	19	0	159	9	10	1062	21	470
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	28.0	9.5	28.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	15.8%	46.7%	15.8%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.3		13.3	36.8	35.8	36.8	35.8
Actuated g/C Ratio		0.22		0.22	0.61	0.60	0.61	0.60
v/c Ratio		0.12		0.65	0.02	0.55	0.07	0.24
Control Delay		1.1		30.6	5.8	10.9	6.1	7.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		1.1		30.6	5.8	10.9	6.1	7.7
LOS		A		C	A	B	A	A
Approach Delay		1.1		30.6		10.9		7.6
Approach LOS		A		C		B		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	0	26	159	9	6	10	1062	2	21	470	5
Future Volume (veh/h)	19	0	26	159	9	6	10	1062	2	21	470	5
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	0	28	173	10	7	11	1154	2	23	511	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	30	160	333	13	9	615	2130	4	358	2156	21
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.01	0.59	0.59	0.03	0.60	0.60
Sat Flow, veh/h	548	185	978	1335	77	54	1781	3640	6	1781	3606	35
Grp Volume(v), veh/h	49	0	0	190	0	0	11	563	593	23	252	264
Grp Sat Flow(s),veh/h/ln	1712	0	0	1466	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.0	0.0	0.0	5.9	0.0	0.0	0.1	11.6	11.6	0.3	4.0	4.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0	7.4	0.0	0.0	0.1	11.6	11.6	0.3	4.0	4.0
Prop In Lane	0.43		0.57	0.91		0.04	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	365	0	0	354	0	0	615	1040	1094	358	1062	1114
V/C Ratio(X)	0.13	0.00	0.00	0.54	0.00	0.00	0.02	0.54	0.54	0.06	0.24	0.24
Avail Cap(c_a), veh/h	570	0	0	547	0	0	739	1040	1094	459	1062	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	0.0	23.9	0.0	0.0	4.9	7.6	7.6	5.7	5.7	5.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	1.3	0.0	0.0	0.0	2.0	1.9	0.1	0.5	0.5
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	0.6	0.0	0.0	2.5	0.0	0.0	0.0	3.9	4.1	0.1	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	0.0	0.0	25.2	0.0	0.0	4.9	9.6	9.5	5.8	6.2	6.2
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		49			190			1167			539	
Approach Delay, s/veh		21.8			25.2			9.5			6.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	39.6		14.3	5.3	40.4		14.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.0	23.5		18.0				
Max Q Clear Time (g_c+I1), s	2.3	13.6		3.5	2.1	6.0		9.4				
Green Ext Time (p_c), s	0.0	5.3		0.1	0.0	2.9		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		10.4	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	1068	12	0	633
Future Vol, veh/h	0	6	1068	12	0	633
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	1161	13	0	688

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	587	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	453	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	453	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	453	-
HCM Lane V/C Ratio	-	-	0.014	-
HCM Control Delay (s)	-	-	13.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	1380	75	0	663
Future Vol, veh/h	0	6	1380	75	0	663
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	1500	82	0	721

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	791	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	332	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	332	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	332	-
HCM Lane V/C Ratio	-	-	0.02	-
HCM Control Delay (s)	-	-	16.1	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	19	0	17	157	0
Future Vol, veh/h	4	19	0	17	157	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	21	0	18	171	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	25	0	33	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	18	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1589	-	980	1065
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1005	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1589	-	980	1065
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1005	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	980	-	-	1589	-
HCM Lane V/C Ratio	0.174	-	-	-	-
HCM Control Delay (s)	9.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	1283	1205	130	0	116
Future Vol, veh/h	0	1283	1205	130	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1351	1268	137	0	120

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1268
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	206
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	206
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	44.2
HCM LOS			E

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	206
HCM Lane V/C Ratio	-	-	-	0.581
HCM Control Delay (s)	-	-	-	44.2
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	3.2

KELLAR ENGINEERING

Sean Kellar, PE, PTOE

Principal Engineer

Education
B.S., Civil Engineering, Arizona State University – Tempe, AZ

Registration
Colorado, Professional Engineer (PE)
Wyoming, Professional Engineer (PE)
Idaho, Professional Engineer (PE)
Arizona, Professional Engineer (PE)
Kansas, Professional Engineer (PE)
Missouri, Professional Engineer (PE)
Professional Traffic Operations Engineer (PTOE)

Professional Memberships
Institute of Transportation Engineers (ITE)

Industry Tenure
23 Years

Sean's wide range of expertise includes: transportation planning, traffic modeling roadway design, bike and pedestrian facilities, traffic impact studies, traffic signal warrant analysis, parking studies, corridor planning and access management. Sean's experience in both the private and public sectors; passion for safety and excellence; and strong communication and collaboration skills can bring great value to any project. Prior to starting Kellar Engineering, Sean was employed at the Missouri Department of Transportation (MoDOT) as the District Traffic Engineer for the Kansas City District. Sean also worked for the City of Loveland, CO for over 10 years as a Senior Civil Engineer supervising a division of transportation/traffic engineers. While at the City of Loveland, Sean managed several capital improvement projects, presented several projects to the City Council and Planning Commission in public hearings, and managed the revisions to the City's Street Standards. Sean is also proficient in Highway Capacity Software, Synchro, PT Vissim, Rodel, GIS, and AutoCAD.

WORK EXPERIENCE:

Kellar Engineering, Principal Engineer/President – January 2016 – Present

Missouri Department of Transportation, District Traffic Engineer, Kansas City District – June 2015 – January 2016

City of Loveland, Colorado, Senior Civil Engineer, Public Works Department – February 2005 – June 2015

Kirkham Michael Consulting Engineers, Project Manager - February 2004 – February 2005

Dibble and Associates Consulting Engineers, Project Engineer – August 1999 – February 2004

Final Drainage Report

Mendoza York Street Subdivision

7330 York St

Prepared for:

Mendoza Services LLC
1955 E. 75th Ave
Denver, CO 80229

Prepared by:

IMEG
7600 E. Orchard Road, Suite 250-S
Greenwood Village, CO 80111
Rick Rome P.E. LEED AP
303-796-6067
Rick.a.rome@imegcorp.com

Date:
May 22, 2023

IMEG #22003209

TABLE OF CONTENTS

Engineers Certification
I hereby certify that this report (plan) for the Preliminary Drainage design of Mendoza York Street Subdivision was prepared by me or under my direct supervision in accordance with the provisions of Adams County Storm Drainage Design and Technical Criteria for the owners thereof. I understand that Adams County does not and will not assume liability for drainage facilities designed by others."

_____
date

_____
Rick Rome, PE
Colorado 35103
Registered Professional Engineer

Owners Certification

Mendoza Services hereby certifies that the drainage facilities for Mendoza York Street Subdivision shall be constructed according to the design presented in this report. I understand that Adams County does not and will not assume liability for the drainage facilities designed and/ or certified by my engineer. I understand that Adams County reviews drainage plans pursuant to Colorado Revised Statues Title 30, Article 28; but cannot, on behalf of Mendoza Services LLC, guarantee that final drainage design review will absolve (Mendoza Services) and/ or their successors and/ or assigns the future liability for improper design. I further understand that approval of the Final Plat and/ or Final Development Plan does not imply approval of my engineer's drainage design.

_____
date

_____
Ralph Mendoza

_____
Authorized Signature

Final Drainage Report
Mendoza York Street Subdivision

A. General Location and Description

Location

This project is in the SW ¼ Section 36, Township 2 South Range 68 West of the 6th PM, Adams County, Colorado. The property is currently unplatted lands on two parcels addressed as 7330 York Street (parcel 0171936300074) and 2480 E. 74th Ave. (parcel 0171936300075), Denver, CO 80229. The site is bounded on the north by East 74th Avenue on the south by State Highway 224, on the west by York Street, and on the east by a commercial lot addressed at 2555 E. 74th Avenue. The Clear Creek drainage way is located approximately 400 feet south of the property on the south side of State Highway 224.

Description of Property.

The site being evaluated contains approximately 7.2 acres. Current zoning on the property is A2 and includes residential structures on the property that will be demolished as part of the project. The site has historically been used for agricultural and farming uses. The proposed zoning is an I-1 zoning designation and will be subdivided into four lots. The proposed uses will be a retail center with a fueling station, warehouse type use. An event center, and a lot reserved for future commercial uses. Application processes proposed for the property include a re-zoning application and Minor Subdivision application.

There are no previous drainage reports identified with the property, however the York Street Improvements included a right of way evaluation titled York Street Improvements February 14, 2019 by Drexel Barrell. (Ref 3).

The site has historically been used for agricultural purpose with the property being periodically turned and planted with various crops. Proposed landscape will be provided in accordance with County requirements to include Right of way frontage, detention areas and parking islands.

The site generally slopes to the southeast where an existing 24" CMP culvert crosses State Highway 224 and drains to Clear Creek. The proposed drainage patterns for site development will continue along the historic path and include detention and water quality mitigation.

There are no major irrigation or drainage facilities crossing the property,

Surrounding uses include predominantly light industrial with a few residential properties on the west side of York Street.

Soil type on site is identified as Loamy Alluvial Land which is consistent with Hydrologic soil group C. The site is in a Zone X flood area which represents an area of minimal flood hazard. The area contiguous with the Highway 223 right of way is listed as Zone X Other Flood Area which could be "Area of 0.2% annual chance flood; area of 1% annual chance flood with average depth less than 1 foot or with drainage areas less than 1 square mile; and area protected by Levees from 1% annual chance flood."

B. Objectives

This project is proposed as a light industrial and commercial center for four lots varying in size between 1 acre and 2.5 acres. Circulation through the site will include shared access for vehicular traffic, a right in right out access from Highway 223, There are two proposed access points to York Street together with two proposed access points from 74th Avenue.

The ultimate development of the site will progress as a phased project with the initial use being the retail center with access improvement to the surrounding development areas.

C. Drainage Basins

Major Basin Descriptions

The site is in the lower reaches of the Clear Creek Drainage Basin. Runoff from this site is tributary to the creek through an existing culvert crossing State Highway 224. The York Street drainage improvements are addressed as part of the Drainage Report for York Street Improvements prepared by Drexel Barrell dated February 14, 2019. The areas north of the project generally drain to the east with some flow concentrating along the north side of 74th Avenue to Clayton Street. Where stormwaters are directed in roadside swales to the east ultimately reaching the Platte River.

Sub Basin Descriptions

The drainage system is presented using six general basin designations. Basins A, B, C and D are directly tributary to the detention pond. Basins E and F represent perimeter areas and offsite right of way that flows along its historic flow path to the east.

Basin A represents the western portion of the project area and includes the retail /fuel station lot along York Street. The basin consists of two watersheds what are collected in a proposed storm sewer and drain directly to the proposed pond at Design point 3.

Basin B represents the future commercial lot together with the east half of the retail fuel center. This basin is collected in two inlets with one being a toy c inlet planned for future extension with the Lot 1 development. The second is a combination tyle 13 inlet collection local parking lot runoff. Runoff from these areas will be collected in a proposed storm sewer that drains east combining with Basin C and then into the detention pond.at design point 11.

Basin C is subdivided into five watersheds that are tributary to a proposed storm sewer system. Basin C1 includes the north half of the rooftop drainage and north parking lot for Lots 3 and 4. This flow is conveyed in a curb and gutter around the east side of lot 4 to an open 18" culver in a localized sump at design point 6. The remainder of Basin C is directed south and collected in type R inlets that combined with Basin B runoff at design point 10 before discharging into the detention pond.

Basin D represents the detention pond which collect runoff directly tributary to the pond area. The combined tributary area directed to the pond is 6.8 acres of developed area. The composite impervious coverage for the total basin is 83.3%.

Basin E consists of two sub basins. Basin E1 represents the onsite area immediately adjacent to State Highway 224 together with the south east corner of the property where the drive grade is established based on the shared entrance proposed at the corner of the property. This area sill discharge directly into the roadside swale along State Highway 224 in its historic flow path east toward the outfall to the South Platte River. Basin E2 represents the State Highway frontage that is tributary to a proposed Tyle D inlet (existing culvert_) at design point 14.

Basin F represents the frontage adjacent to 74th Avenue. Basin F1 represents the driveway entrances along 74th together with the landscape embankment that is physically unable to be collected and directed into the proposed detention pond. Flows from this basin combine with Existing Right of way runoff from Basin F2 in 74th Avenue and continue east along their historic flow path.

D. Drainage Design Criteria
Development Criteria Reference Constraints

This project is proposed in conformance with the Adams County Storm Drainage Design and Stormwater Quality Regulations and supporting information from the Mile High Flood District Drainage Criteria Manuals Volumes 1, 2 and 3.

Composite Runoff summary table

Basin	Area	%I
A	1.08 AC	87.2%
B	1.33 AC	83.8%
C	4.02 AC	88.4%
D	0.37 AC	14..4 %
E *	1.73 AC	40.1 %
F *	0.67 AC	84.2 %

* Includes adjacent public ROW in composite calculation

Hydrological Criteria

The design events storms for the project are 5 year for minor event conveyance and 100 year for major event conveyance. The development area will be detained in a proposed pond on the south side of the project area. Developed runoff will be treated for water quality, and release through a proposed outlet structure releasing for EURV and 100 year design flows.

Hydraulic Criteria

Storm system hydraulics for the onsite system is based on surface conveyance to traditional inlet collections systems and piped flow to the proposed detention pond. The site is graded to provided raised building pad sites consistent with retail development. Grades are generally proposed to maintain general historic drainage patterns with developed runoff directed to the proposed pond.

E. Drainage Facility Design

General Concept

Drainage design for development in the Mendoza York Street Subdivision respects existing drainage patterns that are associated with the site and builds on the assumptions presented with the York Street Drainage design at 76th Ave. The system is divided along two general outfall paths to the detention pond. Flows are collected along surface paths in proposed curb and gutter systems and directed to localized low points where storm inlets concentrate surface runoff in a pipe system. These flows are directed to a shared pond where stormwater is attenuated to support water quality capture volume, equivalent urban runoff volume and 100 year peak flow attenuation. Pond discharge is

directed to the existing culvert near the center of the property crossing State Highway 224 and reaching Clear Creek.

Specific Details

The storm sewer capacity and performance is presented in Appendix C of this report using Haesteads StormCAD to evaluate the hydraulic performance of the system. It is noteworthy that the site is presented with a grading concept requiring earthwork import. This is the result of a combination of factors including the existing culvert invert elevation as a controlled outfall elevation, the required pond volume and maintaining reasonable minimum surface slopes and pipe cover for the proposed storm sewer system. The combination of these factors results in a private storm sewer system with a minimum cover of 2 feet at certain locations. The hydraulic grade line for the system is also relatively shallow. This condition is addressed by maintaining overflow paths on the private lot that maintain surface flow paths as overflow to the pond in the event that the hydraulic capacity of the system is exceeded. As a private system this condition is an acceptable variation from public storm sewer system criteria for major event runoff conveyance. The 5-year event is maintained in the system as open channel flow.

Inlet capacity is evaluated using the Mile High Flood District inlet worksheet V5.02.

Detention for the property is evaluated using the Mile High Flood District detention worksheet V4.06. The pond geometry is evaluated using the total site area of 7.16 acres at a composite impervious coverage of 82.3%. As discussed in the Sub Basin Descriptions portion of this report, there are two areas that are physically unable to be directed to the proposed pond due to access and grade restrictions to match existing grades. These basins are identified as Basins E1 and F1.

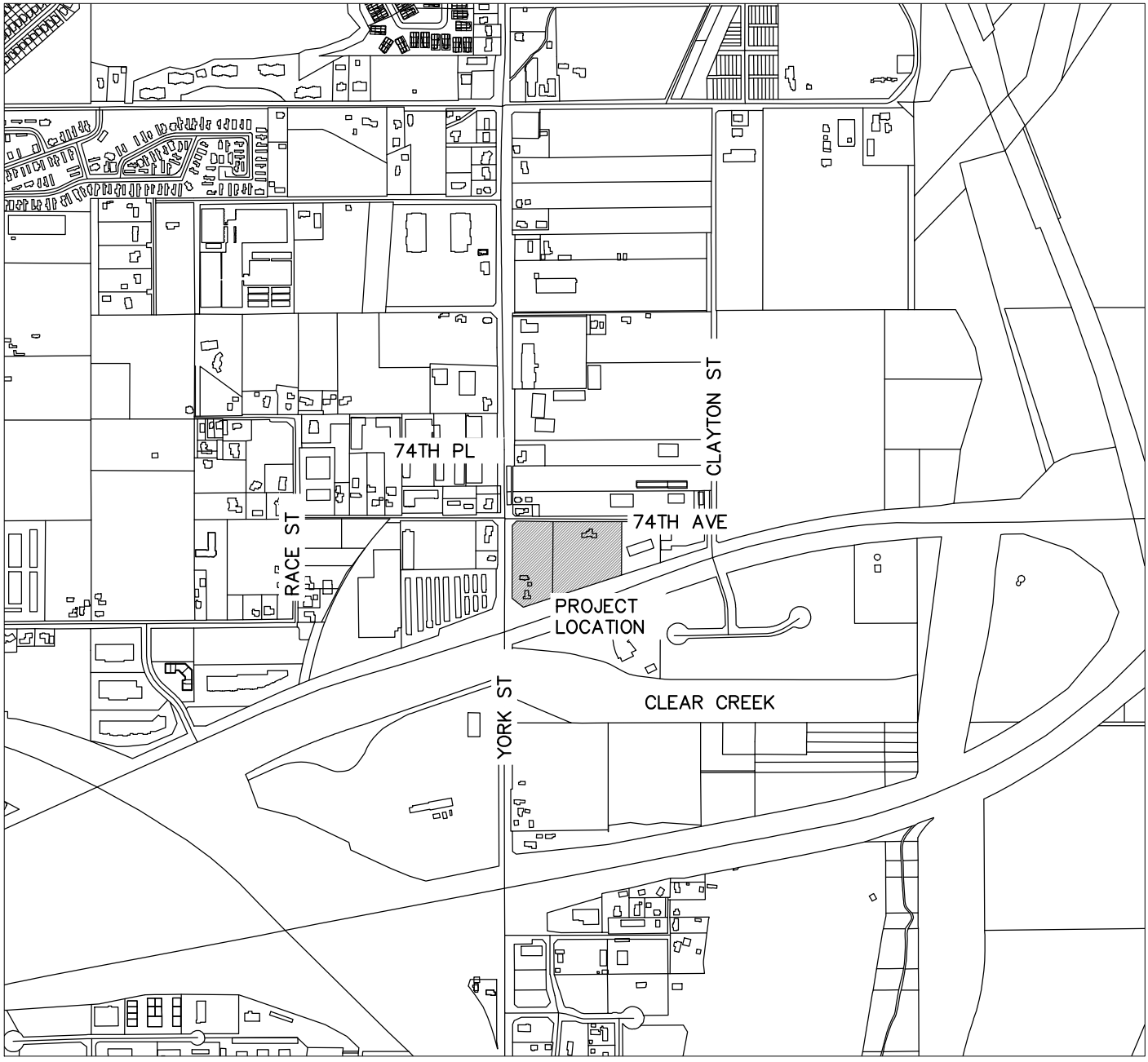
F. Summary

The proposed development is presented in compliance with the Adams County Design Standards and specification for site development. The proposed pond has adequate available volume to accommodate fully developed runoff tributary to the pond. Basin areas and flow patterns are generally respected with the proposed drainage design.

G. References

1. Adams County Storm Drainage Design and water Quality Manual
2. Mile High Flood District Volumes 1, 2 & 3
3. Drainage Report for York Street Improvements Drexel Barrell & Co February 14, 2019

Appendix A



VICINITY MAP

1"=1000'

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC- 3, #9202
1315 East- West Highway
Silver Spring, MD 20910- 3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided by the Adams County and Commerce City GIS departments. The coordinate system used for the production of the digital FIRM is Universe Transverse Mercator, Zone 13N, referenced to North American Datum of 1983 and the GRS 80 spheroid, Western Hemisphere.

This map reflects more detailed and up- to- date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de- annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

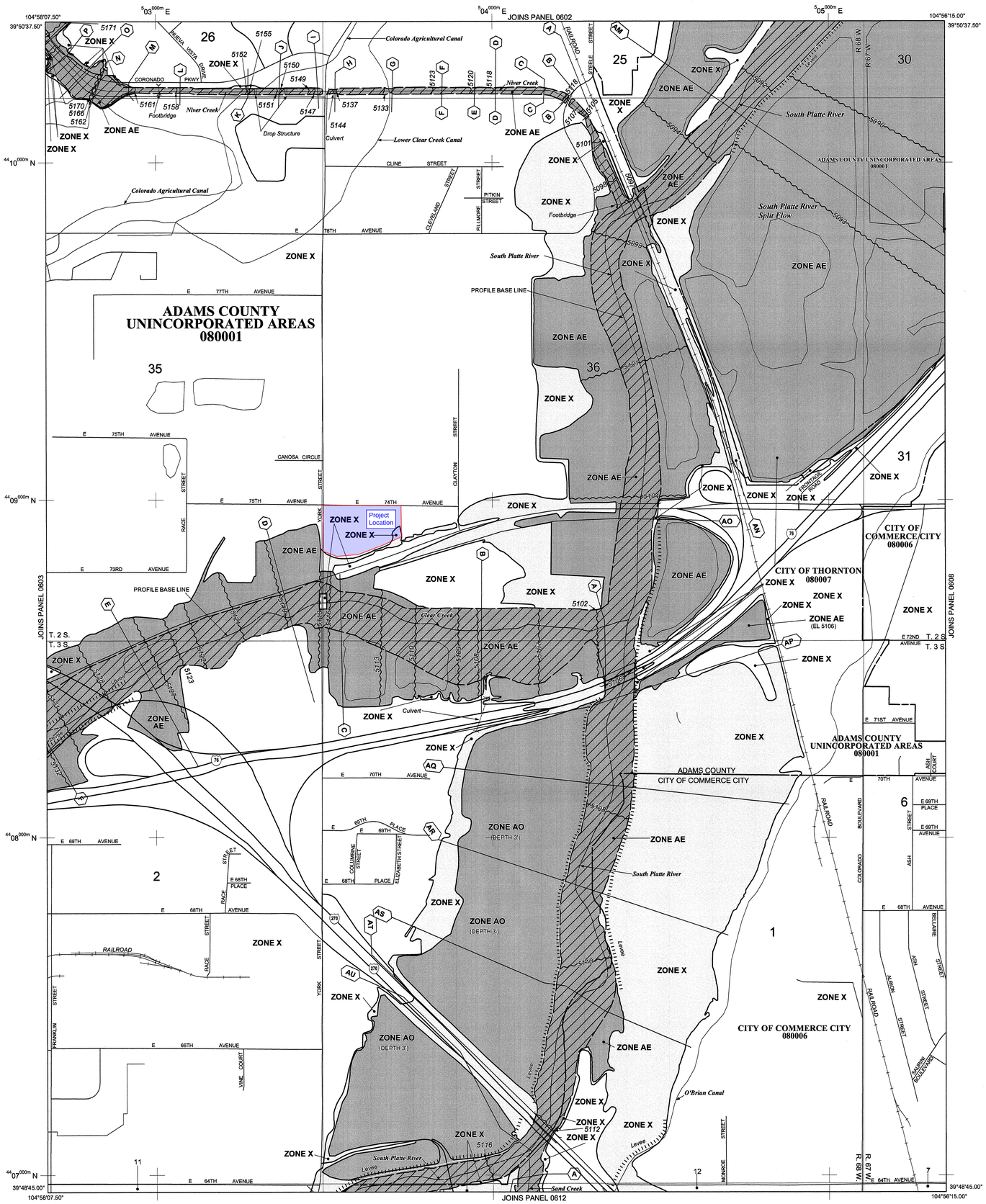
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1- 800- 358- 9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1- 800- 358- 9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1- 877- 336- 2627) or visit the FEMA website at http://www.fema.gov/.

This digital Flood Insurance Rate Map (FIRM) was produced through a cooperative partnership between the State of Colorado Water Conservation Board, the Urban Drainage and Flood Control District, and the Federal Emergency Management Agency (FEMA). The State of Colorado Water Conservation Board and the Urban Drainage and Flood Control District have implemented a long-term approach of floodplain management to reduce the costs associated with flooding. As part of this effort, both the State of Colorado and the Urban Drainage and Flood Control District have joined in Cooperating Technical Partner agreements with FEMA to produce this digital FIRM.

Additional flood hazard information and resources are available from local communities, the Colorado Water Conservation Board, and the Urban Drainage and Flood Control District.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4275000mN — 1000-meter Universal Transverse Mercator grid ticks, zone 13
- 6000000 M — 5000-foot grid ticks: Alabama State Plane coordinate system, east zone (FIPSZONE 0101), Transverse Mercator
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 16, 1995
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
March 5, 2007 - to update map format.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1- 800- 638- 6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0604H

FIRM
FLOOD INSURANCE RATE MAP
ADAMS COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 604 OF 1150
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

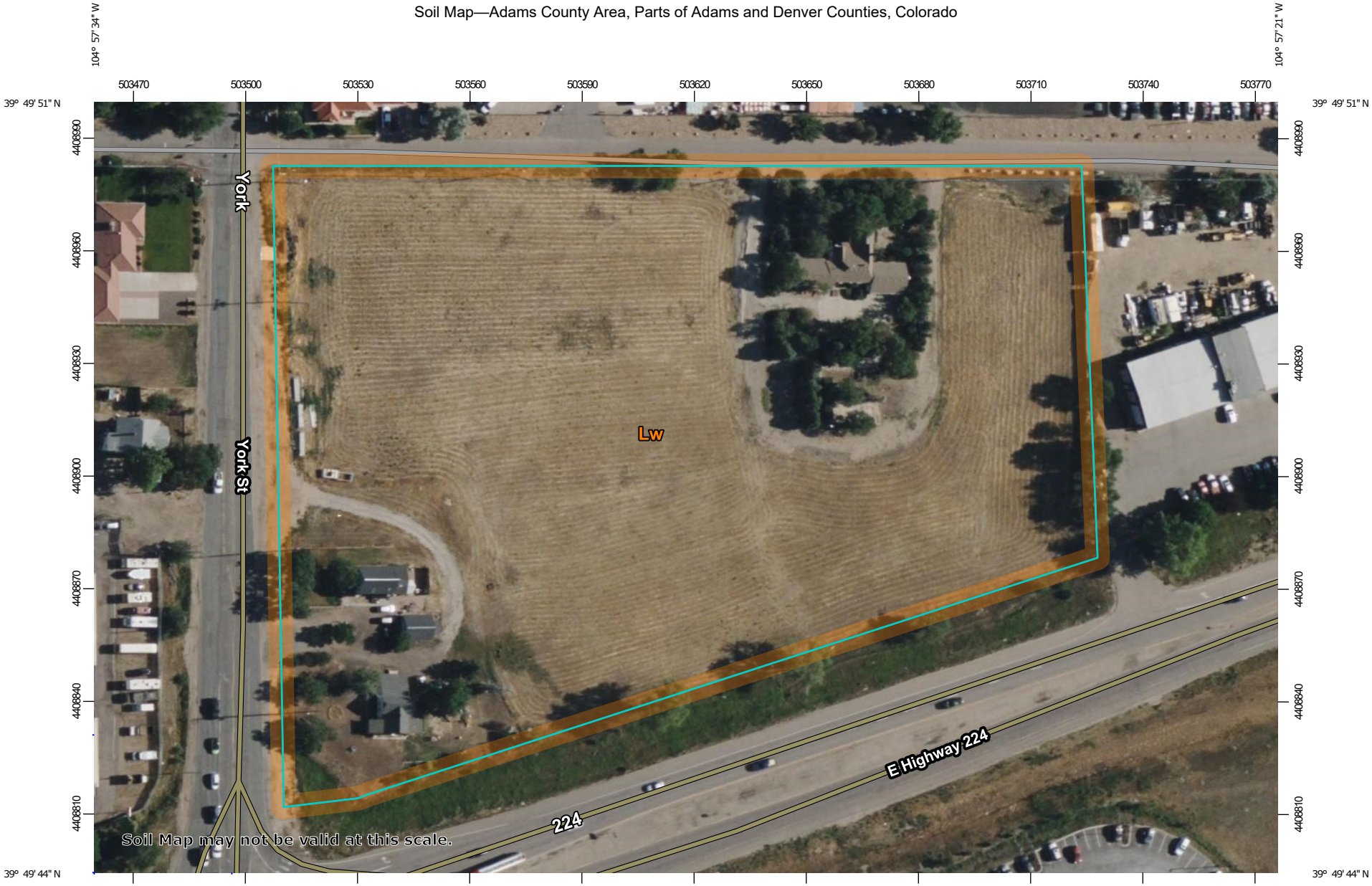
CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ADAMS COUNTY	080001	0604	H
COMMERCE CITY, CITY OF	080006	0604	H
THORNTON, CITY OF	080007	0604	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08001C0604H
MAP REVISED
MARCH 5, 2007

Federal Emergency Management Agency



Map Scale: 1:1,450 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 1, 2020—Jul 2, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Lw	Loamy alluvial land, moderately wet	7.5	100.0%
Totals for Area of Interest		**7.5**	**100.0%**

Map Scale: 1:1,450 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Date(s) aerial images were photographed: Jul 1, 2020—Jul 2, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Lw	Loamy alluvial land, moderately wet	C	7.5	100.0%
Totals for Area of Interest			**7.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Appendix B

Percent Impervious Calculations

Mendoza York Street Subdivision

Runoff Calculations

			2%	90%	50%	100%		
DESIGN POINT	DRAIN BASIN		Open Space	Roof	Lot Front	Pavement/ Water Surfac	Total Area ac.	Composite I
1	A1	28202	0.072888	0.175918		0.40	0.65	86.2%
2	A2	19224	0.047544	0.040404		0.35	0.44	88.5%
4	B1	44494	0.208907			0.81	1.02	80.0%
5	B2	13735		0.116208		0.20	0.32	96.3%
6	C1	63525	0.103558	0.659252		0.70	1.46	88.5%
7	C2	8836	0.04022			0.16	0.20	80.6%
8	C3	63680	0.112557	0.659252		0.69	1.46	87.9%
9	C4	18534	0.073347			0.35	0.43	83.1%
10	C5	20336	0.010009			0.46	0.47	97.9%
12	D1	16037	0.321648			0.05	0.37	14.4%
13	E1	7845	0.056956			0.12	0.18	69.0%
14	E2	67900	1.005211			0.55	1.56	36.8%
15	F1	7633	0.077319			0.10	0.18	56.8%
16	F2	21715	0.031451			0.47	0.50	93.8%
						4.388407	7.164394	82.3%

STANDARD FORM SF-2

REFERENCE MHFD TABLE 6-2

Runoff Calculations

Time of Concentration

Watercourse Coefficient

Heavy Meadow	2.5	Short Grass Pasture & Lawns	7.0	Grassed Waterway	15.0
Tillage/field	5.0	Nearly Bare Ground	10.0	Paved Area & Shallow Gutter	20.0

	SUB-BASIN DATA				INITIAL / OVERLAND TIME			TRAVEL TIME T(t)					T(c) CHECK (URBANIZED BASINS)			FINAL T(c)
DESIGN POINT	DRAIN BASIN	AREA ac.	% I	C 5	Length ft.	Slope %	T(i) min	Length ft.	Slope %	Coeff.	Velocity fps	T(t) min.	COMP. T(c)	TOTAL LENGTH	EQ 6-5	min.
1	A1	0.65	86.2%	0.74	40	2.0	3.3	145	1.0	20.0	2.0	1.2	5.0	185	11.5	5.0
2	A2	0.44	88.5%	0.76	100	2.0	4.9	140	1.0	20.0	2.0	1.2	6.1	240	11.1	6.1
4	B1	1.02	80.0%	0.69	50	2.0	4.2	200	1.0	20.0	2.0	1.7	5.9	250	12.6	5.9
5	B2	0.32	96.3%	0.82	30	4.0	1.7	130	0.6	20.0	1.5	1.4	5.0	160	9.8	5.0
6	C1	1.46	88.5%	0.76	30	2.0	2.7	300	1.0	20.0	2.0	2.5	5.2	330	11.2	5.2
7	C2	0.20	80.6%	0.70	80	4.0	4.2	160	1.0	20.0	2.0	1.3	5.5	240	12.5	5.5
8	C3	1.46	87.9%	0.76	60	1.5	4.3	70	1.0	20.0	2.0	0.6	5.0	130	11.2	5.0
9	C4	0.43	83.1%	0.72	60	2.0	4.3	550	0.5	20.0	1.4	6.5	10.8	610	12.6	10.8
10	C5	0.47	97.9%	0.84	30	1.0	2.6	120	1.0	20.0	2.0	1.0	5.0	150	9.5	5.0
12	D1	0.37	14.4%	0.15	30	1.0	9.5	330	0.5	20.0	1.4	3.9	13.4	360	24.3	13.4
13	E1	0.18	69.0%	0.60	20	2.0	3.2	40	1.0	20.0	2.0	0.3	5.0	60	14.3	5.0
14	E2	1.56	36.8%	0.34	80	2.0	9.9	400	1.0	20.0	2.0	3.3	13.2	480	20.3	13.2
15	F1	0.18	56.8%	0.50	30	2.0	4.8	700	0.8	20.0	1.8	6.5	11.3	730	17.2	11.3
16	F2	0.50	93.8%	0.80	30	2.0	2.4	700	0.8	20.0	1.8	6.5	8.9	730	10.7	8.9

STANDARD FORM SF-3

REFERENCE: MHFD Volume 1

Runoff Calculations

Rainfall Depth-Duration-Frequency (1-hr) = 1.42

(Rational Method Procedure)

Design Storm 5 Year

BASIN INFORMATON				DIRECT RUNOFF				TOTAL RUNOFF				
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	SUM C x A	I in/hr	Q cfs	REMARKS
1	A1	0.65	0.74	5.0	0.48	4.82	2.3					
2	A2	0.44	0.76	6.1	0.34	4.56	1.5	6.1	0.82	4.56	3.7	A1, A2
4	B1	1.02	0.69	5.9	0.71	4.61	3.3					
5	B2	0.32	0.82	5.0	0.26	4.82	1.3	5.9	0.97	4.61	4.4	B1, B2
6	C1	1.46	0.76	5.2	1.11	4.77	5.3					
7	C2	0.20	0.70	5.5	0.14	4.69	0.7	5.5	1.25	4.69	5.9	C1, C2
8	C3	1.46	0.76	5.0	1.11	4.82	5.3	5.5	2.36	4.69	11.0	C1 thru C3
9	C4	0.43	0.72	10.8	0.30	3.73	1.1					
10	C5	0.47	0.84	5.0	0.39	4.82	1.9	10.8	0.70	3.73	2.6	C4, C5
12	D1	0.37	0.15	13.4	0.06	3.40	0.2	13.4	4.89	3.40	16.6	A thru D
13	E1	0.18	0.60	5.0	0.11	4.82	0.5					
14	E2	1.56	0.34	13.2	0.52	3.41	1.8	13.2	0.63	3.41	2.2	E1, E2
15	F1	0.18	0.50	11.3	0.09	3.65	0.3					
16	F2	0.50	0.80	8.9	0.40	4.01	1.6					

STANDARD FORM SF-3
REFERENCE: MHFD Volume 1

Runoff Calculations *Rainfall Depth-Duration-Frequency (1-hr) =* 2.71

(Rational Method Procedure)

Design Storm 100 Year

BASIN INFORMATON				DIRECT RUNOFF				TOTAL RUNOFF				
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	SUM C x A	I in/hr	Q cfs	REMARKS
1	A1	0.65	0.84	5.0	0.54	9.19	5.0					
2	A2	0.44	0.85	6.1	0.37	8.71	3.3	6.1	0.92	8.71	8.0	A1, A2
4	B1	1.02	0.81	5.9	0.83	8.79	7.3					
5	B2	0.32	0.88	5.0	0.28	9.19	2.5	5.9	1.11	8.79	9.7	B1, B2
6	C1	1.46	0.85	5.2	1.24	9.10	11.2					
7	C2	0.20	0.81	5.5	0.17	8.94	1.5	5.5	1.40	8.94	12.5	C1, C2
8	C3	1.46	0.84	5.0	1.23	9.19	11.3	5.5	2.63	8.94	23.6	C1 thru C3
9	C4	0.43	0.82	10.8	0.35	7.11	2.5					
10	C5	0.47	0.89	5.0	0.41	9.19	3.8	10.8	0.76	7.11	5.4	C4, C5
12	D1	0.37	0.54	13.4	0.20	6.48	1.3	13.4	5.62	6.48	36.4	A thru D
13	E1	0.18	0.77	5.0	0.14	9.19	1.3					
14	E2	1.56	0.63	13.2	0.99	6.52	6.4	13.2	1.13	6.52	7.3	E1, E2
15	F1	0.18	0.72	11.3	0.13	6.97	0.9					
16	F2	0.50	0.87	8.9	0.43	7.66	3.3					

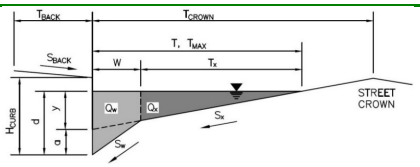
Appendix C

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN A1**



Gutter Geometry:

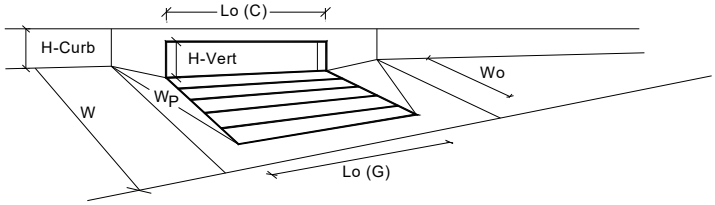
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	50.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	50.0	ft
Gutter Width	W =	4.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	20.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



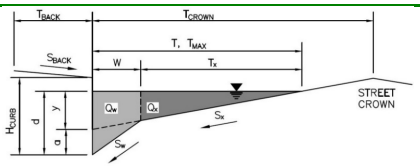
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT/Denver 13 Valley Grate		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	2.00	2.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	6.0	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	3.00	3.00	feet
Width of a Unit Grate	W_o =	1.73	1.73	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	0.43	0.43	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	0.50	0.50	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	3.30	3.30	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	0.60	0.60	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	N/A	N/A	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	N/A	N/A	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	N/A	N/A	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	N/A	N/A	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	N/A	N/A	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	N/A	N/A	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	N/A	N/A	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	N/A	N/A	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	0.56	0.56	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	N/A	N/A	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	0.94	0.94	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	N/A	N/A	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**2.9**	**2.9**	**cfs**
WARNING: Inlet Capacity < Q Peak for Major Storm	$Q_{PEAK\ REQUIRED}$ =	2.3	5.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN A2**



Gutter Geometry:

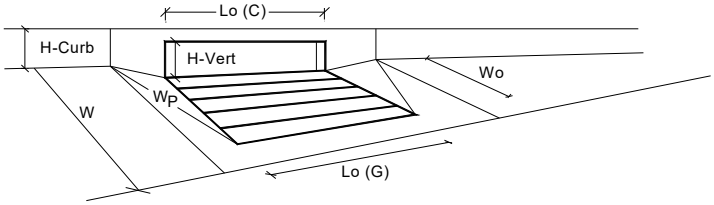
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	50.0	ft
Gutter Width	W =	1.00	ft
Street Transverse Slope	S_X =	0.010	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	50.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



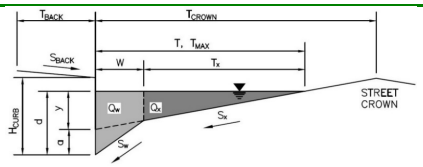
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.5	6.0	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	1.00	1.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.29	0.42	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**3.4**	**5.9**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.5	5.4	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN B1**



Gutter Geometry:

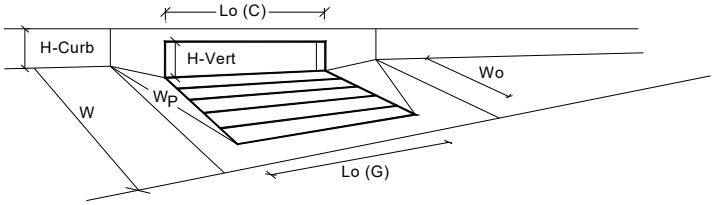
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	20.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	50.0	ft
Gutter Width	W =	3.00	ft
Street Transverse Slope	S_X =	0.010	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	50.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	9.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



	Design Information (Input)		MINOR	MAJOR	
	Type of Inlet	Type =	CDOT Type C Grate		
Warning 1	Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	12.00	12.00	inches
	Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
	Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.0	8.6	inches
	Grate Information		MINOR	MAJOR	☐ Override Depths
	Length of a Unit Grate	L_o (G) =	2.92	2.92	feet
	Width of a Unit Grate	W_o =	2.92	2.92	feet
	Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	0.70	0.70	
	Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	0.50	0.50	
	Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	2.41	2.41	
	Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	0.67	0.67	
	Curb Opening Information		MINOR	MAJOR	
	Length of a Unit Curb Opening	L_o (C) =	N/A	N/A	feet
	Height of Vertical Curb Opening in Inches	H_{vert} =	N/A	N/A	inches
	Height of Curb Orifice Throat in Inches	H_{throat} =	N/A	N/A	inches
	Angle of Throat (see USDCM Figure ST-5)	Theta =	N/A	N/A	degrees
	Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	N/A	N/A	feet
	Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	N/A	N/A	
	Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	N/A	N/A	
	Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	N/A	N/A	
	Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
	Depth for Grate Midwidth	d_{Grate} =	0.73	1.11	ft
	Depth for Curb Opening Weir Equation	d_{Curb} =	N/A	N/A	ft
	Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	0.63	1.00	
	Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	N/A	N/A	
	Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
			MINOR	MAJOR	
	Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**3.5**	**10.4**	**cfs**
	Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	3.3	7.3	cfs

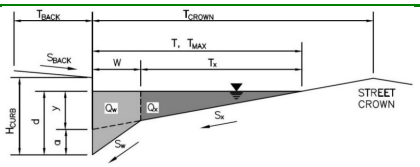
Warning 1: Dimension entered is not a typical dimension for inlet type specified.

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN B2**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.010	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

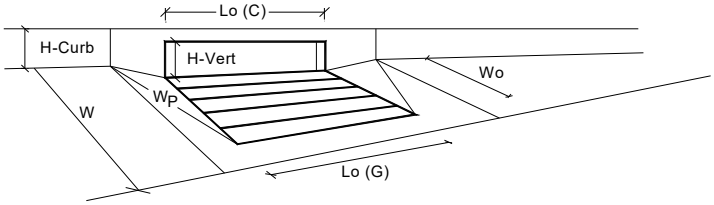
MINOR STORM Allowable Capacity is not applicable to Sump Condition

MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)

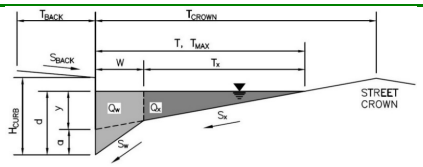


Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT/Denver 13 Combination		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	2.00	2.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	5.4	5.4	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	3.00	3.00	feet
Width of a Unit Grate	W_o =	1.73	1.73	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	0.43	0.43	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	0.50	0.50	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	3.30	3.30	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	0.60	0.60	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	3.00	3.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.50	6.50	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	5.25	5.25	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	0.00	0.00	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.70	3.70	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.66	0.66	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	0.47	0.47	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.28	0.28	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	0.84	0.84	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	N/A	N/A	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.84	0.84	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**3.7**	**3.7**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.3	2.5	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**
Inlet ID: **IN C2**



Gutter Geometry:

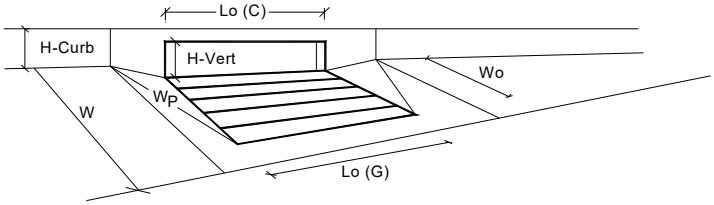
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.010	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



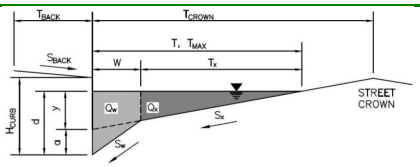
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	5.4	5.4	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.28	0.28	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**4.1**	**4.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.7	1.5	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN C3**



Gutter Geometry:

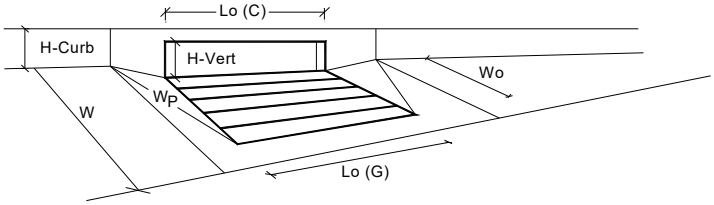
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



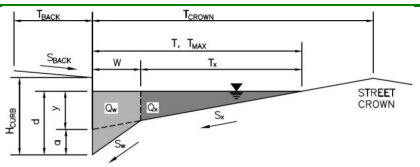
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	5.3	11.3	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN C4**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

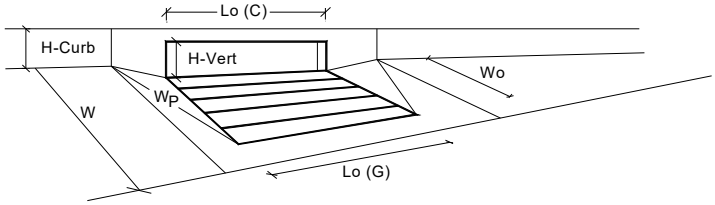
MINOR STORM Allowable Capacity is not applicable to Sump Condition

MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



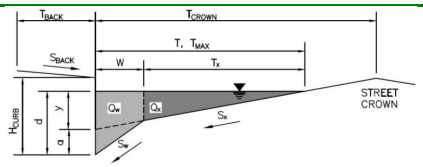
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	6.0	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.33	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**5.4**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.1	2.5	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **Mendoza York Street Subdivision**

Inlet ID: **IN C5**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	5.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	30.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	30.0	30.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

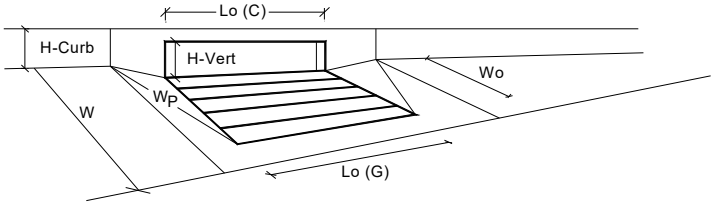
MINOR STORM Allowable Capacity is not applicable to Sump Condition

MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.02 (August 2022)



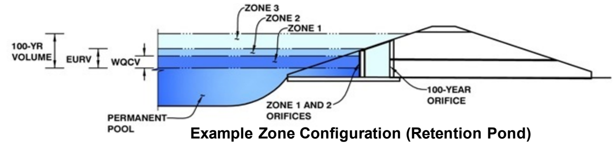
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	6.0	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.33	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**5.4**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.9	3.8	cfs

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: **Mendoza York Street Subdivision**

Basin ID: **Pond 1**



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	7.16	acres
Watershed Length =	1,500	ft
Watershed Length to Centroid =	700	ft
Watershed Slope =	0.010	ft/ft
Watershed Imperviousness =	82.30%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	100.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	Commerce City - Civic Center	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	0.205	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	0.580	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 0.84 in.) =	0.394	acre-feet		inches
5-yr Runoff Volume (P1 = 1.12 in.) =	0.556	acre-feet		inches
10-yr Runoff Volume (P1 = 1.37 in.) =	0.709	acre-feet		inches
25-yr Runoff Volume (P1 = 1.75 in.) =	0.957	acre-feet		inches
50-yr Runoff Volume (P1 = 2.08 in.) =	1.169	acre-feet		inches
100-yr Runoff Volume (P1 = 2.43 in.) =	1.400	acre-feet		inches
500-yr Runoff Volume (P1 = 3.35 in.) =	1.992	acre-feet		inches
Approximate 2-yr Detention Volume =	0.372	acre-feet		
Approximate 5-yr Detention Volume =	0.532	acre-feet		
Approximate 10-yr Detention Volume =	0.644	acre-feet		
Approximate 25-yr Detention Volume =	0.762	acre-feet		
Approximate 50-yr Detention Volume =	0.824	acre-feet		
Approximate 100-yr Detention Volume =	0.904	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	0.205	acre-feet
Zone 2 Volume (EURV - Zone 1) =	0.375	acre-feet
Zone 3 (100yr + 1 / 2 WQCV - Zones 1 & 2) =	0.426	acre-feet
Total Detention Basin Volume =	1.006	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

Depth Increment = ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	100	0.002		
5110	--	0.50	--	--	--	1,945	0.045	511	0.012
5111	--	1.50	--	--	--	5,848	0.134	4,408	0.101
5112	--	2.50	--	--	--	10,793	0.248	12,728	0.292
5113	--	3.50	--	--	--	11,807	0.271	24,028	0.552
5114	--	4.50	--	--	--	12,043	0.276	35,953	0.825
5115	--	5.50	--	--	--	13,107	0.301	48,528	1.114
5116	--	6.50	--	--	--	14,815	0.340	62,489	1.435
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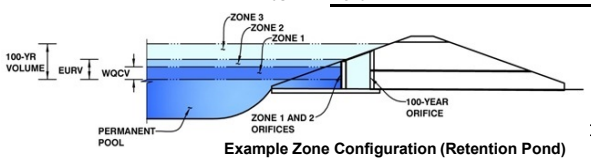
DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: **Mendoza York Street Subdivision**

Basin ID: **Pond 1**



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	2.12	0.205	Orifice Plate
Zone 2 (EURV)	3.61	0.375	Orifice Plate
3 (100+1/2WQCV)	5.14	0.426	Weir&Pipe (Restrict)
Total (all zones)		1.006	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	9.028E-03	ft^2
Depth at top of Zone using Orifice Plate =	3.57	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	14.30	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	1.30	sq. inches (diameter = 1-1/4 inches)	Elliptical Slot Area =	N/A	ft^2

Calculated Parameters for Plate

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.19	2.38					
Orifice Area (sq. inches)	1.30	1.30	1.30					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected			Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	N/A	N/A	ft^2
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	N/A	N/A	feet
Vertical Orifice Diameter =	N/A	N/A	inches				

Calculated Parameters for Vertical Orifice

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	3.57	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	3.57	N/A	feet
Overflow Weir Front Edge Length =	6.67	N/A	feet	Overflow Weir Slope Length =	3.91	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	40.01	N/A	
Horiz. Length of Weir Sides =	3.91	N/A	feet	Overflow Grate Open Area w/o Debris =	20.63	N/A	ft^2
Overflow Grate Type =	Close Mesh Grate	N/A		Overflow Grate Open Area w/ Debris =	10.31	N/A	ft^2
Debris Clogging % =	50%	N/A	%				

Calculated Parameters for Overflow Weir

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.00	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	0.52	N/A	ft^2
Outlet Pipe Diameter =	18.00	N/A	inches	Outlet Orifice Centroid =	0.29	N/A	feet
Restrictor Plate Height Above Pipe Invert =	6.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	1.23	N/A	radians

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

User Input: Emergency Spillway (Rectangular or Trapezoidal)

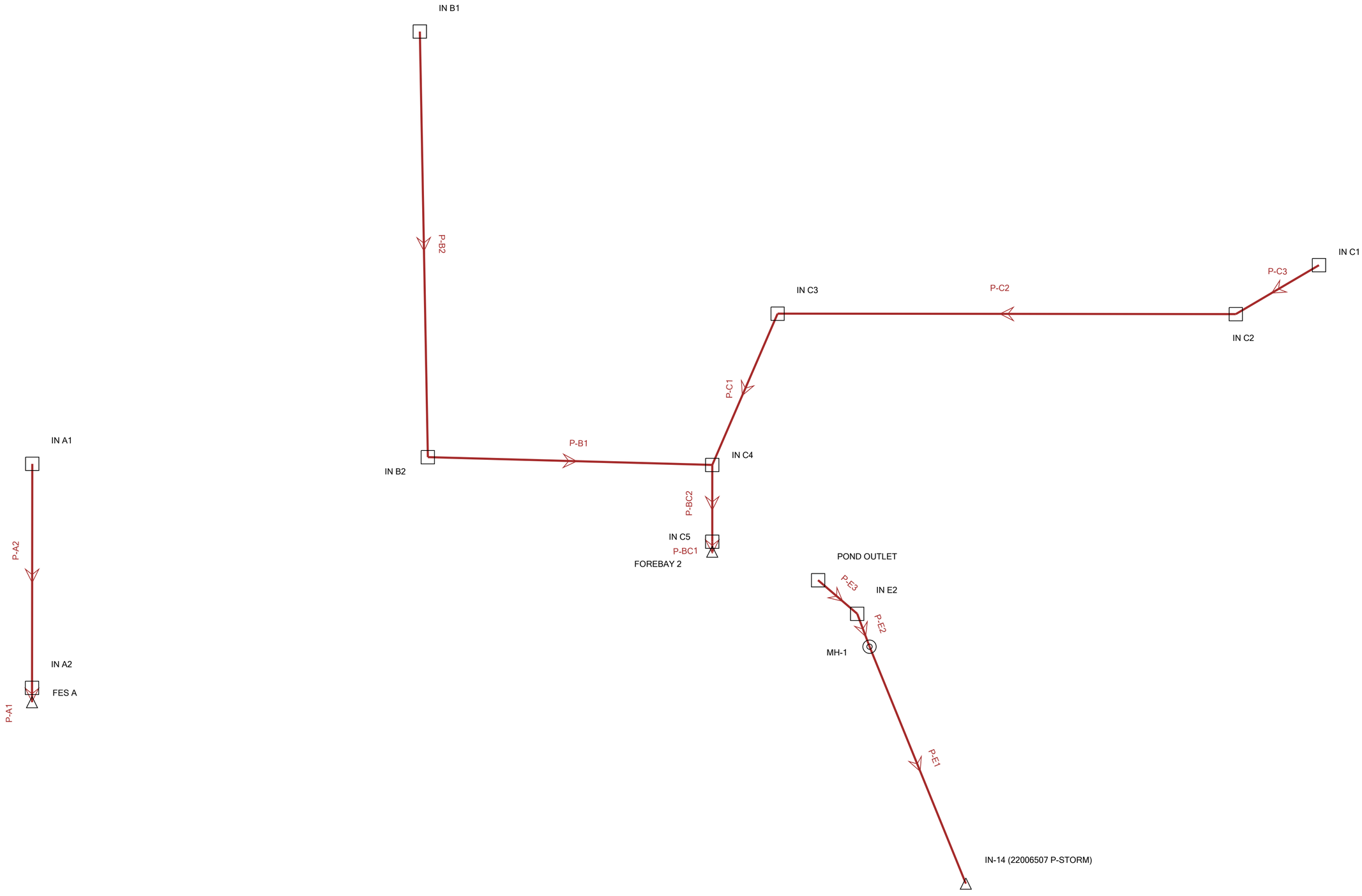
Spillway Invert Stage=	4.80	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.80	feet
Spillway Crest Length =	5.00	feet	Stage at Top of Freeboard =	6.60	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	0.34	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	1.43	acre-ft

Calculated Parameters for Spillway

Routed Hydrograph Results *The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).*

Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	0.84	1.12	1.37	1.75	2.08	2.43	3.35
CUHP Runoff Volume (acre-ft) =	0.205	0.580	0.394	0.556	0.709	0.957	1.169	1.400	1.992
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.394	0.556	0.709	0.957	1.169	1.400	1.992
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.0	0.4	1.1	2.9	4.0	5.5	8.9
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.06	0.15	0.40	0.56	0.77	1.24
Peak Inflow Q (cfs) =	N/A	N/A	4.4	6.1	7.6	11.0	13.4	16.2	22.9
Peak Outflow Q (cfs) =	0.1	0.4	0.2	0.2	1.7	4.7	4.9	5.2	12.8
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.5	1.6	1.6	1.2	0.9	1.4
Structure Controlling Flow =	Plate	Overflow Weir 1	Plate	Plate	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	0.01	N/A	N/A	0.1	0.2	0.2	0.2	0.3
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	39	64	54	64	65	63	61	59	55
Time to Drain 99% of Inflow Volume (hours) =	**41**	68	58	68	71	70	69	68	66
Maximum Ponding Depth (ft) =	2.12	3.61	2.79	3.39	3.69	3.83	4.15	4.70	5.31
Area at Maximum Ponding Depth (acres) =	0.20	0.27	0.25	0.27	0.27	0.27	0.27	0.28	0.30
Maximum Volume Stored (acre-ft) =	0.206	0.581	0.365	0.519	0.603	0.641	0.726	0.881	1.057

Scenario: 100 Year



18: 5 Year
(Catch Basin System Flows)
Mendoza York Street Subdivision
Active Scenario: 5 Year

*	ID	Label	Flow (Additional Subsurface) (cfs)	External CA (acres)	External Tc (hours)	Flow (Known) (cfs)
True	63	IN A1	2.30	0.000	0.000	0.00
True	64	IN A2	1.50	0.000	0.000	0.00
True	72	IN B1	3.30	0.000	0.000	0.00
True	73	IN B2	1.10	0.000	0.000	0.00
True	74	IN C4	1.10	0.000	0.000	0.00
True	78	IN C3	5.30	0.000	0.000	0.00
True	79	IN C1	5.30	0.000	0.000	0.00
True	82	IN C5	1.70	0.000	0.000	0.00
True	85	IN C2	1.50	0.000	0.000	0.00
True	87	POND OUTLET	2.10	0.000	0.000	0.00
True	88	IN E2	4.60	0.000	0.000	0.00

FlexTable: Conduit Table
Mendoza York Street Subdivision
Active Scenario: 5 Year

Label	Invert (Start) (ft)	Invert (Stop) (ft)	Length (Scaled) (ft)	Slope (Calculated) (%)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Normal) / Rise (%)
P-A1	5,111.85	5,111.80	6.4	0.85	18.0	0.013	3.80	5.15	43.5
P-A2	5,113.11	5,112.10	100.7	1.00	15.0	0.013	2.30	4.82	41.2
P-B1	5,111.92	5,111.00	127.9	0.72	18.0	0.013	4.40	5.03	49.6
P-B2	5,113.27	5,112.12	191.4	0.59	18.0	0.013	3.30	4.35	44.4
P-BC1	5,110.06	5,110.03	4.5	0.67	36.0	0.013	19.30	7.05	41.1
P-BC2	5,110.27	5,110.03	34.5	0.70	36.0	0.013	17.60	6.98	38.7
P-C1	5,110.71	5,110.27	74.1	0.59	30.0	0.013	12.10	6.01	42.9
P-C2	5,111.95	5,110.71	206.0	0.60	30.0	0.013	6.80	5.16	31.4
P-C3	5,112.21	5,111.95	43.4	0.60	24.0	0.013	5.30	4.89	37.7
P-E1	5,108.52	5,107.37	115.0	1.00	24.0	0.013	6.70	6.27	37.3
P-E2	5,108.68	5,108.52	15.8	1.00	24.0	0.013	6.70	6.27	37.3
P-E3	5,109.07	5,108.68	23.2	1.71	24.0	0.013	2.10	5.44	18.0

Conduit FlexTable: Table - 1
Mendoza York Street Subdivision
Active Scenario: 5 Year

Label	Diameter (in)	Manning's n	Velocity (ft/s)	Flow (cfs)	Slope (Calculated) (%)	Invert (Start) (ft)	Invert (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
P-A1	18.0	0.013	5.15	3.80	0.85	5,111.85	5,111.80	5,112.60	5,112.48
P-A2	15.0	0.013	4.82	2.30	1.00	5,113.11	5,112.10	5,113.72	5,112.62
P-B1	18.0	0.013	5.03	4.40	0.72	5,111.92	5,111.00	5,112.72	5,111.74
P-B2	18.0	0.013	4.35	3.30	0.59	5,113.27	5,112.12	5,113.96	5,112.79
P-BC1	36.0	0.013	7.05	19.30	0.67	5,110.06	5,110.03	5,111.47	5,111.36
P-BC2	36.0	0.013	6.98	17.60	0.70	5,110.27	5,110.03	5,111.61	5,111.74
P-C1	30.0	0.013	6.01	12.10	0.59	5,110.71	5,110.27	5,111.88	5,111.61
P-C2	30.0	0.013	5.16	6.80	0.60	5,111.95	5,110.71	5,112.81	5,111.92
P-C3	24.0	0.013	4.89	5.30	0.60	5,112.21	5,111.95	5,113.02	5,112.97
P-E1	24.0	0.013	6.27	6.70	1.00	5,108.52	5,107.37	5,109.44	5,108.11
P-E2	24.0	0.013	6.27	6.70	1.00	5,108.68	5,108.52	5,109.59	5,109.31
P-E3	24.0	0.013	5.44	2.10	1.71	5,109.07	5,108.68	5,109.58	5,109.59

67: 100 Year
(Catch Basin System Flows)
Mendoza York Street Subdivision
Active Scenario: 100 Year

*	ID	Label	Flow (Additional Subsurface) (cfs)	External CA (acres)	External Tc (hours)	Flow (Known) (cfs)
True	63	IN A1	5.10	0.000	0.000	0.00
True	64	IN A2	2.80	0.000	0.000	0.00
True	72	IN B1	7.30	0.000	0.000	0.00
True	73	IN B2	2.50	0.000	0.000	0.00
True	74	IN C4	1.70	0.000	0.000	0.00
True	78	IN C3	11.30	0.000	0.000	0.00
True	79	IN C1	11.30	0.000	0.000	0.00
True	82	IN C5	3.70	0.000	0.000	0.00
True	85	IN C2	9.70	0.000	0.000	0.00
True	87	POND OUTLET	7.00	0.000	0.000	0.00
True	88	IN E2	10.40	0.000	0.000	0.00

FlexTable: Conduit Table

Mendoza York Street Subdivision

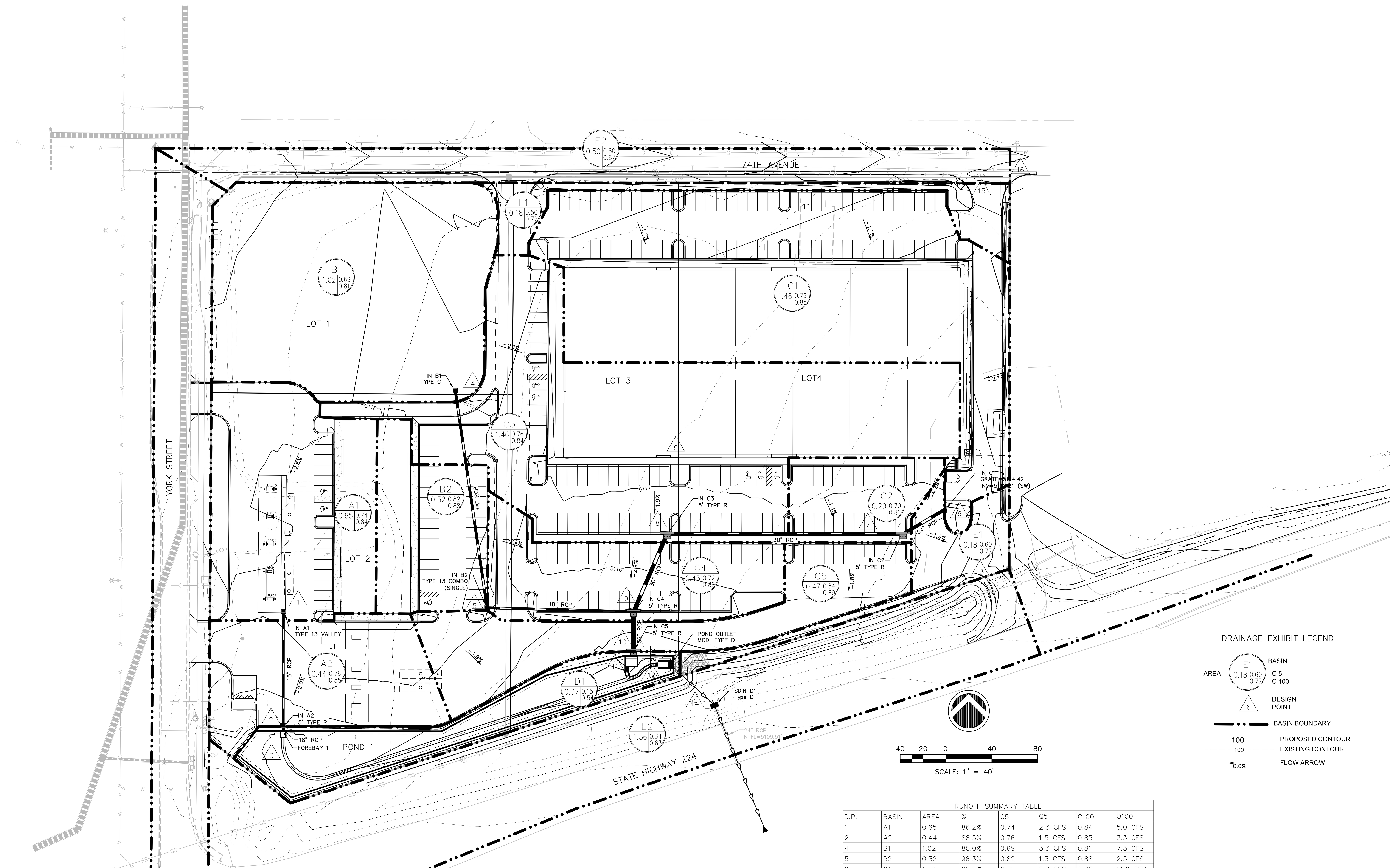
Active Scenario: 100 Year

Label	Invert (Start) (ft)	Invert (Stop) (ft)	Length (Scaled) (ft)	Slope (Calculated) (%)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Normal) / Rise (%)
P-A1	5,111.85	5,111.80	6.4	0.85	18.0	0.013	7.90	4.47	68.6
P-A2	5,113.11	5,112.10	100.7	1.00	15.0	0.013	5.10	4.16	66.9
P-B1	5,111.92	5,111.00	127.9	0.72	18.0	0.013	9.80	5.55	(N/A)
P-B2	5,113.27	5,112.12	191.4	0.59	18.0	0.013	7.30	4.13	74.3
P-BC1	5,110.06	5,110.03	4.5	0.67	36.0	0.013	47.50	6.72	72.3
P-BC2	5,110.27	5,110.03	34.5	0.70	36.0	0.013	43.80	6.20	66.9
P-C1	5,110.71	5,110.27	74.1	0.59	30.0	0.013	32.30	6.58	84.1
P-C2	5,111.95	5,110.71	206.0	0.60	30.0	0.013	21.00	4.28	59.3
P-C3	5,112.21	5,111.95	43.4	0.60	24.0	0.013	11.30	3.60	58.5
P-E1	5,108.52	5,107.37	115.0	1.00	24.0	0.013	17.40	7.94	65.8
P-E2	5,108.68	5,108.52	15.8	1.00	24.0	0.013	17.40	7.94	65.8
P-E3	5,109.07	5,108.68	23.2	1.71	24.0	0.013	7.00	7.71	33.1

Conduit FlexTable: Table - 1
Mendoza York Street Subdivision
Active Scenario: 100 Year

Label	Diameter (in)	Manning's n	Velocity (ft/s)	Flow (cfs)	Slope (Calculated) (%)	Invert (Start) (ft)	Invert (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
P-A1	18.0	0.013	4.47	7.90	0.85	5,111.85	5,111.80	5,114.04	5,114.00
P-A2	15.0	0.013	4.16	5.10	1.00	5,113.11	5,112.10	5,114.73	5,114.10
P-B1	18.0	0.013	5.55	9.80	0.72	5,111.92	5,111.00	5,115.64	5,114.52
P-B2	18.0	0.013	4.13	7.30	0.59	5,113.27	5,112.12	5,116.57	5,115.64
P-BC1	36.0	0.013	6.72	47.50	0.67	5,110.06	5,110.03	5,114.02	5,114.00
P-BC2	36.0	0.013	6.20	43.80	0.70	5,110.27	5,110.03	5,114.52	5,114.37
P-C1	30.0	0.013	6.58	32.30	0.59	5,110.71	5,110.27	5,114.98	5,114.52
P-C2	30.0	0.013	4.28	21.00	0.60	5,111.95	5,110.71	5,115.59	5,115.05
P-C3	24.0	0.013	3.60	11.30	0.60	5,112.21	5,111.95	5,115.84	5,115.73
P-E1	24.0	0.013	7.94	17.40	1.00	5,108.52	5,107.37	5,110.02	5,108.68
P-E2	24.0	0.013	7.94	17.40	1.00	5,108.68	5,108.52	5,110.18	5,109.89
P-E3	24.0	0.013	7.71	7.00	1.71	5,109.07	5,108.68	5,110.01	5,110.18

Appendix D



DETENTION SUMMARY TABLE			
AREA	7.16 AC		
IMPERVIOUS	82.3%		
	VOLUME	RELEASE	STAGE
WQCV	0.205	40 HRS	2.12 FT
EURV	0.58	68 HRS	3.61 FT
100 YR.	0.904		
100 YR + 1/2 WQCV	1.006	5.2 CFS	5.14 FT

RUNOFF SUMMARY TABLE

D.P.	BASIN	AREA	% I	C5	Q5	C100	Q100
1	A1	0.65	86.2%	0.74	2.3 CFS	0.84	5.0 CFS
2	A2	0.44	88.5%	0.76	1.5 CFS	0.85	3.3 CFS
4	B1	1.02	80.0%	0.69	3.3 CFS	0.81	7.3 CFS
5	B2	0.32	96.3%	0.82	1.3 CFS	0.88	2.5 CFS
6	C1	1.46	88.5%	0.76	5.3 CFS	0.85	11.2 CFS
7	C2	0.20	80.6%	0.70	0.7 CFS	0.81	1.5 CFS
8	C3	1.46	87.9%	0.76	5.3 CFS	0.84	11.3 CFS
9	C4	0.43	83.1%	0.72	1.1 CFS	0.82	2.5 CFS
10	C5	0.47	97.9%	0.84	1.9 CFS	0.89	3.8 CFS
12	D1	0.37	14.4%	0.15	0.2 CFS	0.54	1.3 CFS
13	E1	0.18	69.0%	0.60	0.5 CFS	0.77	1.3 CFS
14	E2	1.56	36.8%	0.34	1.8 CFS	0.63	6.4 CFS
15	F1	0.18	56.8%	0.50	0.3 CFS	0.72	0.9 CFS
16	F2	0.50	93.8%	0.80	1.6 CFS	0.87	3.3 CFS

REVISIONS		
No.	DESCRIPTION	DATE

IMEG
7600 E ORCHARD RD
SUITE 250-S
GREENWOOD VILLAGE, CO 80111
PH: 303.796.6000
www.imegcorp.com

MENDOZA YORK STREET SUBDIVISION

ADAMS COUNTY, CO

DRAINAGE EXHIBIT

IMEG Project No:

File Name:
22006507 Drainage Exhibit.dwg

Field Book No:

Drawn By:

Checked By:

Date: 5/22/2023

1

Monday, May 22, 2023 3:27:24 PM
G:\2022\22006507.00\DESIGN\CIVIL\C3D\EXHIBITCONCEPT\22006507 DRAINAGE EXHIBIT.DWG

LAND TITLE GUARANTEE COMPANY

Date: May 09, 2023

Subject: Attached Title Policy/Guarantee

Enclosed please find your product relating to the property located at 2480 EAST 74TH AVENUE, Denver, CO 80229.

If you have any inquiries or require further assistance, please contact Land Title Residential Title Team at (303) 850-4141 or response@ltgc.com

Chain of Title Documents:

Adams county recorded 11/09/2022 under reception no. 2022000090434

Adams county recorded 01/26/2015 under reception no. 2015000005645

Adams county recorded 04/20/1993 at book 4057 page 426

Adams county recorded 09/06/1962 at book 1011 page 517

Adams county recorded 02/11/1947 at book 331 page 362

Adams county recorded 04/08/1940 under reception no. 248721

Adams county recorded 10/03/1918 at book 95 page 423

Adams county recorded 02/06/1912 at book 47 page 229

Adams county recorded 12/12/1910 at book 47 page 129

Adams county recorded 02/07/1910 at book 47 page 40

Property Information Binder

CONDITIONS AND STIPULATIONS

1. Definition of Terms

The following terms when used in this Binder mean:

(a) "Land": The land described, specifically or by reference, in this Binder and improvements affixed thereto which by law constitute real property;

(b) "Public Records"; those records which impart constructive notice of matters relating to said land;

(c) "Date": the effective date;

(d) "the Assured": the party or parties named as the Assured in this Binder, or in a supplemental writing executed by the Company;

(e) "the Company" means Old Republic National Title Insurance Company, a Minnesota stock company.

2. Exclusions from Coverage of this Binder

The company assumes no liability including cost of defense by reason of the following:

(a) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; taxes and assessments not yet due or payable and special assessments not yet certified to the Treasurer's office.

(b) Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

(c) Title to any property beyond the lines of the Land, or title to streets, roads, avenues, lanes, ways or waterways on which such land abuts, or the right to maintain therein vaults, tunnels, ramps, or any other structure or improvement; or any rights or easements therein unless such property, rights or easements are expressly and specifically set forth in said description.

(d) Mechanic's lien(s), judgment(s) or other lien(s).

(e) Defects, liens, encumbrances, adverse claims or other matters: (a) created, suffered or agreed to by the Assured;(b) not known to the Company, not recorded in the Public Records as of the Date, but known to the Assured as ofthe Date; or (c) attaching or creating subsequent to the Date.

3. Prosecution of Actions

1. The Company shall have the right at its own costs to institute and prosecute any action or proceeding or do any other act which in its opinion may be necessary or desirable to establish or confirm the matters herein assured; and the Company may take any appropriate action under the terms of this Binder, whether or not it shall be liable thereunder and shall not thereby concede liability or waive any provision hereof.
2. In all cases where the Company does not institute and prosecute any action or proceeding, the Assured shall permit the Company to use, at its option, the name of the Assured for this purpose. Whenever requested by the Company, the Assured shall give the Company all reasonable aid in prosecuting such action or proceeding, and the Company shall reimburse the Assured for any expense so incurred.

4. Notice of Loss - Limitation of Action

A statement in writing of any loss or damage for which it is claimed the Company is liable under this Binder shall be furnished to the Company within sixty days after such loss or damage shall have been determined, and no right of action shall accrue to the Assured under this Binder until thirty days after such statement shall have been furnished, and no recovery shall be had by the Assured under this Binder unless action shall be commenced thereon with two years after expiration of the thirty day period. Failure to furnish the statement of loss or damage or to commence the action within the time herinbefore specified, shall be conclusive bar against maintenance by the Assured of any action under this Binder.

5. Option to Pay, Settle or Compromise Claims

The Company shall have the option to pay, settle or compromise for or in the name of the Assured any claim which could result in loss to the Assured within the coverage of this Binder, or to pay the full amount of this Binder. Such payment or tender of payment of the full amount of the Binder shall terminate all liability of the Company hereunder.

6. Limitation of Liability - Payment of Loss

(a) The liability of the Company under this Binder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurances herein set forth, but in no event shall the liability exceed the amount of the liability stated on the face page hereof.

(b) The Company will pay all costs imposed upon the Assured in litigation carried on by the Company for the Assured, and all costs and attorneys' fees in litigation carried on by the Assured with the written authorization of the Company.

(c) No claim for loss or damages shall arise or be maintainable under this Binder (1) if the Company after having received notice of any alleged defect, lien or encumbrance not shown as an Exception or excluded herein removes such defect, lien or encumbrance within a reasonable time after receipt of such notice, or (2) for liability voluntarily assumed by the Assured in settling any claim or suit without written consent of the Company.

(d) All payments under this Binder, except for attorney's fees as provided for in paragraph 6(b) thereof, shall reduce the amount of the liability hereunder pro tanto, and no payment shall be made without producing this Binder or an acceptable copy thereof for endorsement of the payment unless the Binder be lost or destroyed, in which case proof of the loss or destruction shall be furnished to the satisfaction of the Company.

(e) When liability has been definitely fixed in accordance with the conditions of this Binder, the loss or damage shall be payable within thirty days thereafter.

7. Subrogation Upon Payment or Settlement

Whenever the Company shall have settled a claim under this Binder, all right of subrogation shall vest in the Company unaffected by any act of the Assured, and it shall be subrogated to and be entitled to all rights and remedies which the Assured would have had against any person or property in respect to the claim had this Binder not been issued. If the payment does not cover the loss of the Assured, the Company shall be subrogated to the rights and remedies in the proportion which the payment bears to the amount of said loss. The Assured, if requested by the Company, shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect the right of subrogation, and shall permit the Company to use the name of the Assured in any transaction or litigation involving the rights or remedies.

8. Binder Entire Contract

Any action or actions or rights of action that the Assured may have or may bring against the Company arising out of the subject matter hereof must be based on the provisions of this Binder. No provision or condition of this Binder can be waived or changed except by a writing endorsed or attached hereto signed by the President, a Vice President, the Secretary, an Assistant Secretary or other validating officer of the Company.

9. Notices. Where Sent

All notices required to be given the Company and any statement in writing required to be furnished the Company shall be addressed to it at 400 Second Avenue South, Minneapolis, Minnesota 55401, (612) 371-1111.

10. Arbitration

Unless prohibited by applicable law, either the Company or the insured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association.

ANTI-FRAUD STATEMENT: Pursuant to CRS 10-1-128(6)(a), it is unlawful to knowingly provide false, incomplete or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

This anti-fraud statement is affixed and made a part of this policy.

Issued by:
Land Title Guarantee Company
3033 East First Avenue Suite 600
Denver, Colorado 80206
303-321-1880

Craig B. Rants, Senior Vice President

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
A Stock Company
400 Second Avenue South, Minneapolis, Minnesota 55401
(612) 371-1111

By *President*

Attest *Secretary*

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805490 **Policy No.:** PIB70805490.24993235

Liability: $1.00

Fee: $500.00

Subject to the exclusions from coverage, the limits of liability and other provisions of the Conditions and Stipulations hereto annexed and made a part of this Binder,

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY a Corporation, herein called the Company,

GUARANTEES

RAFAEL MENDOZA AND FLORENCE MENDOZA

Herein called the Assured, against loss, not exceeding the liability amount stated above, which the assured shall sustain by reason of any incorrectness in the assurance which the Company hereby gives that, according to the public records as of

May 02, 2023 at 5:00 P.M.

1. Title to said estate or interest at the date hereof is vested in:

RAFAEL MENDOZA AND FLORENCE MENDOZA

2. The estate or interest in the land hereinafter described or referred to covered by this Binder :

FEE SIMPLE

3. The Land referred to in this Binder is described as follows:

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805490 **Policy No.:** PIB70805490.24993235

THAT PART OF THE SOUTH ONE-HALF SOUTHWEST ONE-QUARTER OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, ADAMS COUNTY, COLORADO, DESCRIBED AS:

BEGINNING AT THE NORTHWEST CORNER OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER;
THENCE SOUTH 00 DEGREES 22 MINUTES 00 SECONDS WEST ON AN ASSUMED BEARING ALONG THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER A DISTANCE OF 25.00 FEET;
THENCE SOUTH 89 DEGREES 57 MINUTES 14 SECONDS EAST PARALLEL WITH SAID NORTH LINE OF SOUTH ONE-HALF OF SOUTHWEST ONE-QUARTER A DISTSANCE OF 308.78 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING SOUTH 89 DEGREES 57 MINUTES 14 SECONDS EAST A DISTANCE OF 437.55 FEET TO THE NORTHWEST CORNER OF EVANS TRACT, A SUBDIVISION OF A PART OF SAID SOUTHWEST ONE-QUARTER;
THENCE SOUTH 00 DEGREES 07 MINUTES 40 SECONDS WEST ALONG THE WEST LINE OF SAID EVANS TRACT A DISTANCE OF 342.03 FEET TO THE SOUTHWEST CORNER OF SAID EVANS TRACT;
THENCE SOUTH 71 DEGREES 58 MINUTES 00 SECONDS WEST ALONG THE NORTHWESTERLY RIGHT OF WAY LINE OF COLORADO STATE HIGHWAY NO. 224 A DISTANCE OF 462.62 FEET;
THENCE NORTH 00 DEGREES 22 MINUTES 00 SECONDS EAST PARALLEL WITH THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER A DISTANCE OF 485.60 FEET TO THE TRUE POINT OF BEGINNING, COUNTY OF ADAMS, STATE OF COLORADO.

4. The following documents affect the land:

1. RIGHTS OF WAY AS CONTAINED IN DEED RECORDED FEBRUARY 06, 1912 IN BOOK 47 AT PAGE **229**.
2. RESERVATIONS AS CONTAINED IN DEED RECORDED FEBRUARY 7, 1910 IN BOOK 47 AT PAGE **40**.
3. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT AS CONTAINED IN DOCUMENT RECORDED NOVEMBER 07, 1955 IN BOOK 579 AT PAGE **173**.
4. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT RECORDED MAY 01, 1962 UNDER RECEPTION NO. **661669**.
5. TERMS, CONDITIONS AND PROVISIONS OF RESOLUTION GRANTING AN EASEMENT FOR THE CONSTRUCTION AND MAINTENANCE OF A WASTEWATER PIPELINE TO THE METRO WASTEWATER RECLAMATION DISTRICT, A METROPOLITAN SEWAGE DISPOSAL DISTRICT ON COUNTY OWNED PROPERTY RECORDED APRIL 06, 2005 UNDER RECEPTION NO. **20050406000354580**.
6. DEED OF TRUST DATED NOVEMBER 04, 2022 FROM RAFAEL MENDOZA AND FLORENCE MENDOZA TO THE PUBLIC TRUSTEE OF ADAMS COUNTY FOR THE USE OF BANK OF COLORADO TO SECURE THE SUM OF $2,408,000.00, AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF, RECORDED NOVEMBER 09, 2022, UNDER RECEPTION NO. **2022000090435**.

   SAID DEED OF TRUST WAS FURTHER SECURED IN ASSIGNMENT OF RENTS RECORDED NOVEMBER 10, 2022, UNDER RECEPTION NO. **2022000090691**.

   NOTE: ADDITIONAL UPDATES TO THE EFFECTIVE DATE OF THE BINDER MAY BE REQUESTED BY THE PROPOSED INSURED. ONE UPDATE IS INCLUDED WITH THIS BINDER AT NO ADDITIONAL COST. ANY ADDITIONAL UPDATES WILL BE ISSUED AT THE COST OF $135 PER UPDATE. FOR EACH UPDATE PROVIDED, A REVISED BINDER WILL BE ISSUED SHOWING A NEW EFFECTIVE DATE AND ANY MATTERS RECORDED SINCE THE EFFECTIVE DATE OF THE PREVIOUS BINDER.

   THIS PRODUCT WILL ONLY BE UPDATED FOR 24 MONTHS FOLLOWING THE EFFECTIVE DATE OF THE ORIGINAL BINDER.

   NOTE: THIS BINDER DOES NOT REFLECT THE STATUS OF TITLE TO WATER RIGHTS OR REPRESENTATION OF SAID RIGHTS, RECORDED OR NOT.

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805490 **Policy No.:** PIB70805490.24993235

NOTE: THIS BINDER IS NOT A REPORT OR REPRESENTATION AS TO MINERAL INTERESTS, AND SHOULD NOT BE USED, OR RELIED UPON, IN CONNECTION WITH THE NOTICE REQUIREMENTS THAT ARE SET FORTH IN CRS 24-65.5-103.

INVOICE

Land Title Guarantee Company
5975 Greenwood Plaza Blvd Suite 125
Greenwood Village, CO 80111
(303) 270-0445
Tax ID: 84-0572036

RAFAEL MENDOZA AND FLORENCE MENDOZA
ATTN: RAFAEL MENDOZA AND FLORENCE MENDOZA
2480 E. 74TH AVE
Denver, CO 80229

Reference

Your Reference Number:	
Our Order Number:	70805490
Our Customer Number:	89595.1
Invoice (Process) Date:	05/09/2023
Transaction Invoiced By:	Jessica Taylor
Email Address:	jtaylor@ltgc.com

Invoice Number: 70805490
Property Address: 2480 EAST 74TH AVENUE, DENVER, CO 80229
Parties: RAFAEL MENDOZA AND FLORENCE MENDOZA

- Charges -

Property Information Binder	$500.00
Amount Credited	$0.00
Total Invoice Amount	$500.00
Total Amount Due	$500.00

Payment due upon receipt

Please reference Invoice No. 70805490 on payment
Please make check payable and send to:
Land Title Guarantee Company
5975 Greenwood Plaza Blvd Suite 125
Greenwood Village, CO 80111

LAND TITLE GUARANTEE COMPANY

Date: May 09, 2023

Subject: Attached Title Policy/Guarantee

Enclosed please find your product relating to the property located at 7330 YORK STREET, Denver, CO 80229.

If you have any inquiries or require further assistance, please contact Land Title Residential Title Team at (303) 850-4141 or response@ltgc.com

Chain of Title Documents:

Adams county recorded 06/21/1996 at book 4777 page 928

Adams county recorded 04/20/1993 at book 4057 page 424

Adams county recorded 09/06/1962 at book 1011 page 517

Property Information Binder

CONDITIONS AND STIPULATIONS

1. Definition of Terms

The following terms when used in this Binder mean:

(a) "Land": The land described, specifically or by reference, in this Binder and improvements affixed thereto which by law constitute real property;

(b) "Public Records"; those records which impart constructive notice of matters relating to said land;

(c) "Date": the effective date;

(d) "the Assured": the party or parties named as the Assured in this Binder, or in a supplemental writing executed by the Company;

(e) "the Company" means Old Republic National Title Insurance Company, a Minnesota stock company.

2. Exclusions from Coverage of this Binder

The company assumes no liability including cost of defense by reason of the following:

(a) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; taxes and assessments not yet due or payable and special assessments not yet certified to the Treasurer's office.

(b) Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

(c) Title to any property beyond the lines of the Land, or title to streets, roads, avenues, lanes, ways or waterways on which such land abuts, or the right to maintain therein vaults, tunnels, ramps, or any other structure or improvement; or any rights or easements therein unless such property, rights or easements are expressly and specifically set forth in said description.

(d) Mechanic's lien(s), judgment(s) or other lien(s).

(e) Defects, liens, encumbrances, adverse claims or other matters: (a) created, suffered or agreed to by the Assured;(b) not known to the Company, not recorded in the Public Records as of the Date, but known to the Assured as ofthe Date; or (c) attaching or creating subsequent to the Date.

3. Prosecution of Actions

1. The Company shall have the right at its own costs to institute and prosecute any action or proceeding or do any other act which in its opinion may be necessary or desirable to establish or confirm the matters herein assured; and the Company may take any appropriate action under the terms of this Binder, whether or not it shall be liable thereunder and shall not thereby concede liability or waive any provision hereof.
2. In all cases where the Company does not institute and prosecute any action or proceeding, the Assured shall permit the Company to use, at its option, the name of the Assured for this purpose. Whenever requested by the Company, the Assured shall give the Company all reasonable aid in prosecuting such action or proceeding, and the Company shall reimburse the Assured for any expense so incurred.

4. Notice of Loss - Limitation of Action

A statement in writing of any loss or damage for which it is claimed the Company is liable under this Binder shall be furnished to the Company within sixty days after such loss or damage shall have been determined, and no right of action shall accrue to the Assured under this Binder until thirty days after such statement shall have been furnished, and no recovery shall be had by the Assured under this Binder unless action shall be commenced thereon with two years after expiration of the thirty day period. Failure to furnish the statement of loss or damage or to commence the action within the time herinbefore specified, shall be conclusive bar against maintenance by the Assured of any action under this Binder.

5. Option to Pay, Settle or Compromise Claims

The Company shall have the option to pay, settle or compromise for or in the name of the Assured any claim which could result in loss to the Assured within the coverage of this Binder, or to pay the full amount of this Binder. Such payment or tender of payment of the full amount of the Binder shall terminate all liability of the Company hereunder.

6. Limitation of Liability - Payment of Loss

(a) The liability of the Company under this Binder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurances herein set forth, but in no event shall the liability exceed the amount of the liability stated on the face page hereof.

(b) The Company will pay all costs imposed upon the Assured in litigation carried on by the Company for the Assured, and all costs and attorneys' fees in litigation carried on by the Assured with the written authorization of the Company.

(c) No claim for loss or damages shall arise or be maintainable under this Binder (1) if the Company after having received notice of any alleged defect, lien or encumbrance not shown as an Exception or excluded herein removes such defect, lien or encumbrance within a reasonable time after receipt of such notice, or (2) for liability voluntarily assumed by the Assured in settling any claim or suit without written consent of the Company.

(d) All payments under this Binder, except for attorney's fees as provided for in paragraph 6(b) thereof, shall reduce the amount of the liability hereunder pro tanto, and no payment shall be made without producing this Binder or an acceptable copy thereof for endorsement of the payment unless the Binder be lost or destroyed, in which case proof of the loss or destruction shall be furnished to the satisfaction of the Company.

(e) When liability has been definitely fixed in accordance with the conditions of this Binder, the loss or damage shall be payable within thirty days thereafter.

7. Subrogation Upon Payment or Settlement

Whenever the Company shall have settled a claim under this Binder, all right of subrogation shall vest in the Company unaffected by any act of the Assured, and it shall be subrogated to and be entitled to all rights and remedies which the Assured would have had against any person or property in respect to the claim had this Binder not been issued. If the payment does not cover the loss of the Assured, the Company shall be subrogated to the rights and remedies in the proportion which the payment bears to the amount of said loss. The Assured, if requested by the Company, shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect the right of subrogation, and shall permit the Company to use the name of the Assured in any transaction or litigation involving the rights or remedies.

8. Binder Entire Contract

Any action or actions or rights of action that the Assured may have or may bring against the Company arising out of the subject matter hereof must be based on the provisions of this Binder. No provision or condition of this Binder can be waived or changed except by a writing endorsed or attached hereto signed by the President, a Vice President, the Secretary, an Assistant Secretary or other validating officer of the Company.

9. Notices. Where Sent

All notices required to be given the Company and any statement in writing required to be furnished the Company shall be addressed to it at 400 Second Avenue South, Minneapolis, Minnesota 55401, (612) 371-1111.

10. Arbitration

Unless prohibited by applicable law, either the Company or the insured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association.

ANTI-FRAUD STATEMENT: Pursuant to CRS 10-1-128(6)(a), it is unlawful to knowingly provide false, incomplete or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

This anti-fraud statement is affixed and made a part of this policy.

Issued by:
Land Title Guarantee Company
3033 East First Avenue Suite 600
Denver, Colorado 80206
303-321-1880

Craig B. Rants, Senior Vice President

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
A Stock Company
400 Second Avenue South, Minneapolis, Minnesota 55401
(612) 371-1111

By *President*

Attest *Secretary*

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805487 **Policy No.:** PIB70805487.24992984

Liability: $1.00

Fee: $500.00

Subject to the exclusions from coverage, the limits of liability and other provisions of the Conditions and Stipulations hereto annexed and made a part of this Binder,

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY a Corporation, herein called the Company,

GUARANTEES

RAFAEL MENDOZA AND FLORENCE MENDOZA

Herein called the Assured, against loss, not exceeding the liability amount stated above, which the assured shall sustain by reason of any incorrectness in the assurance which the Company hereby gives that, according to the public records as of

May 02, 2023 at 5:00 P.M.

1. Title to said estate or interest at the date hereof is vested in:

DOMENIC D'AMATO, AS TO A LIFE ESTATE AND RAFAEL MENDOZA AND FLORENCE MENDOZA, AS TO THE REMAINDER

2. The estate or interest in the land hereinafter described or referred to covered by this Binder :

FEE SIMPLE

3. The Land referred to in this Binder is described as follows:

Old Republic National Title Insurance Company

PROPERTY INFORMATION BINDER

Order Number: IN70805487 **Policy No.:** PIB70805487.24992984

THAT PART OF THE SOUTH ONE-HALF SOUTHWEST ONE-QUARTER OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, ADAMS COUNTY, COLORADO DESCRIBED AS:

BEGINNING AT THE NORTHWEST CORNER OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER; THENCE S00°22'00"W ON AN ASSUMED BEARING ALONG THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER, A DISTANCE OF 25.00 FEET; THENCE S89°57'14"E PARALLEL WITH THE NORTH LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER, A DISTANCE OF 30.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING S89°57'14"E PARALLEL WITH SAID NORTH LINE, A DISTANCE OF 278.78 FEET; THENCE S00°22'00"W PARALLEL WITH THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER A DISTANCE OF 485.60 FEET TO A POINT ON THE NORTHWESTERLY RIGHT OF WAY LINE OF COLORADO STATE HIGHWAY NO. 224; THENCE S71°58'00"W ALONG SAID NORTHWESTERLY RIGHT OF WAY LINE A DISTANCE OF 197.50 FEET; THENCE N51°30'W ALONG SAID NORTHWESTERLY RIGHT OF WAY LINE A DISTANCE OF 90.30 FEET TO A POINT 50.00 FEET EAST OF THE WEST LINE OF SAID SOUTH ONE-HALF SOUTHWEST ONE-QUARTER; THENCE N00°22'00"E PARALLEL WITH SAID WEST LINE A DISTANCE OF 328.90 FEET; THENCE N10°56'30"W A DISTANCE OF 102.00 FEET TO A POINT 30.00 FEET EAST OF SAID WEST LINE; THENCE N00°22'00"E PARALLEL WITH SAID WEST LINE A DISTANCE OF 62.15 FEET TO THE TRUE POINT OF BEGINNING; EXCEPT ANY PART IN ROAD OR ROADWAY AND EXCEPT THAT PORTION CONVEYED TO THE COUNTY OF ADAMS, STATE OF COLORADO IN WARRANTY DEED RECORDED MAY 22, 2018 UNDER RECEPTION NO. **2018000040942**, COUNTY OF ADAMS, STATE OF COLORADO.

4. The following documents affect the land:

1. EXISTING LEASES AND TENANCIES, IF ANY.
2. RIGHT OF WAY EASEMENT AS GRANTED TO NORTH WASHINGTON STREET WATER AND SANITATION DISTRICT IN INSTRUMENT RECORDED NOVEMBER 4, 1955 IN BOOK 579 AT PAGE **173** AND RECORDED MAY 01, 1962, IN BOOK 981 AT PAGE **448**.
3. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS OF RESOLUTION NO. 2018-312 RECORDED MAY 22, 2018 UNDER RECEPTION NO. **2018000040942**.
4. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS OF UTILITY EASEMENT RECORDED APRIL 06, 2020 UNDER RECEPTION NO. **2020000031598** AND RECORDED APRIL 9, 2020 UNDER RECEPTION NO. **2020000032891**.

   NOTE: ADDITIONAL UPDATES TO THE EFFECTIVE DATE OF THE BINDER MAY BE REQUESTED BY THE PROPOSED INSURED. ONE UPDATE IS INCLUDED WITH THIS BINDER AT NO ADDITIONAL COST. ANY ADDITIONAL UPDATES WILL BE ISSUED AT THE COST OF $135 PER UPDATE. FOR EACH UPDATE PROVIDED, A REVISED BINDER WILL BE ISSUED SHOWING A NEW EFFECTIVE DATE AND ANY MATTERS RECORDED SINCE THE EFFECTIVE DATE OF THE PREVIOUS BINDER.

   THIS PRODUCT WILL ONLY BE UPDATED FOR 24 MONTHS FOLLOWING THE EFFECTIVE DATE OF THE ORIGINAL BINDER.

   NOTE: THIS BINDER DOES NOT REFLECT THE STATUS OF TITLE TO WATER RIGHTS OR REPRESENTATION OF SAID RIGHTS, RECORDED OR NOT.

   NOTE: THIS BINDER IS NOT A REPORT OR REPRESENTATION AS TO MINERAL INTERESTS, AND SHOULD NOT BE USED, OR RELIED UPON, IN CONNECTION WITH THE NOTICE REQUIREMENTS THAT ARE SET FORTH IN CRS 24-65.5-103.

North Washington Street Water and Sanitation District

3172 E. 78th Avenue, Denver, CO 80229 303 / 288 – 6664

To Whom It May Concern:

Dear Sir/Madame:

The North Washington Street Water and Sanitation District ("District") provides the following in response to your request for water and sanitary sewer service dated August 19th 2022 related to the property located at 7330 York ST. ("Property"). The District can provide water and sewer service to the Property based on conditions set forth herein. The following are general requirements for water and sanitary sewer service. The District Rules and Regulations and the standards and requirements of Denver Water and Metro Wastewater Reclamation District must be complied with as an on-going condition of service.

The subject Property is understood to be entirely within the service and boundary area of the District based on your assertions. The District makes no representation or warranty in regard to the Property boundaries and applicant is responsible for verification of same. If the Property is outside of the District's boundaries, applicant is responsible for undertaking and paying all costs to include the Property within the District's boundaries. Treatment of sewage generated within the District is provided by the Metro Wastewater Reclamation District. Treatment and provision of water within the District is provided by Denver Water. Conditions for water and sanitary service from the District include meeting the requirements contained herein and payment of all fees and costs as provided in District's Rules and Regulations along with those of Denver Water and Metro Wastewater Reclamation District. Timing of water and sanitary availability is subject to further coordinated by the Town and District.

Water and Sanitary availability are subject to review and acceptance of design documents from owner/developer of the Property, by the District. Appropriate right-of-way easements and agreements are required for all water and sanitary sewer extensions. Jurisdictional coordination, approvals, permitting, license agreements and easements are to be completed prior to acceptance of plans. All costs associated with collection and distribution system improvements required to serve the Property are the responsibility of the owner/developer including guarantee of improvements and warranty periods.

Receipt of service is also subject to all costs being paid by owner/developer for engineering, reviews, construction, observation, and inspections at the then current rate fee structure established by the District, including establishing an imprest account with the District as a deposit for such accounts. Please be aware that proper tap connection and development fees are required to be paid, at the most recent fee schedule, prior to connection to the District main.

Mike DeMattee,
District Manager

MENDOZA YORK STREET SUBDIVISION

LEGAL DESCRIPTION

A PART OF THE SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36, TOWNSHIP 2 SOUTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36; THENCE ALONG THE WEST LINE OF SAID SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36 S00°22'00"W 49.82 FEET; THENCE S89°38'00"E 50.00 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF YORK STREET AND THE POINT OF BEGINNING; THENCE N45°05'50"E 35.53 FEET TO A POINT ON THE SOUTH RIGHT OF WAY LINE OF EAST 74TH AVENUE; THENCE ALONG SAID SOUTH RIGHT OF WAY LINE S89°57'14"E 671.33 FEET TO THE NORTHWEST CORNER OF EVANS TRACT; THENCE ALONG THE WEST LINE OF EVANS TRACT S00°07'40"W 342.03 FEET TO THE SOUTHWEST CORNER OF EVANS TRACT AND A POINT ON THE NORTH RIGHT OF WAY LINE OF COLORADO STATE HIGHWAY 224; THENCE ALONG SAID NORTH RIGHT OF WAY LINE S71°58'00"W 660.12 FEET; THENCE N51°51'30"W 90.30 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF YORK STREET; THENCE ALONG SAID EAST RIGHT OF WAY LINE N00°22'00"E 466.08 FEET TO THE POINT OF BEGINNING, COUNTY OF ADAMS, STATE OF COLORADO.

Adams County Treasurer & Public Trustee

RECEIPT OF PAYMENT (Tax, Fees, Costs, Interests, Penalties)

Account	Parcel Number	Receipt Date	Receipt Number
R0071168	0171936300075	Feb 14, 2022	2022-02-14-NetVantage-2891

FIORE PHILIP
2480 E 74TH AVE
DENVER, CO 80229-6623

Situs Address

2480 E 74TH AVE

Payor

Legal Description

SECT,TWN,RNG:36-2-68 DESC: PT OF S2 SW4 SEC 36 DESC AS BEG AT NW COR OF SD S2 SW4 TH S 25 FT TH E 308/78 FT TO THE TRUE POB TH CONT E 437/55 FT TH S 342/03 FT TH S 71D 58M W ALG NWLY ROW LN OF COLO S/H NO 224 462/62 FT TH N 485/60 FT TO THE TRUE POB 4/164A

Property Code	Actual	Assessed	Year	Area	Mill Levy
RES IMPRV LAND - 1112	113,000	8,080	2021	085	98.659
SINGLE FAMILY RES - 1212	432,000	30,890	2021	085	98.659

Payments Received

Check	$3,139.32
Check Number 00030041	

Payments Applied

Year	Charges	Billed	Prior Payments	New Payments	Balance
2021	Tax Charge	$3,139.32	$0.00	$3,139.32	$0.00
				$3,139.32	$0.00
			Balance Due as of Feb 14, 2022		**$0.00**

WE ARE EXPANDING TO SERVE YOU BETTER! WATCH FOR NEW LOCATIONS ON OUR WEBSITE!

4430 S ADAMS COUNTY PKWY C2436
BRIGHTON CO 80601
[Stay Safe! Please use website services www.adcotax.com]

Email: treasurer@adcogov.org
Telephone: 720-523-6160

ALL CHECKS ARE SUBJECT TO FINAL COLLECTION. THANK YOU FOR YOUR PAYMENT!

Adams County Treasurer & Public Trustee

RECEIPT OF PAYMENT (Tax, Fees, Costs, Interests, Penalties)

Account	Parcel Number	Receipt Date	Receipt Number
R0071167	0171936300074	Jun 14, 2022	2022-06-14-WEB-28124

MENDOZA RAFAEL AND
1955 E 75TH AVE
DENVER, CO 80229-6513

Situs Address	Payor
7330 YORK ST	Rafael Mendoza

Legal Description

SECT,TWN,RNG:36-2-68 DESC: PT OF THE S2 SW4 SEC 36 DESC AS BEG AT NW COR SD S2 SW4 TH S 25 FT TH E 30 FT TO THE TRUE POB TH CONT E 278/78 FT TH S 485/60 FT TO A PT ON NWLY ROW LN OF COLO S/H NO 224 TH S 71D 58M W 197/50 FT TH N 51D 51M W 90/30 FT TO A PT 50 FT E OF W LN SD S2 SW4 TH N 328/90 FT TH N 10D 56M W 102 FT TO A PT 30 FT E OF SD W LN TH N 62/15 FT TO THE TRUE POB EXC RD (B1735 PG164 & REC NO 2018000040942) 3/0636A

Property Code	Actual	Assessed	Year	Area	Mill Levy
1276 - 1276	228,533	16,340	2021	085	98.659
AG FLOOD IRRG LAND - 4117	943	270	2021	085	98.659

Payments Received

E-check	Multi-Account Payment

Payments Applied

Year	Charges	Billed	Prior Payments	New Payments	Balance
2021	Tax Charge	$1,638.72	$819.36	$819.36	$0.00
				$819.36	$0.00
			Balance Due as of Jun 14, 2022		**$0.00**

WE ARE EXPANDING TO SERVE YOU BETTER! WATCH FOR NEW LOCATIONS ON OUR WEBSITE!

4430 S ADAMS COUNTY PKWY C2436
BRIGHTON CO 80601
[Stay Safe! Please use website services www.adcotax.com]

Email: treasurer@adcogov.org
Telephone: 720-523-6160

ALL CHECKS ARE SUBJECT TO FINAL COLLECTION. THANK YOU FOR YOUR PAYMENT!

CERTIFICATION OF NOTICE TO MINERAL ESTATE OWNERS

I/We, Ralph Mendoza
(the "Applicant") by signing below, hereby declare and certify as follows:

With respect to the property located at:
Physical Address: 2480 E. 74th Avenue
Legal Description: Unplatted

Parcel #(s): 0171936300075

(PLEASE CHECK ONE):

_____ On the _____ day of _____, 20____, which is not less than thirty days before the initial public hearing, notice of application for surface development was provided to mineral estate owners pursuant to section 24-65.5-103 of the Colorado Revised Statutes;

or

x I/We have searched the records of the Adams County Tax Assessor and the Adams County Clerk and Recorder for the above identified parcel and have found that no mineral estate owner is identified therein.

Date: _____ Applicant: _____

By: _____
Print Name: Ralph Mendoza
Address: 1955 E. 75th Ave
Denver, CO 80229

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____

_____
Notary Public

After Recording Return To:

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I/We, Ralph Mendoza, (the "Applicant") by signing below, hereby declare and certify as follows:

Concerning the property located at:

Physical Address: 2480 E. 74th Avenue

Legal Description: Unplatted

Parcel #(s): 0171936300075

With respect to qualifying surface developments, that (PLEASE CHECK ONE):

x No mineral estate owner has entered an appearance or filed an objection to the proposed application for development within thirty days after the initial public hearing on the application; or

_____ The Applicant and any mineral estate owners who have filed an objection to the proposed application for development or have otherwise filed an entry of appearance in the initial public hearing regarding such application no later than thirty days following the initial public hearing on the application have executed a surface use agreement related to the property included in the application for development, the provisions of which have been incorporated into the application for development or are evidenced by a memorandum or otherwise recorded in the records of the clerk and recorder of the county in which the property is located so as to provide notice to transferees of the Applicant, who shall be bound by such surface use agreements; or

_____ The application for development provides:

(i) Access to mineral operations, surface facilities, flowlines, and pipelines in support of such operations existing when the final public hearing on the application for development is held by means of public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements;

(ii) An oil and gas operations area and existing well site locations in accordance with section 24-65.5-103.5 of the Colorado Revised Statutes; and

(iii) That the deposit for incremental drilling costs described in section 24-65.5-103.7 of the Colorado Revised Statutes has been made.

Date: _____ Applicant: _____

After Recording Return To:

By: _____

Print Name: _____

Address: _____

_____

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____ _____
Notary Public

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department within thirty days after the initial public hearing on all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I, _____ (the "Applicant") by signing below, hereby declare and certify as follows concerning the property located at:

Physical Address:

Legal Description:_____

Parcel # (s): _____

With respect to qualifying surface developments:

Access to existing and proposed mineral operations, surface facilities, flowlines, and pipelines in support of such existing and proposed operations for oil and gas exploration and production, including provisions for public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements, were provided for in a "_____" area as recorded in Reception # _____ on _____.

Date: _____ Applicant: _____
By: _____
_____
Address: _____

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____ _____
Notary Public

After Recording Return To: *Name and Address of Person Preparing Legal Description:*

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

CERTIFICATION OF NOTICE TO MINERAL ESTATE OWNERS

I/We, Ralph Mendoza
(the "Applicant") by signing below, hereby declare and certify as follows:

With respect to the property located at:
Physical Address: 7330 York Street
Legal Description: Unplatted

Parcel #(s): 0171936300074

(PLEASE CHECK ONE):

_____ On the _____ day of _____, 20____, which is not less than thirty days before the initial public hearing, notice of application for surface development was provided to mineral estate owners pursuant to section 24-65.5-103 of the Colorado Revised Statutes;

or

_x_ I/We have searched the records of the Adams County Tax Assessor and the Adams County Clerk and Recorder for the above identified parcel and have found that no mineral estate owner is identified therein.

Date: _____ Applicant: _____

By: _____
Print Name: Ralph Mendoza
Address: 1955 E. 75th Ave
Denver, CO 80229

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____

_____
Notary Public

After Recording Return To:

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I/We, Ralph Mendoza, (the "Applicant") by signing below, hereby declare and certify as follows:

Concerning the property located at:

Physical Address: 7330 York Street

Legal Description: Unplatted

Parcel #(s): 0171936300074

With respect to qualifying surface developments, that (PLEASE CHECK ONE):

x No mineral estate owner has entered an appearance or filed an objection to the proposed application for development within thirty days after the initial public hearing on the application; or

_____ The Applicant and any mineral estate owners who have filed an objection to the proposed application for development or have otherwise filed an entry of appearance in the initial public hearing regarding such application no later than thirty days following the initial public hearing on the application have executed a surface use agreement related to the property included in the application for development, the provisions of which have been incorporated into the application for development or are evidenced by a memorandum or otherwise recorded in the records of the clerk and recorder of the county in which the property is located so as to provide notice to transferees of the Applicant, who shall be bound by such surface use agreements; or

_____ The application for development provides:

(i) Access to mineral operations, surface facilities, flowlines, and pipelines in support of such operations existing when the final public hearing on the application for development is held by means of public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements;

(ii) An oil and gas operations area and existing well site locations in accordance with section 24-65.5-103.5 of the Colorado Revised Statutes; and

(iii) That the deposit for incremental drilling costs described in section 24-65.5-103.7 of the Colorado Revised Statutes has been made.

Date: _____ Applicant: _____

After Recording Return To:

By: _____

Print Name: _____

Address: _____

_____

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____ _____
Notary Public

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department within thirty days after the initial public hearing on all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I, _____ (the "Applicant") by signing below, hereby declare and certify as follows concerning the property located at:

Physical Address:

Legal Description:_____

Parcel # (s): _____

With respect to qualifying surface developments:

Access to existing and proposed mineral operations, surface facilities, flowlines, and pipelines in support of such existing and proposed operations for oil and gas exploration and production, including provisions for public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements, were provided for in a "_____" area as recorded in Reception # _____ on _____.

Date: _____ Applicant: _____
By: _____
_____
Address: _____

STATE OF COLORADO)
)
COUNTY OF ADAMS)

Subscribed and sworn to before me this _____day of _____, 20___, by _____.

Witness my hand and official seal.

My Commission expires: _____ _____
Notary Public

After Recording Return To: *Name and Address of Person Preparing Legal Description:*

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

TRAFFIC IMPACT STUDY / ANALYSIS

Application submittals must include all documents on this checklist as well as this page.

All applications shall be submitted electronically to epermitcenter@adcogov.org. If the submittal is too large to email as an attachment, the application may be sent as an unlocked OneDrive link. Alternatively, the application may be delivered on a flash drive to the One-Stop Customer Service Center. All documents should be combined in a single PDF. Once a complete application has been received, fees will be invoiced and payable online at https://permits.adcogov.org/CitizenAccess/.

- [x] 1. Development Application Form (pg. 2)
- [ ] 2. Application Fee (see table below)
- [x] 3. Traffic Impact Study/Analysis ***(2 hard copies)***

Preliminary Traffic Impact Study:

- This shall include, but not limited to:
  - Trip generation estimates from the development,
  - Current traffic counts,
  - Projected future traffic counts to include background traffic projections and future traffic projections from the development.
  - A description of the traffic impacts that the development will have on the surrounding area.

Final Traffic Study:

- Shall have all of the information contained in a Preliminary Traffic Impact Study and it shall also include recommendations on how to mitigate the traffic impacts that are caused by the development. (See Chapter 8 of the Adams County Development Standards and Regulations for full description of requirements).

Application Fees:	Amount:	Due:
Traffic Impact Study/Analysis	$600	After complete application received

Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

Application Type:

☑ Erosion and Sediment Control	☐ Street Construction Plans
☐ Floodplain Use Permit	☐ Subdivision Engineering Review
☑ On-Site Grading and Drainage	☑ Traffic Impact Study/ Analysis

PROJECT NAME: 7330 Travel Retail Center and Warehouse/Events Center

APPLICANT

Name(s): Rick Rome P.E. - IMEG Corp. Phone #: 303-796-6067

Address: 7600 E. Orchard Rd. Ste. 250-S

City, State, Zip: Greenwood Village, Colorado 80111

2nd Phone #: 720-219-7763 Email: Rick.a.rome@IMEGCorp.com

OWNER

Name(s): Rafael and Florence Medoza Phone #:

Address: 1955 E. 75th St.

City, State, Zip: Denver, Colorado 80229

2nd Phone #: Email:

TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: Sean Kellar Phone #: 970.219.1602

Address: PO Box 8198

City, State, Zip: Prairie Village, Kansas 66208

2nd Phone #: Email: skellar@kellarengineering.com

DESCRIPTION OF SITE

Address:	7330 York St. & 2480 E. 74th Ave.
City, State, Zip:	
Area (acres or square feet):	7.1
Tax Assessor Parcel Number	0171936300074, 171936300075
Existing Zoning:	A-1
Existing Land Use:	Ag. - Residential
Proposed Land Use:	Retail, Fuel, Warehouse, Event Center

Have you attended a Conceptual Review? YES [Y] NO [ ]

If Yes, please list PRE#: PRE2022-00064

I hereby certify that I am making this application as owner of the above described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name: Rafael Mendoza Date: 5/22/23

Owner's Printed Name

Name: Rafael Mendoza

Owner's Signature

7330 York Street

Adams County, Colorado

Traffic Impact Study

KE Job #2022-050

Prepared for:

Ralph Mendoza
2041 E. 74th Avenue
Denver, CO 80229-6912

Prepared by:

KELLAR ENGINEERING

skellar@kellarengineering.com
970.219.1602 phone

May 18, 2023

Sean K. Kellar, PE, PTOE

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1.0 Introduction

The purpose of this Traffic Impact Study (TIS) is to identify project traffic generation characteristics, to identify potential traffic related impacts on the adjacent street system, and to develop mitigation measures required for identified traffic impacts. This TIS is for the proposed project located at 7330 York Street in Adams County, Colorado. See Figure 1: Vicinity Map.

Kellar Engineering LLC (KE) has prepared the TIS to document the results of the project's anticipated traffic conditions in accordance with Adams County's requirements and to identify projected impacts to the local and regional traffic system.

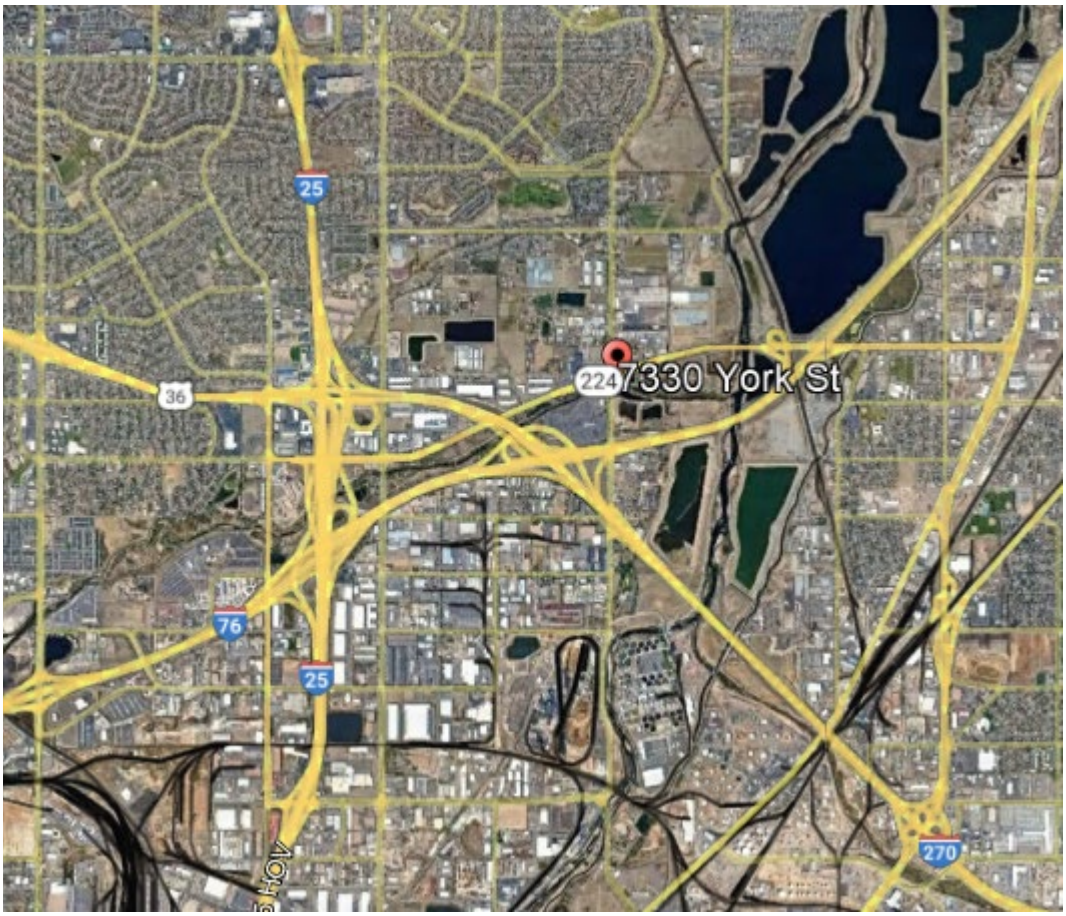
2.0 Existing Conditions and Roadway Network

The project site is located at 7330 York Street at the northeast quadrant of Hwy 224 and York Street in Adams County, CO. Lowell Blvd. is a north-south, 4-lane minor arterial with a posted speed of 35 mph adjacent to the project site. A raised center median exists in York Street adjacent to the project site which appropriately separates traffic and restricts left-turns. State Highway 224 (Hwy 224) is a 4-lane east-west NR-B category roadway with a posted speed of 45 mph. 74th Avenue is an east-west local street located at the north boundary of the project site with a posted speed of 25 mph. The intersection of Hwy 224/York Street is signalized with left-turn and right-turn auxiliary lanes on all approaches, video detection, and 5-section signal heads facing the north-south left-turn lanes. The intersection of York Street/74th Avenue is signalized with left-turn lanes on the north-south approaches, video detection, and 5-section signal heads facing the north-south left-turn lanes. These 5-section signal heads allow for permissive + protected signal phasing. See Figure 2: Site Plan and Appendix B.

2.1 Existing Traffic Volumes

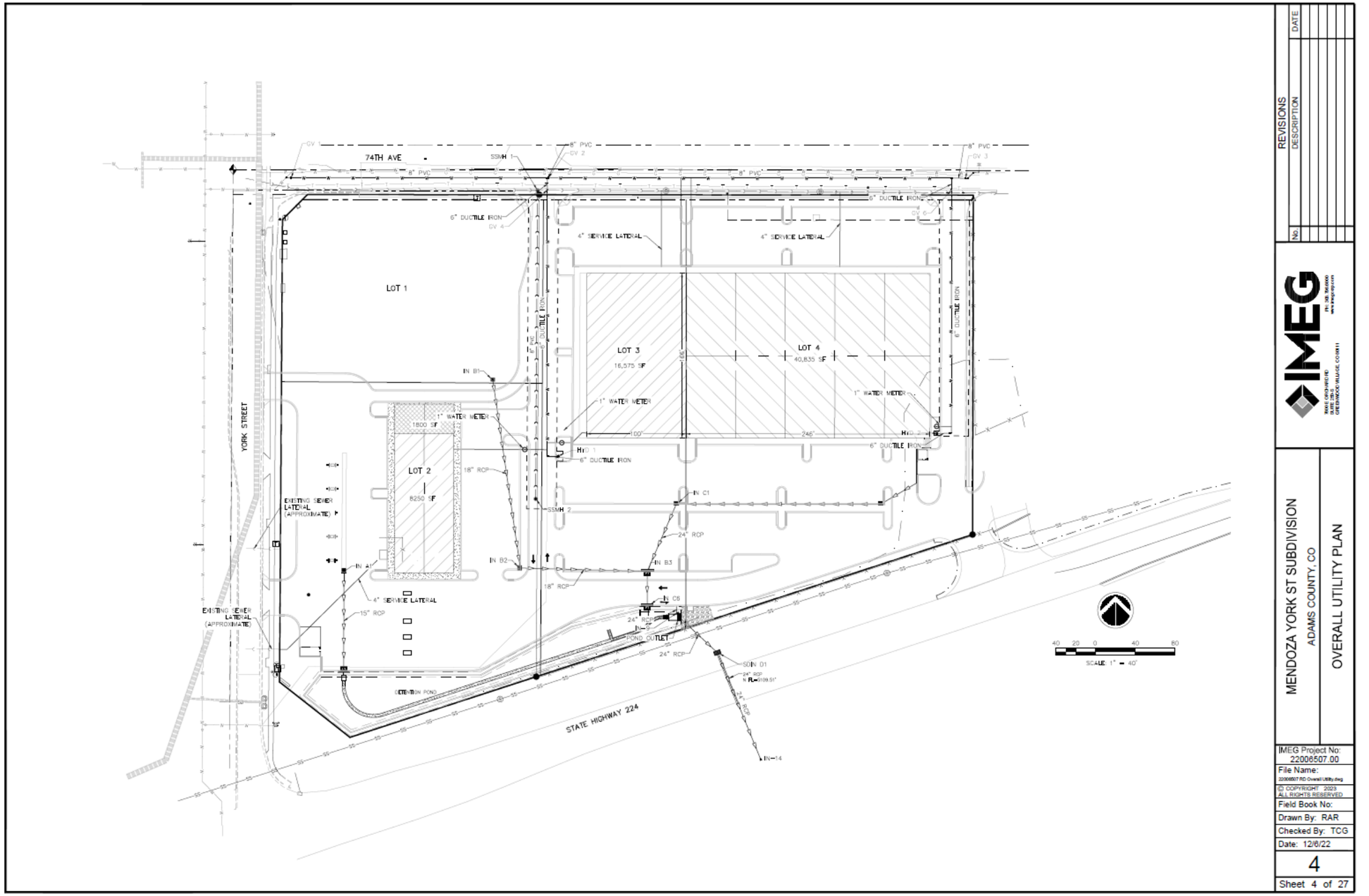
Existing peak hour traffic volume counts were conducted using data collection cameras by All Traffic Data, Inc. on Tuesday, September 27, 2022. The traffic counts were conducted to capture the peak hours of the adjacent street traffic. These traffic counts are shown in Figure 3 with the count sheets provided in Appendix A.

Figure 1: Vicinity Map



Google Earth

Figure 2: Site Plan



3.0 Proposed Development

The proposed project consists of a mixed use development (C-Store/Gas Station, High-Turnover Restaurants, Event Center, and Warehousing). See Table 1: Trip Generation and Figure 2: Site Plan.

4.1 Trip Generation

Site generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the Trip Generation Report published by the Institute of Transportation Engineers (ITE). ITE has established trip generation rates in nationwide studies of similar land uses. The ITE has specific land use categories for all of the project's proposed land uses except for the event center land use. Through previous correspondence with CDOT for previous traffic studies for event center space, KE was able to approximate the proposed event center's peak trip generation using the below information.

The proposed event center was conservatively estimated to have an event size of approximately 300 people for private gatherings (i.e. weddings, funerals, etc.). Arrivals and departures will be staggered throughout the duration of each event and car-pooling of approximately 2.5 attendees to vehicle is anticipated. Traffic volumes will vary on the type of event and number of attendees. Anticipated traffic volumes for a typical event are below:

Passenger vehicles: 120 round-trips/day for passenger cars (240 daily trips)
Vendor vehicles: 3 vehicles, one round-trip per day each (6 daily trips)

The vendor vehicles and a portion (~10%) of other passenger cars will arrive before the event's peak entering hour. Additionally, the vendor vehicles and a portion (~10%) of other passenger cars will leave after the event's peak exiting hour. Therefore, a typical event is projected to generate a maximum of approximately 246 average daily trips, 216 AM peak hour trips, and 216 total PM peak hour trips. In light of the above information,

proposed project is anticipated to generate a combined total of approximately 6,931 daily trips, 763 AM total peak hour trips, and 743 PM total peak hour trips. See Table 1: Trip Generation.

4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns and volumes, anticipated surrounding development areas, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site generated traffic that approaches the site from a given direction and departs the site back to the original source. Figure 6 illustrates the trip distribution used for the project's analysis.

4.3 Traffic Assignment

Traffic assignment was obtained by applying the trip distributions to the estimated trip generation of the development. Figures 7 shows the site generated peak hour traffic assignment.

4.4 Short Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the short range 2025 horizon. These background (2025) and short range (2025) total traffic volumes are shown in Figures 4 and 8. The short range analysis year 2025 includes the proposed development for this project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

4.5 Long Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the long range 2045 horizon. These background (2045) and long range (2045) total traffic volumes are shown in Figures 5 and

9. The long range analysis year 2045 includes the proposed development for the project plus project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

5.0 Traffic Operation Analysis

KE's analysis of traffic operations in the site vicinity was conducted to determine the capacity at the identified intersection. The acknowledged source for determining overall capacity is the Highway Capacity Manual.

5.1 Analysis Methodology

Capacity analysis results are listed in terms of level of service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. LOS ranges from an A (very little delay) to an F (long delays). A description of the level of service (LOS) for signalized and unsignalized intersections from the Highway Capacity Manual are provided in Appendix F.

5.2 Intersection Operational Analysis

Operational analysis was performed for the short range 2025 horizon. The calculations for this analysis are provided in Appendix F. Using the short range total traffic volumes, the project is projected to operate acceptably with all studied intersections and access points meeting Adams County LOS criteria. See Table 4: 2025 Short Range Total Peak Hour Operation.

Table 1: Trip Generation (ITE 11th Edition)

ITE Code	Land Use	Size	Average Daily Trips		AM Peak Hour Trips						PM Peak Hour Trips					
			Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
932	High-Turnover Restaurant	1.8 KSF	107.20	193	9.57	55%	9	45%	8	17	9.05	61%	10	39%	6	16
945	C-Store/Gas Station	8.25 KSF	700.43	5779	56.52	50%	233	50%	233	466	54.52	50%	225	50%	225	450
*	Event Center (Weddings, etc.)	16.6 KSF	*	246	*	*	108	*	108	216	*	*	108	*	108	216
150	Warehousing	40.84 KSF	1.71	70	0.17	77%	5	23%	2	7	0.18	28%	2	72%	5	7
932	High-Turnover Restaurant	6 KSF	107.20	643	9.57	55%	32	45%	25	57	9.05	61%	33	39%	21	54
	Total			**6,931**			**387**		**376**	**763**			**378**		**365**	**743**

KSF = Thousand Square Feet

*See Section 4.1 Trip Generation

Figure 3: Recent Peak Hour Traffic

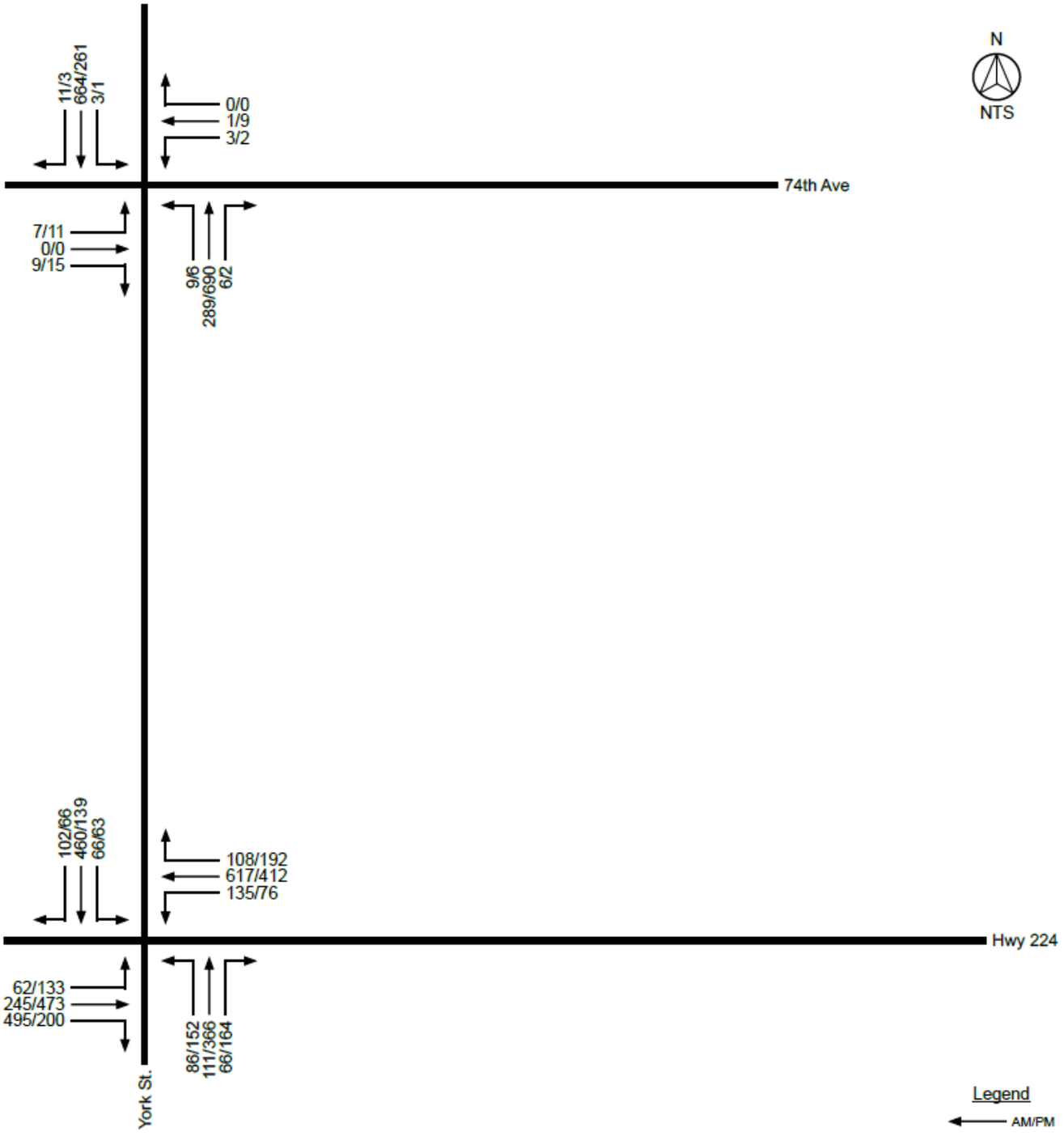


Figure 4: 2025 Background Traffic

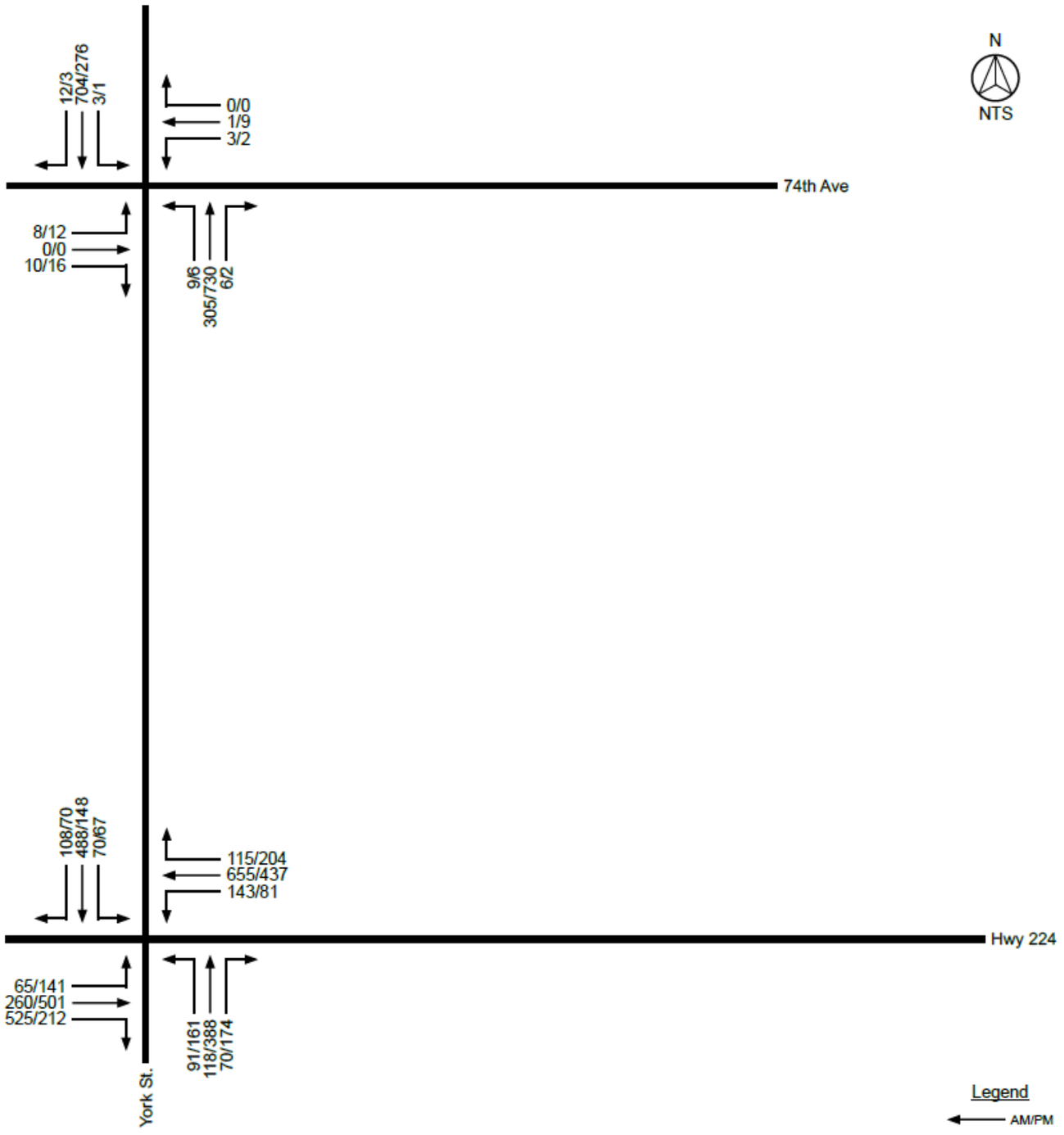


Figure 5: 2045 Background Traffic

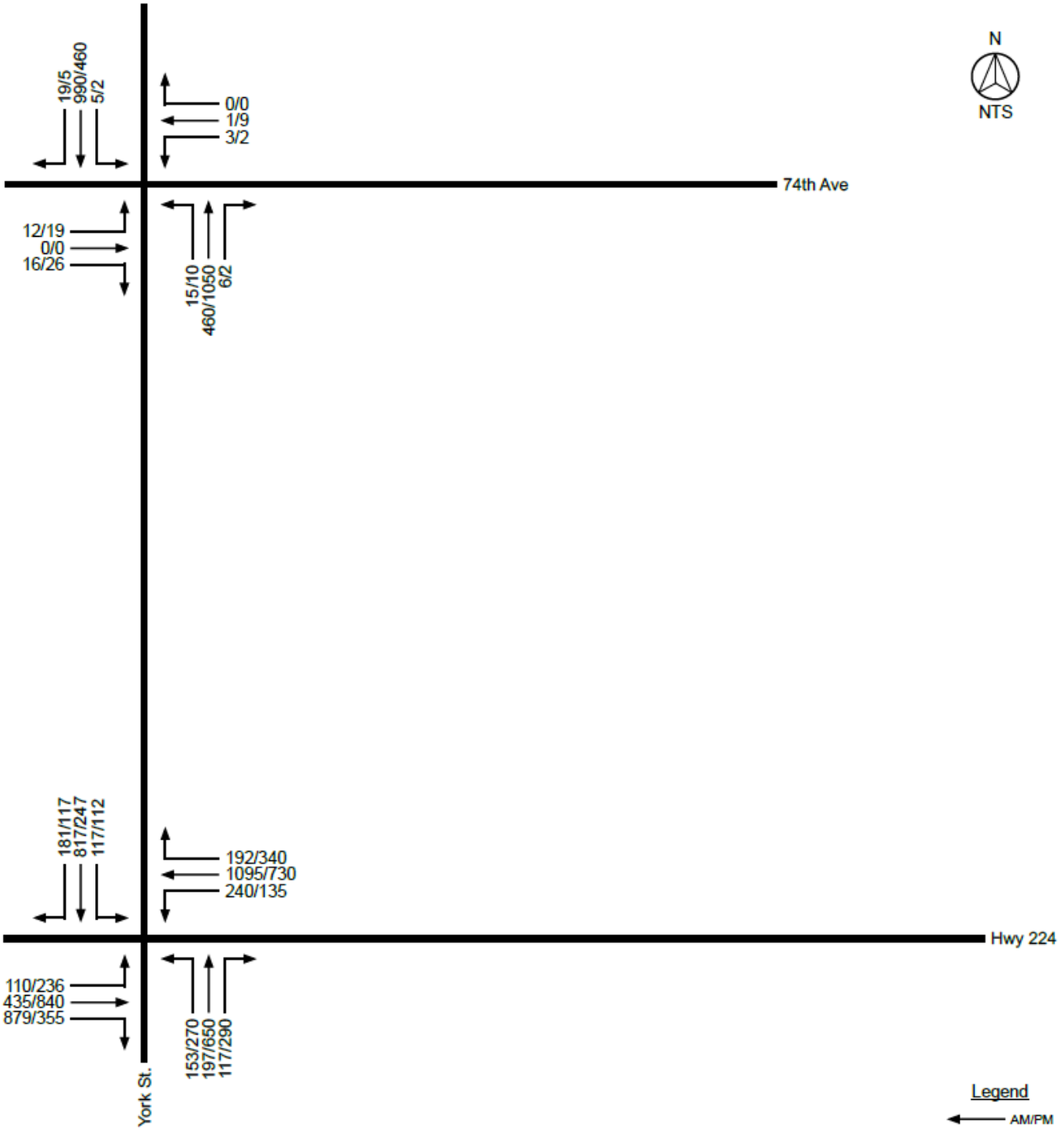


Figure 6: Trip Distribution

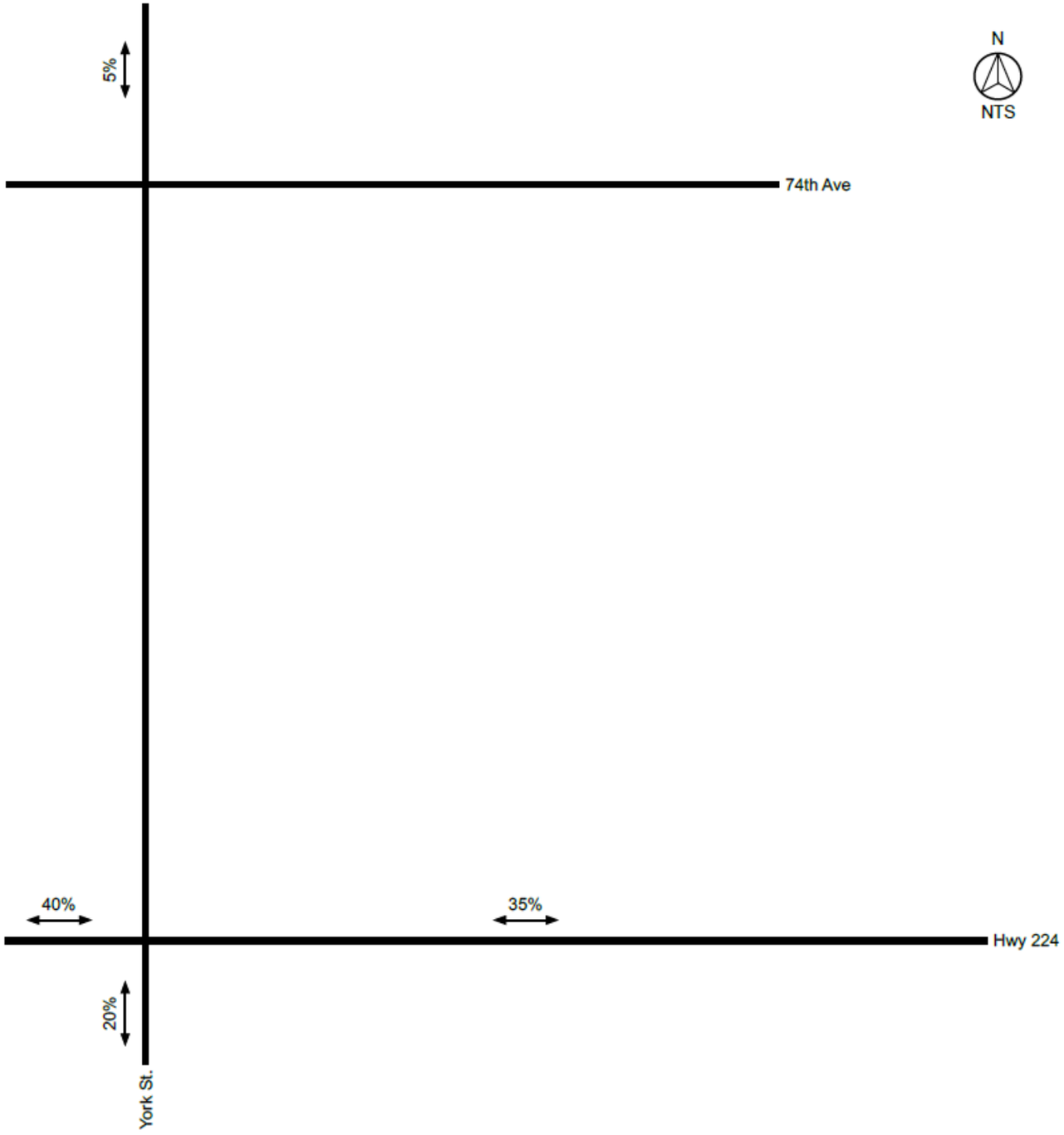


Figure 7: Site Generated Traffic

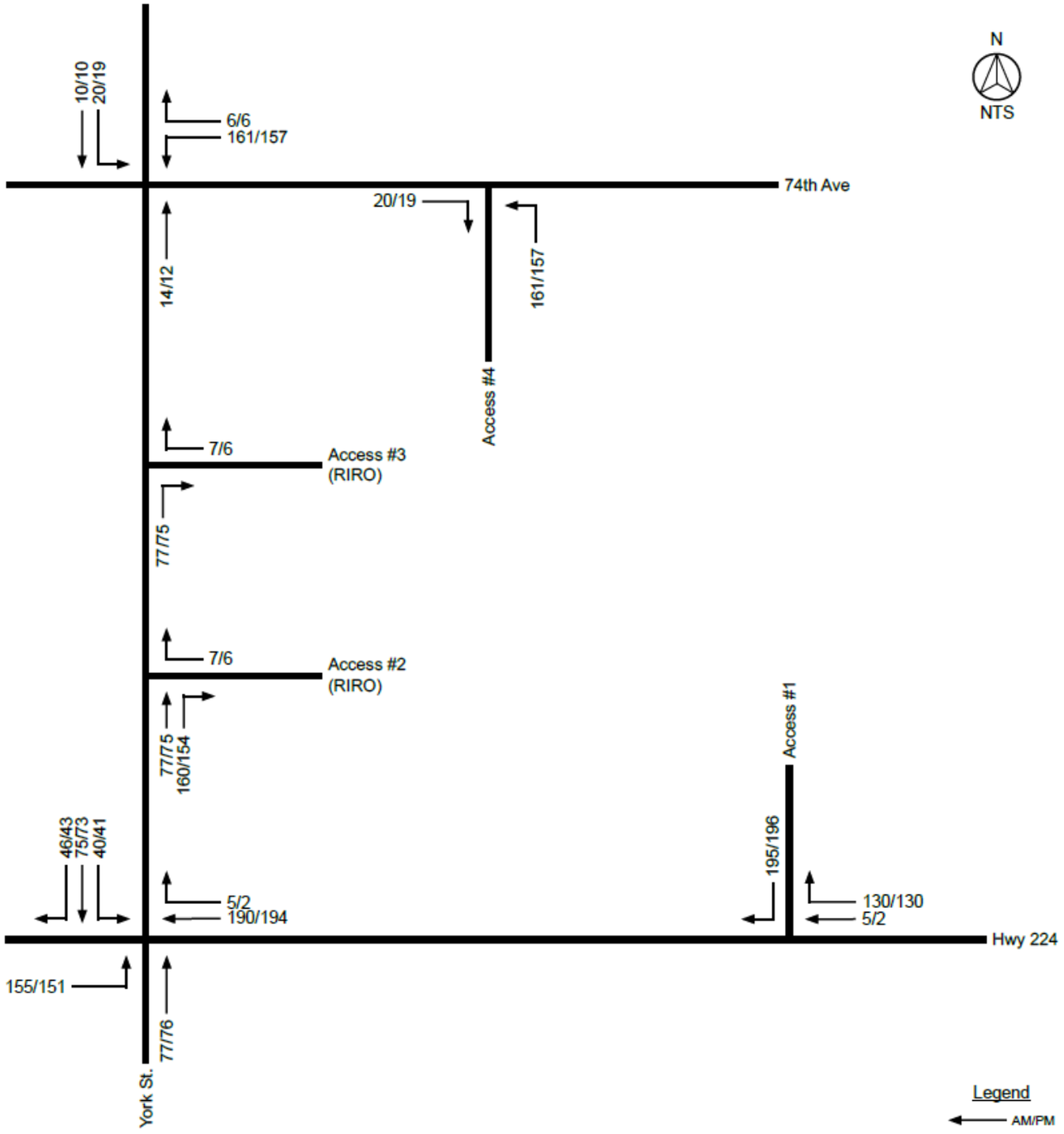


Figure 8: 2025 Short Range Total Traffic

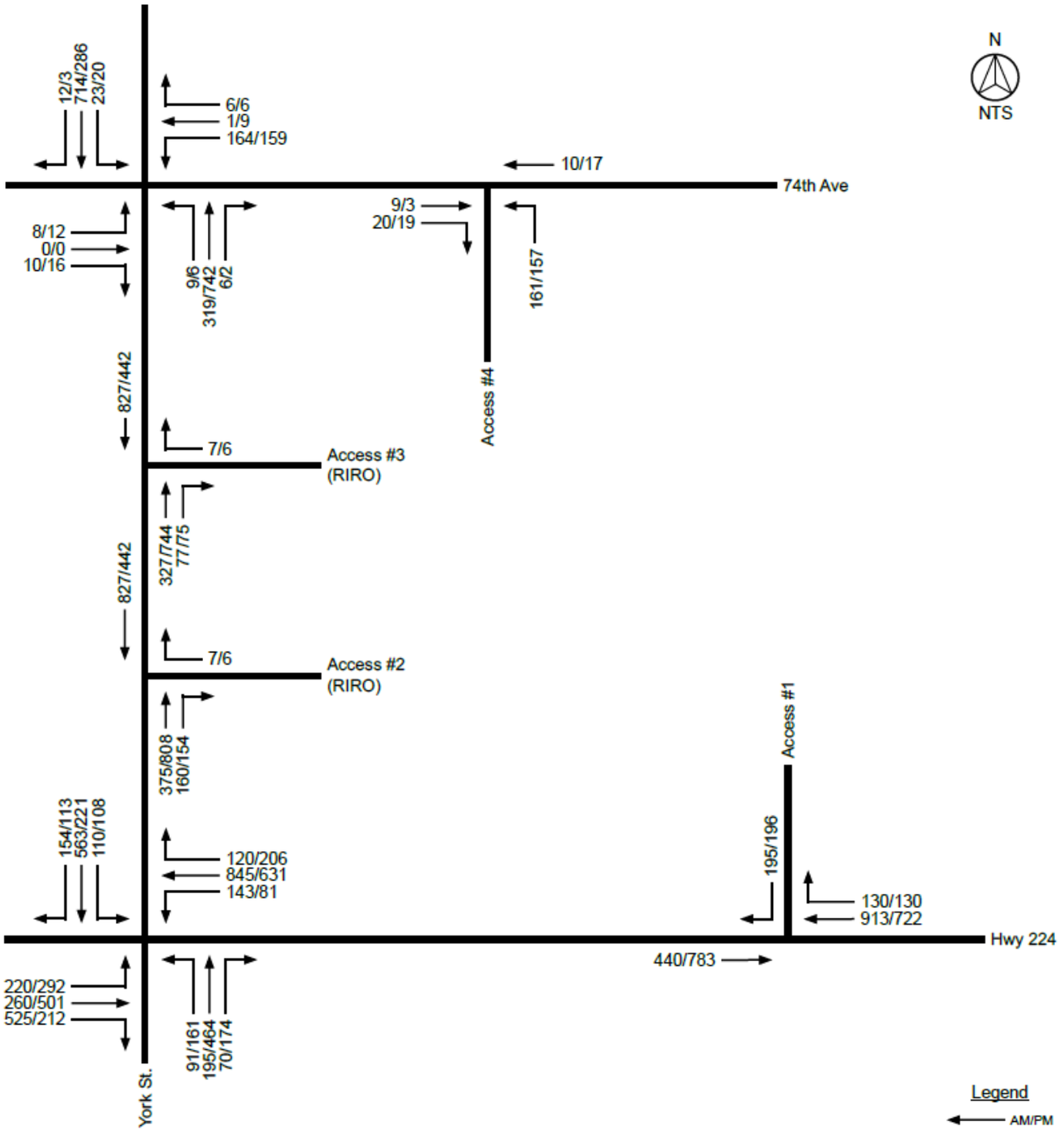


Figure 9: 2045 Long Range Total Traffic

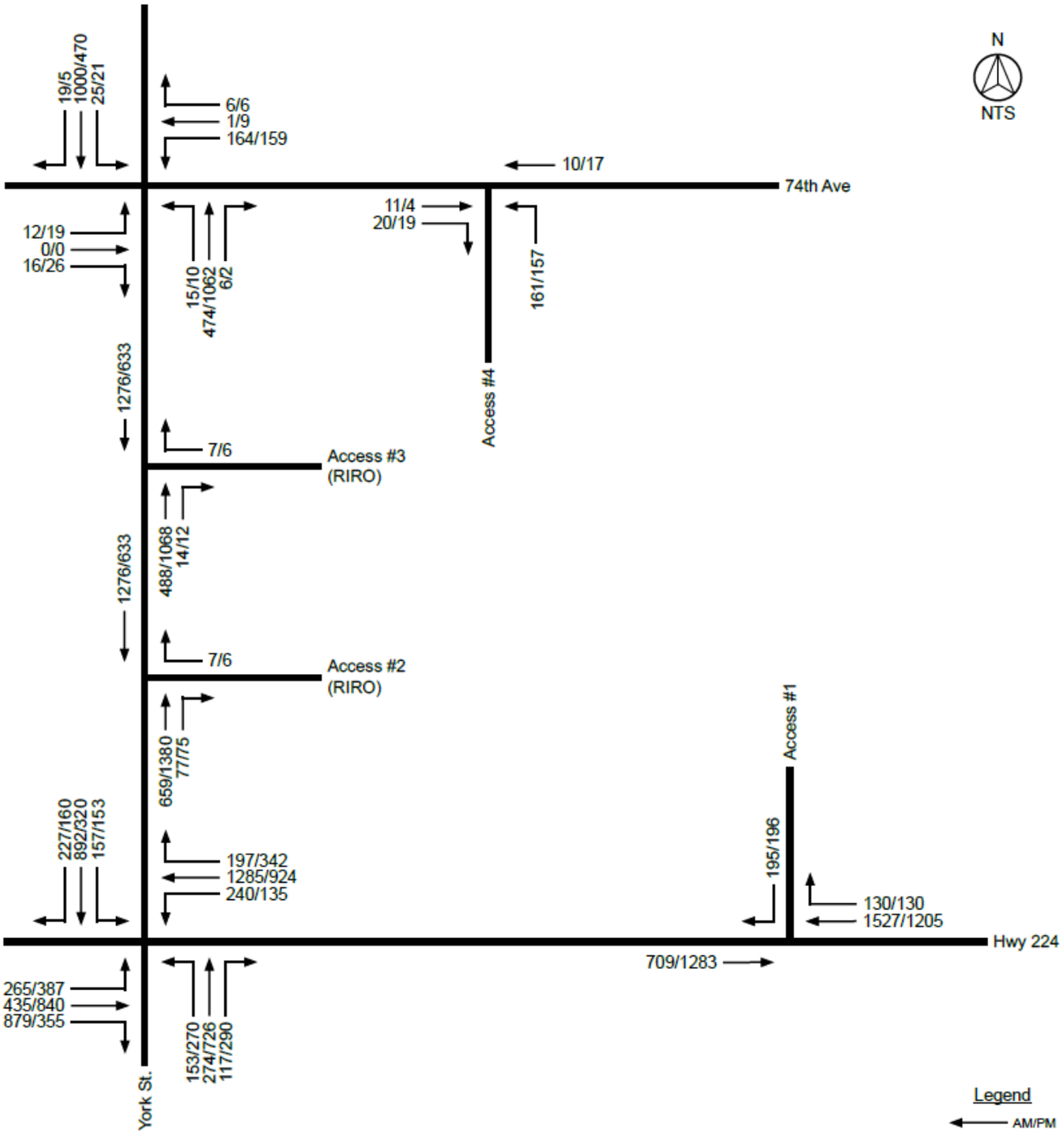


Table 2: Recent Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	B	C
	EB Thru	C	C
	EB Right	B	A
	EB Approach	C	C
	WB Left	B	C
	WB Thru	C	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	B	B
	NB Thru	C	C
	NB Right	A	A
	NB Approach	B	B
	SB Left	B	B
	SB Thru	C	C
	SB Right	A	A
	SB Approach	B	B
	Overall	C	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 3: 2025 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	B	C
	EB Thru	C	C
	EB Right	C	A
	EB Approach	C	C
	WB Left	B	C
	WB Thru	C	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	B	B
	NB Thru	C	C
	NB Right	A	A
	NB Approach	B	B
	SB Left	B	B
	SB Thru	C	C
	SB Right	A	A
	SB Approach	B	B
	Overall	C	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 4: 2045 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	C	C
	EB Thru	B	C
	EB Right	E	A
	EB Approach	E	C
	WB Left	B	C
	WB Thru	C	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	E	C
	NB Thru	C	C
	NB Right	A	A
	NB Approach	D	C
	SB Left	C	C
	SB Thru	E	C
	SB Right	B	A
	SB Approach	D	C
	Overall	D	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 5: 2025 Short Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	C	C
	EB Thru	B	B
	EB Right	B	A
	EB Approach	B	B
	WB Left	B	B
	WB Thru	D	D
	WB Right	A	A
	WB Approach	C	C
	NB Left	C	C
	NB Thru	C	C
	NB Right	A	A
	NB Approach	C	C
	SB Left	C	C
	SB Thru	C	C
	SB Right	A	A
	SB Approach	C	C
	Overall	C	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Left	A	A
	SB Thru/Right	A	A
	SB Approach	A	A
	Overall	B	B

Table 5: 2025 Short Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #3			
Stop Control	WB Right	A	B
Right-In/Right-Out	WB Approach	A	B
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #2			
Stop Control	WB Right	B	B
Right-In/Right-Out	WB Approach	B	B
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Hwy 224/Access #1			
Stop Control	EB Thru	A	A
Right-In/Right-Out	EB Approach	A	A
	WB Thru	A	A
	WB Right	A	A
	WB Approach	A	A
	SB Right	E	C
	SB Approach	E	C

Table 5: 2025 Short Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
74th Ave/Access #4			
Stop Control	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

Table 6: 2045 Long Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Hwy 224			
Traffic Signal	EB Left	E	D
	EB Thru	B	C
	EB Right	E	A
	EB Approach	D	C
	WB Left	C	C
	WB Thru	D	D
	WB Right	A	A
	WB Approach	D	D
	NB Left	F (84.8 sec)	C
	NB Thru	D	D
	NB Right	A	A
	NB Approach	D	D
	SB Left	C	D
	SB Thru	E	D
	SB Right	B	A
	SB Approach	E	D
	Overall	D	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/74th Ave			
Traffic Signal	EB Left/Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru/Right	C	C
	WB Approach	C	C
	NB Left	A	A
	NB Thru/Right	A	B
	NB Approach	A	B
	SB Left	A	A
	SB Thru/Right	B	A
	SB Approach	A	A
	Overall	B	B

Table 6: 2045 Long Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #3			
Stop Control	WB Right	B	B
Right-In/Right-Out	WB Approach	B	B
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
York Street/Access #2			
Stop Control	WB Right	B	C
Right-In/Right-Out	WB Approach	B	C
	NB Thru/Right	A	A
	NB Approach	A	A
	SB Thru	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Hwy 224/Access #1			
Stop Control	EB Thru	A	A
Right-In/Right-Out	EB Approach	A	A
	WB Thru	A	A
	WB Right	A	A
	WB Approach	A	A
	SB Right	E	E
	SB Approach	E	E

Table 6: 2045 Long Range Total Peak Hour Operations (Continued…)

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
74th Ave/Access #4			
Stop Control	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left/Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

6.0 Findings

Based upon the analysis in this study, the proposed project at 7330 York Street, Adams County, CO will be able to meet Adams County's requirements and not create a negative traffic impact upon the local and regional traffic system. Based upon the findings in this TIS, it can be determined that the proposed use is appropriate from a traffic engineering perspective. The access is appropriate and additional auxiliary lanes are not required based upon Section 8-01-08-01 in Chapter 8, Adams County Development Standards and Regulations.

The findings of the TIS are summarized below:

- The proposed project is anticipated to generate approximately 6,931 daily weekday trips, 763 AM total peak hour trips, and 743 PM total peak hour trips.
- The study intersections will operate acceptably during the AM and PM peak hours with the Proposed Development (per Chapter 8 in Adams County Development Standards and Regulations).
- Additional auxiliary lanes are not required at the: York Street/74th Avenue intersection, York Street/Access #2 intersection, York Street/Access #3 intersection, and 74th Avenue/Access #4 intersection per the Auxiliary Lane Requirements (Section 8-01-08-01 in Chapter 8, Adams County Development Standards and Regulations).
- Per the CDOT State Highway Access Code (SHAC) a westbound right-turn lane is required at the right-in/right-out (RIRO) access to Hwy 224 (NR-B Non-Rural Arterial). This westbound right-turn lane at the Hwy 224/Access #1 intersection should have a geometry with a minimum total length of 362' (162' taper + 200' storage). An acceleration lane is not required per SHAC Section 3.11(4)(d).

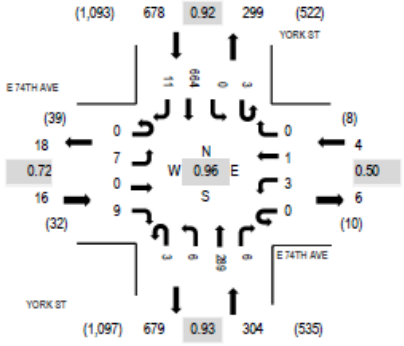
APPENDICES:

Appendix A: Recent Traffic Counts

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

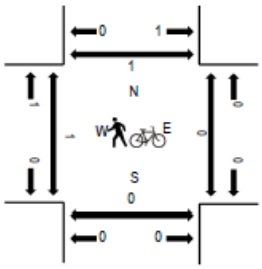
Location: 1 YORK ST & E 74TH AVE AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



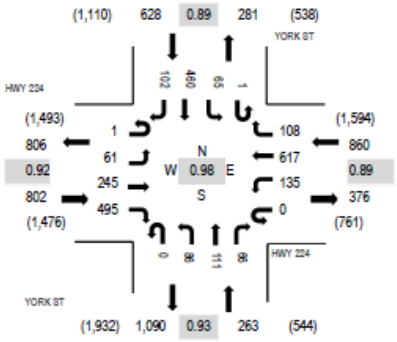
Traffic Counts

Interval Start Time	E 74TH AVE Eastbound				E 74TH AVE Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	0	0	0	1	0	0	0	1	78	3	0	0	176	2	262	1,002	0	0	0	0
7:15 AM	0	1	0	3	0	0	1	0	2	2	68	2	0	0	163	5	247	937	0	0	0	0
7:30 AM	0	2	0	1	0	1	0	0	1	3	67	0	1	0	183	1	260	865	0	0	0	1
7:45 AM	0	3	0	5	0	1	0	0	0	0	76	1	2	0	142	3	233	767	0	0	0	0
8:00 AM	0	0	0	1	0	0	0	0	0	5	57	0	0	2	130	2	197	666	1	0	0	0
8:15 AM	0	3	0	3	0	0	2	0	1	3	59	0	0	1	101	2	175		2	0	0	2
8:30 AM	0	2	0	6	0	0	1	0	0	2	55	0	0	1	94	1	162		0	0	0	0
8:45 AM	0	0	0	1	0	1	0	0	1	1	47	0	0	0	79	2	132		0	0	0	0
Count Total	0	12	0	20	0	4	4	0	5	17	507	6	3	4	1,068	18	1,668		3	0	0	3
Peak Hour	0	7	0	9	0	3	1	0	3	6	289	6	3	0	664	11	1,002		0	0	0	1

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

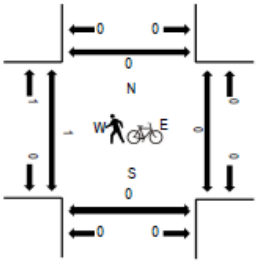
Location: 2 YORK ST & HWY 224 AM
Date: Tuesday, September 27, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



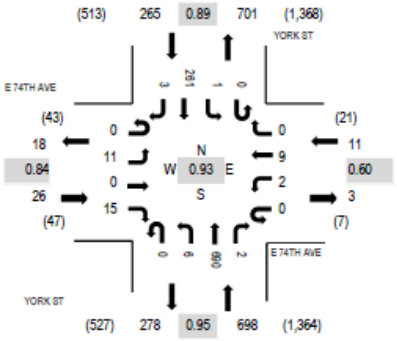
Traffic Counts

Interval Start Time	HWY 224 Eastbound				HWY 224 Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	18	48	98	0	33	123	28	0	29	34	12	0	17	149	27	616	2,535	0	0	0	0
7:15 AM	0	22	69	126	0	37	129	25	0	22	23	11	1	17	124	22	628	2,553	0	0	0	0
7:30 AM	0	10	61	122	0	29	140	26	0	27	32	14	0	11	145	31	648	2,517	1	0	0	0
7:45 AM	1	17	59	105	0	41	174	32	0	17	29	24	0	20	98	26	643	2,397	0	0	0	0
8:00 AM	0	12	56	142	0	28	174	25	0	20	27	17	0	17	93	23	634	2,189	0	0	0	0
8:15 AM	0	15	77	107	0	39	147	26	0	25	25	26	0	18	63	24	592		0	0	0	1
8:30 AM	0	14	71	101	0	37	129	28	0	20	18	14	0	15	61	20	528		0	0	0	0
8:45 AM	0	13	46	66	0	34	93	17	0	30	20	28	1	13	54	20	435		0	0	0	0
Count Total	1	121	487	867	0	278	1,109	207	0	190	208	146	2	128	787	193	4,724		1	0	0	1
Peak Hour	1	61	245	495	0	135	617	108	0	86	111	66	1	65	460	102	2,553		1	0	0	0

(303) 216-2439
www.alltrafficdata.net

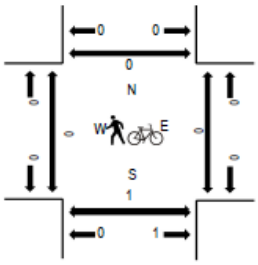
Location: 1 YORK ST & E 74TH AVE PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



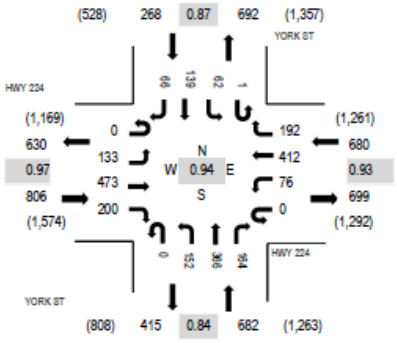
Traffic Counts

Interval Start Time	E 74TH AVE Eastbound				E 74TH AVE Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	2	1	5	0	0	5	0	1	1	171	0	1	2	69	0	258	980	0	0	0	0
4:15 PM	0	2	0	1	0	0	1	0	0	4	163	0	0	0	56	1	228	991	0	0	0	0
4:30 PM	0	2	0	6	0	0	1	0	0	2	178	1	0	1	60	0	251	1,000	0	0	0	0
4:45 PM	0	4	0	4	0	2	1	0	0	1	171	0	0	0	59	1	243	996	0	0	0	0
5:00 PM	0	3	0	1	0	0	5	0	0	0	184	1	0	0	75	0	269	965	0	0	0	0
5:15 PM	0	2	0	4	0	0	2	0	0	3	157	0	0	0	67	2	237		0	0	0	0
5:30 PM	0	6	0	0	0	0	2	0	0	1	174	1	0	0	62	1	247		0	0	0	0
5:45 PM	0	0	0	4	0	0	2	0	0	2	148	0	0	0	51	5	212		0	0	0	0
Count Total	0	21	1	25	0	2	19	0	1	14	1,346	3	1	3	499	10	1,945		0	0	0	0
Peak Hour	0	11	0	15	0	2	9	0	0	6	690	2	0	1	261	3	1,000		0	0	0	0

(303) 216-2439
www.alltrafficdata.net

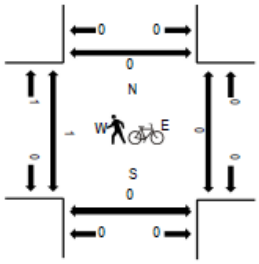
Location: 2 YORK ST & HWY 224 PM
Date: Tuesday, September 27, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

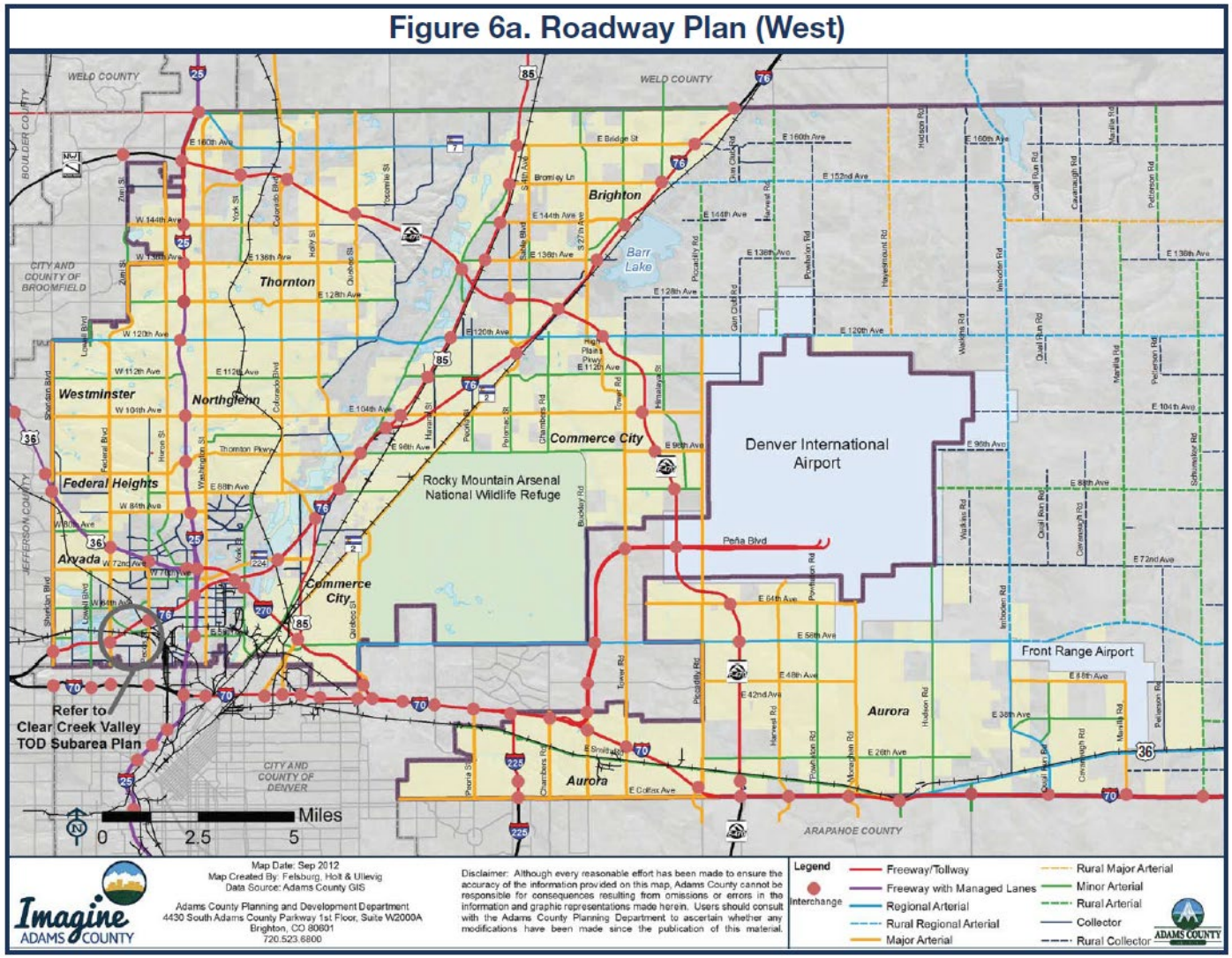
Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	HWY 224 Eastbound				HWY 224 Westbound				YORK ST Northbound				YORK ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	39	106	59	0	19	102	39	0	55	87	62	0	24	34	19	645	2,436	0	0	0	0
4:15 PM	0	30	115	46	0	17	91	52	0	38	90	27	1	12	31	15	565	2,397	0	0	0	0
4:30 PM	0	38	126	43	0	21	113	52	0	35	87	37	0	18	34	10	614	2,392	0	0	0	0
4:45 PM	0	26	126	52	0	19	106	49	0	24	102	38	0	8	40	22	612	2,327	0	0	0	0
5:00 PM	1	41	102	52	0	14	119	39	0	27	100	44	0	12	40	15	606	2,190	0	0	0	0
5:15 PM	0	41	117	36	0	14	78	38	0	30	90	36	2	15	47	16	560		0	0	0	0
5:30 PM	2	30	95	67	0	15	88	48	0	32	87	24	0	13	26	22	549		0	0	0	0
5:45 PM	0	35	102	47	0	10	77	41	0	13	73	25	0	8	25	19	475		1	0	0	0
Count Total	3	280	889	402	0	129	774	358	0	254	716	293	3	110	277	138	4,626		1	0	0	0
Peak Hour	0	133	473	200	0	76	412	192	0	152	366	164	1	62	139	66	2,436		0	0	0	0

Appendix B: Adams County Transportation Plan (Figure 6a)



Appendix C: Level of Service (LOS) Table

Level of Service Definitions

Level of Service (LOS)	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Appendix D: Aerial Image

Google Earth

Appendix E: Street View Images

York Street Looking South at Hwy 224

York Street Looking North at 74th Ave

York Street Looking North at 74th Ave

74th Avenue Looking West at York Street

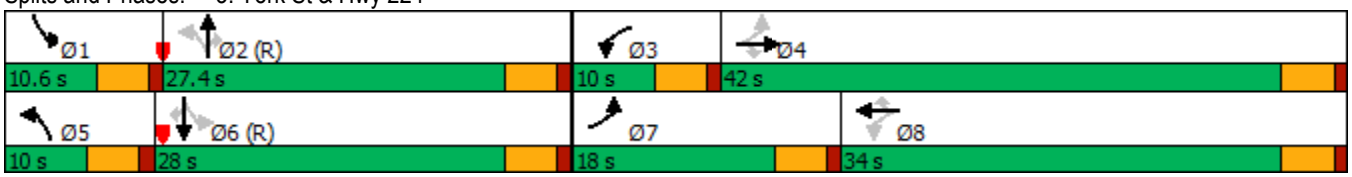
74th Avenue Looking East at York Street

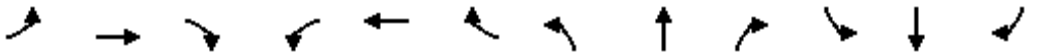
Appendix F: HCM Calculations (Synchro)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	245	495	135	617	108	86	111	66	66	460	102
Future Volume (vph)	62	245	495	135	617	108	86	111	66	66	460	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.0	42.0	10.0	34.0	34.0	10.0	27.4	27.4	10.6	28.0	28.0
Total Split (%)	20.0%	46.7%	46.7%	11.1%	37.8%	37.8%	11.1%	30.4%	30.4%	11.8%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	32.0	24.5	24.5	28.8	24.4	24.4	43.2	37.0	37.0	42.7	36.7	36.7
Actuated g/C Ratio	0.36	0.27	0.27	0.32	0.27	0.27	0.48	0.41	0.41	0.47	0.41	0.41
v/c Ratio	0.26	0.27	0.80	0.37	0.69	0.21	0.21	0.08	0.09	0.11	0.34	0.15
Control Delay	17.1	24.6	19.9	20.0	32.9	1.5	15.6	21.1	0.2	15.0	22.6	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	24.6	19.9	20.0	32.9	1.5	15.6	21.1	0.2	15.0	22.6	1.0
LOS	B	C	B	B	C	A	B	C	A	B	C	A
Approach Delay		21.1			26.9			14.1			18.3	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 21.6	Intersection LOS: C
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	245	495	135	617	108	86	111	66	66	460	102
Future Volume (veh/h)	62	245	495	135	617	108	86	111	66	66	460	102
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	263	0	145	663	0	92	119	0	71	495	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	776		363	832		516	1686		743	1673	
Arrive On Green	0.05	0.22	0.00	0.06	0.23	0.00	0.05	0.47	0.00	0.05	0.47	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	67	263	0	145	663	0	92	119	0	71	495	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.6	5.6	0.0	5.5	15.8	0.0	2.3	1.6	0.0	1.8	7.7	0.0
Cycle Q Clear(g_c), s	2.6	5.6	0.0	5.5	15.8	0.0	2.3	1.6	0.0	1.8	7.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	776		363	832		516	1686		743	1673	
V/C Ratio(X)	0.33	0.34		0.40	0.80		0.18	0.07		0.10	0.30	
Avail Cap(c_a), veh/h	392	1481		363	1165		536	1686		781	1673	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.6	29.7	0.0	25.8	32.4	0.0	11.3	12.9	0.0	11.0	14.6	0.0
Incr Delay (d2), s/veh	0.9	0.3	0.0	0.7	2.7	0.0	0.2	0.1	0.0	0.1	0.5	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	1.1	2.3	0.0	2.4	6.7	0.0	0.9	0.6	0.0	0.7	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	30.0	0.0	26.6	35.1	0.0	11.4	12.9	0.0	11.0	15.1	0.0
LnGrp LOS	C	C		C	D		B	B		B	B	
Approach Vol, veh/h		330			808			211			566	
Approach Delay, s/veh		29.5			33.6			12.3			14.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	47.2	10.0	24.1	9.0	46.9	8.6	25.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	22.9	5.5	37.5	5.5	23.5	13.5	29.5
Max Q Clear Time (g_c+I1), s	3.8	3.6	7.5	7.6	4.3	9.7	4.6	17.8
Green Ext Time (p_c), s	0.0	0.6	0.0	1.6	0.0	2.8	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

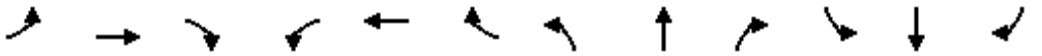
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	7	0	3	1	9	289	3	664
Future Volume (vph)	7	0	3	1	9	289	3	664
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	10.0	27.0	10.0	27.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	16.7%	45.0%	16.7%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.7		5.8	52.5	54.9	52.4	54.9
Actuated g/C Ratio		0.10		0.10	0.88	0.92	0.87	0.92
v/c Ratio		0.07		0.02	0.01	0.10	0.00	0.23
Control Delay		0.5		24.8	1.3	2.0	1.3	2.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.5		24.8	1.3	2.0	1.3	2.2
LOS		A		C	A	A	A	A
Approach Delay		0.5		24.8		2.0		2.2
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.23	
Intersection Signal Delay: 2.2	Intersection LOS: A
Intersection Capacity Utilization 30.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	9	3	1	0	9	289	6	3	664	11
Future Volume (veh/h)	7	0	9	3	1	0	9	289	6	3	664	11
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	0	10	3	1	0	10	314	7	3	722	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	0	22	136	10	0	627	2649	59	890	2635	44
Arrive On Green	0.03	0.00	0.03	0.03	0.03	0.00	0.01	0.75	0.75	0.00	0.74	0.74
Sat Flow, veh/h	681	0	852	1225	408	0	1781	3554	79	1781	3577	59
Grp Volume(v), veh/h	18	0	0	4	0	0	10	157	164	3	359	375
Grp Sat Flow(s),veh/h/ln	1533	0	0	1633	0	0	1781	1777	1856	1781	1777	1860
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	0.1	1.5	1.5	0.0	4.0	4.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	0.1	0.0	0.0	0.1	1.5	1.5	0.0	4.0	4.0
Prop In Lane	0.44		0.56	0.75		0.00	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	126	0	0	147	0	0	627	1324	1383	890	1309	1370
V/C Ratio(X)	0.14	0.00	0.00	0.03	0.00	0.00	0.02	0.12	0.12	0.00	0.27	0.27
Avail Cap(c_a), veh/h	552	0	0	570	0	0	768	1324	1383	1046	1309	1370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	0.0	28.5	0.0	0.0	2.0	2.1	2.1	2.0	2.6	2.6
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.5	0.5
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	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	0.0	28.6	0.0	0.0	2.0	2.3	2.3	2.0	3.1	3.1
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		18			4			331			737	
Approach Delay, s/veh		29.3			28.6			2.3			3.1	
Approach LOS		C			C			A			A	

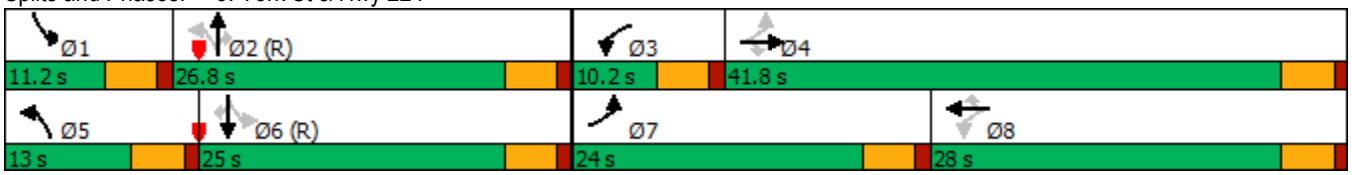
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	49.2		6.0	5.3	48.7		6.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	22.5		18.5	5.5	22.5		18.5				
Max Q Clear Time (g_c+I1), s	2.0	3.5		2.7	2.1	6.0		2.1				
Green Ext Time (p_c), s	0.0	1.7		0.0	0.0	4.2		0.0				

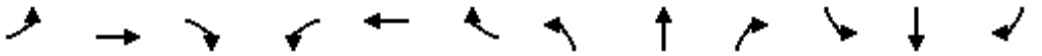
Intersection Summary			
HCM 6th Ctrl Delay		3.4	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	473	200	76	412	192	152	366	164	63	139	66
Future Volume (vph)	133	473	200	76	412	192	152	366	164	63	139	66
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	41.8	41.8	10.2	28.0	28.0	13.0	26.8	26.8	11.2	25.0	25.0
Total Split (%)	26.7%	46.4%	46.4%	11.3%	31.1%	31.1%	14.4%	29.8%	29.8%	12.4%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	32.7	24.7	24.7	23.3	17.6	17.6	47.0	38.3	38.3	40.9	33.5	33.5
Actuated g/C Ratio	0.36	0.27	0.27	0.26	0.20	0.20	0.52	0.43	0.43	0.45	0.37	0.37
v/c Ratio	0.43	0.52	0.36	0.30	0.64	0.43	0.25	0.26	0.23	0.13	0.11	0.10
Control Delay	22.3	29.3	5.1	20.6	37.1	7.2	13.6	20.0	4.4	13.5	22.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	29.3	5.1	20.6	37.1	7.2	13.6	20.0	4.4	13.5	22.0	0.3
LOS	C	C	A	C	D	A	B	C	A	B	C	A
Approach Delay		22.2			26.9			14.9			14.6	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 20.6	Intersection LOS: C
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	473	200	76	412	192	152	366	164	63	139	66
Future Volume (veh/h)	133	473	200	76	412	192	152	366	164	63	139	66
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	143	509	0	82	443	0	163	394	0	68	149	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	705		231	581		769	1791		599	1712	
Arrive On Green	0.09	0.20	0.00	0.05	0.16	0.00	0.07	0.50	0.00	0.05	0.48	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	143	509	0	82	443	0	163	394	0	68	149	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.8	12.1	0.0	3.4	10.7	0.0	4.1	5.6	0.0	1.7	2.0	0.0
Cycle Q Clear(g_c), s	5.8	12.1	0.0	3.4	10.7	0.0	4.1	5.6	0.0	1.7	2.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	277	705		231	581		769	1791		599	1712	
V/C Ratio(X)	0.52	0.72		0.36	0.76		0.21	0.22		0.11	0.09	
Avail Cap(c_a), veh/h	508	1473		250	928		817	1791		650	1712	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.8	33.8	0.0	29.5	36.0	0.0	10.1	12.5	0.0	10.5	12.6	0.0
Incr Delay (d2), s/veh	1.5	1.4	0.0	0.9	2.1	0.0	0.1	0.3	0.0	0.1	0.1	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	2.5	5.1	0.0	1.5	4.6	0.0	1.5	2.2	0.0	0.6	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	35.2	0.0	30.4	38.1	0.0	10.2	12.7	0.0	10.6	12.7	0.0
LnGrp LOS	C	D		C	D		B	B		B	B	
Approach Vol, veh/h		652			525			557			217	
Approach Delay, s/veh		33.9			36.9			12.0			12.1	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	49.9	9.2	22.3	10.6	47.9	12.4	19.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	22.3	5.7	37.3	8.5	20.5	19.5	23.5
Max Q Clear Time (g_c+I1), s	3.7	7.6	5.4	14.1	6.1	4.0	7.8	12.7
Green Ext Time (p_c), s	0.0	2.2	0.0	3.2	0.1	0.7	0.3	2.0

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

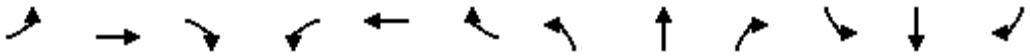
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	11	0	2	9	6	690	1	261
Future Volume (vph)	11	0	2	9	6	690	1	261
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	9.5	27.5	9.5	27.5
Total Split (%)	38.3%	38.3%	38.3%	38.3%	15.8%	45.8%	15.8%	45.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.9		6.0	50.2	51.8	50.1	51.7
Actuated g/C Ratio		0.10		0.10	0.84	0.86	0.84	0.86
v/c Ratio		0.10		0.07	0.01	0.25	0.00	0.09
Control Delay		0.8		25.0	2.0	2.9	2.0	2.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.8		25.0	2.0	2.9	2.0	2.7
LOS		A		C	A	A	A	A
Approach Delay		0.8		25.0		2.9		2.7
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.25	
Intersection Signal Delay: 3.0	Intersection LOS: A
Intersection Capacity Utilization 30.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	15	2	9	0	6	690	2	1	261	3
Future Volume (veh/h)	11	0	15	2	9	0	6	690	2	1	261	3
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	16	2	10	0	7	750	2	1	284	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	0	36	81	62	0	903	2665	7	595	2613	28
Arrive On Green	0.04	0.00	0.04	0.04	0.04	0.00	0.01	0.73	0.73	0.00	0.73	0.73
Sat Flow, veh/h	666	0	887	276	1531	0	1781	3636	10	1781	3602	38
Grp Volume(v), veh/h	28	0	0	12	0	0	7	367	385	1	140	147
Grp Sat Flow(s),veh/h/ln	1553	0	0	1807	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	4.2	4.2	0.0	1.4	1.4
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.4	0.0	0.0	0.1	4.2	4.2	0.0	1.4	1.4
Prop In Lane	0.43		0.57	0.17		0.00	1.00		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	149	0	0	143	0	0	903	1303	1370	595	1289	1352
V/C Ratio(X)	0.19	0.00	0.00	0.08	0.00	0.00	0.01	0.28	0.28	0.00	0.11	0.11
Avail Cap(c_a), veh/h	551	0	0	617	0	0	1035	1303	1370	740	1289	1352
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	0.0	0.0	27.8	0.0	0.0	2.1	2.7	2.7	2.4	2.5	2.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.5	0.5	0.0	0.2	0.2
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	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.9	1.0	0.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	28.0	0.0	0.0	2.1	3.2	3.2	2.4	2.6	2.6
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		28			12			759			288	
Approach Delay, s/veh		28.7			28.0			3.2			2.6	
Approach LOS		C			C			A			A	

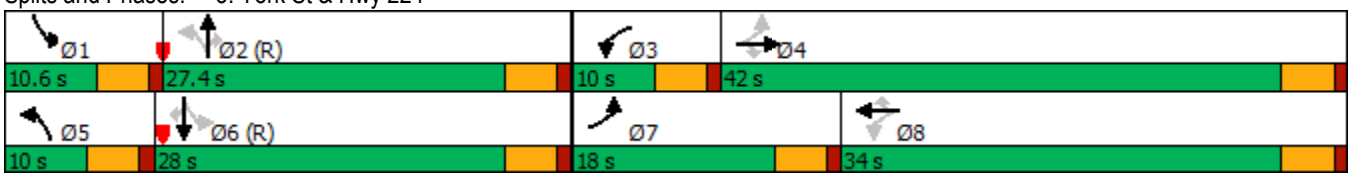
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	48.5		6.9	5.1	48.0		6.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.0		18.5	5.0	23.0		18.5				
Max Q Clear Time (g_c+I1), s	2.0	6.2		3.0	2.1	3.4		2.4				
Green Ext Time (p_c), s	0.0	4.4		0.1	0.0	1.5		0.0				

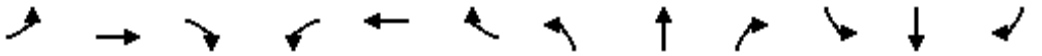
Intersection Summary			
HCM 6th Ctrl Delay		4.0	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	260	525	143	655	115	91	118	70	70	488	108
Future Volume (vph)	65	260	525	143	655	115	91	118	70	70	488	108
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.0	42.0	10.0	34.0	34.0	10.0	27.4	27.4	10.6	28.0	28.0
Total Split (%)	20.0%	46.7%	46.7%	11.1%	37.8%	37.8%	11.1%	30.4%	30.4%	11.8%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	33.2	25.7	25.7	30.1	25.7	25.7	42.0	35.9	35.9	41.4	35.7	35.7
Actuated g/C Ratio	0.37	0.29	0.29	0.33	0.29	0.29	0.47	0.40	0.40	0.46	0.40	0.40
v/c Ratio	0.28	0.28	0.84	0.39	0.70	0.21	0.24	0.09	0.10	0.12	0.37	0.16
Control Delay	16.6	23.8	23.9	19.5	32.1	1.8	16.9	21.7	0.3	15.8	23.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	23.8	23.9	19.5	32.1	1.8	16.9	21.7	0.3	15.8	23.6	1.4
LOS	B	C	C	B	C	A	B	C	A	B	C	A
Approach Delay		23.3			26.3			14.8			19.2	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 22.4	Intersection LOS: C
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	260	525	143	655	115	91	118	70	70	488	108
Future Volume (veh/h)	65	260	525	143	655	115	91	118	70	70	488	108
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	280	0	154	704	0	98	127	0	75	525	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	819		370	873		490	1640		722	1627	
Arrive On Green	0.05	0.23	0.00	0.06	0.25	0.00	0.05	0.46	0.00	0.05	0.46	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	70	280	0	154	704	0	98	127	0	75	525	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.7	5.9	0.0	5.5	16.8	0.0	2.6	1.8	0.0	2.0	8.5	0.0
Cycle Q Clear(g_c), s	2.7	5.9	0.0	5.5	16.8	0.0	2.6	1.8	0.0	2.0	8.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	819		370	873		490	1640		722	1627	
V/C Ratio(X)	0.34	0.34		0.42	0.81		0.20	0.08		0.10	0.32	
Avail Cap(c_a), veh/h	391	1481		370	1165		508	1640		759	1627	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.0	28.9	0.0	25.4	31.9	0.0	11.9	13.5	0.0	11.5	15.5	0.0
Incr Delay (d2), s/veh	1.0	0.2	0.0	0.7	3.2	0.0	0.2	0.1	0.0	0.1	0.5	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	1.1	2.4	0.0	2.5	7.2	0.0	1.0	0.7	0.0	0.8	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	29.2	0.0	26.1	35.1	0.0	12.1	13.6	0.0	11.6	16.1	0.0
LnGrp LOS	C	C		C	D		B	B		B	B	
Approach Vol, veh/h		350			858			225			600	
Approach Delay, s/veh		28.7			33.5			13.0			15.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	46.0	10.0	25.2	9.1	45.7	8.6	26.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	22.9	5.5	37.5	5.5	23.5	13.5	29.5
Max Q Clear Time (g_c+I1), s	4.0	3.8	7.5	7.9	4.6	10.5	4.7	18.8
Green Ext Time (p_c), s	0.0	0.6	0.0	1.7	0.0	2.9	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

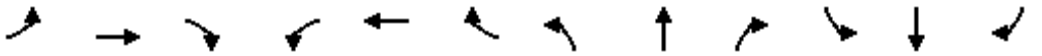
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	0	3	1	9	305	3	704
Future Volume (vph)	8	0	3	1	9	305	3	704
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	10.0	27.0	10.0	27.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	16.7%	45.0%	16.7%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.7		5.8	52.5	54.9	52.4	54.9
Actuated g/C Ratio		0.10		0.10	0.88	0.92	0.87	0.92
v/c Ratio		0.08		0.02	0.01	0.10	0.00	0.24
Control Delay		0.6		24.8	1.3	2.0	1.3	2.3
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.6		24.8	1.3	2.0	1.3	2.3
LOS		A		C	A	A	A	A
Approach Delay		0.6		24.8		2.0		2.3
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.24	
Intersection Signal Delay: 2.2	Intersection LOS: A
Intersection Capacity Utilization 31.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	10	3	1	0	9	305	6	3	704	12
Future Volume (veh/h)	8	0	10	3	1	0	9	305	6	3	704	12
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	0	11	3	1	0	10	332	7	3	765	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	0	23	139	11	0	602	2646	56	874	2627	45
Arrive On Green	0.03	0.00	0.03	0.03	0.03	0.00	0.01	0.74	0.74	0.00	0.73	0.73
Sat Flow, veh/h	688	0	841	1228	409	0	1781	3559	75	1781	3576	61
Grp Volume(v), veh/h	20	0	0	4	0	0	10	166	173	3	380	398
Grp Sat Flow(s),veh/h/ln	1530	0	0	1638	0	0	1781	1777	1857	1781	1777	1859
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	1.6	1.6	0.0	4.3	4.3
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.1	0.0	0.0	0.1	1.6	1.6	0.0	4.3	4.3
Prop In Lane	0.45		0.55	0.75		0.00	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	129	0	0	150	0	0	602	1321	1381	874	1306	1366
V/C Ratio(X)	0.15	0.00	0.00	0.03	0.00	0.00	0.02	0.13	0.13	0.00	0.29	0.29
Avail Cap(c_a), veh/h	552	0	0	570	0	0	743	1321	1381	1030	1306	1366
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	0.0	28.4	0.0	0.0	2.1	2.2	2.2	2.1	2.7	2.7
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.6	0.5
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	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	0.0	28.5	0.0	0.0	2.1	2.4	2.4	2.1	3.3	3.2
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		20			4			349			781	
Approach Delay, s/veh		29.3			28.5			2.4			3.2	
Approach LOS		C			C			A			A	

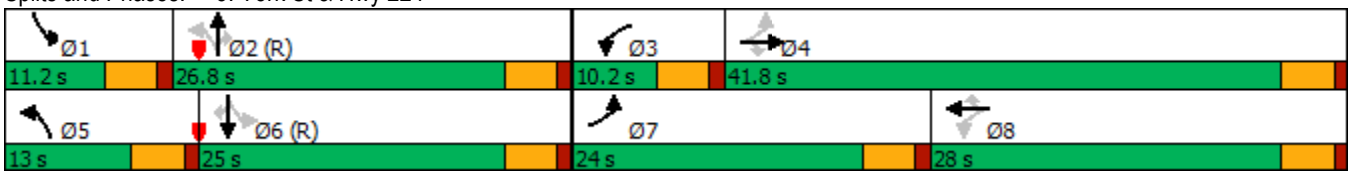
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	49.1		6.1	5.3	48.6		6.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	22.5		18.5	5.5	22.5		18.5				
Max Q Clear Time (g_c+I1), s	2.0	3.6		2.8	2.1	6.3		2.1				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	4.5		0.0				

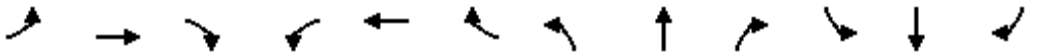
Intersection Summary			
HCM 6th Ctrl Delay		3.5	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	501	212	81	437	204	161	388	174	67	148	70
Future Volume (vph)	141	501	212	81	437	204	161	388	174	67	148	70
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	41.8	41.8	10.2	28.0	28.0	13.0	26.8	26.8	11.2	25.0	25.0
Total Split (%)	26.7%	46.4%	46.4%	11.3%	31.1%	31.1%	14.4%	29.8%	29.8%	12.4%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	33.7	25.7	25.7	24.0	18.3	18.3	45.9	37.2	37.2	40.0	32.6	32.6
Actuated g/C Ratio	0.37	0.29	0.29	0.27	0.20	0.20	0.51	0.41	0.41	0.44	0.36	0.36
v/c Ratio	0.45	0.53	0.37	0.32	0.65	0.44	0.27	0.29	0.25	0.15	0.12	0.11
Control Delay	22.1	28.8	4.9	20.4	37.0	7.0	14.4	21.0	4.9	14.1	22.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	28.8	4.9	20.4	37.0	7.0	14.4	21.0	4.9	14.1	22.5	0.3
LOS	C	C	A	C	D	A	B	C	A	B	C	A
Approach Delay		21.8			26.7			15.7			15.1	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 49.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	501	212	81	437	204	161	388	174	67	148	70
Future Volume (veh/h)	141	501	212	81	437	204	161	388	174	67	148	70
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	539	0	87	470	0	173	417	0	72	159	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	737		235	609		749	1745		573	1654	
Arrive On Green	0.09	0.21	0.00	0.05	0.17	0.00	0.07	0.49	0.00	0.05	0.47	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	152	539	0	87	470	0	173	417	0	72	159	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.1	12.8	0.0	3.6	11.4	0.0	4.5	6.1	0.0	1.9	2.3	0.0
Cycle Q Clear(g_c), s	6.1	12.8	0.0	3.6	11.4	0.0	4.5	6.1	0.0	1.9	2.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	737		235	609		749	1745		573	1654	
V/C Ratio(X)	0.54	0.73		0.37	0.77		0.23	0.24		0.13	0.10	
Avail Cap(c_a), veh/h	507	1473		250	928		789	1745		623	1654	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.1	33.3	0.0	28.9	35.6	0.0	10.7	13.2	0.0	11.3	13.5	0.0
Incr Delay (d2), s/veh	1.6	1.4	0.0	1.0	2.2	0.0	0.2	0.3	0.0	0.1	0.1	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	2.6	5.4	0.0	1.5	4.9	0.0	1.7	2.4	0.0	0.7	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	34.7	0.0	29.9	37.8	0.0	10.8	13.5	0.0	11.4	13.6	0.0
LnGrp LOS	C	C		C	D		B	B		B	B	
Approach Vol, veh/h		691			557			590			231	
Approach Delay, s/veh		33.4			36.6			12.7			12.9	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	48.7	9.4	23.2	11.0	46.4	12.7	19.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	22.3	5.7	37.3	8.5	20.5	19.5	23.5
Max Q Clear Time (g_c+I1), s	3.9	8.1	5.6	14.8	6.5	4.3	8.1	13.4
Green Ext Time (p_c), s	0.0	2.3	0.0	3.4	0.1	0.8	0.3	2.0

Intersection Summary	
HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

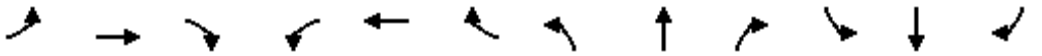
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	2	9	6	730	1	276
Future Volume (vph)	12	0	2	9	6	730	1	276
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	9.5	27.5	9.5	27.5
Total Split (%)	38.3%	38.3%	38.3%	38.3%	15.8%	45.8%	15.8%	45.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.9		6.0	50.2	51.8	50.1	51.7
Actuated g/C Ratio		0.10		0.10	0.84	0.86	0.84	0.86
v/c Ratio		0.11		0.07	0.01	0.26	0.00	0.10
Control Delay		0.9		25.0	2.0	3.0	2.0	2.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.9		25.0	2.0	3.0	2.0	2.7
LOS		A		C	A	A	A	A
Approach Delay		0.9		25.0		3.0		2.7
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.26	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 31.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	2	9	0	6	730	2	1	276	3
Future Volume (veh/h)	12	0	16	2	9	0	6	730	2	1	276	3
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	2	10	0	7	793	2	1	300	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	0	37	81	65	0	888	2661	7	571	2609	26
Arrive On Green	0.04	0.00	0.04	0.04	0.04	0.00	0.01	0.73	0.73	0.00	0.72	0.72
Sat Flow, veh/h	672	0	878	267	1541	0	1781	3636	9	1781	3605	36
Grp Volume(v), veh/h	30	0	0	12	0	0	7	387	408	1	148	155
Grp Sat Flow(s),veh/h/ln	1550	0	0	1808	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.0	0.1	4.5	4.5	0.0	1.5	1.5
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.4	0.0	0.0	0.1	4.5	4.5	0.0	1.5	1.5
Prop In Lane	0.43		0.57	0.17		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	151	0	0	146	0	0	888	1300	1367	571	1286	1349
V/C Ratio(X)	0.20	0.00	0.00	0.08	0.00	0.00	0.01	0.30	0.30	0.00	0.11	0.12
Avail Cap(c_a), veh/h	551	0	0	617	0	0	1021	1300	1367	717	1286	1349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	0.0	0.0	27.7	0.0	0.0	2.2	2.8	2.8	2.4	2.5	2.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.6	0.6	0.0	0.2	0.2
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	0.4	0.0	0.0	0.2	0.0	0.0	0.0	1.0	1.0	0.0	0.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	28.0	0.0	0.0	2.2	3.3	3.3	2.4	2.7	2.7
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			12			802			304	
Approach Delay, s/veh		28.7			28.0			3.3			2.7	
Approach LOS		C			C			A			A	

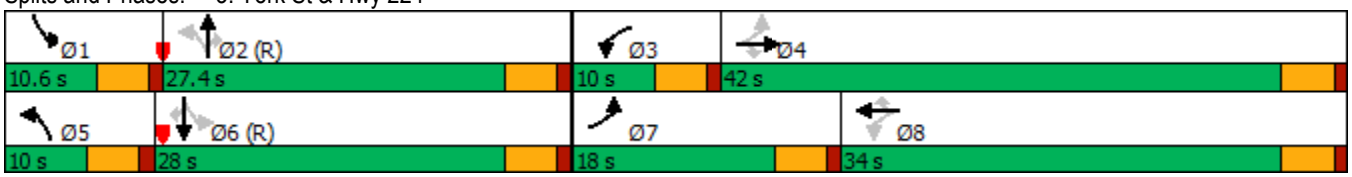
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	48.4		7.0	5.1	47.9		7.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.0		18.5	5.0	23.0		18.5				
Max Q Clear Time (g_c+I1), s	2.0	6.5		3.1	2.1	3.5		2.4				
Green Ext Time (p_c), s	0.0	4.6		0.1	0.0	1.6		0.0				

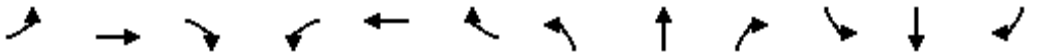
Intersection Summary			
HCM 6th Ctrl Delay		4.1	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	260	525	143	845	120	91	195	70	110	563	154
Future Volume (vph)	220	260	525	143	845	120	91	195	70	110	563	154
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.0	42.0	10.0	34.0	34.0	10.0	27.4	27.4	10.6	28.0	28.0
Total Split (%)	20.0%	46.7%	46.7%	11.1%	37.8%	37.8%	11.1%	30.4%	30.4%	11.8%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	45.1	35.1	35.1	33.4	27.9	27.9	30.8	24.8	24.8	32.7	27.5	27.5
Actuated g/C Ratio	0.50	0.39	0.39	0.37	0.31	0.31	0.34	0.28	0.28	0.36	0.31	0.31
v/c Ratio	0.71	0.20	0.71	0.35	0.83	0.21	0.36	0.22	0.13	0.27	0.56	0.27
Control Delay	29.3	18.0	15.7	15.5	36.2	2.0	23.0	26.7	0.5	20.7	30.2	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	18.0	15.7	15.5	36.2	2.0	23.0	26.7	0.5	20.7	30.2	4.7
LOS	C	B	B	B	D	A	C	C	A	C	C	A
Approach Delay		19.3			29.8			20.6			24.2	
Approach LOS		B			C			C			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	260	525	143	845	120	91	195	70	110	563	154
Future Volume (veh/h)	220	260	525	143	845	120	91	195	70	110	563	154
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	280	0	154	909	0	98	210	0	118	605	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	1231		508	1050		341	1175		529	1206	
Arrive On Green	0.11	0.35	0.00	0.06	0.30	0.00	0.05	0.33	0.00	0.06	0.34	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	237	280	0	154	909	0	98	210	0	118	605	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.9	5.0	0.0	5.5	21.8	0.0	3.2	3.8	0.0	3.9	12.2	0.0
Cycle Q Clear(g_c), s	7.9	5.0	0.0	5.5	21.8	0.0	3.2	3.8	0.0	3.9	12.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	1231		508	1050		341	1175		529	1206	
V/C Ratio(X)	0.76	0.23		0.30	0.87		0.29	0.18		0.22	0.50	
Avail Cap(c_a), veh/h	380	1481		508	1165		355	1175		539	1206	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.1	20.9	0.0	20.4	30.0	0.0	18.9	21.4	0.0	17.9	23.7	0.0
Incr Delay (d2), s/veh	7.0	0.1	0.0	0.3	6.5	0.0	0.5	0.3	0.0	0.2	1.5	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	3.6	2.0	0.0	2.2	9.7	0.0	1.3	1.6	0.0	1.6	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	21.0	0.0	20.7	36.6	0.0	19.4	21.8	0.0	18.1	25.2	0.0
LnGrp LOS	C	C		C	D		B	C		B	C	
Approach Vol, veh/h		517			1063			308			723	
Approach Delay, s/veh		24.2			34.3			21.0			24.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	34.3	10.0	35.7	9.3	35.1	14.6	31.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	22.9	5.5	37.5	5.5	23.5	13.5	29.5
Max Q Clear Time (g_c+I1), s	5.9	5.8	7.5	7.0	5.2	14.2	9.9	23.8
Green Ext Time (p_c), s	0.0	1.1	0.0	1.7	0.0	2.8	0.2	2.8

Intersection Summary	
HCM 6th Ctrl Delay	27.9
HCM 6th LOS	C

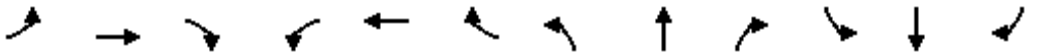
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	0	164	1	9	319	23	714
Future Volume (vph)	8	0	164	1	9	319	23	714
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	10.0	27.0	10.0	27.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	16.7%	45.0%	16.7%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.2		13.2	36.9	35.8	36.9	35.8
Actuated g/C Ratio		0.22		0.22	0.62	0.60	0.62	0.60
v/c Ratio		0.05		0.63	0.02	0.17	0.04	0.37
Control Delay		0.2		29.5	5.9	7.5	5.9	8.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.2		29.5	5.9	7.5	5.9	8.7
LOS		A		C	A	A	A	A
Approach Delay		0.2		29.5		7.4		8.6
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 43.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	10	164	1	6	9	319	6	23	714	12
Future Volume (veh/h)	8	0	10	164	1	6	9	319	6	23	714	12
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	0	11	178	1	7	10	347	7	25	776	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	30	154	340	1	9	479	2082	42	725	2146	36
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.01	0.58	0.58	0.03	0.60	0.60
Sat Flow, veh/h	593	182	947	1373	8	54	1781	3563	72	1781	3577	60
Grp Volume(v), veh/h	20	0	0	186	0	0	10	173	181	25	385	404
Grp Sat Flow(s),veh/h/ln	1722	0	0	1434	0	0	1781	1777	1857	1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	6.8	0.0	0.0	0.1	2.7	2.7	0.3	6.6	6.7
Cycle Q Clear(g_c), s	0.6	0.0	0.0	7.4	0.0	0.0	0.1	2.7	2.7	0.3	6.6	6.7
Prop In Lane	0.45		0.55	0.96		0.04	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	366	0	0	350	0	0	479	1038	1085	725	1066	1116
V/C Ratio(X)	0.05	0.00	0.00	0.53	0.00	0.00	0.02	0.17	0.17	0.03	0.36	0.36
Avail Cap(c_a), veh/h	585	0	0	556	0	0	619	1038	1085	837	1066	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	0.0	24.1	0.0	0.0	5.2	5.7	5.7	4.6	6.1	6.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	0.0	0.3	0.3	0.0	1.0	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(50%),veh/ln	0.2	0.0	0.0	2.5	0.0	0.0	0.0	0.9	0.9	0.1	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	0.0	25.4	0.0	0.0	5.2	6.1	6.1	4.6	7.1	7.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		20			186			364			814	
Approach Delay, s/veh		21.4			25.4			6.1			7.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	39.6		14.2	5.3	40.5		14.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	22.5		18.5	5.5	22.5		18.5				
Max Q Clear Time (g_c+I1), s	2.3	4.7		2.6	2.1	8.7		9.4				
Green Ext Time (p_c), s	0.0	1.9		0.0	0.0	4.2		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	327	77	0	827
Future Vol, veh/h	0	7	327	77	0	827
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	355	84	0	899

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	220	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	784	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	784	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	784	-
HCM Lane V/C Ratio	-	-	0.01	-
HCM Control Delay (s)	-	-	9.6	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	375	160	0	827
Future Vol, veh/h	0	7	375	160	0	827
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	408	174	0	899

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	291	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	706	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	706	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	706	-
HCM Lane V/C Ratio	-	-	0.011	-
HCM Control Delay (s)	-	-	10.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	9	20	0	10	161	0
Future Vol, veh/h	9	20	0	10	161	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	22	0	11	175	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	32	0	32	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1580	-	982	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	1012	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1580	-	982	1056
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	1012	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1580	-
HCM Lane V/C Ratio	0.178	-	-	-	-
HCM Control Delay (s)	9.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	440	913	130	0	195
Future Vol, veh/h	0	440	913	130	0	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	478	992	141	0	212

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	992
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	298
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	298
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

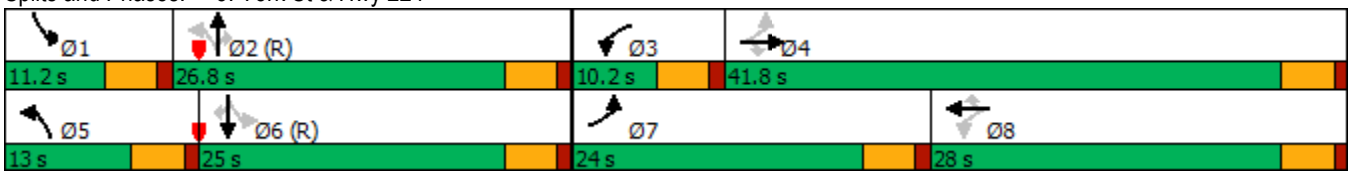
Approach	EB	WB	SB
HCM Control Delay, s	0	0	42
HCM LOS			E

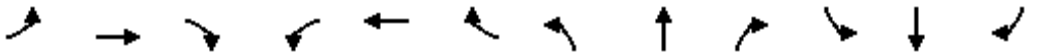
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	298
HCM Lane V/C Ratio	-	-	-	0.711
HCM Control Delay (s)	-	-	-	42
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	501	212	81	631	206	161	464	174	108	221	113
Future Volume (vph)	292	501	212	81	631	206	161	464	174	108	221	113
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	41.8	41.8	10.2	28.0	28.0	13.0	26.8	26.8	11.2	25.0	25.0
Total Split (%)	26.7%	46.4%	46.4%	11.3%	31.1%	31.1%	14.4%	29.8%	29.8%	12.4%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	44.2	36.1	36.1	27.9	22.2	22.2	34.6	27.6	27.6	30.7	23.8	23.8
Actuated g/C Ratio	0.49	0.40	0.40	0.31	0.25	0.25	0.38	0.31	0.31	0.34	0.26	0.26
v/c Ratio	0.73	0.38	0.30	0.27	0.78	0.40	0.38	0.46	0.30	0.35	0.25	0.22
Control Delay	27.7	19.9	3.5	15.4	38.4	6.2	21.8	28.9	5.8	22.0	28.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	19.9	3.5	15.4	38.4	6.2	21.8	28.9	5.8	22.0	28.3	2.3
LOS	C	B	A	B	D	A	C	C	A	C	C	A
Approach Delay		18.7			29.1			22.4			20.1	
Approach LOS		B			C			C			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 22.9	Intersection LOS: C
Intersection Capacity Utilization 67.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	292	501	212	81	631	206	161	464	174	108	221	113
Future Volume (veh/h)	292	501	212	81	631	206	161	464	174	108	221	113
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	314	539	0	87	678	0	173	499	0	116	238	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	390	1168		354	803		558	1272		416	1190	
Arrive On Green	0.16	0.33	0.00	0.05	0.23	0.00	0.08	0.36	0.00	0.06	0.33	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	314	539	0	87	678	0	173	499	0	116	238	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.5	10.8	0.0	3.3	16.4	0.0	5.6	9.4	0.0	3.8	4.3	0.0
Cycle Q Clear(g_c), s	11.5	10.8	0.0	3.3	16.4	0.0	5.6	9.4	0.0	3.8	4.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	390	1168		354	803		558	1272		416	1190	
V/C Ratio(X)	0.81	0.46		0.25	0.84		0.31	0.39		0.28	0.20	
Avail Cap(c_a), veh/h	499	1473		373	928		576	1272		440	1190	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.0	23.9	0.0	24.6	33.3	0.0	17.0	21.6	0.0	17.9	21.3	0.0
Incr Delay (d2), s/veh	7.4	0.3	0.0	0.4	6.4	0.0	0.3	0.9	0.0	0.4	0.4	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	5.2	4.3	0.0	1.4	7.4	0.0	2.3	4.0	0.0	1.6	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	24.2	0.0	25.0	39.8	0.0	17.3	22.5	0.0	18.3	21.7	0.0
LnGrp LOS	C	C		C	D		B	C		B	C	
Approach Vol, veh/h		853			765			672			354	
Approach Delay, s/veh		26.1			38.1			21.2			20.6	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	36.7	9.2	34.1	12.1	34.6	18.5	24.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	22.3	5.7	37.3	8.5	20.5	19.5	23.5
Max Q Clear Time (g_c+I1), s	5.8	11.4	5.3	12.8	7.6	6.3	13.5	18.4
Green Ext Time (p_c), s	0.0	2.5	0.0	3.5	0.0	1.2	0.5	1.9

Intersection Summary	
HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

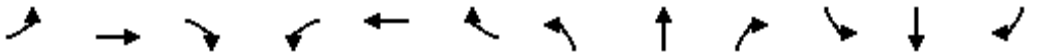
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	159	9	6	742	20	286
Future Volume (vph)	12	0	159	9	6	742	20	286
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	9.5	27.5	9.5	27.5
Total Split (%)	38.3%	38.3%	38.3%	38.3%	15.8%	45.8%	15.8%	45.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.4		13.4	36.7	35.7	36.7	35.7
Actuated g/C Ratio		0.22		0.22	0.61	0.60	0.61	0.60
v/c Ratio		0.07		0.63	0.01	0.38	0.05	0.15
Control Delay		0.4		29.6	5.8	8.7	6.0	7.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.4		29.6	5.8	8.7	6.0	7.4
LOS		A		C	A	A	A	A
Approach Delay		0.4		29.6		8.7		7.3
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 44.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	159	9	6	6	742	2	20	286	3
Future Volume (veh/h)	12	0	16	159	9	6	6	742	2	20	286	3
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	173	10	7	7	807	2	22	311	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	178	30	159	332	13	9	738	2129	5	480	2170	21
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.01	0.59	0.59	0.03	0.60	0.60
Sat Flow, veh/h	559	184	971	1325	77	54	1781	3637	9	1781	3606	35
Grp Volume(v), veh/h	30	0	0	190	0	0	7	394	415	22	153	161
Grp Sat Flow(s),veh/h/ln	1713	0	0	1455	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.0	0.0	0.0	6.6	0.0	0.0	0.1	7.1	7.1	0.3	2.3	2.3
Cycle Q Clear(g_c), s	0.9	0.0	0.0	7.5	0.0	0.0	0.1	7.1	7.1	0.3	2.3	2.3
Prop In Lane	0.43		0.57	0.91		0.04	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	367	0	0	353	0	0	738	1040	1094	480	1069	1122
V/C Ratio(X)	0.08	0.00	0.00	0.54	0.00	0.00	0.01	0.38	0.38	0.05	0.14	0.14
Avail Cap(c_a), veh/h	583	0	0	558	0	0	870	1040	1094	583	1069	1122
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	0.0	24.0	0.0	0.0	5.0	6.6	6.6	5.0	5.2	5.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	0.0	1.1	1.0	0.0	0.3	0.3
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	0.3	0.0	0.0	2.5	0.0	0.0	0.0	2.3	2.4	0.1	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	0.0	25.3	0.0	0.0	5.0	7.7	7.6	5.1	5.5	5.5
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			190			816			336	
Approach Delay, s/veh		21.4			25.3			7.6			5.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	39.6		14.3	5.1	40.6		14.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.0		18.5	5.0	23.0		18.5				
Max Q Clear Time (g_c+I1), s	2.3	9.1		2.9	2.1	4.3		9.5				
Green Ext Time (p_c), s	0.0	4.4		0.1	0.0	1.7		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		9.8	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	744	75	0	442
Future Vol, veh/h	0	6	744	75	0	442
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	809	82	0	480

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	446	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	560	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	560	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	560	-
HCM Lane V/C Ratio	-	-	0.012	-
HCM Control Delay (s)	-	-	11.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	808	154	0	442
Future Vol, veh/h	0	6	808	154	0	442
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	878	167	0	480

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	523	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	499	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	499	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	499	-
HCM Lane V/C Ratio	-	-	0.013	-
HCM Control Delay (s)	-	-	12.3	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3	19	0	17	157	0
Future Vol, veh/h	3	19	0	17	157	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	21	0	18	171	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	24	0	32	14
Stage 1	-	-	-	-	14	-
Stage 2	-	-	-	-	18	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1591	-	982	1066
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	1005	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1591	-	982	1066
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	1005	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1591	-
HCM Lane V/C Ratio	0.174	-	-	-	-
HCM Control Delay (s)	9.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	783	722	130	0	196
Future Vol, veh/h	0	783	722	130	0	196
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	851	785	141	0	213

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	785
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	393
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	393
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

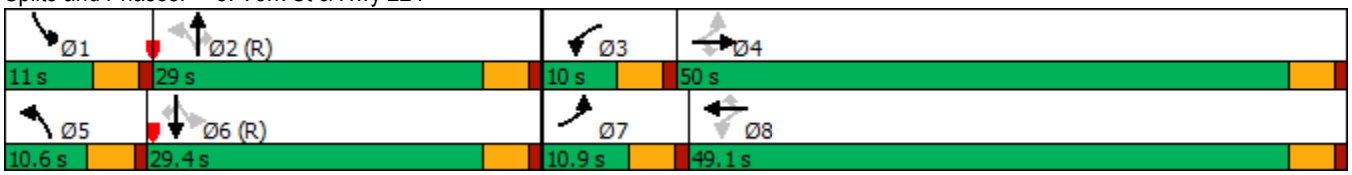
Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.5
HCM LOS			C

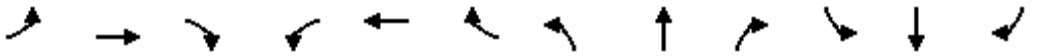
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	393
HCM Lane V/C Ratio	-	-	-	0.542
HCM Control Delay (s)	-	-	-	24.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	3.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	435	879	240	1095	192	153	197	117	117	817	181
Future Volume (vph)	110	435	879	240	1095	192	153	197	117	117	817	181
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	10.9	50.0	50.0	10.0	49.1	49.1	10.6	29.0	29.0	11.0	29.4	29.4
Total Split (%)	10.9%	50.0%	50.0%	10.0%	49.1%	49.1%	10.6%	29.0%	29.0%	11.0%	29.4%	29.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	51.9	45.5	45.5	50.1	44.6	44.6	30.6	24.5	24.5	31.4	24.9	24.9
Actuated g/C Ratio	0.52	0.46	0.46	0.50	0.45	0.45	0.31	0.24	0.24	0.31	0.25	0.25
v/c Ratio	0.56	0.28	1.09	0.53	0.73	0.26	0.88	0.24	0.26	0.31	0.98	0.40
Control Delay	21.9	17.7	78.8	18.1	26.1	6.0	70.5	31.2	7.1	25.2	63.2	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	17.7	78.8	18.1	26.1	6.0	70.5	31.2	7.1	25.2	63.2	15.8
LOS	C	B	E	B	C	A	E	C	A	C	E	B
Approach Delay		55.7			22.3			38.1			51.5	
Approach LOS		E			C			D			D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 41.6	Intersection LOS: D
Intersection Capacity Utilization 101.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	435	879	240	1095	192	153	197	117	117	817	181
Future Volume (veh/h)	110	435	879	240	1095	192	153	197	117	117	817	181
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	458	0	253	1153	0	161	207	0	123	860	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	1358		442	1352		248	1134		511	1143	
Arrive On Green	0.06	0.38	0.00	0.05	0.38	0.00	0.06	0.32	0.00	0.06	0.32	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	116	458	0	253	1153	0	161	207	0	123	860	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.9	9.1	0.0	5.5	29.8	0.0	6.1	4.2	0.0	4.6	21.7	0.0
Cycle Q Clear(g_c), s	3.9	9.1	0.0	5.5	29.8	0.0	6.1	4.2	0.0	4.6	21.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	214	1358		442	1352		248	1134		511	1143	
V/C Ratio(X)	0.54	0.34		0.57	0.85		0.65	0.18		0.24	0.75	
Avail Cap(c_a), veh/h	226	1617		442	1585		248	1134		513	1143	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.7	21.9	0.0	22.5	28.4	0.0	24.3	24.6	0.0	20.6	30.3	0.0
Incr Delay (d2), s/veh	2.3	0.1	0.0	1.8	4.2	0.0	5.8	0.4	0.0	0.2	4.6	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	1.7	3.7	0.0	2.2	12.6	0.0	2.9	1.8	0.0	1.9	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	22.0	0.0	24.3	32.6	0.0	30.1	25.0	0.0	20.8	34.9	0.0
LnGrp LOS	C	C		C	C		C	C		C	C	
Approach Vol, veh/h		574			1406			368			983	
Approach Delay, s/veh		22.7			31.1			27.2			33.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	36.4	10.0	42.7	10.6	36.7	10.2	42.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	24.5	5.5	45.5	6.1	24.9	6.4	44.6
Max Q Clear Time (g_c+I1), s	6.6	6.2	7.5	11.1	8.1	23.7	5.9	31.8
Green Ext Time (p_c), s	0.0	1.1	0.0	3.1	0.0	0.7	0.0	6.3

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

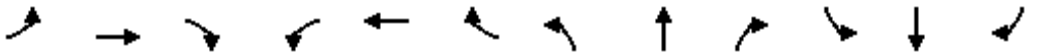
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	3	1	15	460	5	990
Future Volume (vph)	12	0	3	1	15	460	5	990
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	9.6	27.8	9.6	27.8
Total Split (%)	37.7%	37.7%	37.7%	37.7%	16.0%	46.3%	16.0%	46.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		5.7		5.8	50.4	51.9	50.3	51.9
Actuated g/C Ratio		0.10		0.10	0.84	0.86	0.84	0.86
v/c Ratio		0.11		0.02	0.03	0.17	0.01	0.36
Control Delay		0.9		24.8	1.9	2.6	1.8	3.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.9		24.8	1.9	2.6	1.8	3.4
LOS		A		C	A	A	A	A
Approach Delay		0.9		24.8		2.6		3.3
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.36	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	3	1	0	15	460	6	5	990	19
Future Volume (veh/h)	12	0	16	3	1	0	15	460	6	5	990	19
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	3	1	0	16	500	7	5	1076	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	0	31	150	15	0	462	2627	37	747	2565	50
Arrive On Green	0.04	0.00	0.04	0.04	0.04	0.00	0.02	0.73	0.73	0.01	0.72	0.72
Sat Flow, veh/h	661	0	865	1242	414	0	1781	3588	50	1781	3565	70
Grp Volume(v), veh/h	30	0	0	4	0	0	16	247	260	5	536	561
Grp Sat Flow(s),veh/h/ln	1526	0	0	1656	0	0	1781	1777	1861	1781	1777	1858
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	0.1	2.6	2.6	0.0	7.3	7.3
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.1	0.0	0.0	0.1	2.6	2.6	0.0	7.3	7.3
Prop In Lane	0.43		0.57	0.75		0.00	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	141	0	0	165	0	0	462	1301	1363	747	1278	1337
V/C Ratio(X)	0.21	0.00	0.00	0.02	0.00	0.00	0.03	0.19	0.19	0.01	0.42	0.42
Avail Cap(c_a), veh/h	541	0	0	561	0	0	579	1301	1363	886	1278	1337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	0.0	27.9	0.0	0.0	2.5	2.5	2.5	2.3	3.4	3.4
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.0	1.0	1.0
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	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.6	0.6	0.0	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	0.0	28.0	0.0	0.0	2.5	2.8	2.8	2.3	4.4	4.4
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			4			523			1102	
Approach Delay, s/veh		29.2			28.0			2.8			4.4	
Approach LOS		C			C			A			A	

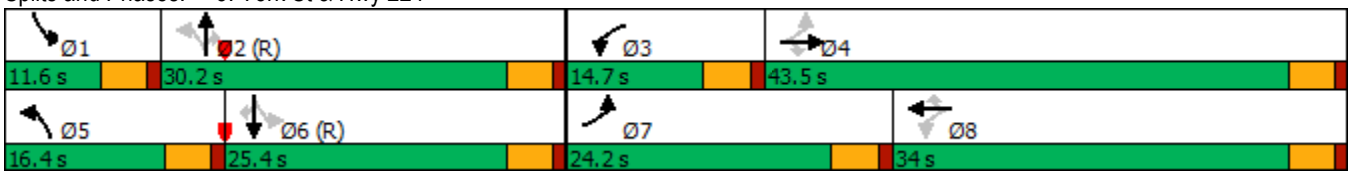
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	48.4		6.7	5.7	47.7		6.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	23.3		18.1	5.1	23.3		18.1				
Max Q Clear Time (g_c+I1), s	2.0	4.6		3.1	2.1	9.3		2.1				
Green Ext Time (p_c), s	0.0	2.9		0.1	0.0	6.2		0.0				

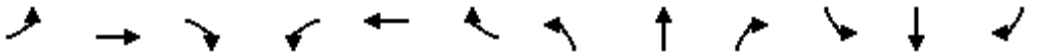
Intersection Summary			
HCM 6th Ctrl Delay		4.4	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	840	355	135	730	340	270	650	290	112	247	117
Future Volume (vph)	236	840	355	135	730	340	270	650	290	112	247	117
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.2	43.5	43.5	14.7	34.0	34.0	16.4	30.2	30.2	11.6	25.4	25.4
Total Split (%)	24.2%	43.5%	43.5%	14.7%	34.0%	34.0%	16.4%	30.2%	30.2%	11.6%	25.4%	25.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	47.1	33.9	33.9	38.2	28.8	28.8	43.0	31.0	31.0	33.6	25.9	25.9
Actuated g/C Ratio	0.47	0.34	0.34	0.38	0.29	0.29	0.43	0.31	0.31	0.34	0.26	0.26
v/c Ratio	0.73	0.74	0.49	0.55	0.76	0.54	0.58	0.62	0.44	0.44	0.28	0.22
Control Delay	31.2	32.7	6.2	24.0	37.6	9.2	26.7	33.9	6.3	25.8	32.5	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	32.7	6.2	24.0	37.6	9.2	26.7	33.9	6.3	25.8	32.5	0.9
LOS	C	C	A	C	D	A	C	C	A	C	C	A
Approach Delay		25.9			28.0			25.7			23.2	
Approach LOS		C			C			C			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 26.1	Intersection LOS: C
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	840	355	135	730	340	270	650	290	112	247	117
Future Volume (veh/h)	236	840	355	135	730	340	270	650	290	112	247	117
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	248	884	0	142	768	0	284	684	0	118	260	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	1069		253	910		586	1353		358	1149	
Arrive On Green	0.12	0.30	0.00	0.08	0.26	0.00	0.12	0.38	0.00	0.06	0.32	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	248	884	0	142	768	0	284	684	0	118	260	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.7	23.2	0.0	5.8	20.5	0.0	10.2	14.8	0.0	4.4	5.3	0.0
Cycle Q Clear(g_c), s	9.7	23.2	0.0	5.8	20.5	0.0	10.2	14.8	0.0	4.4	5.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	324	1069		253	910		586	1353		358	1149	
V/C Ratio(X)	0.76	0.83		0.56	0.84		0.48	0.51		0.33	0.23	
Avail Cap(c_a), veh/h	459	1386		297	1048		586	1353		375	1149	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.5	32.5	0.0	26.4	35.3	0.0	17.6	23.7	0.0	20.8	24.7	0.0
Incr Delay (d2), s/veh	4.8	3.3	0.0	2.0	5.7	0.0	0.6	1.4	0.0	0.5	0.5	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	4.3	10.0	0.0	2.5	9.2	0.0	4.1	6.3	0.0	1.8	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	35.9	0.0	28.4	41.0	0.0	18.2	25.1	0.0	21.3	25.2	0.0
LnGrp LOS	C	D		C	D		B	C		C	C	
Approach Vol, veh/h		1132			910			968			378	
Approach Delay, s/veh		34.5			39.1			23.1			24.0	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	42.6	12.2	34.6	16.4	36.8	16.7	30.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.1	25.7	10.2	39.0	11.9	20.9	19.7	29.5
Max Q Clear Time (g_c+I1), s	6.4	16.8	7.8	25.2	12.2	7.3	11.7	22.5
Green Ext Time (p_c), s	0.0	3.1	0.1	4.9	0.0	1.3	0.4	2.8

Intersection Summary	
HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

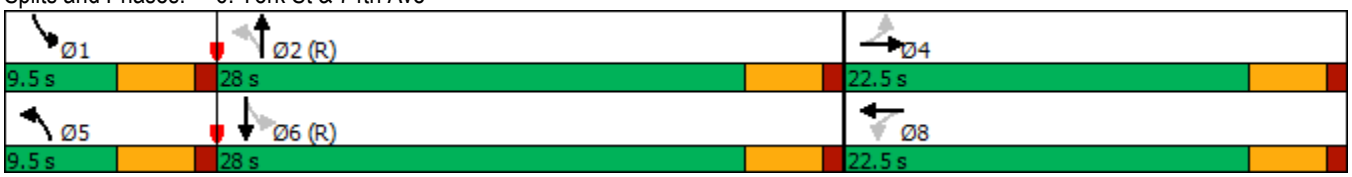
Notes

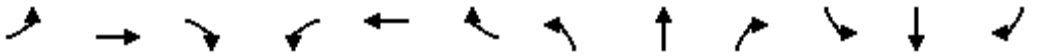
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	0	2	9	10	1050	2	460
Future Volume (vph)	19	0	2	9	10	1050	2	460
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	28.0	9.5	28.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	15.8%	46.7%	15.8%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		6.0		6.0	48.2	48.8	48.0	48.7
Actuated g/C Ratio		0.10		0.10	0.80	0.81	0.80	0.81
v/c Ratio		0.20		0.07	0.01	0.40	0.00	0.18
Control Delay		2.7		25.0	2.2	4.1	2.0	3.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		2.7		25.0	2.2	4.1	2.0	3.2
LOS		A		C	A	A	A	A
Approach Delay		2.7		25.0		4.1		3.2
Approach LOS		A		C		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.40	
Intersection Signal Delay: 3.9	Intersection LOS: A
Intersection Capacity Utilization 41.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	0	26	2	9	0	10	1050	2	2	460	5
Future Volume (veh/h)	19	0	26	2	9	0	10	1050	2	2	460	5
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	0	28	2	10	0	11	1141	2	2	500	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	1	47	82	85	0	736	2617	5	416	2552	26
Arrive On Green	0.05	0.00	0.05	0.05	0.05	0.00	0.01	0.72	0.72	0.00	0.71	0.71
Sat Flow, veh/h	649	11	879	217	1604	0	1781	3640	6	1781	3605	36
Grp Volume(v), veh/h	49	0	0	12	0	0	11	557	586	2	246	259
Grp Sat Flow(s),veh/h/ln	1538	0	0	1822	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	0.1	7.7	7.7	0.0	2.8	2.8
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.4	0.0	0.0	0.1	7.7	7.7	0.0	2.8	2.8
Prop In Lane	0.43		0.57	0.17		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	168	0	0	167	0	0	736	1278	1344	416	1258	1319
V/C Ratio(X)	0.29	0.00	0.00	0.07	0.00	0.00	0.01	0.44	0.44	0.00	0.20	0.20
Avail Cap(c_a), veh/h	538	0	0	603	0	0	859	1278	1344	559	1258	1319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	0.0	27.1	0.0	0.0	2.4	3.4	3.4	2.9	3.0	3.0
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.2	0.0	0.0	0.0	1.1	1.0	0.0	0.3	0.3
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	0.7	0.0	0.0	0.2	0.0	0.0	0.0	1.8	1.9	0.0	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	27.2	0.0	0.0	2.4	4.5	4.5	2.9	3.3	3.3
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		49			12			1154			507	
Approach Delay, s/veh		28.7			27.2			4.5			3.3	
Approach LOS		C			C			A			A	

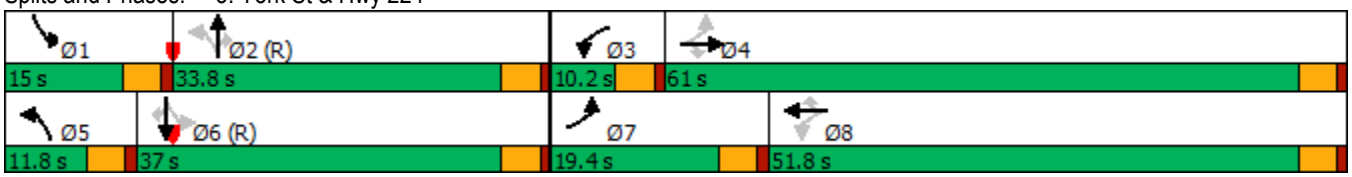
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	47.6		7.7	5.3	47.0		7.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.0	23.5		18.0				
Max Q Clear Time (g_c+I1), s	2.0	9.7		3.8	2.1	4.8		2.4				
Green Ext Time (p_c), s	0.0	6.4		0.1	0.0	2.9		0.0				

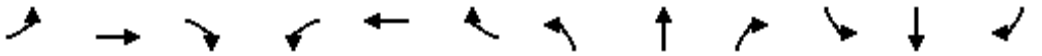
Intersection Summary		
HCM 6th Ctrl Delay		5.0
HCM 6th LOS		A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	435	879	240	1285	197	153	274	117	157	892	227
Future Volume (vph)	265	435	879	240	1285	197	153	274	117	157	892	227
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	19.4	61.0	61.0	10.2	51.8	51.8	11.8	33.8	33.8	15.0	37.0	37.0
Total Split (%)	16.2%	50.8%	50.8%	8.5%	43.2%	43.2%	9.8%	28.2%	28.2%	12.5%	30.8%	30.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	66.7	56.5	56.5	53.0	47.3	47.3	36.9	29.6	29.6	42.7	32.5	32.5
Actuated g/C Ratio	0.56	0.47	0.47	0.44	0.39	0.39	0.31	0.25	0.25	0.36	0.27	0.27
v/c Ratio	0.99	0.27	1.06	0.57	0.97	0.29	0.95	0.33	0.25	0.43	0.98	0.45
Control Delay	85.7	19.9	73.4	24.8	54.1	10.0	90.1	38.4	6.1	29.1	64.7	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	19.9	73.4	24.8	54.1	10.0	90.1	38.4	6.1	29.1	64.7	17.2
LOS	F	B	E	C	D	B	F	D	A	C	E	B
Approach Delay		60.7			44.9			46.0			51.9	
Approach LOS		E			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 51.6	Intersection LOS: D
Intersection Capacity Utilization 103.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	435	879	240	1285	197	153	274	117	157	892	227
Future Volume (veh/h)	265	435	879	240	1285	197	153	274	117	157	892	227
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	279	458	0	253	1353	0	161	288	0	165	939	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	1670		510	1397		174	883		409	966	
Arrive On Green	0.12	0.47	0.00	0.05	0.39	0.00	0.06	0.25	0.00	0.06	0.18	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	279	458	0	253	1353	0	161	288	0	165	939	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	14.1	9.4	0.0	5.7	44.8	0.0	7.3	8.0	0.0	8.1	31.5	0.0
Cycle Q Clear(g_c), s	14.1	9.4	0.0	5.7	44.8	0.0	7.3	8.0	0.0	8.1	31.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	289	1670		510	1397		174	883		409	966	
V/C Ratio(X)	0.96	0.27		0.50	0.97		0.93	0.33		0.40	0.97	
Avail Cap(c_a), veh/h	289	1673		510	1401		174	883		415	966	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.8	19.4	0.0	22.9	35.7	0.0	37.5	36.9	0.0	30.5	48.6	0.0
Incr Delay (d2), s/veh	43.1	0.1	0.0	0.7	17.0	0.0	47.4	1.0	0.0	0.6	23.0	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	11.6	3.8	0.0	2.1	21.7	0.0	5.8	3.6	0.0	3.7	17.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.9	19.4	0.0	23.6	52.7	0.0	84.8	37.9	0.0	31.1	71.6	0.0
LnGrp LOS	E	B		C	D		F	D		C	E	
Approach Vol, veh/h		737			1606			449			1104	
Approach Delay, s/veh		42.3			48.1			54.7			65.6	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	34.3	10.2	60.9	11.8	37.1	19.4	51.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	29.3	5.7	56.5	7.3	32.5	14.9	47.3
Max Q Clear Time (g_c+I1), s	10.1	10.0	7.7	11.4	9.3	33.5	16.1	46.8
Green Ext Time (p_c), s	0.0	1.7	0.0	3.1	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	52.7
HCM 6th LOS	D

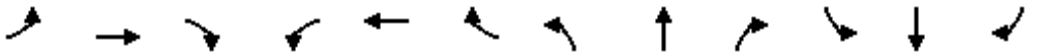
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	0	164	1	15	474	25	1000
Future Volume (vph)	12	0	164	1	15	474	25	1000
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	9.6	27.8	9.6	27.8
Total Split (%)	37.7%	37.7%	37.7%	37.7%	16.0%	46.3%	16.0%	46.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.2		13.2	35.9	33.7	36.9	35.9
Actuated g/C Ratio		0.22		0.22	0.60	0.56	0.62	0.60
v/c Ratio		0.07		0.63	0.05	0.26	0.05	0.53
Control Delay		0.4		30.1	5.7	7.6	5.8	10.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		0.4		30.1	5.7	7.6	5.8	10.4
LOS		A		C	A	A	A	B
Approach Delay		0.4		30.1		7.6		10.3
Approach LOS		A		C		A		B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 51.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	16	164	1	6	15	474	6	25	1000	19
Future Volume (veh/h)	12	0	16	164	1	6	15	474	6	25	1000	19
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	0	17	178	1	7	16	515	7	27	1087	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	30	158	341	1	9	366	2092	28	687	2116	41
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.04	1.00	1.00	0.03	0.59	0.59
Sat Flow, veh/h	559	185	974	1378	8	54	1781	3590	49	1781	3566	69
Grp Volume(v), veh/h	30	0	0	186	0	0	16	255	267	27	542	566
Grp Sat Flow(s),veh/h/ln	1719	0	0	1440	0	0	1781	1777	1862	1781	1777	1858
Q Serve(g_s), s	0.0	0.0	0.0	6.5	0.0	0.0	0.2	0.0	0.0	0.4	10.7	10.7
Cycle Q Clear(g_c), s	0.9	0.0	0.0	7.4	0.0	0.0	0.2	0.0	0.0	0.4	10.7	10.7
Prop In Lane	0.43		0.57	0.96		0.04	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	364	0	0	351	0	0	366	1036	1085	687	1055	1103
V/C Ratio(X)	0.08	0.00	0.00	0.53	0.00	0.00	0.04	0.25	0.25	0.04	0.51	0.51
Avail Cap(c_a), veh/h	574	0	0	547	0	0	483	1036	1085	784	1055	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	0.0	24.1	0.0	0.0	5.5	0.0	0.0	4.6	7.1	7.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.2	0.0	0.0	0.0	0.6	0.5	0.0	1.8	1.7
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	0.3	0.0	0.0	2.5	0.0	0.0	0.1	0.2	0.2	0.1	3.5	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	0.0	0.0	25.3	0.0	0.0	5.6	0.6	0.5	4.6	8.9	8.8
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			186			538			1135	
Approach Delay, s/veh		21.5			25.3			0.7			8.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	39.5		14.2	5.7	40.1		14.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	23.3		18.1	5.1	23.3		18.1				
Max Q Clear Time (g_c+I1), s	2.4	2.0		2.9	2.2	12.7		9.4				
Green Ext Time (p_c), s	0.0	3.1		0.1	0.0	5.3		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		8.3	
HCM 6th LOS		A	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	488	14	0	1276
Future Vol, veh/h	0	7	488	14	0	1276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	530	15	0	1387

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	273	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	725	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	725	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	725	-
HCM Lane V/C Ratio	-	-	0.01	-
HCM Control Delay (s)	-	-	10	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	659	77	0	1276
Future Vol, veh/h	0	7	659	77	0	1276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	716	84	0	1387

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	400	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	600	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	600	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	600	-
HCM Lane V/C Ratio	-	-	0.013	-
HCM Control Delay (s)	-	-	11.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	11	20	0	10	161	0
Future Vol, veh/h	11	20	0	10	161	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	22	0	11	175	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	34	0	34	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1578	-	979	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1012	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1578	-	979	1054
Mov Cap-2 Maneuver	-	-	-	-	979	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1012	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	979	-	-	1578	-
HCM Lane V/C Ratio	0.179	-	-	-	-
HCM Control Delay (s)	9.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	709	1227	130	0	115
Future Vol, veh/h	0	709	1227	130	0	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	746	1292	137	0	119

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1292
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	199
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	199
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

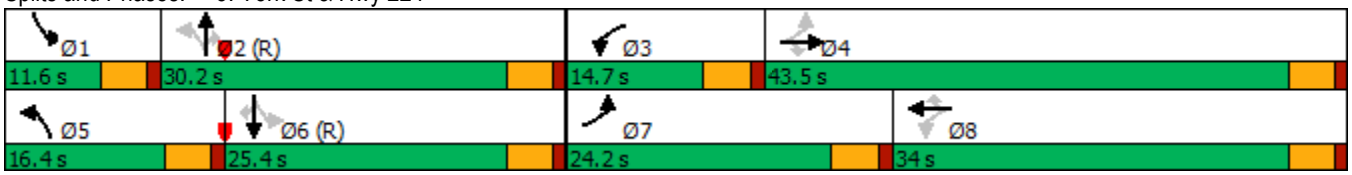
Approach	EB	WB	SB
HCM Control Delay, s	0	0	46.7
HCM LOS			E

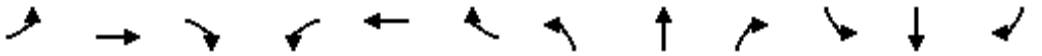
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	199
HCM Lane V/C Ratio	-	-	-	0.596
HCM Control Delay (s)	-	-	-	46.7
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	3.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	387	840	355	135	924	342	270	726	290	153	320	160
Future Volume (vph)	387	840	355	135	924	342	270	726	290	153	320	160
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.2	43.5	43.5	14.7	34.0	34.0	16.4	30.2	30.2	11.6	25.4	25.4
Total Split (%)	24.2%	43.5%	43.5%	14.7%	34.0%	34.0%	16.4%	30.2%	30.2%	11.6%	25.4%	25.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	53.7	40.2	40.2	38.5	29.5	29.5	37.3	25.7	25.7	28.0	20.9	20.9
Actuated g/C Ratio	0.54	0.40	0.40	0.38	0.30	0.30	0.37	0.26	0.26	0.28	0.21	0.21
v/c Ratio	0.96	0.62	0.45	0.47	0.93	0.57	0.75	0.84	0.50	0.81	0.46	0.34
Control Delay	63.1	26.4	5.5	18.7	50.7	14.8	37.7	45.0	8.6	54.4	36.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	26.4	5.5	18.7	50.7	14.8	37.7	45.0	8.6	54.4	36.9	4.0
LOS	E	C	A	B	D	B	D	D	A	D	D	A
Approach Delay		30.7			38.9			35.3			32.8	
Approach LOS		C			D			D			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 34.5	Intersection LOS: C
Intersection Capacity Utilization 90.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: York St & Hwy 224





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	387	840	355	135	924	342	270	726	290	153	320	160
Future Volume (veh/h)	387	840	355	135	924	342	270	726	290	153	320	160
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	407	884	0	142	973	0	284	764	0	161	337	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	1469		342	1038		421	929		240	758	
Arrive On Green	0.20	0.41	0.00	0.07	0.29	0.00	0.12	0.26	0.00	0.07	0.21	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	407	884	0	142	973	0	284	764	0	161	337	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	17.5	19.4	0.0	5.5	26.7	0.0	11.9	20.2	0.0	7.1	8.2	0.0
Cycle Q Clear(g_c), s	17.5	19.4	0.0	5.5	26.7	0.0	11.9	20.2	0.0	7.1	8.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	1469		342	1038		421	929		240	758	
V/C Ratio(X)	0.94	0.60		0.42	0.94		0.68	0.82		0.67	0.44	
Avail Cap(c_a), veh/h	437	1469		391	1048		421	929		240	758	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.0	22.9	0.0	22.2	34.5	0.0	26.0	34.7	0.0	29.7	34.2	0.0
Incr Delay (d2), s/veh	27.5	0.7	0.0	0.8	15.1	0.0	4.2	8.1	0.0	7.1	1.9	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	10.2	7.8	0.0	2.3	13.1	0.0	5.6	9.6	0.0	3.5	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	23.6	0.0	23.0	49.6	0.0	30.2	42.9	0.0	36.8	36.1	0.0
LnGrp LOS	D	C		C	D		C	D		D	D	
Approach Vol, veh/h		1291			1115			1048			498	
Approach Delay, s/veh		33.4			46.2			39.4			36.3	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	30.6	11.9	45.8	16.4	25.8	24.1	33.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.1	25.7	10.2	39.0	11.9	20.9	19.7	29.5
Max Q Clear Time (g_c+I1), s	9.1	22.2	7.5	21.4	13.9	10.2	19.5	28.7
Green Ext Time (p_c), s	0.0	1.7	0.1	5.5	0.0	1.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	39.0
HCM 6th LOS	D

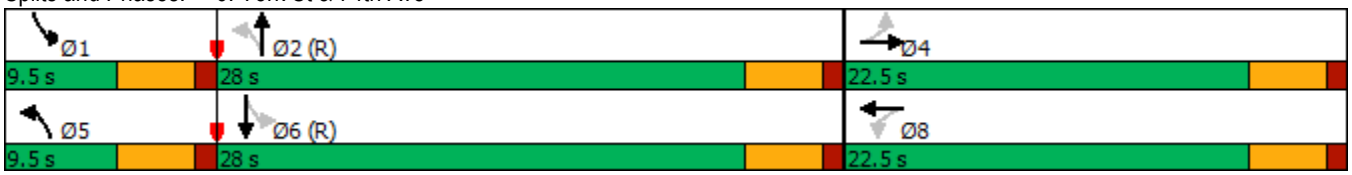
Notes

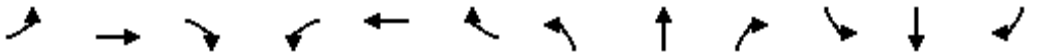
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	0	159	9	10	1062	21	470
Future Volume (vph)	19	0	159	9	10	1062	21	470
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	28.0	9.5	28.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	15.8%	46.7%	15.8%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		13.3		13.3	36.8	35.8	36.8	35.8
Actuated g/C Ratio		0.22		0.22	0.61	0.60	0.61	0.60
v/c Ratio		0.12		0.65	0.02	0.55	0.07	0.24
Control Delay		1.1		30.6	5.8	10.9	6.1	7.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		1.1		30.6	5.8	10.9	6.1	7.7
LOS		A		C	A	B	A	A
Approach Delay		1.1		30.6		10.9		7.6
Approach LOS		A		C		B		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: York St & 74th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	0	26	159	9	6	10	1062	2	21	470	5
Future Volume (veh/h)	19	0	26	159	9	6	10	1062	2	21	470	5
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		1.00	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	0	28	173	10	7	11	1154	2	23	511	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	30	160	333	13	9	615	2130	4	358	2156	21
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.01	0.59	0.59	0.03	0.60	0.60
Sat Flow, veh/h	548	185	978	1335	77	54	1781	3640	6	1781	3606	35
Grp Volume(v), veh/h	49	0	0	190	0	0	11	563	593	23	252	264
Grp Sat Flow(s),veh/h/ln	1712	0	0	1466	0	0	1781	1777	1869	1781	1777	1864
Q Serve(g_s), s	0.0	0.0	0.0	5.9	0.0	0.0	0.1	11.6	11.6	0.3	4.0	4.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0	7.4	0.0	0.0	0.1	11.6	11.6	0.3	4.0	4.0
Prop In Lane	0.43		0.57	0.91		0.04	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	365	0	0	354	0	0	615	1040	1094	358	1062	1114
V/C Ratio(X)	0.13	0.00	0.00	0.54	0.00	0.00	0.02	0.54	0.54	0.06	0.24	0.24
Avail Cap(c_a), veh/h	570	0	0	547	0	0	739	1040	1094	459	1062	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	0.0	23.9	0.0	0.0	4.9	7.6	7.6	5.7	5.7	5.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	1.3	0.0	0.0	0.0	2.0	1.9	0.1	0.5	0.5
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	0.6	0.0	0.0	2.5	0.0	0.0	0.0	3.9	4.1	0.1	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	0.0	0.0	25.2	0.0	0.0	4.9	9.6	9.5	5.8	6.2	6.2
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		49			190			1167			539	
Approach Delay, s/veh		21.8			25.2			9.5			6.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	39.6		14.3	5.3	40.4		14.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.0	23.5		18.0				
Max Q Clear Time (g_c+I1), s	2.3	13.6		3.5	2.1	6.0		9.4				
Green Ext Time (p_c), s	0.0	5.3		0.1	0.0	2.9		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		10.4	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	1068	12	0	633
Future Vol, veh/h	0	6	1068	12	0	633
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	1161	13	0	688

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	587	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	453	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	453	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	453	-
HCM Lane V/C Ratio	-	-	0.014	-
HCM Control Delay (s)	-	-	13.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	1380	75	0	663
Future Vol, veh/h	0	6	1380	75	0	663
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	1500	82	0	721

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	791	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	332	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	332	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	332	-
HCM Lane V/C Ratio	-	-	0.02	-
HCM Control Delay (s)	-	-	16.1	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	19	0	17	157	0
Future Vol, veh/h	4	19	0	17	157	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	21	0	18	171	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	25	0	33	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	18	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1589	-	980	1065
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1005	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1589	-	980	1065
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1005	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	980	-	-	1589	-
HCM Lane V/C Ratio	0.174	-	-	-	-
HCM Control Delay (s)	9.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	1283	1205	130	0	116
Future Vol, veh/h	0	1283	1205	130	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	200	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1351	1268	137	0	120

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1268
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	206
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	206
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	44.2
HCM LOS			E

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	206
HCM Lane V/C Ratio	-	-	-	0.581
HCM Control Delay (s)	-	-	-	44.2
HCM Lane LOS	-	-	-	E
HCM 95th %tile Q(veh)	-	-	-	3.2

KELLAR ENGINEERING

Sean Kellar, PE, PTOE

Principal Engineer

Education
B.S., Civil Engineering, Arizona State University – Tempe, AZ

Registration
Colorado, Professional Engineer (PE)
Wyoming, Professional Engineer (PE)
Idaho, Professional Engineer (PE)
Arizona, Professional Engineer (PE)
Kansas, Professional Engineer (PE)
Missouri, Professional Engineer (PE)
Professional Traffic Operations Engineer (PTOE)

Professional Memberships
Institute of Transportation Engineers (ITE)

Industry Tenure
23 Years

Sean's wide range of expertise includes: transportation planning, traffic modeling roadway design, bike and pedestrian facilities, traffic impact studies, traffic signal warrant analysis, parking studies, corridor planning and access management. Sean's experience in both the private and public sectors; passion for safety and excellence; and strong communication and collaboration skills can bring great value to any project. Prior to starting Kellar Engineering, Sean was employed at the Missouri Department of Transportation (MoDOT) as the District Traffic Engineer for the Kansas City District. Sean also worked for the City of Loveland, CO for over 10 years as a Senior Civil Engineer supervising a division of transportation/traffic engineers. While at the City of Loveland, Sean managed several capital improvement projects, presented several projects to the City Council and Planning Commission in public hearings, and managed the revisions to the City's Street Standards. Sean is also proficient in Highway Capacity Software, Synchro, PT Vissim, Rodel, GIS, and AutoCAD.

WORK EXPERIENCE:

Kellar Engineering, Principal Engineer/President – January 2016 – Present

Missouri Department of Transportation, District Traffic Engineer, Kansas City District – June 2015 – January 2016

City of Loveland, Colorado, Senior Civil Engineer, Public Works Department – February 2005 – June 2015

Kirkham Michael Consulting Engineers, Project Manager - February 2004 – February 2005

Dibble and Associates Consulting Engineers, Project Engineer – August 1999 – February 2004