



**Application Type:**

<input type="checkbox"/> Conceptual Review	<input type="checkbox"/> Preliminary PUD	<input type="checkbox"/> Temporary Use
<input type="checkbox"/> Subdivision, Preliminary	<input type="checkbox"/> Final PUD	<input type="checkbox"/> Variance
<input type="checkbox"/> Subdivision, Final	<input type="checkbox"/> Rezone	<input type="checkbox"/> Conditional Use
<input type="checkbox"/> Plat Correction/ Vacation	<input type="checkbox"/> Special Use	<input type="checkbox"/> Other: _____

**PROJECT NAME:**

**APPLICANT**

Name(s):  Phone #:

Address:

City, State, Zip:

2nd Phone #:  Email:

---

**OWNER**

Name(s):  Phone #:

Address:

City, State, Zip:

2nd Phone #:  Email:

---

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

Name:  Phone #:

Address:

City, State, Zip:

2nd Phone #:  Email:

---

**DESCRIPTION OF SITE**

Address:

City, State, Zip:

Area (acres or square feet):

Tax Assessor Parcel Number

Existing Zoning:

Existing Land Use:

Proposed Land Use:

Have you attended a Conceptual Review? YES  NO

If Yes, please list PRE#:

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:

Date:

Owner's Printed Name

Name:

Owner's Signature

**OWNER**

**Name(s):** Cory J. Thornton

**Phone#** 303-457-2966

**Address:** 12460 First Street

**City, State, Zip:** Eastlake, CO - 80614

**Email:**



---

Cory J. Thornton

**OWNER**

**Name(s):** Bradley W. Penwell

**Phone#** 303-457-2966

**Address:** 12460 First Street

**City, State, Zip:** Eastlake, CO - 80614

**Email:**



---

Bradley W. Penwell

**OWNER**

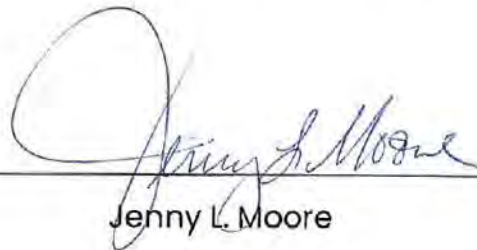
**Name(s):** Jenny L. Moore

**Phone#** 303-457-2966

**Address:** 12460 First Street

**City, State, Zip:** Eastlake, CO - 80614

**Email:**



---

Jenny L. Moore

**OWNER**

**Name(s):** Ryan L. Carlson

**Phone#** 303-457-2966

**Address:** 12460 First Street

**City, State, Zip:** Eastlake, CO - 80614

**Email:**



---

Ryan L. Carlson

**OWNER**

Name(s): Todd Creek Village Metropolitan District

Phone#: (303) 637 - 0344

Address: 10450 E. 159th Court

City, State, Zip: Brighton, CO 80602

Email: Don@ToddCreekVillage.org

Signature: 

Name (print): Don Summers

**OWNER**

Name(s): Todd Creek Farms Metro District No. 1 c/o Zions National Bank Trustee

Phone#: (303) 637 - 0344

Address: 717 17th Street, Ste 301

City, State, Zip: Denver, CO 80202

Email: Don@ToddCreekVillage.org

Signature: 

Name (print): Don Summers

**OWNER**

Name(s): Taylor R. Carlson

Phone# 303-457-2966

Address: 12460 First Street

City, State, Zip: Eastlake, CO - 80614

Email:



Taylor R. Carlson

**OWNER**

Name(s): HSG LAND LLC

Phone# 720-252-2111

Address: 10450 E 159th CT

City, State, Zip: Brighton, CO - 80602-7977

Email: thanlon@wspcos.com

*The undersigned has executed the application documents referenced herein only as to Assessor Parcels 157103000014, 157103300009, 157103300003.*

**OWNER**

Name(s): SELTZER FARMS INC

Phone# 303-746-2881 SHERRY

Address: 9390 E 168th Ave.

303-349-7182 GREG

City, State, Zip: Brighton, CO - 80602-6606

Email: flowerchild1@protonmail.com (SHERRY)

Name:

See Attached  
SELTZER FARMS, INC.  
Owner's Printed Name

Date:

6-27-2023

Name:

See Attached

Owner's Signature

REX A. SELTZER, PRESIDENT   
GREGORY J. SELTZER, VICE PRESIDENT, TREAS.   
SHERRY L. KREUTZER, VICE PRESIDENT, SEC



# TODD CREEK

PUD MAJOR AMENDMENT



**PREPARED BY**  
John Prestwich  
President  
PCS Group

**PREPARED FOR**  
Adams County  
Jennifer Rutter

**DATE ISSUED**  
May 30, 2023



May 30, 2023

Jennifer Rutter | Planning & Development Manager  
Adams County  
4430 South Adams County Parkway | Brighton, CO 80601  
| O | 720-523-6841  
| E | jrutter@adcogov.com

Dear Jennifer,

It is our pleasure to submit a Major PUD Amendment for several combined properties currently within the Todd Creek PUD, in Adams County, Colorado. We are excited with the prospect of working with Adams County and the entire project team to produce a high quality, diverse master plan for the combined properties that will be consistent with the Advancing Adams County Comprehensive Plan.

At this time there are essentially five properties that are combining in this effort, we have prepared the Major PUD Amendment, as well as the required Site Plan depicting the proposed uses for the five properties highlighting primary roadway connections, Park and Open Space areas, as well as a robust trail network, and associated potential residential densities.



The primary rationale for pursuing what we understand will be a Major Amendment to the existing PUD is to closely align the vision for these properties with the Advancing Adams County Comprehensive Plan Amendment. The vision for these properties is to include a greater variety of housing opportunities to meet the anticipated population and housing demand, as well as provide more attainable housing options. In general the Site Plan anticipates higher densities



towards the north adjacent to E-168th Ave, transitioning to lower densities to the south of the properties adjacent to the existing residential areas. The intent is that with this greater diversity of housing opportunities these neighborhoods will be able to provide housing types that will meet the “missing middle housing”.

Additionally, at the PUD and Site Plan level we are depicting centrally located park areas that will act as the heart of the various neighborhoods, as well as a robust trail network that will benefit the larger area.

The PUD Amendment for Todd Creek has been created to be more in alignment with the goals of Adams County as demonstrated in the Amended Comprehensive Plan that was approved on September 27, 2022. The main takeaways from the Comprehensive plan were that the population of Adams County is expected to grow by 1.7% and housing is not on pace to meet the demand. In addition, the rising housing prices will threaten attainability and displacement. Therefore, the PUD Amendment allows for a greater variety of housing than the large lot single-family homes that were initially approved for the PUD. With the greater variety of housing there will be opportunities and products available for first-time home buyers and smaller lot homes for those that may want to down-size.

The PUD Amendment will achieve several of the goals outlined within the Comprehensive Plan. The specific Goals, Policies and Strategies that will be achieved are listed below:

#### **Community and Housing Goals, Policies, and Strategies:**

- 1. COH Goal 1:** *Support sustainable and responsible land use planning for residential growth and development.*
- 2. COH Goal 2:** *Increase housing opportunities throughout Adams County by taking a proactive role in addressing housing affordability, diversity and supply through land use regulations.*
- 3. COH Policy 2.1:** *Adams County's policy is to support a diverse and inclusive community. This is achieved by offering a range of housing options that include opportunities for homeownership and rental, a variety of housing types and price ranges, and housing that is designed to meet the needs of all ages and ability levels.*
- 4. COH Strategy 2.1.01:** *Support diversity of housing types through updates to the Adams County Development Standards & Regulations and by aligning zoning with future land uses.*

Adams County endeavors to provide housing that works for people on all paths of life. A central topic raised throughout the community engagement process was access to housing for all residents. Adams County residents expressed a need to support a broad spectrum of opportunities beyond the current predominantly single-family detached homes including manufactured housing, apartments, and townhomes. Residents also expressed needs for more homeownership opportunities. Responses indicated a need for housing that meets the needs of people at different stages in their life including housing that meets the needs of seniors and those with disabilities. The PUD Amendment Site Plan demonstrates how the diversity of housing can be designed and planned with an approved Amendment to the Todd Creek PUD.

#### **Built Environment and Connections Goals, Policies, and Strategies:**

- 5. BEC Goal 2:** *An inclusive community that provides opportunities for people to live, work, and achieve their highest level of health and well-being.*
- 6. BEC Strategy 1.2.01:** *New development, including new special districts, should mitigate impacts and improve livability in the county by contributing appropriate impact and land dedication fees, including but not limited to traffic, fire districts, school districts, and parks and open space.*



- The PUD Amendment will meet this criteria by working with the County to assess the impact and land dedication fees. The Todd Creek Planning Team will provide the appropriate studies to determine the impacts and incorporate into the site plan design accordingly.
- 7. BEC Strategy 1.2.06:** *Continue to enforce provisions that require groundwater resources be demonstrated for 300 years to ensure long-term viability of groundwater for development. Consider the development of a County Water Analysis to understand the capacity of existing water sources and sanitary resources (See also NRE 2.1.01).*
    - The PUD Amendment plans to meet this strategy by incorporating the 3 reservoir sites within the updated PUD. Its water resources will be managed by the Todd Creek HOA.
  - 8. BEC Strategy 2.2.02:** *Encourage subdivisions to provide internal connectivity to enhance walkability. Encourage public and private connections to public trails when adjacent to the subdivision or neighborhood*
  - 9. BEC Strategy 2.2.03:** *Support public health needs by seeking opportunities to enhance access to community resources, such as healthy food, healthcare, childcare, safe neighborhoods and places for physical activity.*
    - The PUD Amendment meets the 2 above strategies by incorporating a robust trail system that interconnects the subdivision and also meets public health needs by providing opportunities for physical activity. The proposed plan includes 2 neighborhood parks, 7 pocket parks, and 3 reservoirs with perimeter trails to encourage outdoor activity.

The Todd Creek PUD Amendment will align with the goals, policies, and strategies of the Adams County Comprehensive Plan by incorporating a diversity of housing and providing ample opportunities for outdoor recreation. Although the current plan will add approximately 1,600 more residences the overall density will remain within the criteria for residential low zoning with less than 6 DU/AC. The PUD Amendment will enhance the community by providing more of the housing needs and also retaining and creating outdoor community spaces and connectivity.

We look forward to a partnership with Adams County in the creation of these new and exciting neighborhoods as we continue to refine the design and add more detail as part of the full entitlement process.

In terms of utilities we have provided a will serve letter from the Todd Creek Village Metropolitan District. With respect to electrical and gas we anticipate service being provided by United Power/ Xcel Energy. Phone/Cable and Internet will be determined as we get closer to actual development.

Sincerely,



John Prestwich  
President, RLA  
PCS Group

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### COVER SHEET

**CERTIFICATE OF OWNERSHIP**

(TODD CREEK VILLAGE, LLC), BEING THE OWNER OR REPRESENTATIVE OF THE TODD CREEK VILLAGE PUD LOCATED IN THE COUNTY OF ADAMS, STATE OF COLORADO, HEREBY SUBMITS THIS PRELIMINARY PLANNED UNIT DEVELOPMENT MAJOR AMENDMENT AND AGREES TO PERFORM UNDER THE TERMS NOTED HEREON.

\_\_\_\_\_  
(OWNERS SIGNATURE)

THE OWNERS SIGNATURE(S) SHALL BE ACKNOWLEDGED AS FOLLOWS:

STATE) \_\_\_\_\_

COUNTY)SS \_\_\_\_\_

CITY) \_\_\_\_\_

THE FOREGOING OWNERSHIP CERTIFICATE WAS ACKNOWLEDGED BEFORE ME THIS \_\_\_\_\_, DAY OF \_\_\_\_\_, 20\_\_\_\_.

NOTARY PUBLIC \_\_\_\_\_

MY COMMISSION EXPIRES: \_\_\_\_\_

**PLANNING COMMISSION APPROVAL:**

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

\_\_\_\_\_  
CHAIRMAN

**BOARD OF COUNTY COMMISSIONERS APPROVAL:**

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

\_\_\_\_\_  
CHAIRMAN

**CERTIFICATE OF THE CLERK AND RECORDER:**

THIS MAJOR PUD AMENDMENT WAS FILED FOR RECORD IN THE OFFICE OF THE ADAMS COUNTY CLERK AND RECORDER IN THE STATE OF COLORADO AT \_\_\_\_M.

ON THE \_\_\_\_\_, DAY OF \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
COUNTY CLERK AND RECORDER

ADDITIONS AND DELETIONS BLOCK  
THE FOLLOWING ADDITIONS AND DELETIONS IN THE P.U.D. WERE MADE BY THE BOARD OF COUNTY COMMISSIONERS AT THE TIME OF APPROVAL.

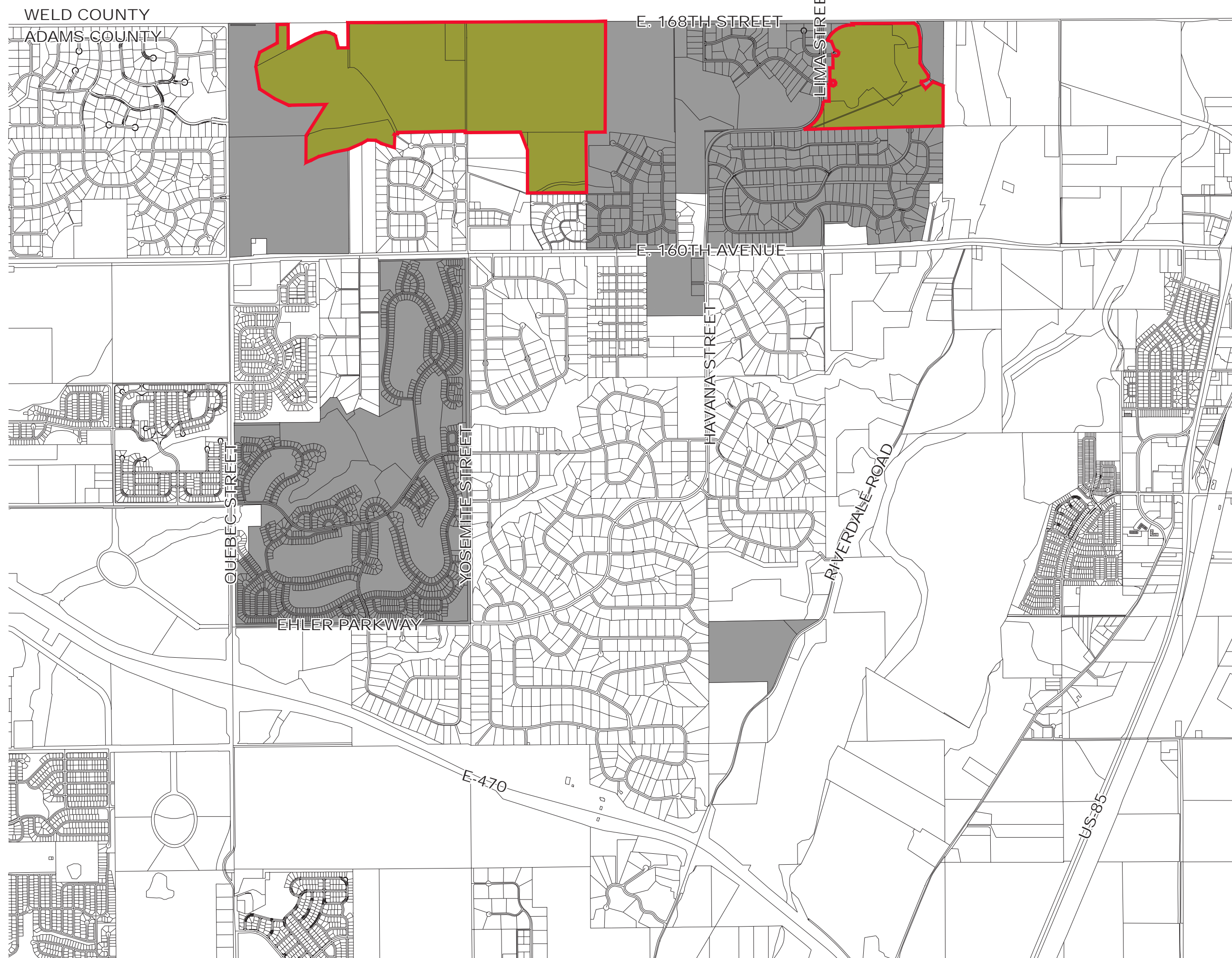
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**STAFF REVIEW:**

APPROVED AS TO FORM BY:

\_\_\_\_\_  
DIRECTOR OF PLANNING AND DEVELOPMENT

\_\_\_\_\_  
COUNTY ATTORNEY



**SHEET INDEX**

Sheet Title	Sheet Numbers
COVER SHEET	- 1
TODD CREEK SUB AREA LAND USE PLAN	- 2
DEVELOPMENT SUMMARY	- 3
PUD AMENDMENT SUMMARY	- 4
LAND USE AND ZONING MAPS	- 5-11
LAND USE AND ZONING DEVELOPMENT STANDARDS	- 12-16
LAND OWNERSHIP MAPS	- 17-23
PERMITTED USE BY PARCEL SUMMARY	- 24
LAND OWNERSHIP LEGALS DESCRIPTIONS & OWNERS ADDRESSES	- 25-27

**LEGEND**



AREAS WITHIN ORIGINAL TODD CREEK VILLAGE P.U.D.

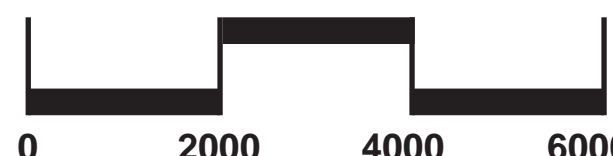


AREAS SUBJECT TO TODD CREEK VILLAGE MAJOR P.U.D. AMENDMENT



NORTH

SCALE: 1" = 2,000'



**NOTE:**

Any references to districts in black text are related to existing districts, references in red text are related to new districts exclusively related to the PUD Amendment area.

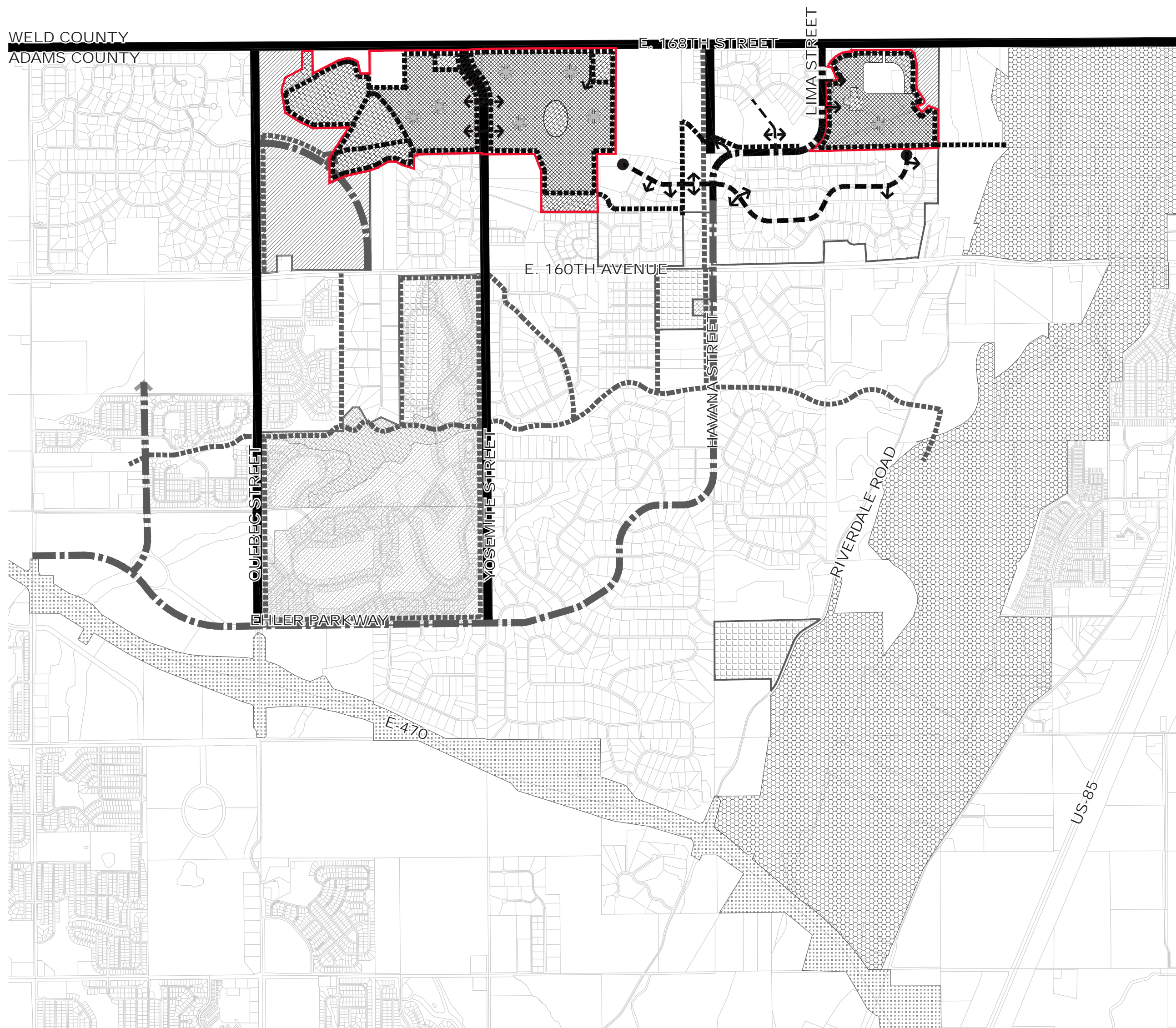


DATE	6-9-2023
REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### SUB AREA LAND USE PLAN



#### LAND USE LEGEND

- PUD Amendment Area Boundary
- Original PUD Area Boundary
- R-E RE Estate Residential
- R-E-1 SFD Residential Single Family Transitional District (2.0 DU/Acre Maximum)
- R-1-A SFD Residential Single Family Flex District (3.5 DU/Acre Maximum)
- PL OS Reservoir Park
- Open Space Conservation (Along Platte River not a part of Todd Creek Village Acreage Calculation)
- Proposed E-470 Right Of Way
- PA R2-R3-R4 Planning Area (3.5 - 24.0 DU/Acre)
- Trails
- Collector Road
- Minor Arterial
- Major Arterial
- School and Park Node

#### DEFINITIONS:

Estate Lot = 1 ac and larger 2.5 maximum with a maximum density of .79 du/ac  
 Residential Single Family Flex District = 2 - 3.5 du/ac SFD  
 Low Density Residential = 3.6 - 4 du/ac SFD/SFA  
 Medium Density Residential = 5 - 6 du/ac SFD/SFA  
 High Density Residential = 7 - 14 du/ac SFA/MF  
 (R-2) Single Family Residential - Detached = 3.5 - 5.5 du/ac SFD  
 (R-3) Single Family Residential - Detached & Attached = 5.5 - 9.5 du/ac SFD  
 (R-4) Single Family Residential - Attached = 9.5 - 24.0 du/ac SFD  
 FAR = Floor Area to Site Ratio  
 Com. SF = Commercial Square Footage  
 O.S. = Open Space  
 RE/PL = Estate Lot or School Site at Brighton  
 27J School District Option

#### NOTE:

\*The intent of this plan is to illustrate design and planning concepts only. Parcel acreages are approximate in nature, and are subject to change according to final platting, CDOT review, actual platted parcel boundaries, and topographic survey information.  
 \*\*Additional park and open space requirements shall be met within the R-1-A land use designations.

**NOTE 2: This SUB AREA LAND USE PLAN is meant to exhibit the changes for the Amendment Area and is NOT meant to re-create the original plan.**



NORTH

SCALE: 1" = 2,000'



LAND PLANNING / LANDSCAPE ARCHITECTURE  
 200 KALAMATH ST. DENVER, CO 80223  
 (303) 531-4905  
 WWW.PCSGROUPCO.COM

KT ENGINEERING  
 ENGINEERS + SURVEYORS  
 12500 W. 58th AVE. #230  
 ARVADA, CO 80002  
 PH: 720.638.5190

DATE	6-9-2023
REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### DEVELOPMENT SUMMARY

SECTION #	ORIGINAL PUD				AMENDED PUD			
	ZONING	GROSS ACREAGE	UNITS	MAX DENSITY	ZONING	GROSS ACREAGE	UNITS	MAX DENSITY
<b>SECTION 2</b> (SHEET 4 OF 26)	R - E/PL R - E	63.06 AC 488.68 AC	49 DU 386 DU	.79 DU/AC-SFD .79 DU/AC-SFD	R-E/PL R-E PA-3 (R-2, R-3, R-4)  PL O&G	63.06 AC 383.08 AC 78.70 AC  12.4 AC 14.5 AC	49 DU 303 DU 362 DU  --- ---	.79 DU/AC-SFD .79 DU/AC-SFD 5.5 DU/AC-SFD 9.5 DU/AC-SFD-SFA 24.0 DU/AC-SFA  --- ---
<b>SECTION 3</b> (SHEET 5 OF 26)	R - E	460.13 AC	363 DU	.79 DU/AC-SFD	R-E PA-2 (R-2, R-3, R-4)  PL	260.46 AC 160.0 AC***  45.43 AC	206 DU 910 DU  ---	.79 DU/AC-SFD 5.5 DU/AC-SFD 9.5 DU/AC-SFD-SFA 24.0 DU/AC-SFA  ---
<b>SECTION 4</b> (SHEET 6 OF 26)	R - E	338.39 AC	267 DU	.79 DU/AC-SFD	R-E PA-1 (R-2, R-3, R-4)  PL O&G	204.32 AC 82.60 AC**  122.49 AC* 12.0 AC	166 DU 706 DU  --- ---	.79 DU/AC-SFD 5.5 DU/AC-SFD 9.5 DU/AC-SFD-SFA 24.0 DU/AC-SFA  ---
<b>SECTION 9</b> (SHEET 7 OF 26)	PL R - 1 - A R - E - 1	85.89 AC 245.48 AC 49.52 AC	--- 859 DU 99 DU	--- 3.5 DU/AC-SFD/SFA 2 DU/AC-SFD	SAME	SAME	SAME	SAME
<b>SECTION 10</b> (SHEET 8 OF 26)	PL R - E - 1	3.00 AC 37.04 AC	--- 74 DU	--- 2 DU/AC-SFD	SAME	SAME	SAME	SAME
<b>SECTION 14</b> (SHEET 9 OF 26)	PL	55.50 AC	---	---	SAME	SAME	SAME	SAME
<b>SECTION 16</b> (SHEET 10 OF 26)	R - 1 - A	297.73 AC	1,042 DU	3.5 DU/AC-SFD/SFA	SAME	SAME	SAME	SAME
<b>TOTAL:</b>		<b>2,124.42 AC</b>	<b>3,139 DU</b>	<b>1.48 DU/AC</b>	<b>TOTAL:</b>	<b>2213.22 AC</b>	<b>4,776 DU</b>	<b>2.16 DU/AC</b>

**DEFINITIONS:**

Estate Lot = 1 ac and larger 2.5 maximum with a maximum density of .79 du/ac  
 Residential Single Family Flex District = 2 - 3.5 du/ac SFD  
 Low Density Residential = 3.6 - 4 du/ac SFD/SFA  
 Medium Density Residential = 5 - 6 du/ac SFD/SFA  
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 (R-2) Single Family Residential - Detached = 3.5 - 5.5 du/ac SFD  
 (R-3) Single Family Residential - Detached & Attached = 5.5 - 9.5 du/ac SFD  
 (R-4) Single Family Residential - Attached = 9.5 - 24.0 du/ac SFD  
 FAR = Floor Area to Site Ratio  
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**NOTE:**

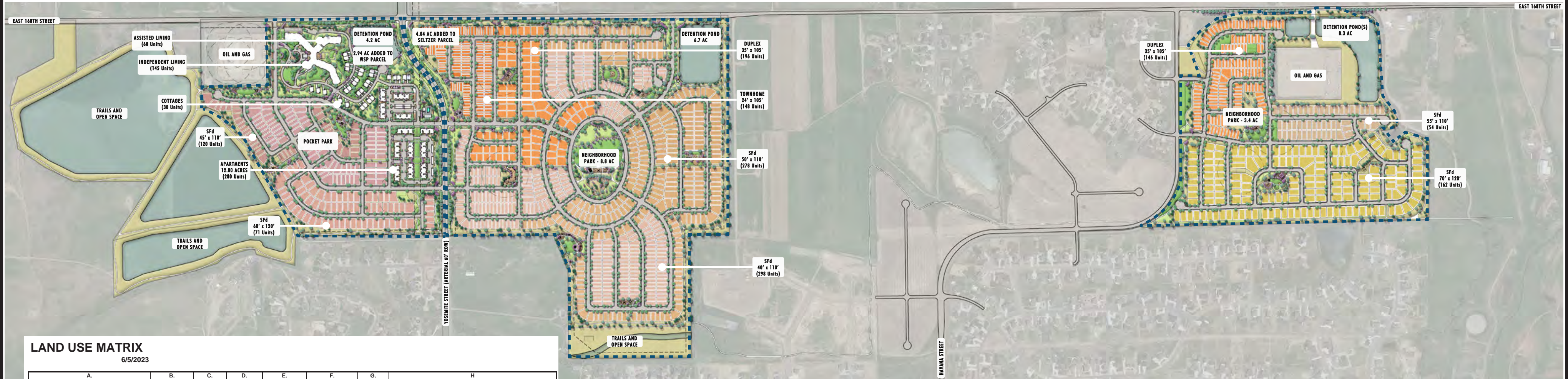
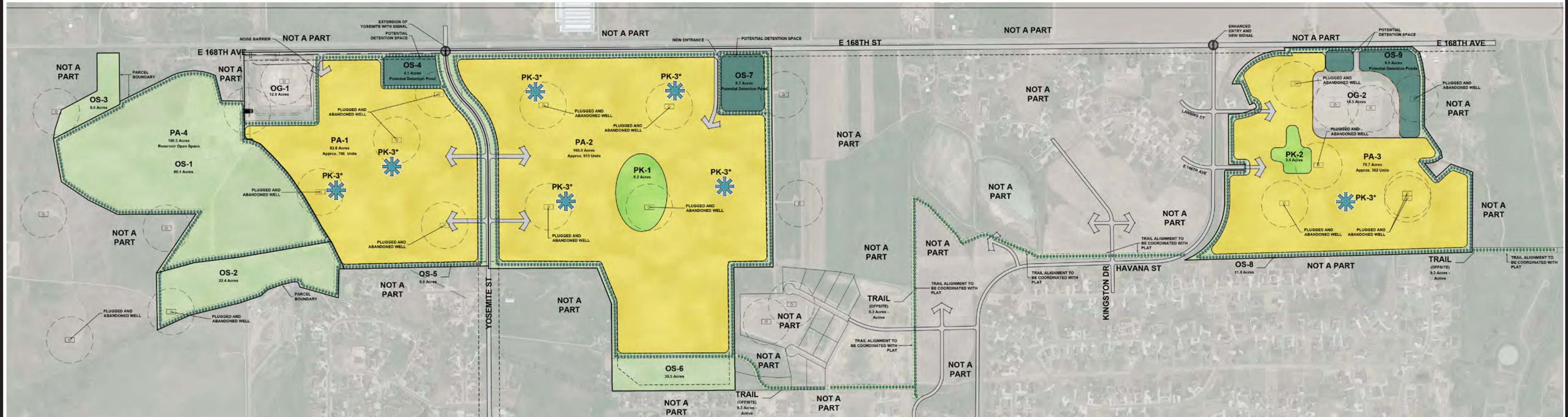
Open space within zone designations is not calculated in this table.  
 Open space shall be dedicated at the rate of 15 acres minimum per 1000 residents, based on 2.96 residents per household (see sheet 11 of 26).  
 School sites may not count toward meeting open space requirements.  
 \* Within Section 4, 80.1 AC of Open Space was added in the PUD Amendment that was not a part of the total acreage of the Original PUD.  
 \*\* Within Section 4, 8.7 AC of acquired land was added in the PUD Amendment that was not a part of the total acreage of the Original PUD.  
 \*\*\* PA-2 contains 5.76 AC that lies within Section 4.



DATE	6-9-2023
REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT



LAND USE MATRIX  
6/5/2023

A. Land Use Item	B. Planning Area Map Number	C. Map Area Code	D. Gross Land Area in Acres	E. Percentage of Total Land Area	F. Land Use Formula (DU/AC)	G. Proposed Maximum Density (In DUs)	H. Details and Comments
1. OPEN SPACE AND TRAIL CORRIDORS	OS-1	OS	80.1	14.5%			Gross Reservoir Open Space With Trail Corridor
	OS-2	OS	22.4	4.1%			Gross Reservoir Open Space With Trail Corridor
	OS-3	OS	6.0	1.1%			Gross Reservoir Open Space
	OS-4	OS	4.1	0.7%			Potential Detention Area
	OS-5	OS	7.7	1.4%			Gross Open Space With Trail Corridor
	OS-6	OS	27.8	5.0%			Gross Open Space With Trail Corridor
	OS-7	OS	6.7	1.2%			Potential Detention Area
	OS-8	OS	12.1	2.2%			Gross Open Space With Trail Corridor
	OS-9	OS	9.0	1.6%			Potential Detention Area
2. PARK & RECREATION AREAS	PK-1	PK	8.3	1.5%			Neighborhood Park
	PK-2	PK	3.3	0.6%			Neighborhood Park
	PK-3*	PK	3.5	0.6%			Pocket Parks (7), Average 1/2 Acre Each
3. DEVELOPMENT AREAS	PA-1	R2, R3, R4	83.0	15.0%	8.6 DU/AC	710	
	PA-2	R2, R3, R4	160.4	29.0%	5.7 DU/AC	912	
	PA-3	R2, R3, R4	79.1	14.3%	4.6 DU/AC	364	
	OG-1	OG	11.9	2.2%			Oil and gas
	OG-2	OG	15.0	2.7%			Oil and gas
4. ADJACENT ROW (YOSEMITE ST. & E. 168TH AVE)			11.9	2.2%			
5. TOTAL DEVELOPMENT AREAS - MINUS O&G AND ADJACENT ROW (YOSEMITE, E-168TH AVE)			513.5	93.0%			
6. Total Map Acreage (Total figures above)			552.3	100.0%	3.59 SITE DU/AC	1,985	
7. Applicant's Acreage Listed in Application			552.3				

**NOTE:**

This is new sheet that was not included in the original PUD, and depicts the more specific design concepts for the PUD Amendment area.

The more detailed illustrative Concept Plan is intended to generally depict that the higher intensity land uses are located towards the north of the properties, closer to E-168th Ave.

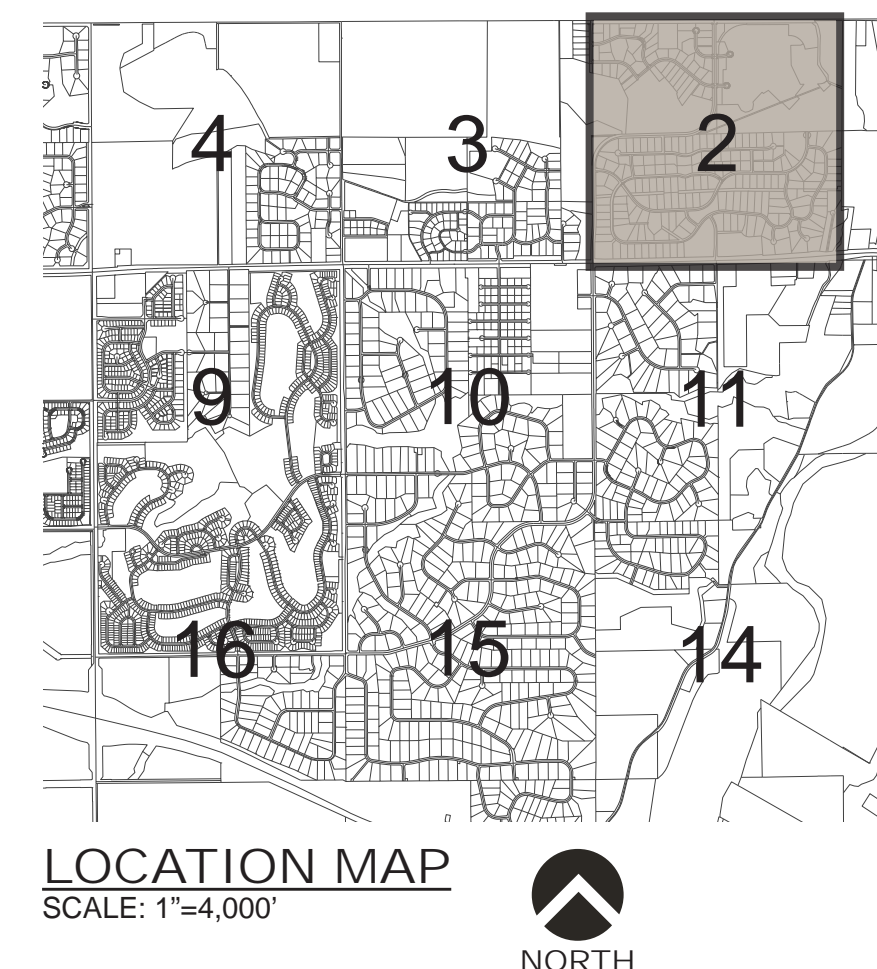
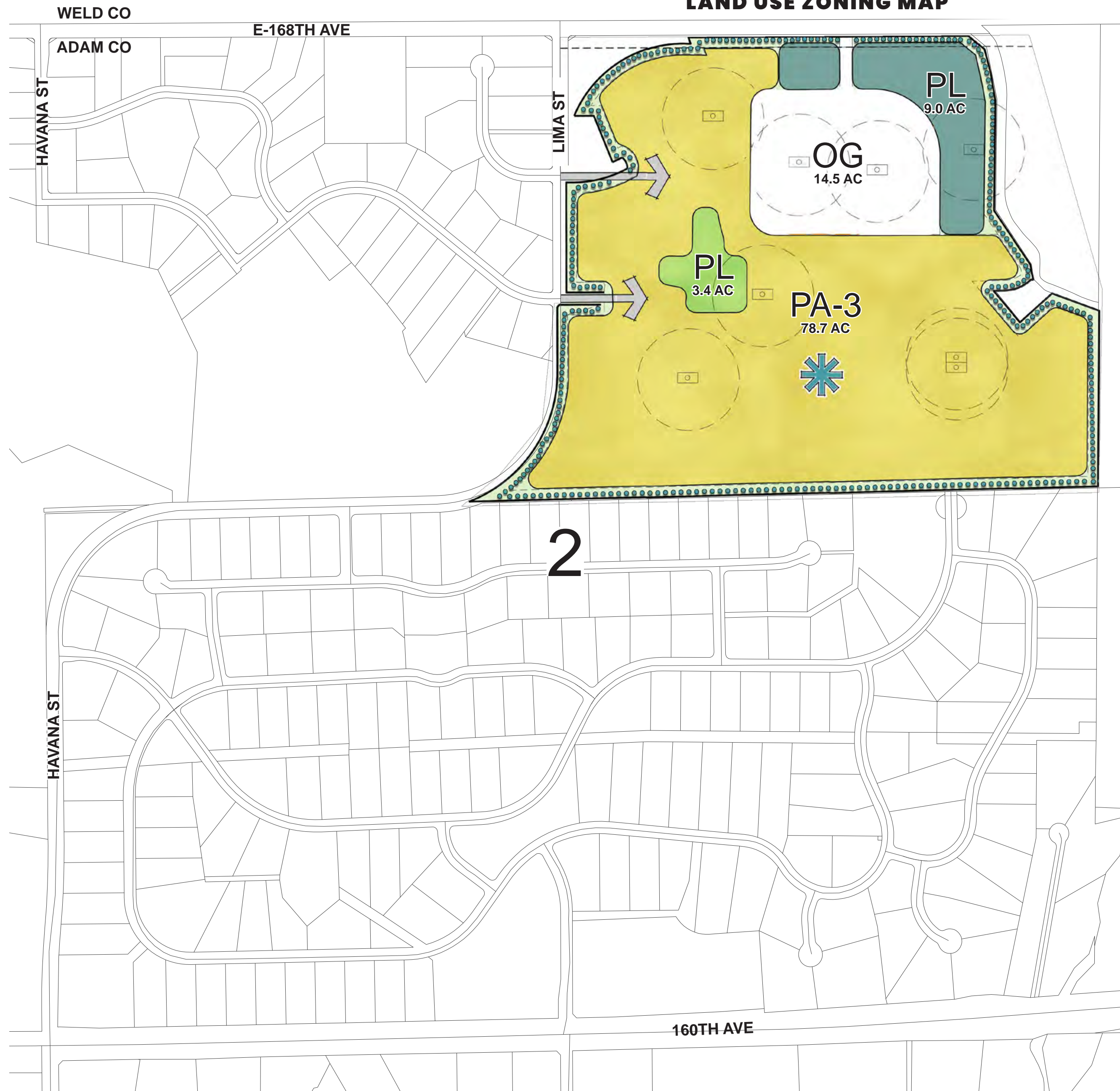


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# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND USE ZONING MAP

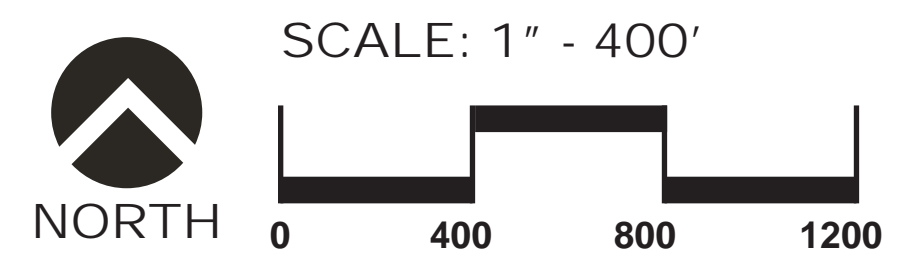


#### LEGEND

-  PROPOSED COLLECTOR STREET LOCATION
- 2** SECTION NUMBER
- R-2** PROPOSED ZONING FOR PARCEL
-  POTENTIAL LOCATION OF POCKET PARKS
- 29.5 AC** APPROXIMATE ACREAGE OF PARCEL

**SECTION 2 SUMMARY**  
 R - E/PL @ .79 DU/AC = 63.06 AC  
 R - E @ .79 DU/AC = 488.68 AC  
**PA-3 (R2, R3, R4) = 78.7 AC**

**NOTE:**  
 Final road location and design are subject to review by C-DOT and others.




LAND PLANNING / LANDSCAPE ARCHITECTURE  
 200 KALAMATH ST. DENVER, CO 80223  
 (303) 531-4905  
 WWW.PCSGROUPCO.COM



KT ENGINEERING  
 ENGINEERS • SURVEYORS  
 12500 W. 58th AVE. #230  
 ARVADA, CO 80002  
 PH: 720.638.5190

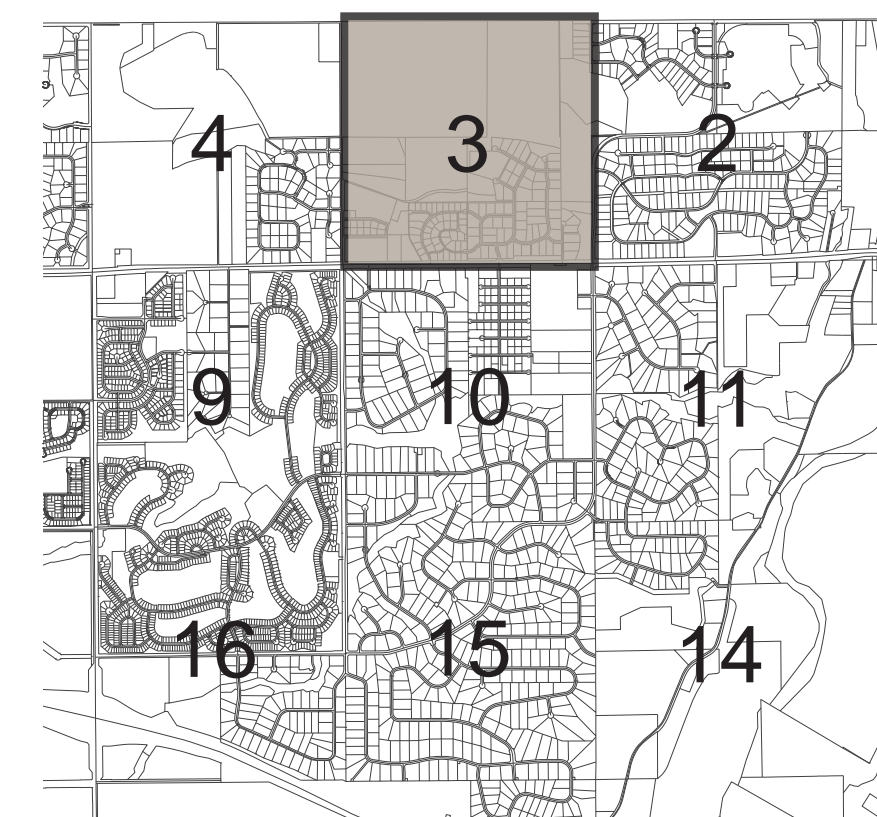
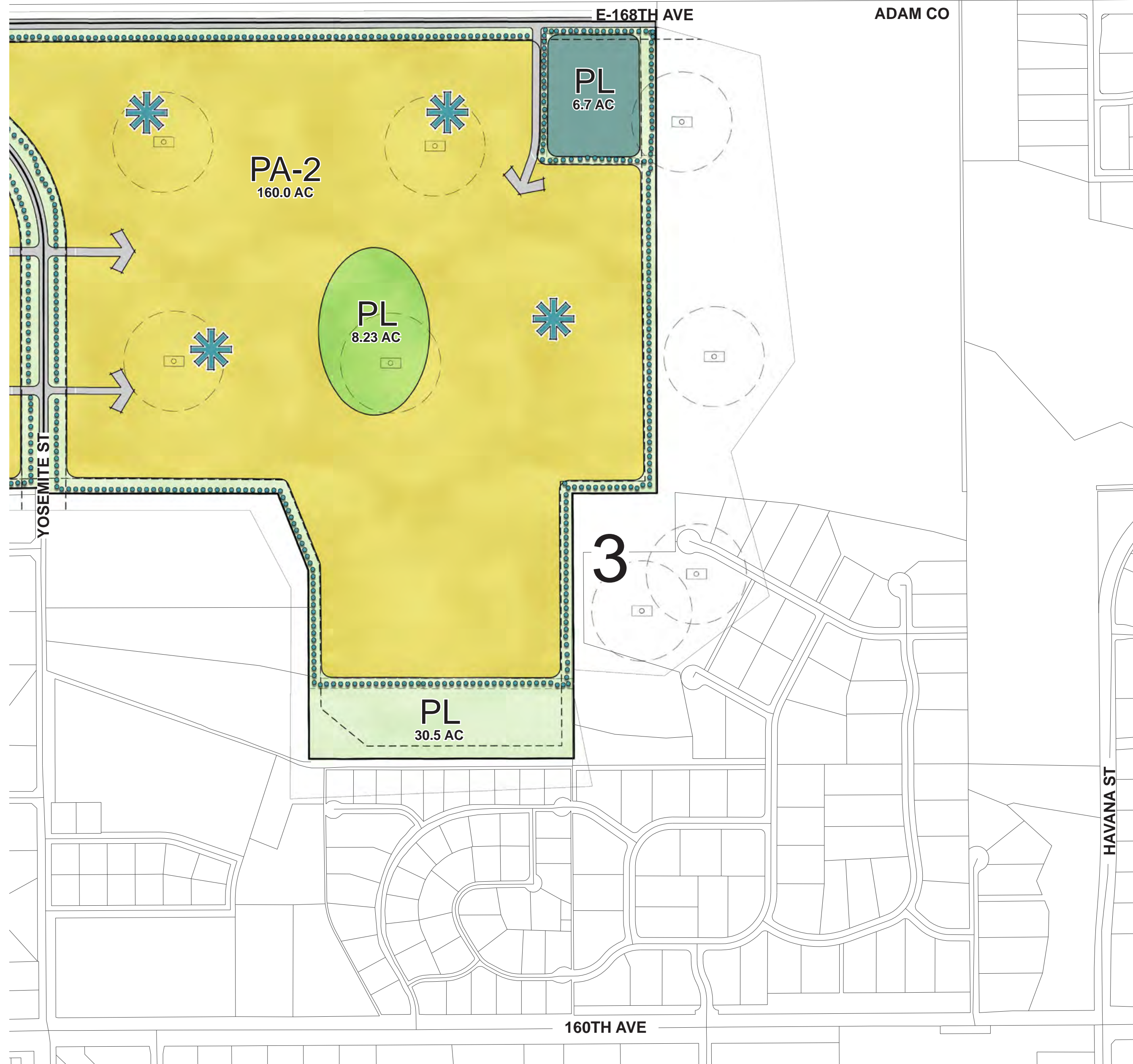
DATE	6-9-2023
REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND USE ZONING MAP






WELD CO  
ADAM CO



LOCATION MAP  
SCALE: 1"=4,000'



#### LEGEND

-  PROPOSED COLLECTOR STREET LOCATION
-  SECTION NUMBER
-  PROPOSED ZONING FOR PARCEL
-  POTENTIAL LOCATION OF POCKET PARKS
-  APPROXIMATE ACREAGE OF PARCEL

#### SECTION 3 SUMMARY

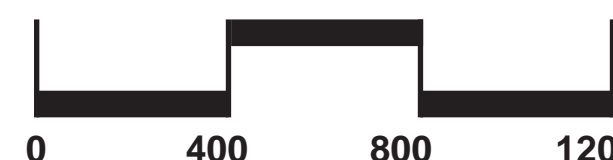
R - E @ .79 DU/AC = 460.13 AC  
PA-2 (R2, R3, R4) = 44.7 AC

#### NOTE:

Final road location and design are subject to review by C-DOT and others.



SCALE: 1" - 400'



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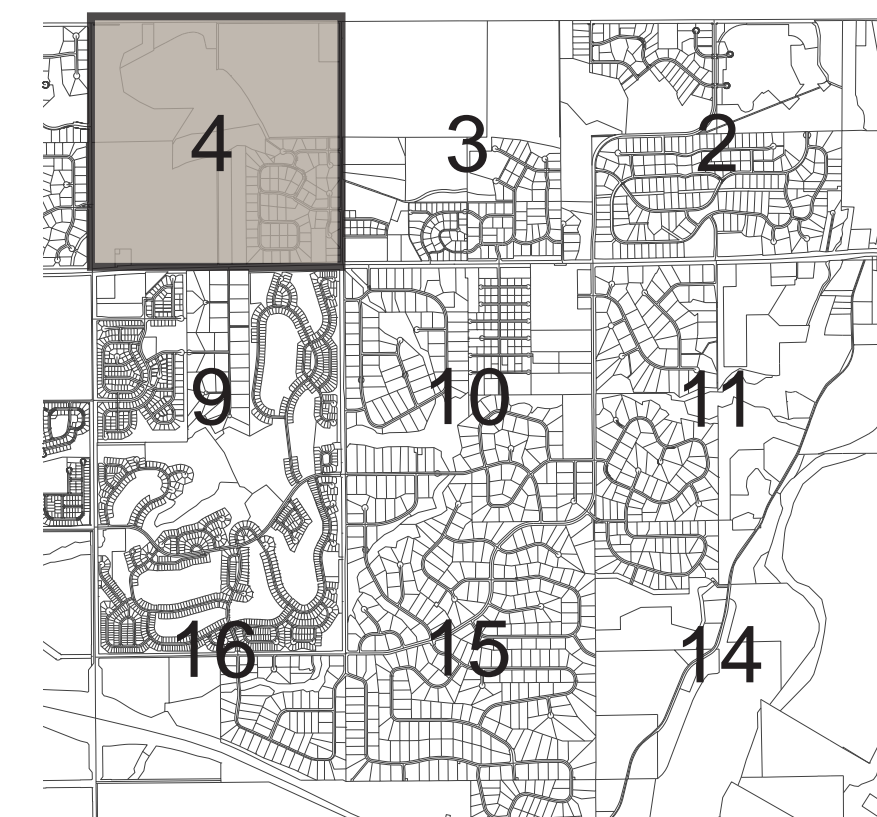
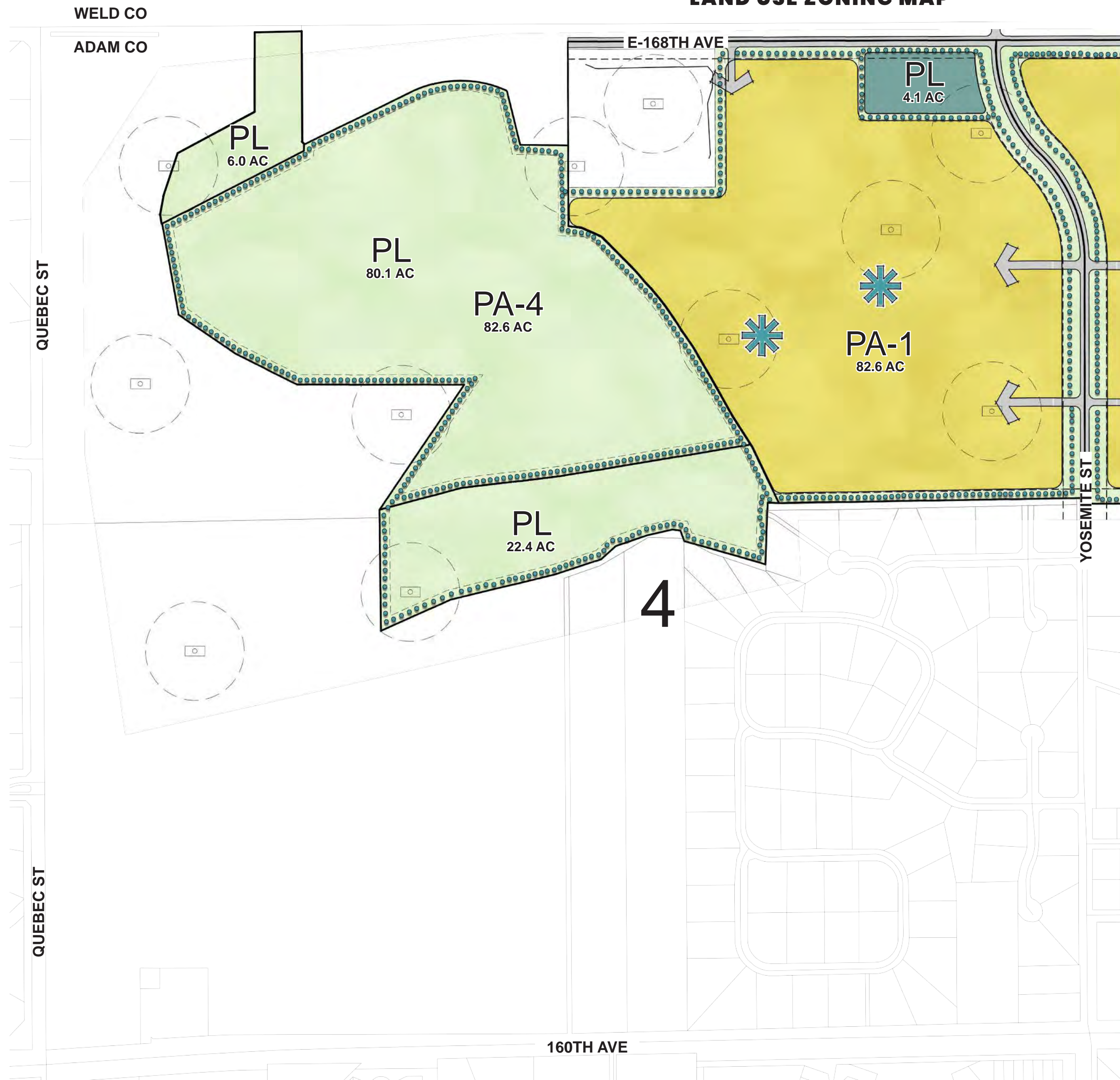
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DATE	6-9-2023
REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND USE ZONING MAP



LOCATION MAP  
SCALE: 1"=4,000'



#### LEGEND

- PROPOSED COLLECTOR STREET LOCATION
- SECTION NUMBER
- PROPOSED ZONING FOR PARCEL
- POTENTIAL LOCATION OF POCKET PARKS
- APPROXIMATE ACREAGE OF PARCEL

#### SECTION 4 SUMMARY

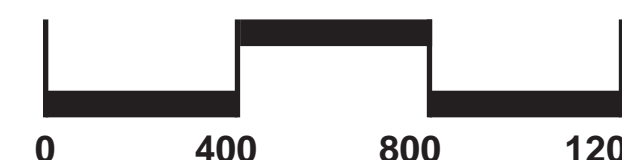
R - E @ .79 DU/AC = **204.32 AC**  
 PA-1 (R2, R3, R4) = **82.6 AC**

#### NOTE:

Final road location and design are subject to review by C-DOT and others.



SCALE: 1" - 400'



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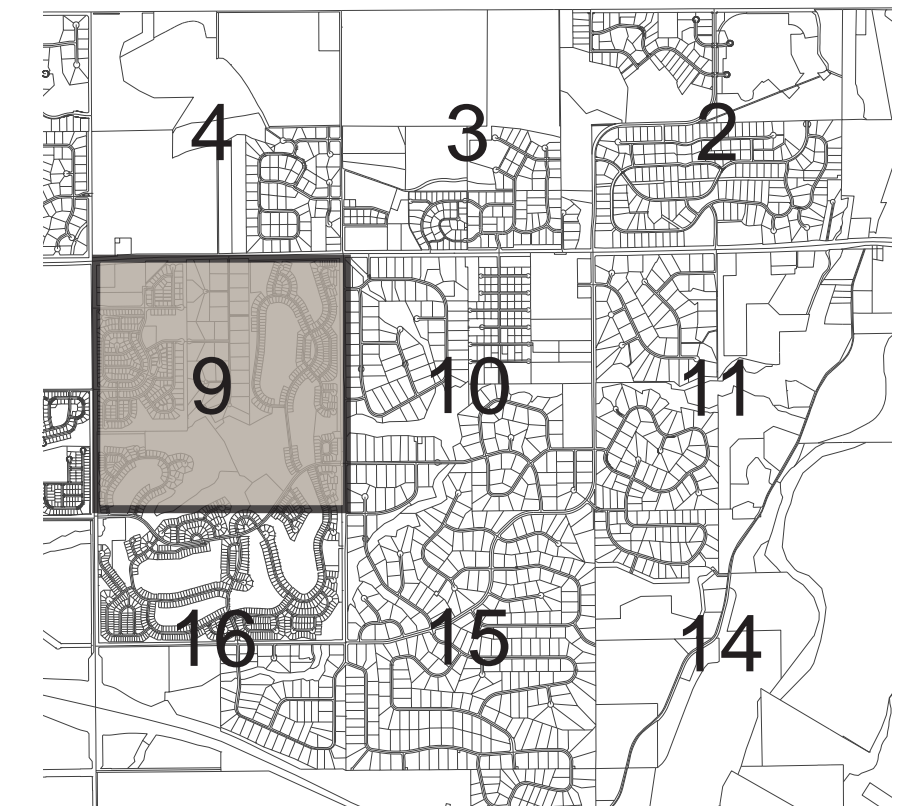
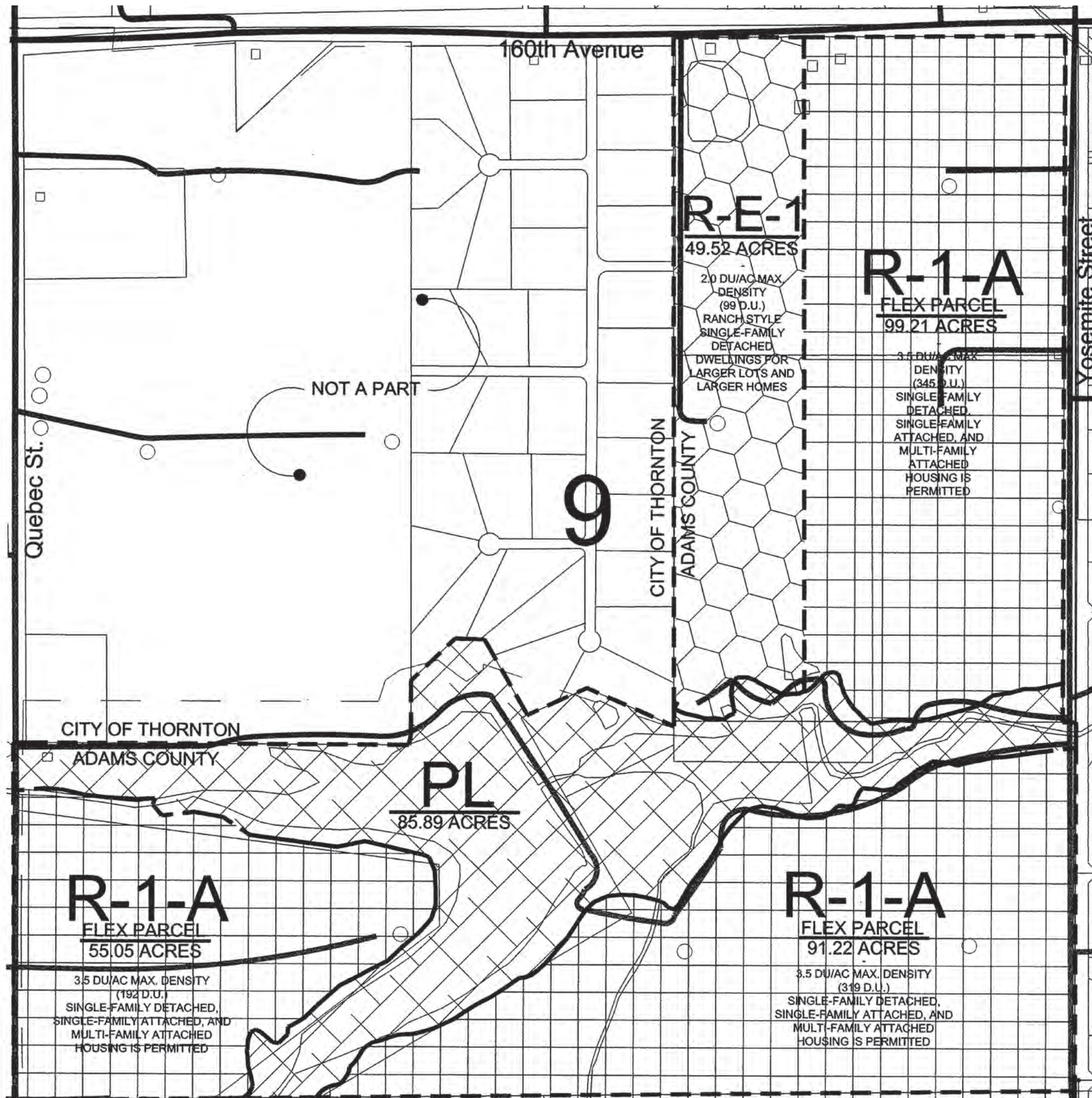


# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND USE ZONING MAP

8 OF 27  
CASE NO. \_\_\_\_\_



**LOCATION MAP**  
SCALE: 1"=4,000'



**LEGEND**

- PROPOSED COLLECTOR STREET LOCATION
- 9** SECTION NUMBER
- R-E** PROPOSED ZONING FOR PARCEL
- POTENTIAL SCHOOL SITE
- POTENTIAL LOCATION OF SCHOOL AND/OR OPEN SPACE/PARKS
- FLEX PARCEL** PROPOSED FLEXIBLE ZONING FOR SFD/SFA WITH MAXIMUM DENSITY OF 3.5 DU/AC
- 10.03 ACRES** APPROXIMATE ACREAGE OF PARCEL

**SECTION 9 SUMMARY**

PL @ .79 DU/AC = 85.89 AC  
 R - 1 - A @ 3.5 DU/AC = 245.48 AC  
 R - E - 1 @ 2.0 DU/AC = 49.52 AC

**NOTE:**  
Final road location and design are subject to review by C-DOT and others.



SCALE: 1" - 400'



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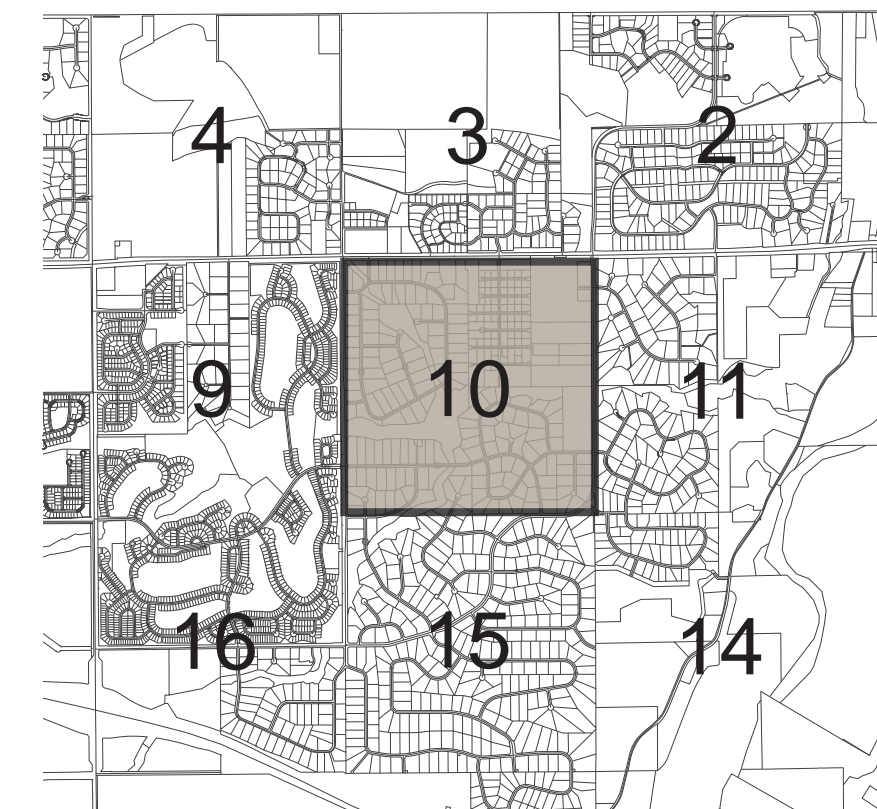
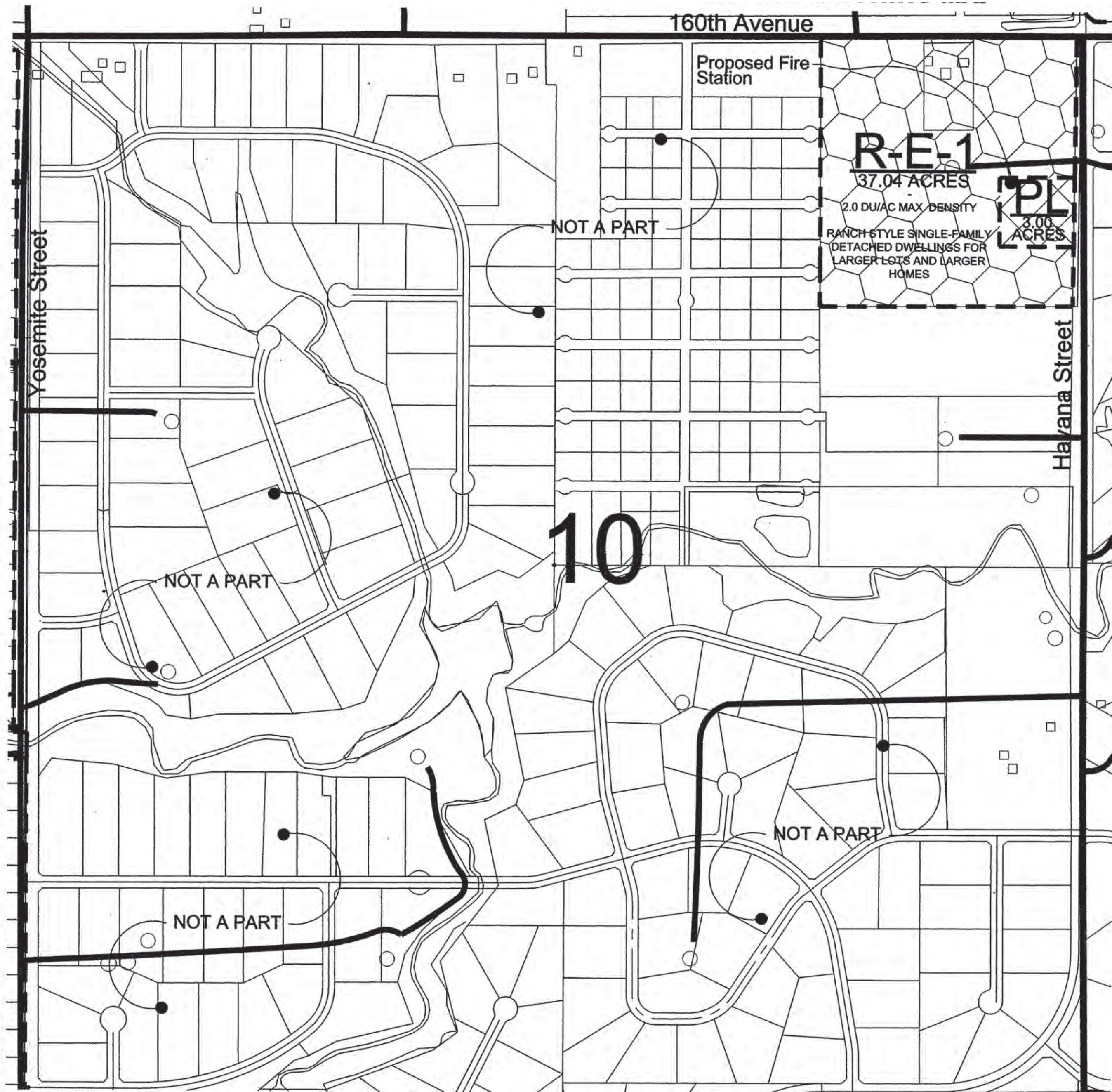
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# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND USE ZONING MAP

9 OF 27  
CASE NO. \_\_\_\_\_



LOCATION MAP  
SCALE: 1"=4,000'



#### LEGEND

- PROPOSED COLLECTOR STREET LOCATION
- 10** SECTION NUMBER
- R-E** PROPOSED ZONING FOR PARCEL
- POTENTIAL SCHOOL SITE
- POTENTIAL LOCATION OF SCHOOL AND/OR OPEN SPACE/PARKS
- 10.03 ACRES** APPROXIMATE ACREAGE OF PARCEL

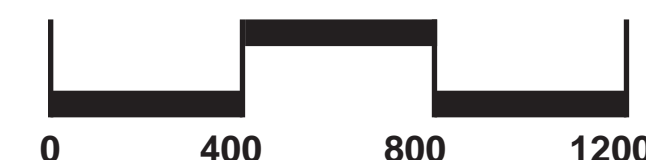
#### SECTION 10 SUMMARY

PL @ .79 DU/AC = 3.00 AC  
R - E - 1 @ 2.0 DU/AC = 37.04 AC

**NOTE:**  
Final road location and design are subject to review by C-DOT and others.



SCALE: 1" - 400'



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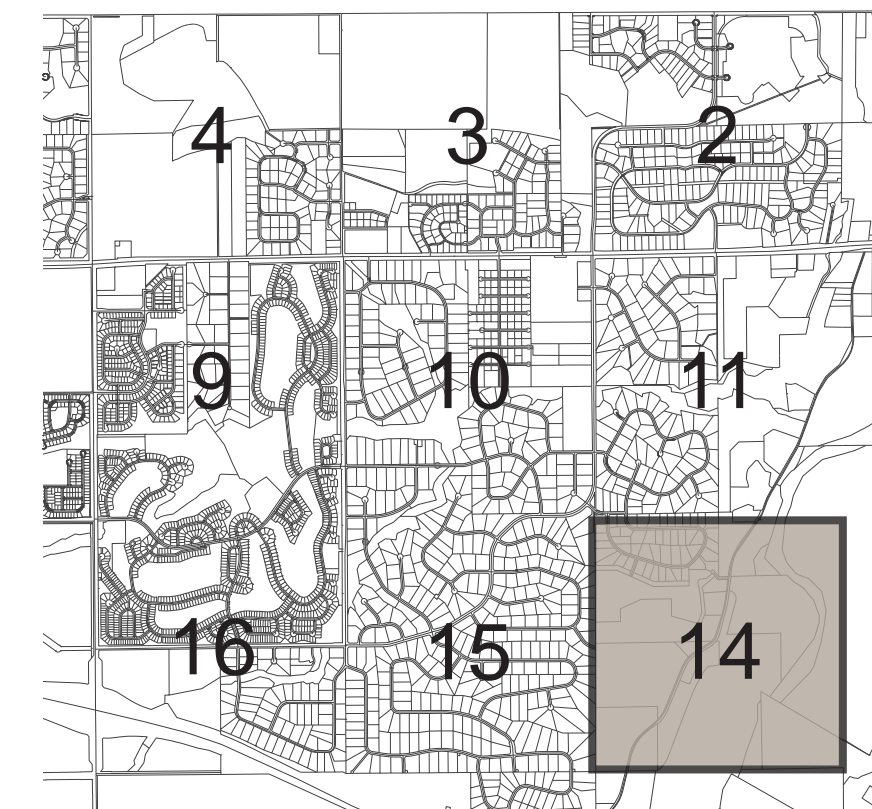
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# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT




### LAND USE ZONING MAP



LOCATION MAP  
SCALE: 1"=4,000'



#### LEGEND

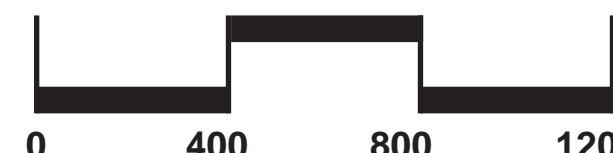
-  PROPOSED COLLECTOR STREET LOCATION
- 14** SECTION NUMBER
- R-E** PROPOSED ZONING FOR PARCEL
-  POTENTIAL SCHOOL SITE
-  POTENTIAL LOCATION OF SCHOOL AND/OR OPEN SPACE/PARKS
- 10.03 ACRES** APPROXIMATE ACREAGE OF PARCEL

SECTION 14 SUMMARY  
PL @ .79 DU/AC = 55.50 AC

NOTE:  
Final road location and design are subject to review by C-DOT and others.



SCALE: 1" - 400'



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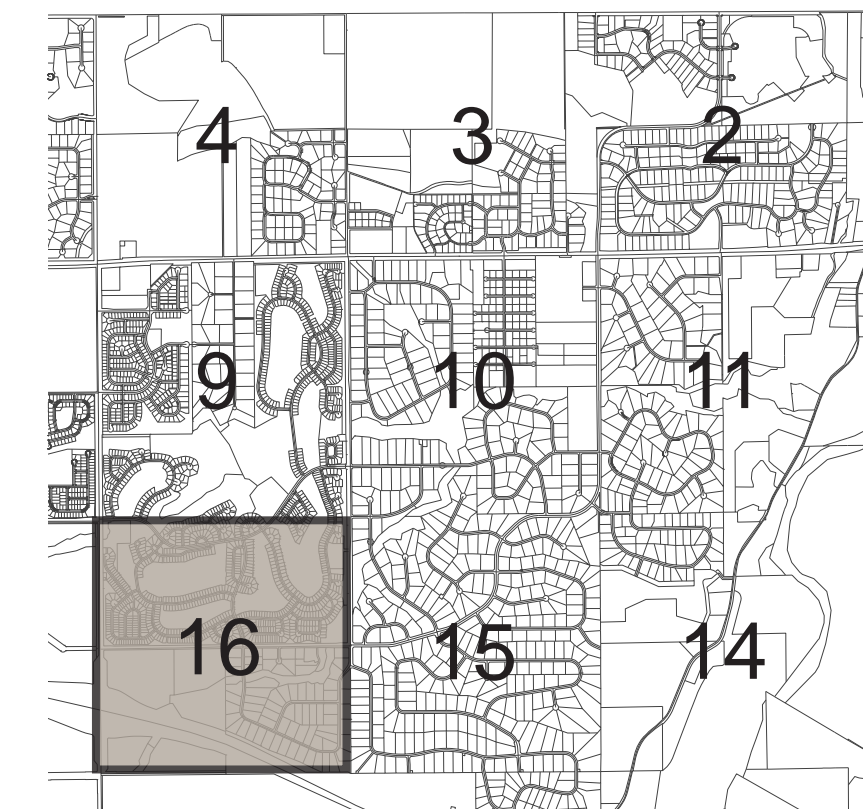
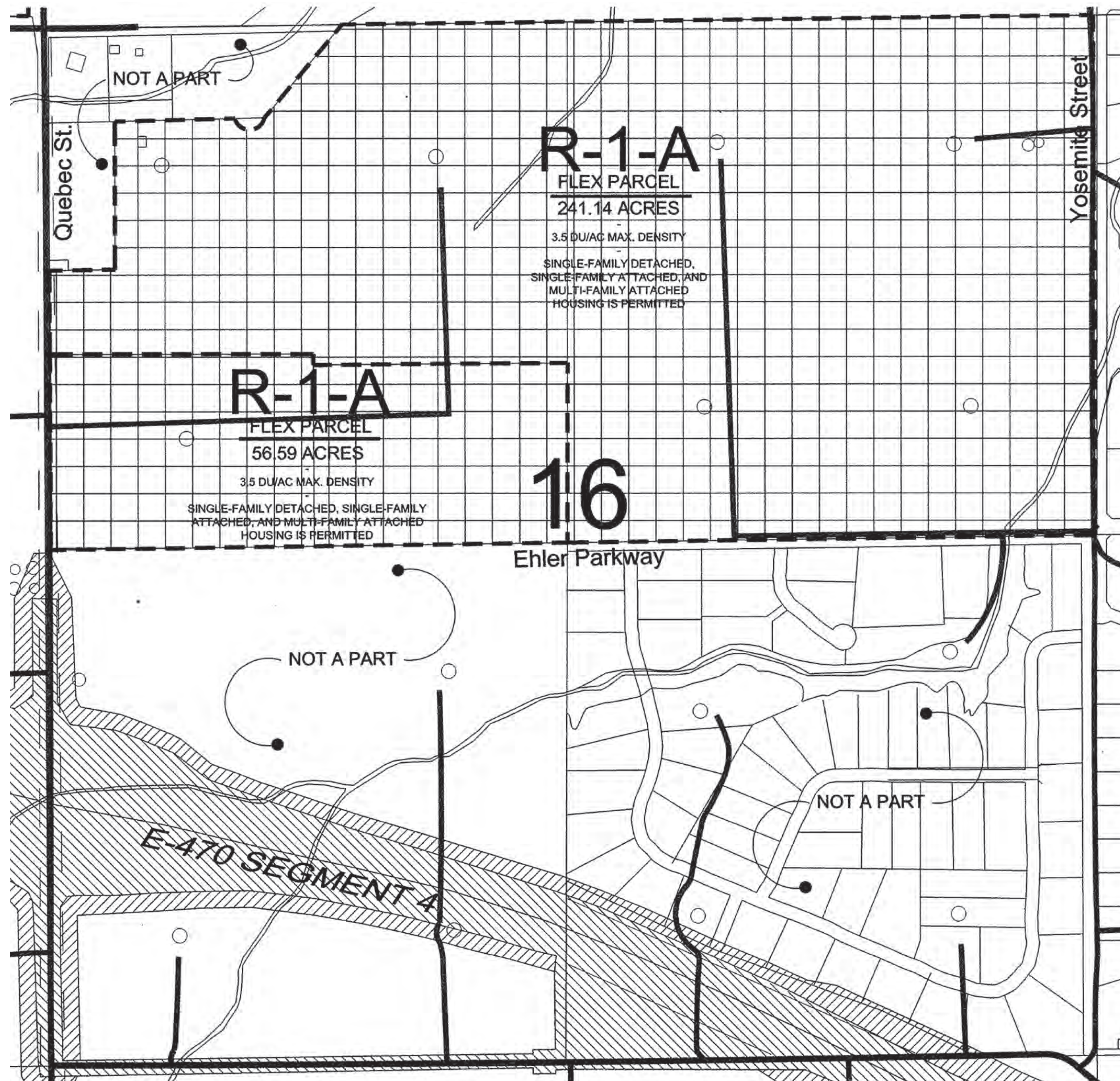
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# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND USE ZONING MAP



LOCATION MAP  
SCALE: 1"=4,000'

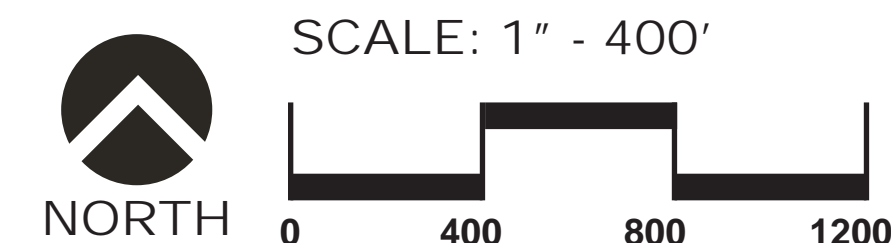


LEGEND

- PROPOSED COLLECTOR STREET LOCATION
- 16** SECTION NUMBER
- R-E** PROPOSED ZONING FOR PARCEL
- POTENTIAL SCHOOL SITE
- POTENTIAL LOCATION OF SCHOOL AND/OR OPEN SPACE/PARKS
- FLEX PARCEL
- PROPOSED FLEXIBLE ZONING FOR SFD/SFA WITH MAXIMUM DENSITY OF 3.5 DU/AC
- 10.03 ACRES
- APPROXIMATE ACREAGE OF PARCEL

SECTION 16 SUMMARY  
R - 1 - A @ 3.5 DU/AC = 297.73 AC

NOTE:  
Final road location and design are subject to review by C-DOT and others.



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DATE	6-9-2023
REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

**INTENT OF THIS PUD**

The intent of the PUD is to create a master development plan for Residential, Commercial, and Parks/Open Space Areas herein for this PUD known as Todd Creek Village. These uses are according to the Todd Creek Sub Area Land Use Plan **Sheet 2 of 27**.

- (R-E ) Estate Lot= 1 ac and larger 2.5 ac SFD with a maximum density of .79 du/ac
- (R-E-1) Low Density Residential = 1.5 - 2 du/ac SFD/SFA
- (R-1-A) Single Family Residential Flex Parcel = 2.5 - 3.5 du/ac SFD
- (PA) Planning Areas, PA-1, PA-2, PA-3, and PA-4 are being established with this PUD Major Amendment. Development within PA-1, PA-2, and PA-3 will be subject to R-2, R-3 and R-4 standards depending on the product types that are established with the Preliminary Development Plans for the site specific areas. PA-4 will be a unique open space planning area that will accommodate the reservoirs and facilities that will be required to manage them. A conceptual illustrative planning study has been provided to depict the general intent for the future Preliminary Development Plans.
- (R-2) Single Family Residential - Detached = 3.5 - 5.5 du/ac SFD
- (R-3) Single Family Residential - Detached & Attached = 5.5 - 9.5 du/ac SFD
- (R-4) Single Family Residential - Attached = 9.5 - 24.0 du/ac SFD
- Reservoir Open Space

**PREVIOUS APPROVALS**

1. The Todd Creek PUD was approved and recorded on the 23rd of August 2022.
2. This PUD Amendment calls out specific areas that are requesting revisions from the existing PUD Standards in support of the new Adams County Comprehensive Plan.

**PUD DEVELOPMENT PARAMETERS**

1. Parking
  - A. R-E - Residential Estate Single-Family Detached Dwellings
    - Two off street parking spaces to be provided to each dwelling unit in addition to the parking spaces provided within the garage attached to each unit. These spaces shall be provided for in the driveway.
  - B. R-E-1 - Residential Single Family District single-family detached dwellings at 2.0 DU/AC Maximum Density
    - Two off street parking spaces to be provided to each dwelling unit in addition to the parking spaces provided within the garage attached to each unit. These spaces shall be provided for in the driveway.
  - C. R-1-A - Residential Flex Parcel
    - Two off street parking spaces to be provided to each dwelling unit in addition to the parking spaces provided within the garage attached to each unit. These spaces shall be provided for in the driveway.
  - D. R-2 - Single Family Residential - Detached
    - Two off street parking spaces to be provided to each dwelling unit in addition to the parking spaces provided within the garage attached to each unit. These spaces shall be provided for in the driveway.
  - E. R-3 - Single Family Residential - Detached & Attached
    - Two off street parking spaces to be provided to each dwelling unit in addition to the parking spaces provided within the garage attached to each unit. These spaces shall be provided for in the driveway, or on street or off-street, located within 250 feet of the primary entrance to the unit.
  - F. R-4 - Single Family Residential - Attached
    - Two off street parking spaces to be provided to each dwelling unit within the garage attached to each unit. There shall be one guest parking spot either, on street or off street, located within 250 feet of the primary building entrance of the primary building. For Multi-Family development the requirements shall defer to Section 4-15-04 of the Adams County Development Standards and Regulations.
  - G. PL - Parks, Schools, and Open Spaces
    - 1 parking space for every 69,500 sq.ft. of gross usable area
  - H. Off-Street Parking Requirements for all Residential Districts:
    1. All residential units, regardless of density, are required to have two (2) off-street parking spaces per unit.
    2. For single-family detached residences, duplexes, and single family attached / townhomes, the off-street parking area shall be provided in the garage/carport and or on the approved paved driveway surface/parking pad. Vehicles shall not be parked and/or stored within the required front and side yard landscape areas.
  - I. Reservoir Open Space / PA-4
    - Parking requirements will comply with Adams County Standards.

**2. Street Standards**

- A. R-E - Residential Estate Single-Family Detached Dwellings
  - Local rural with ditch street system (minor and major) will be 24 foot of paving edge to edge in a 60-foot right-of-way.
  - Cul-de-sac turnarounds and knuckles will be 100 foot diameter minimum paving edge to paving edge with a 120-foot diameter minimum right-of-way. Landscape Islands may be incorporated within cul-de-sacs and knuckles.
- B. R-E-1 - Residential Single Family District single-family detached dwellings at 2.0 DU/AC Maximum Density
  - Local collector streets will be 36 feet of paving flow line to flow line in a 60 foot right-of-way with attached or detached sidewalks at the developers option on both sides of the street within the right-of-way. No parking on both sides.
  - Local streets will be 30 feet of paving flow line to flow line in a 50-foot right-of-way with attached or detached sidewalks at developers option on both sides of the street within the right-of-way.
  - Cul-de-sac turnarounds and knuckles will be 76 feet minimum diameter paving flow line to flow line with a 100-foot minimum diameter right-of-way. Landscape islands maybe incorporated within cul-de-sacs and knuckles.
- C. R-1-A - Residential Flex Parcel, R-2 - Single Family Residential - Detached, R-3 - Single Family Residential - Detached & Attached, and R-4 - Single Family Residential - Attached
  - Local collector streets will be 36 feet of paving flow line to flow line in a 60 foot right-of-way with attached or detached sidewalks at the developers option on both sides of the street within the right-of-way. No parking on both sides.

- Local streets will be 30 feet of paving flow line to flow line in a 50-foot right-of-way with attached or detached sidewalks at developers option on both sides of the street within the right-of-way.
  - Cul-de-sac turnarounds and knuckles will be 76 feet minimum diameter paving flow line to flow line with a 100-foot minimum diameter right-of-way. Landscape islands maybe incorporated within cul-de-sacs and knuckles.
- D. Street Definitions**
1. **Arterial** - Streets will be two lanes at 29 feet each minimum of paving flow line to flow line and 14 foot minimum median in a 140-foot minimum right-of-way with detached sidewalks on both sides of the street.
  2. **Minor Arterial** - Streets will be two lanes at 29 feet each minimum of paving flow line to flow line and 14 foot minimum median in a 120-foot minimum right-of-way with detached sidewalks on both sides of the street.
  3. **Collector** - Streets will be 44 feet of minimum paving flow line to flow line in a 80-foot minimum right-of-way with attached/detached sidewalks at the developer's option on both sides of the street within the right-of-way.
  4. **Minor Collector** - Streets will be 36 feet of minimum paving flow line to flow line in a 60-foot minimum right-of-way with attached/detached sidewalks at the developer's option on both sides of the street within the right-of-way.
  5. **Local Streets** - Streets will be 30 feet of minimum paving flow line to flow line in a 50-foot minimum right-of-way with attached/detached sidewalks at the developer's option on both sides of the street within the right-of-way.
  6. **Cul-de-sacs and knuckles** - 76 feet minimum diameter paving flow line to flow line with a 100-foot minimum diameter right-of-way. Landscape islands may be incorporated within cul-de-sacs and knuckles. Maximum cul-de-sac length is 1,300 feet. Emergency access is provided for all cul-de-sacs greater than 600 feet.
  7. **Rural** - Local rural streets will be 24 feet minimum paving edge to edge in a 60-foot minimum right-of-way.
  8. **Rural Minor Collector** - 80 foot right-of-way, a 14-foot median at the developer's option, and two 24-foot paved roads measure from edge of pavement (or one 48-foot paved section) with open ditches on both sides of the street.
- E. Other General Provisions:**
1. All Section Line Arterials in Rural Areas (Nascent Arterials) are to have a 140-foot Right-of-Way with an access spacing of 1/4 mile.
  2. E-470 Northwest Parkway (Segment 4) is to have a 300-foot Right-of-way with an access spacing of Freeway-to-Arterial (1 mile).

**OWNERSHIP AND MAINTENANCE OF COMMON AND PUBLIC AREAS**

1. The respective Metro District or the respective HOA within the Todd Creek Village shall own and maintain the common open space tracts and landscape areas within Todd Creek Village with the exception of the common area and park within any school property, which will be owned and maintained by School District 27J.

**PROTECTIVE COVENANTS AND RESTRICTIONS**

1. Protective covenants and restrictions shall be recorded at the time of Final Plat and Final P.U.D. Plan for Todd Creek Village Residential and Commercial Areas.

**SIGNS**

1. Todd Creek Village signage will be planned and located within the appropriate filings. Signage shall be illustrated at the time of Final P.U.D. Plan. Plans shall illustrate the actual design, copy, and dimensions. All signage shall comply with Adams County standards unless a variance is approved by the County and respective Metro District within Todd Creek Village.

**OUTDOOR STORAGE**

1. Outdoor storage areas will not be permitted in this P.U.D except as allowed with commercial development.

**UTILITY SERVICES**

1. All water and sewer services for Todd Creek Village shall be provided by either Todd Creek Metro District #1 of the City of Thornton per the adopted Inter-governmental agreement dated August 14, 2000.

**LANDSCAPING AND OPEN SPACE**

1. Open Space Dedication shall be 15 acres per 1,000 people, based on 2.96 people per household ie;  $1,000 \text{ units} \times 2.96 \text{ People/Household} = 2.96 \times 15 \text{ ac} = 44.4 \text{ ac}$  of open space required  
1,000 people
- Final open space, regional park, and neighborhood park dedications shall be determined and met during the platting process.

**2. Street Standards**

- A. For:**
- R-E - Residential Estate Single-Family Detached Dwellings
  - R-E-1 - Residential Flex Parcel
  - R-1-A - Residential Single Family District 1/4-Acre single-family detached dwellings

- Front and corner yard landscaping for each lot within Single Family Residential Areas shall be provided by the homebuilder. The minimum landscape to be provided by the homebuilder shall include the following:

**Front:** 20 shrubs  
5 trees (shade, ornamental, or evergreen)  
Automatic irrigation system

**Front and Corner:** 30 shrubs  
8 trees (shade, ornamental, or evergreen)  
Automatic irrigation system

- The selection of trees shall be a mix of large deciduous (10%-30%), ornamental (10%-30%), and evergreen (50%) trees.  
- Landscaping shall be installed no later than one year after issuance of the Certificate of Occupancy for the home.

- B. For: R-2 - Single Family Residential - Detached, R-3 - Single Family Residential - Detached**

- Front and corner yard landscaping for each lot within Single Family Residential Areas shall be provided by the homebuilder. The minimum landscape to be provided by the homebuilder shall be on the lot or in the ROW in front of the lot, and must include the following:

**Front:** 10 shrubs  
2 trees (shade, ornamental, or evergreen)  
Automatic irrigation system

**Front and Corner:** 15 shrubs  
3 trees (shade, ornamental, or evergreen)  
Automatic irrigation system

- The selection of trees shall be a mix of large deciduous (10%-30%), ornamental (10%-30%), and evergreen (50%) trees.  
- Landscaping shall be installed no later than one year after issuance of the Certificate of Occupancy for the home.

- C. For: R-3 & R-4 - Single Family Residential - Attached**

- Front and corner yard landscaping for each lot within Single Family Residential Areas shall be provided by the homebuilder. The minimum landscape to be provided by the homebuilder shall include the following:

- a. Provide permanent landscaping in the front yard of each home. There shall be a minimum of 60 percent of the gross front yard area, excluding driveways, landscaped with live plant materials. Mature tree and shrub canopies may count toward the 60 percent requirement.
- b. Install landscaping within the side and rear yard such that 30 percent of the combined (side and rear) yards is landscaped with live plant material.

**For Green Court Areas:**

- c. Install trees in the tract, a minimum of one tree per 1,500 square feet of landscaped area, distributed on the site.
- d. Install a minimum of one shrub per 150 square feet of landscaped area. Shrubs shall be grouped and distributed throughout the site. Trees may be substituted for up to one-half of the required shrubs at the rate of one tree for ten shrubs and vice-versa.
- e. Install groundcover, either irrigated turf maintained to appropriate standards for active recreation in active recreation areas, or where appropriate, native grass for areas that will not function as active recreation areas. Native grass shall be weed-free and maintained at an appropriate height according to species.
- f. Provide a water-efficient irrigation system for all landscaped areas, excluding native seed areas which may be temporarily irrigated.
- g. Maintain the landscaping within the common open spaces and adjacent street right-of-way.
- h. Provide a minimum of 50 percent of the entire site with landscaping of live plant materials.

- The selection of trees shall be a mix of large deciduous (10%-30%), ornamental (10%-30%), and evergreen (50%) trees.

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		<b>REV-1</b>	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

- Landscaping shall be installed no later than one year after issuance of the Certificate of Occupancy for the home.

3. For all Zone Districts
  - A. Landscaping shall be provided by the home builder or owner as illustrated at the time of Final P.U.D Plan. **Landscaping shall be installed no later than one year after issuance of the Certificate of Occupancy for the home.**
  - B. Landscaping of the parks, trails or common open space within Todd Creek Village shall be the responsibility of the respective metro district or HOA developer and illustrated at the time of Final P.U.D. Plan.
  - C. Landscaping of dedicated school sites shall be the responsibility of Adams County School District No. 27J.
  - D. Landscaping of dedicated Parks, Schools, and Open Spaces (Zoned - PL) within Todd Creek Village shall be the responsibility of the respective metro district or HOA developer and illustrated at the time of the Final P.U.D. Plan.
  - E. Open Space shall include all developed and undeveloped open space tracts within Todd Creek Village PUD. These may include drainage corridors, flood plains, detention areas, developed parks with irrigation, native areas with temporary or no irrigation, trail corridors, landscape meadows, pedestrian landscape areas, and right-of-way landscaping. The improvements shall be illustrated at the time of Final P.U.D. Plan. Maintenance of the tracts shall be the responsibility of the respective HOA or Metro District.
  - F. Street trees shall be provided by the respective HOA of Metro District for all streets. Street trees shall be spaced a minimum of 40 feet on center and shall be at least 3" caliper shade trees or 10' height evergreen trees.
  - G. Minimum plant sizes for Todd Creek Village PUD Amendment:
    - Shrubs - minimum of 5 gallons
    - Ornamental trees - 2" caliper
    - Shade tree - 2 1/2" caliper
    - Evergreen tree - 6'-8' height
  - H. Maintenance of all common open space such as parks, trails, and right-of-way landscaping shall be maintained by the respective metro district of HOA.

**FENCING**

1. Rear yard fencing adjacent to the school sites shall be the responsibility of the homebuilder, **homeowner or developer.**
2. Fencing with residential and commercial areas adjacent to the street shall be the responsibility of the builder, **developer** and/or Todd Creek Village.
3. Wing fencing between the homes facing the street shall be the responsibility of the builder, **developer** and/or Todd Creek Village.
4. All fencing installed by the homebuilder and/or respective metro district shall be completed within 30 days after issuance of a Certificate of Occupancy for the home, **depending on weather conditions.**
5. A fencing plan, design and typical lot shall be indicated at the time of the Final P.U.D. Plan.
6. **All fencing designs shall conform to the Todd Creek Village standard design illustrated at the time of the final PUD.**

**PEDESTRIAN AND VEHICULAR ACCESS**

1. The vehicular access point to Hwy 7 shall be approved by C-DOT and Adams County Public Works and indicated at the time of Final P.U.D. Plan for the Todd Creek Village.
2. Pedestrian access to schools and park sites is provided by the on street sidewalk system. In addition to the sidewalk, a trail system shall be provided by the respective HOA or Metro District. Maintenance of the trail system shall be the responsibility of the respective HOA or Metro District. The pedestrian trail access shall be a minimum of 8 feet in width and constructed of crusher fines, asphalt, or concrete. The trail location shall be coordinated with the school site plans to allow for adequate access. Trail sections shall be completed within one year of completion of each school site. A trail master plan shall be completed with the input of Adams County and completed by 2002 or illustrated on a final PUD. Trail sections shall be completed as phases of development progress.

**ESTIMATED TIMETABLE FOR DEVELOPMENT**



1. Anticipated build out of the single-family homes is ten to fifteen years from beginning of construction from 2002.
2. Anticipated build out of the multi-family housing is ten to fifteen years from beginning of construction from 2002.
3. Anticipated build out of commercial areas are five to ten years from beginning of construction from 2002.
4. Development of any dedicated school sites are the responsibility of Adams County School District No. 27J. Timing will be based on the School District's master plans.
5. **Anticipated build out of the areas related to this Major PUD Amendment is ten to fifteen years from the beginning of construction, anticipated in 2024.**

**DEVELOPMENT STANDARDS**

1. Residential Estate: R-E
  - A. Purpose: Residential Estate District: Exclusively a single-family detached residence District for larger lots and larger homes in a spacious, open environment away from higher density uses where agricultural uses and the keeping of livestock are substantially restricted.
  - B. General Requirements:
    1. Maximum gross density: 0.79 DU/AC
    2. Minimum Frontage Width at Building Line - 150' with well and/or septic tanks; 100' with public water and sewer facilities.
    3. Minimum Lot Size for Residence:
      - 2-1/2 acres with individual wells and individual sewage disposal systems; 1 acre with public water and individual sewage disposal systems; 1 acre with individual wells and public sewer; 1/2 acre with public water and sewer. For subdivisions with gross lot sizes greater than 2-1/2 acres, the land up to the centerline in the dedicated public rights-of-way for local streets may be counted toward the total lot size requirement, subject to a favorable recommendation of the Tri-County Health Department concerning specific lot configurations, topography, soil conditions, and water table heights. The maximum amount of land in a right-of-way which can be counted towards a lot shall be 1/2 acre

- (minimum net lot size is therefore 2 acres).
4. Minimum Setback for Residence:
  - Front: 30' (50' on state highway or arterial street).
  - Side: 17' one side (with attached garage - 5'), 5' other side (on corner lot - 30' from local street, 50' from state highway or arterial street).
  - Rear: 20'.
5. Minimum Setback Accessory Building:
  - Front: Equal to principal residence on the lot.
  - Side: 15'.
  - Side: 25' on corner lot (30' from state highway or arterial street side).
  - Rear: 10'.
6. Maximum Height, Residence - 35', Accessory - 25'.
7. Maximum total size of:
  - Lots with well and septic: 12.5% of lot area for principal dwelling, not exceeding 15% of lot area including accessory buildings.
  - Lots with public water or sewer: 12.5% of lot area for principal dwelling, not exceeding 15% of lot area including accessory buildings.
  - Lots with public water & sewer: 12.5% of lot area for principal dwelling, not exceeding 15% of lot area including accessory buildings.
8. A maximum of one single-family detached residence is permitted on each individual lot.
9. Minimum Floor Area - 1,800 square feet (Maximum size of Area - 12.5% of Lot Area)
10. A single-family detached residence located within this District shall be compatible in architectural design with the adjacent properties and not monotonous in appearance to adjacent properties.
  - a. The design review process as described below shall be used to determine if a proposed single-family detached residence meets these neighborhood design requirements.
  - b. Design Review Process.
    1. The party seeking a Design Review shall submit the following materials for Planning Review prior to (or with) a building permit application to the Department of Planning and Development:
      - a. Site plan;
      - b. Elevations or color photographs of all sides of a home;
      - c. Roof slope description expressed in a ratio horizontal to vertical feet;
      - d. Description of any proposed visible foundation; and,
      - e. Description of exterior finish including materials and colors.
    2. Planning Review shall be performed by the Department of Planning and Development and shall occur within 5 days of submittal of a complete application. The Department will review the case to determine whether the Design Review Criteria has been met. If all Criteria has been met, approval will be forwarded to the Chief Building Official. If all Criteria have not been met, the Final Review shall take place.
    3. Final Review shall be performed by the Adams County Planning Commission. The Department of Planning and Development shall give notice following scheduling of the review. Proper notice shall consist of posting of the property for ten (10) days before the hearing, and notification of neighborhood group representatives for the area who have provided written notice to the Department of Planning and Development that they claim an interest in the outcome of a case in this location. The Planning Commission shall approve, deny the application, or it may continue the Review hearing in order to obtain additional information based on the project meeting general requirements listed under A of this section and meeting the intent of the Design Review Criteria.
  - c. Design Review Criteria.
    1. The residence should be displayed toward the street in a compatible manner with surrounding residences through location of windows, doors, other architectural features, or landscaping. This will be reviewed through an examination of the side of the residence facing the street.
    2. The exterior materials of the resident shall be compatible with adjacent properties. This feature will be reviewed by examining exterior materials described and determining whether the proposed building material is compatible with adjacent residences.
    3. The width of the residence facing the front lot line of the lot should appear to be greater than the length of the residence parallel to the side lot line. This will be reviewed by examining whether the width of the residence, including additions to the main body such as garage, carports, utility of living rooms, is a minimum of 34 feet in width facing the street frontage.
    4. The residence must not have a monotonous appearance in relation to the adjacent properties. This will be determined by examining application materials. Consideration will be given to the variation in setbacks, architectural features, landscaping accents, or accessory structures proposed to achieve the required appearance. If the Department determines that any one of these four criteria has not been met in the Planning Review, the application will be referred to the Planning Commission for Final Review.

- Development and shall occur within five (5) days of submittal of a complete application. The Department will review the case to determine whether the Design Review Criteria has been met. If all Criteria has been met, approval will be forwarded to the Chief Building Official. If all Criteria have not been met, the Final Review shall take place.
4. Final Review shall be performed by the Adams County Planning Commission. The Department of Planning and Development shall give notice following scheduling of the review. Proper notice shall consist of posting of the property for ten (10) days before the hearing, and notification of neighborhood group representatives for the area who have provided written notice to the Department of Planning and Development that they claim an interest in the outcome of a case in this location. The Planning Commission shall approve, deny the application, or it may continue the Review hearing in order to obtain additional information based on the project meeting general requirements listed under A of this section and meeting the intent of the Design Review Criteria.
- c. Design Review Criteria.
  1. The exterior materials of the accessory building shall be compatible with those of the primary residence on the lot. This feature will be reviewed by examining exterior materials described and determining whether the proposed building materials are compatible with the primary residence.
2. Residential Estate: RE/PL
  - A. Purpose: Estate Residential/School Site Flex Parcel: A zoning designation for a single-family detached residence district for larger lots and larger homes in a spacious, open environment away from higher density uses where agricultural uses and the keeping of livestock are substantially restricted. At the option of district 27J, the parcel may be used as a school site.
  - B. General Requirements for RE:
    1. See RE Zoning Development Standards.
3. Residential Single Family District: R-E-1
  - A. Purpose, Single Family District.
    1. Estate District: Exclusively a cluster of ranch style single-family detached dwellings for larger lots and larger homes in a spacious, open environment.
  - B. General Requirements - Single Family Districts:
    1. Minimum Frontage Width at Building Line: Single Family Dwelling - 70' (80' corner lots).
    2. Maximum Gross Residential Density: 2 units per acre.
    3. Minimum Setback for a Dwelling:
      - Front: 25' (50' on state highway or arterial street).
      - Side: 15' one side (with attached garage 5'), 5' other side (20' on corner lot on local street and 50' on state highway or arterial street).
      - Rear: 20'.
    4. Minimum Setback Accessory Building:
      - Front: Equal to principal dwelling on the lot.
      - Side: 5'; 25' from street on corner lot (50' on state highway or arterial street).
      - Rear: 5'.
    5. Maximum Height - Dwelling: 35', Accessory: 16'
    6. Maximum total size of all accessory buildings as defined in Section 2.201, 900 square feet.
    7. A maximum of one single-family dwelling is permitted on each individual lot.
    8. Minimum Floor Area: 1,800 square feet.
    9. Clustering lots/units are encourage.
    10. Ranch style housing is encouraged.
    11. A single-family detached residence located within this District shall be compatible in architectural design with the adjacent properties; and not monotonous in appearance to adjacent properties.
      - a. The design review process as described below shall be used to determine if a single-family home meets these neighborhood design requirements.
      - b. Design Review Process.
        1. See Special Notes on sheet 12 of X:
        2. The party seeking a Design Review shall submit the following materials for Planning Review prior to (or at the same time as) a building permit application to the Department of Planning and Development:
          - a. Site plan;
          - b. Elevations or color photographs of all sides of a home;
          - c. Roof slope description expressed in a ratio horizontal to vertical feet;
          - d. Description of any proposed visible foundation; and,
          - e. Description of exterior finish including materials and colors.
        3. Planning Review shall be performed by the Department of Planning and Development and shall occur within five (5) days of submittal of a complete application. The Department will review the case to determine whether the Design Review Criteria has been met. If all Criteria has been met, approval will be forwarded to the Chief Building Official. If all Criteria have not been met, the Final Review shall take place.
        4. Final Review shall be performed by the Adams County Planning Commission. The Department of Planning and Development shall schedule the review at the next available Planning Commission hearing following proper notice. The

 <p>LAND PLANNING / LANDSCAPE ARCHITECTURE 200 KALAMATH ST. DENVER, CO 80223 (303) 531-4905 WWW.PCSGROUPPCO.COM</p>	 <p>ENGINEERS • SURVEYORS 12500 W. 58th AVE. #230 ARVADA, CO 80002 PH: 720.638.5190</p>	DATE	6-9-2023
		REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

Department of Planning and Development shall give notice following scheduling of the review. Proper notice shall consist of posing the property for ten (10) days before the hearing, and notification of neighborhood group representatives for the area who have provided written notice to the Department of Planning and Development that they claim an interest in the outcome of a case in this location. The Planning Commission shall approve, deny the application or it may continue the Review hearing in order to obtain additional information based on the project meeting general requirements listed under A of this section and meeting the intent of the Design Review Criteria.

- c. Design Review Criteria.
  1. The home should be displayed toward the street in a compatible manner with surrounding homes through location of windows, doors, other architectural features, or landscaping. This will be reviewed through an examination of the side of the home facing the street.
  2. The exterior materials of the resident shall be compatible with adjacent properties. This feature will be reviewed by examining exterior materials described and determining whether the proposed building material is compatible with adjacent homes.
  3. The width of the residence facing the front lot line of the lot should appear to be greater than the length of the home parallel to the side lot line. This will be reviewed by examining whether the width of the home, including additions to the main body such as garages, carports, utility of living rooms, is a minimum of 34 feet in width facing the street frontage.
  4. The residence must not have a monotonous appearance in relation to the adjacent properties. This will be determined by examining application materials. Consideration will be given to the variation in setbacks, architectural features, landscaping accents, or accessory structures proposed to achieve the required appearance. If the Department determines that any one of these four criteria has not been met in the Planning Review, the application will be referred to the Planning Commission for Final Review.

4. Residential Single Family District: R-1-A

A. Purpose: Residential district - Flex Parcels:

A residential district intended to encourage the creative use of open space, trail connectivity, and clustering by allowing multiple densities and housing product types, including single family detached, and/or single family attached.

B. General Requirements - Single Family Detached:

1. Minimum Frontage Width at Building Line: Single Family Dwelling - 55' (60' corner lots).
2. Maximum Gross Residential Density: 3.5 units per acre.
3. Minimum Lot Depth: 100'
4. Minimum Setback for a Dwelling:
  - Front: 20' (50' on state highway or arterial street).
  - Side: 10' one side (with attached garage 5'), 5' other side (15' on corner lot on local street and 50' on state highway or arterial street).
  - Rear: 30' between structures.
5. Minimum Setback Accessory Building:
  - Front: Equal to principal dwelling on the lot.
  - Side: 5'; 25' from street on corner lot (50' on state highway or arterial street).
  - Rear: 5'.
6. Maximum Height - Dwelling: 35', Accessory; 16'
7. Maximum total size of all accessory buildings as defined in Section 2.201, 900 square feet.
8. A maximum of one single-family dwelling is permitted on each individual lot.
9. Minimum Floor Area: 1,500 square feet.
10. A single-family residence located within this District shall be compatible in architectural design with the adjacent properties; and not monotonous in appearance to adjacent properties.

- a. The design review process as described below shall be used to determine if a single-family home meets these neighborhood design requirements.
- b. Design Review Process.
  1. See Special Notes on sheet 16 of 27:
  2. The party seeking a Design Review shall submit the following materials for Planning Review prior to (or at the same time as) a building permit application to the Department of Planning and Development:
    - a. Site plan;
    - b. Elevations or color photographs of all sides of a home;
    - c. Roof slope description expressed in a ratio horizontal to vertical feet;
    - d. Description of any proposed visible foundation; and,
    - e. Description of exterior finish including materials and colors.
  3. Planning Review shall be performed by the Department of Planning and Development and shall occur within five (5) days of submittal of a complete application. The Department will review the case to determine whether the Design Review Criteria has been met. If all Criteria has been met, approval will be forwarded to the Chief Building Official. If all Criteria have not been met, the Final Review shall take place.
  4. Final Review shall be performed by the Adams County Planning Commission. The Department of Planning and Development shall schedule the review at the next available Planning Commission hearing following proper notice. The Department of Planning and Development shall give notice following scheduling of the review. Proper notice shall consist of posing the property for ten (10) days before the hearing, and notification of neighborhood group representatives for the area who have provided written notice to the Department of Planning and Development that they claim an interest in the outcome of a case in this location. The Planning Commission shall approve, deny the application or it may continue the Review hearing in order to obtain additional information based on the project meeting general requirements listed under A of this section and meeting the intent of the Design Review Criteria.
- c. Design Review Criteria.
  1. The home should be displayed toward the street in a compatible manner with

surrounding homes through location of windows, doors, other architectural features, or landscaping. This will be reviewed through an examination of the side of the home facing the street.

2. The exterior materials of the resident shall be compatible with adjacent properties. This feature will be reviewed by examining exterior materials described and determining whether the proposed building material is compatible with adjacent homes.
3. The width of the home facing the front lot line of the lot should appear to be greater than the length of the home parallel to the side lot line. This will be reviewed by examining whether the width of the home, including additions to the main body such as garages, carports, utility of living rooms, is a minimum of 34 feet in width facing the street frontage.
4. The home must not have a monotonous appearance in relation to the adjacent properties. This will be determined by examining application materials. Consideration will be given to the variation in setbacks, architectural features, landscaping accents, or accessory structures proposed to achieve the required appearance. If the Department determines that any one of these four criteria has not been met in the Planning Review, the application will be referred to the Planning Commission for Final Review.

C. General Requirements - Single Family Attached:

1. Building types allowed: Duplexes, Triplexes, Fourplexes, Fiveplexes, and Sixplexes.
2. Minimum Setback:
  - Front: 20' to garage door facing R.O.W.  
10' to other walls or side-facing garage. (Maintaining off-street parking requirement)
  - Side (End units only): 5' to lot line minimum.  
20' minimum to local street R.O.W.  
30' minimum to collector street R.O.W.
  - Rear: 10' minimum to rear lot line.  
20' minimum to local street R.O.W.  
30' minimum to collector street R.O.W.
- Minimum Distances Between Buildings:
  - Side - Side orientation: 15'.
  - Side - Rear orientation: 20'.
  - Rear - Rear orientation: 25'.
3. Maximum Building Height: 35'.
4. Maximum size of accessory storage building: 80 SF/Unit
5. Minimum Residence Floor Area:
  - 1 bedroom - 600 square feet.
  - 2 bedroom - 750 square feet.
  - 3 bedroom - 900 square feet.
  - 4 bedroom - 1,000 square feet.
6. Clustering is encouraged.

D. See Special Notes on sheet 16 of 27:

5. Residential Single Family District: R-2 - Single Family Residential

A. Purpose: Residential district:

Exclusively single-family detached dwellings including the potential for ADU units.

B. General Requirements - Single Family Detached:

1. Minimum Frontage Width at Building Line: Front Load Single Family Dwelling - 40' (45' corner lots), Rear Load Single Family Dwelling - 30' (35' corner lots)..
2. Maximum Gross Residential Density: 5.5 units per acre.
3. Minimum Lot Depth: 90'
4. Minimum Setback from property line for a Dwelling or ADU - Front Load:
  - Front: 12' to the Principal Building, 18' to the Garage Face (50' on state highway or arterial street).
  - Side: 5' - (10' on corner lot on local street and 50' on state highway or arterial street).
  - Rear: 20' between structures.
5. Minimum Setback from property line for a Dwelling or ADU - Rear Load:
  - Front: 8' to the Principal Building, (50' on state highway or arterial street).
  - Side: 5' - (10' on corner lot on local street and 50' on state highway or arterial street).
  - Rear: 0' with no permitted encroachments, 20' between structures.
6. Minimum Setback from property line for Accessory Building:
  - Front: Equal to principal dwelling on the lot.
  - Side: 5'; 25' from street on corner lot (50' on state highway or arterial street).
  - Rear: 5'.
7. Maximum Height - Dwelling or ADU: 35', Accessory; 16'
8. Maximum total size of all accessory buildings is 900 square feet.
9. A maximum of one single-family dwelling is permitted on each individual lot.
10. Minimum Floor Area: 1,250 square feet.
11. A single-family residence located within this District shall be compatible in architectural design with the adjacent properties; and not monotonous in appearance to adjacent properties.
  - a. The design review process as described below shall be used to determine if a single-family home meets these neighborhood design requirements.
  - b. Design Review Process.
    1. See Special Notes on sheet 16 of 27:
    2. The party seeking a Design Review shall submit the following materials for Planning Review prior to (or at the same time as) a building permit application to the Department of Planning and Development:
      - a. Site plan;
      - b. Elevations or color photographs of all sides of a home;
      - c. Roof slope description expressed in a ratio horizontal to vertical feet;
      - d. Description of any proposed visible foundation; and,
      - e. Description of exterior finish including materials and colors.
    3. Planning Review shall be performed by the Department of Planning and Development and shall occur within five (5) days of submittal of a complete application. The Department will review the case to determine whether the

Design Review Criteria has been met. If all Criteria has been met, approval will be forwarded to the Chief Building Official. If all Criteria have not been met, the Final Review shall take place.

4. Final Review shall be performed by the Adams County Planning Commission. The Department of Planning and Development shall schedule the review at the next available Planning Commission hearing following proper notice. The Department of Planning and Development shall give notice following scheduling of the review. Proper notice shall consist of posing the property for ten (10) days before the hearing, and notification of neighborhood group representatives for the area who have provided written notice to the Department of Planning and Development that they claim an interest in the outcome of a case in this location. The Planning Commission shall approve, deny the application or it may continue the Review hearing in order to obtain additional information based on the project meeting general requirements listed under A of this section and meeting the intent of the Design Review Criteria.

c. Design Review Criteria.

1. The home should be displayed toward the street in a compatible manner with surrounding homes through location of windows, doors, other architectural features, or landscaping. This will be reviewed through an examination of the side of the home facing the street.
2. The exterior materials of the resident shall be compatible with adjacent properties. This feature will be reviewed by examining exterior materials described and determining whether the proposed building material is compatible with adjacent homes.
3. The home must not have a monotonous appearance in relation to the adjacent properties. This will be determined by examining application materials. Consideration will be given to the variation in setbacks, architectural features, landscaping accents, or accessory structures proposed to achieve the required appearance. If the Department determines that any one of these four criteria has not been met in the Planning Review, the application will be referred to the Planning Commission for Final Review.

C. See Special Notes on sheet 16 of 27:

6. Residential Single Family District: R-3 - Single Family Residential - Detached & Attached

A. Purpose: Residential district:

A residential area which permits both detached and attached Single Family Residential.



B. General Requirements - Single Family Detached:

1. Refer to R-2 - Single Family Detached Residential Requirements

C. General Requirements - Single Family Attached:

1. Building types allowed: Duplexes, and Townhome.
2. Minimum Setback from property line:
  - Front: 18' to garage door facing R.O.W.  
10' to other walls or side-facing garage.  
8' if the Front faces a park, open space, or green court. (Maintaining off-street parking requirement)
  - Side (End units only): 5' to lot line minimum.  
10' minimum to local street R.O.W.  
30' minimum to collector street R.O.W.
  - Rear: 10' minimum to rear lot line.  
20' minimum to local street R.O.W.  
30' minimum to collector street R.O.W.  
0' with no encroachments, if the garage is accessed from the rear.
- Minimum Distances Between Buildings:
  - Side - Side orientation: 10'.
  - Side - Rear orientation: 20'.
  - Rear - Rear orientation: 20'.
3. Maximum Building Height: 35'.
4. Minimum Lot Frontage Width at Building Line:
  - a. Front Loaded Duplex - 35' (40' corner lots)
  - b. Rear Loaded Duplex - 25' (30' corner lots)
  - c. Front Loaded Townhome - End Unit 30' (40' corner lots), Interior Unit 24'
  - d. Rear Loaded Townhome - End Unit 20' (30' corner lots), Interior Unit 16'
5. Minimum Lot Area:
  - a. Front Loaded Duplex - 3,150 sq.ft.
  - b. Rear Loaded Duplex - 1,250 sq.ft.
  - c. Front Loaded Townhome - 2,160 sq.ft.
  - d. Rear Loaded Townhome - 1,000 sq.ft.

6. A single-family residence located within this District shall be compatible in architectural design with the adjacent properties; and not monotonous in appearance to adjacent properties.
  - a. The design review process as described below shall be used to determine if a single-family home meets these neighborhood design requirements.
  - b. Design Review Process.
    1. See Special Notes on sheet 16 of 27:
    2. The party seeking a Design Review shall submit the following materials for

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		REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

Planning Review prior to (or at the same time as) a building permit application to the Department of Planning and Development:

- a. Site plan;
- b. Elevations or color photographs of all sides of a home;
- c. Roof slope description expressed in a ratio horizontal to vertical feet;
- d. Description of any proposed visible foundation; and,
- e. Description of exterior finish including materials and colors.

3. Planning Review shall be performed by the Department of Planning and Development and shall occur within five (5) days of submittal of a complete application. The Department will review the case to determine whether the Design Review Criteria has been met. If all Criteria has been met, approval will be forwarded to the Chief Building Official. If all Criteria have not been met, the Final Review shall take place.

4. Final Review shall be performed by the Adams County Planning Commission. The Department of Planning and Development shall schedule the review at the next available Planning Commission hearing following proper notice. The Department of Planning and Development shall give notice following scheduling of the review. Proper notice shall consist of posing the property for ten (10) days before the hearing, and notification of neighborhood group representatives for the area who have provided written notice to the Department of Planning and Development that they claim an interest in the outcome of a case in this location. The Planning Commission shall approve, deny the application or it may continue the Review hearing in order to obtain additional information based on the project meeting general requirements listed under A of this section and meeting the intent of the Design Review Criteria.

**c. Design Review Criteria.**

1. The home should be displayed toward the street in a compatible manner with surrounding homes through location of windows, doors, other architectural features, or landscaping. This will be reviewed through an examination of the side of the home facing the street.
2. The exterior materials of the resident shall be compatible with adjacent properties. This feature will be reviewed by examining exterior materials described and determining whether the proposed building material is compatible with adjacent homes.
3. The home must not have a monotonous appearance in relation to the adjacent properties. This will be determined by examining application materials. Consideration will be given to the variation in setbacks, architectural features, landscaping accents, or accessory structures proposed to achieve the required appearance. If the Department determines that any one of these four criteria has not been met in the Planning Review, the application will be referred to the Planning Commission for Final Review.

D. See Special Notes on sheet 16 of 27:

**7. Residential Single Family District: R-4 - Single Family Attached & Detached**

**A. Purpose: Residential district:**

A residential area which permits a mix of attached and detached Single Family Residential.

**B. General Requirements:**

1. Refer to R-2 - Single Family Detached Residential Requirements
1. Refer to R-3 - Single Family Attached Residential Requirements

**C. General Requirements - Multi-Family:**

1. Building types allowed: Multi-Family buildings.
2. Minimum Setback:
  - Front: 20' for a Principal Structure  
30' for an Accessory Structure  
(Maintaining off-street parking requirement)
  - Side: 20' for a Principal Structure  
30' for an Accessory Structure  
(Maintaining off-street parking requirement)
  - Rear: 20' for a Principal Structure  
30' for an Accessory Structure  
(Maintaining off-street parking requirement)
  - Minimum Distances Between Buildings:
    - Side - Side orientation: 15'.
    - Side - Rear orientation: 25'.
    - Rear - Rear orientation: 30'.
3. Maximum Building Height: 45'.
4. Minimum Lot Width:
  - a. The minimum lot width shall be two hundred (200) feet.
5. Minimum Lot Size:
  - a. The minimum lot size shall be two (2) acres.
6. Minimum Residence Floor Area:
  - Efficiency Unit - four-hundred-fifty (450) square feet.
  - 1 bedroom - six hundred (600) square feet.
  - 2 bedroom - seven-hundred-fifty (750) square feet.
  - 3 bedroom - nine hundred (900) square feet.
  - 4 bedroom - one thousand (1,000) square feet.

7. A multi-family residence located within this District shall be compatible in architectural design with the adjacent properties; and not monotonous in appearance to adjacent properties.
  - a. The design review process as described below shall be used to determine if a single-family home meets these neighborhood design requirements.
  - b. Design Review Process.
    1. See Special Notes on sheet 16 of 27:
    2. The party seeking a Design Review shall submit the following materials for Planning Review prior to (or at the same time as) a building permit application to the Department of Planning and Development:
      - a. Site plan;
      - b. Elevations or color photographs of all sides of a home;
      - c. Roof slope description expressed in a ratio horizontal to vertical feet;
      - d. Description of any proposed visible foundation; and,
      - e. Description of exterior finish including materials and colors.

3. Planning Review shall be performed by the Department of Planning and Development and shall occur within five (5) days of submittal of a complete application. The Department will review the case to determine whether the Design Review Criteria has been met. If all Criteria has been met, approval will be forwarded to the Chief Building Official. If all Criteria have not been met, the Final Review shall take place.
  4. Final Review shall be performed by the Adams County Planning Commission. The Department of Planning and Development shall schedule the review at the next available Planning Commission hearing following proper notice. The Department of Planning and Development shall give notice following scheduling of the review. Proper notice shall consist of posing the property for ten (10) days before the hearing, and notification of neighborhood group representatives for the area who have provided written notice to the Department of Planning and Development that they claim an interest in the outcome of a case in this location. The Planning Commission shall approve, deny the application or it may continue the Review hearing in order to obtain additional information based on the project meeting general requirements listed under A of this section and meeting the intent of the Design Review Criteria.
- c. Design Review Criteria.**
1. All sides of a multi-family building shall display a similar level of quality and architectural detailing. The majority of a building's architectural features and treatments shall not be restricted to a single facade. Building details, including roof forms, windows, doors, trim, and siding materials, shall reflect the architectural style of the building.
  2. The exterior materials of the resident shall be compatible with adjacent properties. This feature will be reviewed by examining exterior materials described and determining whether the proposed building material is compatible with adjacent homes.
  3. The maximum length of any multi-family building shall be 165 feet, this standard does not apply to assisted living/nursing homes.
  4. A multi-family building must not have a monotonous appearance in relation to the adjacent properties. This will be determined by examining application materials. Consideration will be given to the variation in setbacks, architectural features, landscaping accents, or accessory structures proposed to achieve the required appearance. If the Department determines that any one of these four criteria has not been met in the Planning Review, the application will be referred to the Planning Commission for Final Review.
  5. Clustering is encouraged.
- D. See Special Notes on sheet 16 of 27:

**8. General Requirements for All Residential Districts**

**A. Density transfers allowed throughout Todd Creek PUD:**

1. To encourage clustering, the creative use of open space, and the preservation of natural features, density may be transferred between districts, so long as the gross density in the PUD remains at or below 1.46 DU/AC, and the density in the district to which density is transferred does not exceed 125% of the original density allowed.
2. To encourage clustering, the creative use of open space, and the preservation of natural features, density may be transferred between districts, so long as the gross density in the PUD Amendment area remains at or below 6.0 DU/AC, and the density in the district to which density is transferred does not exceed 105% of the original density allowed.

**B. Fence Standards and Requirements:**

1. All fences and walls over 42" in height require a building permit.
2. Any retaining walls over two (2) feet in height shall require preparation by a professional engineer as a condition for a building permit except where waived by the Building Inspections Section.
3. No fence of any type more than 42" in height shall be permitted between the front setback line and a front property line. In single family and duplex Districts, fences up to 72" in height may be permitted on the common street side of corner lots where houses are back to back.
4. Neither barbed wire nor electric fences shall be permitted as an external boundary fence in any residential Zone District, except that horse enclosures, where allowed, may be constructed of barbed wire.
5. The maximum height of any fence within a residential zone is 72" except where such development is adjacent to existing or proposed arterial streets or state highways in which case fences bordering such street may be uniformly built higher with the written permission of the Director of Planning and Development.
6. Traffic view obstruction as outlined in Section 4.290 shall prevail in all cases relating to fence construction.



**C. Off-Street Parking Requirements:**

1. All Single Family residential units, regardless of density, are required to have two (2) off-street parking spaces per unit.
2. For single-family detached residences, duplexes, and townhomes, the off-street parking area shall be provided in the garage/carport and/or on the approved paved driveway surface/parking pad, or designated parking areas. Vehicles shall not be parked and/or stored within the required front and side landscape areas.
3. Minimum Multi-Family Parking Requirements
  - Efficiency Unit - 0.75 spaces per unit type.
  - 1 bedroom - 1.0 spaces per unit type.
  - 2 bedroom - 1.5 spaces per unit type.
  - 3+ bedroom - 2.0 spaces per unit type.
  - Visitor Parking - Minimum of 15% of the required parking shall be provided for visitors in addition to the minimum required off-road parking

- D. Site Distance Requirements:
1. Sight distance requirements as outlined in Section 4.290 shall prevail over any other development requirement or standard.
- E. All development shall more or less follow the spirit and intent of the proposed Todd Creek Village Sub Area land use plan. This shall include land use designations, such as parks, schools, trails, open space, as well as commercial and residential mixed use development.
9. Tabulation of Uses for Residential and Mobile Home Districts:  
The uses allowed within each District are listed as a "Use by Right", "Conditional Use" (formerly Permitted Use), "Special Use", "Temporary Use", "Not Allowed", or "Certificate of Designation". Within each Zone District only listed "Uses by Right" shall be permitted, subject to standards established in these and other regulation(s); Conditional Uses, Special Uses, and Temporary Uses are listed by way of example and not by way of limitation; "Not Allowed" are prohibited from the relevant Zone District. For uses not listed or clearly fitting within one or more of the categories, the Director of Planning and Development shall determine in what Zone District the use is allowed and by what means (Special Use, Use by Right, etc.).

	R-E	R-E-1	R-1-A	R-2	R-3	R-4
Accessory Uses	X	X	X	X	X	X
Animals, 2 dogs	X	X	X	X	X	X
Asphalt Mixing Plants (temp)	S	S	S	S	S	S
Commercial Kennel	NA	NA	NA	NA	NA	NA
Churches, Places of Worship	C	C	C	C	C	C
Day Care Home	X	X	X	X	X	X
Dwelling - Single-Family Detached	X	X	X	X	X	X
Dwelling - Duplex	NA	NA	NA	NA	X	X
Dwelling - Single Family Attached	NA	NA	NA	NA	X	X
Essential Governmental Public Utility Services Not including bldg. or storage facilities With bldg. and/or storage facilities	X/C	X/C	X/C	X/C	X/C	X/C
Fire Station	C	C	C	C	C	C
Foster Family Care 1 to 5. In excess of 5 total in residence (use by right where required by State Law)	X/C	X/C	X/C	X/C	X/C	X/C
Golf Course	X	X	X	C	C	C
Group Quarters 1 to 5. In excess of 5 total in residence (use by right where required by State Law)	X/C	X/C	X/C	X/C	X/C	X/C
Home Occupation	X	X	X	X	X	X
Hospitals	C	C	C	C	C	C
Libraries, Public	X	X	X	X	X	X
Non-Commercial Radio & T.V. Tower up to 90' from ground in excess of 90'	X/C	X/C	X/C	X/C	X/C	X/C
Parks, Public	X	X	X	X	X	X
Police Stations	C	C	C	C	C	C
Post Office	C	C	C	C	C	C
Residential Uses such as Nursing Homes, Boarding Houses, Etc.	C	C	C	C	C	C
Roadside Stands (unsubdivided only - primarily to sell products produced on the property)	T	T	T	T	T	T
Schools Day Care Public, Private, Parochial, K-12	C/C	X/X	X/X	X/X	X/X	X/X
Sexually Oriented Businesses	NA	NA	NA	NA	NA	NA
Waste Disposal Site and/or Processing Facility	NA	NA	NA	NA	NA	NA
Water Storage (closed structure)	C	C	C	C	C	C
Yard/Garage Sales (maximum 2 weekends/yr.)	X	X	X	X	X	X

X - USE BY RIGHT
C - CONDITIONAL USE
S - SPECIAL USE
T- TEMPORARY USE
CD - CERTIFICATE OF DESIGNATION
NA - NOT ALLOWED

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		REV-1	



# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

10. Reservoir Open Space / PA-4

A. Purpose: Reservoir Open Space: Contains the reservoirs ponds that will be managed by the Todd Creek Metropolitan District and used as a means of water for the community. The site may house the facility management and HOA district buildings to operate and maintain the ponds. The open space areas around the ponds will provide natural open space, as well as a community trail.

B. Permitted Uses:

1. Open Space
2. Trails - crusher fines, asphalt or concrete
3. Water Treatment Facility
4. District Facility Buildings
5. Maintenance Buildings
6. District Office Buildings
7. Reservoirs
8. Recreational/Park Facilities

BUILDING INFORMATION

1. The Final P.U.D. Plan shall provide information on building square footage, floor plans and architectural elevations. Each housing type shall meet the intent of the architectural themes and materials as outline below.
2. The following architectural themes and materials will be utilized in some combination of one or more ways. The themes and materials listed are not intended to be the only allowable, but shall be representative of the intent of the development and shall apply to all land uses herein.

A. Roofing Materials - warm earth tones in color:

1. Shake (including aggregate shake-appearing material)
2. Shake wood blend, a fiberglass composite
3. Asphaltic shingle
4. Concrete
5. Standing metal seam

B. Siding Materials:

1. Stucco
2. Wood, natural
3. Stone on synthetic masonry
4. Brick veneer
5. Rough sawn trim
6. Hardboard lap siding

C. Drainage:

1. All Lots shall have positive drainage in accordance with County approved Grading Plans.
2. Detention basins shall provide the necessary storm water volume storage for development within Todd Creek Village PUD and conform to Adams County Standards.

D. Miscellaneous:

1. All construction shall be in accordance with Adams County Building Regulations.

SPECIAL NOTES

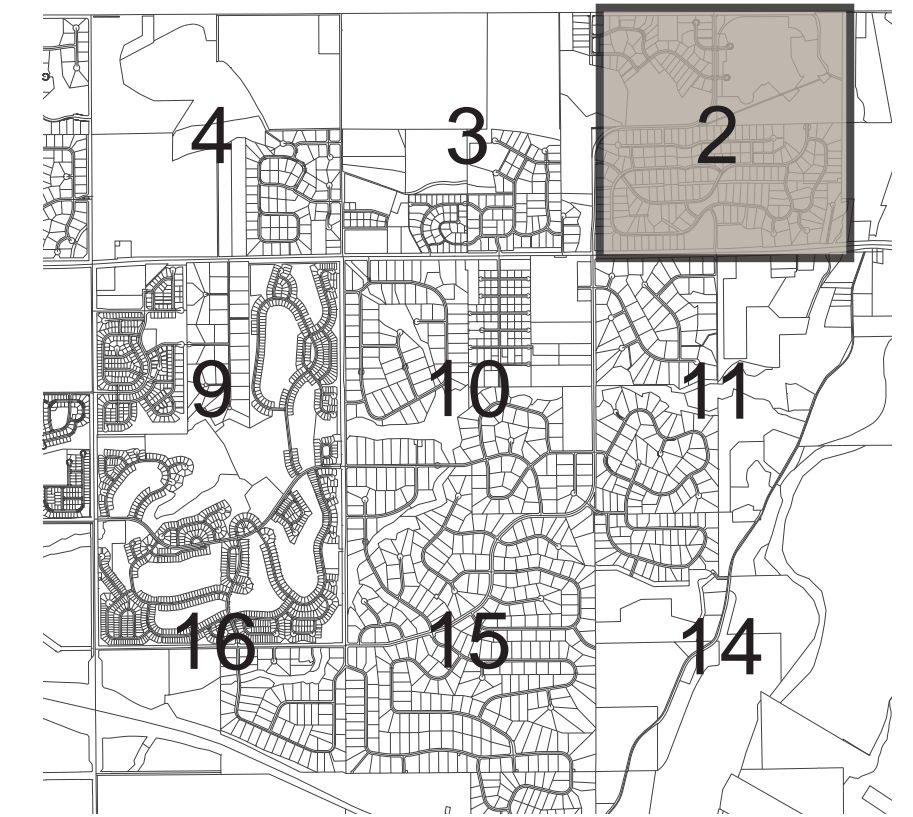
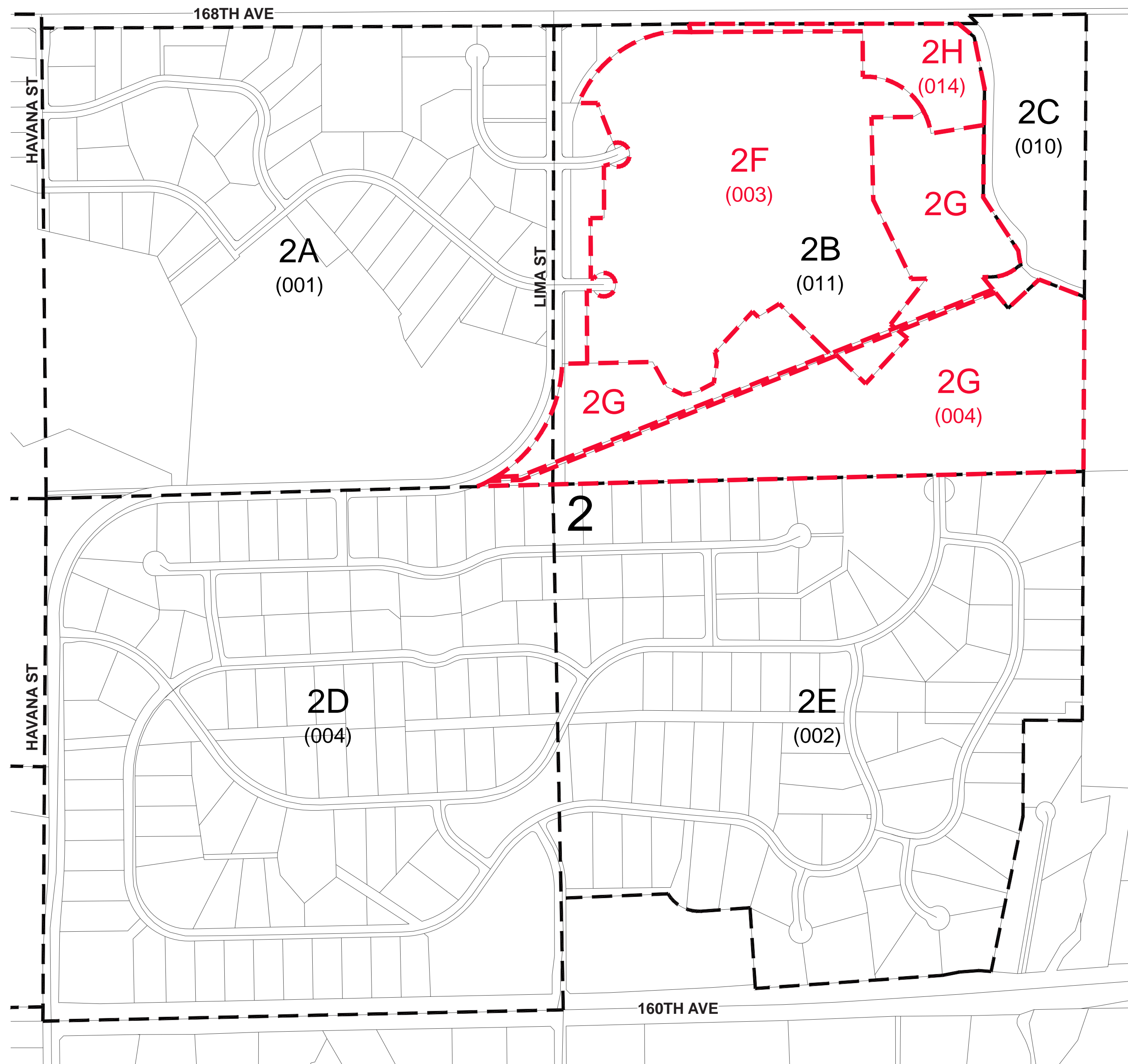
1. All streets within this P.U.D. shall meet construction standards of the Adams County Subdivision Regulations in regard to pavement type and base depth.
2. Adams County will install, at the land developer's expense, all traffic control and street name signs.
3. Street lights are to be selected by the Todd Creek Metro District and/or their representative and/or City of Thornton. All lighting shall be down cast and shall be installed and designed by Union REA at the land developer's expense in accordance with the American National Standard Practice for Roadway Lighting.
4. Any minimum development and performance standards not mentioned in this PUD, and only for portions of the PUD that are not being revised with this Major PUD Amendment, shall conform to the Adams County Zoning Regulations dated November 1980 with amendments through May 2000.
5. Any minimum development and performance standards not mentioned in this PUD, and only for portions of the PUD that are not being revised with this Major PUD Amendment, shall conform to the Adams County Zoning Regulations dated December 8, 2020.
6. Where Reference are made to see section followed by a number. These sections may be found in the Adams County Zoning regulations.
7. All building plans architecture, color selection and landscape plans shall be approved by the respective HOA and/or metro district in addition to Adams County prior to the issuance of a building permit. Where a conflict occurs, the more restrictive controls shall prevail.
8. Any references to districts in black text are related to existing districts, references in red text are related to new districts exclusively related to the PUD Amendment area.

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# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP MAP



LOCATION MAP  
SCALE: 1"=4,000'

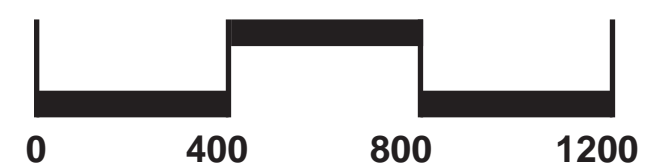


#### LEGEND

- PARCEL BOUNDARY
- AMENDED PARCEL BOUNDARY
- SECTION NUMBER
- SECTION '2' / PARCEL 'E'
- ADAMS COUNTY CLERK-OWNERSHIP NUMBER



SCALE: 1" - 400'



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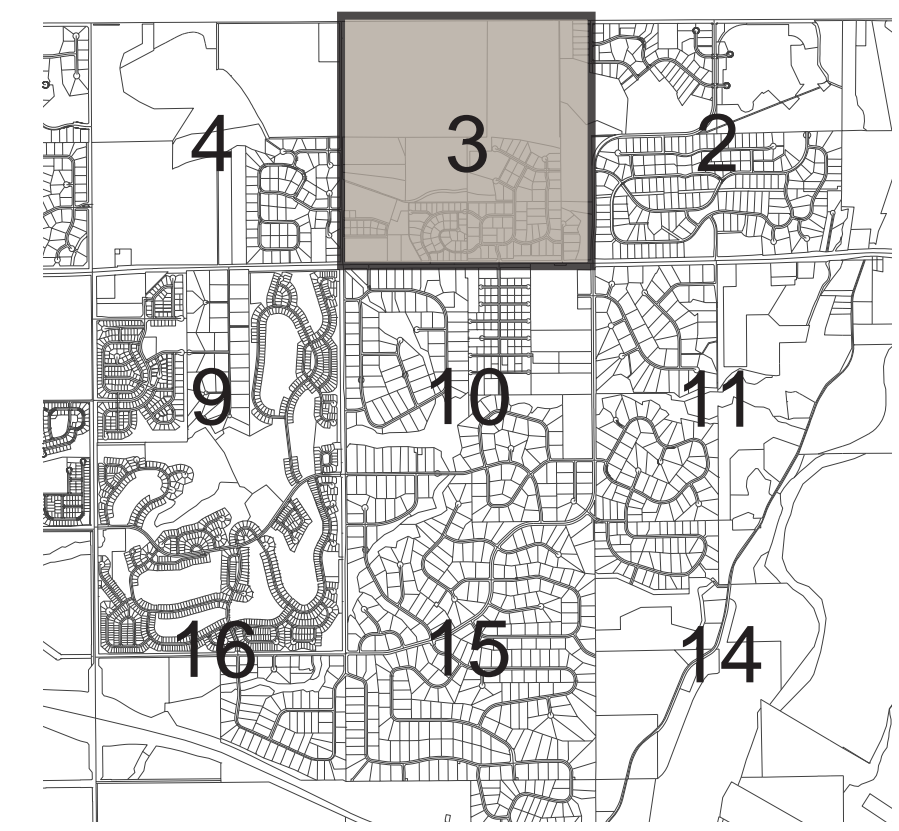
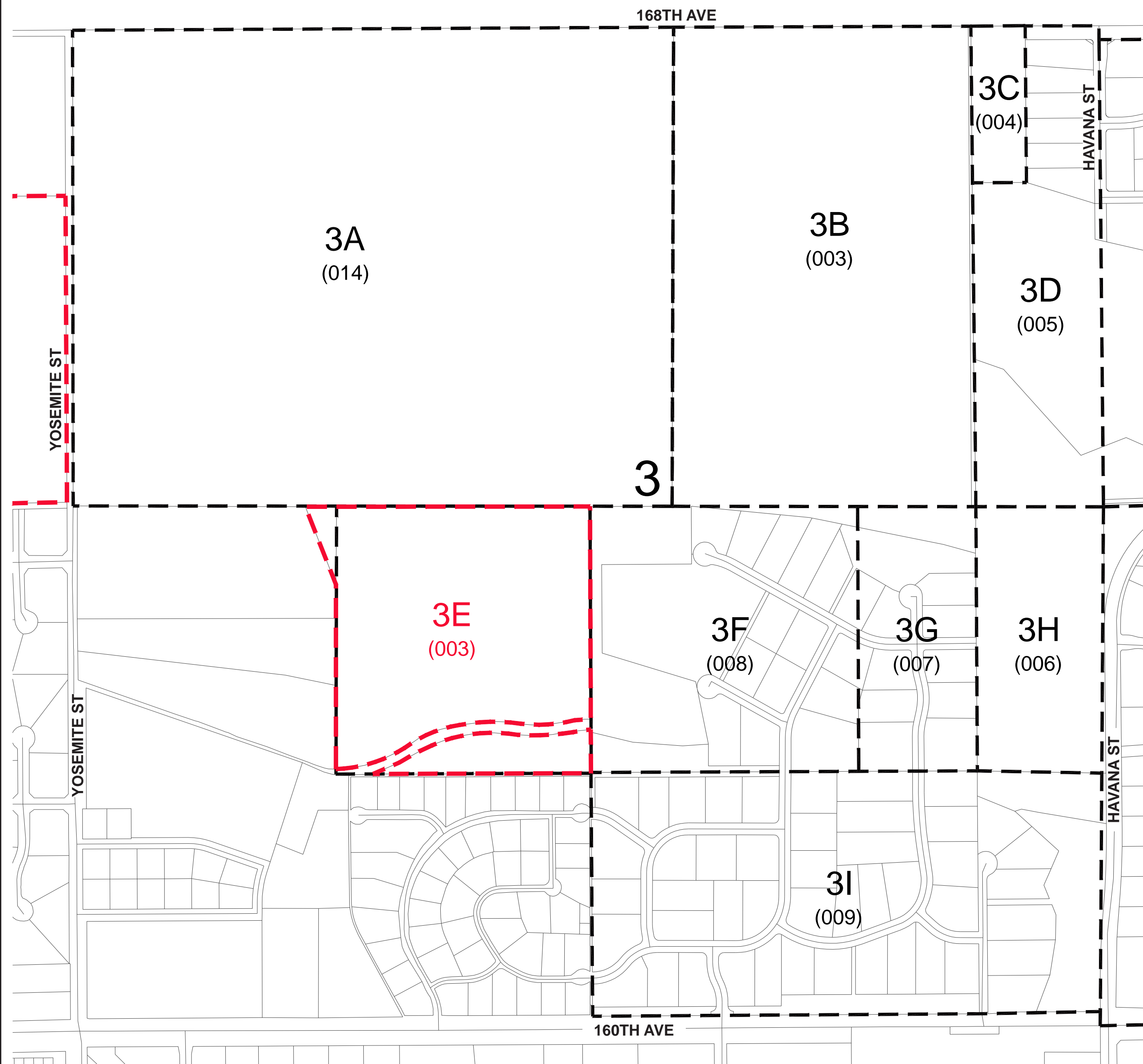
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REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP MAP

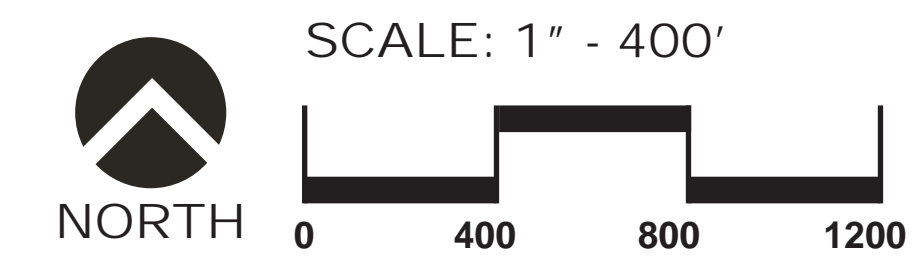
18 OF 27  
CASE NO. \_\_\_\_\_



LOCATION MAP  
SCALE: 1"=4,000'  
NORTH

#### LEGEND

- PARCEL BOUNDARY
- AMENDED PARCEL BOUNDARY
- 3** SECTION NUMBER
- 3E** SECTION '4' / PARCEL 'E'
- (002)** ADAMS COUNTY CLERK-OWNERSHIP NUMBER



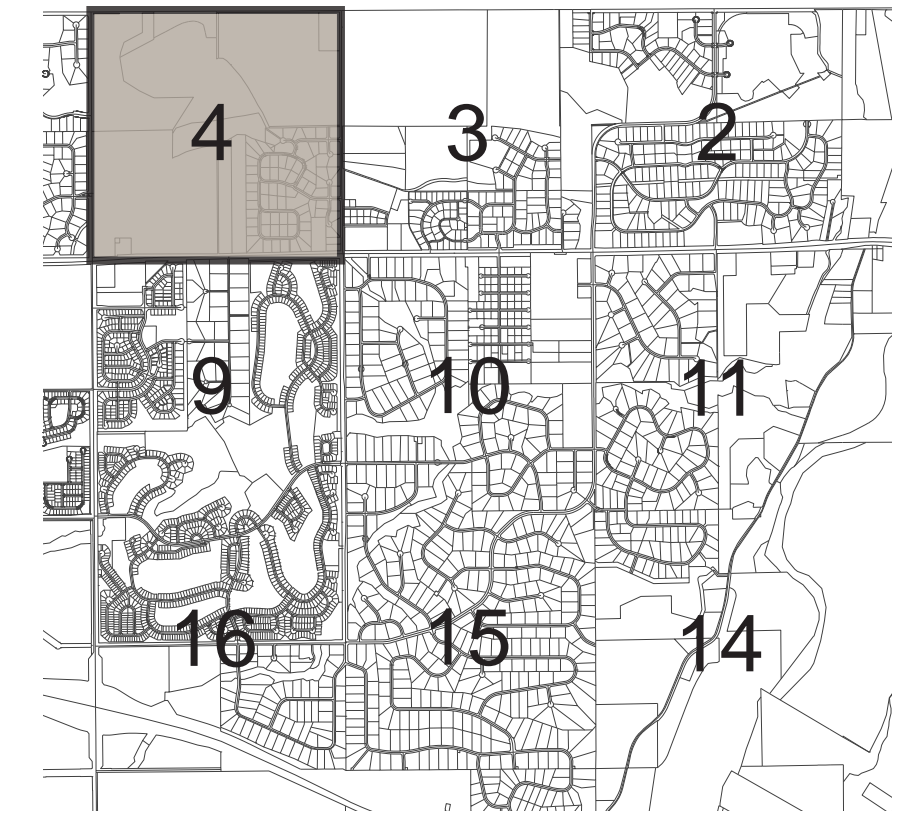
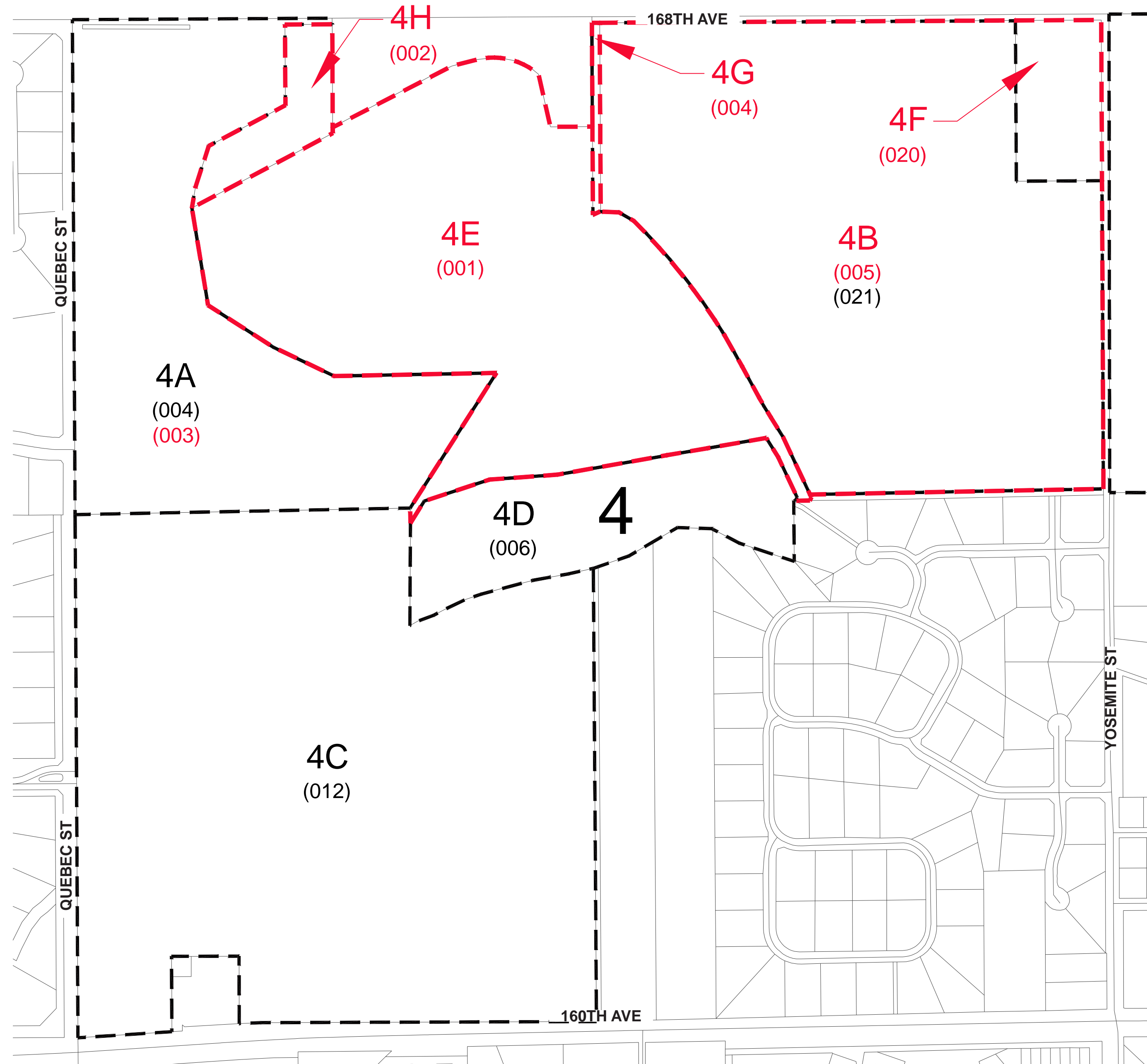
 <small>LAND PLANNING / LANDSCAPE ARCHITECTURE</small> 200 KALAMATH ST. DENVER, CO 80223 (303) 531-4905 WWW.PCSGROUPCO.COM	 <small>ENGINEERS • SURVEYORS</small> 12500 W. 58th AVE. #230 ARVADA, CO 80002 PH: 720.638.5190	DATE	6-9-2023
		REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP MAP

19 OF 27  
CASE NO. \_\_\_\_\_

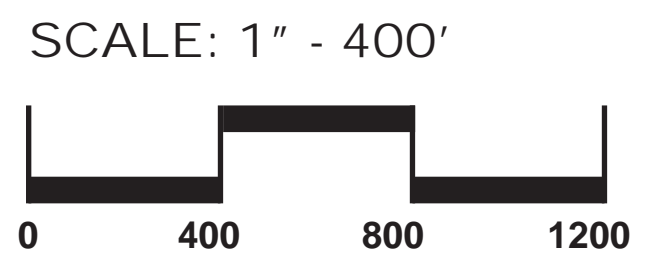


LOCATION MAP  
SCALE: 1"=4,000'



#### LEGEND

- PARCEL BOUNDARY
- AMENDED PARCEL BOUNDARY
- 4** SECTION NUMBER
- 2E** SECTION '2' / PARCEL 'E'
- (002)** ADAMS COUNTY CLERK-OWNERSHIP NUMBER

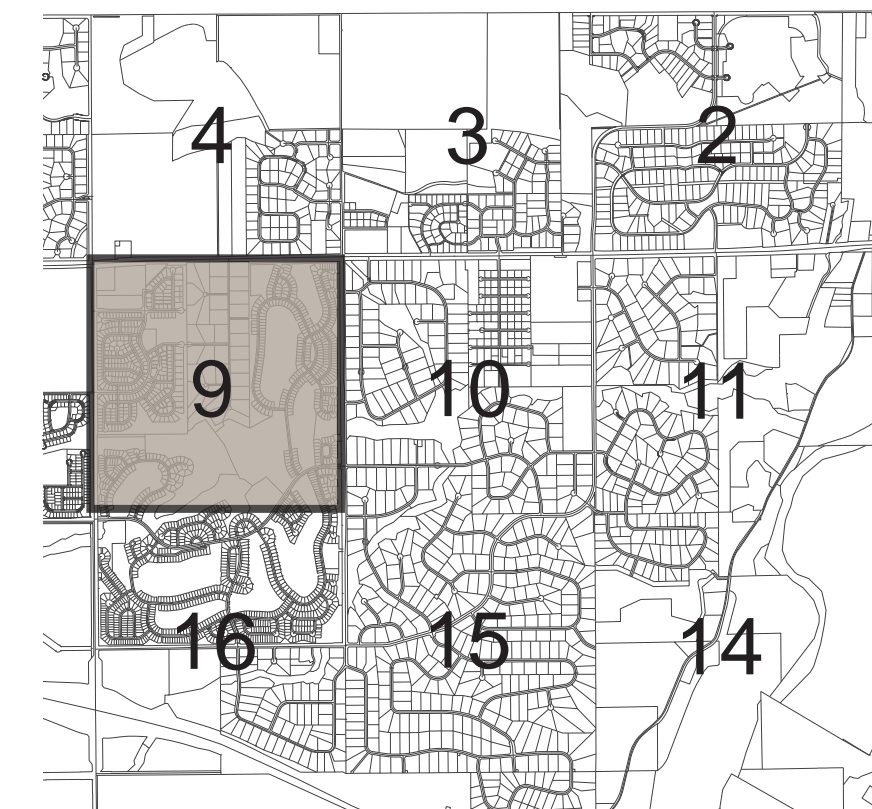
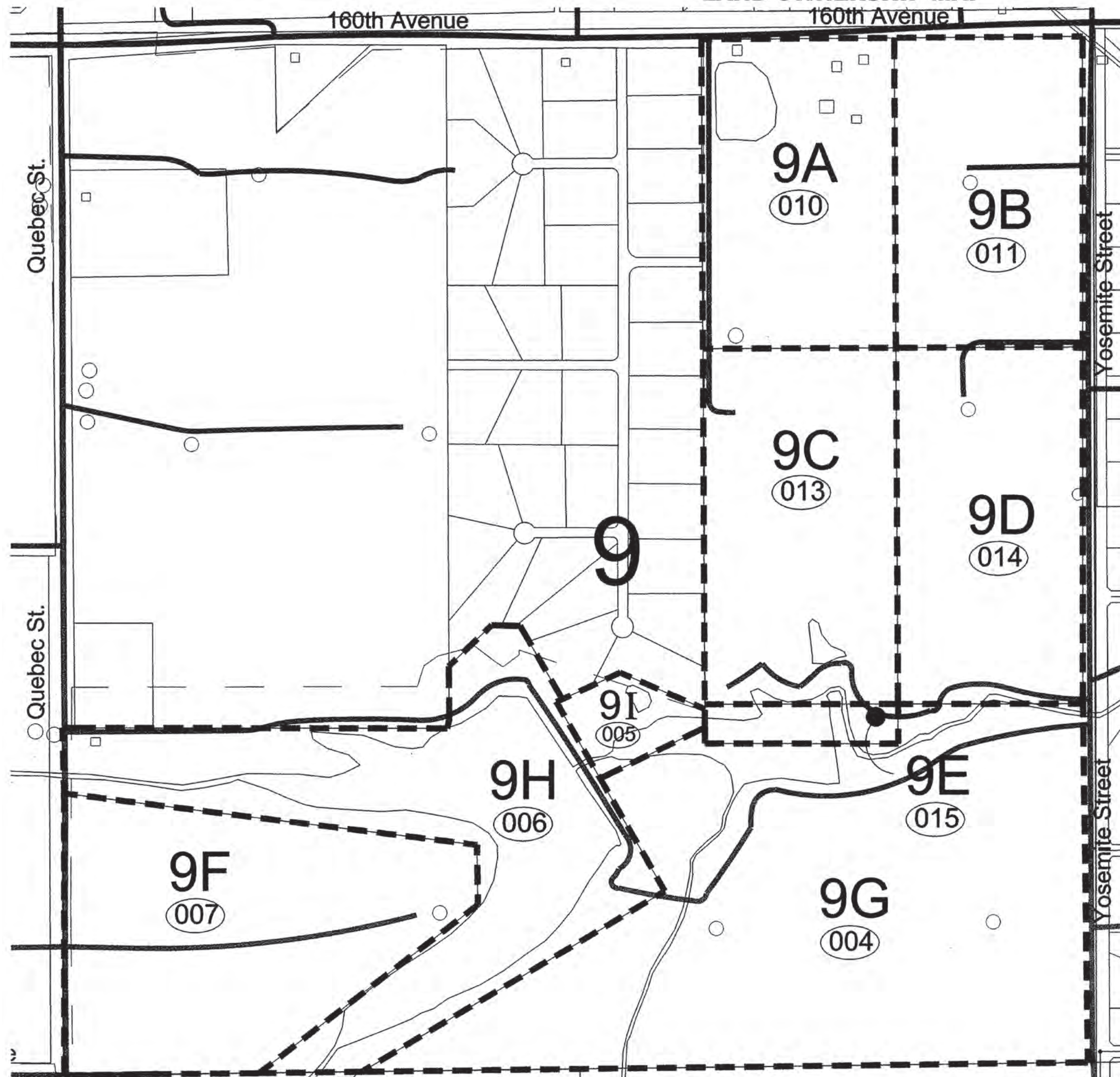


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# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP MAP



LOCATION MAP  
SCALE: 1"=4,000'



#### LEGEND

- PARCEL BOUNDARY
- SECTION NUMBER
- SECTION '2' / PARCEL 'E'
- ADAMS COUNTY CLERK-OWNERSHIP NUMBER



SCALE: 1" - 400'



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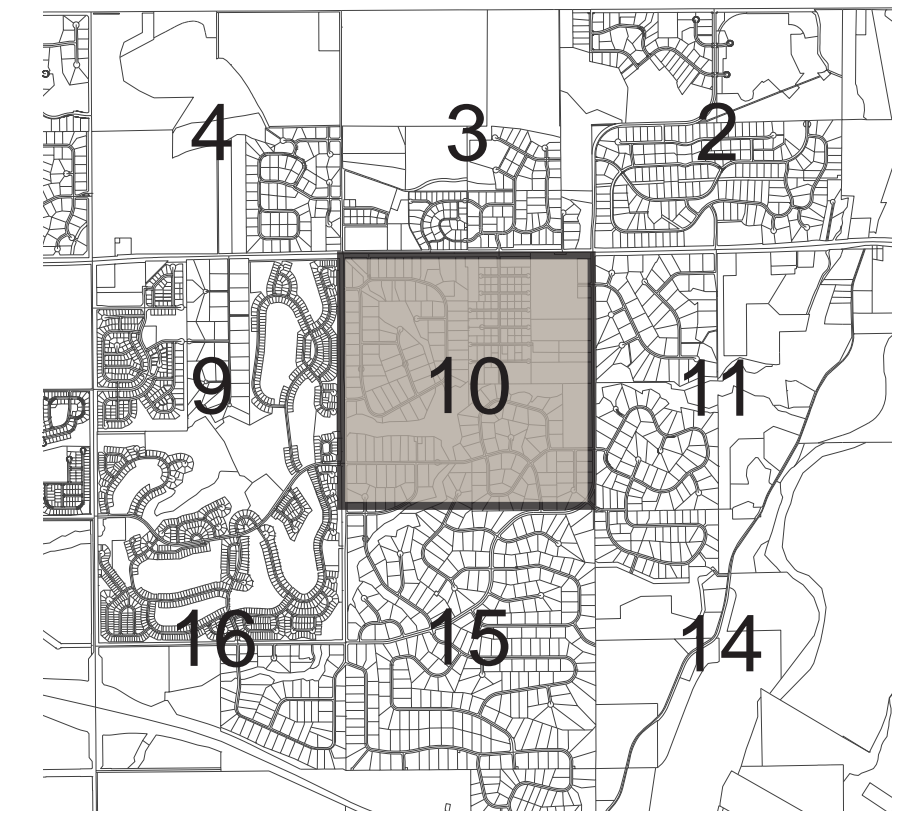
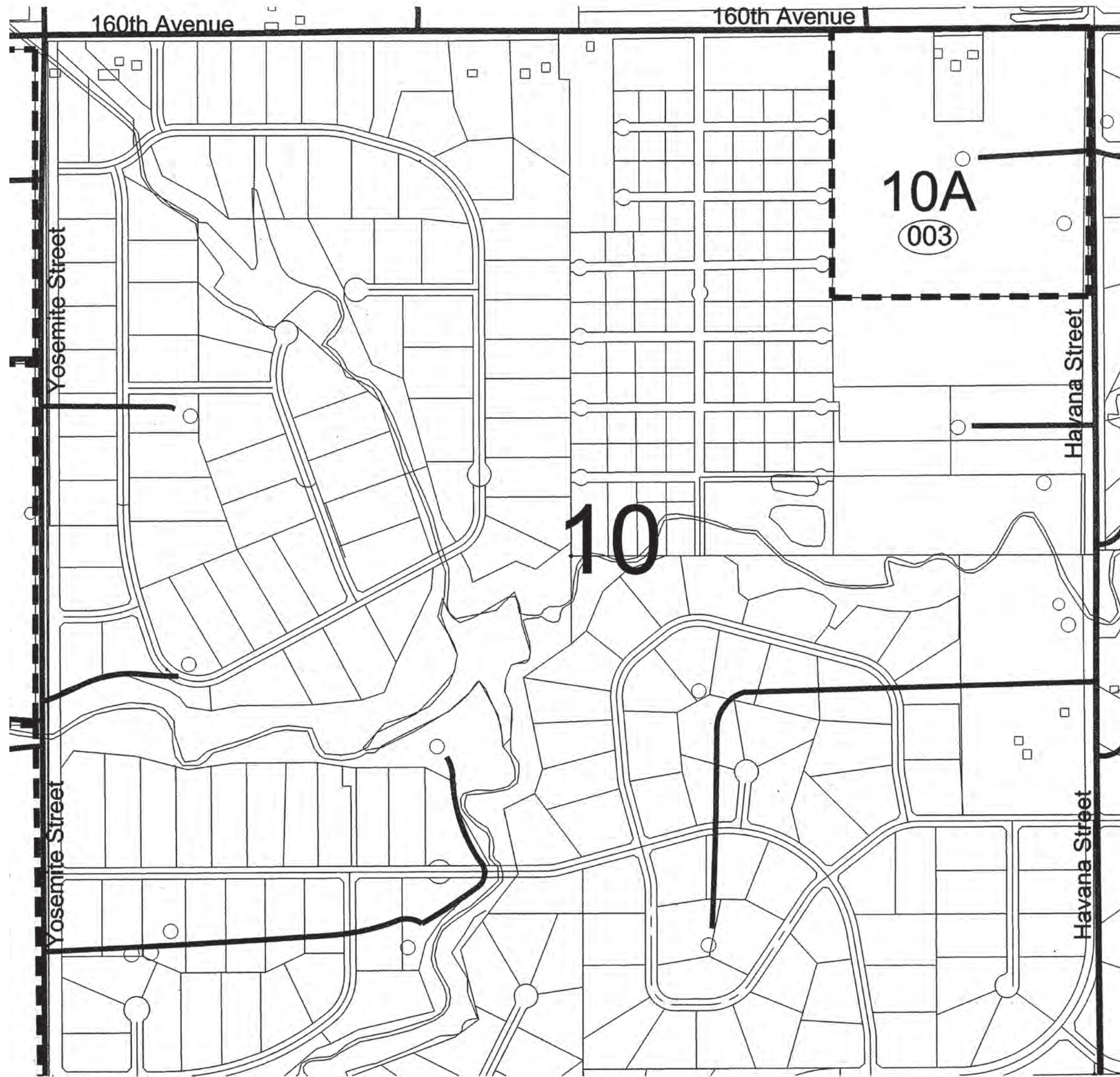
DATE 6-9-2023

REV-1

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP MAP



LOCATION MAP  
SCALE: 1"=4,000'

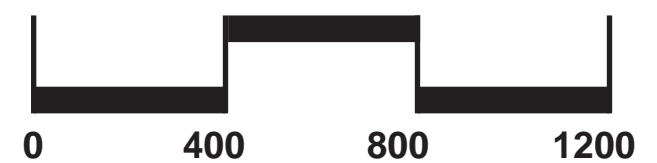


#### LEGEND

- **PARCEL BOUNDARY**
- 10
**SECTION NUMBER**
- 2E
**SECTION '2' / PARCEL 'E'**
- (002)
**ADAMS COUNTY CLERK-OWNERSHIP NUMBER**



SCALE: 1" - 400'

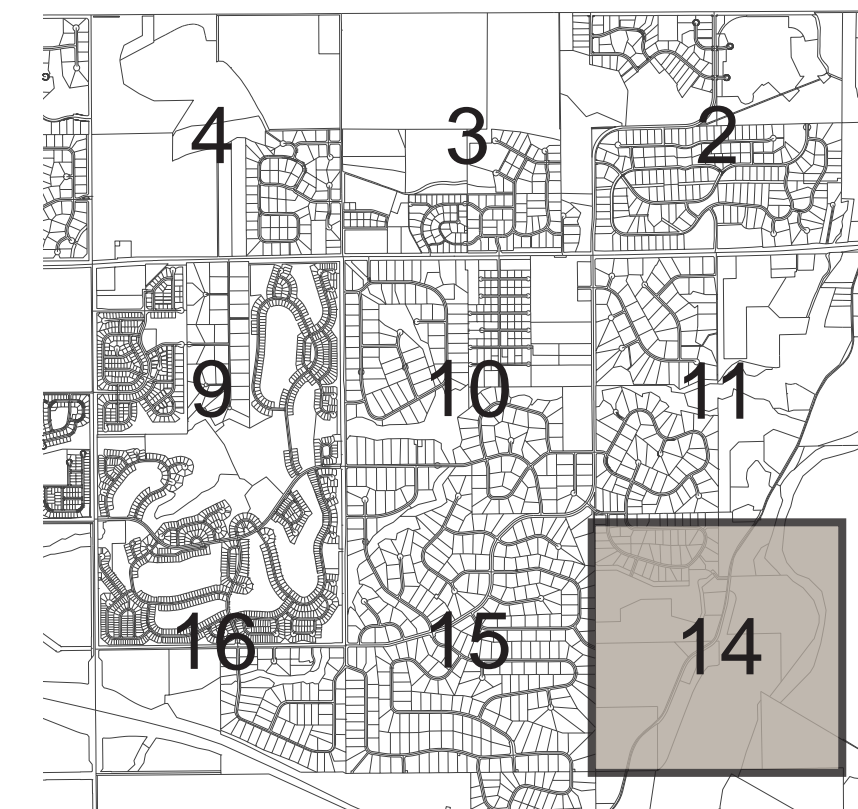
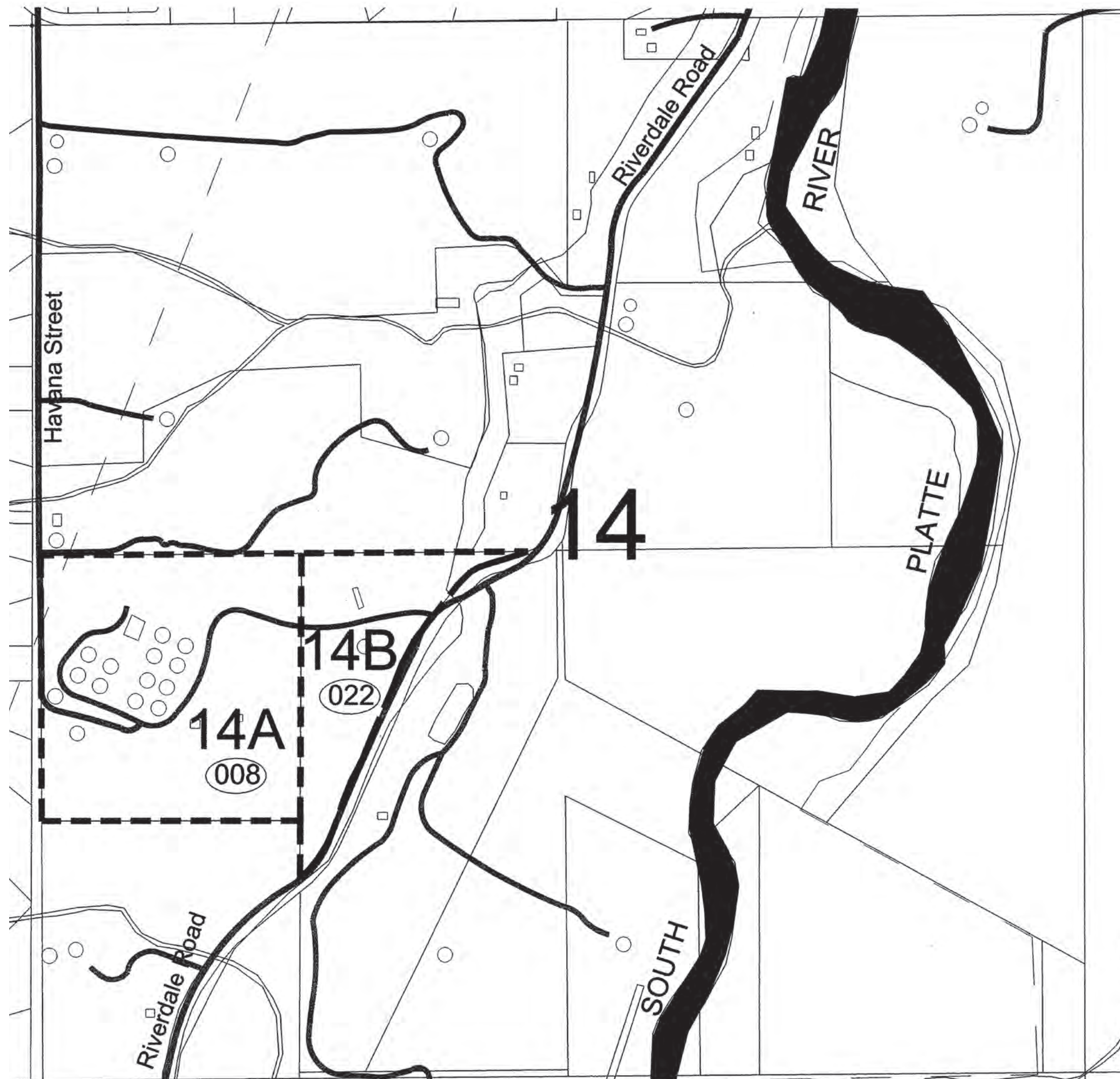


DATE	6-9-2023
REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP MAP



LOCATION MAP  
SCALE: 1"=4,000'

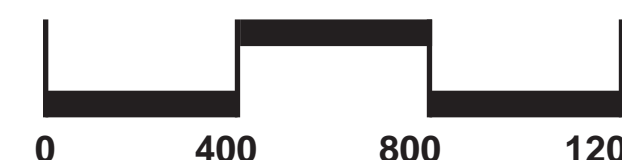


#### LEGEND

- PARCEL BOUNDARY
- 14** SECTION NUMBER
- 2E** SECTION '2' / PARCEL 'E'
- (002)** ADAMS COUNTY CLERK-OWNERSHIP NUMBER



SCALE: 1" - 400'



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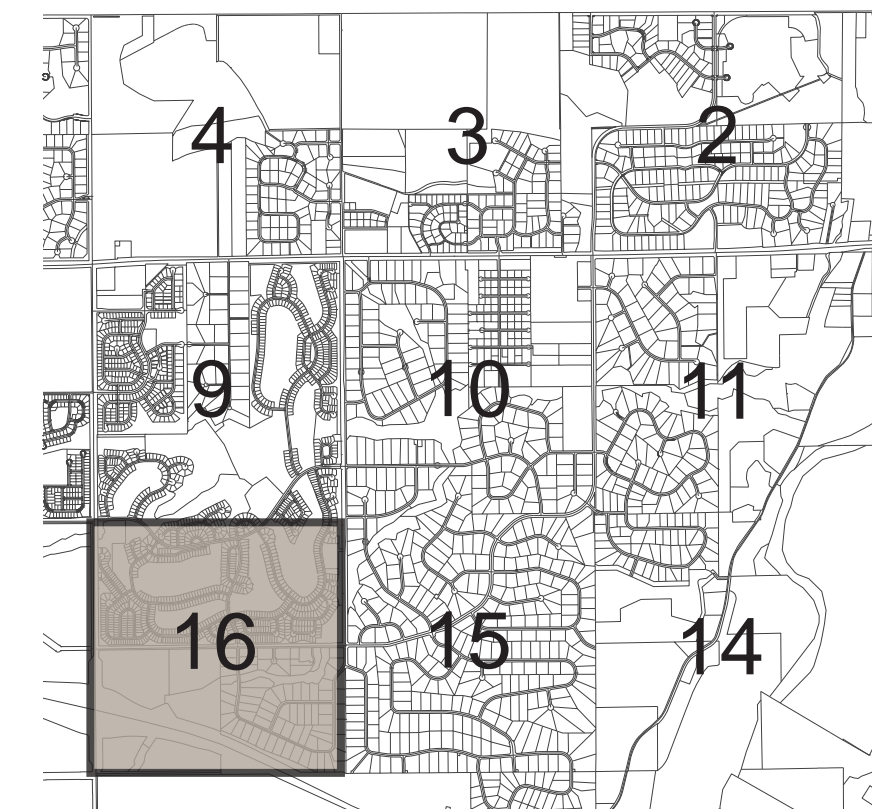
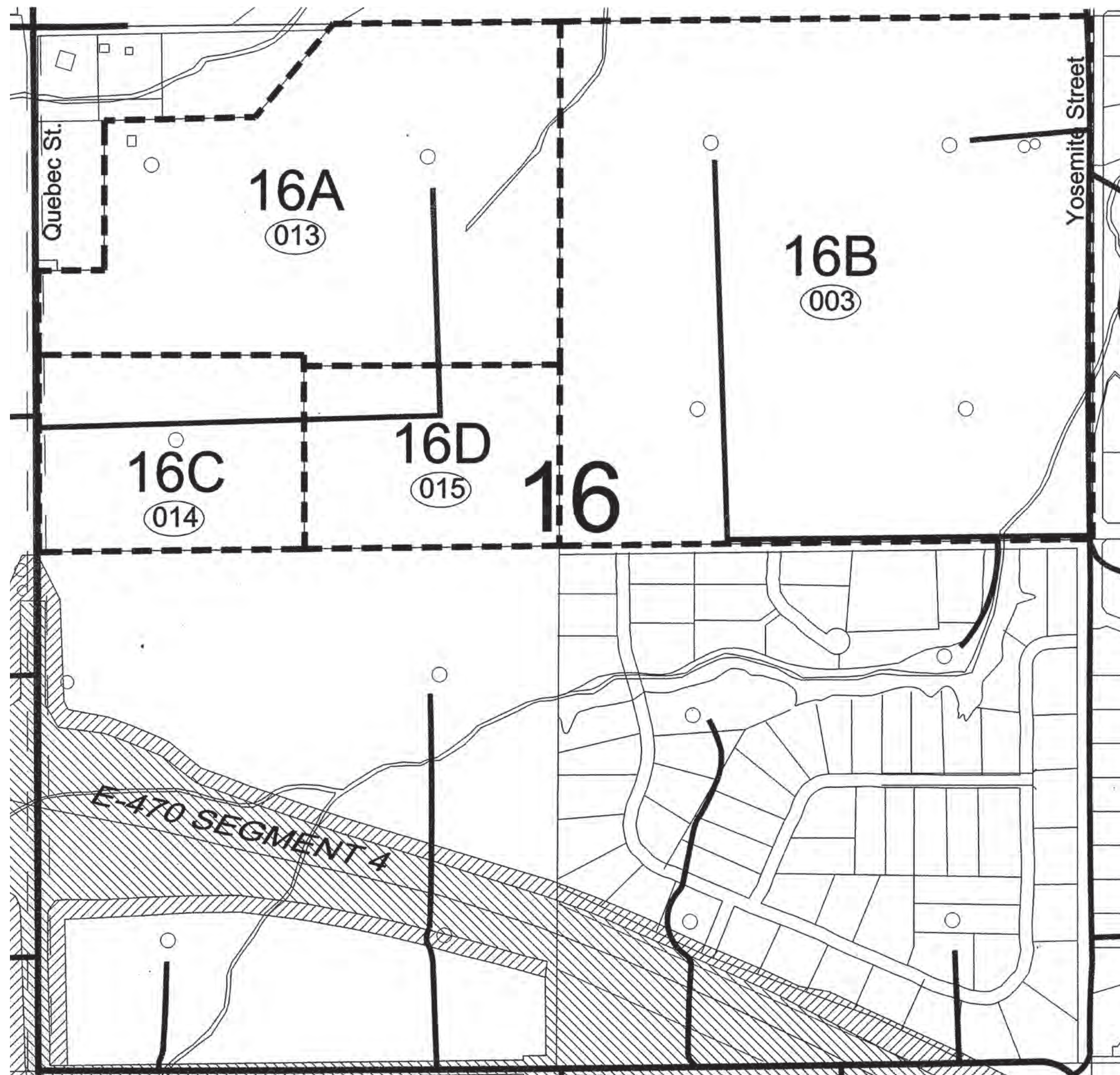
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# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP MAP



LOCATION MAP  
SCALE: 1"=4,000'

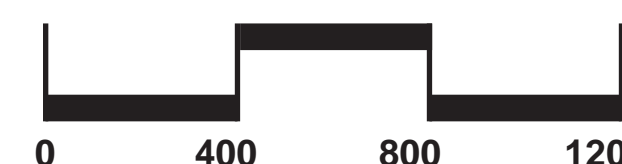


#### LEGEND

- PARCEL BOUNDARY
- 16** SECTION NUMBER
- 2E** SECTION '2' / PARCEL 'E'
- (002)** ADAMS COUNTY CLERK-OWNERSHIP NUMBER



SCALE: 1" - 400'



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# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT



### PERMITTED USE BY PARCEL SUMMARY

**PERMITTED USES WITH EACH OWNERSHIP PARCEL**

1. Permitted Uses

- \*Parcel 2A:  
- R-E - Residential Estate single-family detached dwellings  
- RE/PL - Portion of the 60-acre Estate Residential/School Site Flex Parcel
- \*Parcel 2B:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 2C:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 2D:  
- R-E - Residential Estate single-family detached dwellings  
- RE/PL - Portion of the 60-acre Estate Residential/School Site Flex Parcel
- \*Parcel 2E:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3A:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3B:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3C:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3D:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3E:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3F:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3G:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3H:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3I:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 3J:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 4A:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 4B:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 4C:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 4D:  
- R-E - Residential Estate single-family detached dwellings
- \*Parcel 9A:  
- R-1-A - Residential Single Family Flex District  
- R-E-1 - Residential Single Family District, single-family detached dwellings at 2.0 DU/AC  
Maximum Density
- \*Parcel 9B:  
- R-1-A - Residential Single Family Flex District
- \*Parcel 9C:  
- R-1-A - Residential Single Family Flex District  
- PL - Public Land
- \*Parcel 9D:  
- R-1-A - Residential Single Family Flex District  
- R-E-1 - Residential Single Family District, single-family detached dwellings at 2.0 DU/AC  
Maximum Density  
- PL - Public Land
- \*Parcel 9E:  
- R-1-A - Residential Single Family Flex District  
- PL - Public Land

- \*Parcel 9F:  
- R-1-A - Residential Single Family Flex District  
- PL - Public Land
- \*Parcel 9G:  
- R-1-A - Residential Single Family Flex District  
- PL - Public Land
- \*Parcel 9H:  
- R-1-A - Residential Single Family Flex District  
- PL - Public Land
- \*Parcel 9U:  
- PL - Public Land
- \*Parcel 10A:  
- R-E-1 - Residential Single Family District, single-family detached dwellings at 2.0 DU/AC  
Maximum Density  
- PL - Fire Station
- \*Parcel 14A:  
- PL - Public Land
- \*Parcel 14B:  
- PL - Public Land
- \*Parcel 16A:  
- R-1-A - Residential Single Family Flex District
- \*Parcel 16B:  
- R-1-A - Residential Single Family Flex District
- \*Parcel 16C:  
- R-1-A - Residential Single Family Flex District
- \*Parcel 16D:  
- R-1-A - Residential Single Family Flex District

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		REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP LEGAL DESCRIPTIONS & OWNERS ADDRESSES

**SECTION 2**

**2A:**  
001-SECTION 2  
ABNER P. GUTHRIE ET AL  
11102 E 168<sup>TH</sup> ST  
BRIGHTON, CO 80601  
2A LEGAL DESCRIPTION: SECT, TWN, RNG: 2-1-67 DESC: NW4 EXC CO RD 142/65A

**2B:**  
011-SECTION 2  
ABNER P. GUTHRIE ET AL  
11102 E 168<sup>TH</sup> ST  
BRIGHTON, CO 80601  
2B LEGAL DESCRIPTION: SECT, TWN, RNG: 2-1-67 DESC: NE4 EXC RDS AND EXC DT ROW AND EXC PARC 120A

**2C:**  
010-Section 2  
PHYLLIS WEBB  
12152 E 168<sup>TH</sup> AVE  
BRIGHTON, CO 80601  
2C LEGAL DESCRIPTION: BEG AT NE COR SEC 2 TH S ALG E LN SD SEC TO CEN NEW BRANTNER DT WHERE SD DT INTERSECTS E LN SD SEC 2 TH ALG GEN LN SD DT AS SAME MEANDERS NWLY ACROSS E2 NE4 TO PT WHERE SD DT INTERSECTS N LN SEC 2 TH E ALG N LN SEC 2 TO POB 2/1/67 14A M/L

**2D:**  
004-SECTION 2  
JEREMIAH A AND WINNIE A BARTLEY  
13980 HOLLY ST  
BRIGHTON, CO 80601  
2D LEGAL DESCRIPTION: SW4 EXC HWAY 2/1/67 151/523A

**2E:**  
002-SECTION 2  
WARREN, TOM , & RAY BARTLEY, LLC  
7373 S. ALTON WAY #105  
ENGLEWOOD, CO 80112  
2E LEGAL DESCRIPTION: SECT, TWN, RNG: 2-1-67 DESC: SE4 EXC PARCS AND EXC HWAY 125/691A

**2F:**  
003-SECTION 2  
CARLSON TAYLOR R UND 24.25% INT AND THORNTON CORY J UND 24.25% INT ET ALS P.O. BO 247  
EASTLAKE, CO 80614  
2B LEGAL DESCRIPTION: SECT,TWN,RNG: 2-1-67 DESC: FILING 2 PARC OF LAND IN THE N2 OF SEC 2 DESC AS FOLS BEG AT THE N4 COR OF SD SEC 2 TH S 04D 44M 25S E 70/19 FT TO THE TRUE POB TH N 89D 31M 29S E 2007/46 FT TH S 51D 05M 34S E 103/75 FT TH S 14D 37M 55S E 123/14 FT TH S 09D 37M 50S E 136/75 FT TH S 00D 29M 02S W 181/53 FT TH S 81D 06M 14S W 274/30 FT TH ALG A NON TANG CURV TO THE LEFT WHOSE CHD BRS N 19D 04M 36S W 116/66 FT HAV A RAD OF 330 FT A CENT ANG OF 20D 21M 41S AN ARC DIST OF 117/27 FT TH S 60D 44M 33S W 60 FT TH S 89D 31M 29S W 213/18 FT TH S 01D 26M 05S E 408/72 FT TH S 26D 45M 09S E 436/61 FT TH N 88D 27M 02S E 75/26 FT TH S 38D 39M 07S W 289/75 FT TH S 51D 20M 53S E 110/56 FT TH S 43D 28M 12S W 310/21 FT TH N 46D 28M 12S W 310/21 FT TH N 46D 31M 48S W 217/72 FT TH S 43D 28M 12S W 19/41 FT TH N 46D 31M 48S W 373/32 FT TH S 59D 01M 35S W 125/55 FT TH N 46D 31M 48S W 38/61 FT TH S 43D 28M 12S W 278/60 FT TH S 11D 46M 07S E 49/32 FT TH S 08D 41M 57S W 104/23 FT TH S 63D 08M 15S W 96/61 FT TH S 77D 55M 13S W 71/90 FT TH N 65D 06M 44S W 92/65 FT TH N 30D 11M 58S W 141/65 FT TH S 88D 42M 24S W 335/09 FT TH 00D 28M 31S W 388.15 FT TH N 89D 31M 29S E 20/97 FT TH N 00D 28M 31S W 329/32 FT TH N 89D 31M 29S E 69/58 FT TH N 00D 28M 31S W 369/54 FT TH S 89D 31M 29S W 196/09 FT TO A PT OF CURVATURE TH ALG A CURV TO THE RT WHOSE CHD BRS N 45D 23M 16S W 25/49 FT HAV A RAD OF 18 FT A CENT ANG OF 90D 10M 31S AN ARC DIST OF 28/33 FT TH N 00D 18M 00S W 545/70 FT TO A PT CURVATURE TH ALG A CURV TO THE RT WHOSE CHD BRS N 44D 36M 44S E 25/42 FT HAV A RAD OF 18 FT A CENT ANG OF 89D 49M 29S AN ARC DIST OF 28/22 FT TO THE POB AND EXC PT PLATTED 53/4628A

**2G:**  
004-SECTION 2  
CARLSON TAYLOR R UND 24.25% INT AND THORNTON CORY J UND 24.25% INT ET ALS P.O. BO 247  
EASTLAKE, CO 80614  
2G LEGAL DESCRIPTION: SECT,TWN,RNG 2-1-67 DESC: FILING 3 PARC OF LAND IN THE N2 OF SEC 2 DESC AS FOLS BEG AT THE N4 COR OF SD SEC 2 TH S 00D 18M 00S E 1740/35 FT TO THE TRUE POB TH N 88D 42M 24S E 449/52 FT TH S 30D 11M 58S E 141/65 FT TH S 65D 06M 44S E 92/65 FT TH N 77D 55M 13S E 71/90 FT TH N 63D 08M 15S E 96/61 FT TH N 08D 41M 57S E 104/23 FT TH N 11D 46M 07S W 49/32 FT TH N 43D 28M 12S E 278/60 FT TH S 46D 31M 48S E 38/61 FT TH N 59D 01M 35S E 125/55 FT TH

S 46D 31M 48S E 373/32 FT TH N 43D 28M 12S E 19/41 FT TH S 46D 31M 48S E 217/72 FT TH N 43D 28M 12S E 310/21 FT TH N 51D 20S 53S W 110/56 FT TH N 38D 39M 07S E 289/75 FT TH S 88D 27M 02S W 75/26 FT TH N 26D 45M 09S W 436/61 FT TH N 01D 26M 05S W 408/72 FT TH N 89D 31M 29S E 213/18 FT TH N 60D 44M 33S E 60 FT TH ALG A NON TANG CURV TO THE RT WHOSE CHD BRS S 19D 04M 36S E 116/66 FT HAV A RAD OF 330 FT A CENT ANG OF 20D 21M 41S AN ARC DIST OF 117/27 FT TH N 81D 06M 14S E 274/30 FT TH S 00D 29M 02S W 357/51 FT TH S 34D 19M 47S E 318/71 FT TH S 09D 10M 59S E 42/43 FT TH S 12D 28M 43S E 35/75 FT TH S 46D 30M 02S E 61/22 FT TO A PT OF CURVATURE TH ALG A CURV TO THE LEFT WHOSE CHD BRS 58D 10M 08S E 24/27 FT HAV A RAD OF 60 FT A CENT ANG OF 23D 20S 11S AN ARC DIST OF 24/44 FT TH S 69D 50M 13S E 276/62 FT TH ALG SD ELY LN S 00D 13M 18S W 862/85 FT TH ALG THE SLY LN OF THE NE4 OF SD SEC 2 S 88D 26M 56S W 2647/64 FT TH ALG THE SLY LN OF THE NW4 OF SD SEC 2 S 88D 27M 02S W 448/93 FT TH ALG A NON TANG CURV TO THE LEFT WHOSE CHD BRS N 35D 26M 30S E745/70 FT HAV A RAD OF 680 FT A CENT ANG OF 66D 30M 07S AN ARC DIST OF 789/26 FT TH N 88D 42M 24S E 13/15 FT TO THE POB AND EXC PT PLATTED AS TRACTS K AND L BASELINE LAKES FILING NO 1 55/0079A

**2H:**  
014-SECTION 2  
CARLSON TAYLOR R UND 24.25% INT AND THORNTON CORY J UND 24.25% INT ET ALS P.O. BO 247  
EASTLAKE, CO 80614  
2H LEGAL DESCRIPTION: SUB:BASELINE LAKES SUBDIVISION FILING NO 1 DESC: TRACT M

**2I:**  
005-SECTION 2  
CARLSON TAYLOR R UND 24.25% INT AND THORNTON CORY J UND 24.25% INT ET ALS P.O. BO 247  
EASTLAKE, CO 80614  
2I LEGAL DESCRIPTION: SECT,TWN,RNG, 2-1-67 DESC: FILING 4A PARC OF LAND IN THE NW4 SEC 2 DESC AS FOLS BEG AT THE W4 COR OF SD SEC 2 TH N 88D 27M 02S E TH ALG A NON TANG CURV TO THE RT WHOSE CHD BRS N 78D 16M 06S E 226/27 FT HAV A RAD OF 640 FT A CENT ANG OF 20D 21M 51S AN ARC DIST OF 227/47 FT TO A PT OF TANG TH N 88D 27M 02S E 87/99 FT TO THE TRUE POB TH N 03D 51M 44S E 690/48 FT TH N 00D 05M 55S W 41/40 FT TH N 26D 26M 19S W 176/85 FT TH N 51D 09M 48S E 386/88 FT TH N 38D 50M 12S W 9/41 FT TH N 51D 09M 48S E 312/36 FT TH S 38D 50M 12S E 327/08 FT TH N 51D 09M 48S E 141/36 FT TH S 41D 41M 59S E 260/39 FT TH S 38D 50M 12S E 159/70 FT TH N 45D 08M 56S E 151/38 FT TH S 74D 51M 04S E 126/79 FT TH S 44D 51M 04S E 83/11 FT TH S 12D 55M 02S E 56/86 FT TH S 74D 48M 54S E 455/49 FT TH S 00D 18M 00S E 52/82 FT TO A PT OF CURVATURE TH ALG A CURV TO THE RT WHOSE CHD BRS S 44D 04M 31S W 839/23 FT HAV A RAD OF 599/95 FT A CENT ANG OF 88D 45M 34S AN ARC DIST OF 929/41 FT TH S 88D 27M 02S W 1252/65 FT TO THE POB EXC PT PLATTED 37/1873A

**2J:**  
002-SECTION 2  
CARLSON TAYLOR R UND 24.25% INT AND THORNTON CORY J UND 24.25% INT ET ALS P.O. BO 247  
EASTLAKE, CO 80614  
2J LEGAL DESCRIPTION: SECT,TWN,RNG 2-1-67 DESC: FILING 4B PARC OF LAND IN THE NE4 OF SEC 3 DESC AS FOLS BEG AT THE E4 COR OF SD SEC 3 SD PT BEING THE TRUE POB TH ALG THE ELY LN OF SEC 3 S 00D 43M 31S E 1573/25 FT TH N 80D 45M 34S W 443/14 FT TH S 72D 52M 20S W 443/14 FT TH S 72D 52M 20S W 34/34 FT TH N 68D 48M 28S W 207/94 FT TH N 00D 40M 28S W 2163/61 FT TH S 71D 25M 12S E 162/85 FT TH S 43D 03M 17S E 584/32 FT TH N 69D 04M 49S E 248/73 FT TH S 67D 09M 06S E 568/91 FT TH S 01D 32M 58S E 58/26 FT TH S 88D 27M 02S W 11/63 FT TO A PT OF CURVATURE TH ALG A CURV TO THE LEFT WHOSE CHD BRS S 78D 16M 06S W 226/27 FT HAV A RAD OF 640 FT A CENT ANG OF 20D 21M 51S AN ANC DIST OF 227/47 FT TH S 88D 27M 02S W 408/78 FT TO THE POB EXC PT PLATTED 33/759A

**Section 3**

**3A:**  
014-SECTION 3  
SELTZER FARMS  
9390 E. 168<sup>TH</sup>  
BRIGHTON, CO 80601  
3A LEGAL DESCRIPTION: BEG AT NW COR SEC 3 TH E ON N LN SD SEC 3055 FT TH S 238/5/8 FT TO PT ON E/W C/L SD SEC TH W 3073 FT TO CENT OF W LN SD SEC TH N 2377/6 FT TO POB 3/1/67 167/79A

**3B:**  
003-SECTION 3  
SELTZER FARMS  
9390 E. 168<sup>TH</sup>  
BRIGHTON, CO 80601  
3B LEGAL DESCRIPTION: BEG AT NE COR NW4 SW4 SEC 3 TH W ALG N LN 152 FT TH S

21D 57M E 413 FT TO PT ON E LN TH N 383 FT TO POB 3/1/67 0/69A

**3C:**  
004-SECTION 3  
JOHN HARRY WEIGANDT TRUSTEE ET AL ½  
ELOUISE WEIGANDT TRUSTEE ET AL ½  
10390 E 168<sup>TH</sup>  
BRIGHTON, CO 80601  
3C LEGAL DESCRIPTION: BK; 4940 PG:318 BEG AT NW COR E2 NE4 SEC 3 TH S 780 FT TH E 279/23 FT TH N 780 FT TH W 279/23 FT TO BEG 3/1/67 5A

**3D:**  
005-SECTION 3  
STANLEY L. GUTHRIE  
11102 E 168<sup>TH</sup>  
BRIGHTON, CO 80601  
3D LEGAL DESCRIPTION: E2 E2 NE4 EXC RD AND EXC 5A IN NW COR 3/1/67 31A



**3E:**  
003-SECTION 3  
SELTZER FARMS  
9390 E 168<sup>TH</sup>  
BRIGHTON, CO 80601  
3I LEGAL DESCRIPTION: NE4 SW4 EXC SIGNAL DT ROW 3/1/67 38/71A

**3F:**  
008-SECTION 3  
JOHN HENRY WEIGANDT TRUSTEE ET AL  
10390 E 168<sup>TH</sup>  
BRIGHTON, CO 80601  
3F LEGAL DESCRIPTION: BK:4940 PG:320 TRACT 5 3/1/67 40A

**3G:**  
007-SECTION 3  
JOHN HENRY WEIGANDT TRUSTEE ET AL  
10390 E 168<sup>TH</sup>  
BRIGHTON, CO 80601  
3G LEGAL DESCRIPTION: BK:4940 PG:320 TRACT 4 3/1/67 20A

**3H:**  
006-SECTION 3  
STANLEY L GUTHRIE  
11102 E 168<sup>TH</sup>  
BRIGHTON, CO 80601  
3H LEGAL DESCRIPTION: E2 NE4 SE4 3/1/67

**3I:**  
009-¼ SECTION - SECTION 3  
JOHN HENRY WEIGANDT TRUSTEE ET AL  
10390 E 168<sup>TH</sup>  
BRIGHTON, CO 80601  
3E LEGAL DESCRIPTION: BK:4940 PG:320 NE ¼ TRACT 3 3/1/67 2/55A

 <p>LAND PLANNING / LANDSCAPE ARCHITECTURE 200 KALAMATH ST. DENVER, CO 80223 (303) 531-4905 WWW.PCSGROUPCO.COM</p>	 <p>KT ENGINEERING ENGINEERS • SURVEYORS 12500 W. 58th AVE. #230 ARVADA, CO 80002 PH: 720.638.5190</p>	DATE	6-9-2023
		REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP LEGAL DESCRIPTIONS & OWNERS ADDRESSES

**Section 4**

**4A:**  
**003-SECTION 4**  
 ERN LIMITED PARTNERSHIP ET AL  
 7100 W 44<sup>TH</sup> AVE #201  
 WHEATRIDGE, CO 80033  
 4A LEGAL DESCRIPTION: BEG AT NE COR NW4 NW4 SEC 4 TH S TO PT ON N/S C/L OF SD NW4 569/5 FT FROM POB TH SWLY 809/2 FT TO A PT TH S 8D 40M E 468/2 FT TH S 57D 04M E 390 FT TH S 64D 11 M E 291 FT TH SELY 60 FT TO PT ON W LN OF SE4 NW4 SD SEC 660 FT N OF SW COR OF SD SE4 NW4 TH AND // WITH E/W C/L OF SD SEC 4 830 FT TH SWLY 800 FT TO PT ON E/W C/L 385 FT E OF SW COR SE4 NW4 TH W ON E/W C/L 1713/9 FT TO SW COR NW3 TH N ON W LN SD SEC TO NW COR TH E 1328/5 FT TO BEG EXC RESV 4/1/67 66/90A

**4B:**  
**021-SECTION 4**  
 ROBERT L SELTZER FAMILY TRUST  
 33641 WCR 83  
 BRIGGS DALE, CO 80611  
 4B LEGAL DESCRIPTION: BK:4290 PG:272 BK:4375 PG:18 PT OF NE4 SEC 4 DESC AS FOL BEG AT N4 COR SEC 4 TH S 1092/40 FT TO SW COR NW4 NE4 SD SEC TH E 305 FT TH S 31 D 38M E 1377/30 FT TO A PT WHICH IS 296 FT W OF AND 140 FT N OF SW COR SE4 NE4 SEC 4 TH S TO S LN SD NE4 SEC4 TH E 1583/98 FT TO A PT 40 FT W OF E4 COR SD SEC 4 TH N 1558/89 FT TH W 438/74 FT TH N 820 FT TH W 2177/58 FT TO POB EXC N 30 FT FOR RD 4/1/67 112/666A

**4B:**  
**005-SECTION 4**  
 HSG LAND LLC  
 10450 E 159<sup>TH</sup> CT  
 BRIGHTON, CO 80602  
 4B LEGAL DESCRIPTION: SECT,TWN,RNG:4-1-67 DESC: PT OF NE4 SEC 4 DESC AS FOL BEG AT N4 COR SEC 4 TH S 1092/40 FT TO SW COR NW4 NE4 SD SEC TH E 305 FT TH S 31D 38M E 1377/30 FT TO A PT WHICH IS 298 FT W OF AND 140 FT N OF SW COR SE4 NE4 SEC 4 TH S TO S LN SD NE4 SEC 4 TH E 1583/98 FT TO A PT 40 FT W OF E4 COR SD SEC 4 TH N 1558/89 FT TH W 438/74 FT TH N 820 FT TH W 2177/58 FT TO POB EXC N 30 FT FOR RD AND EXC PARCS (2009000049874/2009000021950) AND (2010000052390) AND EXC PARC (2013000074188) 107/7065A

**4C:**  
**012-SECTION 4**  
 ERN LIMITED PARTNERSHIP ET AL  
 7100 W 44<sup>TH</sup> AVE #201  
 WHEATRIDGE, CO 80033  
 4C LEGAL DESCRIPTION: SW4 SEC 4 EXC 8/5A IN NE COR SW4 N OF SIGNAL DT AND DESIGNATED AS TRACT 10 1/2 IN GAGENS SUBD OF SEC 3 AND 4 EXC PARC 100 FT N AND S BY 100 FT E AND W IN SW4 SW4 EXC HIWAY 4/1/67 140/363A

**4D:**  
**006-SECTION 4**  
 GEORGE H MARJORIE JAND CARROLL A MARCUS  
 9965 WELD COUNTY ROAD #2  
 BRIGHTON, CO 80601  
 4D LEGAL DESCRIPTION: A PARC OF LAND IN SEC 4 DESC AS FOL BEG AT A PT ON E AND W C/L OF SD SEC THAT IS 296 FT W OF THE SE COR OF SW4 NE4 SD SEC TH S 296 FT TO A PT TH N 71D 48M W 295 FT TH N 50D 36M W 150 FT TH N 77D 36M W 156 FT TH S 70D 44M W 170FT TH S 59D 51M W 245 FT TH S 75D 49M W 665 FT TH S 69D 28M W 315 TH S 63D 30M W 135 FT TH N 482 FT TH N 33D 55M E 130 FT TH N 73D 24M E 350 FT TH N 87D 03M E 347 FT TH N 81 D 31M E 236 FT TH N 81D 13M E 334 FT TH N 82D 55M E 210 FT TH 80D 33M E 305 FT TH S 31D 37M E 200 FT TH S 87D 30M E 50 FT TH S 98 FT TO POB 4/1/67 20A

**4E**  
**001-SECTION 4**  
 TODD CREEK FARMS METRO DISTRICT NO 1 WATER  
 C/O ZIONS FIRST NATIONAL BACK TRUSTEE  
 717 17TH ST STE 301  
 DENVER, CO 80202-3310  
 4E LEGAL DESCRIPTION: SECT,TWN,RNG:4-1-67 DESC: PARC IN SEC 4 DESC AS FOLS COMMENCING AT THE N1/4 COR OF SD SEC 4 TH S 00D 26M 28S E 543/5 FT TO THE POB TH S 00D 26M 26S E 493/04 FT TO A PT BEING 55/73 FT NLY FROM THE CEN N 1/16TH COR OF SD SEC 4 AND BEING A PT ON THE DCRY LN ADJUSTMENT DESC IN BOOK 4931 PAGE 452 TH ALG SD BDY LN AGREEMENT THE FOL 10 COURSES AND DISTS TH N 89D 31M 59S E 32/19 FT TH S 71D 03M 37S E 115/93 FT TH S 46D 44M 52S E 185/31 FT TH S 52D 43M 55S E 131/26 FT TH S 42D 42M 06S E 70/54 FT TH S 47D 00M 19S E 27/90 FT TH S 34D 53M 37S E 28/74 FT TH S 30D 03M 43S E 404/31 FT TH S 32D 55M 27S E 457/80 FT TH S 25D 59M 02S E 76/03 FT TH DEPARTING SD BDY LN AD-

JUSTMENT AND ALG THE N BDY LN AT A PARC OF LAND FOR TODD CREEK FARMS METRO DIST NO 1 (REC NO C0846354) THE FOL COURSES & DISTS TH N 32D 50M 21S W 114/27 FT TH S 79D 19M 39S W 305 FT TH S 81D 41M 39S W 210 FT TH S 79D 59M 39S W 334 FT TH S 80D 17M 39S W 236 FT TH S 85D 49M 39S W 347 FT TH S 72D 10M 39S W 350 FT TH S 32D 41M 39S W 130 FT TH N 01D 13M 21S W 75 FT TH N 33D 18M 11S E 801/02 FT TH S 88D 46M 39S W 830 FT TH N 65D 28M 27S W 54/31 FT TH N 65D 24M 21S W 291 FT TH N 58D 17M 21S W 390/05 FT TH N 09D 53M 21S W 301 FT TH N 09D 53M 21S W 187/20 FT TH N 62D 38M 48S E 811/12 FT TH N 02D 53M 33S W 27/98 FT TO A PT ON THE SOUTHERN BDY OF THE EDWARDS PROP THE FOL 16 COURSES TH N 62D 16M 51S E 73/50 FT TH N 63D 04M 07S E 101/27 FT TH N 63D 18M 54S E 97/13 FT TH N 63D 04M 02S E 120/44 FT TH N 63D 17M 41S E 100/72 FT TH N 62D 29M 09S E 56/87 FT TH N 65D 02M 46S E 131/38 FT TH N 75D 55M 20S E 131/74 FT TH N 83D 31M 01S E 98/70 FT TH S 82D 36M 09S E 26/37 FT TH S 79D 22M 49S E 64/20 FT TH S 67D 13M 40S E 98/32 FT TH S 51D 17M 54S E 47/76 FT TH S 13D 24M 16S E 154/59 FT TH S 13D 09M 17S E 112/21 FT TH N 89D 34M 11S E 214/94 FT TO THE POB 79/27A

**4F:**  
**020-SECTION 4**  
 SELTZER FARMS INC  
 16705 YOSEMITE ST  
 BRIGHTON, CO 80602  
 4F LEGAL DESCRIPTION: SECT,TWN,RNG:4-1-67 DESC: PT OF NE4 SEC 4 DESC AS FOL BEG 40 FT W OF NE COR SD SEC TH CONT W 438/74 FT TH S 820 FT TH E 438/74 FT TO A PT 40 FT W OF E LN NE4 SD SEC TH N 820 FT TO TRUE POB EXC N 30 FT FOR RD 7/957A

**4G:**  
**004-SECTION 4**  
 TODD CREEK VILLAGE METROPOLITAN DISTRICT  
 10450 E 159TH CT  
 BRIGHTON, CO 80602  
 4G LEGAL DESCRIPTION: SECT,TWN,RNG:4-1-67 DESC: BEG AT THE N4 COR OF SD SEC 4 TH S 00D 26M 28S E 30 FT TO THE POB TH ALG SD SLY ROW N 89D 32M 28S E 40 FT TH S 00D 26M 28M E 934/16 FT TH N 87D 44M 22S W 3/56 FT TH S 65D 33M 08S W 39/89 FT TH N 00D 26M 28M 950/21 FT TO THE POB 0/9A

**4H:**  
**002-SECTION 4**  
 TODD CREEK VILLAGE METROPOLITAN DISTRICT  
 10450 E 159TH CT  
 BRIGHTON, CO 80602  
 4H LEGAL DESCRIPTION: SECT,TWN,RNG:4-1-67 DESC: PARC OF LAND IN A PORT OF THE NW4 SEC 4 DESC AS FOLS BEG AT THE N4 COR OF SD SEC 4 TH S 89D 32M 47S W 1328/22 FT TH CONT ALG SD LN S 00D 31M 16S E 30 FT TO THE S LN OF THE PRE-SCRIPTIVE ROW LN TO THE POB STILL CONT ALG SD LN S 00D 31M 16S E 537/92 FT TH S 62D 38M 41S W 811/12 FT TH N 18D 21M 54S E 214/84 FT TH N 62D 38M 41S E 440/19 FT TH N 00D 31M 16S W 398/97 FT TH N 89D 32M 47S E 242/51 FT TO THE POB 6/708 ACRES

**Section 9**

**9A:**  
**010-SECTION 9**  
 EQUINOX GROUP LLC  
 7373 S ALTON WAY #105  
 ENGLEWOOD, CO 80112  
 9A LEGAL DESCRIPTION: SECT, TWN, RNG: 9-1-67 DESC: THAT PT OF E2 OF SEC 9 DESC AS BEG AT A APT ON N LN OF SD SEC 3311 FT E OF NW COR SD SEC TH S 1586/64 FT TO A PT TH N 86D 35M E 979/76 FT TO A PT TH N 1586-63 FT TO A PT ON N LN SD NE4 TH S 86D 35M 979/28 FT TO THE POB EXC N 30 FT FOR HIWAY NO 7 9/1/67 35A

**9B:**  
**011-SECTION 9**  
 EQUINOX GROUP LLC  
 7373 S ALTON WAY #105  
 ENGLEWOOD, CO 80112  
 9B LEGAL DESCRIPTION: SECT, TWN, RNG: 9-1-67 DESC: THAT PT OF E2 OF SECT 9 DESC AS BEG AT A PT ON N LN OF SD SEC 4290/28 FT E OF NW COR SD SEC TH S 1586/63 FT TO A PT TH EN 88D 35M E 979/76 FT TO A PT ON W ROW LN OF YOSEMITE ST TH N 1586/62 FT TO A PT ON N LN OF SD NE4 TH S 88D 35M W 979/28 FT TO THE POB EXC N 30 FT FOR HIWAY NO 7 9/1/67 35A

**9C:**  
**013-SECTION 9**  
 EQUINOX GROUP LLC  
 7373 S ALTON WAY #105  
 ENGLEWOOD, CO 80112

9C LEGAL DESCRIPTION: SECT, TWN, RNG: 9-1-67 DESC: PARCEL C PT OF E2 SEC 9 DESC AS FOL BEG 3311 FT E AND 1586/64 FT S OF NW COR SD SEC TH N 86D 25M E 979/76 FT TH S 1813/35 FT TO A PT 3400 FT S OF THE N LN OF NE4 OF SD SEC TH S 86D 35M W 980/53 FT TO A PR 3311 FRT E OF THE W LN OF SD SEC TH N 1813/36 FT TO POB 9/1/67 40/796A

**9D:**  
**014-SECTION 9**  
 EQUINOX GROUP LLC  
 7373 S ALTON WAY #105  
 ENGLEWOOD, CO 80112  
 9D LEGAL DESCRIPTION: SECT, TWN, RNG: 9-1-67 DESC: PARCEL D PT OF E2 SEC 9 DESC AS FOL BEG AT A PT 3311 FT E OF NW COR SD SEC TH S 1586/64 FT TH N 88D 35M E 979/76 FT TO TRUE POB TH S 1813/35 FT TO A PT 3400 FT S OF N LN NE4 SD SEC TH N 88D 35M E 981/18 FT TO A PT ON W ROW LN OF YOSEMITE ST SD PT BEING 30 FT W OF E LN OF SE4 OF SD SEC TH N 758/62 FT TO A PT ON THE E/W C/L OF SD SEC TH N 1054/71 FT TH S 88D 35M W 979/76 FT TO THE TRUE POB 9/1/67 40/798A



**9E:**  
**015-SECTION 9**  
 EQUINOX GROUP LLC  
 7373 S ALTON WAY #105  
 ENGLEWOOD, CO 80112  
 9E LEGAL DESCRIPTION: SECT, TWN, RNG: 9-1-67 DESC: PT OF E2 SEC 9 DESC AS BEG 3311 FT E AND 3400 FT S O F NW COR SD SEC TH S 200 FT TH N 88D 35M W 994/50 FT TH N 200 FT TH S 88D 35M W COR/50 FT TO TRUE POB 4/566A

**9F:**  
**007-SECTION 9**  
 EQUINOX GROUP LLC  
 7373 S ALTON WAY #105  
 ENGLEWOOD, CO 80112  
 9F LEGAL DESCRIPTION: SECT, TWN, RNG: 9-1-67 DESC: BEG AT SW COR SEC TH E 979/3 FT TH N 57D 45M E 1447/8 FT TH N 300 FT TH N 83D 40M W 2130 FT TH S 1439/3 FT TO BEG 52/50A

**9G:**  
**004-SECTION 9**  
 EQUINOX GROUP LLC  
 7373 S ALTON WAY #105  
 ENGLEWOOD, CO 80112  
 9J LEGAL DESCRIPTION: SECT, TWN, RNG: 9-1-67 DESC: BEG AT PT ON S BDY LN 1496/3 FT E OF SW COR TH N 59D 27M E 1867/5 FT TH N 30D 2 663 FT TH N 64D 45M E 600 FT TH S 120 FT TH E 994/5 FT TH N 200 FT TH E 996/4 FT TO E LN TH S 1886/6 FT TH W TO BEG EXC 30 FT OFF SIDE FOR ROAD

**9H:**  
**006-SECTION 9**  
 EQUINOX GROUP LLC  
 7373 S ALTON WAY #105  
 ENGLEWOOD, CO 80112  
 9H LEGAL DESCRIPTION: SECT, TWN, RNG: 9-1-67 DESC: RESV IN S2 51/102A

**9I:**  
**005-SECTION 9**  
 EQUINOX GROUP LLC  
 7373 S ALTON WAY #105  
 ENGLEWOOD, CO 80112  
 9I LEGAL DESCRIPTION: BEG AT A PT ON N LN SEC 9 1991 FT E OF NW COR TH S 3480 FT TH N 34D 30M E 425 FT TH N 61D E 155 FT TH S 30D E 360 FT TO TRUE POB TH S 30D E 440 FT TH N 64D 45M E 600 FT TH N 76/4 FT TH N 65D 37M W 470/6 FT TH S 66D 30M W 365FT TO TRUE POB 5/15

 LAND PLANNING / LANDSCAPE ARCHITECTURE 200 KALAMATH ST. DENVER, CO 80223 (303) 531-4905 WWW.PCSGROUPCO.COM	 KT ENGINEERING ENGINEERS + SURVEYORS 12500 W. 58th AVE. #230 ARVADA, CO 80002 PH: 720.638.5190	DATE	6-9-2023
		REV-1	

# TODD CREEK VILLAGE

## PRELIMINARY PUD PLAN - MAJOR AMENDMENT

### LAND OWNERSHIP LEGAL DESCRIPTIONS & OWNERS ADDRESSES

**Section 10**

**10A:**  
003-SECTION 10  
TCV III INVESTMENTS LLLP ET AL  
C/O WARREN COHEN  
59 S BROADWAY ST #200  
DENVER, CO 80209  
10A LEGAL DESCRIPTION: SECT, TWN, RNG: 10-1-67 DESC: NE4 NE4 EXC E 20 FT AND  
EXC W 20 FT OF E 40 FT 38/794A

**Section 14**

**14A:**  
008-SECTION 14  
AGGREGATE RESOURCES  
4330 W 37<sup>TH</sup> AVE  
DENVER, CO 80212  
14A LEGAL DESCRIPTION: NW4 SW4 14/1/67 40A 14781##RIVERDALE RD

**14B:**  
022-SECTION 14  
AGGREGATE RESOURCES  
4330 W 37<sup>TH</sup> AVE  
DENVER, CO 80212  
14B LEGAL DESCRIPTION: E2 SW4 EXC RD AND EXC PT PLATTED 14/1/67 10/5801A



**Section 16**

**16A:**  
013-SECTION 16  
MRFR III LLLP  
5734 S PRINCE ST #200  
LITTLETON, CO 80120  
16A LEGAL DESCRIPTION: SECT, TWN, RNG: 16-1-67 DESC: BEG 1513/25 FT E OF NW  
COR NW4 SEC 16 TH E 1140/08 FT TO N4 COR SD SEC TH S 2618/17 FT TO CEN OF SD  
SEC TH W 2649/30 FT TO W4 COR SD SEC TH N 1397/07 FT M/L TO PT 1206/90 FT FROM  
NW COR SD SEC TH E 375 FT TH N 744 FT TH E 752/02 FT TH N 40D 04M E 607/49 FT M/L  
TO POB EXC W 30 FEET AND EXC PARCS 16/1/67 79.69A

**16B:**  
003-SECTION 16  
WARREN DURLAND LLC (33 1/3%)  
TOM DURLAND LLC (33 1/3%)  
RAY DURLAND LLC (33 1/3%)  
595 SOUTH BROADWAY SUITE 200  
DENVER, CO 80209  
16B LEGAL DESCRIPTION: SECT, TWN, RNG: 16-1-67 DESC: NE4 160A

**16C:**  
014-SECTION 16  
COLORADO/QUEBEC ASSOCIATES  
  
ONE PARK CENTRE  
1333 W 120<sup>TH</sup> AVE #313  
WESTMINSTER, CO 80234  
16C LEGAL DESCRIPTION: PT OF NW4 SEC 16 DESC AS BEG AT SW COR SD NW4 TH  
E 30 FT TO TRUE POB TH N 1000 FT TH E 134/83 FT TH S 1000 FT TO A PT ON S LN SD  
NW4 TH W 1343/83 FT TO THE TRUE POB 16/1/67 30/85A

**16D:**  
015-SECTION 16  
COLORADO/QUEBEC ASSOCIATES  
ONE PARK CENTRE  
1333 W 120<sup>TH</sup> AVE #313  
WESTMINSTER, CO 80234  
16C LEGAL DESCRIPTION: PT OF NW4 SEC 16 DESC AS FOL BEG AT SW COR NW4 SD  
SEC TH E 30 FT TO A PT ON W ROW LN QUEBEC ST TH CONT E 1343/83 FT TO TRUE  
POB TH E 1275/47 FT TO CEN4 COR SD SEC TH N 921/08 FT TH W 1276/85 FT TH S  
921/07 FT TO TRUE POB 16/1/67 26/984A

 <p style="font-size: 8px;">LAND PLANNING / LANDSCAPE ARCHITECTURE 200 KALAMATH ST. DENVER, CO 80223 (303) 531-4905 WWW.PCSGROUPCO.COM</p>	 <p style="font-size: 8px;">KT ENGINEERING ENGINEERS • SURVEYORS 12500 W. 58th AVE. #230 ARVADA, CO 80002 PH: 720.638.5190</p>	DATE	6-9-2023
		REV-1	

RECEPTION NO. C0004956 5.00 BK: 4366 PG: 0666-0666  
2LW ROBERT SACK, ADAMS COUNTY, COLORADO 8/03/94 8:00

**QUITCLAIM DEED**

**THIS DEED**, Made this \_\_\_\_\_ day of \_\_\_\_\_, 1994 ,  
between Rex A. Seltzer and Wilma Seltzer

of the \_\_\_\_\_ \*County of Adams and State of  
Colorado, grantor(s), and Seltzer Farms, Inc.,  
a Colorado corporation,

whose legal address is 16705 Yosemite, Brighton, Colorado 80601

of the \_\_\_\_\_ County of Adams and State of Colorado, grantee(s).

WITNESSETH, That the grantor(s), for and in consideration of the sum of other good and valuable  
consideration and Ten and 00/100-----Dollars  
the receipt and sufficiency of which is hereby acknowledged, ha ve \_\_\_\_\_ remised, released, sold and QUITCLAIMED, and by  
these presents do \_\_\_\_\_ remise, release, sell and QUITCLAIM unto the grantee(s), its heirs, successors and assigns,  
forever, all the right, title, interest, claim and demand which the grantor(s) ha ve \_\_\_\_\_ in and to the real property, together with  
improvements, if any, situate, lying and being in the \_\_\_\_\_ County of Adams and State of  
Colorado, described as follows:

A part of the Northeast 1/4 of Section 4, Township 1 South, Range 67 West of the  
6th Principal Meridian, Adams County, Colorado, being more particularly described  
as follows: BEGINNING at the Northeast corner of said Section 4, thence North  
89°59'45" West on an assumed bearing along the South line of the Southwest 1/4  
of Section 34, Township 1 North, Range 67 West a distance of 40.00 feet to the  
TRUE POINT OF BEGINNING; thence continuing North 89°59'45" West a distance of  
408.74 feet to the Southwest corner of said Section 34; thence North 90°00'00"  
West along the South line of the Southeast 1/4 of Section 33, Township 1 North,  
Range 67 West, a distance of 30.00 feet; thence South 00°08'30" West parallel  
with the East line of said NE1/4 of Section 4 a distance of 820.00 feet; thence  
South 89°59'45" East parallel with said South line of the Southwest 1/4 of  
Section 34 a distance of 438.74 feet to a point 40.00 feet West of said East line  
of the NE1/4 of Section 4; thence North 00°08'30" East parallel with and 40 feet  
West of said East line of the NE1/4 of Section 4 a distance of 820.00 feet to  
the TRUE POINT OF BEGINNING.  
Contains: 8.259 acres more or less.

TITLE PURPOSE DEED TO CORRECT PRIOR TRANSFER. NO DOCUMENTARY FEE REQUIRED.

also known by street and number as:

TO HAVE AND TO HOLD the same, together with all and singular the appurtenances and privileges thereunto belonging or in  
anywise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever, of the grantor(s), either in law or equity,  
to the only proper use, benefit and behoof of the grantee(s) its heirs and assigns forever.  
IN WITNESS WHEREOF, The grantor(s) ha ve \_\_\_\_\_ executed this deed on the date set forth above.

Rex A. Seltzer  
Rex A. Seltzer

Wilma Seltzer  
Wilma Seltzer

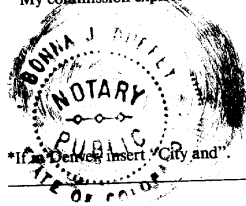
STATE OF COLORADO,

County of Adams

The foregoing instrument was acknowledged before me this  
by Rex A. Seltzer and Wilma Seltzer.

} ss.  
2nd day of August, 1994 ,

My commission expires June 2, 1995. Witness my hand and official seal.



Donna J. Duffy  
Notary Public

Name and Address of Person Creating Newly Created Legal Description (§ 38-35-106.5, C.R.S.)



**Land Title Guarantee Company  
Customer Distribution**



***PREVENT FRAUD - Please remember to call a member of our closing team when initiating a wire transfer or providing wiring instructions.***

Order Number: **ABM70800714-3**

Date: **05/23/2023**

Property Address: **VACANT LAND, BRIGHTON, CO**

**PLEASE CONTACT YOUR CLOSER OR CLOSER'S ASSISTANT FOR WIRE TRANSFER INSTRUCTIONS**

---

**For Closing Assistance**

**For Title Assistance**

Mariann Ingermann  
5975 GREENWOOD PLAZA BLVD  
GREENWOOD VILLAGE, CO 80111  
(303) 850-4123 (Work)  
[mingermann@ltgc.com](mailto:mingermann@ltgc.com)

---

**Agent for Seller**

EQUINOX LAND GROUP  
Attention: TUCKER HANLON  
10450 E 159TH CT  
BRIGHTON, CO 80602  
(720) 252-2111 (Cell)  
(303) 799-6000 (Work)  
(303) 771-7210 (Work Fax)  
thanlon@wspcos.com  
Delivered via: Electronic Mail



**Land Title Guarantee Company**  
**Estimate of Title Fees**

Order Number: **ABM70800714-3** Date: **05/23/2023**  
Property Address: **VACANT LAND, BRIGHTON, CO**  
Parties: **A BUYER TO BE DETERMINED**  
**HSG LAND LLC, A COLORADO LIMITED LIABILITY**  
**COMPANY**

Visit Land Title's Website at [www.ltgc.com](http://www.ltgc.com) for directions to any of our offices.

<b>Estimate of Title Insurance Fees</b>	
"TBD" Commitment	\$436.00
TBD - TBD Income	\$-436.00
	<b>Total \$0.00</b>
If Land Title Guarantee Company will be closing this transaction, the fees listed above will be collected at closing.	
<b>Thank you for your order!</b>	

**Note:** The documents linked in this commitment should be reviewed carefully. These documents, such as covenants conditions and restrictions, may affect the title, ownership and use of the property. You may wish to engage legal assistance in order to fully understand and be aware of the implications of the effect of these documents on your property.

**Chain of Title Documents:**

**[Adams county recorded 05/06/2022 under reception no. 2022000041193](#)**

**ALTA COMMITMENT**  
**Old Republic National Title Insurance Company**  
**Schedule A**

Order Number: ABM70800714-3

**Property Address:**

VACANT LAND, BRIGHTON, CO

**1. Effective Date:**

05/16/2023 at 5:00 P.M.

**2. Policy to be Issued and Proposed Insured:**

"TBD" Commitment

\$0.00

Proposed Insured:

A BUYER TO BE DETERMINED

**3. The estate or interest in the land described or referred to in this Commitment and covered herein is:**

A FEE SIMPLE

**4. Title to the estate or interest covered herein is at the effective date hereof vested in:**

HSG LAND LLC, A COLORADO LIMITED LIABILITY COMPANY

**5. The Land referred to in this Commitment is described as follows:**

THE NE 1/4 OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE 6TH P.M., EXCEPT THE EAST 40 FEET CONVEYED TO ADAMS COUNTY IN INSTRUMENT RECORDED MARCH 10, 1923 IN BOOK 101 AT PAGE [527](#); ALSO EXCEPT THOSE PORTIONS OF THE SIGNAL RESERVOIR AS DESCRIBED IN INSTRUMENTS RECORDED SEPTEMBER 13, 1918 IN BOOK 89 AT PAGE [495](#) AND MARCH 11, 1920 IN BOOK 106 AT PAGE [46](#); AND EXCEPTING THAT PART CONVEYED TO REX A. SELTZER AND LOIS SELTZER IN INSTRUMENT RECORDED MARCH 2, 1992 IN BOOK 3873 AT PAGE [28](#), AND EXCEPTING THOSE PORTIONS AS DESCRIBED IN RULE AND ORDER RECORDED AUGUST 06, 2010 UNDER RECEPTION NO. [2010000052390](#) AND AMENDED RULE AND ORDER RECORDED MARCH 03, 2011 UNDER RECEPTION NO. [2011000014415](#) AND EXCEPTING THAT PORTION AS DESCRIBED IN SPECIAL WARRANTY DEED RECORDED AUGUST 23, 2013 UNDER RECEPTION NO. [2013000074188](#), COUNTY OF ADAMS, STATE OF COLORADO.

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**ALTA COMMITMENT**

**Old Republic National Title Insurance Company**

**Schedule B, Part I**

**(Requirements)**

**Order Number:** ABM70800714-3

**All of the following Requirements must be met:**

**This proposed Insured must notify the Company in writing of the name of any party not referred to in this Commitment who will obtain an interest in the Land or who will make a loan on the Land. The Company may then make additional Requirements or Exceptions.**

**Pay the agreed amount for the estate or interest to be insured.**

**Pay the premiums, fees, and charges for the Policy to the Company.**

**Documents satisfactory to the Company that convey the Title or create the Mortgage to be insured, or both, must be properly authorized, executed, delivered, and recorded in the Public Records.**

**THIS COMMITMENT IS FOR INFORMATION ONLY, AND NO POLICY WILL BE ISSUED PURSUANT HERETO.**

**ALTA COMMITMENT**  
**Old Republic National Title Insurance Company**  
**Schedule B, Part II**  
**(Exceptions)**

Order Number: ABM70800714-3

**This commitment does not republish any covenants, condition, restriction, or limitation contained in any document referred to in this commitment to the extent that the specific covenant, conditions, restriction, or limitation violates state or federal law based on race, color, religion, sex, sexual orientation, gender identity, handicap, familial status, or national origin.**

1. **Any facts, rights, interests, or claims thereof, not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.**
2. **Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.**
3. **Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.**
4. **Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the Public Records.**
5. **Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date of the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.**
6. **(a) Taxes or assessments that 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; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.**
7. **(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water.**
8. **EXISTING LEASES AND TENANCIES, IF ANY.**
9. **ANY INCREASE OR DECREASE IN THE AREA OF THE LAND AND ANY ADVERSE CLAIM TO ANY PORTION OF THE LAND WHICH HAS BEEN CREATED BY OR CAUSED BY ACCRETION OR RELICTION, WHETHER NATURAL OR ARTIFICIAL; AND THE EFFECT OF THE GAIN OR LOSS OF AREA BY ACCRETION OR RELICTION UPON THE MARKETABILITY OF THE TITLE OF THE LAND.**
10. **RIGHTS OF THE PUBLIC IN AND TO THE USE OF EAST 168TH AVENUE**
11. **RIGHT OF PROPRIETOR OF A VEIN OR LODGE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED MARCH 25, 1902, IN BOOK A67 AT PAGE [407](#).**
12. **RIGHTS OF INGRESS AND EGRESS IN AND FROM THE SAID EASEMENT OR RIGHT OF WAY FOR THE PURPOSE OF CONSTRUCTING, MAINTAINING, OR REPAIRING A DITCH AS EVIDENCED BY QUIT CLAIM DEED RECORDED SEPTEMBER 13, 1918 IN BOOK 65 AT PAGE [561](#).**
13. **OIL AND GAS LEASE BETWEEN ISABEL SELTZER, LESSOR, AND T.S. PACE, LESSEE, RECORDED JULY 17, 1970, IN BOOK 1614 AT PAGE [158](#). AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.**  
**NOTE: THE PRESENT OWNERSHIP OF THE LEASEHOLD CREATED BY SAID LEASE AND OTHER MATTERS AFFECTING THE INTEREST OF THE LESSEE ARE NOT SHOWN HEREIN.**
14. **OIL AND GAS LEASE BETWEEN ISABEL SELTZER, LESSOR, AND LOUIS S. MADRID, LESSEE, RECORDED APRIL 09, 1975 IN BOOK 1986 AT PAGE [684](#), AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.**

**ALTA COMMITMENT**  
**Old Republic National Title Insurance Company**  
**Schedule B, Part II**  
**(Exceptions)**

Order Number: [ABM70800714-3](#)

NOTE: THE PRESENT OWNERSHIP OF THE LEASEHOLD CREATED BY SAID LEASE AND OTHER MATTERS AFFECTING THE INTEREST OF THE LESSEE ARE NOT SHOWN HEREIN.

15. EASEMENT GRANTED TO PANHANDLE EASTERN PIPE LINE COMPANY, FOR A RIGHT OF WAY GRANT, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED APRIL 15, 1975, IN BOOK 1987 AT PAGE [863](#).
16. OIL, GAS AND MINERAL LEASE BETWEEN SELTZER FARMS INC., LESSOR, AND LOUIS S. MADRID, LESSEE, RECORDED JUNE 04, 1975 IN BOOK 1997 AT PAGE [875](#), AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.

NOTE: RELEASE IN SURFACE RIGHTS IN CONNECTION THERETO RECORDED JULY 16, 2004 UNDER RECEPTION NO. [3199342](#), AND RE-RECORDED AUGUST 04, 2004 UNDER RECEPTION NO. [716570](#).

DECLARATION OF POOLING RECORDED JUNE 3, 2014 UNDER RECEPTION NO. [2014000034319](#) AND DECLARATIONS OF POOLING RECORDED OCTOBER 25, 2018 UNDER RECEPTION NOS. [2018000086423](#) AND [2018000086424](#); RATIFICATION AND JOINDER OF DECLARATION OF POOLING RECORDED APRIL 21, 2020 UNDER RECEPTION NO. [2020000036197](#).

NOTE: THE PRESENT OWNERSHIP OF THE LEASEHOLD CREATED BY SAID LEASE AND OTHER MATTERS AFFECTING THE INTEREST OF THE LESSEE ARE NOT SHOWN HEREIN.

17. EASEMENT GRANTED TO WESTERN GAS SUPPLY COMPANY, A COLORADO CORPORATION, FOR A RIGHT OF WAY EASEMENT, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED SEPTEMBER 15, 1986, IN BOOK 3201 AT PAGE [832](#).
18. EASEMENT GRANTED TO WESTERN GAS SUPPLY COMPANY, FOR AN EASEMENT, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED NOVEMBER 14, 1990, IN BOOK 3727 AT PAGE [587](#).
19. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN ZONING HEARING DECISION - CASE #124-91-E-Z SELTZER FARMS RECORDED JANUARY 30, 1992 UNDER RECEPTION NO. [1045406](#).
20. EASEMENT GRANTED TO ASSOCIATED NATURAL GAS INC., A COLORADO CORPORATION, FOR A PIPELINE RIGHT OF WAY GRANT, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED DECEMBER 18, 1992, IN BOOK 4001 AT PAGE [709](#).
21. RESERVATION OF 1/2 OF ALL MINERALS AS EVIDENCED IN WARRANTY DEED RECORDED APRIL 04, 1994 UNDER RECEPTION NO. [1234765](#).
22. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN IRRIGATION PIPELINE EASEMENT AND AGREEMENT RECORDED NOVEMBER 03, 2005 UNDER RECEPTION NO. [20051103001216190](#).
23. REQUEST FOR NOTIFICATION OF SURFACE DEVELOPMENT RECORDED MARCH 31, 2006 UNDER RECEPTION NO. [20060000327110](#).
24. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN SURFACE USE AGREEMENT RECORDED JULY 05, 2006 UNDER RECEPTION NO. [20060705000675490](#) AND SECOND AMENDMENT AND RATIFICATION OF SURFACE USE AGREEMENT RECORDED JANUARY 30, 2017 UNDER RECEPTION NO. [2017000008819](#).
25. REQUEST FOR NOTIFICATION OF SURFACE DEVELOPMENT RECORDED OCTOBER 15, 2007 UNDER RECEPTION NO. [2007000097421](#).
26. REQUEST FOR NOTIFICATION (MINERAL ESTATE OWNERS) RECORDED DECEMBER 24, 2007 UNDER RECEPTION NO. [2007000116902](#).

**ALTA COMMITMENT**  
**Old Republic National Title Insurance Company**  
**Schedule B, Part II**  
**(Exceptions)**

**Order Number:** ABM70800714-3

27. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN RIGHT OF WAY AGREEMENT RECORDED AUGUST 23, 2013 UNDER RECEPTION NO. [2013000074187](#).
28. REQUEST FOR NOTIFICATION OF APPLICATION FOR DEVELOPMENT RECORDED JULY 13, 2016 UNDER RECEPTION NO. [2016000055794](#).
29. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN EASEMENT DEED AND AGREEMENT RECORDED AUGUST 30, 2017 UNDER RECEPTION NO. [2017000075842](#).  
NOTE: NONEXCLUSIVE SUB-EASEMENT AGREEMENT IN CONNECTION THERETO RECORDED MARCH 30, 2018 UNDER RECEPTION NO. [2018000025837](#), AMENDMENT TO NONEXCLUSIVE SUBEASEMENT AGREEMENT RECORDED JULY 7, 2020 UNDER RECEPTION NO. [2020000061491](#).
30. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN MEMORANDUM OF RIGHT OF WAY AGREEMENT RECORDED MARCH 30, 2018 UNDER RECEPTION NO. [2018000025834](#), AND AS AMENDED IN INSTRUMENT RECORDED MARCH 6, 2019 UNDER RECEPTION NO. [2019000016473](#).
31. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN VALVE SITE AGREEMENT RECORDED APRIL 30, 2018 UNDER RECEPTION NO. [2018000034675](#).
32. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT AGREEMENT RECORDED MARCH 22, 1977 IN BOOK 2130 AT PAGE [716](#).
33. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN RIGHT OF WAY EASEMENT AND LICENSE RECORDED MAY 31, 1979 IN BOOK 2351 AT PAGE [577](#).
34. TERMS, CONDITIONS AND PROVISIONS OF NOTICE OF GENERAL DESCRIPTION OF AREA SERVED BY PANHANDLE EASTERN PIPE LINE COMPANY CONCERNING UNDERGROUND FACILITIES RECORDED JUNE 25, 1986 IN BOOK 3162 AT PAGE [961](#).
35. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT DEED AND AGREEMENT RECORDED MAY 13, 2019 UNDER RECEPTION NO. [2019000035710](#).
36. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT DEED AND AGREEMENT RECORDED MAY 13, 2019 UNDER RECEPTION NO. [2019000035711](#).
37. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT DEED AND AGREEMENT RECORDED AUGUST 01, 2019 UNDER RECEPTION NO. [2019000061659](#).
38. QUIT CLAIM DEED (MINERALS) RECORDED AUGUST 15, 2019 UNDER RECEPTION NO. [2019000066363](#).
39. PERSONAL REPRESENTATIVE'S MINERAL DEEDS RECORDED AUGUST 28, 2019 UNDER RECEPTION NO. [2019000070944](#) AND [2019000070945](#).
40. QUIT CLAIM MINERAL DEED RECORDED SEPTEMBER 3, 2019 UNDER RECEPTION NO. [2019000072458](#).
41. TRUSTEE'S SPECIAL WARRANTY MINERAL DEED RECORDED SEPTEMBER 17, 2019 UNDER RECEPTION NO. [2019000077475](#).
42. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN WATER GATHERING AND DISPOSAL CONTRACT AS DISCLOSED BY MEMORANDUM OF AGREEMENT RECORDED JANUARY 30, 2020 UNDER RECEPTION NO. [2020000009733](#).

**ALTA COMMITMENT**  
**Old Republic National Title Insurance Company**  
**Schedule B, Part II**  
**(Exceptions)**

**Order Number:** ABM70800714-3

43. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN GRANT OF POCKET UTILITY EASEMENT RECORDED SEPTEMBER 27, 2019 UNDER RECEPTION NO. 4527536 (WELD COUNTY RECORDS).
44. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN MEMORANDUM OF RIGHT OF WAY AGREEMENT BY AND BETWEEN ROBERT L. SELTZER FAMILY TRUST AND ROCKY MOUNTAIN MIDSTREAM LLC RECORDED JULY 07, 2020 UNDER RECEPTION NO. [202000061505](#).
45. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF WATER SUPPLY AGREEMENT RECORDED JULY 30, 2020 AT RECEPTION NO. [202000072946](#) AND RECORDED JULY 30, 2020 UNDER RECEPTION NO. [202000072951](#) AND RECORDED JULY 30, 2020 UNDER RECEPTION NO. [202000072950](#) RECORDED JULY 30, 2020 UNDER RECEPTION NO. [202000072948](#) AND RECORDED JULY 30, 2020 UNDER RECEPTION NO. [202000072947](#) AND RECORDED JULY 30, 2020 UNDER RECEPTION NO. [202000072949](#).
46. TERMS, CONDITIONS AND PROVISIONS OF RESOLUTION APPROVING APPLICATION IN CASE #RCU2020-00004 PIONEER WATER PIPELINE RECORDED SEPTEMBER 10, 2020 AT RECEPTION NO. [202000089962](#).
47. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN RIGHT OF WAY DEED RECORDED MAY 09, 1924 UNDER RECEPTION NO. [101711](#).
48. NOTICES OF SALE BY AND BETWEEN BYRON OIL INDUSTRIES, INC. AND TETON ENERGY GROUP, LLC RECORDED OCTOBER 14, 2020 UNDER RECEPTION NOS. [2020000103733](#) AND [2020000103734](#).
49. RESOLUTION APPROVING APPLICATION IN CASE #RCU2020-00021 PIONEER PRODUCED WATER PIPELINE CONDITIONAL USE PERMIT EXTENSION RECORDED SEPTEMBER 10, 2021 UNDER RECEPTION NO. [2021000107948](#).
50. PERSONAL REPRESENTATIVE'S DEED (MINERALS) RECORDED FEBRUARY 25, 2022 UNDER RECEPTION NO. [2022000017502](#).
51. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT DEED AND AGREEMENT BY AND BETWEEN ROBERT L. SELTZER FAMILY TRUST, GRANTOR, AND TODD CREEK VILLAGE METROPOLITAN DISTRICT, GRANTEE RECORDED MARCH 15, 2022 UNDER RECEPTION NO. [2022000023467](#).
52. TERMS, CONDITIONS AND PROVISIONS OF ORDER FOR INCLUSION RECORDED APRIL 14, 2022 UNDER RECEPTION NO. [2022000033527](#).
53. TERMS, CONDITIONS AND PROVISIONS OF NON-EXCLUSIVE PIPELINE RIGHT-OF-WAY AND EASEMENT AGREEMENT RECORDED APRIL 05, 2022 UNDER RECEPTION NO. [2022000029681](#).
54. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT DEED AND AGREEMENT RECORDED MARCH 15, 2022 UNDER RECEPTION NO. [2022000023467](#).
55. TERMS, CONDITIONS AND PROVISIONS OF QUITCLAIM MINERAL DEED RECORDED MARCH 23, 2022 UNDER RECEPTION NO. [2022000025911](#).
56. ANY TAX, LIEN, FEE, OR ASSESSMENT BY REASON OF INCLUSION OF SUBJECT PROPERTY IN THE PROMONTORY METROPOLITAN DISTRICT NOS. 1-5, AS EVIDENCED BY INSTRUMENT RECORDED APRIL 14, 2022, UNDER RECEPTION NO. [2022000033527](#) AND RECORDED APRIL 28, 2022 UNDER RECEPTION NO. [2022000038299](#).

**ALTA COMMITMENT**  
**Old Republic National Title Insurance Company**  
**Schedule B, Part II**  
**(Exceptions)**

**Order Number:** ABM70800714-3

57. RESERVATION OF ALL MINERALS AND MINERAL RIGHTS AS CONTAINED IN THE SPECIAL WARRANTY DEED FROM ROBERT L. SELTZER FAMILY TRUST TO HSG LAND LLC, A COLORADO LIMITED LIABILITY COMPANY RECORDED MAY 6, 2022 UNDER RECEPTION NO. [2022000041193](#).
58. DEED OF TRUST DATED MAY 06, 2022, FROM HSG LAND LLC, A COLORADO LIMITED LIABILITY COMPANY TO THE PUBLIC TRUSTEE OF ADAMS COUNTY, COLORADO FOR THE USE OF ROBERT L. SELTZER FAMILY TRUST TO SECURE THE SUM OF \$1,400,100.00 RECORDED MAY 06, 2022, UNDER RECEPTION NO. [2022000041194](#).



## LAND TITLE GUARANTEE COMPANY DISCLOSURE STATEMENTS

**Note: Pursuant to CRS 10-11-122, notice is hereby given that:**

- (A) The Subject real property may be located in a special taxing district.
- (B) A certificate of taxes due listing each taxing jurisdiction will be obtained from the county treasurer of the county in which the real property is located or that county treasurer's authorized agent unless the proposed insured provides written instructions to the contrary. (for an Owner's Policy of Title Insurance pertaining to a sale of residential real property).
- (C) The information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder, or the County Assessor.

**Note:** Effective September 1, 1997, CRS 30-10-406 requires that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one half of an inch. The clerk and recorder may refuse to record or file any document that does not conform, except that, the requirement for the top margin shall not apply to documents using forms on which space is provided for recording or filing information at the top margin of the document.

**Note:** Colorado Division of Insurance Regulations 8-1-2 requires that "Every title entity shall be responsible for all matters which appear of record prior to the time of recording whenever the title entity conducts the closing and is responsible for recording or filing of legal documents resulting from the transaction which was closed". Provided that Land Title Guarantee Company conducts the closing of the insured transaction and is responsible for recording the legal documents from the transaction, exception number 5 will not appear on the Owner's Title Policy and the Lenders Policy when issued.

**Note:** Affirmative mechanic's lien protection for the Owner may be available (typically by deletion of Exception no. 4 of Schedule B, Section 2 of the Commitment from the Owner's Policy to be issued) upon compliance with the following conditions:

- (A) The land described in Schedule A of this commitment must be a single family residence which includes a condominium or townhouse unit.
- (B) No labor or materials have been furnished by mechanics or material-men for purposes of construction on the land described in Schedule A of this Commitment within the past 6 months.
- (C) The Company must receive an appropriate affidavit indemnifying the Company against un-filed mechanic's and material-men's liens.
- (D) The Company must receive payment of the appropriate premium.
- (E) If there has been construction, improvements or major repairs undertaken on the property to be purchased within six months prior to the Date of Commitment, the requirements to obtain coverage for unrecorded liens will include: disclosure of certain construction information; financial information as to the seller, the builder and or the contractor; payment of the appropriate premium fully executed Indemnity Agreements satisfactory to the company, and, any additional requirements as may be necessary after an examination of the aforesaid information by the Company.

No coverage will be given under any circumstances for labor or material for which the insured has contracted for or agreed to pay.

**Note:** Pursuant to CRS 10-11-123, notice is hereby given:

This notice applies to owner's policy commitments disclosing that a mineral estate has been severed from the surface estate, in Schedule B-2.

- (A) That there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the

surface estate and that there is substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and

- (B) That such mineral estate may include the right to enter and use the property without the surface owner's permission.

**Note:** 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.

**Note:** Pursuant to Colorado Division of Insurance Regulations 8-1-3, notice is hereby given of the availability of a closing protection letter for the lender, purchaser, lessee or seller in connection with this transaction.

**Note:** Pursuant to CRS 24-21-514.5, Colorado notaries may remotely notarize real estate deeds and other documents using real-time audio-video communication technology. You may choose not to use remote notarization for any document.





**JOINT NOTICE OF PRIVACY POLICY OF  
LAND TITLE GUARANTEE COMPANY,  
LAND TITLE GUARANTEE COMPANY OF SUMMIT COUNTY  
LAND TITLE INSURANCE CORPORATION AND  
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY**

This Statement is provided to you as a customer of Land Title Guarantee Company as agent for Land Title Insurance Corporation and Old Republic National Title Insurance Company.

We want you to know that we recognize and respect your privacy expectations and the requirements of federal and state privacy laws. Information security is one of our highest priorities. We recognize that maintaining your trust and confidence is the bedrock of our business. We maintain and regularly review internal and external safeguards against unauthorized access to your non-public personal information ("Personal Information").

In the course of our business, we may collect Personal Information about you from:

- applications or other forms we receive from you, including communications sent through TMX, our web-based transaction management system;
  - your transactions with, or from the services being performed by us, our affiliates, or others;
  - a consumer reporting agency, if such information is provided to us in connection with your transaction;
- and
- The public records maintained by governmental entities that we obtain either directly from those entities, or from our affiliates and non-affiliates.

Our policies regarding the protection of the confidentiality and security of your Personal Information are as follows:

- We restrict access to all Personal Information about you to those employees who need to know that information in order to provide products and services to you.
- We may share your Personal Information with affiliated contractors or service providers who provide services in the course of our business, but only to the extent necessary for these providers to perform their services and to provide these services to you as may be required by your transaction.
- We maintain physical, electronic and procedural safeguards that comply with federal standards to protect your Personal Information from unauthorized access or intrusion.
- Employees who violate our strict policies and procedures regarding privacy are subject to disciplinary action.
- We regularly assess security standards and procedures to protect against unauthorized access to Personal Information.

**WE DO NOT DISCLOSE ANY PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT STATED ABOVE OR PERMITTED BY LAW.**

Consistent with applicable privacy laws, there are some situations in which Personal Information may be disclosed. We may disclose your Personal Information when you direct or give us permission; when we are required by law to do so, for example, if we are served a subpoena; or when we suspect fraudulent or criminal activities. We also may disclose your Personal Information when otherwise permitted by applicable privacy laws such as, for example, when disclosure is needed to enforce our rights arising out of any agreement, transaction or relationship with you.

Our policy regarding dispute resolution is as follows: Any controversy or claim arising out of or relating to our privacy policy, or the breach thereof, shall be settled by arbitration in accordance with the rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.



# Commitment For Title Insurance

## Issued by Old Republic National Title Insurance Company

### NOTICE

IMPORTANT—READ CAREFULLY: THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON. .

### COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I—Requirements; Schedule B, Part II—Exceptions; and the Commitment Conditions, Old Republic National Title Insurance Company, a Minnesota corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Policy Amount and the name of the Proposed Insured. If all of the Schedule B, Part I—Requirements have not been met within 6 months after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

### COMMITMENT CONDITIONS

#### 1. DEFINITIONS

- (a) "Knowledge" or "Known": Actual or imputed knowledge, but not constructive notice imparted by the Public Records.
- (b) "Land": The land described in Schedule A and affixed improvements that by law constitute real property. The term "Land" does not include any property beyond the lines of the area described in Schedule A, nor any right, title, interest, estate, or easement in abutting streets, roads, avenues, alleys, lanes, ways, or waterways, but this does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.
- (c) "Mortgage": A mortgage, deed of trust, or other security instrument, including one evidenced by electronic means authorized by law.
- (d) "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.
- (e) "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.
- (f) "Proposed Policy Amount": Each dollar amount specified in Schedule A as the Proposed Policy Amount of each Policy to be issued pursuant to this Commitment.
- (g) "Public Records": Records established under state statutes at the Commitment Date for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge.
- (h) "Title": The estate or interest described in Schedule A.

2. If all of the Schedule B, Part I—Requirements have not been met within the time period specified in the Commitment to Issue Policy, Commitment terminates and the Company's liability and obligation end.

3. The Company's liability and obligation is limited by and this Commitment is not valid without:

- (a) the Notice;
- (b) the Commitment to Issue Policy;
- (c) the Commitment Conditions;
- (d) Schedule A;
- (e) Schedule B, Part I—Requirements; and
- (f) Schedule B, Part II—Exceptions; and
- (g) a counter-signature by the Company or its issuing agent that may be in electronic form.

#### 4. COMPANY'S RIGHT TO AMEND

The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company shall not be liable for any other amendment to this Commitment.

#### 5. LIMITATIONS OF LIABILITY

- (a) The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:
  - i. comply with the Schedule B, Part I—Requirements;
  - ii. eliminate, with the Company's written consent, any Schedule B, Part II—Exceptions; or
  - iii. acquire the Title or create the Mortgage covered by this Commitment.
- (b) The Company shall not be liable under Commitment Condition 5(a) if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
- (c) The Company will only have liability under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
- (d) The Company's liability shall not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Conditions 5(a)(i) through 5(a)(iii) or the Proposed Policy Amount.
- (e) The Company shall not be liable for the content of the Transaction Identification Data, if any.
- (f) In no event shall the Company be obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I—Requirements have been met to the satisfaction of the Company.
- (g) In any event, the Company's liability is limited by the terms and provisions of the Policy.

#### 6. LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT

- (a) Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
- (b) Any claim must be based in contract and must be restricted solely to the terms and provisions of this Commitment.
- (c) Until the Policy is issued, this Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or oral, express or implied, relating to the subject matter of this Commitment.

- (d) The deletion or modification of any Schedule B, Part II—Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.
- (e) Any amendment or endorsement to this Commitment must be in writing and authenticated by a person authorized by the Company.
- (f) When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

**7. IF THIS COMMITMENT HAS BEEN ISSUED BY AN ISSUING AGENT**

The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for the purpose of providing closing or settlement services.

**8. PRO-FORMA POLICY**

The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

**9. ARBITRATION**

The Policy contains an arbitration clause. All arbitrable matters when the Proposed Policy Amount is \$2,000,000 or less shall be arbitrated at the option of either the Company or the Proposed Insured as the exclusive remedy of the parties. A Proposed Insured may review a copy of the arbitration rules at <http://www.alta.org/arbitration>.

IN WITNESS WHEREOF, Land Title Insurance Corporation has caused its corporate name and seal to be affixed by its duly authorized officers on the date shown in Schedule A to be valid when countersigned by a validating officer or other authorized signatory.


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

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Old Republic National Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I—Requirements; and Schedule B, Part II—Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

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WHEN RECORDED RETURN TO:

Todd Creek Farms Metropolitan District No. 1  
c/o Gene Osborne  
21 N. 1st Avenue, Suite 190,  
P.O. Box 490, Brighton, Colorado 80601

Date
\$ <u>116.30</u>
State Doc. Fee

**SPECIAL WARRANTY DEED**

THIS DEED, made this 4<sup>th</sup> day of April, 2008, between the CITY OF WESTMINSTER, a Colorado municipal corporation, whose address is 4800 West 92<sup>nd</sup> Avenue, Westminster, Colorado 80031 ("Grantor"), and TODD CREEK FARMS METROPOLITAN DISTRICT NO. 1, a Colorado special district and political subdivision of the State of Colorado, whose legal address is P.O. Box 490 Brighton, CO 80601 ("Grantee").

WITNESSETH, that the Grantor, for and in consideration of the sum of Ten and 00/100ths Dollars (\$10.00), and other good and sufficient consideration, the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm unto the Grantee, its heirs and assigns forever, the real property in the County of Adams and State of Colorado, described as follows:

See Attached Exhibit A,

TOGETHER with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and together with any and all easements, rights-of-way, access rights or rights appertaining or in anywise belonging thereto, and together with the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of Grantor, either in law or equity, of, in and to the Property, with the hereditaments and appurtenances;

TO HAVE AND TO HOLD the same, with appurtenances, and all of the estate, right and title of Grantor, to the Grantee, its successors and assigns, forever.

The Grantor shall and will WARRANT AND FOREVER DEFEND the above-bargained premises in the quiet and peaceable possession of the Grantee, its heirs, successors and assigns, against any and every person or persons lawfully claiming the whole or any part thereof by, under or through the Grantor.

The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

① H0098455

UNOFFICIAL COPY

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FAITC

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EXHIBIT A

That part of the North one-half of Section 4, Township 1 South, Range 67 West of the 6th Principal Meridian, Adams County, Colorado, described as:

Beginning at the Southeast corner of the Northeast one-quarter Northwest one-quarter of said Section 4; thence N00°46'55"E on an assumed bearing along the East line of said Northeast one-quarter Northwest one-quarter a distance of 575.00 feet; thence N89°13'05"W a distance of 60.00 feet to a point on a non-tangent curve to the left, the radius of said curve is 383.83 feet, the delta of said curve is 117°09'59", the chord of said curve bears N61°31'50"W, 655.11 feet; thence along the arc of said curve a distance of 784.90 feet; thence S63°27'16"W a distance of 773.68 feet to a point 569.50 feet South of the Northeast corner of the Northwest one-quarter Northwest one-quarter of said Section 4; thence S63°52'05"W a distance of 811.12 feet to the Northeast corner of a parcel of land described in Book 774, Page 20, Adams County records; thence S08°40'00"E along the Easterly line of said parcel a distance of 187.20 feet to a point on the South line of said Northwest one-quarter Northwest one-quarter, said point being 635.00 feet East of the Southwest corner of said Northwest one-quarter Northwest one-quarter; thence continuing S08°40'00"E a distance of 301.00 feet; thence S57°04'00"E a distance of 390.00 feet; thence S64°11'00"E a distance of 291.00 feet; thence S64°15'06"E a distance of 54.31 feet to a point on the East line of the Southwest one-quarter Northwest one-quarter of said Section 4, said point being 660.00 feet North of the Southeast corner of said Southwest one-quarter Northwest one-quarter; thence N90°00'00"E parallel with the East-West Centerline of said Section 4 a distance of 830.00 feet; thence S34°31'32"W a distance of 801.02 feet to a point on said East-West Centerline, said point being 385.00 feet East of the Southwest corner of the Southeast one-quarter Northwest one-quarter of said Section 4; thence S00°00'00"E a distance of 75.00 feet; thence N33°55'00"E a distance of 130.00 feet; thence N73°24'00"E a distance of 350.00 feet; thence N87°03'00"E a distance of 347.00 feet; thence N81°31'00"E a distance of 236.00 feet; thence N81°13'00"E a distance of 334.00 feet; thence N82°55'00"E a distance of 210.00 feet; thence N80°33'00"E a distance of 305.00 feet; thence S31°37'00"E a distance of 200.00 feet; thence S87°30'00"E a distance of 50.00 feet; thence N00°00'00"E a distance of 42.00 feet; thence N32°11'48"W a distance of 1344.62 feet to a point on the North line of the Southwest one-quarter Northeast one-quarter of said Section 4, said point being 305.00 feet East of the point of beginning; thence S90°00'00"W along said North line a distance of 305.00 feet to the point of beginning.

Containing 81.951 acres more or less, and excepting therefrom that portion of land subject to a Boundary Line Agreement between the City of Westminster and the Robert Seltzer Family Trust, recorded in the Adams County Clerk and Recorder's Office, 2/04/97, at Book 4931, Pages 0452-0453, Reception # C0250867.

After Recording Return to  
Robert Rosenthal  
First American Heritage Title Company  
1600 Stout Street #800  
Denver, CO 80202

No Documentary Fee  
CRS 39-13-104

QUIT CLAIM DEED

This Deed Made this 4<sup>th</sup> day of April, 2008 between The City of Westminster, a Colorado home-rule municipality, of the County of Adams and State of COLORADO Grantor, and Todd Creek Metropolitan District No. 1, a Colorado special district and political subdivision of the State of Colorado, whose legal address is 21 North 1<sup>st</sup> Avenue, Suite 190, Brighton, CO 80601 of the County of Adams and State of Colorado, Grantee, WITNESSTH, that the Grantor, for and in consideration of the sum of Ten and 00/100 Dollars (\$10.00), the receipt and sufficiency of which is hereby confessed, acknowledged, has remised, released, sold and QUIT CLAIMED, and by these presents does remise, release, sell and QUIT CLAIM unto the Grantee, its successors and assigns, forever, all the right, title, interest, claim and demand which the Grantor has in and to the real property, together with improvements, if any, situate, lying and being in the said Adams, and State of Colorado described as follows:

See Exhibit A, the Legal Description attached hereto and made a part hereof.

also known as street and number: Signal Reservoirs, Adams County, Colorado.

TO HAVE AND TO HOLD the same, together with all and singular the appurtenances and privileges thereunto belonging, or in anywise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever, of the Grantor, either in law or equity, to the only proper use, benefit and behoof of the Grantee, its successors and assigns forever.

The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

IN WITNESS WHEREOF, the Grantor has executed this Deed on the date set forth above.

Signed this 4<sup>th</sup> day of April, 2008.

CITY OF WESTMINSTER

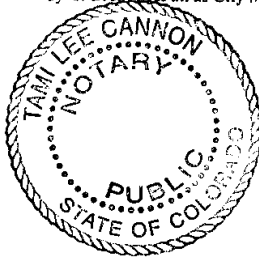
BY: J. Brent McFall

ITS: City Manager

③ H0098455

STATE OF COLORADO }  
COUNTY OF ADAMS } SS:

The foregoing instrument was acknowledged before me this 4<sup>th</sup> day of April, 2008 by J. Brent McFall as City Manager of the City of Westminster, a Colorado home-rule municipality.



Witness my hand and official seal.  
Tami Lee Cannon  
Notary Public:  
My commission expires: 6-19-08

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EXHIBIT A

**LEGAL DESCRIPTION USING SURVEY MEASURED BEARINGS AND DISTANCES. THE NORTH LINE OF THE NW 1/4 OF SECTION 4, T1S, R67W AS THE BASIS OF BEARINGS AND WRITTEN IN A CLOCKWISE DIRECTION AS FOLLOWS:**

A PARCEL OF LAND LOCATED IN SECTIONS 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO; MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: THE NORTH LINE OF THE NORTH WEST QUARTER OF SAID SECTION 4, BEING MONUMENTED AT THE NORTH QUARTER CORNER WITH A 3-1/4 "ALUMINUM CAP STAMPED "LS 25937" AND MONUMENTED AT THE NORTH WEST CORNER WITH A 2 1/2 ALUMINUM CAP STAMPED "LS 12374" IS ASSUMED TO BEAR N 89°32'50" E, A DISTANCE OF 2656.37 FEET;

COMMENCING AT THE NORTH QUARTER CORNER OF SAID SECTION 4 THENCE S 00°26'28" E, ON THE EAST LINE OF NORTH WEST QUARTER OF SAID SECTION 4, A DISTANCE OF 517.43 FEET TO THE POINT OF BEGINNING; THENCE S 00°26'28" E, CONTINUING ON THE EAST LINE OF THE NORTH WEST QUARTER OF SAID SECTION 4, A DISTANCE OF 519.27 FEET TO A POINT BEING 55.73 FEET NORTHERLY FROM THE CENTER NORTH SIXTEENTH CORNER OF SAID SECTION 4 AND BEING A POINT ON THAT BOUNDARY LINE ADJUSTMENT AS DESCRIBED IN BOOK 4931 PAGE 452 OF ADAMS COUNTY PUBLIC RECORDS; THENCE ALONG SAID BOUNDARY LINE AGREEMENT THE FOLLOWING 10 COURSES AND DISTANCES

1. THENCE N 89°40'00" E, A DISTANCE OF 31.97 FEET
2. THENCE S 71°11'52" E, A DISTANCE OF 115.91 FEET
3. THENCE S 46°43'43" E, A DISTANCE OF 185.24 FEET
4. THENCE S 52°41'27" E, A DISTANCE OF 131.49 FEET
5. THENCE S 42°45'12" E, A DISTANCE OF 70.38 FEET
6. THENCE S 4°57'23" E, A DISTANCE OF 27.90 FEET
7. THENCE S 35°00'08" E, A DISTANCE OF 28.80 FEET
8. THENCE S 30°04'09" E, A DISTANCE OF 404.28 FEET
9. THENCE S 32°55'02" E, A DISTANCE OF 457.81 FEET
10. THENCE S 25°59'42" E, A DISTANCE OF 75.93 FEET

TO A POINT ON THE BOUNDARY LINE OF A PARCEL, DESCRIBED IN BOOK 1 AND PAGE 2007 OF THE ADAMS COUNTY RECORDS THE FOLLOWING 8 COURSES AND DISTANCES

1. THENCE N 32°49'40" W, A DISTANCE OF 114.80 FEET
2. THENCE S 79°17'12" W, A DISTANCE OF 304.97 FEET
3. THENCE S 81°42'37" W, A DISTANCE OF 210.00 FEET
4. THENCE S 80°00'13" W, A DISTANCE OF 334.08 FEET
5. THENCE S 79°59'44" W, A DISTANCE OF 236.63 FEET
6. THENCE S 85°51'04" W, A DISTANCE OF 347.08 FEET
7. THENCE S 72°19'27" W, A DISTANCE OF 349.09 FEET
8. THENCE S 32°30'56" W, A DISTANCE OF 131.31 FEET

TO A POINT ON THE BOUNDARY LINE OF A PARCEL, DESCRIBED IN BOOK 3907 AT PAGE 53 OF THE ADAMS COUNTY RECORDS THE FOLLOWING 12 COURSES AND DISTANCES



EXHIBIT A - continued

1. THENCE N 00°55'57" W, A DISTANCE OF 76.32 FEET
2. THENCE N 33°17'49" E, A DISTANCE OF 801.00 FEET
3. THENCE S 88°46'17" W, A DISTANCE OF 829.29 FEET
4. THENCE N 66°50'27" W, A DISTANCE OF 55.37 FEET
5. THENCE N 65°25'39" W, A DISTANCE OF 290.86 FEET
6. THENCE N 58°09'81" W, A DISTANCE OF 389.77 FEET
7. THENCE N 09°55'38" W, A DISTANCE OF 301.06 FEET
8. THENCE N 9°20'08" W, A DISTANCE OF 182.94 FEET
9. THENCE N 62°30'15" E, A DISTANCE OF 808.98 FEET
10. THENCE N 62°21'20" E, A DISTANCE OF 775.83 FEET TO A POINT ON A NON TANGENT CURVE TO THE RIGHT
11. THENCE ALONG SAID CURVE, AN ARC DISTANCE OF 784.89 FEET, A DELTA OF 117°09'49" AND A RADIUS OF 383.83 FEET
12. THENCE N 89°33'34" E, A DISTANCE OF 60.00 FEET TO THE POINT OF BEGINNING.

MEASURED LEGAL DESCRIPTION PREPARED BY:

RANDALL R. LONG, COLORADO P.L.S. NO. 35591

FOR AND ON BEHALF OF:

SURVCON INC.,

7100 E. BELLEVIEW AVE., SUTE G-12

GREENWOOD VILLAGE, CO 80111

DISTRICT COURT, ADAMS COUNTY, COLORADO  
Adams County Combined Court  
1100 Judicial Center Drive  
Brighton, Colorado 80601

**Petitioner:**

TODD CREEK VILLAGE METROPOLITAN DISTRICT

**Respondents:**

ROBERT L. SELTZER FAMILY TRUST  
ASSOCIATED NATURAL GAS, INC. n/k/a DUKE  
ENERGY FIELD SERVICES ASSETS, LLC.; BATAA OIL,  
INC.; BRIGHTON AREA FIRE PROTECTION DISTRICT  
a/k/a THE GREATER BRIGHTON FIRE PROTECTION  
DISTRICT; STEPHEN A. CLARK;  
THE COLORADO BEET LANDS COMPANY;  
ENERGY MINERALS CORPORATION;  
KERR-MCGEE OIL & GAS ONSHORE LP;  
KERR-MCGEE ROCKY MOUNTAIN CORPORATION;  
LOUIS S. MADRID; MERIT ENERGY PARTNERS, L.P.;  
MERIT ENERGY PARTNERS III, L.P.;  
NOBLE ENERGY, INC.;  
NOBLE ENERGY PRODUCTION, INC.;  
PANHANDLE EASTERN PIPELINE COMPANY;  
PATINA OIL & GAS CORPORATION;  
SELTZER FARMS, INC.;  
JACK ALDEN SELTZER AND TIMOTHY ROBERT  
SELTZER, AS CO-TRUSTEES OF THE ROBERT  
SELTZER FAMILY TRUST;  
ESTATE OF ROBERT L. SELTZER, TIMOTHY R.  
SELTZER AND JACK SELTZER, CO-PERSONAL  
REPRESENTATIVES;  
SOCO WATTENBERG CORPORATION;  
SOUTH PLATTE WATER CONSERVANCY DISTRICT;  
THE SIGNAL RESERVOIR AND IRRIGATION  
COMPANY; UNION RURAL ELECTRIC ASSOCIATION  
a/k/a UNION RURAL ELECTRIC ASSOCIATION, INC.  
n/k/a UNITED POWER, INC.;  
UNITED STATES EXPLORATION, INC. n/k/a U.S.  
EXPLORATION HOLDINGS, INC.;  
WEST ADAMS SOIL CONSERVATION DISTRICT;  
WESTERN GAS SUPPLY COMPANY n/k/a PUBLIC  
SERVICE COMPANY OF COLORADO;  
CITY OF WESTMINSTER; and DIANE CHRISTNER, in  
her official capacity as Treasurer of Adams County, Colorado

▲ COURT USE ONLY ▲

Case Number: 2009CV529

Division: A

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UNOFFICIAL COPY

*Return to:*

DUNCAN, OSTRANDER & DINGESS, P.C.  
Attorneys & Counselors At Law  
3600 S. Yosemite Street, Suite #500  
Denver, Colorado 80237

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x


Attorneys: Robert R. Duncan, No. 5733 Donald M. Ostrander, No. 12458 Elizabeth D. Rubinstein, No. 31146 Address: Duncan, Ostrander & Dingess, P.C. 3600 S. Yosemite Street, Suite 500 Denver, Colorado 80237 Phone Number: 303.779.0200 FAX Number: 303.779.3662 E-mail: dodpc@dodpc.com	
<b>NOTICE OF LIS PENDENS</b>	

TO WHOM IT MAY CONCERN:

You and each of you will please take notice that on March 23, 2009, the Petitioner instituted an action in the District Court in and for the County of Adams, State of Colorado, which action is numbered Civil Action No. 2009CV519, Division: A. Petitioner seeks to condemn for certain interests in the real property described in **Exhibit A** which is attached hereto and incorporated herein by reference, situated in the County of Adams, State of Colorado.

Respectfully submitted this 25 day of March, 2009.

DUNCAN, OSTRANDER & DINGESS, P.C.

By:   
Robert R. Duncan, No. 5733  
Donald M. Ostrander, No. 12458  
Elizabeth D. Rubinstein, No. 31146

ATTORNEYS FOR PETITIONER

# EXHIBIT A

**LEGAL DESCRIPTION:**

A PARCEL OF LAND LOCATED IN THE NORTHEAST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST, 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO; MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: THE NORTH LINE OF THE NORTHWEST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE NORTHWEST CORNER OF SAID SECTION 4 BY A 2-1/2 INCH ALUMINUM CAP STAMPED "LS 12374" AND AT THE NORTH 1/4 CORNER OF SAID SECTION 4 BY A 3-1/4 INCH ALUMINUM CAP STAMPED "LS 25937" IN A RANGE BOX, BEARING N 89°32'50" E, A DISTANCE OF 2656.37 FEET.

COMMENCING AT THE NORTH 1/4 CORNER OF SAID SECTION 4

THENCE SOUTH 00°26'28" EAST, ALONG THE WEST LINE OF THE NORTHEAST 1/4 OF SAID SECTION 4, A DISTANCE OF 980.21 FEET TO A POINT ON THE WEST LINE OF SAID NORTHEAST 1/4 SAID POINT ALSO BEING THE POINT OF BEGINNING;

THENCE NORTH 65°33'08" EAST, A DISTANCE OF 39.59 FEET; THENCE SOUTH 87°44'22" EAST, A DISTANCE OF 97.31 FEET; THENCE SOUTH 61°01'51" EAST, A DISTANCE OF 87.93 FEET; THENCE SOUTH 43°51'31" EAST, A DISTANCE OF 64.97 FEET; THENCE SOUTH 43°32'53" EAST, A DISTANCE OF 50.38 FEET; THENCE SOUTH 43°21'23" EAST, A DISTANCE OF 50.98 FEET; THENCE SOUTH 42°16'42" EAST, A DISTANCE OF 50.05 FEET; THENCE SOUTH 43°15'51" EAST, A DISTANCE OF 51.82 FEET; THENCE SOUTH 40°05'42" EAST, A DISTANCE OF 49.83 FEET; THENCE SOUTH 43°27'22" EAST, A DISTANCE OF 49.64 FEET; THENCE SOUTH 40°34'37" EAST, A DISTANCE OF 53.98 FEET; THENCE SOUTH 38°14'58" EAST, A DISTANCE OF 54.22 FEET; THENCE SOUTH 35°11'11" EAST, A DISTANCE OF 52.59 FEET; THENCE SOUTH 34°56'41" EAST, A DISTANCE OF 51.88 FEET; THENCE SOUTH 32°44'34" EAST, A DISTANCE OF 48.79 FEET; THENCE SOUTH 36°21'44" EAST, A DISTANCE OF 49.08 FEET; THENCE SOUTH 33°43'38" EAST, A DISTANCE OF 55.57 FEET; THENCE SOUTH 29°53'57" EAST, A DISTANCE OF 52.71 FEET; THENCE SOUTH 30°36'54" EAST, A DISTANCE OF 49.34 FEET; THENCE SOUTH 30°37'58" EAST, A DISTANCE OF 50.44 FEET; THENCE SOUTH 30°03'54" EAST, A DISTANCE OF 50.93 FEET; THENCE SOUTH 29°28'29" EAST, A DISTANCE OF 50.29 FEET; THENCE SOUTH 29°40'51" EAST, A DISTANCE OF 50.22 FEET; THENCE SOUTH 29°10'08" EAST, A DISTANCE OF 49.71 FEET; THENCE SOUTH 30°01'53" EAST, A DISTANCE OF 48.04 FEET; THENCE SOUTH 32°55'27" EAST, A DISTANCE OF 182.76 FEET; THENCE SOUTH 25°59'02" EAST, A DISTANCE OF 331.78 FEET; THENCE SOUTH 26°31'45" WEST, A DISTANCE OF 17.42 FEET, TO A POINT ON THE SOUTH LINE OF SAID NORTHEAST 1/4;

THENCE ALONG THE SAID SOUTH LINE SOUTH 88°45'49" WEST, A DISTANCE OF 74.29 FEET, TO A POINT ON THE WEST LINE OF A BOUNDARY LINE AGREEMENT AS RECORDED IN BOOK 4931, PAGE 452 OF THE ADAMS COUNTY CLERK AND RECORDERS OFFICE; THENCE ALONG SAID WEST LINE OF THE BOUNDARY LINE AGREEMENT THE FOLLOWING ELEVEN (11) COURSES AND DISTANCES;

1. THENCE NORTH 26°31'45" EAST, A DISTANCE OF 19.80 FEET;
2. THENCE NORTH 25°59'02" WEST, A DISTANCE OF 295.37 FEET;
3. THENCE NORTH 32°55'27" WEST, A DISTANCE OF 457.80 FEET;
4. THENCE NORTH 30°03'43" WEST, A DISTANCE OF 404.31 FEET;
5. THENCE NORTH 34°53'37" WEST, A DISTANCE OF 28.74 FEET;
6. THENCE NORTH 47°00'19" WEST, A DISTANCE OF 27.90 FEET;
7. THENCE NORTH 42°42'06" WEST, A DISTANCE OF 70.54 FEET;
8. THENCE NORTH 52°43'55" WEST, A DISTANCE OF 131.26 FEET;
9. THENCE NORTH 48°44'52" WEST, A DISTANCE OF 185.31 FEET;
10. THENCE NORTH 71°03'37" WEST, A DISTANCE OF 115.93 FEET;
11. THENCE SOUTH 89°31'59" WEST, A DISTANCE OF 32.18 FEET, TO A POINT ON THE WEST LINE OF SAID NORTHEAST 1/4;

THENCE ALONG SAID WEST LINE NORTH 00°26'28" WEST, A DISTANCE OF 56.48 FEET, TO THE POINT OF BEGINNING.

THE DESCRIBED PARCEL CONTAINS 132,038 SQUARE FEET OR (3.03 ACRES).

**SURVEYOR'S STATEMENT**


I, RANDALL R. LONG, A LAND SURVEYOR LICENSED IN THE STATE OF COLORADO, HEREBY STATE THAT THIS PARCEL OF LAND DESCRIPTION WAS PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE.



BY: \_\_\_\_\_ OF SURVCON INC.

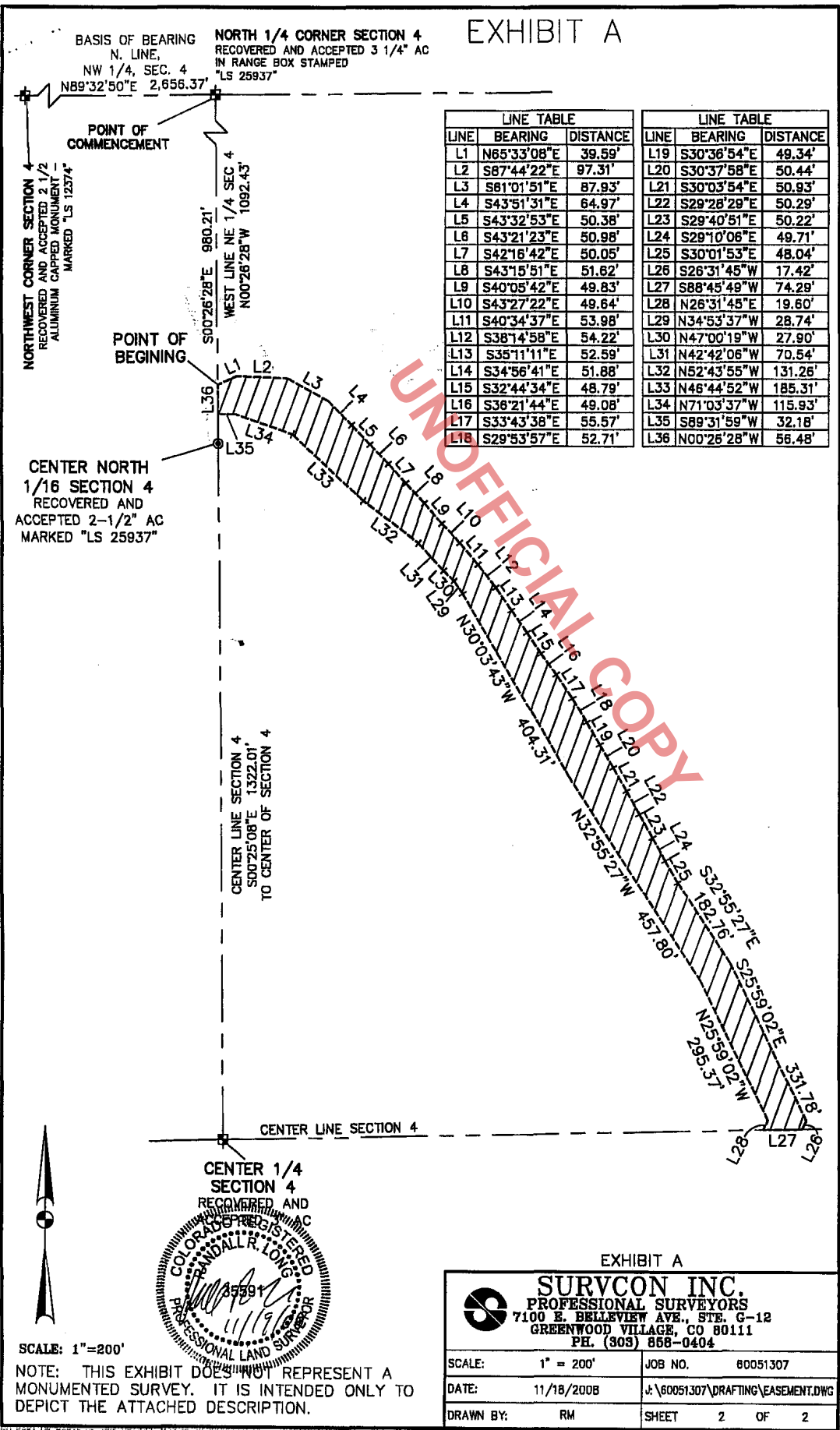


EXHIBIT A

 <b>SURVCON INC.</b> PROFESSIONAL SURVEYORS 7100 E. BELLEVUE AVE., STE. G-12 GREENWOOD VILLAGE, CO 80111 PH. (303) 858-0404		
SCALE:	NOT TO SCALE	JOB NO. 60051307
DATE:	11/18/2008	J:\60051307\DRAWING\EASEMENT.DWG
DRAWN BY:	RM	SHEET 1 OF 2

NOTE: THIS EXHIBIT DOES NOT REPRESENT A MONUMENTED SURVEY. IT IS INTENDED ONLY TO DEPICT THE ATTACHED DESCRIPTION.

EXHIBIT A



BASIS OF BEARING  
 N. LINE,  
 NW 1/4, SEC. 4  
 N89°32'50"E 2,656.37'

NORTH 1/4 CORNER SECTION 4  
 RECOVERED AND ACCEPTED 3 1/4" AC  
 IN RANGE BOX STAMPED  
 "LS 25937"

POINT OF COMMENCEMENT

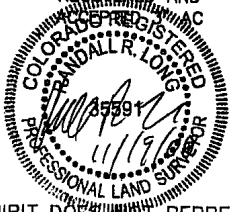
POINT OF BEGINNING

CENTER NORTH  
 1/16 SECTION 4  
 RECOVERED AND  
 ACCEPTED 2-1/2" AC  
 MARKED "LS 25937"

CENTER LINE SECTION 4  
 S00°25'08"E 1322.01'  
 TO CENTER OF SECTION 4

CENTER LINE SECTION 4

CENTER 1/4  
 SECTION 4  
 RECOVERED AND  
 ACCEPTED 2-1/2" AC



LINE TABLE		
LINE	BEARING	DISTANCE
L1	N65°33'08"E	39.59'
L2	S87°44'22"E	97.31'
L3	S81°01'51"E	87.93'
L4	S43°51'31"E	64.97'
L5	S43°32'53"E	50.38'
L6	S43°21'23"E	50.98'
L7	S42°16'42"E	50.05'
L8	S43°15'51"E	51.62'
L9	S40°08'42"E	49.83'
L10	S43°27'22"E	49.64'
L11	S40°34'37"E	53.98'
L12	S38°14'58"E	54.22'
L13	S35°11'11"E	52.59'
L14	S34°56'41"E	51.88'
L15	S32°44'34"E	48.79'
L16	S36°21'44"E	49.08'
L17	S33°43'38"E	55.57'
L18	S29°53'57"E	52.71'

LINE TABLE		
LINE	BEARING	DISTANCE
L19	S30°36'54"E	49.34'
L20	S30°37'58"E	50.44'
L21	S30°03'54"E	50.93'
L22	S29°28'29"E	50.29'
L23	S29°40'51"E	50.22'
L24	S29°10'06"E	49.71'
L25	S30°01'53"E	48.04'
L26	S26°31'45"W	17.42'
L27	S88°45'48"W	74.28'
L28	N26°31'45"E	19.60'
L29	N34°53'37"W	28.74'
L30	N47°00'19"W	27.90'
L31	N42°42'06"W	70.54'
L32	N52°43'55"W	131.26'
L33	N46°44'52"W	185.31'
L34	N71°03'37"W	115.93'
L35	S89°31'59"W	32.18'
L36	N00°26'28"W	56.48'

SCALE: 1"=200'

NOTE: THIS EXHIBIT DOES NOT REPRESENT A MONUMENTED SURVEY. IT IS INTENDED ONLY TO DEPICT THE ATTACHED DESCRIPTION.

EXHIBIT A

**SURVCON INC.**  
 PROFESSIONAL SURVEYORS  
 7100 E. BELLEVUE AVE., STE. G-12  
 GREENWOOD VILLAGE, CO 80111  
 PH. (303) 858-0404

SCALE: 1" = 200'	JOB NO. 60051307
DATE: 11/18/2008	J:\60051307\DRAWING\EASEMENT.DWG
DRAWN BY: RM	SHEET 2 OF 2

District Court, Adams County, State of Colorado 1100 Judicial Center Drive, Brighton, CO 80601 303-659-1161		EFILED Document - District Court CO Adams County District Court 17th JD 2009CV529 Filing Date: Jun 5 2009 5:10PM MDT Transaction ID: 25529246
Petitioner: Todd Creek Village Metropolitan District, et al.  v.  Respondents: Robert L. Seltzer Family Trust; Energy Minerals Corporation; City of Westminster, et al.		Case No. 09 CV 529 Division T
<b>ORDER GRANTING AMENDED MOTION FOR IMMEDIATE POSSESSION</b>		

THIS MATTER comes before the Court upon an Amended Motion for Immediate Possession filed by Petitioner and a hearing on the motion, and the Court being fully advised in the premises does hereby find:

1. That this Court has jurisdiction over the subject matter of this action, proper service having been made of the Petition in Condemnation and proof of service returned to this Court and filed within this case;
2. That there is an immediate need for the Petitioner to take possession and use the property described in the Petition in Condemnation for the purposes set forth in the Petition ("the Property");
3. That before the filing of the condemnation action, good faith negotiations were conducted for the acquisition of the Property;
4. That Petitioner has the legal authority to condemn for the purposes sought in this petition and that acquisition of the Property is necessary for such purposes;
5. That a public use and purpose is being served by the condemnation of the property; and
6. That the sum of \$21,000.00 constitutes a sufficient deposit for the immediate possession of the Property by the Petitioner.

ORDER:

1. Petitioner will deposit the sum of \$21,000.00 into the registry of the court and the clerk of the court is directed to accept such amount and place it in an interest-bearing account until further order of this court.
2. Upon deposit of such funds, BUT NO SOONER THAN JUNE 15, 2009, Petitioner will have the right to possession of the property described in the Petition in Condemnation, and Petitioner and its contractors, agents, servants, and employees

Return to:  
 DUNCAN, OSTRANDER & DINGESS, P.C.  
 Attorneys & Counselors At Law  
 3600 S. Yosemite Street, Suite #500  
 Denver, Colorado 80237

*Handwritten initials*

*Handwritten mark*

may enter onto, take and retain possession of the property for the purposes set forth in the Petition in Condemnation during this proceeding, without interference from the Respondent, or any of them, or their successors, assigns, heirs, devisees, personal representatives, guests or invitees, or any other person or persons claiming by, through, or under the Respondent.

DATED: June 5, 2009

BY THE COURT:



Edward C. Moss  
District Court Judge

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Combined Court, Adams County, CO  
CERTIFIED to be a full, true & correct  
copy of the original in my custody

JUL 01 2009

DATED

BY

  
Denity



**GRANTED  
WITH  
AMENDMENTS**

The moving party is hereby ORDERED to provide a copy of this Order to any pro se parties who have entered an appearance in this action within 10 days from the date of this order.

**Edward C. Moss  
District Court Judge**

DATE OF ORDER INDICATED ON ATTACHMENT

DISTRICT COURT, ADAMS COUNTY, COLORADO  
Adams County Combined Court  
1100 Judicial Center Drive  
Brighton, Colorado 80601

**Petitioner:**

TODD CREEK VILLAGE METROPOLITAN DISTRICT

v.

**Respondents:**

ROBERT L. SELTZER FAMILY TRUST,  
ASSOCIATED NATURAL GAS, INC. n/k/a DUKE ENERGY  
FIELD SERVICES ASSETS, LLC.; BATAA OIL, INC.;  
BRIGHTON AREA FIRE PROTECTION DISTRICT a/k/a  
THE GREATER BRIGHTON FIRE PROTECTION  
DISTRICT; STEPHEN A. CLARK;  
THE COLORADO BEET LANDS COMPANY;  
ENERGY MINERALS CORPORATION;  
KERR-MCGEE OIL & GAS ONSHORE LP;  
KERR-MCGEE ROCKY MOUNTAIN CORPORATION;  
LOUIS S. MADRID; MERIT ENERGY PARTNERS, L.P.;  
MERIT ENERGY PARTNERS III, L.P.;  
NOBLE ENERGY, INC.;  
NOBLE ENERGY PRODUCTION, INC.;  
PANHANDLE EASTERN PIPELINE COMPANY;  
PATINA OIL & GAS CORPORATION;  
SELTZER FARMS, INC.;  
JACK ALDEN SELTZER AND TIMOTHY ROBERT  
SELTZER, AS CO-TRUSTEES OF THE ROBERT SELTZER  
FAMILY TRUST;  
ESTATE OF ROBERT L. SELTZER, TIMOTHY R.  
SELTZER AND JACK SELTZER, CO-PERSONAL  
REPRESENTATIVES;  
SOCO WATTENBERG CORPORATION;  
SOUTH PLATTE WATER CONSERVANCY DISTRICT;  
THE SIGNAL RESERVOIR AND IRRIGATION  
COMPANY; UNION RURAL ELECTRIC ASSOCIATION  
a/k/a UNION RURAL ELECTRIC ASSOCIATION, INC.  
n/k/a UNITED POWER, INC.;

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▲ COURT USE ONLY ▲

Case Number: 2009CV529

Division: A

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Return to: Duncan, Ostrander + Dingess, P.C. 3600 S. Yosemite St, #500, Denver, CO 80237



UNITED STATES EXPLORATION, INC. n/k/a U.S. EXPLORATION HOLDINGS, INC.; WEST ADAMS SOIL CONSERVATION DISTRICT; WESTERN GAS SUPPLY COMPANY n/k/a PUBLIC SERVICE COMPANY OF COLORADO; CITY OF WESTMINSTER; and DIANE CHRISTNER, in her official capacity as Treasurer of Adams County, Colorado	
<b>RULE AND ORDER</b>	

This matter comes before the Court pursuant to the Stipulated Motion for Entry of Rule and Order ("Stipulation") submitted by Todd Creek Village Metropolitan District ("Petitioner" or "District"), and Respondents Robert L. Seltzer Family Trust, Jack Alden Seltzer and Timothy Robert Seltzer, as co-trustees of the Robert Seltzer Family Trust and Estate of Robert L. Seltzer, Timothy R. Seltzer and Jack Seltzer, Co-Personal Representatives (collectively "Respondent-Landowner"). The Court having read the Stipulation, reviewed the file and being fully advised hereby FINDS:

1. That the Petitioner filed the Petition in Condemnation on March 23, 2009 to acquire certain property from the Respondents that is the subject of this litigation. The property acquired by the Petitioner in fee simple from the Respondents is described in **Exhibit A**, attached hereto and incorporated herein by reference ("Property").

2. That the Petitioner is acquiring the Property for the construction, reconstruction, repair, operation and maintenance of a reservoir, impoundment dam and other appurtenant fixtures and facilities to provide a potable and non-potable water supply, storage, transmission and distribution system ("Project"). The Property is being acquired for and in furtherance of a public purpose and the Petitioner has the legal power and authority to condemn the Property. The Petitioner has negotiated in good faith with Respondent-Landowner for the acquisition of the Property.

3. That the Petitioner and the Respondent-Landowner have resolved all issues between them in this case. The settlement includes all just compensation for the taking of the Property described in **Exhibit A** and for costs, all pre and post judgment interest, court costs, expert witness fees, attorney fees or any litigation costs or expenses to which the Respondents may claim entitlement. If any Respondent alleges that it is entitled to any just compensation as a result of this condemnation action, the Respondent-Landowners shall be solely responsible for the payment of any money to which said Respondent is determined to be entitled. The Petitioner and Respondent-Landowner have agreed to settlement in the amount of \$45,450.00 (of which \$21,000.00 has already been deposited with the Registry of the Court pursuant to the Order Granting Amended Motion for Immediate Possession that was entered on June 5, 2009) and the

terms of the Stipulation. The Petitioner shall deposit the remaining \$24,450.00 with the registry of the Court following entry of this Rule and Order.

4. In addition to the Property described in **Exhibit A**, the Petitioner is hereby acquiring the property described in **Exhibit B** from Respondent-Landowner for \$15,960.00 under threat of condemnation. The District is acquiring title to the property described in **Exhibit B** in fee simple, subject to any recorded interests held by anyone other than Respondent-Landowner (Robert L. Seltzer Family Trust, Jack Alden Seltzer and Timothy Robert Seltzer, as co-trustees of the Robert Seltzer Family Trust and Estate of Robert L. Seltzer, Timothy R. Seltzer and Jack Seltzer, Co-Personal Representatives), including all severed mineral rights owned by Respondent-Landowner.

5. The status of the remaining Respondents in this matter is set forth as follows:

a. **Associated Natural Gas, Inc. n/k/a Duke Energy Field Services Assets, LLC** filed a Stipulation and Motion to Dismiss Duke Energy Field Services Assets, LLC, n/k/a DCP Midstream, LP on July 17, 2009. An Order Granting Stipulation and Motion to Dismiss Duke Energy Field Services Assets, LLC n/k/a DCP Midstream, LP was entered on August 5, 2009. Pursuant to that Order, Petitioner is acquiring the property described in **Exhibit A** subject to DCP's Pipeline Right-of-Way Grant recorded on December 18, 1992 at reception no. 01111347, Book 4001 and Page 709, in the records of the Adams County Clerk and Recorder ("Right-of-Way"). DCP has disclaimed any right, title or interest, other than the Right-of-Way set forth above, in and to the real property that is the subject matter of this action, and to the proceeds of any settlement or judgment herein. DCP has been dismissed from this action.

b. **Bataa Oil, Inc.** filed a Disclaimer on April 29, 2009 and attorney G. Brent Coan filed a Motion to Withdraw as Counsel of Record for Bataa Oil, Inc. on July 7, 2009. The Court entered an Order Allowing Withdrawal on July 27, 2009.

c. **Brighton Area Fire Protection District a/k/a The Greater Brighton Fire Protection District** was served with pleadings on March 30, 2009, but has not filed any responsive pleadings or otherwise participated in this matter.

d. **Stephen A. Clark** - Petitioner was unable to locate and serve pleadings on Stephen A. Clark and takes the Property subject to his interest. Research was done by a professional process server attempting to locate a service address for Stephen A. Clark and no service address was found.

e. **The Colorado Beet Lands Company** Petitioner was unable to locate and serve pleadings on The Colorado Beet Lands Company and takes the Property subject to its interest. Research was done by a professional process server attempting to locate a service address for The Colorado Beet Lands Company and no service address was found.

f. **Energy Minerals Corporation** - Petitioner was unable to locate and serve pleadings on Energy Minerals Corporation and takes the Property subject to its interest. Research was done by a professional process server attempting to locate a service address for Energy Minerals Corporation and no service address was found.

g. **Kerr-McGee Oil & Gas Onshore LP** filed Petitioner and Kerr-McGee Entities' Stipulation; and Kerr-McGee Entities' Motion for Dismissal Without Prejudice on September 8, 2009. The Court entered an Order of Dismissal on October 8, 2009. Pursuant to that Order, Petitioner is not seeking any of the interests of Kerr-McGee Gas and Onshore LP, Kerr-McGee Rocky Mountain Corporation, or Kerr-McGee Gathering LLC (collectively, the "Kerr-McGee entities") set forth in the Stipulation and Motion to Dismiss, and Petitioner will not compromise such interests by this action. Petitioner is bound by the Surface Use Agreement dated August 25, 2004, recorded July 5, 2006, at Reception No. 20060705000675490 in the records of Adams County, Colorado, by and between Robert L. Seltzer Family Trust and Kerr-McGee Rocky Mountain Corporation, covering a portion of the NE/4 of Section 4, Township 1 South, Range 67 West, Adams County, Colorado. The interests of any of the Kerr-McGee entities set forth in the Stipulation and Motion to Dismiss will be preserved and unaffected by this action.

h. **Kerr-McGee Rocky Mountain Corporation** filed Petitioner and Kerr-McGee Entities' Stipulation; and Kerr-McGee Entities' Motion for Dismissal Without Prejudice on September 8, 2009. The Court entered an Order of Dismissal on October 8, 2009. Pursuant to that Order, Petitioner is not seeking any of the interests of Kerr-McGee Gas and Onshore LP, Kerr-McGee Rocky Mountain Corporation, or Kerr-McGee Gathering LLC (collectively, the "Kerr-McGee entities") set forth in the Stipulation and Motion to Dismiss, and Petitioner will not compromise such interests by this action. Petitioner is bound by the Surface Use Agreement dated August 25, 2004, recorded July 5, 2006, at Reception No. 20060705000675490 in the records of Adams County, Colorado, by and between Robert L. Seltzer Family Trust and Kerr-McGee Rocky Mountain Corporation, covering a portion of the NE/4 of Section 4, Township 1 South, Range 67 West, Adams County, Colorado. The interests of any of the Kerr-McGee entities set forth in the Stipulation and Motion to Dismiss will be preserved and unaffected by this action.

i. **Louis S. Madrid** - Petitioner was unable to locate and serve pleadings on Louis S. Madrid and takes the Property subject to its interest. Research was done by a professional process server attempting to locate a service address for Louis S. Madrid and no service address was found.

- j. **Merit Energy Partners, L.P.** accepted service of pleadings on June 22, 2010, but has not filed any responsive pleadings.
- k. **Merit Energy Partners III, L.P.** was served with pleadings on March 30, 2009, but has not filed any responsive pleadings.
- l. **Noble Energy, Inc.** filed Disclaimer of Interest and Motion to Dismiss on July 15, 2009. The Court entered an Order of Dismissal on August 11, 2009.
- m. **Noble Energy Production, Inc.** filed Disclaimer of Interest and Motion to Dismiss on July 15, 2009. The Court entered an Order of Dismissal on August 11, 2009.
- n. **Panhandle Eastern Pipeline Company** filed a Disclaimer of Interest and Motion to Dismiss Respondent Panhandle Eastern Pipeline Company on April 8, 2009. The Court entered an Order Granting Motion to Dismiss Respondent Panhandle Eastern Pipeline Company on April 10, 2009.
- o. **Patina Oil & Gas Corporation** filed Disclaimer of Interest and Motion to Dismiss on July 15, 2009. The Court entered an Order of Dismissal on August 11, 2009.
- p. **Seltzer Farms, Inc.** was served with pleadings on April 7, 2009, but has not filed any responsive pleadings or otherwise participated in this matter.
- q. **SOCO Wattenberg Corporation** filed Disclaimer of Interest and Motion to Dismiss on July 15, 2009. The Court entered an Order of Dismissal on August 11, 2009.
- r. **South Platte Water Conservancy District** - Petitioner was unable to locate and serve pleadings on South Platte Water Conservancy District and takes the Property subject to its interest. Research was done by a professional process server attempting to locate a service address for South Platte Water Conservancy District and no service address was found.
- s. **The Signal Reservoir and Irrigation Company** Petitioner was unable to locate and serve pleadings on The Signal Reservoir and Irrigation Company and takes the Property subject to its interest. Research was done by a professional process server attempting to locate a service address for The Signal Reservoir and Irrigation Company and no service address was found.
- t. **Union Rural Electric Association a/k/a Union Rural Electric Association, Inc. n/k/a United Power, Inc.** was served with pleadings on March 30, 2009, but has not filed any responsive pleadings or otherwise participated in this matter.

u. **United States Exploration, Inc. n/k/a U.S. Exploration Holdings, Inc.** filed Disclaimer of Interest and Motion to Dismiss on July 15, 2009. The Court entered an Order of Dismissal on August 11, 2009.

v. **West Adams Soil Conservation District** Petitioner was unable to locate and serve pleadings on West Adams Soil Conservation District and takes the Property subject to its interest. Research was done by a professional process server attempting to locate a service address for West Adams Soil Conservation District and no service address was found.

w. **Western Gas Supply Company n/k/a Public Service Company of Colorado** filed Public Service Company of Colorado's Disclaimer of Interest and Request for Dismissal on April 27, 2009. The Court entered an Order Dismissing Respondent Public Service Company of Colorado on May 15, 2009.

x. **City of Westminster** filed an Answer including a disclaimer on April 29, 2009.

y. **Diane Christner** in her official capacity as Treasurer of Adams County filed an Answer including a disclaimer and an assertion of claim for any prorated taxes, unpaid taxes, penalty interest or charges on the property that is the subject matter of the Petition on April 9, 2009.

Therefore, it is hereby ORDERED:

1. That the Property described in **Exhibit A** has been duly and lawfully taken and condemned by the Petitioner pursuant to the statutes and the Constitution of the State of Colorado. Title to the Property has been acquired by the Petitioner in fee simple, free and clear of any and all claims, rights, title, interests, easements, liens, encumbrances, reversionary interests and rights of entry of the Respondents, except as set forth above.

2. That the property described in **Exhibit B** has hereby been duly and lawfully conveyed to the Petitioner from the Respondent-Landowner (Robert L. Seltzer Family Trust, Jack Alden Seltzer and Timothy Robert Seltzer, as co-trustees of the Robert Seltzer Family Trust and Estate of Robert L. Seltzer, Timothy R. Seltzer and Jack Seltzer, Co-Personal Representatives) in fee simple, subject to any recorded interests held by anyone other than Respondent-Landowner.

3. That the Property described in **Exhibits A and B** shall be exempt from taxation so long as it is used for public purposes.

4. That the \$45,450.00 settlement reached between the Petitioner and Respondent-Landowner includes all just compensation for the taking of the Property described in **Exhibit A** and for costs, all pre and post judgment interest, court costs, expert witness fees, attorney fees or any litigation costs or expenses to which the Respondents may claim entitlement.

5. That the Petitioner shall deposit into the Court Registry the sum of **\$24,450.00** (\$45,450 - \$21,000.00 that has already been deposited with the Registry of the Court pursuant to the Order Granting Amended Motion for Immediate Possession that was entered on June 5, 2009).

6. That the Petitioner shall pay the Respondent-Landowners \$15,960.00 for the property described in **Exhibit B** by check made payable to the Robert L. Seltzer Family Trust and delivered c/o Timothy J. Flanagan, Fowler, Schimberg & Flanagan, P.C., 1640 Grant Street, Suite 300, Denver, Colorado 80203.

7. That the terms of the Stipulation are enforceable as an Order of this Court.

8. That a certified copy of this Rule and Order may be recorded and indexed in the office of the Clerk and Recorder of Adams County, Colorado in like manner and with like effect as if it were a deed of conveyance from the Respondent-Landowner to the Petitioner of the property described in **Exhibits A and B**.

9. The Notice of *Lis Pendens* recorded on March 30, 2009 at Reception Number 2009000021950 of the records of the Clerk and Recorder of Adams County are hereby released and of no further force and effect.

DONE this \_\_\_\_ day of \_\_\_\_\_, 2010.

BY THE COURT

\_\_\_\_\_  
District Court Judge

EXHIBIT A

LEGAL DESCRIPTION:

A PARCEL OF LAND LOCATED IN THE NORTHEAST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 87 WEST, 8TH P.M., COUNTY OF ADAMS, STATE OF COLORADO; MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: THE NORTH LINE OF THE NORTHWEST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 87 WEST OF THE 8TH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE NORTHWEST CORNER OF SAID SECTION 4 BY A 2-1/2 INCH ALUMINUM CAP STAMPED "LS 12374" AND AT THE NORTH 1/4 CORNER OF SAID SECTION 4 BY A 3-1/4 INCH ALUMINUM CAP STAMPED "LS 25937" IN A RANGE BOX, BEARING N 89°32'50" E, A DISTANCE OF 2656.37 FEET.

COMMENCING AT THE NORTH 1/4 CORNER OF SAID SECTION 4 THENCE SOUTH 00°26'28" EAST, ALONG THE WEST LINE OF THE NORTHEAST 1/4 OF SAID SECTION 4, A DISTANCE OF 980.21 FEET TO A POINT ON THE WEST LINE OF SAID NORTHEAST 1/4 SAID POINT ALSO BEING THE POINT OF BEGINNING;

THENCE NORTH 65°33'08" EAST, A DISTANCE OF 39.59 FEET; THENCE SOUTH 87°44'22" EAST, A DISTANCE OF 97.31 FEET; THENCE SOUTH 61°01'51" EAST, A DISTANCE OF 87.93 FEET; THENCE SOUTH 43°51'31" EAST, A DISTANCE OF 84.97 FEET; THENCE SOUTH 43°32'53" EAST, A DISTANCE OF 50.38 FEET; THENCE SOUTH 43°21'23" EAST, A DISTANCE OF 50.98 FEET; THENCE SOUTH 42°18'42" EAST, A DISTANCE OF 50.05 FEET; THENCE SOUTH 43°15'51" EAST, A DISTANCE OF 51.62 FEET; THENCE SOUTH 40°05'42" EAST, A DISTANCE OF 49.83 FEET; THENCE SOUTH 43°27'22" EAST, A DISTANCE OF 49.64 FEET; THENCE SOUTH 40°34'37" EAST, A DISTANCE OF 53.98 FEET; THENCE SOUTH 38°14'58" EAST, A DISTANCE OF 54.22 FEET; THENCE SOUTH 35°11'11" EAST, A DISTANCE OF 52.59 FEET; THENCE SOUTH 34°56'41" EAST, A DISTANCE OF 51.88 FEET; THENCE SOUTH 32°44'34" EAST, A DISTANCE OF 48.78 FEET; THENCE SOUTH 36°21'44" EAST, A DISTANCE OF 49.08 FEET; THENCE SOUTH 33°43'38" EAST, A DISTANCE OF 55.57 FEET; THENCE SOUTH 29°53'57" EAST, A DISTANCE OF 52.71 FEET; THENCE SOUTH 30°36'54" EAST, A DISTANCE OF 49.34 FEET; THENCE SOUTH 30°37'58" EAST, A DISTANCE OF 50.44 FEET; THENCE SOUTH 30°03'54" EAST, A DISTANCE OF 50.93 FEET; THENCE SOUTH 29°28'29" EAST, A DISTANCE OF 50.28 FEET; THENCE SOUTH 29°40'51" EAST, A DISTANCE OF 50.22 FEET; THENCE SOUTH 29°10'08" EAST, A DISTANCE OF 49.71 FEET; THENCE SOUTH 30°01'53" EAST, A DISTANCE OF 48.04 FEET; THENCE SOUTH 32°55'27" EAST, A DISTANCE OF 182.76 FEET; THENCE SOUTH 25°59'02" EAST, A DISTANCE OF 331.78 FEET; THENCE SOUTH 28°31'45" WEST, A DISTANCE OF 17.42 FEET, TO A POINT ON THE SOUTH LINE OF SAID NORTHEAST 1/4;

THENCE ALONG THE SAID SOUTH LINE SOUTH 88°45'49" WEST, A DISTANCE OF 74.29 FEET, TO A POINT ON THE WEST LINE OF A BOUNDARY LINE AGREEMENT AS RECORDED IN BOOK 4931, PAGE 452 OF THE ADAMS COUNTY CLERK AND RECORDERS OFFICE; THENCE ALONG SAID WEST LINE OF THE BOUNDARY LINE AGREEMENT THE FOLLOWING ELEVEN (11) COURSES AND DISTANCES;

1. THENCE NORTH 28°31'45" EAST, A DISTANCE OF 19.80 FEET;
  2. THENCE NORTH 25°59'02" WEST, A DISTANCE OF 285.37 FEET;
  3. THENCE NORTH 32°55'27" WEST, A DISTANCE OF 457.80 FEET;
  4. THENCE NORTH 30°03'43" WEST, A DISTANCE OF 404.31 FEET;
  5. THENCE NORTH 34°53'37" WEST, A DISTANCE OF 28.74 FEET;
  6. THENCE NORTH 47°00'19" WEST, A DISTANCE OF 27.90 FEET;
  7. THENCE NORTH 42°42'08" WEST, A DISTANCE OF 70.54 FEET;
  8. THENCE NORTH 52°43'55" WEST, A DISTANCE OF 131.26 FEET;
  9. THENCE NORTH 48°44'52" WEST, A DISTANCE OF 185.31 FEET;
  10. THENCE NORTH 71°03'37" WEST, A DISTANCE OF 115.93 FEET;
  11. THENCE SOUTH 89°31'59" WEST, A DISTANCE OF 32.18 FEET, TO A POINT ON THE WEST LINE OF SAID NORTHEAST 1/4;
- THENCE ALONG SAID WEST LINE NORTH 00°26'28" WEST, A DISTANCE OF 56.48 FEET, TO THE POINT OF BEGINNING.

THE DESCRIBED PARCEL CONTAINS 132,038 SQUARE FEET OR (3.03 ACRES).

SURVEYOR'S STATEMENT

I, RANDALL R. LONG, A LAND SURVEYOR LICENSED IN THE STATE OF COLORADO, HEREBY STATE THAT THIS PARCEL OF LAND DESCRIPTION WAS PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE.



OF SURVCON INC.

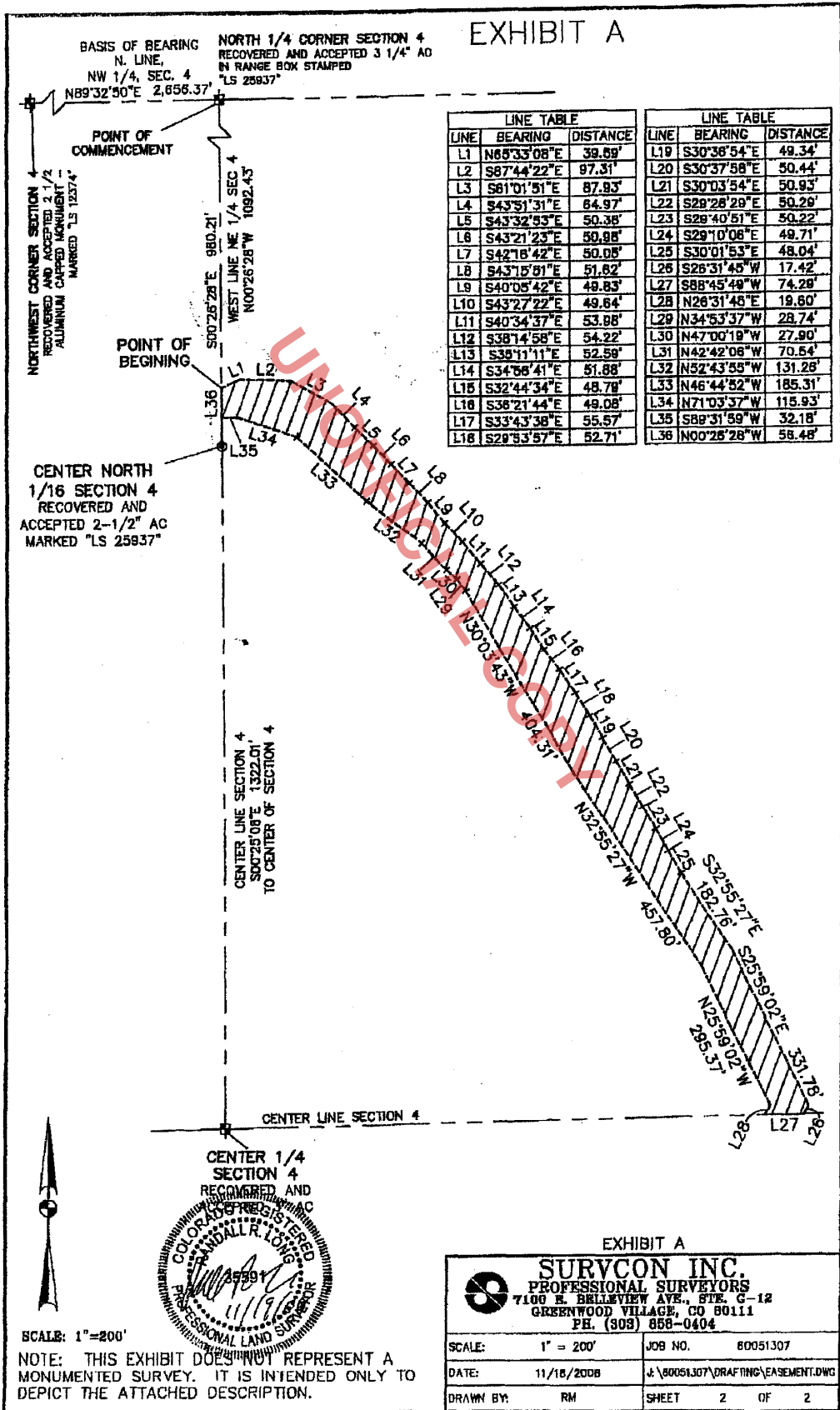


EXHIBIT A

<b>SURVCON INC.</b> PROFESSIONAL SURVEYORS 7100 E. BELLEVUE AVE., STE. G-12 GREENWOOD VILLAGE, CO 80111 PH. (303) 868-0404		
SCALE:	NOT TO SCALE	JOB NO. 80051307
DATE:	11/18/2008	✚ \60051307\DRAWING\EASEMENT.DWG
DRAWN BY:	RM	SHEET 1 OF 2

NOTE: THIS EXHIBIT DOES NOT REPRESENT A MONUMENTED SURVEY. IT IS INTENDED ONLY TO DEPICT THE ATTACHED DESCRIPTION.

EXHIBIT A





# EXHIBIT B

**LEGAL DESCRIPTION:**

A PARCEL OF LAND LOCATED IN THE NORTHEAST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST, 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO; MORE PARTICULARLY DESCRIBED AS FOLLOWS:

**BASIS OF BEARINGS:** THE NORTH LINE OF THE NORTHWEST ONE-QUARTER OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE NORTHWEST CORNER OF SAID SECTION 4 BY A 2-3/8 INCH ALUMINUM CAP STAMPED L.S. 12374' AND AT THE NORTH 1/4 CORNER OF SAID SECTION 4 BY A 3-3/8 INCH ALUMINUM CAP STAMPED L.S. 26657' IN A RANGE BOX, BEARING N 89°32'50" E. A DISTANCE OF 2666.37 FEET.

COMMENCING AT THE NORTH 1/4 CORNER, SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST;  
 THENCE SOUTH 46°33'16" EAST, A DISTANCE OF 3,561.09 FEET, TO THE POINT OF BEGINNING;

THENCE SOUTH 88°45'49" WEST, ALONG THE SOUTH LINE OF THE NORTHEAST 1/4 OF SECTION 4, A DISTANCE OF 1,623.78 FEET;

THENCE NORTH 28°31'48" EAST, A DISTANCE OF 17.42 FEET;

THENCE NORTH 25°59'02" WEST, A DISTANCE OF 16.06 FEET;

THENCE NORTH 88°45'49" EAST, ALONG A LINE 30.00 FEET NORTH OF AND PARALLEL TO THE SOUTH LINE OF THE NORTHEAST 1/4 OF SECTION 4, A DISTANCE OF 1,548.56 FEET TO A POINT ON THE EAST LINE OF THE NORTHEAST 1/4 OF SECTION 4;

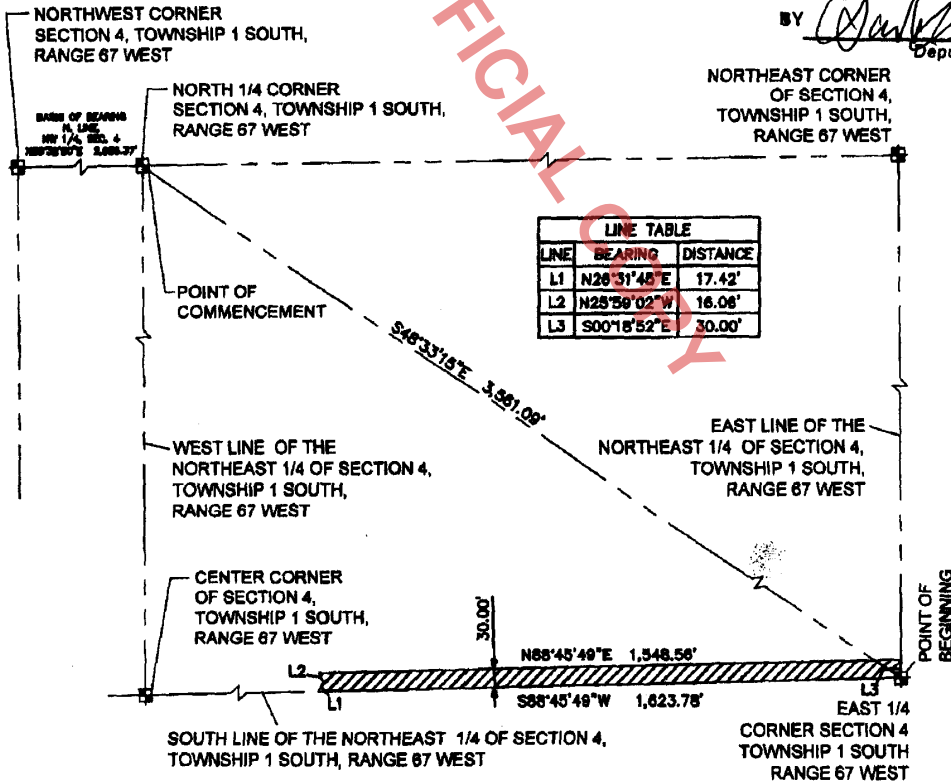
THENCE SOUTH 00°18'52" EAST, ALONG THE EAST LINE OF THE NORTHEAST 1/4 OF SECTION 4, A DISTANCE OF 30.00 FEET, TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED PARCEL CONTAINS 46,369 SQUARE FEET, OR 1.064 ACRES MORE OR LESS.

Combined Court, Adams County, CO  
 CERTIFIED to be a full, true & correct copy of the original in my custody

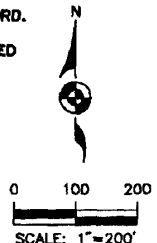
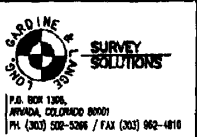
DATED AUG 05 2010

BY *[Signature]*  
 Deputy



**NOTES:**

1. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE COMMITMENT AND DOES NOT CONSTITUTE A TITLE SEARCH BY LONG, GARDINE & LANGE TO DETERMINE TITLE OR EASEMENTS OF RECORD.
2. THIS EXHIBIT DOES NOT REPRESENT A MONUMENTED SURVEY. IT IS INTENDED ONLY TO DEPICT THE DESCRIPTION ABOVE.



REVISIONS:	DATE:	BY:
EXHIBIT B	07-27-10	RM
1		
2		
3		
4		
5		

JOB NUMBER: 800-208-001

This document constitutes a ruling of the court and should be treated as such

**Court:** CO Adams County District Court 17th JD

**Judge:** Edward C Moss

**File & Serve**

**Transaction ID:** 32377150

**Current Date:** Jul 28, 2010

**Case Number:** 2009CV529

**Case Name:** TODD CREEK VILLAGE MET DIST vs. ROBERT L SELTZER FAMILY TRUST et al

**EFILED Document - District Court  
CO Adams County District Court 17th JD  
2009CV529  
Filing Date: Jul 28 2010 3:28PM MDT  
Transaction ID: 32381067**

**Court Authorizer  
Comments:**

Granted.

August 2, 2010 trial is vacated.

/s/ Judge Edward C Moss

UNOFFICIAL COPY

RECEPTION#: 2013000074188, 08/23/2013 at 10:38:43 AM, 1 OF 4, TD Pgs: 0 Doc Type:SPWTY Karen Long, Adams County, CO

NO DOC FEE REQUIRED  
RECORDED AS RECEIVED

**SPECIAL WARRANTY DEED**

THIS DEED, made this 19<sup>th</sup> day of August, 2013, between **ROBERT L. SELTZER FAMILY TRUST** whose address is: c/o Tim Seltzer 33641 CR 83, Briggsdale CO 80611 ("Grantor(s)") and the **TODD CREEK VILLAGE METROPOLITAN DISTRICT**, whose address is: 10450 E. 159th Ct. Brighton CO 80602 ("Grantee");

WITNESSETH, that Grantors, for and in consideration of the grant of certain tap credits and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, have granted, bargained, sold, and conveyed, and by these presents do grant, bargain, sell, convey, and confirm, unto Grantee, and Grantee's heirs, successors, and assigns forever, all the real property, together with all improvements, if any, situate, lying and being in the County of Adams, State of Colorado, described as follows:

SEE EXHIBIT A, attached hereto and by this reference incorporated herein;

TOGETHER WITH all and singular the hereditaments and appurtenances thereto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues, and profits thereof; and all the estate, right, title, interest, claim, and demand whatsoever of Grantors, either in law or equity, of, in, and to the above bargained premises, with the hereditaments and appurtenances;

TO HAVE AND TO HOLD the said premises above bargained and described with the appurtenances, unto Grantee, and Grantee's heirs, successors, and assigns forever. Grantors, for Grantors and Grantors' heirs, successors, and assigns, do covenant and agree that Grantors shall and will WARRANT AND FOREVER DEFEND the above bargained premises in the quiet and peaceable possession of Grantee, and Grantee's heirs, successors, and assigns, against all and every person or persons claiming the whole or any part thereof, by, through or under Grantors.

4  
2  
4

X Return to: TMD  
10450 E. 159<sup>th</sup> Ct.  
Brighton Co 80602

23

IN WITNESS WHEREOF, Grantors have executed this deed on the date set forth above.

**ROBERT L. SELTZER FAMILY TRUST**

By: Jack Alden Seltzer  
As: Co-Trustee

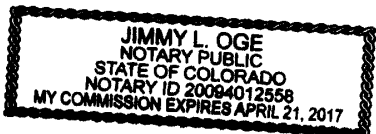
*Timothy Robert Seltzer*  
By: Timothy Robert Seltzer  
As: Co-Trustee

UNOFFICIAL COPY

State of Colorado )  
County of Adams ) ss.

The foregoing instrument was acknowledged before me this 19th day of August, 2013, by Timothy Seltzer as Co-Trustee of the Robert L. Seltzer Family Trust.

Witness my hand and official seal.



*Jimmy Oge*  
Notary Public  
My commission expires: 04/21/2017

RECEPTION#: 2013000074188, 08/23/2013 at 10:38:43 AM, 3 OF 4, Doc Type:SPWTY TD  
Pages: 0 Karen Long, Adams County, CO

IN WITNESS WHEREOF, Grantors have executed this deed on the date set forth above.

**ROBERT L. SELTZER FAMILY TRUST**

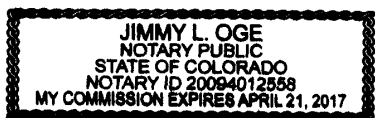
Jack Alden Seltzer *TRR*  
By: Jack Alden Seltzer  
As: Co-Trustee

Timothy Robert Seltzer  
By: Timothy Robert Seltzer  
As: Co-Trustee

State of Colorado )  
County of Adams ) ss.

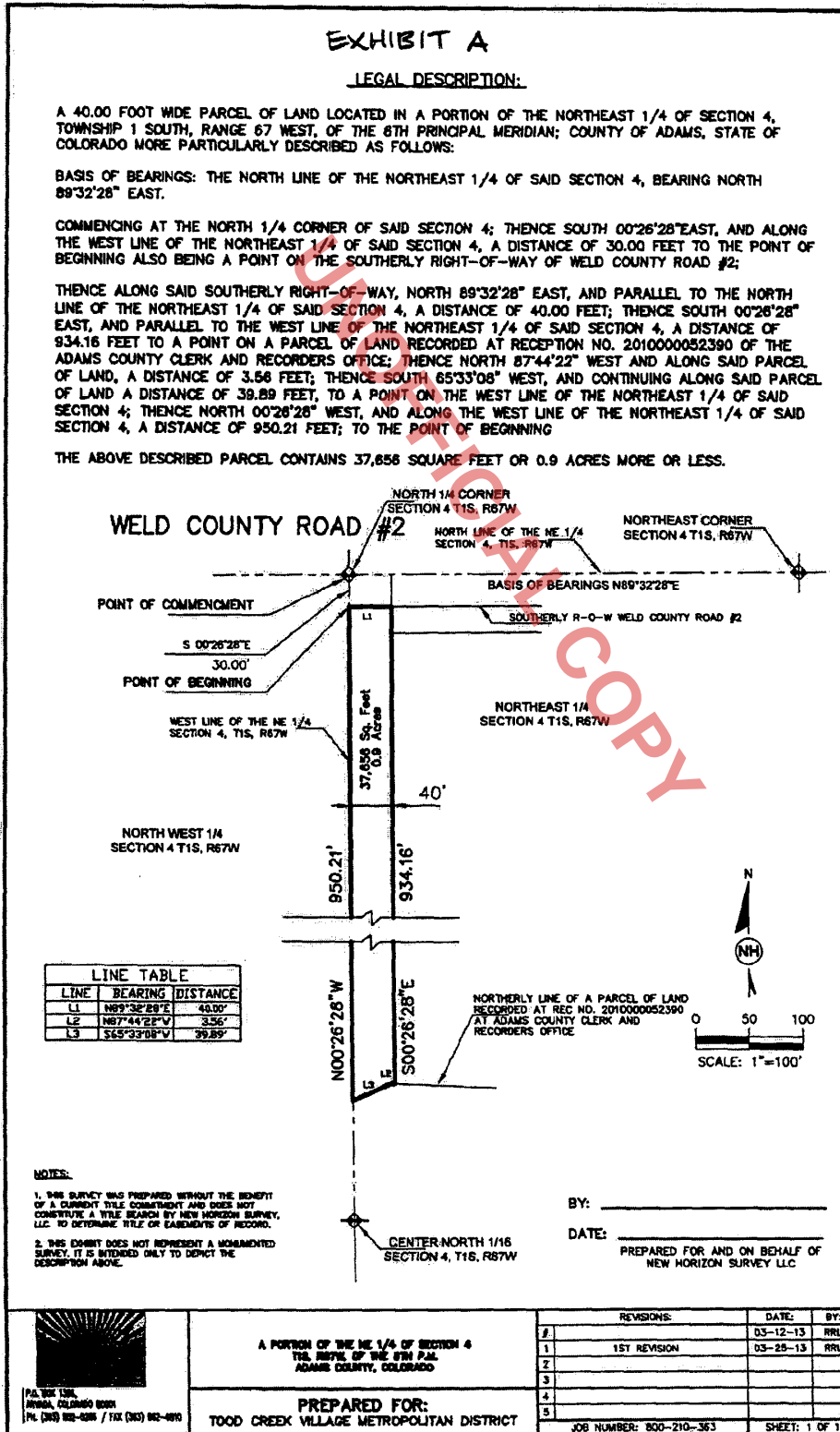
The foregoing instrument was acknowledged before me this 19<sup>th</sup> day of August, 2013, by Jack Seltzer as Co-Trustee of the Robert L. Seltzer Family Trust.

Witness my hand and official seal.



Jimmy Oge  
Notary Public  
My commission expires: 04/21/2017

UNOFFICIAL COPY



RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 1 OF 10, State  
 Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

**SPECIAL WARRANTY DEED**

*Doc Fee \$12.50*

THIS DEED, made this 31<sup>ST</sup> day of March, 2016, between ERN LIMITED PARTNERSHIP, a Colorado limited partnership, HIGHLAND REALTY CORPORATION, a Colorado corporation, and MARY V. PETERSON AND CHARLES G. PETERSON, III, as Trustees under the Mary V. Peterson Trust dated June 21, 2001, and CHAS-MAR PARTNERS, LLLP, a Colorado limited liability limited partnership, formerly known as Chas-Mar Partners, Ltd., a Colorado limited partnership, Grantors, and TODD CREEK VILLAGE METROPOLITAN DISTRICT, a Colorado special district and political subdivision of the State of Colorado, whose legal address is 10450 East 159<sup>th</sup> Ct., Brighton, County of Adams, State of Colorado, Grantee:

WITNESSETH, That Grantors, for and in consideration of the sum of ONE HUNDRED TWENTY-FIVE THOUSAND AND NO/100ths Dollars (\$125,000.00), and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, has granted, bargained, sold, and conveyed, and by these presents does grant, bargain, sell, convey, and confirm, unto Grantee and Grantee' heirs, successors, and assigns forever, all the real property together with improvements, if any, situate, lying, and being in the County of Adams, and State of Colorado described as follows:

SEE ATTACHED EXHIBIT A

also known by street and number as: vacant land;

TOGETHER WITH all and singular the hereditaments and appurtenances thereto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues, and profits thereof; and all the estate, right, title, interest, claim, and demand whatsoever of Grantors, either in law or equity, of, in, and to the above bargained premises, with the hereditaments and appurtenances; excepting and reserving to Grantors any and all minerals and mineral rights in or under said land.

TO HAVE AND TO HOLD the said premises above bargained and described with the appurtenances, unto Grantee, and Grantee's successors, and assigns forever. Grantors, for Grantors and Grantors' heirs, successors, and assigns, do covenant and agree that Grantors shall and will WARRANT AND FOREVER DEFEND the above bargained premises in the quiet and peaceable possession of Grantee, and Grantee's successors, and assigns, against all and every person or persons claiming the whole or any part thereof, by, through or under Grantors, except taxes and assessments for 2016 and subsequent years; except easements, restrictions, reservations, and rights of way of record.



RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 2 OF 10, State  
Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

IN WITNESS WHEREOF, Grantors have executed this deed on the date set forth above.

ERN LIMITED PARTNERSHIP,  
a Colorado limited partnership

By: *Ernest P Zarlengo*

Name: *Ernest P Zarlengo*

Its: *General Partner*

HIGHLAND REALTY CORPORATION,  
a Colorado corporation

By: \_\_\_\_\_

Name: \_\_\_\_\_

Its: \_\_\_\_\_

MARY V. PETERSON AND CHARLES G.  
PETERSON, III, as Trustees under the Mary V.  
Peterson Trust dated June 21, 2001

By: \_\_\_\_\_

Mary V. Peterson, Trustee

By: \_\_\_\_\_

Charles G. Peterson, III, Trustee

CHAS-MAR PARTNERS, LLLP, a Colorado  
limited liability limited partnership

By: *Margaret Zarlengo*

Name: *Margaret Zarlengo*

Its: *General Partner*

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RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 3 OF 10, State  
Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

IN WITNESS WHEREOF, Grantors have executed this deed on the date set forth above.

**ERN LIMITED PARTNERSHIP,  
a Colorado limited partnership**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Its: \_\_\_\_\_

**HIGHLAND REALTY CORPORATION,  
a Colorado corporation**

By: *Wesley C. Friedrich*

Name: *Wesley C. Friedrich*

Its: *Treasurer*

**MARY V. PETERSON AND CHARLES G.  
PETERSON, III, as Trustees under the Mary V.  
Peterson Trust dated June 21, 2001**

By: \_\_\_\_\_  
Mary V. Peterson, Trustee

By: \_\_\_\_\_  
Charles G. Peterson, III, Trustee

**CHAS-MAR PARTNERS, LLLP, a Colorado  
limited liability limited partnership**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Its: \_\_\_\_\_

UNOFFICIAL COPY

RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 4 OF 10, State  
Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

IN WITNESS WHEREOF, Grantors have executed this deed on the date set forth above.

**ERN LIMITED PARTNERSHIP,  
a Colorado limited partnership**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Its: \_\_\_\_\_

**HIGHLAND REALTY CORPORATION,  
a Colorado corporation**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Its: \_\_\_\_\_

**MARY V. PETERSON AND CHARLES G.  
PETERSON, III, as Trustees under the Mary V.  
Peterson Trust dated June 21, 2001**

By: *Mary V. Peterson*  
Mary V. Peterson, Trustee

By: *Charles G. Peterson*  
Charles G. Peterson, III, Trustee

**CHAS-MAR PARTNERS, LLLP, a Colorado  
limited liability limited partnership**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Its: \_\_\_\_\_

UNOFFICIAL COPY

RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 5 OF 10, State Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this 29<sup>th</sup> day of March, 2016, by Ernest P. Zarlengo, General Partner of ERN LIMITED PARTNERSHIP, a Colorado limited partnership.

Witness my hand and official seal.

My commission expires: October 2, 2018.

*Sally R. Gonzales*  
\_\_\_\_\_  
Notary Public

**SALLY R. GONZALES**  
**NOTARY PUBLIC**  
**STATE OF COLORADO**  
**NOTARY ID 20064040078**  
**MY COMMISSION EXPIRES OCTOBER 02, 2018**

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this \_\_\_th day of March, 2016, by Russ C. Frerichs, \_\_\_\_\_ of HIGHLAND REALTY CORPORATION, a Colorado corporation.

Witness my hand and official seal.

My commission expires: \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this \_\_\_th day of March, 2016, by Mary V. Peterson, as Trustee under the Mary V. Peterson Trust dated June 21, 2001.

Witness my hand and official seal.

My commission expires: \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 6 OF 10, State Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this \_\_\_th day of March, 2016, by Ernest P. Zarlengo, General Partner of ERN LIMITED PARTNERSHIP, a Colorado limited partnership.

Witness my hand and official seal.

My commission expires: \_\_\_\_\_.

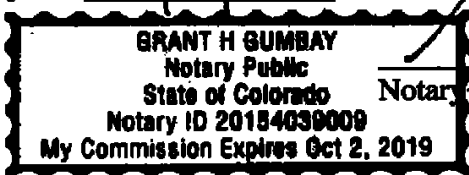
\_\_\_\_\_  
Notary Public

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this 30th day of March, 2016, by Russ C. Frerichs, President of HIGHLAND REALTY CORPORATION, a Colorado corporation.

Witness my hand and official seal.

My commission expires: 10/2/19.



Grant H Gumbay  
\_\_\_\_\_  
Notary Public

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this \_\_\_th day of March, 2016, by Mary V. Peterson, as Trustee under the Mary V. Peterson Trust dated June 21, 2001.

Witness my hand and official seal.

My commission expires: \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

UNOFFICIAL COPY

RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 7 OF 10, State Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this \_\_\_th day of March, 2016, by Earnest P. Zarlengo, General Partner of ERN LIMITED PARTNERSHIP, a Colorado limited partnership.

Witness my hand and official seal.

My commission expires: \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

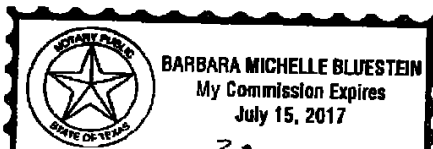
The foregoing instrument was acknowledged before me this \_\_\_th day of March, 2016, by Russ C. Frerichs, \_\_\_\_\_ of HIGHLAND REALTY CORPORATION, a Colorado corporation.

Witness my hand and official seal.

My commission expires: \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

STATE OF ~~COLORADO~~ *Texas* )  
 ) ss.  
CITY AND COUNTY OF ~~DENVER~~ )  
*Montgomery*



The foregoing instrument was acknowledged before me this 30th day of March, 2016, by Mary V. Peterson, as Trustee under the Mary V. Peterson Trust dated June 21, 2001.

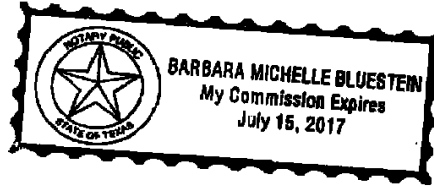
Witness my hand and official seal.

My commission expires: 07/15/2017.

*Barbara Michelle Bluestein*  
\_\_\_\_\_  
Notary Public

RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 8 OF 10, State  
Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

*Texas*  
STATE OF COLORADO )  
*Mary V. Peterson* ) ss.  
CITY AND COUNTY OF DENVER )



The foregoing instrument was acknowledged before me this 30 th day of March, 2016, by Charles G. Peterson, III, as Trustee under the Mary V. Peterson Trust dated June 21, 2001.

Witness my hand and official seal.

My commission expires: 07/15/2017.

*Barbara Michelle Bluestein*  
\_\_\_\_\_  
Notary Public

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this \_\_\_ th day of March, 2016, by Margaret M. Zarlengo, as General Partner of CHAS-MAR PARTNERS, LLLP, a Colorado limited liability limited partnership.

Witness my hand and official seal.

My commission expires: \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 9 OF 10, State  
Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this \_\_\_th day of March, 2016, by Charles G. Peterson, III, as Trustee under the Mary V. Peterson Trust dated June 21, 2001.

Witness my hand and official seal.

My commission expires: \_\_\_\_\_

\_\_\_\_\_  
Notary Public

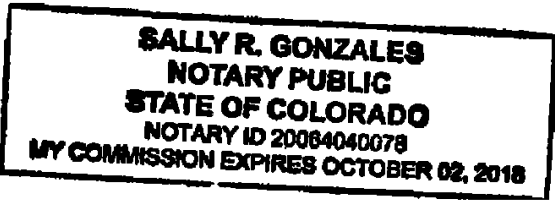
STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this 29<sup>th</sup> day of March, 2016, by Margaret M. Zarlengo, as General Partner of CHAS-MAR PARTNERS, LLLP, a Colorado limited liability limited partnership.

Witness my hand and official seal.

My commission expires: October 2, 2018

Sally R. Gonzales  
Notary Public



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RECEPTION#: 2016000024298, 04/01/2016 at 09:08:30 AM, 10 OF 10, State  
Documentary Fee \$12.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

**EXHIBIT A**

**A PARCEL OF LAND LOCATED IN A PORTION OF THE NORTHWEST 1/4 OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST, OF THE 6TH PRINCIPAL MERIDIAN; COUNTY OF ADAMS, STATE OF COLORADO MORE PARTICULARLY DESCRIBED AS FOLLOWS:**

**BASIS OF BEARINGS: THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 4, BEARING SOUTH 89°32'47" WEST.**

**COMMENCING AT THE NORTH 1/4 CORNER OF SAID SECTION 4; THENCE SOUTH 89°32'47" WEST, AND ALONG THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 4, A DISTANCE OF 1328.22 FEET TO A POINT ON THE NORTHWEST CORNER OF THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SAID SECTION 4; THENCE CONTINUING ALONG SAID LINE SOUTH 00°31'16" EAST, A DISTANCE OF 30.00 FEET TO THE SOUTH LINE OF THE PRESCRIPTIVE RIGHT-OF-WAY LINE TO THE POINT OF BEGINNING:**

**STILL CONTINUING ALONG SAID LINE, SOUTH 00°31'16" EAST, A DISTANCE OF 537.92 FEET TO A POINT ON THE NORTH LINE OF A PARCEL OF LAND RECORDED IN THE ADAMS COUNTY CLERK AND RECORDER'S OFFICE AT RECEPTION NO. 2008-199; THENCE SOUTH 62°38'41" WEST, A DISTANCE OF 811.12 FEET; THENCE NORTH 09°53'24" EAST, A DISTANCE OF 104.83 FEET; THENCE NORTH 18°21'54" EAST, A DISTANCE OF 214.84 FEET; THENCE NORTH 62°38'41" EAST, A DISTANCE OF 440.19 FEET; THENCE NORTH 00°31'16" WEST, A DISTANCE OF 398.97 FEET; THENCE NORTH 89°32'47" EAST, A DISTANCE OF 278.50 FEET TO THE POINT OF BEGINNING**



RECEPTION#: 2016000061716, 08/01/2016 at 10:50:58 AM, 1 OF 1, State Documentary Fee \$0.00 TD Pgs: 0 Doc Type:QCD Stan Martin, Adams County, CO

AL COPY

QUIT CLAIM DEED

THIS DEED made this 26 day of July 2016, by Baseline Lakes, LLC, Grantor, and Baseline Lakes Holdings, LLC Grantee, whose legal address is 12460 1st Street Eastlake, CO 80614

WITNESS, that the Grantor, for and in consideration of the sum of \$10.00, the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed and QUIT CLAIMED, and by these presents do remise, release, sell, convey and Quit Claim unto the Grantee, its successors and assigns forever, all the right, title, interest, claim and demand which the grantor has in and to the real property, together with improvements, if any, situate, lying and being in the County of Adams and State of Colorado, described as follows:

Parcel "A"

SECT,TWN,RNG:2-1-67 DESC: PT OF THE NW4 AND PT OF THE NE4 OF SEC 2 DESC AS FOLS BEG AT THE NW COR OF SD SEC 2 TH E 2253/29 FT TO THE TRUE POB TH S 588/95 FT TH E 414/55 FT TO A PT ON THE E LN OF THE NW4 COR OF SD SEC 2 BRS N 588/95 FT TH S 1747/03 FT TH N 88D 26M E 2647/56 FT TH N 901/46 FT TO A PT ON THE C/L OF THE NEW BRANTNER DT FROM WHENCE THE NE COR OF SD SEC 2 BRS N 1385/05 FT TH ALG THE C/L OF SD DT OF THE FOL 11 COURSES N 69D 18M W 277/13 FT TH N 45D 48M W 54/58 FT TH N 74/01 FT TH N 19D 07M W 67/92 FT TH N 43D 16M W 125/68 FT TH N 26D 51M W 138/49 FT TH N 545/78 FT TH N 10D 37M W 174/57 FT TH N 18D 35M W 71/95 FT TH N 38D 55M W 54/54 FT TH N 47D 46M W 93/14 FT TH W 2035/75 FT TH W 414/55 FT TO THE TRUE POB EXC PT PLATTED AND EXC PARCELS 4/3705A

Parcel "B"

SECT,TWN,RNG:2-1-67 DESC: PT OF THE NW4 AND PT OF THE NE4 OF SEC 2 DESC AS FOLS BEG AT THE NW COR OF SD SEC 2 TH E 2253/29 FT TO THE TRUE POB TH S 588/95 FT TH E 414/55 FT TO A PT ON THE E LN OF THE NW4 COR OF SD SEC 2 BRS N 588/95 FT TH S 1747/03 FT TH N 88D 26M E 2647/56 FT TH N 901/46 FT TO A PT ON THE C/L OF THE NEW BRANTNER DT FROM WHENCE THE NE COR OF SD SEC 2 BRS N 1385/05 FT TH ALG THE C/L OF SD DT OF THE FOL 11 COURSES N 69D 18M W 277/13 FT TH N 45D 48M W 54/58 FT TH N 74/01 FT TH N 19D 07M W 67/92 FT TH N 43D 16M W 125/68 FT TH N 26D 51M W 138/49 FT TH N 545/78 FT TH N 10D 37M W 174/57 FT TH N 18D 35M W 71/95 FT TH N 38D 55M W 54/54 FT TH N 47D 46M W 93/14 FT TH W 2035/75 FT TH W 414/55 FT TO THE TRUE POB EXC PT PLATTED AND EXC PARCELS 4/3705A

Baseline Lakes filing 1, County of Adams, State of Colorado.

TO HAVE AND TO HOLD the same, together with all and singular the appurtenances and privileges thereunto belonging or in anywise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever, of the grantor, either in law or equity, to the only proper use, benefit and behoof of grantee, its successors and assigns forever. The singular number shall include the plural, the plural and the singular, and the use of any gender shall be applicable to all genders.

IN WITNESS WHEREOF, the Grantor has executed this deed on the date set forth above.

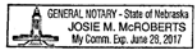
BASELINE LAKES, LLC

[Signature]  
Rod Tompkins, Manager

STATE OF NEBRASKA )  
                                  ) ss..  
COUNTY OF WAYNE )

The foregoing instrument was acknowledged before me this 26 day of July, 2016, By Rod Tompkins as Manager of Baseline Lakes, LLC.

[Signature]  
NOTARY



My commission expires June 28, 2017

SEAL

@

RECEPTION#: 2018000054845,  
7/9/2018 at 9:16 AM, 1 OF 5,  
REC: \$33.00  
TD Pgs: 0 Stan Martin, Adams County, CO.

ORIGINAL COPY

WHEN RECORDED, RETURN TO:  
Baseline Lakes Holdings, LLC  
12460 1st Street P.O. Box 247  
Eastlake, Colorado 80614

**SPECIAL WARRANTY DEED**  
**\*\*\*\* TITLE TRANSFER ONLY – NO CONVEYANCE FEES \*\*\*\***

THIS DEED is dated as of January 2, 2018, and is made between Baseline Lakes Holdings LLC, a Colorado limited liability company, the "Grantor," and Taylor R Carlson as to an undivided 24.25% interest, Cory J Thornton, as to an undivided 24.25% interest, Bradley W Penwell, as to an undivided 24.25% interest, and Jenny L Moore, as to an undivided 3% interest, the "Grantee(s)," whose legal address is 12460 1st Street, Eastlake, Colorado 80614.

**WITNESS**, that the Grantor, for and in consideration of the sum of Ten and No/100 Dollars (\$100.00), and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, hereby grants, bargains, sells, conveys and confirms unto the Grantee and the Grantee(s)' heirs, successors and assigns forever, all the real property, together with any improvements thereon, located in the County of Adams and State of Colorado, described as follows:

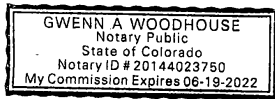
SEE LEGAL DESCRIPTION ON EXHIBIT A ATTACHED HERETO AND INCORPORATED  
HEREIN BY THIS REFERENCE

Street Address: Vacant Land, Brighton, CO 80602

**TOGETHER** with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, the reversions, remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the Grantor, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

**TO HAVE AND TO HOLD** the said premises above bargained and described, with the appurtenances, unto the Grantee and the Grantee's heirs and assigns forever. The Grantor, for itself and its successors and assigns, does covenant and agree that the Grantor shall and will WARRANT AND FOREVER DEFEND the above described premises, *but not any adjoining vacated street or alley*, if any, in the quiet and peaceable possession of the Grantee and the heirs and assigns of the Grantee, against all and every person or persons claiming the whole or any part thereof, by, through or under the Grantor except and subject to real property taxes for the year 2016 and subsequent years and to those matters set forth on none attached hereto and incorporated herein.

**IN WITNESS WHEREOF**, the Grantor has executed this Deed on the date set forth above.



GRANTOR:

Baseline Lakes Holdings LLC  
a Colorado limited liability company

*Jenny L. Moore*  
\_\_\_\_\_  
Jenny L. Moore, Manager

STATE OF COLORADO )  
                                  ) ss.  
COUNTY OF ADAMS )

The foregoing instrument was acknowledged before me 2<sup>nd</sup> of January, 2018, by Jenny L. Moore, as Manager of Baseline Lakes Holdings LLC, a Colorado limited liability company, on behalf of the company.

Witness my hand and official seal.  
My commission expires: *June 19, 2022*

*Gwenn A. Woodhouse*  
\_\_\_\_\_  
Notary Public

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RECEPTION#: 2018000054845,  
7/9/2018 at 9:16 AM, 2 OF 5,  
TD Pgs: 0 Stan Martin, Adams County, CO.

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**EXHIBIT A**  
**LEGAL DESCRIPTION**

The land situated in the County of Adams, State of Colorado and is described as follows:

**Parcel 1:**

(Baseline Lakes Filing No. 2)

A parcel of land located in the North Half of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, County of Adams, State of Colorado and being more particularly described as follows:

Commencing at the North Quarter corner of said Section 2, thence S04°44'25"E 70.19 feet; to the True Point of Beginning;

Thence N89°31'29"E, 2007.46 feet;  
Thence S51°05'34"E, 103.75 feet;  
Thence S14°37'55"E, 123.14 feet;  
Thence S09°37'50"E, 136.52 feet;  
Thence S00°29'02"W, 181.53 feet;  
Thence S81°06'14"W, 274.30 feet;  
Thence along a non-tangent curve to the left whose chord bears N19°04'36"W, 116.66 feet having a radius of 330.00 feet, a central angle of 20°21'41", an arc distance of 117.27 feet;  
Thence S60°44'33"W, 60.00 feet;  
Thence S89°31'29"W, 213.18 feet;  
Thence S01°26'05"E, 408.72 feet;  
Thence S26°45'09"E, 436.61 feet;  
Thence N88°27'02"E, 75.26 feet;  
Thence S38°39'07"W, 289.75 feet;  
Thence S51°20'53"E, 110.56 feet;  
Thence S43°28'12"W, 310.21 feet;  
Thence N46°31'48" W, 217.72 feet;  
Thence S43°28'12"W, 19.41 feet;  
Thence N46°31'48"W, 373.32 feet;  
Thence S59°01'35"W, 125.55 feet;  
Thence N46°31'48"W, 38.61 feet;  
Thence S43°28'12"W, 278.60 feet;  
Thence S11°46'07"E, 49.32 feet;  
Thence S08°41'57"W, 104.23 feet;  
Thence S63°08'15"W, 96.61 feet;  
Thence S77°55'13"W, 71.90 feet;  
Thence N65°06'44"W, 92.65 feet;  
Thence N30°11'58"W, 141.65 feet;  
Thence S88°42'24"W, 335.09 feet;  
Thence N00°28'31"W, 388.15 feet;  
Thence N89°31'29"E, 20.97 feet;  
Thence N00°28'31"W, 329.32 feet;  
Thence N89°31'29"E, 69.58 feet;  
Thence N00°28'31"W, 369.54 feet;  
Thence S89°31'29"W, 196.09 feet, to a point of curvature;  
Thence along a curve to the right whose chord bears N45°23'16"W, 25.49 feet having a radius of 18.00 feet, a central angle of 90°10'31", an arc distance of 28.33 feet;  
Thence N00°18'00"W, 545.70 feet, to a point curvature;  
Thence along a curve to the right whose chord bears N44°36'44"E, 25.42 feet having a radius of 18.00

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7/9/2018 at 9:16 AM, 3 OF 5,  
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feet, a central angle of 89°49'29", an arc distance of 28.22 feet, to the point of beginning;

Excepting therefrom those portions lying within E. 167th Avenue and E. 166th Avenue, and Parcels T, U, V, W, X, Y and Z all as dedicated and conveyed to the County of Adams by the Plat of Baseline Lakes Subdivision - Filing No: 1 recorded October 18, 2006 under Reception No. 2006000991342;

And excepting those portions lying within Lot 1, Block 8, and Tract "H", Baseline Lakes Subdivision - Filing No. 1, as conveyed in Deed recorded August 27, 2012 under Reception No. 2012000063148.

Basis of Bearing

Bearings are based on the westerly line of the Northeast Quarter of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, bearing South 00°18'00" and being monumented at the center 1/4 corner Section 2 by a set 3-14 inch aluminum cap, LS #28283 and at the North Quarter corner Section 2, by a found 2-1/2 inch aluminum cap in Range box, LS #13482.

Parcel 2:

(Baseline Lakes Filing No. 3)

A parcel of land located in the North Half of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, County of Adams, State of Colorado and being more particularly described as follows:

Commencing at the North Quarter corner of said Section 2, Thence S00°18'00"E along the easterly line of the Northwest Quarter of said Section 2, 1740.35 feet; to the True Point of Beginning;

- Thence N88°42'24"E, 449.52 feet;
- Thence S30°11'58"E, 141.65 feet;
- Thence S65°06'44"E, 92.65 feet;
- Thence N77°55'13"E, 71.90 feet;
- Thence N63°08'15"E, 96.61 feet;
- Thence N08°41'57"E, 104.23 feet;
- Thence N11°46'07"W, 49.32 feet;
- Thence N43°28'12"E, 278.60 feet;
- Thence S46°31'48"E, 38.61 feet;
- Thence N59°01'35"E, 125.55 feet;
- Thence S46°31'48"E, 373.32 feet;
- Thence N43°28'12"E, 19.41 feet;
- Thence S46°31'48"E, 217.72 feet;
- Thence N43°28'12"E, 310.21 feet;
- Thence N51°20'53"W, 110.56 feet;
- Thence N38°39'07"E, 289.75 feet;
- Thence S88°27'02"W, 75.26 feet;
- Thence N26°45'09"W, 436.61 feet;
- Thence N01°26'05"W, 408.72 feet;
- Thence N89°31'29"E, 213.18 feet;
- Thence N60°44'33"E, 60.00 feet;
- Thence along a non-tangent curve to the right whose chord bears

- S19°04'36"E, 116.66 feet having a radius of 330.00 feet, a central angle of 20°21'41",
- An arc distance of 117.27 feet;
- Thence N81°06'14"E, 274.30 feet;
- Thence S00°29'02"W, 357.51 feet;
- Thence S34°19'47"E, 318.71 feet;
- Thence S09°10'59"E, 42.43 feet;
- Thence S12°28'43"E, 35.75 feet;
- Thence S46°30'02"E, 61.22 feet, to a point of a curvature;

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7/9/2018 at 9:16 AM, 4 OF 5,  
TD Pgs: 0 Stan Martin, Adams County, CO.

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Thence along a curve to the left whose chord bears S58°10'08"E, 24.27 feet having a radius of 60.00 feet, a central angle of 23°20'11", an arc distance of 24.44 feet;  
Thence S69°50'13"E, 276.62 feet to a point on the easterly line of the northeast Quarter of said Section 2;

Thence along said easterly line S00°13'18"W, 862.85 feet to the southeast corner of the northeast Quarter of said Section 2;  
Thence along the southerly line of the northeast Quarter of said Section 2, S88°26'56"W, 2647.64 feet to the center one-quarter corner of said Section 2; Thence along the southerly line of the northwest Quarter of said Section 2, S88°27'02"E 448.93 feet;  
Thence along a non-tangent curve to the left whose chord bears N35°26'30"E 745.70 feet having a radius of 680.00 feet, a central angle of 66°30'07", an arc distance of 789.26 feet; thence N88°42'24"E, 13.15 feet to the point of beginning;

Excepting therefrom Tract L as conveyed to Todd Creek Village Metropolitan District by the deed recorded August 20, 2012 under Reception No. 2012000061451.

Basis of Bearing

Bearings are based on the westerly line of the northeast Quarter of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, Bearing S00°18'00"E and being monumented at the center 1/4 corner Section 2, by a set 3-1/4 inch aluminum cap, LS # 28283 and at the North Quarter corner Section 2, by a found 2-1/2 inch aluminum cap in range box, LS #13482.

Parcel 3:

(Baseline Lakes Filing No. 4a)

A parcel of land located in the northwest quarter of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, County of Adams, State of Colorado and being more particularly described as follows:

Commencing at the West Quarter corner of said Section 2;  
Thence N88°27'02"E, along the southerly line of the northwest Quarter of said Section 2, 408.78 feet;  
Thence along a non-tangent curve to the right whose chord bears N78°16'06"E, 226.27 feet having a radius of 640.00 feet, a central angle of 20°21'51", an arc distance of 227.47 to a point of tangency;  
Thence N88°27'02"E, 87.99 feet to the true point of beginning;  
Thence N03°51'44"E, 690.48 feet;  
Thence N00°05'55"W, 41.40 feet;  
Thence N26°26'19"W, 176.85 feet;  
Thence N51°09'48"E, 386.88 feet;  
Thence N38°50'12"W, 9.41 feet;  
Thence N51°09'48"E, 312.36 feet;  
Thence S38°50'12"E, 327.08 feet;  
Thence N51°09'48"E, 141.36 feet;  
Thence S41°41'59"E, 260.39 feet;  
Thence S38°50'12"E, 159.170 feet;  
Thence N45°08'56"E, 151.38 feet;  
Thence S74°51'04"E, 126.79 feet;  
Thence S44°51'04"E, 83.11 feet;  
Thence S12°55'02"E, 56.86 feet;  
Thence S74°48'54"E, 455.49 feet;  
Thence S00°18'00"E, 52.82 feet, to a point of curvature;  
Thence along a curve to the right whose chord bears S44°04'31"W, 839.23 feet having a radius of 599.95 feet, a central angle of 88°45'34", an arc distance of 929.41 feet;  
Thence S88°27'02"W, 1252.65 feet to the point of beginning;

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RECEPTION#: 2018000054845,  
7/9/2018 at 9:16 AM, 5 OF 5,  
TD Pgs: 0 Stan Martin, Adams County, CO.

Excepting therefrom Lots 7 and 8, Block 5, Baseline Lakes Subdivision - Filing No. 1.

Basis of Bearing

Bearings are based on the easterly line of the northeast quarter of Section 3, Township 1 South, Range 67 West of the 6th Principal Meridian, bearing N00°43'31"W and being monumented at the East 1/4 corner Section 3, by a found 3-1/4 inch aluminum cap, LS # 18475 and at the northeast corner Section 3, by a found 2-1/2 inch aluminum cap in range box, LS # 3482

Parcel 4:

(Baseline Lakes Filing No. 4b)

A parcel of land located in the northeast quarter of Section 3, the southeast quarter of Section 3 and the northwest quarter of Section 2, Township 1 South, Range 67 west of the 6th Principal Meridian, County of Adams, State of Colorado and being more particularly described as follows:

Commencing at the East Quarter corner of said Section 3, said point being the true point of beginning;  
Thence along the easterly line of Section 3, S00°43'31"E, 1573.25 feet;  
Thence N80°45'34"W, 443.14 feet;  
Thence S72°52'20" W, 34.34 feet;  
Thence N68°48'28"W, 207.94 feet;  
Thence N00°40'28"W, 2163.61 feet;  
Thence S71°25'12"E, 162.85 feet;  
Thence S43°03'17"E, 584.32 feet;  
Thence N69°04'49"E, 248.73 feet;  
Thence S67°09'06"E, 568.91 feet;  
Thence S01°32'58"E, 58.26 feet;  
Thence S88°27'02"W, 11.63 feet, to a point of curvature;  
Thence along a curve to the left whose chord bears S78°16'06"W, 226.27 feet having a radius of 640.00 feet, a central angle of 20°21'51", an arc distance of 227.47 feet;  
To a point on the southerly line of the northwest quarter of Section 2;  
Thence S88°27'02"W along said southerly line, 408.78 feet to the point of beginning.

Basis of Bearing

Bearings are based on the easterly line of the northeast quarter of section 3, Township 1 South, Range 67 West of the 6th Principal Meridian, bearing N00°43'31"W, and being monumented at the East 1/4 corner Section 3, by a found 3-1/4 inch aluminum cap, LS # 18475 and at the northeast corner Section 3, by a found 2-1/2 inch aluminum cap in range box, LS # 3482.

RECEPTION#: 2018000061208,  
7/30/2018 at 3:24 PM, 1 OF 5,  
REC: \$33.00  
TD Pgs: 0 Stan Martin, Adams County, CO.

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WHEN RECORDED, RETURN TO:  
Baseline Lakes Holdings, LLC  
12460 1st Street, PO Box 247  
Eastlake, Colorado 80614-0247

**SPECIAL WARRANTY DEED**  
**\*\*CORRECTION DEED\*\***

THIS DEED is dated as of January 2, 2018, and is made between Baseline Lakes Holdings LLC, a Colorado limited liability company, the "Grantor," and Taylor R Carlson as to an undivided 24.25% interest, Cory J Thornton, as to an undivided 24.25% interest, Bradley W Penwell, as to an undivided 24.25% interest, Ryan L Carlson as to an undivided 24.25% interest, and Jenny L Moore, as to an undivided 3% interest, the "Grantee(s)," whose legal address is 12460 1st Street, Eastlake, Colorado 80614.

**WITNESS**, that the Grantor, for and in consideration of the sum of Ten and No/100 Dollars (\$100.00), and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, hereby grants, bargains, sells, conveys and confirms unto the Grantee and the Grantee(s)' heirs, successors and assigns forever, all the real property, together with any improvements thereon, located in the County of Adams and State of Colorado, described as follows:

SEE LEGAL DESCRIPTION ON EXHIBIT A ATTACHED HERETO AND INCORPORATED  
HEREIN BY THIS REFERENCE

Street Address: Vacant Land, Brighton, CO 80602

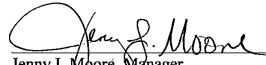
**TOGETHER** with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, the reversions, remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the Grantor, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

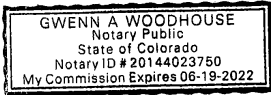
**TO HAVE AND TO HOLD** the said premises above bargained and described, with the appurtenances, unto the Grantee and the Grantee's heirs and assigns forever. The Grantor, for itself and its successors and assigns, does covenant and agree that the Grantor shall and will WARRANT AND FOREVER DEFEND the above described premises, *but not any adjoining vacated street or alley*, if any, in the quiet and peaceable possession of the Grantee and the heirs and assigns of the Grantee, against all and every person or persons claiming the whole or any part thereof, by, through or under the Grantor except and subject to real property taxes for the year 2016 and subsequent years and to those matters set forth on none attached hereto and incorporated herein.

IN WITNESS WHEREOF, the Grantor has executed this Deed on the date set forth above.

GRANTOR:

Baseline Lakes Holdings LLC  
a Colorado limited liability company

  
\_\_\_\_\_  
Jenny L Moore, Manager



STATE OF COLORADO )  
                                  ) ss.  
COUNTY OF ADAMS )

The foregoing instrument was acknowledged before me 2<sup>nd</sup> of January, 2018, by Jenny L Moore, as Manager of Baseline Lakes Holdings LLC, a Colorado limited liability company, on behalf of the company.

Witness my hand and official seal.  
My commission expires: June 19, 2022

  
\_\_\_\_\_  
Notary Public

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RECEPTION#: 2018000061208,  
7/30/2018 at 3:24 PM, 2 OF 5,  
TD Pgs: 0 Stan Martin, Adams County, CO.

AL COPY

**EXHIBIT A**  
**LEGAL DESCRIPTION**

The land situated in the County of Adams, State of Colorado and is described as follows:

**Parcel 1:**

(Baseline Lakes Filing No. 2)

A parcel of land located in the North Half of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, County of Adams, State of Colorado and being more particularly described as follows:

Commencing at the North Quarter corner of said Section 2, thence S04°44'25"E 70.19 feet; to the True Point of Beginning;  
Thence N89°31'29"E, 2007.46 feet;  
Thence S51°05'34"E, 103.75 feet;  
Thence S14°37'55"E, 123.14 feet;  
Thence S09°37'50"E, 136.52 feet;  
Thence S00°29'02"W, 181.53 feet;  
Thence S81°06'14"W, 274.30 feet;  
Thence along a non-tangent curve to the left whose chord bears N19°04'36"W, 116.66 feet having a radius of 330.00 feet, a central angle of 20°21'41", an arc distance of 117.27 feet;  
Thence S60°44'33"W, 60.00 feet;  
Thence S89°31'29"W, 213.18 feet;  
Thence S01°26'05"E, 408.72 feet;  
Thence S26°45'09"E, 436.61 feet;  
Thence N88°27'02"E, 75.26 feet;  
Thence S38°39'07"W, 289.75 feet;  
Thence S51°20'53"E, 110.56 feet;  
Thence S43°28'12"W, 310.21 feet;  
Thence N46°31'48" W, 217.72 feet;  
Thence S43°28'12"W, 19.41 feet;  
Thence N46°31'48"W, 373.32 feet;  
Thence S59°01'35"W, 125.55 feet;  
Thence N46°31'48"W, 38.61 feet;  
Thence S43°28'12"W, 278.60 feet;  
Thence S11°46'07"E, 49.32 feet;  
Thence S08°41'57"W, 104.23 feet;  
Thence S63°08'15"W, 96.61 feet;  
Thence S77°55'13"W, 71.90 feet;  
Thence N65°06'44"W, 92.65 feet;  
Thence N30°11'58"W, 141.65 feet;  
Thence S88°42'24"W, 335.09 feet;  
Thence N00°28'31"W, 388.15 feet;  
Thence N89°31'29"E, 20.97 feet;  
Thence N00°28'31"W, 329.32 feet;  
Thence N89°31'29"E, 69.58 feet;  
Thence N00°28'31"W, 369.54 feet;  
Thence S89°31'29"W, 196.09 feet, to a point of curvature;  
Thence along a curve to the right whose chord bears N45°23'16"W, 25.49 feet having a radius of 18.00 feet, a central angle of 90°10'31", an arc distance of 28.33 feet;  
Thence N00°18'00"W, 545.70 feet, to a point curvature;  
Thence along a curve to the right whose chord bears N44°36'44"E, 25.42 feet having a radius of 18.00 feet, a central angle of 89°49'29", an arc distance of 28.22 feet, to the point of beginning;

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Excepting therefrom those portions lying within E. 167th Avenue and E. 166th Avenue, and Parcels T, U, V, W, X, Y and Z all as dedicated and conveyed to the County of Adams by the Plat of Baseline Lakes Subdivision - Filing No. 1 recorded October 18, 2006 under Reception No. 2006000991342;

And excepting those portions lying within Lot 1, Block 8, and Tract "H", Baseline Lakes Subdivision - Filing No. 1, as conveyed in Deed recorded August 27, 2012 under Reception No. 2012000063148.

Basis of Bearing

Bearings are based on the westerly line of the Northeast Quarter of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, bearing South 00°18'00" and being monumented at the center 1/4 corner Section 2 by a set 3-14 inch aluminum cap, LS #28283 and at the North Quarter corner Section 2, by a found 2-1/2 inch aluminum cap in Range box, LS #13482.

Parcel 2:

(Baseline Lakes Filing No. 3)

A parcel of land located in the North Half of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, County of Adams, State of Colorado and being more particularly described as follows:

Commencing at the North Quarter corner of said Section 2, Thence S00°18'00"E along the easterly line of the Northwest Quarter of said Section 2, 1740.35 feet; to the True Point of Beginning;

- Thence N88°42'24"E, 449.52 feet;
- Thence S30°11'58"E, 141.65 feet;
- Thence S65°06'44"E, 92.65 feet;
- Thence N77°55'13"E, 71.90 feet;
- Thence N63°08'15"E, 96.61 feet;
- Thence N08°41'57"E, 104.23 feet;
- Thence N11°46'07"W, 49.32 feet;
- Thence N43°28'12"E, 278.60 feet;
- Thence S46°31'48"E, 38.61 feet;
- Thence N59°01'35"E, 125.55 feet;
- Thence S46°31'48"E, 373.32 feet;
- Thence N43°28'12"E, 19.41 feet;
- Thence S46°31'48"E, 217.72 feet;
- Thence N43°28'12"E, 310.21 feet;
- Thence N51°20'53"W, 110.56 feet;
- Thence N38°39'07"E, 289.75 feet;
- Thence S88°27'02"W, 75.26 feet;
- Thence N26°45'09"W, 436.61 feet;
- Thence N01°26'05"W, 408.72 feet;
- Thence N89°31'29"E, 213.18 feet;
- Thence N60°44'33"E, 60.00 feet;
- Thence along a non-tangent curve to the right whose chord bears

- S19°04'36"E, 116.66 feet having a radius of 330.00 feet, a central angle of 20°21'41",
- An arc distance of 117.27 feet;
- Thence N81°06'14"E, 274.30 feet;
- Thence S00°29'02"W, 357.51 feet;
- Thence S34°19'47"E, 318.71 feet;
- Thence S09°10'59"E, 42.43 feet;
- Thence S12°28'43"E, 35.75 feet;
- Thence S46°30'02"E, 61.22 feet, to a point of a curvature;
- Thence along a curve to the left whose chord bears S58°10'08"E, 24.27 feet having a radius of 60.00

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7/30/2018 at 3:24 PM, 4 OF 5,  
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feet, a central angle of 23°20'11", an arc distance of 24.44 feet;  
Thence S69°50'13"E, 276.62 feet to a point on the easterly line of the northeast Quarter of said Section 2;  
Thence along said easterly line S00°13'18"W, 862.85 feet to the southeast corner of the northeast Quarter of said Section 2;  
Thence along the southerly line of the northeast Quarter of said Section 2, S88°26'56"W, 2647.64 feet to the center one-quarter corner of said Section 2; Thence along the southerly line of the northwest Quarter of said Section 2, S88°27'02"E 448.93 feet;  
Thence along a non-tangent curve to the left whose chord bears N35°26'30"E 745.70 feet having a radius of 680.00 feet, a central angle of 66°30'07", an arc distance of 789.26 feet; thence N88°42'24"E, 13.15 feet to the point of beginning;

Excepting therefrom Tract L as conveyed to Todd Creek Village Metropolitan District by the deed recorded August 20, 2012 under Reception No. 2012000061451.

Basis of Bearing

Bearings are based on the westerly line of the northeast Quarter of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, Bearing S00°18'00"E and being monumented at the center 1/4 corner Section 2, by a set 3-1/4 inch aluminum cap, LS # 28283 and at the North Quarter corner Section 2, by a found 2-1/2 inch aluminum cap in range box, LS #13482.

Parcel 3:

(Baseline Lakes Filing No. 4a)

A parcel of land located in the northwest quarter of Section 2, Township 1 South, Range 67 West of the 6th Principal Meridian, County of Adams, State of Colorado and being more particularly described as follows:

Commencing at the West Quarter corner of said Section 2;  
Thence N88°27'02"E, along the southerly line of the northwest Quarter of said Section 2, 408.78 feet;  
Thence along a non-tangent curve to the right whose chord bears N78°16'06"E, 226.27 feet having a radius of 640.00 feet, a central angle of 20°21'51", an arc distance of 227.47 to a point of tangency;  
Thence N88°27'02"E, 87.99 feet to the true point of beginning;  
Thence N03°51'44"E, 690.48 feet;  
Thence N00°05'55"W, 41.40 feet;  
Thence N26°26'19"W, 176.85 feet;  
Thence N51°09'48"E, 386.88 feet;  
Thence N38°50'12"W, 9.41 feet;  
Thence N51°09'48"E, 312.36 feet;  
Thence S38°50'12"E, 327.08 feet;  
Thence N51°09'48"E, 141.36 feet;  
Thence S41°41'59"E, 260.39 feet;  
Thence S38°50'12"E, 159.170 feet;  
Thence N45°08'56"E, 151.38 feet;  
Thence S74°51'04"E, 126.79 feet;  
Thence S44°51'04"E, 83.11 feet;  
Thence S12°55'02"E, 56.86 feet;  
Thence S74°48'54"E, 455.49 feet;  
Thence S00°18'00"E, 52.82 feet, to a point of curvature;  
Thence along a curve to the right whose chord bears S44°04'31"W, 839.23 feet having a radius of 599.95 feet, a central angle of 88°45'34", an arc distance of 929.41 feet;  
Thence S88°27'02"W, 1252.65 feet to the point of beginning;

Excepting therefrom Lots 7 and 8, Block 5, Baseline Lakes Subdivision - Filing No. 1.

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7/30/2018 at 3:24 PM, 5 OF 5,  
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**Basis of Bearing**

Bearings are based on the easterly line of the northeast quarter of Section 3, Township 1 South, Range 67 West of the 6th Principal Meridian, bearing N00°43'31"W and being monumented at the East 1/4 corner Section 3, by a found 3-1/4 inch aluminum cap, LS # 18475 and at the northeast corner Section 3, by a found 2-1/2 inch aluminum cap in range box, LS # 3482

**Parcel 4:**

(Baseline Lakes Filing No. 4b)

A parcel of land located in the northeast quarter of Section 3, the southeast quarter of Section 3 and the northwest quarter of Section 2, Township 1 South, Range 67 west of the 6th Principal Meridian, County of Adams, State of Colorado and being more particularly described as follows:

Commencing at the East Quarter corner of said Section 3, said point being the true point of beginning;  
Thence along the easterly line of Section 3, S00°43'31"E, 1573.25 feet;  
Thence N80°45'34"W, 443.14 feet;  
Thence S72°52'20" W, 34.34 feet;  
Thence N68°48'28"W, 207.94 feet;  
Thence N00°40'28"W, 2163.61 feet;  
Thence S71°25'12"E, 162.85 feet;  
Thence S43°03'17"E, 584.32 feet;  
Thence N69°04'49"E, 248.73 feet;  
Thence S67°09'06"E, 568.91 feet;  
Thence S01°32'58"E, 58.26 feet;  
Thence S88°27'02"W, 11.63 feet, to a point of curvature;  
Thence along a curve to the left whose chord bears S78°16'06"W, 226.27 feet having a radius of 640.00 feet, a central angle of 20°21'51", an arc distance of 227.47 feet;  
To a point on the southerly line of the northwest quarter of Section 2;  
Thence S88°27'02"W along said southerly line, 408.78 feet to the point of beginning.

**Basis of Bearing**

Bearings are based on the easterly line of the northeast quarter of section 3, Township 1 South, Range 67 West of the 6th Principal Meridian, bearing N00°43'31"W, and being monumented at the East 1/4 corner Section 3, by a found 3-1/4 inch aluminum cap, LS # 18475 and at the northeast corner Section 3, by a found 2-1/2 inch aluminum cap in range box, LS # 3482.

C1138476  
5/06/2003 11:44:36  
PG: 0001-002

SPECIAL WARRANTY DEED

11.00 DOC FEE:  
CAROL SNYDER  
ADAMS COUNTY

0.00

THIS DEED made as of the 5<sup>th</sup> day of MAY 2003, between Todd Creek Village, LLC, a Colorado limited liability company of the State of Colorado, grantor and the Todd Creek Farms Metropolitan District No. 1, a quasi-municipal corporation and political subdivision of the State of Colorado, grantee;

WITNESS, That the grantor, for and in consideration of the sum of Ten Dollars (\$10) and other good and valuable compensation, the receipt and sufficiency of which is acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm, unto the grantee, its heirs and assigns forever, all the real property, together with improvements, if any, situate, lying and being in the County of Adams and State of Colorado, described as follows:

SEE EXHIBIT A ATTACHED HERETO AS DESCRIPTION OF PROPERTY CONVEYED

TOGETHER with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the grantor, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

TO HAVE AND TO HOLD the said premises above bargained and described, with the appurtenances, unto the grantees, its heirs and assigns forever. The grantor(s), for itself, its heirs, and personal representatives, does covenant, grant, bargain and agree to and with the grantees, their heirs and assigns, that at the time of the enrolling and delivery of these presents, it is well seized of the premises above conveyed, having good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and having good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments, encumbrances and restrictions of whatever kind or nature soever, except general taxes and assessments for the year 2002 and subsequent years, and subject to easements, reservations, restrictions, covenants and rights of way of record and the rights of third parties not shown in the public records, if any.

The grantor(s) shall and will WARRANT AND FOREVER DEFEND the above bargained premises in the quiet and peaceable possession of the grantees, their heirs and assigns, against all and every person or persons lawfully claiming the whole or any part thereof by, through, or under the grantor.

IN WITNESS WHEREOF, The grantor(s) has executed this deed on the date set forth above.

TODD CREEK VILLAGE, LLC,  
a Colorado limited liability corporation

ATTEST:

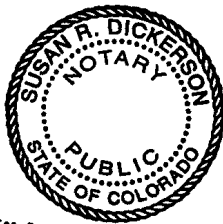
By: GENE A. OSBORNE, PRES. OF OSBORNE HOLDING CORPORATION, MANAGER OF EQUINOX GROUP LLC, MANAGER

By: DIANE M. WEISS

STATE OF COLORADO )  
 ) ss.  
County of Arapahoe )

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 2003, by GENE A. OSBORNE, President of OSBORNE HOLDING CORPORATION as MANAGER OF EQUINOX GROUP LLC, AS MANAGER of Todd Creek Village, LLC, a Colorado limited liability corporation.

My commission expires:  
3/7/2005



Witness my hand and official seal.  
Susan R. Dickerson  
Notary Public

\*If in Denver, insert "City and".  
My Commission Expires 03/07/2005

Name and Address of Person Creating Notary Created Legal Description (F 31-31-104.3, C.R.S.)

EXHIBIT A  
THE PROPERTY

A PARCEL OF LAND IN SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EAST AND WEST CENTERLINE OF SAID SECTION 4, THAT IS 298 FEET DISTANT WEST OF THE SOUTHEAST CORNER OF THE SW ¼, NE ¼ OF SAID SECTION 4; THENCE SOUTH 296 FEET TO A POINT; THENCE N71°48'W, 295 FEET; THENCE N50°36'W, 150 FEET; THENCE N77°36'W, 155 FEET; THENCE S70°44'W, 170 FEET; THENCE S59°51'W, 245 FEET; THENCE S75°49'W, 665 FEET; THENCE S69°28'W, 315 FEET; THENCE S63°30'W, 135 FEET; THENCE NORTH 482 FEET; THENCE N33°55'E, 130 FEET; THENCE N73°24'E, 350 FEET; THENCE N87°03'E, 347 FEET; THENCE N82°31'E, 236 FEET; THENCE N81°13'E, 334 FEET; THENCE N82°55'E, 210 FEET; THENCE N80°33'E, 305 FEET; THENCE S31°37'E, 200 FEET; THENCE S87°30'E, 50 FEET; THENCE SOUTH 98 FEET TO THE POINT OF BEGINNING,

COUNTY OF ADAMS,  
STATE OF COLORADO.

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Search...

I want to...

Tools

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Parcel #: 0157102100003

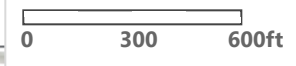
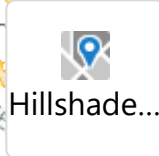
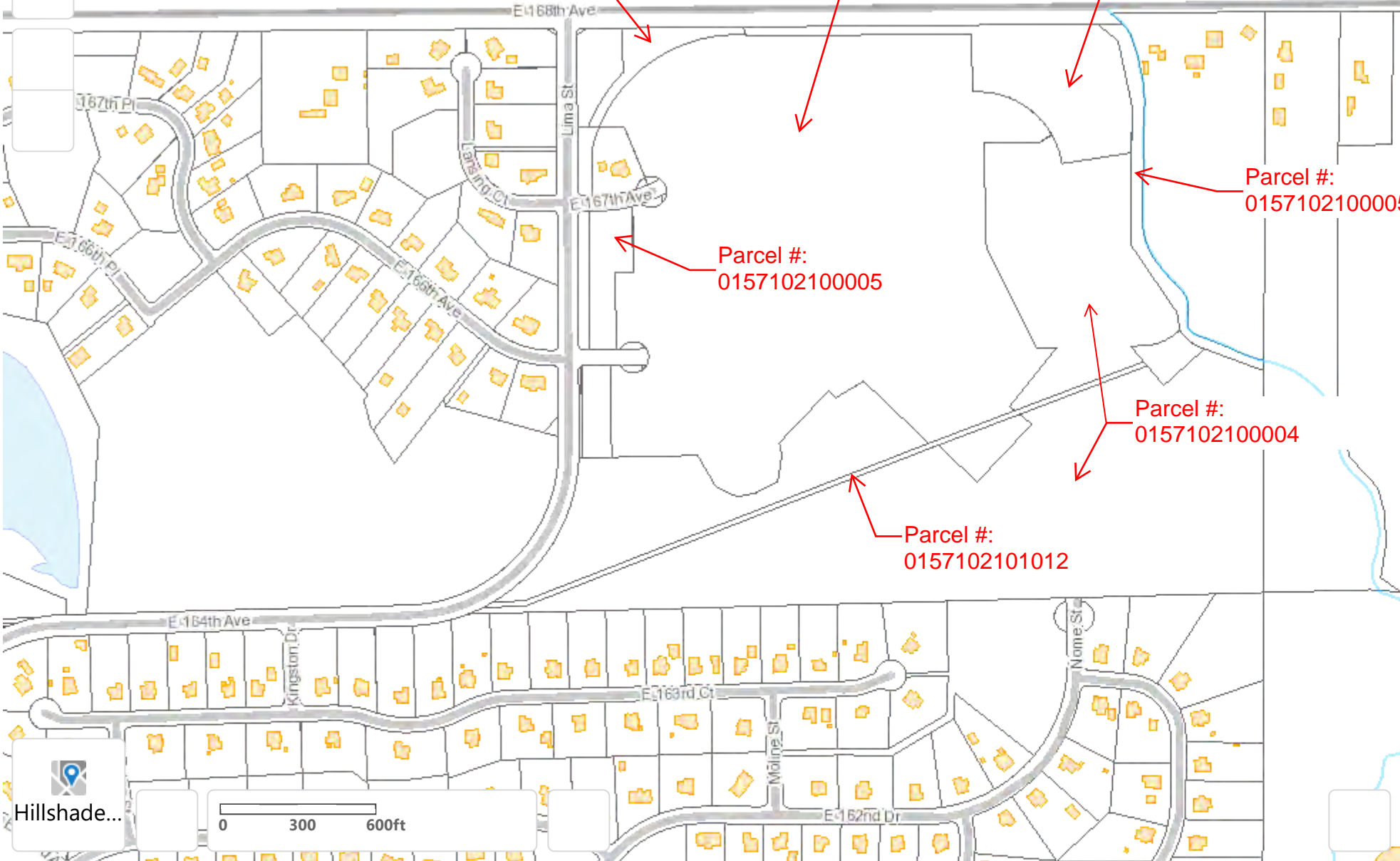
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Search...

I want to...

Tools

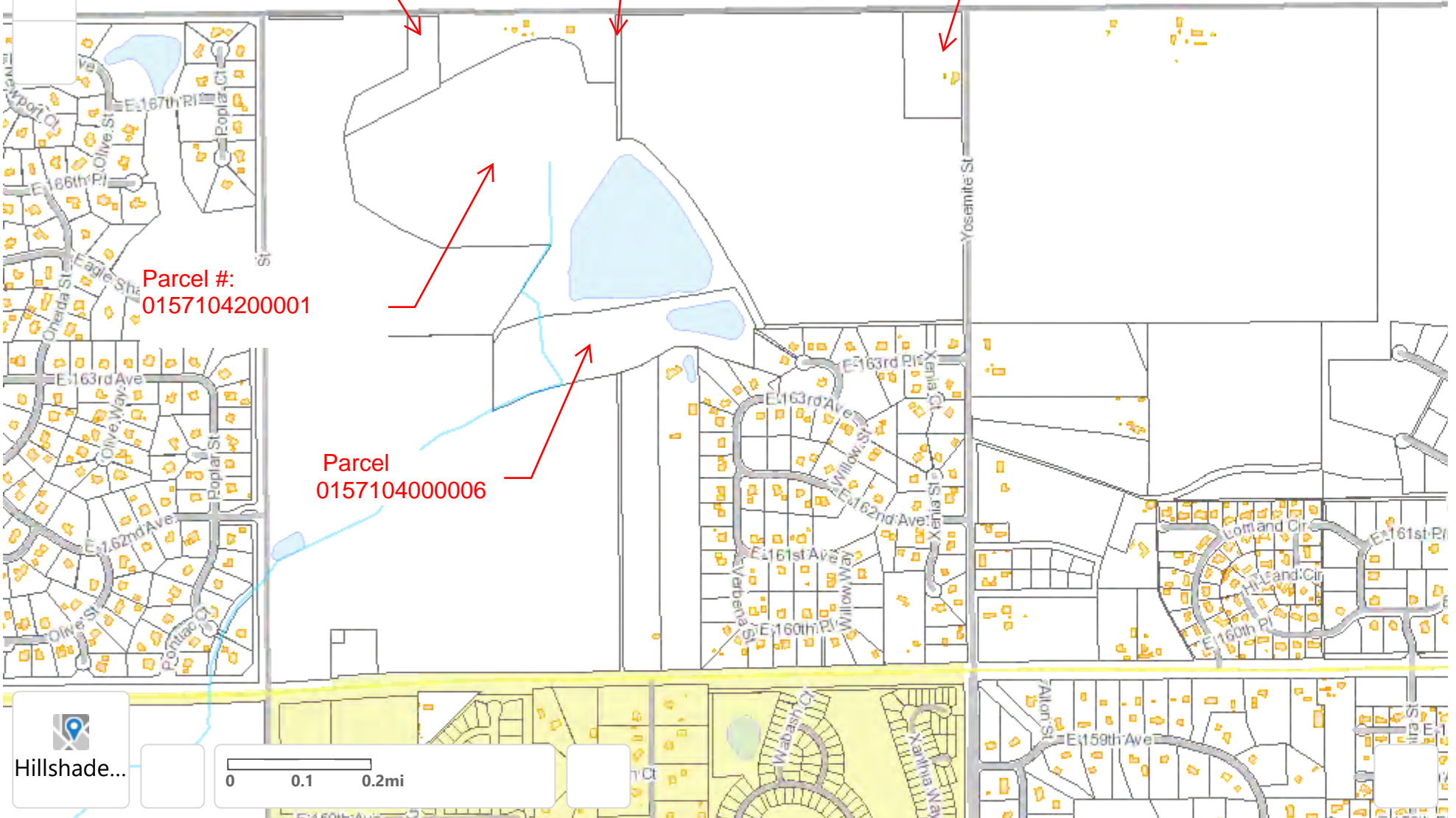
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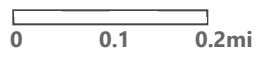
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Parcel #:  
0157104200001

Parcel  
0157104000006



Hillshade...





**DATE:** May 25, 2023  
**FILE NUMBER:** 100-N0037848-020-CN1, Amendment No. E  
**PROPERTY ADDRESS:** Seltzer Farms - Remington Homes 207 Acres 2nd, Aurora, CO  
**BUYER/BORROWER:** Remington Homes of Colorado, Inc., a Colorado corporation  
**OWNER(S):** Seltzer Farms, Inc., a Colorado corporation  
**YOUR REFERENCE NUMBER:**  
**ASSESSOR PARCEL NUMBER:**

PLEASE TAKE NOTE OF THE FOLLOWING REVISED TERMS CONTAINED HEREIN:

None.

**WIRED FUNDS ARE REQUIRED ON ALL CASH PURCHASE TRANSACTIONS. FOR WIRING INSTRUCTIONS, PLEASE CONTACT YOUR ESCROW OFFICE AS NOTED ON THE TRANSMITTAL PAGE OF THIS COMMITMENT.**

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<b>TO: Escrow Officer</b>	<b>ATTN:</b> Chandra Nay <b>PHONE:</b> (303) 692-6787 <b>FAX:</b> (303) 628-1644 <b>E-MAIL:</b> cnay@fnf.com
<b>Escrow Assistant</b>	<b>ATTN:</b> Sarah Ratliff <b>PHONE:</b> (303) 244-9197 <b>E-MAIL:</b> Sarah.Ratliff@fnf.com
<b>Title Officer</b>	<b>ATTN:</b> Eric Stearns <b>PHONE:</b> (303) 692-6778 <b>E-MAIL:</b> estearns@fnf.com
<b>Sales Executive</b>	<b>ATTN:</b> John Ellis <b>E-MAIL:</b> jfellis@fnf.com

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<b>TO: Fairfield and Woods, P.C.</b> 1801 California St. Suite 2600 Denver, CO 80202	<b>ATTN:</b> Tom Kearns <b>PHONE:</b> (303) 830-2400 <b>FAX:</b> (303) 830-1033 <b>E-MAIL:</b> tkearns@fwlaw.com
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<b>TO: Fairfield and Woods, P.C.</b> 1801 California St. Suite 2600 Denver, CO 80202	<b>ATTN:</b> Sherry Sickles <b>PHONE:</b> (303) 894-4455 <b>FAX:</b> (303) 830-1033 <b>E-MAIL:</b> ssickles@fwlaw.com
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<b>TO: Remington Homes of Colorado, Inc., a Colorado corporation</b> 5740 Olde Wadsworth Boulevard Arvada, CO	<b>ATTN:</b> Guillaume Pouchot <b>PHONE:</b> <b>FAX:</b> <b>E-MAIL:</b> gp@remingtonhomes.net
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**Commitment Transmittal  
(Continued)**

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<b>TO:</b>	<b>Remington Homes of Colorado, Inc., a Colorado corporation 5740 Olde Wadsworth Boulevard Arvada, CO</b>	<b>ATTN:</b>	<b>Matt Cavanaugh</b>
		<b>PHONE:</b>	<b>(303) 472-4633</b>
		<b>FAX:</b>	
		<b>E-MAIL:</b>	<b>mattc@remingtonhomes.net</b>

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<b>TO:</b>	<b>National Commercial Services Main 8055 E Tufts Ave Suite 900 Denver, CO 80237</b>	<b>ATTN:</b>	<b>Chandra Nay</b>
		<b>PHONE:</b>	<b>(303) 291-9977</b>
		<b>FAX:</b>	<b>(303) 633-7720</b>
		<b>E-MAIL:</b>	<b>cnay@fnf.com</b>

**END OF TRANSMITTAL**



# COMMITMENT FOR TITLE INSURANCE

Issued by

**Fidelity National Title Insurance Company**

## NOTICE

**IMPORTANT—READ CAREFULLY:** THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRA CONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

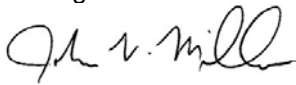
THE COMPANY’S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON.

## COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I—Requirements; Schedule B, Part II—Exceptions; and the Commitment Conditions, **Fidelity National Title Insurance Company**, a Florida Corporation (the “Company”), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Policy Amount and the name of the Proposed Insured.

If all of the Schedule B, Part I—Requirements have not been met within 180 Days after the Commitment Date, this Commitment terminates and the Company’s liability and obligation end.

Countersigned

By:   
John Miller  
Authorized Signature

**Fidelity National Title Insurance Company**

By:   
Michael J. Nolan  
President

ATTEST:   
Marjorie Nemzura  
Secretary

*This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Fidelity National Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I—Requirements; and Schedule B, Part II—Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.*



## COMMITMENT CONDITIONS

### 1. DEFINITIONS

- (a) "Knowledge" or "Known": Actual or imputed knowledge, but not constructive notice imparted by the Public Records.
- (b) "Land": The land described in Schedule A and affixed improvements that by law constitute real property. The term "Land" does not include any property beyond the lines of the area described in Schedule A, nor any right, title, interest, estate, or easement in abutting streets, roads, avenues, alleys, lanes, ways, or waterways, but this does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.
- (c) "Mortgage": A mortgage, deed of trust, or other security instrument, including one evidenced by electronic means authorized by law.
- (d) "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.
- (e) "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.
- (f) "Proposed Policy Amount": Each dollar amount specified in Schedule A as the Proposed Policy Amount of each Policy to be issued pursuant to this Commitment.
- (g) "Public Records": Records established under state statutes at the Commitment Date for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge.
- (h) "Title": The estate or interest described in Schedule A.

2. If all of the Schedule B, Part I—Requirements have not been met within the time period specified in the Commitment to Issue Policy, this Commitment terminates and the Company's liability and obligation end.

3. The Company's liability and obligation is limited by and this Commitment is not valid without:

- (a) the Notice;
- (b) the Commitment to Issue Policy;
- (c) the Commitment Conditions;
- (d) Schedule A;
- (e) Schedule B, Part I—Requirements;
- (f) Schedule B, Part II—Exceptions; and
- (g) a counter-signature by the Company or its issuing agent that may be in electronic form.

### 4. COMPANY'S RIGHT TO AMEND

The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company shall not be liable for any other amendment to this Commitment.

### 5. LIMITATIONS OF LIABILITY

- (a) The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:
  - (i) comply with the Schedule B, Part I—Requirements;
  - (ii) eliminate, with the Company's written consent, any Schedule B, Part II—Exceptions; or
  - (iii) acquire the Title or create the Mortgage covered by this Commitment.

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- (b) The Company shall not be liable under Commitment Condition 5(a) if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
- (c) The Company will only have liability under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
- (d) The Company's liability shall not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Conditions 5(a)(i) through 5(a)(iii) or the Proposed Policy Amount.
- (e) The Company shall not be liable for the content of the Transaction Identification Data, if any.
- (f) In no event shall the Company be obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I—Requirements have been met to the satisfaction of the Company.
- (g) In any event, the Company's liability is limited by the terms and provisions of the Policy.

**6. LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT**

- (a) Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
- (b) Any claim must be based in contract and must be restricted solely to the terms and provisions of this Commitment.
- (c) Until the Policy is issued, this Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or oral, express or implied, relating to the subject matter of this Commitment.
- (d) The deletion or modification of any Schedule B, Part II—Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.
- (e) Any amendment or endorsement to this Commitment must be in writing and authenticated by a person authorized by the Company.
- (f) When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

**7. IF THIS COMMITMENT HAS BEEN ISSUED BY AN ISSUING AGENT**

The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for the purpose of providing closing or settlement services.

**8. PRO-FORMA POLICY**

The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

**9. ARBITRATION**

The Policy contains an arbitration clause. All arbitrable matters when the Proposed Policy Amount is \$2,000,000 or less shall be arbitrated at the option of either the Company or the Proposed Insured as the exclusive remedy of the parties. A Proposed Insured may review a copy of the arbitration rules at <http://www.alta.org/arbitration>.

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**Transaction Identification Data for reference only:**

Issuing Agent: Fidelity National Title, National Commercial Services  
Issuing Office: 8055 E Tufts Ave, Suite 900, Denver, CO 80237  
Loan ID Number:  
Issuing Office File Number: 100-N0037848-020-CN1, Amendment No. E  
Property Address: Seltzer Farms - Remington Homes 207 Acres 2nd, Aurora, CO  
Revision Number: Amendment No. E, Amendment Date: May 25, 2023

**SCHEDULE A**

AMERICAN LAND TITLE ASSOCIATION COMMITMENT

1. Commitment Date: **May 22, 2023**
2. Policy to be issued:
  - (a) ALTA Owners Policy 6-17-06  
Proposed Insured: **Remington Homes of Colorado, Inc., a Colorado corporation**  
Proposed Policy Amount: **\$0.00**
  - (b) None  
Proposed Insured:  
Proposed Policy Amount: **\$0.00**
  - (c) None  
Proposed Insured:  
Proposed Policy Amount: **\$0.00**
3. The estate or interest in the Land described or referred to in this Commitment is:  
**FEE SIMPLE**
4. The Title is, at the Commitment Date, vested in:  
**Seltzer Farms, Inc., a Colorado corporation**
5. The Land is described as follows:  
**See Exhibit A attached hereto and made a part hereof.**

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**SCHEDULE A**  
(Continued)

**PREMIUMS:**

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27C165 Commitment for Title Insurance (Adopted 6-17-06 Revised 08-01-2016)

Page 2

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**EXHIBIT A**  
**LEGAL DESCRIPTION**

Parcel One:

That part of the North ½ of Section 3, Township 1 South, Range 67 West of the Sixth Principal Meridian, County of Adams, State of Colorado, being more particularly described as follows:

Commencing at the Northwest corner of said Section 3;

Thence East on the North line of said Section, 3,055.00 feet;  
Thence South 2,385.80 feet to a point on the East and West Center line of said Section;  
Thence West 3,073.00 feet to the center of the West line of said Section;  
Thence North 2,377.60 feet to the place of beginning,  
EXCEPTING therefrom, any portion of said land as contained within East 168th Avenue,  
County of Adams, State of Colorado.

FOR INFORMATIONAL PURPOSES ONLY: Assessor Parcel No. R0008111 / 0157103000014

Parcel Two:

The Northeast ¼ of the Southwest ¼ of Section 3, Township 1 South, Range 67 West of the Sixth Principal Meridian, EXCEPTING therefrom, that portion as contained within the Signal Ditch as the same now exists on said land, County of Adams, State of Colorado.

FOR INFORMATIONAL PURPOSES ONLY: Assessor Parcel No. R0008126 / 0157103300009

Parcel Three:

That part of the Northwest ¼ of the Southwest ¼ of Section 3, Township 1 South, Range 67 West of the 6th Principal Meridian, County of Adams, State of Colorado, being more particularly described as follows:

Beginning at the Northeast corner of the Northwest ¼ of the Southwest ¼ of said Section 3;  
Thence West along the North line of said Northwest ¼ of the Southwest ¼ a distance of 152.00 feet;  
Thence S21°57'00"E 413.00 feet to a point on the East line of said Northwest ¼ of the Southwest ¼;  
Thence North 383.00 feet along said East line to the true point of beginning,  
County of Adams, State of Colorado

FOR INFORMATIONAL PURPOSES ONLY: Assessor Parcel No. R0008121 / 0157103300003

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**SCHEDULE B**  
**PART I – REQUIREMENTS**

All of the following Requirements must be met:

- a. Pay the agreed amounts for the interest in the land and/or for the mortgage to be insured.
- b. Pay us the premiums, fees and charges for the policy.
- c. Obtain a certificate of taxes due from the county treasurer or the county treasurer's authorized agent.
- d. Deed sufficient to convey the fee simple estate or interest in the Land described or referred to herein, to the Proposed Insured Purchaser.
- e. The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance by the corporation named below:

Name of Corporation: Seltzer Farms, Inc., a Colorado corporation

- a) A Copy of the corporation By-laws and Articles of Incorporation
- b) An original or certified copy of a resolution authorizing the transaction contemplated herein
- c) If the Articles and/or By-laws require approval by a 'parent' organization, a copy of the Articles and By-laws of the parent
- d) A current dated certificate of good standing from the proper governmental authority of the state in which the entity was created

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

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**SCHEDULE B**  
**PART I – Requirements**  
(Continued)

- f. The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance by the corporation named below:

Name of Corporation: Remington Homes of Colorado, Inc., a Colorado corporation

- a) A Copy of the corporation By-laws and Articles of Incorporation
- b) An original or certified copy of a resolution authorizing the transaction contemplated herein
- c) If the Articles and/or By-laws require approval by a 'parent' organization, a copy of the Articles and By-laws of the parent
- d) A current dated certificate of good standing from the proper governmental authority of the state in which the entity was created

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

- g. The Company will require that an Owner's Affidavit be completed by the party(s) named below before the issuance of any policy of title insurance.

Party(s): Seltzer Farms, Inc., a Colorado corporation

The Company reserves the right to add additional items or make further requirements after review of the requested Affidavit.

- h. Please be advised that our search did not disclose any open Deeds of Trust of record. If you should have knowledge of any outstanding obligation, please contact the Title Department immediately for further review prior to closing.

- i. The Company will require a survey of the subject Land, which is in compliance with minimum technical standards, prepared by a duly registered and licensed surveyor. If the owner of the Land the subject of this transaction is in possession of a survey, the Company will require that said survey be submitted for review and approval; otherwise, a new survey, satisfactory to the Company, must be submitted to the Company for examination. In order to prevent delays, please furnish the survey at least 10 days prior to the close of this transaction.

If an existing survey is to be relied upon, an affidavit from the seller(s)/mortgagor(s) must be furnished to the Company stating that no improvements have been made on the Land the subject of this transaction or adjacent thereto subsequent to the survey presented to the Company.

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

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**SCHEDULE B**  
**PART I – Requirements**  
(Continued)

- I. In consideration of the issuance of ALTA Endorsement 35.3-06 the Company must receive a copy of the signed and approved “Plans”, means those site and elevation plans made by the architect or engineer please provide all sheets/ pages as are approved from the appropriate governing authority providing the following information with respect to the Land:
- a. Zoning and permitted uses, if a separate zoning letter or report is not furnished.
  - b. Location and placement of contemplated buildings or structures
  - c. Any restrictions of said development, such as set backs, height restrictions, composition and structural requirements, access, parking or other required development standards.

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

- j. Recordation of properly executed plat for the land described herein with the approval of the proper governing authorities noted thereon.

Note: When the above requirement is met, the legal description shown as Item No. 5 of Schedule A will be amended.

Note: This Commitment, and the policy to be issued, are subject to such further requirements and/or exceptions as may be necessary upon review of the plat, by the Company.

- k. In consideration of the issuance the 100.31 and 35.3 Endorsement as to platted residential lots only as contemplated in Schedule A (5) the following shall be required:

1. Provide a copy of the Mineral Search and Ownership report that is the basis of all notifications pursuant to 24-65.5-103 CRS .
2. Provide copies of all Notifications
3. Provide copies of all responses to said Notifications
4. Provide a copy of the certification as to notification as to be required as part of the platting of the subject property.
5. A fully approved and recorded subdivision plat creating the residential lots as contemplated .

The Company reserves the right to add additional items or make further requirements upon review of the above requested items and may include:

A relinquishment of Surface rights by all Mineral Rights owners and lessees as applicable, in a form acceptable to the Company.

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**SCHEDULE B**  
**PART I – Requirements**  
(Continued)

**Note: Please be aware that due to the conflict between federal and state laws concerning the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving Land that is associated with these activities.**

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**END OF REQUIREMENTS**

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## **SCHEDULE B**

### **PART II – EXCEPTIONS**

THIS COMMITMENT DOES NOT REPUBLISH ANY COVENANT, CONDITION, RESTRICTION, OR LIMITATION CONTAINED IN ANY DOCUMENT REFERRED TO IN THIS COMMITMENT TO THE EXTENT THAT THE SPECIFIC COVENANT, CONDITION, RESTRICTION, OR LIMITATION VIOLATES STATE OR FEDERAL LAW BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, GENDER IDENTITY, HANDICAP, FAMILIAL STATUS, OR NATIONAL ORIGIN.

The Policy will not insure against loss or damage resulting from the terms and provisions of any lease or easement identified in Schedule A, and will include the following Exceptions unless cleared to the satisfaction of the Company:

1. Any facts, rights, interests or claims that are not shown by the Public Records but which could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
2. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
3. Any encroachments, encumbrances, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by Public Records.
4. Any lien or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the Public Records.
5. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the Public Records or attaching subsequent to the effective date hereof but prior to the date the proposed Insured acquires of record for the value the estate or interest or mortgage thereon covered by this Commitment.

NOTE: The above exception will not appear on policies where closing and settlement has been performed by the Company.

6. Water rights, claims of title to water, whether or not these matters are shown by the Public Records.

Note: The following documents affecting water rights are some that were found of record:

1. Quit Claim Deed from Seltzer Farms, Inc., to The Estate of Robert L. Seltzer recorded April 4, 1994 in Book 4290 at Page 274, affecting all Parcels.

7. All taxes and assessments, now or heretofore assessed, due or payable..
8. Any existing leases or tenancies, and any and all parties claiming by, through or under said lessees.

NOTE: Items No. 1-3 & 5 of Standard Exceptions shall be deleted on the Final 2006 ALTA Owners Policy upon satisfaction of the requirements set forth in Schedule B-1 herein.

Upon regional underwriting approval and satisfaction of the requirements set forth in schedule B-1 of the commitment No. 4 above will be amended as follows:

Any lien, or right of a lien, for services, labor or material heretofore or hereafter furnished, to the extent such lien or claim of lien arises out of or is in connection with the construction work performed on the Land by or at the request of the Insured, its contractors, subcontractors or agents.

Item No. 7 will be amended to read as follows upon proof of payment of all taxes and assessments;

“Taxes and assessments for the year 2022 and subsequent years, a lien, but not yet due or payable.”

Item No. 8 will be deleted upon receipt of a final affidavit and indemnity stating and affirming there are no lease or tenancies associated with the property recorded or unrecorded

9. Right of way for the Signal Ditch, as the same now exists on said land as shown on the survey as prepared by KT Engineering Dated June 12, 2022 as Project No 00009-2270
10. Reservations made by the Union Pacific Railway Company in the deed set forth below, providing substantially as follows: Reserving unto the company and its assigns all coal that may be found underneath surface of the Land and the exclusive right to prospect and mine for same, also such right of way and other grounds as may appear necessary for proper working of any coal mines that may be developed upon the Land, and for transportation of coal from same, and any and all assignments thereof or interests therein:

Recording Date: June 18, 1889  
Recording No.: Book A11 at Page 502

Affects all Parcels

Note: Quitclaim Deed from Union Pacific Railroad Company to Union Pacific Land Resources Corporation recorded April 14, 1971 in Book 1684 at Page 281.

Note: Release and Quitclaim Deed from Union Pacific railroad Company to Union Pacific Land Resources Corporation recorded November 23, 1998 in Book 5547 at Page 272.

Note: Request For Notification of Surface Development by RME Petroleum Company and/or RME Land Corp. recorded May 20, 2002 at Reception No. C0971622.

11. Terms, conditions, provisions, agreements and obligations contained in the Right of Way Agreement from John Weigandt, Jr., Mary Martha Weigandt and John H. Weigandt to Carl C. Seltzer as set forth below:

Recording Date: June 3, 1963  
Recording No.: Book 1070 at Page 501

Affects a portion of Parcel One

Note: Said easement was conveyed by Seltzer Farms, Inc. in instrument recorded March 22, 1972 in Book 1786 at Page 970.

Note: Said easement was further conveyed to Todd Creek Farms Metropolitan District No. 1 by instrument recorded August 7, 2001 at Reception No. C0839204.

12. An oil and gas lease in favor of T.S. Pace for the term therein provided with certain covenants, conditions and provisions, together with easements, if any, as set forth therein, and any and all assignments thereof or interests therein.

Recording Date: July 20, 1970  
Recording No: Book 1614 at Page 156

Affects Parcels Two and Three

Note: Amendment to Oil and Gas Lease recorded July 14, 1986 in Book 3170 at Page 695.

Note: Amendment to Oil and Gas Lease recorded July 30, 1987 in Book 3349 at Page 772.

Note: Affidavit of Extension of Oil and Gas Leases recorded December 18, 1992 in Book 4000 at Page 977.

13. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Amoco Production Company  
Purpose: pipeline  
Recording Date: October 28, 1985

Recording No: Book 3066 at Page 218

Affects Parcel One

14. Subject to the effect of the Notice of General Description of Area Served By Panhandle Eastern Pipe Line Company recorded June 25, 1986 in Book 3162 at Page 961.

Affects all Parcels

15. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Associated Natural Gas, Inc.  
Purpose: pipelines  
Recording Date: December 18, 1992  
Recording No: Book 4001 at Page 709

Affects Parcel One

16. Terms, conditions, provisions, agreements and obligations contained in the Valve Site Contract in favor of Associated Natural Gas, Inc. as set forth below:

Recording Date: February 11, 1993  
Recording No.: Book 4025 at Page 752

Affects all Parcels

17. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Associated Natural Gas, Inc.  
Purpose: pipelines  
Recording Date: February 11, 1993  
Recording No: Book 4025 at Page 755

Affects all Parcels

18. Minerals and mineral rights granted to The Estate of Robert L. Seltzer, Jack Seltzer and Timothy R. Seltzer, Co-Personal Representatives, by Seltzer Farms, Inc., in Mineral Deed, dated February 15, 1994, recorded April 4, 1994 at Book 4290 at Page 273.

Affects all Parcels

Note: The following documents affecting the mineral rights were found as follows:

1. Personal Representative's Mineral Deed from the Estate of Robert L. Seltzer to the Robert L. Seltzer Family Trust recorded August 3, 1994 in Book 4366 at Page 714, affecting all Parcels.

2. Mineral Deed from the Estate of Earl A. Saurini to the Trustees of the Teresa Saurini Trust recorded March 25, 1998 in Book 5273 at Page 182, affecting Parcels Two and Three.

3. Notice of Oil and Gas Interests and Surface Use filed by HS Resources, Inc. recorded December 5, 2000 in Book 6346 at Page 784, affecting Parcel One.

4. Notice of Oil and Gas Interests and Surface Use filed by HS Resources, Inc. recorded December 5, 2000 in Book 6346 at Page 787, affecting Parcels Two and Three.

5. Request For Notification (Mineral Estate Owner) by Kerr-McGee Oil & Gas Onshore LP recorded December 24, 2007 at Reception No. 2007000116902, affecting all Parcels.

6. Request For Notification of Pending Surface Development by K.P. Kauffman Company, Inc. (KPK) recorded August 7, 2007 at Reception No. 2007000076064, affecting all Parcels.

7. Personal Representative's Deed from the Estate of Lena Mae Grant to the Lena Mae Grant Irrevocable Trust Under Agreement Dated November 11, 1998, recorded August 12, 2015 at Reception No. 2015000066762, affecting all Parcels.

8. Mineral and Royalty Quit Claim Deed from the CES Trust Dtd 11/13/1987 to the Audrey L. Hlaus Family Trust, Angela K. Richison, the Parker M. Inman Trust, the Molly B. Inman Trust and the Carson H. Inman Trust recorded February 28, 2017 at Reception No. 2017000017963, affecting all Parcels.

9. Wellbore Royalty Assignment from Lincoln Energy Partners II, LLC to Del Rio Royalty Company, LLC recorded June 19, 2019 at Reception No. 2019000044848.

10. Assignment, Bill of Conveyance and Deed and Assignment from Vincent F. Connelly to Francis G. Capece Interest, recorded August 16, 2019 at Reception No. 2019000066661, affecting Parcel One.

19. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: United Power, Inc.  
Purpose: electric facilities  
Recording Date: June 2, 2000  
Recording No: Book 6146 at Page 192

Affects Parcel Two

20. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Todd Creek Farms Metropolitan District No. 1  
Purpose: water pipeline  
Recording Date: August 7, 2001  
Recording No: Reception No. C0839203

Affects Parcel Two

21. Terms, conditions, provisions, agreements and obligations contained in the Todd Creek Village Preliminary PUD Plan as set forth below:

Recording Date: August 23, 2002  
Recording No.: Reception No. C1014679

Affects all Parcels

Note: upon approval of a new site plan or PUD for subject property exception No. 21 above shall be deleted.

22. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: United Power, Inc.  
Purpose: utility, electrical and communications facilities  
Recording Date: January 19, 2016  
Recording No: Reception No. 2016000004196

Affects Parcel One

23. Terms, conditions, provisions, agreements and obligations contained in the Subsurface Easement Agreement in favor of PetroShare Corp. as set forth below:

Recording Date: December 19, 2016  
Recording No.: Reception No. 2016000110382



Affects Parcels Two and Three

24. Terms, conditions, provisions, agreements and obligations contained in the Easement Deed and Agreement in favor of Todd Creek Village Metropolitan District for pipelines as set forth below:

Recording Date: February 23, 2017  
Recording No.: Reception No. 2017000016777

Affects all Parcels

25. Terms, conditions, provisions, agreements and obligations contained in the Memorandum of Right of Way Agreement in favor of Discovery DJ Services, LLC as set forth below:

Recording Date: March 12, 2018  
Recording No.: Reception No. 2018000020118

Affects Parcels Two and Three

26. Terms, conditions, provisions, agreements and obligations contained in the Nonexclusive Sub-Easement Agreement by and between Discovery DJ Services, LLC and Todd Creek Village Metropolitan District as set forth below:

Recording Date: March 30, 2018  
Recording No.: Reception No. 2018000025837

Amendment to Nonexclusive Sub-Easement Agreement:

Recording Date: July 07, 2020  
Recording No.: Reception No.2020000061491

Affects all Parcels

27. The following items as set forth on the ALTA/NSPS survey as prepared by KT Engineering Dated June 12, 2022 as Project No 00009-2270

- a. location of fence lines and any boundary discrepancy due to the location of fence lines and the effect of any right, title or interest that may be claimed due to any said discrepancy.
- b. Irrigation ditches in various locations with no apparent easements of record
- c. Gravel roads traversing subject property, appearing to provide access to various wells and and various Oil and Gas development structures and facilities
- d. Right-of-way for Yosemite street laying east of centerline as noted

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**END OF EXCEPTIONS**

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## DISCLOSURE STATEMENT

- Pursuant to Section 38-35-125 of Colorado Revised Statutes and Colorado Division of Insurance Regulation 8-1-2 (Section 5), if the parties to the subject transaction request us to provide escrow-settlement and disbursement services to facilitate the closing of the transaction, then all funds submitted for disbursement must be available for immediate withdrawal.
- Colorado Division of Insurance Regulation 8-1-2, Section 5, Paragraph H, requires that "Every title insurance company shall be responsible to the proposed insured(s) subject to the terms and conditions of the title insurance commitment, other than the effective date of the title insurance commitment, for all matters which appear of record prior to the time of recording whenever the title insurance company, or its agent, conducts the closing and settlement service that is in conjunction with its issuance of an owners policy of title insurance and is responsible for the recording and filing of legal documents resulting from the transaction which was closed". Provided that Fidelity National Title, National Commercial Services conducts the closing of the insured transaction and is responsible for recording the legal documents from the transaction, exception No. 5 in Schedule B-2 will not appear in the Owner's Title Policy and Lender's Title Policy when issued.
- Colorado Division of Insurance Regulation 8-1-2, Paragraph M of Section 5, requires that prospective insured(s) of a single family residence be notified in writing that the standard exception from coverage for unfiled Mechanics or Materialmans Liens may or may not be deleted upon the satisfaction of the requirement(s) pertinent to the transaction. These requirements will be addressed upon receipt of a written request to provide said coverage, or if the Purchase and Sale Agreement/Contract is provided to the Company then the necessary requirements will be reflected on the commitment.
- Colorado Division of Insurance Regulation 8-1-3, Paragraph C. 11.f. of Section 5 - requires a title insurance company to make the following notice to the consumer: "A closing protection letter is available to be issued to lenders, buyers and sellers."
- If the sales price of the subject property exceeds \$100,000.00 the seller shall be required to comply with the Disclosure of Withholding Provisions of C.R.S. 39-22-604.5 (Nonresident Withholding).
- Section 39-14-102 of Colorado Revised Statutes requires that a Real Property Transfer Declaration accompany any conveyance document presented for recordation in the State of Colorado. Said Declaration shall be completed and signed by either the grantor or grantee.
- Recording statutes contained in Section 30-10-406(3)(a) of the Colorado Revised Statutes require that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right, and bottom margin of at least one-half of an inch. The clerk and recorder may refuse to record or file a document that does not conform to requirements of this paragraph.
- Section 38-35-109 (2) of the Colorado Revised Statutes, requires that a notation of the purchasers legal address, (not necessarily the same as the property address) be included on the face of the deed to be recorded.
- Regulations of County Clerk and Recorder's offices require that all documents submitted for recording must contain a return address on the front page of every document being recorded.
- Pursuant to Section 10-11-122 of the Colorado Revised Statutes, the Company is required to disclose the following information:
  - The subject property may be located in a special taxing district.
  - A Certificate of Taxes Due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent.
  - Information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder or the County Assessor.
- Pursuant to Section 10-11-123 of the Colorado Revised Statutes, when it is determined that a mineral estate has been severed from the surface estate, the Company is required to disclose the following information: that there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the surface estate and that there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and that such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note: Notwithstanding anything to the contrary in this Commitment, if the policy to be issued is other than an ALTA Owner's Policy (6/17/06), the policy may not contain an arbitration clause, or the terms of the arbitration clause may be different from those set forth in this Commitment. If the policy does contain an arbitration clause, and the Amount of Insurance is less than the amount, if any, set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties.

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## Wire Fraud Alert

This Notice is not intended to provide legal or professional advice. If you have any questions, please consult with a lawyer.

All parties to a real estate transaction are targets for wire fraud and many have lost hundreds of thousands of dollars because they simply relied on the wire instructions received via email, without further verification. **If funds are to be wired in conjunction with this real estate transaction, we strongly recommend verbal verification of wire instructions through a known, trusted phone number prior to sending funds.**

In addition, the following non-exclusive self-protection strategies are recommended to minimize exposure to possible wire fraud.

- **NEVER RELY** on emails purporting to change wire instructions. Parties to a transaction rarely change wire instructions in the course of a transaction.
- **ALWAYS VERIFY** wire instructions, specifically the ABA routing number and account number, by calling the party who sent the instructions to you. **DO NOT** use the phone number provided in the email containing the instructions, use phone numbers you have called before or can otherwise verify. **Obtain the phone number of relevant parties to the transaction as soon as an escrow account is opened.** **DO NOT** send an email to verify as the email address may be incorrect or the email may be intercepted by the fraudster.
- **USE COMPLEX EMAIL PASSWORDS** that employ a combination of mixed case, numbers, and symbols. Make your passwords greater than eight (8) characters. Also, change your password often and do **NOT** reuse the same password for other online accounts.
- **USE MULTI-FACTOR AUTHENTICATION** for email accounts. Your email provider or IT staff may have specific instructions on how to implement this feature.

For more information on wire-fraud scams or to report an incident, please refer to the following links:

**Federal Bureau of Investigation:**  
<http://www.fbi.gov>

**Internet Crime Complaint Center:**  
<http://www.ic3.gov>

# FIDELITY NATIONAL FINANCIAL, INC. PRIVACY NOTICE

**Effective January 1, 2023**

Fidelity National Financial, Inc. and its majority-owned subsidiary companies (collectively, “FNF,” “our,” or “we”) respect and are committed to protecting your privacy. This Privacy Notice explains how we collect, use, and protect personal information, when and to whom we disclose such information, and the choices you have about the use and disclosure of that information.

A limited number of FNF subsidiaries have their own privacy notices. If a subsidiary has its own privacy notice, the privacy notice will be available on the subsidiary’s website and this Privacy Notice does not apply.

## **Collection of Personal Information**

FNF may collect the following categories of Personal Information:

- contact information (e.g., name, address, phone number, email address);
- demographic information (e.g., date of birth, gender, marital status);
- identity information (e.g. Social Security Number, driver’s license, passport, or other government ID number);
- financial account information (e.g. loan or bank account information); and
- other personal information necessary to provide products or services to you.

We may collect Personal Information about you from:

- information we receive from you or your agent;
- information about your transactions with FNF, our affiliates, or others; and
- information we receive from consumer reporting agencies and/or governmental entities, either directly from these entities or through others.

## **Collection of Browsing Information**

FNF automatically collects the following types of Browsing Information when you access an FNF website, online service, or application (each an “FNF Website”) from your Internet browser, computer, and/or device:

- Internet Protocol (IP) address and operating system;
- browser version, language, and type;
- domain name system requests; and
- browsing history on the FNF Website, such as date and time of your visit to the FNF Website and visits to the pages within the FNF Website.

Like most websites, our servers automatically log each visitor to the FNF Website and may collect the Browsing Information described above. We use Browsing Information for system administration, troubleshooting, fraud investigation, and to improve our websites. Browsing Information generally does not reveal anything personal about you, though if you have created a user account for an FNF Website and are logged into that account, the FNF Website may be able to link certain browsing activity to your user account.

## **Other Online Specifics**

**Cookies.** When you visit an FNF Website, a “cookie” may be sent to your computer. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer’s hard drive. Information gathered using cookies helps us improve your user experience. For example, a cookie can help the website load properly or can customize the display page based on your browser type and user preferences. You can choose whether or not to accept cookies by changing your Internet browser settings. Be aware that doing so may impair or limit some functionality of the FNF Website.

**Web Beacons.** We use web beacons to determine when and how many times a page has been viewed. This information is used to improve our websites.

**Do Not Track.** Currently our FNF Websites do not respond to “Do Not Track” features enabled through your browser.

**Links to Other Sites.** FNF Websites may contain links to unaffiliated third-party websites. FNF is not responsible for the privacy practices or content of those websites. We recommend that you read the privacy policy of every website you visit.

## **Use of Personal Information**

FNF uses Personal Information for three main purposes:

- To provide products and services to you or in connection with a transaction involving you.
- To improve our products and services.
- To communicate with you about our, our affiliates’, and others’ products and services, jointly or independently.

## **When Information Is Disclosed**

We may disclose your Personal Information and Browsing Information in the following circumstances:

- to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure;
- to affiliated or nonaffiliated service providers who provide or perform services or functions on our behalf and who agree to use the information only to provide such services or functions;

- to affiliated or nonaffiliated third parties with whom we perform joint marketing, pursuant to an agreement with them to jointly market financial products or services to you;
- to law enforcement or authorities in connection with an investigation, or in response to a subpoena or court order; or
- in the good-faith belief that such disclosure is necessary to comply with legal process or applicable laws, or to protect the rights, property, or safety of FNF, its customers, or the public.

The law does not require your prior authorization and does not allow you to restrict the disclosures described above. Additionally, we may disclose your information to third parties for whom you have given us authorization or consent to make such disclosure. We do not otherwise share your Personal Information or Browsing Information with nonaffiliated third parties, except as required or permitted by law.

We reserve the right to transfer your Personal Information, Browsing Information, and any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets, or in the event of bankruptcy, reorganization, insolvency, receivership, or an assignment for the benefit of creditors. By submitting Personal Information and/or Browsing Information to FNF, you expressly agree and consent to the use and/or transfer of the foregoing information in connection with any of the above described proceedings.

### **Security of Your Information**

We maintain physical, electronic, and procedural safeguards to protect your Personal Information.

### **Choices With Your Information**

Whether you submit Personal Information or Browsing Information to FNF is entirely up to you. If you decide not to submit Personal Information or Browsing Information, FNF may not be able to provide certain services or products to you.

**For California Residents:** We will not share your Personal Information or Browsing Information with nonaffiliated third parties, except as permitted by California law. For additional information about your California privacy rights, please visit the “California Privacy” link on our website (<https://fnf.com/pages/californiaprivacy.aspx>) or call (888) 413-1748.

**For Nevada Residents:** We are providing this notice pursuant to state law. You may be placed on our internal Do Not Call List by calling FNF Privacy at (888) 714-2710 or by contacting us via the information set forth at the end of this Privacy Notice. For further information concerning Nevada’s telephone solicitation law, you may contact: Bureau of Consumer Protection, Office of the Nevada Attorney General, 555 E. Washington St., Suite 3900, Las Vegas, NV 89101; Phone number: (702) 486-3132; email: [aginquiries@ag.state.nv.us](mailto:aginquiries@ag.state.nv.us).

**For Oregon Residents:** We will not share your Personal Information or Browsing Information with nonaffiliated third parties for marketing purposes, except after you have been informed by us of such sharing and had an opportunity to indicate that you do not want a disclosure made for marketing purposes.

**For Vermont Residents:** We will not disclose information about your creditworthiness to our affiliates and will not disclose your personal information, financial information, credit report, or health information to nonaffiliated third parties to market to you, other than as permitted by Vermont law, unless you authorize us to make those disclosures.

**For Virginia Residents:** For additional information about your Virginia privacy rights, please email [privacy@fnf.com](mailto:privacy@fnf.com) or call (888) 714-2710.

### **Information From Children**

The FNF Websites are not intended or designed to attract persons under the age of eighteen (18). We do not collect Personal Information from any person that we know to be under the age of thirteen (13) without permission from a parent or guardian.

### **International Users**

FNF’s headquarters is located within the United States. If you reside outside the United States and choose to provide Personal Information or Browsing Information to us, please note that we may transfer that information outside of your country of residence. By providing FNF with your Personal Information and/or Browsing Information, you consent to our collection, transfer, and use of such information in accordance with this Privacy Notice.

### **FNF Website Services for Mortgage Loans**

Certain FNF companies provide services to mortgage loan servicers, including hosting websites that collect customer information on behalf of mortgage loan servicers (the “Service Websites”). The Service Websites may contain links to both this Privacy Notice and the mortgage loan servicer or lender’s privacy notice. The sections of this Privacy Notice titled When Information is Disclosed, Choices with Your Information, and Accessing and Correcting Information do not apply to the Service Websites. The mortgage loan servicer or lender’s privacy notice governs use, disclosure, and access to your Personal Information. FNF does not share Personal Information collected through the Service Websites, except as required or authorized by contract with the mortgage loan servicer or lender, or as required by law or in the good-faith belief that such disclosure is necessary: to comply with a legal process or applicable law, to enforce this Privacy Notice, or to protect the rights, property, or safety of FNF or the public.

### **Your Consent To This Privacy Notice; Notice Changes**

By submitting Personal Information and/or Browsing Information to FNF, you consent to the collection and use of the information in accordance with this Privacy Notice. We may change this Privacy Notice at any time. The Privacy Notice’s effective date will show the

last date changes were made. If you provide information to us following any change of the Privacy Notice, that signifies your assent to and acceptance of the changes to the Privacy Notice.

**Accessing and Correcting Information; Contact Us**

If you have questions or would like to correct your Personal Information, visit FNF's [Privacy Inquiry Website](#) or contact us by phone at (888) 714-2710, by email at [privacy@fnf.com](mailto:privacy@fnf.com), or by mail to:

Fidelity National Financial, Inc.  
601 Riverside Avenue  
Jacksonville, Florida 32204  
Attn: Chief Privacy Officer



**OWNERS NAME AND ADDRESS:**

CARLSON TAYLOR R UND 24.25% INT AND THORNTON CORY J UND 24.25 INT ET ALS  
PO BOX 247  
EASTLAKE CO 80614-0247

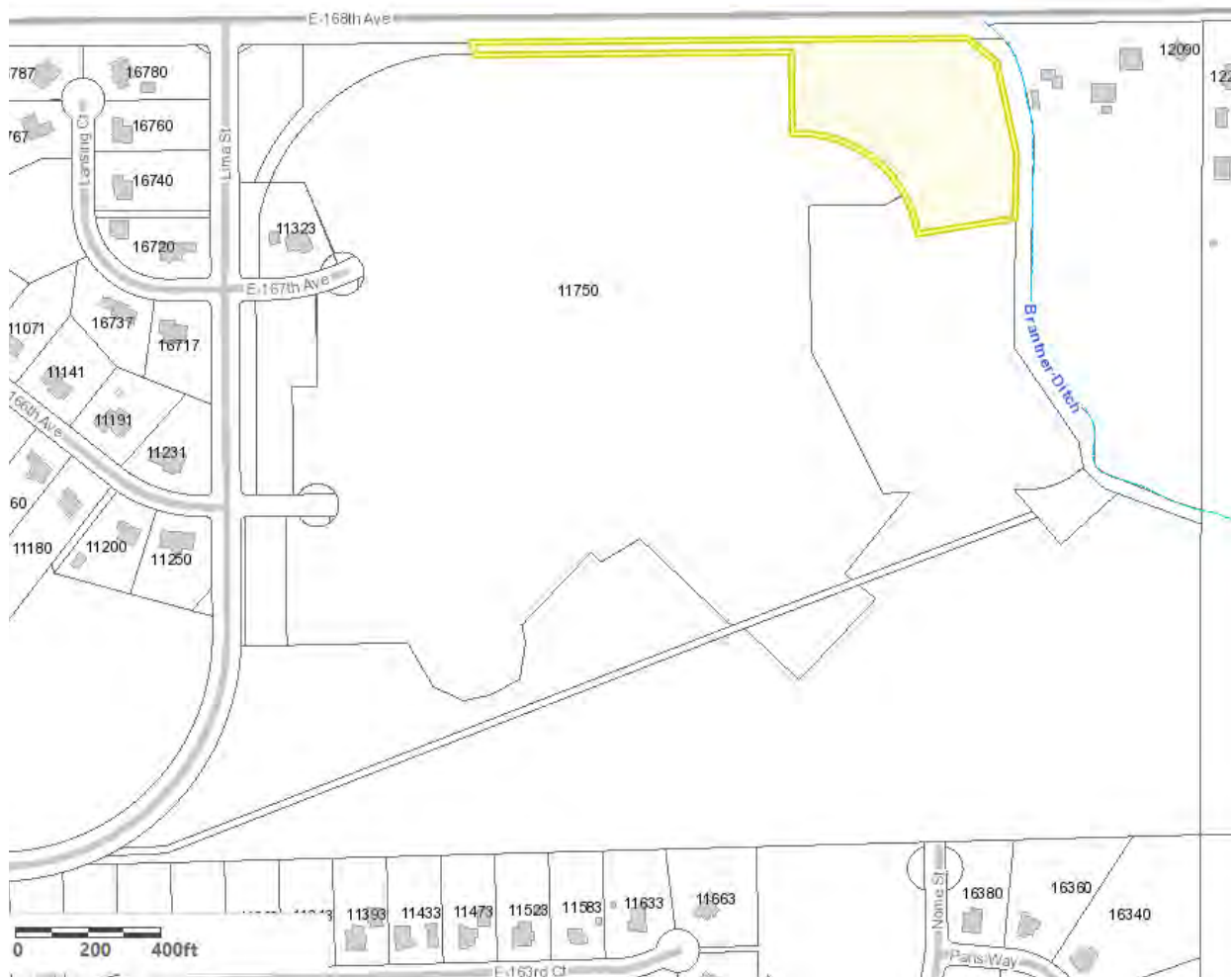




**LEGAL DESCRIPTION:**

SSECT,TWN,RNG 2-1-67 DESC: FILING 3 PARC OF LAND IN THE N2 OF SEC 2 DESC AS FOLS BEG AT THE N4 COR OF SD SEC 2 TH S 00D 18M 00S E 1740/35 FT TO THE TRUE POB TH N 88D 42M 24S E 449/52 FT TH S 30D 11M 58S E 141/65 FT TH S 65D 06M 44S E 92/65 FT TH N 77D 55M 13S E 71/90 FT TH N 63D 08M 15S E 96/61 FT TH N 08D 41M 57S E 104/23 FT TH N 11D 46M 07S W 49/32 FT TH N 43D 28M 12S E 278/60 FT TH S 46D 31M 48S E 38/61 FT TH N 59D 01M 35S E 125/55 FT TH S 46D 31M 48S E 373/32 FT TH N 43D 28M 12S E 19/41 FT TH S 46D 31M 48S E 217/72 FT TH N 43D 28M 12S E 310/21 FT TH N 51D 20S 53S W 110/56 FT TH N 38D 39M 07S E 289/75 FT TH S 88D 27M 02S W 75/26 FT TH N 26D 45M 09S W 436/61 FT TH N 01D 26M 05S W 408/72 FT TH N 89D 31M 29S E 213/18 FT TH N 60D 44M 33S E 60 FT TH ALG A NON TANG CURV TO THE RT WHOSE CHD BRS S 19D 04M 36S E 116/66 FT HAV A RAD OF 330 FT A CENT ANG OF 20D 21M 41S AN ARC DIST OF 117/27 FT TH N 81D 06M 14S E 274/30 FT TH S 00D 29M 02S W 357/51 FT TH S 34D 19M 47S E 318/71 FT TH S 09D 10M 59S E 42/43 FT TH S 12D 28M 43S E 35/75 FT TH S 46D 30M 02S E 61/22 FT TO A PT OF CURVATURE TH ALG A CURV TO THE LEFT WHOSE CHD BRS 58D 10M 08S E 24/27 FT HAV A RAD OF 60 FT A CENT ANG OF 23D 20S 11S AN ARC DIST OF 24/44 FT TH S 69D 50M 13S E 276/62 FT TH ALG SD ELY LN S 00D 13M 18S W 862/85 FT TH ALG THE SLY LN OF THE NE4 OF SD SEC 2 S 88D 26M 56S W 2647/64 FT TH ALG THE SLY LN OF THE NW4 OF SD SEC 2 S 88D 27M 02S W 448/93 FT TH ALG A NON TANG CURV TO THE LEFT WHOSE CHD BRS N 35D 26M 30S E 745/70 FT HAV A RAD OF 680 FT A CENT ANG OF 66D 30M 07S AN ARC DIST OF 789/26 FT TH N 88D 42M 24S E 13/15 FT TO THE POB AND EXC PT PLATTED AS TRACTS K AND L BASELINE LAKES FILING NO 1 55/0079A





**OWNERS NAME AND ADDRESS:**

CARLSON TAYLOR R UND 24.25% INT AND THORNTON CORY J UND 24.25 INT ET ALS  
 PO BOX 247  
 EASTLAKE CO 80614-0247

**LEGAL DESCRIPTION:**

SUB:BASELINE LAKES SUBDIVISION FILING NO 1 DESC: TRACT M





**OWNERS NAME AND ADDRESS:**

CARLSON TAYLOR R UND 24.25% INT AND THORNTON CORY J UND 24.25 INT ET ALS  
 PO BOX 247  
 EASTLAKE CO 80614-0247





**LEGAL DESCRIPTION:**

SECT,TWN,RNG 2-1-67 DESC: FILING 2 PARC OF LAND IN THE N2 OF SEC 2 DESC AS FOLS BEG AT THE N4 COR OF SD SEC 2 TH S 04D 44M 25S E 70/19 FT TO THE TRUE POB TH N 89D 31M 29S E 2007/46 FT TH S 51D 05M 34S E 103/75 FT TH S 14D 37M 55S E 123/14 FT TH S 09D 37M 50S E 136/75 FT TH S 00D 29M 02S W 181/53 FT TH S 81D 06M 14S W 274/30 FT TH ALG A NON TANG CURV TO THE LEFT WHOSE CHD BRS N 19D 04M 36S W 116/66 FT HAV A RAD OF 330 FT A CENT ANG OF 20D 21M 41S AN ARC DIST OF 117/27 FT TH S 60D 44M 33S W 60 FT TH S 89D 31M 29S W 213/18 FT TH S 01D 26M 05S E 408/72 FT TH S 26D 45M 09S E 436/61 FT TH N 88D 27M 02S E 75/26 FT TH S 38D 39M 07S W 289/75 FT TH S 51D 20M 53S E 110/56 FT TH S 43D 28M 12S W 310/21 FT TH N 46D 28M 12S W 310/21 FT TH N 46D 31M 48S W 217/72 FT TH S 43D 28M 12S W 19/41 FT TH N 46D 31M 48S W 373/32 FT TH S 59D 01M 35S W 125/55 FT TH N 46D 31M 48S W 38/61 FT TH S 43D 28M 12S W 278/60 FT TH S 11D 46M 07S E 49/32 FT TH S 08D 41M 57S W 104/23 FT TH S 63D 08M 15S W 96/61 FT TH S 77D 55M 13S W 71/90 FT TH N 65D 06M 44S W 92/65 FT TH N 30D 11M 58S W 141/65 FT TH S 88D 42M 24S W 335/09 FT TH 00D 28M 31S W 388.15 FT TH N 89D 31M 29S E 20/97 FT TH N 00D 28M 31S W 329/32 FT TH N 89D 31M 29S E 69/58 FT TH N 00D 28M 31S W 369/54 FT TH S 89D 31M 29S W 196/09 FT TO A PT OF CURVATURE TH ALG A CURV TO THE RT WHOSE CHD BRS N 45D 23M 16S W 25/49 FT HAV A RAD OF 18 FT A CENT ANG OF 90D 10M 31S AN ARC DIST OF 28/33 FT TH N 00D 18M 00S W 545/70 FT TO A PT CURVATURE TH ALG A CURV TO THE RT WHOSE CHD BRS N 44D 36M 44S E 25/42 FT HAV A RAD OF 18 FT A CENT ANG OF 89D 49M 29S AN ARC DIST OF 28/22 FT TO THE POB AND EXC PT PLATTED 53/4628A





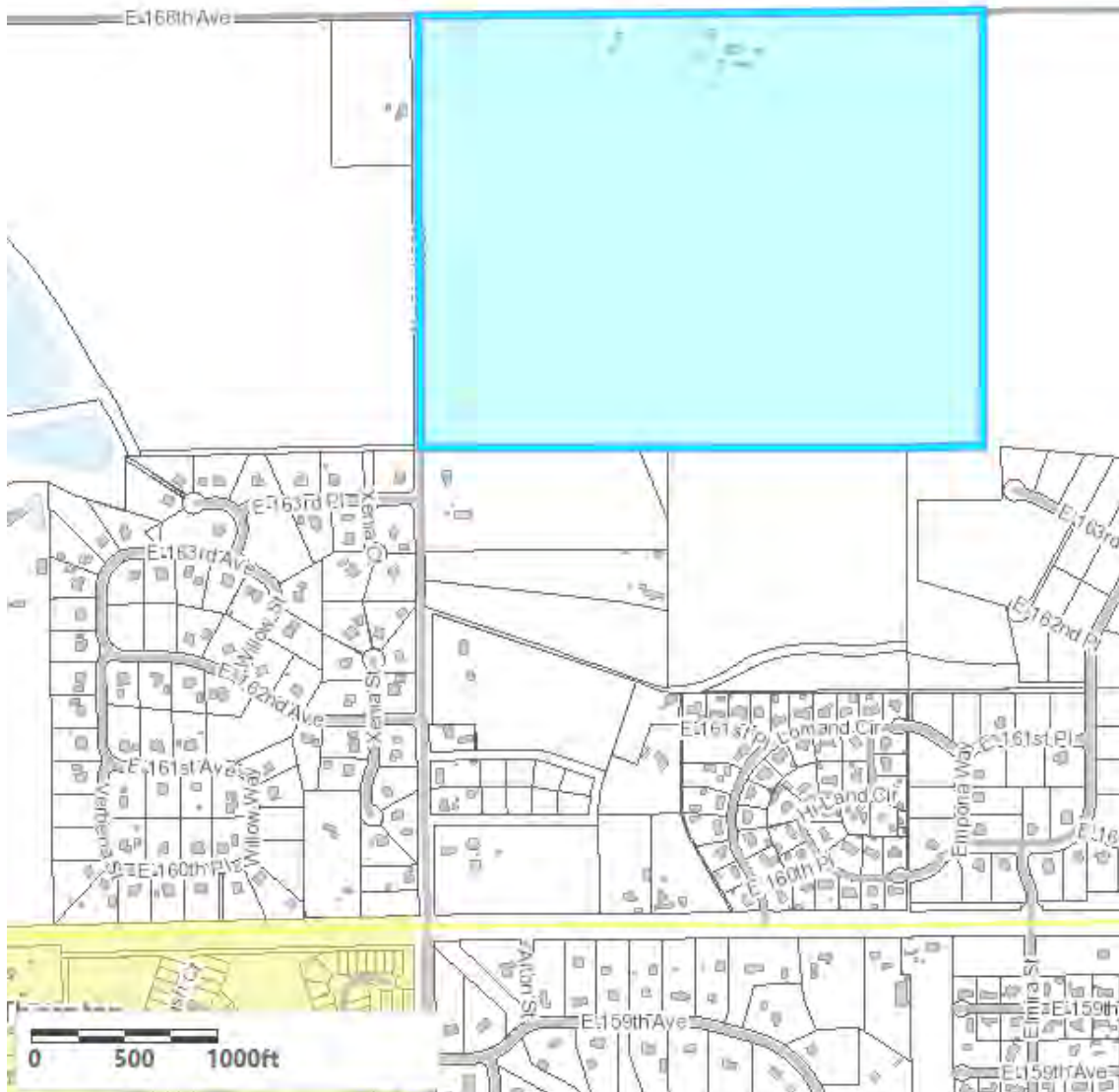
**OWNERS NAME AND ADDRESS:**

BASELINE LAKES HOLDINGS LLC  
 PO BOX 247  
 EASTLAKE CO 80614-0247

**LEGAL DESCRIPTION:**

SECT,TWN,RNG:2-1-67 DESC: PT OF THE NW4 AND PT OF THE NE4 OF SEC 2 DESC AS FOLS BEG AT THE NW COR OF SD SEC 2 TH E 2253/29 FT TO THE TRUE POB TH S 588/95 FT TH E 414/55 FT TO A PT ON THE E LN OF THE NW4 COR OF SD SEC 2 BRS N 588/95 FT TH S 1747/03 FT TH N 88D 26M E 2647/56 FT TH N 901/46 FT TO A PT ON THE C/L OF THE NEW BRANTNER DT FROM WHENCE THE NE COR OF SD SEC 2 BRS N 1385/05 FT TH ALG THE C/L OF SD DT THE FOL II COURSES N 69D 18M W 277/13 FT TH N 45D 48M W 54/58 FT TH N 74/01 FT TH N 19D 07M W 67/92 FT TH N 43D 16M W 125/68 FT TH N 26D 51M W 138/49 FT TH N 545/78 FT TH N 10D 37M W 174/57 FT TH N 18D 35M W 71/95 FT TH N 38D 55M W 54/54 FT TH N 47D 46M W 93/14 FT TH W 2035/75 FT TH W 414/55 FT TO THE TRUE POB EXC PT PLATTED AND EXC PARCELS 4/3705A





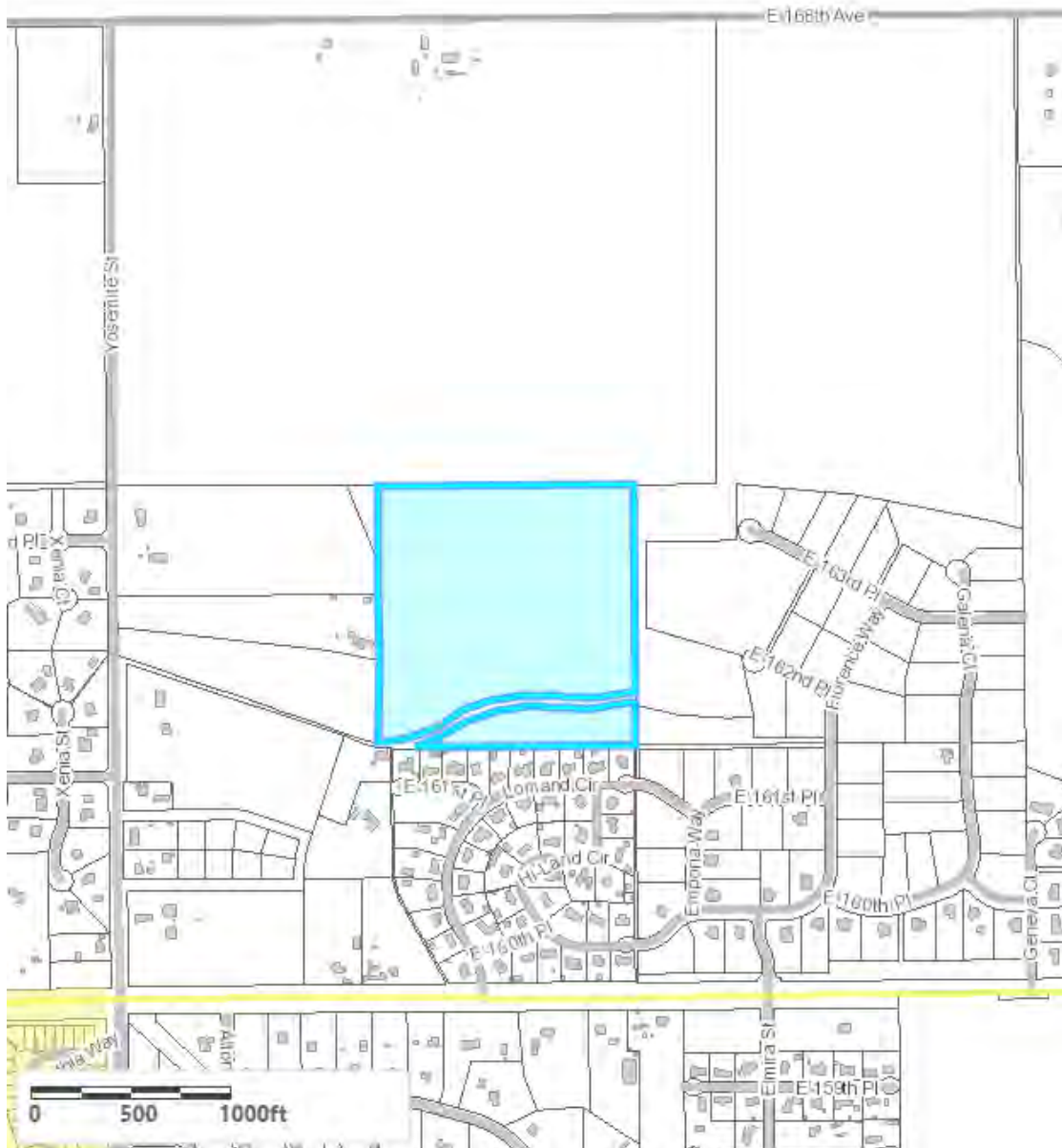
**OWNERS NAME AND ADDRESS:**

SELTZER FARMS INC  
 9390 E 168TH AVE  
 BRIGHTON CO 80602-6606

**LEGAL DESCRIPTION:**

SECT,TWN,RNG:3-1-67 DESC: BEG AT NW COR SEC 3 TH E ON N LN SD SEC 3055 FT TH S 2385/8 FT TO PT ON E/W C/L SD SEC TH W 3073 FT TO CENT OF W LN SD SEC TH N 2377/6 FT TO POB 167/79A





**OWNERS NAME AND ADDRESS:**

SELTZER FARMS INC  
9390 E 168TH AVE  
BRIGHTON CO 80602

**LEGAL DESCRIPTION:**

SECT,TWN,RNG:3-1-67 DESC: NE4 SW4 EXC SIGNAL DT ROW 38/71A



**OWNERS NAME AND ADDRESS:**

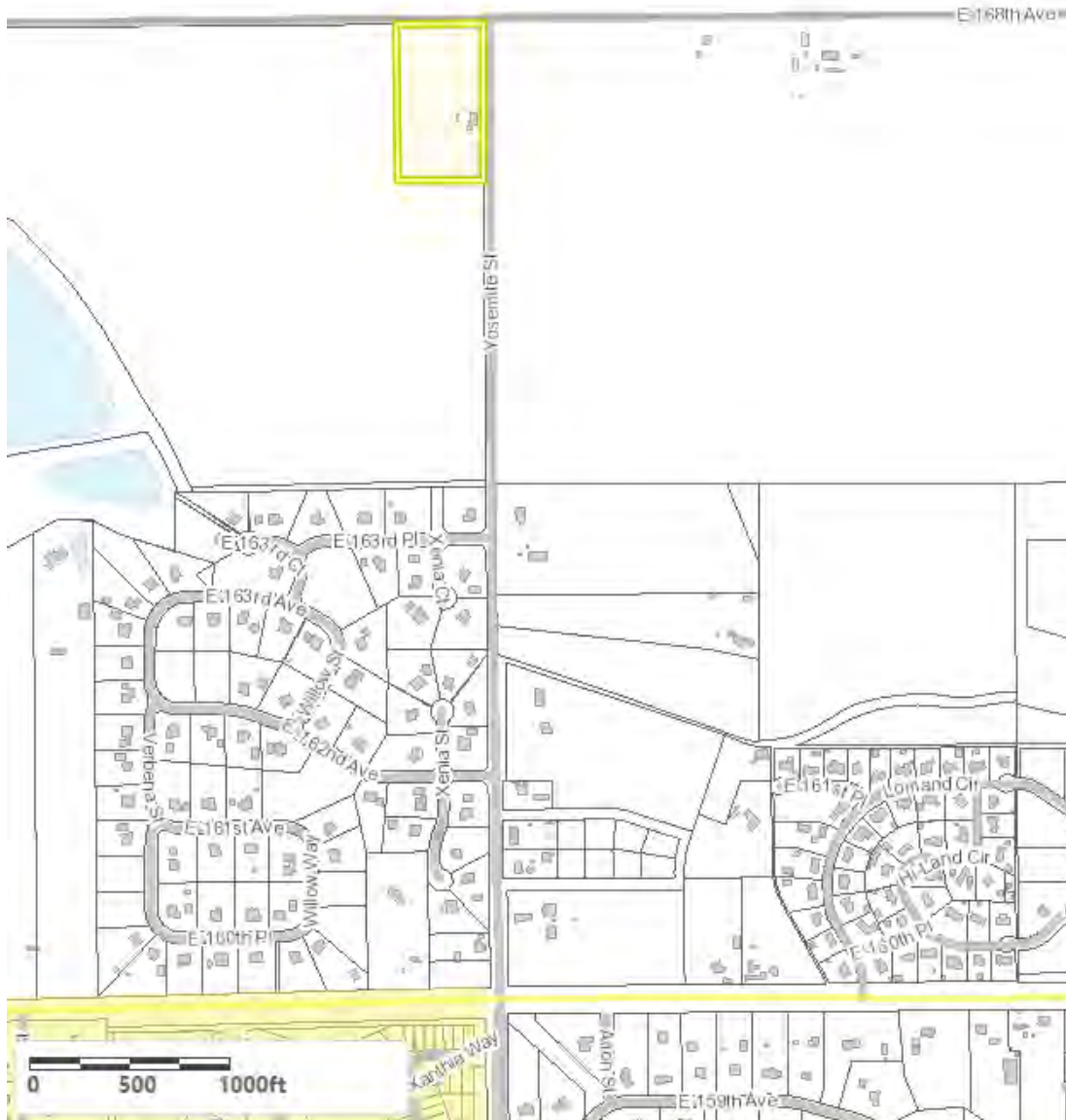
SELTZER FARMS INC  
 9390 E 168TH AVE  
 BRIGHTON CO 80602

**LEGAL DESCRIPTION:**

SECT,TWN,RNG:3-1-67 DESC: BEG AT NE COR NW4 SW4 SEC 3 TH W ALG N LN 152 FT TH S 21D 57M  
 E 413 FT TO PT ON E LN TH N 383 FT TO POB 0/69A







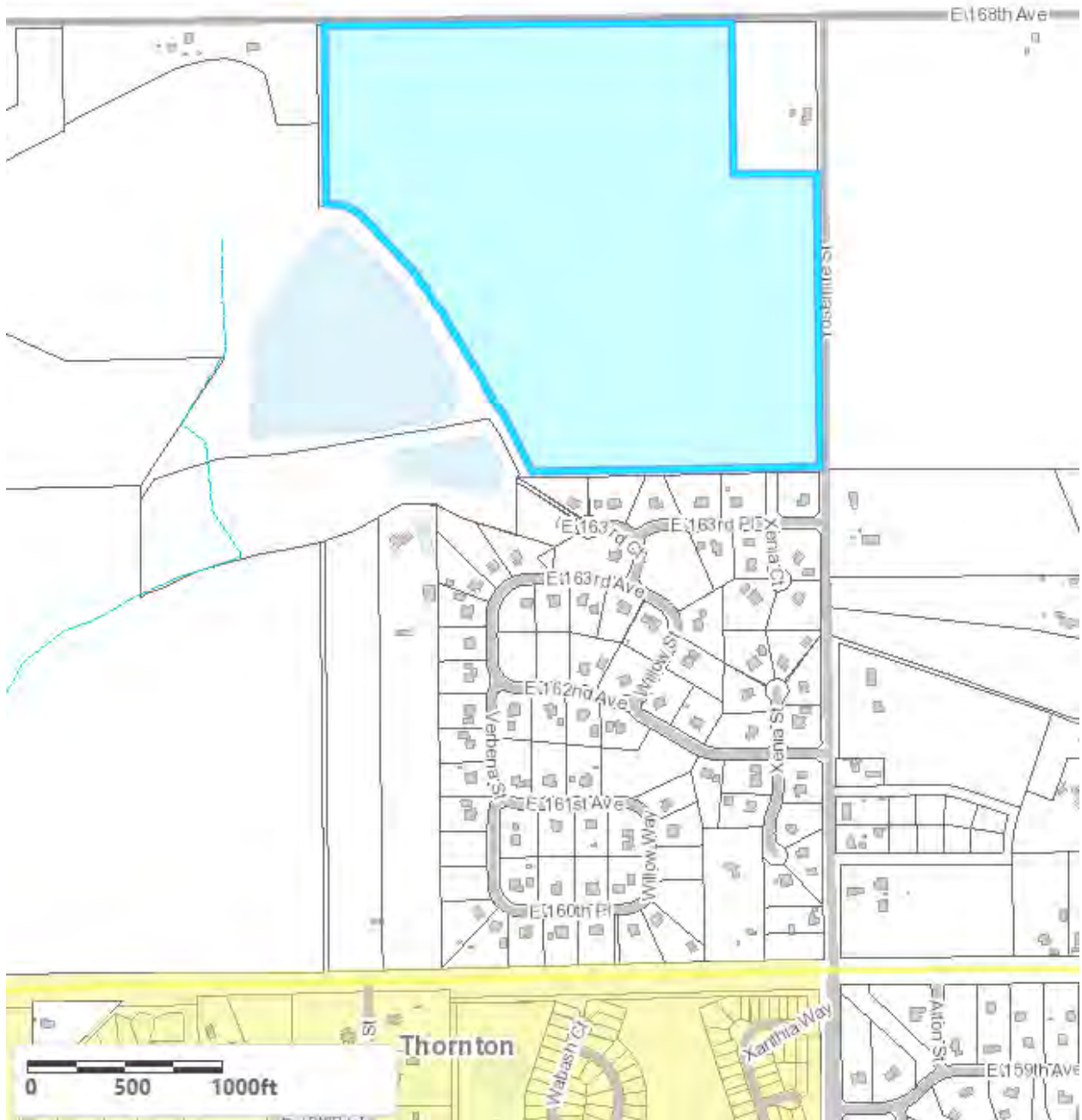
**OWNERS NAME AND ADDRESS:**

SELTZER FARMS INC  
 16705 YOSEMITE ST  
 BRIGHTON CO 80602

**LEGAL DESCRIPTION:**

SECT,TWN,RNG:4-1-67 DESC: PT OF NE4 SEC 4 DESC AS FOL BEG 40 FT W OF NE COR SD SEC TH CONT W 438/74 FT TH S 820 FT TH E 438/74 FT TO A PT 40 FT W OF E LN NE4 SD SEC TH N 820 FT TO TRUE POB EXC N 30 FT FOR RD 7/957A





**OWNERS NAME AND ADDRESS:**

HSG LAND LLC

10450 E 159TH CT

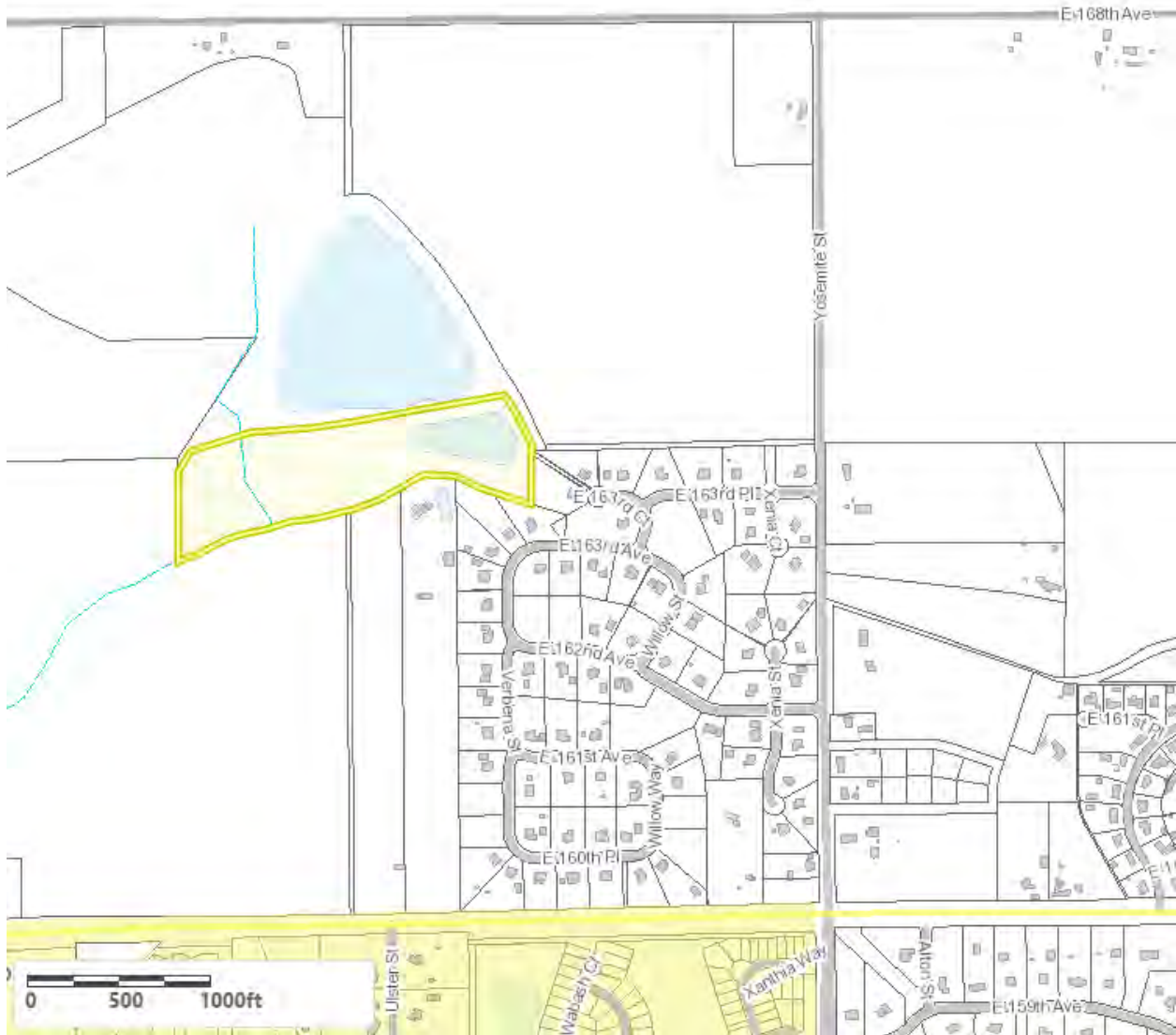
BRIGHTON CO 80602-7977



**LEGAL DESCRIPTION:**

SECT,TWN,RNG:4-1-67 DESC: PT OF NE4 SEC 4 DESC AS FOL BEG AT N4 COR SEC 4 TH S 1092/40 FT TO SW COR NW4 NE4 SD SEC TH E 305 FT TH S 31D 38M E 1377/30 FT TO A PT WHICH IS 298 FT W OF AND 140 FT N OF SW COR SE4 NE4 SEC 4 TH S TO S LN SD NE4 SEC 4 TH E 1583/98 FT TO A PT 40 FT W OF E4 COR SD SEC 4 TH N 1558/89 FT TH W 438/74 FT TH N 820 FT TH W 2177/58 FT TO POB EXC N 30 FT FOR RD AND EXC PARCS (2009000049874/2009000021950) AND (2010000052390) AND EXC PARC (2013000074188) 107/7065A





**OWNERS NAME AND ADDRESS:**

TODD CREEK VILLAGE METROPOLITAN DISTRICT  
10450 E 159TH CT  
BRIGHTON CO 80602-7977

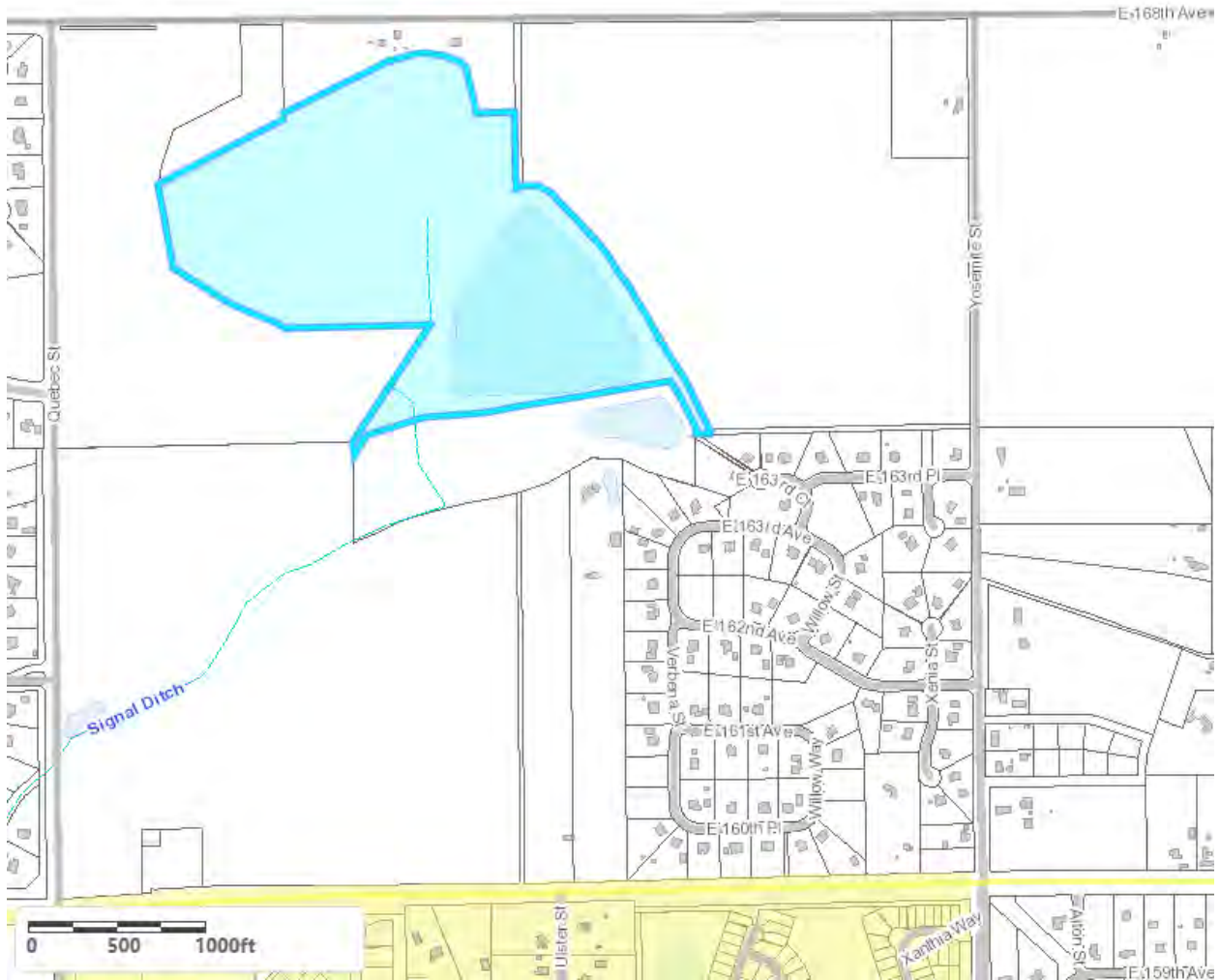




**LEGAL DESCRIPTION:**

SECT,TWN,RNG:4-1-67 DESC: A PARC OF LAND IN SEC 4 DESC AS FOL BEG AT A PT ON E AND W C/L OF SD SEC THAT IS 298 FT W OF THE SE COR OF SW4 NE4 SD SEC TH S 296 FT TO A PT TH N 71D 48M W 295 FT TH N 50D 36M W 150 FT TH N 77D 36M W 155 FT TH S 70D 44M W 170 FT TH S 59D 51M W 245 FT TH S 75D 49M W 665 FT TH S 69D 28M W 315 FT TH S 63D 30M W 135 FT TH N 482 FT TH N 33D 55M E 130 FT TH N 73D 24M E 350 FT TH N 87D 03M E 347 FT TH N 81D 31M E 236 FT TH N 81D 13M E 334 FT TH N 82D 55M E 210 FT TH N 80D 33M E 305 FT TH S 31D 37M E 200 FT TH S 87D 30M E 50 FT TH S 98 FT TO POB 20A





**OWNERS NAME AND ADDRESS:**

TODD CREEK FARMS METRO DIST NO 1 WATER C/O ZIONS FIRST NATIONAL BANK TRUSTEE  
717 17TH ST STE 301  
DENVER CO 80202-3310



**LEGAL DESCRIPTION:**

SECT,TWN,RNG:4-1-67 DESC: PARC IN SEC 4 DESC AS FOLS COMMENCING AT THE N1/4 COR OF SD SEC 4 TH S 00D 26M 28S E 543/5 FT TO THE POB TH S 00D 26M 26S E 493/04 FT TO A PT BEING 55/73 FT NLY FROM THE CEN N 1/16TH COR OF SD SEC 4 AND BEING A PT ON THE DCRY LN ADJUSTMENT DESC IN BOOK 4931 PAGE 452 TH ALG SD BDRY LN AGREEMENT THE FOL 10 COURSES AND DISTS TH N 89D 31M 59S E 32/19 FT TH S 71D 03M 37S E 115/93 FT TH S 46D 44M 52S E 185/31 FT TH S 52D 43M 55S E 131/26 FT TH S 42D 42M 06S E 70/54 FT TH S 47D 00M 19S E 27/90 FT TH S 34D 53M 37S E 28/74 FT TH S 30D 03M 43S E 404/31 FT TH S 32D 55M 27S E 457/80 FT TH S 25D 59M 02S E 76/03 FT TH DEPARTING SD BDRY LN ADJUSTMENT AND ALG THE N BDRY LN AT A PARC OF LAND FOR TODD CREEK FARMS METRO DIST NO 1 (REC NO C0846354) THE FOL COURSES & DISTS TH N 32D 50M 21S W 114/27 FT TH S 79D 19M 39S W 305 FT TH S 81D 41M 39S W 210 FT TH S 79D 59M 39S W 334 FT TH S 80D 17M 39S W 236 FT TH S 85D 49M 39S W 347 FT TH S 72D 10M 39S W 350 FT TH S 32D 41M 39S W 130 FT TH N 01D 13M 21S W 75 FT TH N 33D 18M 11S E 801/02 FT TH S 88D 46M 39S W 830 FT TH N 65D 28M 27S W 54/31 FT TH N 65D 24M 21S W 291 FT TH N 58D 17M 21S W 390/05 FT TH N 09D 53M 21S W 301 FT TH N 09D 53M 21S W 187/20 FT TH N 62D 38M 48S E 811/12 FT TH N 02D 53M 33S W 27/98 FT TO A PT ON THE SOUTHERN BDRY OF THE EDWARDS PROP THE FOL 16 COURSES TH N 62D 16M 51S E 73/50 FT TH N 63D 04M 07S E 101/27 FT TH N 63D 18M 54S E 97/13 FT TH N 63D 04M 02S E 120/44 FT TH N 63D 17M 41S E 100/72 FT TH N 62D 29M 09S E 56/87 FT TH N 65D 02M 46S E 131/38 FT TH N 75D 55M 20S E 131/74 FT TH N 83D 31M 01S E 98/70 FT TH S 82D 36M 09S E 26/37 FT TH S 79D 22M 49S E 64/20 FT TH S 67D 13M 40S E 98/32 FT TH S 51D 17M 54S E 47/76 FT TH S 13D 24M 16S E 154/59 FT TH S 13D 09M 17S E 112/21 FT TH N 89D 34M 11S E 214/94 FT TO THE POB 79/27A





**OWNERS NAME AND ADDRESS:**

TODD CREEK VILLAGE METROPOLITAN DISTRICT  
 10450 E 159TH CT  
 BRIGHTON CO 80602-7977

**LEGAL DESCRIPTION:**

SECT,TWN,RNG:4-1-67 DESC: PARC OF LAND IN A PORT OF THE NW4 SEC 4 DESC AS FOLS BEG AT THE N4 COR OF SD SEC 4 TH S 89D 32M 47S W 1328/22 FT TH CONT ALG SD LN S 00D 31M 16S E 30 FT TO THE S LN OF THE PRESCRIPTIVE ROW LN TO THE POB STILL CONT ALG SD LN S 00D 31M 16S E 537/92 FT TH S 62D 38M 41S W 811/12 FT TH N 18D 21M 54S E 214/84 FT TH N 62D 38M 41S E 440/19 FT TH N 00D 31M 16S W 398/97 FT TH N 89D 32M 47S E 242/51 FT TO THE POB 6/708 ACRES







# Statement Of Taxes Due

Account Number R0188679  
Assessed To

Parcel 0157104200002  
TODD CREEK VILLAGE  
C/O:METROPOLITAN DISTRICT  
10450 E 159TH CT  
BRIGHTON, CO 80602-7977

**Legal Description**

**Situs Address**

SECT,TWN,RNG:4-1-67 DESC: PARC OF LAND IN A PORT OF THE NW4 SEC 4 DESC AS FOLS BEG AT THE N4 COR OF SD 0  
SEC 4 TH S 89D 32M 47S W 1328/22 FT TH CONT ALG SD LN S 00D 31M 16S E 30 FT TO THE S LN OF THE PRESCRIPTIVE  
ROW LN TO THE POB STILL CONT ALG SD LN S 00D 31M 16S E 537/92 FT TH S 62D 38M 41S W 811/1... Additional Legal on File

Year	Tax	Interest	Fees	Payments	Balance
<b>Grand Total Due as of 06/19/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 290 - 290

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$0.00	POLITICAL SUB TOT	\$167,706	\$48,630
FIRE DISTRICT 6 - GREATER B	15.3200000	\$0.00	LD		
GENERAL	22.8430000	\$0.00	Total	\$167,706	\$48,630
RETIREMENT	0.3140000	\$0.00			
ROAD/BRIDGE	1.3000000	\$0.00			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.00			
SD 27 BOND (Brighton)	22.0690000	\$0.00			
SD 27 GENERAL (Brighton)	34.2210000	\$0.00			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.00			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$0.00			
SOCIAL SERVICES	2.2530000	\$0.00			
Taxes Billed 2022	103.1920000	\$0.00			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.  
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0008121  
Assessed To

Parcel 0157103300003  
SELTZER FARMS INC  
9390 E 168TH AVE  
BRIGHTON, CO 80602

**Legal Description** **Situs Address**  
SECT,TWN,RNG:3-1-67 DESC: BEG AT NE COR NW4 SW4 SEC 3 TH W ALG N LN 152 FT TH S 0  
21D 57M E 413 FT TO PT ON E LN TH N 383 FT TO POB 0/69A

Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$3.18	\$0.10	\$5.00	(\$3.18)	\$5.10
Total Tax Charge					\$5.10
<b>Grand Total Due as of 05/09/2023</b>					<b>\$5.10</b>

Tax Billed at 2022 Rates for Tax Area 294 - 294

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$0.11	AG DRY FARMING	\$107	\$30
CENTRAL COLO WATER CONSERVA	1.0680000	\$0.03	LAND		
			Total	\$107	\$30
CENTRAL COLO GROUND WATER S	1.5820000	\$0.05			
FIRE DISTRICT 6 - GREATER B	15.3200000	\$0.46			
GENERAL	22.8430000	\$0.68			
RETIREMENT	0.3140000	\$0.01			
ROAD/BRIDGE	1.3000000	\$0.04			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.01			
SD 27 BOND (Brighton)	22.0690000	\$0.66			
SD 27 GENERAL (Brighton)	34.2210000	\$1.03			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.00			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$0.03			
SOCIAL SERVICES	2.2530000	\$0.07			
Taxes Billed 2022	105.8420000	\$3.18			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.  
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0008215

Parcel 0157104000006

Assessed To

TODD CREEK VILLAGE METROPOLITAN  
C/O:DISTRICT  
10450 E 159TH CT  
BRIGHTON, CO 80602-7977

**Legal Description**

**Situs Address**

SECT,TWN,RNG:4-1-67 DESC: A PARC OF LAND IN SEC 4 DESC AS FOL BEG AT A PT ON E AND W C/L OF SD SEC THAT IS 0  
298 FT W OF THE SE COR OF SW4 NE4 SD SEC TH S 296 FT TO A PT TH N 71D 48M W 295 FT TH N 50D 36M W 150 FT TH N  
77D 36M W 155 FT TH S 70D 44M W 170 FT TH S 59D 51M W 245 FT TH S 75D 49M W 665 F... Additional Legal on File

Year	Tax	Interest	Fees	Payments	Balance
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 207 - 207

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$0.00	POLITICAL SUB TOT	\$7,054	\$2,050
FIRE DISTRICT 6 - GREATER B	15.3200000	\$0.00	LD		
GENERAL	22.8430000	\$0.00	Total	\$7,054	\$2,050
RETIREMENT	0.3140000	\$0.00			
ROAD/BRIDGE	1.3000000	\$0.00			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.00			
SD 27 BOND (Brighton)	22.0690000	\$0.00			
SD 27 GENERAL (Brighton)	34.2210000	\$0.00			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.00			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$0.00			
SOCIAL SERVICES	2.2530000	\$0.00			
TODD CREEK VILLAGE PARK & R	10.0000000	\$0.00			
Taxes Billed 2022	113.1920000	\$0.00			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.  
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0008224

Parcel 0157104000020

Assessed To

SELTZER FARMS INC  
16705 YOSEMITE ST  
BRIGHTON, CO 80602

**Legal Description**

**Situs Address**

SECT.TWN,RNG:4-1-67 DESC: PT OF NE4 SEC 4 DESC AS FOL BEG 40 FT W OF NE COR SD SEC TH CONT W 438/74 FT TH S 16705 YOSEMITE ST  
820 FT TH E 438/74 FT TO A PT 40 FT W OF E LN NE4 SD SEC TH N 820 FT TO TRUE POB EXC N 30 FT FOR RD 7/957A

Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$1,671.24	\$0.00	\$0.00	(\$1,671.24)	\$0.00
Total Tax Charge					\$0.00
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 294 - 294

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$57.08	1276	\$222,710	\$15,480
CENTRAL COLO WATER CONSERVA	1.0680000	\$16.86	AG DRY FARMING LAND	\$1,176	\$310
CENTRAL COLO GROUND WATER S	1.5820000	\$24.98	Total	\$223,886	\$15,790
FIRE DISTRICT 6 - GREATER B	15.3200000	\$241.90			
GENERAL	22.8430000	\$360.69			
RETIREMENT	0.3140000	\$4.96			
ROAD/BRIDGE	1.3000000	\$20.53			
DEVELOPMENTALLY DISABLED	0.2570000	\$4.06			
SD 27 BOND (Brighton)	22.0690000	\$348.47			
SD 27 GENERAL (Brighton)	34.2210000	\$540.35			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$1.58			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$14.21			
SOCIAL SERVICES	2.2530000	\$35.57			
Taxes Billed 2022	105.8420000	\$1,671.24			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.

Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0181786

Parcel 0157104100005

Assessed To

HSG LAND LLC  
10450 E 159TH CT  
BRIGHTON, CO 80602-7977

**Legal Description**

**Situs Address**

SECT.TWN.RNG:4-1-67 DESC: PT OF NE4 SEC 4 DESC AS FOL BEG AT N4 COR SEC 4 TH S 1092/40 FT TO SW COR NW4 NE4 8120 E 168TH AVE  
SD SEC TH E 305 FT TH S 31D 38M E 1377/30 FT TO A PT WHICH IS 298 FT W OF AND 140 FT N OF SW COR SE4 NE4 SEC 4  
TH S TO S LN SD NE4 SEC 4 TH E 1583/98 FT TO A PT 40 FT W OF E4 COR SD SEC 4 ... Additional Legal on File

Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$614.02	\$0.00	\$0.00	(\$614.02)	\$0.00
Total Tax Charge					\$0.00
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 747 - 747

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$14.24	AG DRY FARMING	\$14,932	\$3,940
CENTRAL COLO WATER CONSERVA	1.0680000	\$4.21	LAND		
CENTRAL COLO GROUND WATER S	1.5820000	\$6.23	Total	\$14,932	\$3,940
FIRE DISTRICT 6 - GREATER B	15.3200000	\$60.36			
GENERAL	22.8430000	\$90.01			
RETIREMENT	0.3140000	\$1.24			
ROAD/BRIDGE	1.3000000	\$5.12			
DEVELOPMENTALLY DISABLED	0.2570000	\$1.01			
SD 27 BOND (Brighton)	22.0690000	\$86.95			
SD 27 GENERAL (Brighton)	34.2210000	\$134.83			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.39			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$3.55			
SOCIAL SERVICES	2.2530000	\$8.88			
PROMONTORY METROPOLITAN DIS	50.0000000	\$197.00			
Taxes Billed 2022	155.8420000	\$614.02			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.  
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0180823

Parcel 0157102100003

Assessed To

CARLSON TAYLOR R UND 24.25% INT AND  
C/O:THORNTON CORY J UND 24.25 INT ET ALS  
PO BOX 247  
EASTLAKE, CO 80614-0247

**Legal Description**

**Situs Address**

SECT,TWN,RNG 2-1-67 DESC: FILING 2 PARC OF LAND IN THE N2 OF SEC 2 DESC AS FOLS BEG AT THE N4 COR OF SD SEC 11750 E 168TH AVE  
2 TH S 04D 44M 25S E 70/19 FT TO THE TRUE POB TH N 89D 31M 29S E 2007/46 FT TH S 51D 05M 34S E 103/75 FT TH S 14D  
37M 55S E 123/14 FT TH S 09D 37M 50S E 136/75 FT TH S 00D 29M 02S W 181/53 FT ... Additional Legal on File

Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$1,598.46	\$0.00	\$0.00	(\$1,598.46)	\$0.00
Total Tax Charge					\$0.00
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 012 - 012

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$33.66	AG FLOOD IRRG	\$31,108	\$8,210
FIRE DISTRICT 6 - GREATER B	15.3200000	\$142.63	LAND		
GENERAL	22.8430000	\$212.67	AG DRY FARMING	\$4,173	\$1,100
RETIREMENT	0.3140000	\$2.92	LAND		
ROAD/BRIDGE	1.3000000	\$12.10	Total	\$35,281	\$9,310
DEVELOPMENTALLY DISABLED	0.2570000	\$2.39			
SD 27 BOND (Brighton)	22.0690000	\$205.46			
SD 27 GENERAL (Brighton)	34.2210000	\$318.60			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.93			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$8.38			
SOCIAL SERVICES	2.2530000	\$20.98			
EAGLE SHADOW METRO DIST NO	18.5000000	\$172.24			
TODD CREEK VILLAGE PARK & R	10.0000000	\$93.10			
EAGLE SHADOW METRO SUBDISTR	40.0000000	\$372.40			
Taxes Billed 2022	171.6920000	\$1,598.46			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.  
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0180824  
Assessed To

Parcel 0157102100004  
CARLSON TAYLOR R UND 24.25% INT AND  
C/O:THORNTON CORY J UND 24.25 INT ET ALS  
PO BOX 247  
EASTLAKE, CO 80614-0247

Legal Description	Situs Address
SECT,TWN,RNG 2-1-67 DESC: FILING 3 PARC OF LAND IN THE N2 OF SEC 2 DESC AS FOLS BEG AT THE N4 COR OF SD SEC 2 TH S 00D 18M 00S E 1740/35 FT TO THE TRUE POB TH N 88D 42M 24S E 449/52 FT TH S 30D 11M 58S E 141/65 FT TH S 65D 06M 44S E 92/65 FT TH N 77D 55M 13S E 71/90 FT TH N 63D 08M 15S E 96/61 FT T... Additional Legal on File	0

Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$1,797.62	\$0.00	\$0.00	(\$1,797.62)	\$0.00
Total Tax Charge					\$0.00
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 012 - 012

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$37.85	UNIM LND UNDER 1AC	\$13,200	\$3,830
FIRE DISTRICT 6 - GREATER B	15.3200000	\$160.40	AG FLOOD IRRG LAND	\$23,324	\$6,160
GENERAL	22.8430000	\$239.17	AG DRY FARMING LAND	\$1,778	\$470
RETIREMENT	0.3140000	\$3.29	AG DRY GRAZING LAND	\$26	\$10
ROAD/BRIDGE	1.3000000	\$13.61			
DEVELOPMENTALLY DISABLED	0.2570000	\$2.69			
SD 27 BOND (Brighton)	22.0690000	\$231.06			
SD 27 GENERAL (Brighton)	34.2210000	\$358.29	Total	\$38,328	\$10,470
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$1.05			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$9.42			
SOCIAL SERVICES	2.2530000	\$23.59			
EAGLE SHADOW METRO DIST NO	18.5000000	\$193.70			
TODD CREEK VILLAGE PARK & R	10.0000000	\$104.70			
EAGLE SHADOW METRO SUBDISTR	40.0000000	\$418.80			
Taxes Billed 2022	171.6920000	\$1,797.62			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.  
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0180825

Parcel 0157102100005

Assessed To

BASELINE LAKES HOLDINGS LLC  
PO BOX 247  
EASTLAKE, CO 80614-0247

**Legal Description**

**Situs Address**

SECT.TWN,RNG:2-1-67 DESC: PT OF THE NW4 AND PT OF THE NE4 OF SEC 2 DESC AS FOLS BEG AT THE NW COR OF SD 0  
SEC 2 TH E 2253/29 FT TO THE TRUE POB TH S 588/95 FT TH E 414/55 FT TO A PT ON THE E LN OF THE NW4 COR OF SD  
SEC 2 BRS N 588/95 FT TH S 1747/03 FT TH N 88D 26M E 2647/56 FT TH N 901/46 FT TO A... Additional Legal on File

Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$24.04	\$0.00	\$0.00	(\$24.04)	\$0.00
Total Tax Charge					\$0.00
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 012 - 012

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$0.51	AG DRY FARMING	\$540	\$140
FIRE DISTRICT 6 - GREATER B	15.3200000	\$2.15	LAND		
GENERAL	22.8430000	\$3.19	Total	\$540	\$140
RETIREMENT	0.3140000	\$0.04			
ROAD/BRIDGE	1.3000000	\$0.18			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.04			
SD 27 BOND (Brighton)	22.0690000	\$3.09			
SD 27 GENERAL (Brighton)	34.2210000	\$4.79			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.01			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$0.13			
SOCIAL SERVICES	2.2530000	\$0.32			
EAGLE SHADOW METRO DIST NO	18.5000000	\$2.59			
TODD CREEK VILLAGE PARK & R	10.0000000	\$1.40			
EAGLE SHADOW METRO SUBDISTR	40.0000000	\$5.60			
Taxes Billed 2022	171.6920000	\$24.04			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.

Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160





# Statement Of Taxes Due

Account Number R0195533

Parcel 0157102100005

Assessed To

BASELINE LAKES HOLDINGS LLC  
PO BOX 247  
EASTLAKE, CO 80614-0247

**Legal Description**

**Situs Address**

SECT.TWN,RNG:2-1-67 DESC: PT OF THE NW4 AND PT OF THE NE4 OF SEC 2 DESC AS FOLS BEG AT THE NW COR OF SD 0  
SEC 2 TH E 2253/29 FT TO THE TRUE POB TH S 588/95 FT TH E 414/55 FT TO A PT ON THE E LN OF THE NW4 COR OF SD  
SEC 2 BRS N 588/95 FT TH S 1747/03 FT TH N 88D 26M E 2647/56 FT TH N 901/46 FT TO A... Additional Legal on File

Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$30.28	\$0.00	\$0.00	(\$30.28)	\$0.00
Total Tax Charge					\$0.00
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 211 - 211

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$0.83	AG FLOOD IRRG	\$887	\$230
FIRE DISTRICT 6 - GREATER B	15.3200000	\$3.52	LAND		
GENERAL	22.8430000	\$5.26	Total	\$887	\$230
RETIREMENT	0.3140000	\$0.07			
ROAD/BRIDGE	1.3000000	\$0.30			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.06			
SD 27 BOND (Brighton)	22.0690000	\$5.07			
SD 27 GENERAL (Brighton)	34.2210000	\$7.87			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.02			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$0.21			
SOCIAL SERVICES	2.2530000	\$0.52			
EAGLE SHADOW METRO DIST NO	18.5000000	\$4.25			
TODD CREEK VILLAGE PARK & R	10.0000000	\$2.30			
Taxes Billed 2022	131.6920000	\$30.28			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.

Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0173387

Parcel 0157102101014

Assessed To

CARLSON TAYLOR R UND 24.25% INT AND  
C/O:THORNTON CORY J UND 24.25 INT ET ALS  
PO BOX 247  
EASTLAKE, CO 80614-0247

Legal Description		Situs Address			
SUB:BASELINE LAKES SUBDIVISION FILING NO 1 DESC: TRACT M		0			
Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$5.16	\$0.00	\$5.00	(\$10.16)	\$0.00
Total Tax Charge					\$0.00
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 012 - 012

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$0.11	0800	\$100	\$30
FIRE DISTRICT 6 - GREATER B	15.3200000	\$0.46	Total	\$100	\$30
GENERAL	22.8430000	\$0.68			
RETIREMENT	0.3140000	\$0.01			
ROAD/BRIDGE	1.3000000	\$0.04			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.01			
SD 27 BOND (Brighton)	22.0690000	\$0.66			
SD 27 GENERAL (Brighton)	34.2210000	\$1.03			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.00			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$0.03			
SOCIAL SERVICES	2.2530000	\$0.07			
EAGLE SHADOW METRO DIST NO	18.5000000	\$0.56			
TODD CREEK VILLAGE PARK & R	10.0000000	\$0.30			
EAGLE SHADOW METRO SUBDISTR	40.0000000	\$1.20			
Taxes Billed 2022	171.6920000	\$5.16			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.

Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0008111  
Assessed To

Parcel 0157103000014  
SELTZER FARMS INC  
9390 E 168TH AVE  
BRIGHTON, CO 80602-6606

<b>Legal Description</b>	<b>Situs Address</b>
SECT,TWN,RNG:3-1-67 DESC: BEG AT NW COR SEC 3 TH E ON N LN SD SEC 3055 FT TH S 2385/8 FT TO PT ON E/W C/L SD SEC TH W 3073 FT TO CENT OF W LN SD SEC TH N 2377/6 FT TO POB 167/79A	9230 E 168TH AVE

Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$4,472.88	\$0.00	\$0.00	(\$4,472.88)	\$0.00
Total Tax Charge					\$0.00
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 294 - 294

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$152.77	1276	\$336,325	\$23,370
CENTRAL COLO WATER CONSERVA	1.0680000	\$45.13	AG DRY FARMING LAND	\$24,828	\$6,550
CENTRAL COLO GROUND WATER S	1.5820000	\$66.86	FARM/RANCH BLDG	\$43,378	\$11,450
FIRE DISTRICT 6 - GREATER B	15.3200000	\$647.42	4281	\$3,060	\$890
GENERAL	22.8430000	\$965.34	Total	\$407,591	\$42,260
RETIREMENT	0.3140000	\$13.27			
ROAD/BRIDGE	1.3000000	\$54.94			
DEVELOPMENTALLY DISABLED	0.2570000	\$10.86			
SD 27 BOND (Brighton)	22.0690000	\$932.64			
SD 27 GENERAL (Brighton)	34.2210000	\$1,446.18			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$4.23			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$38.03			
SOCIAL SERVICES	2.2530000	\$95.21			
Taxes Billed 2022	105.8420000	\$4,472.88			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.  
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0008126  
Assessed To

Parcel 0157103300009  
SELTZER FARMS INC  
9390 E 168TH AVE  
BRIGHTON, CO 80602

Legal Description	Situs Address
SECT,TWN,RNG:3-1-67 DESC: NE4 SW4 EXC SIGNAL DT ROW 38/71A	0

Year	Tax	Interest	Fees	Payments	Balance
<b>Tax Charge</b>					
2022	\$159.82	\$0.00	\$0.00	(\$159.82)	\$0.00
Total Tax Charge					\$0.00
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 294 - 294

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$5.46	AG DRY FARMING	\$5,728	\$1,510
CENTRAL COLO WATER CONSERVA	1.0680000	\$1.61	LAND		
CENTRAL COLO GROUND WATER S	1.5820000	\$2.39	Total	\$5,728	\$1,510
FIRE DISTRICT 6 - GREATER B	15.3200000	\$23.13			
GENERAL	22.8430000	\$34.51			
RETIREMENT	0.3140000	\$0.47			
ROAD/BRIDGE	1.3000000	\$1.96			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.39			
SD 27 BOND (Brighton)	22.0690000	\$33.32			
SD 27 GENERAL (Brighton)	34.2210000	\$51.67			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.15			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$1.36			
SOCIAL SERVICES	2.2530000	\$3.40			
Taxes Billed 2022	105.8420000	\$159.82			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.  
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0178786  
Assessed To

Parcel 0157104200001  
TODD CREEK FARMS METRO DIST NO 1 WATER  
C/O:C/O ZIONS FIRST NATIONAL BANK TRUSTEE  
717 17TH ST STE 301  
DENVER, CO 80202-3310

**Legal Description**

**Situs Address**

SECT,TWN,RNG:4-1-67 DESC: PARC IN SEC 4 DESC AS FOLS COMMENCING AT THE N1/4 COR OF SD SEC 4 TH S 00D 26M 0  
28S E 543/5 FT TO THE POB TH S 00D 26M 26S E 493/04 FT TO A PT BEING 55/73 FT NLY FROM THE CEN N 1/16TH COR OF  
SD SEC 4 AND BEING A PT ON THE DCRY LN ADJUSTMENT DESC IN BOOK 4931 PAGE 452 TH ALG... Additional Legal on File

Year	Tax	Interest	Fees	Payments	Balance
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 290 - 290

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$0.00	POLITICAL SUB TOT	\$1,931,050	\$560,000
FIRE DISTRICT 6 - GREATER B	15.3200000	\$0.00	LD		
GENERAL	22.8430000	\$0.00	Total	\$1,931,050	\$560,000
RETIREMENT	0.3140000	\$0.00			
ROAD/BRIDGE	1.3000000	\$0.00			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.00			
SD 27 BOND (Brighton)	22.0690000	\$0.00			
SD 27 GENERAL (Brighton)	34.2210000	\$0.00			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.00			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$0.00			
SOCIAL SERVICES	2.2530000	\$0.00			
Taxes Billed 2022	103.1920000	\$0.00			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.  
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160



# Statement Of Taxes Due

Account Number R0178787

Parcel 0157104200001

Assessed To

TODD CREEK FARMS METRO DIST NO 1 WATER  
C/O:C/O ZIONS FIRST NATIONAL BANK TRUSTEE  
717 17TH ST STE 301  
DENVER, CO 80202-3310

**Legal Description**

**Situs Address**

SECT.TWN,RNG:4-1-67 DESC: PARC IN SEC 4 DESC AS FOLS COMMENCING AT THE N1/4 COR OF SD SEC 4 TH S 00D 26M 0  
28S E 543/5 FT TO THE POB TH S 00D 26M 26S E 493/04 FT TO A PT BEING 55/73 FT NLY FROM THE CEN N 1/16TH COR OF  
SD SEC 4 AND BEING A PT ON THE DCRY LN ADJUSTMENT DESC IN BOOK 4931 PAGE 452 TH ALG... Additional Legal on File

Year	Tax	Interest	Fees	Payments	Balance
<b>Grand Total Due as of 05/09/2023</b>					<b>\$0.00</b>

Tax Billed at 2022 Rates for Tax Area 294 - 294

Authority	Mill Levy	Amount	Values	Actual	Assessed
RANGEVIEW LIBRARY DISTRICT	3.6150000*	\$0.00	POLITICAL SUB TOT	\$50,750	\$14,720
CENTRAL COLO WATER CONSERVA	1.0680000	\$0.00	LD		
CENTRAL COLO GROUND WATER S	1.5820000	\$0.00	Total	\$50,750	\$14,720
FIRE DISTRICT 6 - GREATER B	15.3200000	\$0.00			
GENERAL	22.8430000	\$0.00			
RETIREMENT	0.3140000	\$0.00			
ROAD/BRIDGE	1.3000000	\$0.00			
DEVELOPMENTALLY DISABLED	0.2570000	\$0.00			
SD 27 BOND (Brighton)	22.0690000	\$0.00			
SD 27 GENERAL (Brighton)	34.2210000	\$0.00			
URBAN DRAINAGE SOUTH PLATTE	0.1000000	\$0.00			
URBAN DRAINAGE & FLOOD CONT	0.9000000	\$0.00			
SOCIAL SERVICES	2.2530000	\$0.00			
Taxes Billed 2022	105.8420000	\$0.00			

\* Credit Levy

Tax amounts are subject to change due to endorsement, advertising, or fees.

Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee  
4430 S Adams County Parkway, Suite W1000  
Brighton, CO 80601  
720-523-6160

5.25.2023

Meeting Date: 4.20.2023

Venue: Virtual

Total Attendees: 41



Presenters: Marcus Pachner, John Prestwich, Matt Cavanaugh

Panelists: 12

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### **Meeting Summary:**

The meeting began with Marcus Pachner, a representative from The Pachner Company, presenting the comprehensive plan known as Advancing Adams. This plan aims to establish a renewed vision for the future of Adams County. Marcus Pachner walked through the key points of the plan, emphasizing the expected population growth, the current housing shortage, and the potential issues arising from rising housing prices, such as attainability and displacement concerns derived from the guidance of the Comprehensive Plan.

John Prestwich explained that the comprehensive plan's future land use classification of the property was categorized as Residential Low. This classification allows for a maximum density of six dwelling units per acre, and indicated that this project was actually less than the allowable density permitted.

Marcus Pachner also provided an overview of the plan's boundaries, noting that the project is still in its early stages. At this point, the focus is primarily on complying with future land use zoning requirements while being sensitive to community feedback.

Following the presentation, the meeting was opened up to a question-and-answer session. Attendees expressed their concerns on various topics, with the most prominent areas of interest being sufficient open spaces, adequate city and school services, sewer and water infrastructure, site plan-related matters, and traffic.

To review the meeting live, please see link here:

[https://www.youtube.com/watch?v=UYIHVI\\_oEK8](https://www.youtube.com/watch?v=UYIHVI_oEK8)

End of Report.

Attendee Report  
Report Generated:

5/25/2023 13:23

Topic	Webinar ID	Actual Start Time	Actual Duration (minutes)	# Registered	# Cancelled	Unique Viewers	Total Users	Max Concurrent Views	Enable Registration
Todd Creek Neighborhood Meeting	872 1012 1327	4/20/2023 17:39		110	37	0	32	49	30 Yes

Host Details

Attended	User Name (Original Name)	Email	Join Time	Leave Time	Time in Session (minutes)	Is Guest	Country/Region Name
Yes	Presentation screen (Marcus Pachner)	marcus@thepachnercompany.com	4/20/2023 17:39		4/20/2023 19:28	110 No	United States

Panelist Details

Attended	User Name (Original Name)	Email	Join Time	Leave Time	Time in Session (minutes)	Is Guest	Country/Region Name
Yes	Ken T.	ktoland@kteng.net	4/20/2023 17:46		4/20/2023 19:28	102 Yes	United States
Yes	Guillaume P.	gp@remingtonhomes.net	4/20/2023 17:59		4/20/2023 19:28	90 Yes	United States
Yes	John Prestwich	john@pcsgroupco.com	4/20/2023 17:46		4/20/2023 19:28	103 Yes	United Kingdom
Yes	Todd D.	tdunning@wspcos.com	4/20/2023 17:57		4/20/2023 19:28	92 Yes	United States
Yes	George H.	ghanlon@wspcos.com	4/20/2023 18:00		4/20/2023 19:26	86 Yes	United States
Yes	Matt C.	mattc@remingtonhomes.net	4/20/2023 17:51		4/20/2023 19:28	98 Yes	United States
Yes	Tucker H.	thanlon@wspcos.com	4/20/2023 17:53		4/20/2023 19:28	96 Yes	United States
Yes	Don S.	Don@wspcos.com	4/20/2023 18:01		4/20/2023 19:28	88 Yes	United States
Yes	Ryan C.	ryancarson@carlsonland.net	4/20/2023 18:01		4/20/2023 19:28	88 Yes	United States
Yes	Regan H.	reganh@remingtonhomes.net	4/20/2023 17:55		4/20/2023 19:28	94 Yes	United States
Yes	Carli G	Carli@pcsgroupco.com	4/20/2023 17:56		4/20/2023 19:28	92 Yes	United States
Yes	Marcus	marcus_pachner@yahoo.com	4/20/2023 17:53		4/20/2023 19:28	96 Yes	United States

Attendee Details

Attended	User Name (Original Name)	First Name	Last Name	Email	Registration Time	Approval Status	Join Time	Leave Time	Time in Session (minutes)	Is Guest	Country/Region Name
No	J	J	Vu	jasperhmongvue@gmail.com	4/6/2023 10:43	approved	--	--	--	--	--
Yes	Richard Fleeman	Richard	Fleeman	rcfleeman@msn.com	4/14/2023 8:41	approved	4/20/2023 18:32	4/20/2023 18:43		11 Yes	United States
Yes	Richard Fleeman	Richard	Fleeman	rcfleeman@msn.com			4/20/2023 18:43	4/20/2023 18:59		16 Yes	United States
No	Mel Schulman	Mel	Schulman	mschulman@seniortechcolorado.com	4/15/2023 11:46	approved	--	--	--	--	--
Yes	Cindy Rapp	Cindy	Rapp	cinrapp@oliver-bc.com	4/19/2023 8:14	approved	4/20/2023 18:05	4/20/2023 18:08		4 Yes	United States
Yes	Janette Szakmeister	Janette	Szakmeister	janetteszakmeister@gmail.com	4/20/2023 14:26	approved	4/20/2023 18:03	4/20/2023 19:28		86 Yes	United States
Yes	Wayne Muhler	Wayne	Muhler	wmuhler@yahoo.com	4/20/2023 15:24	approved	4/20/2023 18:00	4/20/2023 19:15		75 Yes	United States
No	David Dahlgren	David	Dahlgren	david.dahlgren@flowcosolutions.com	4/20/2023 15:37	approved	--	--	--	--	--
Yes	I F	I	F	lforsythe@carollo.com	4/20/2023 15:37	approved	4/20/2023 18:00	4/20/2023 19:28		89 Yes	United States
Yes	Mike Lloyd	Mike	Lloyd	bmlloyd@aol.com	4/20/2023 15:54	approved	4/20/2023 18:00	4/20/2023 19:28		89 Yes	United States
No	James	James	Hood	Jim.hood007@gmail.com	4/20/2023 16:05	approved	--	--	--	--	--
Yes	Randy Wilson	Randy	Wilson	rwilson555@msn.com	4/20/2023 17:33	approved	4/20/2023 18:00	4/20/2023 18:08		9 Yes	United States
Yes	Randy Wilson	Randy	Wilson	rwilson555@msn.com			4/20/2023 18:07	4/20/2023 19:28		81 Yes	United States
Yes	Robert Schlosser	Robert	Schlosser	rsssys2003@q.com	4/20/2023 17:43	approved	4/20/2023 18:00	4/20/2023 19:28		89 Yes	United States
Yes	Sandra Rodgers	Sandra	Rodgers	sroddgers4@gmail.com	4/20/2023 17:47	approved	4/20/2023 18:00	4/20/2023 19:28		89 Yes	United States
Yes	Carrie Vogt	Carrie	Vogt	carrie.vogt@comcast.net	4/20/2023 17:47	approved	4/20/2023 18:00	4/20/2023 19:01		61 Yes	United States
Yes	Mel Schulman	Mel	Schulman	Mel.schulman@gmail.com	4/20/2023 17:50	approved	4/20/2023 18:00	4/20/2023 18:57		58 Yes	United States
Yes	Sherry Kreutzer	Sherry	Kreutzer	flowerchild1@protonmail.com	4/20/2023 17:53	approved	4/20/2023 18:00	4/20/2023 19:28		89 Yes	United States
Yes	Cris Muhler	Cris	Muhler	Bmfracecars@msn.com	4/20/2023 17:54	approved	4/20/2023 18:00	4/20/2023 19:06		66 Yes	United States
Yes	Jason K	Jason	K	klingerman73@gmail.com	4/20/2023 17:55	approved	4/20/2023 18:00	4/20/2023 19:23		83 Yes	United States
Yes	Rich	Rich		Lampsboards@yahoo.com	4/20/2023 17:55	approved	4/20/2023 18:00	4/20/2023 19:28		89 Yes	United States
Yes	Kay Sears	Kay	Sears	searskay@comcast.net	4/20/2023 17:56	approved	4/20/2023 18:01	4/20/2023 18:09		9 Yes	United States
Yes	Kay Sears	Kay	Sears	searskay@comcast.net			4/20/2023 18:09	4/20/2023 19:05		56 Yes	United States
Yes	Mark Huddleston	Mark	Huddleston	toddcreek@markhuddleston.com	4/20/2023 17:57	approved	4/20/2023 18:00	4/20/2023 18:03		4 Yes	United States
Yes	Michael Zopes	Michael	Zopes	mikezopes@msn.com	4/20/2023 17:58	approved	4/20/2023 18:00	4/20/2023 19:28		88 Yes	United States
Yes	Anna Smouse	Anna	Smouse	asisneros2002@comcast.net	4/20/2023 17:58	approved	4/20/2023 18:00	4/20/2023 19:28		89 Yes	United States
Yes	Rob M	Rob	M	rjm22@me.com	4/20/2023 17:59	approved	4/20/2023 18:00	4/20/2023 19:28		89 Yes	United States
Yes	Pa Vang	Pa	Vang	vangp83@gmail.com	4/20/2023 18:00	approved	4/20/2023 18:05	4/20/2023 19:28		84 Yes	United States
Yes	Jack Bajorek	Jack	Bajorek	jbajorek00@gmail.com	4/20/2023 18:01	approved	4/20/2023 18:01	4/20/2023 19:28		88 Yes	United States
Yes	Misty Acker	Misty	Acker	ack956@gmail.com	4/20/2023 18:01	approved	4/20/2023 18:01	4/20/2023 19:28		88 Yes	United States
Yes	Taylor Carlson	Taylor	Carlson	taylor@carlsonland.net	4/20/2023 18:03	approved	4/20/2023 18:03	4/20/2023 19:28		86 Yes	United States
Yes	Joey Dahlgren	Joey	Dahlgren	Jolene.dahlgren@yahoo.com	4/20/2023 18:04	approved	4/20/2023 18:04	4/20/2023 19:28		85 Yes	United States
Yes	Jenn Millikan	Jenn	Millikan	JenniferMarieMillikan@gmail.com	4/20/2023 18:04	approved	4/20/2023 18:04	4/20/2023 18:35		32 Yes	United States
Yes	Matthew Hadden	Matthew	Hadden	nomadictexan@msn.com	4/20/2023 18:04	approved	4/20/2023 18:04	4/20/2023 18:35		31 Yes	United States
Yes	Kristopher Neilsen	Kristopher	Neilsen	kamaro67@gmail.com	4/20/2023 18:05	approved	4/20/2023 18:06	4/20/2023 19:28		83 Yes	United States
Yes	Clay Carlson	Clay	Carlson	Clay@carlsonland.net	4/20/2023 18:06	approved	4/20/2023 18:06	4/20/2023 18:25		20 Yes	United States
Yes	Clay Carlson	Clay	Carlson	Clay@carlsonland.net			4/20/2023 18:25	4/20/2023 18:53		28 Yes	United States
Yes	Jack Bajorek	Jack	Bajorek	jbajorek00@aol.com	4/20/2023 18:07	approved	4/20/2023 18:12	4/20/2023 19:28		77 Yes	United States
Yes	Brad Penwell	Brad	Penwell	brad@carlsonland.net	4/20/2023 18:09	approved	4/20/2023 18:10	4/20/2023 19:28		79 Yes	United States
No	John	John	Weigandt	johnweigandt58@gmail.com	4/20/2023 18:26	approved	--	--	--	--	--
Yes	Jim Piccolo	Jim	Piccolo	jt_pic@yahoo.com	4/20/2023 18:26	approved	4/20/2023 18:26	4/20/2023 19:23		57 Yes	United States



1889 York Street  
Denver, CO 80206  
(303) 333-1105  
FAX (303) 333-1107  
E-mail: [lsc@lscdenver.com](mailto:lsc@lscdenver.com)



May 11, 2023

Mr. Matthew Cavanaugh  
Seltzer Farms Investments, LLC  
c/o Remington Homes  
5740 Wadsworth Boulevard  
Arvada, CO 80401

Re: Todd Creek Farms  
Traffic Impact Analysis  
Adams County, CO  
LSC #221150

Dear Mr. Cavanaugh:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the proposed Todd Creek Farms development. As shown on Figure 1, the site is comprised of three separate properties located generally south of E. 160<sup>th</sup> Avenue, east of Quebec Street, and north of E. 160<sup>th</sup> Avenue in Adams County, Colorado.

## **REPORT CONTENTS**

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; the projected short-term and long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate the site's traffic impacts.

## **LAND USE AND ACCESS**

Figure 2a shows the conceptual site plan for the WSP Property. The WSP property is located south of E. 168<sup>th</sup> Avenue and west of Yosemite Drive. It is planned to include 191 single-family homes, 280 apartment dwelling units, and an assisted living campus with 145 independent living units, 60 assisted living units, and 30 cottages. Access is proposed to E. 168<sup>th</sup> Avenue just west of Yosemite Drive and at two full-movement access points to Yosemite Drive.

Figure 2b shows the conceptual site plan for the Remington Property. The Remington Property is located south of E. 168<sup>th</sup> Avenue and east of Yosemite Drive. It is proposed to include about 576 single-family dwelling units, 186 duplex dwelling units, and 148 townhomes. Access is proposed to E. 168<sup>th</sup> Avenue just east of Yosemite Drive and at two full-movement access points to Yosemite Drive that will align with the access points for the WSP property.

Figure 2c shows the conceptual site plan for the Carlson Property. The Carlson Property is located south of E. 168<sup>th</sup> Avenue and east of Lima Street. It is proposed to include 216 single-family dwelling units and 146 duplex dwelling units. Access is proposed to Lima Street via an existing full-movement intersection that aligns with Lansing Court and at a new full-movement intersection that will align with E. 166<sup>th</sup> Avenue.

## ROADWAY AND TRAFFIC CONDITIONS

### Area Roadways

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- **E. 160<sup>th</sup> Avenue (SH 7)** is an east-west, two-lane state highway south of the site. It is classified by CDOT as Regional Highway (R-A). The intersections Quebec Street, Yosemite Street, and Havana Street are signalized with auxiliary turn lanes. The posted speed limit in the vicinity of the site is 60 mph. Adams County plans for a four-lane roadway in the future.
- **E. 168<sup>th</sup> Avenue** is an east-west, two-lane arterial roadway north of the site. The intersections with CR 17, Quebec Street, CR 19, Yosemite Street, CR 23½, and Lima Street are stop-sign controlled. The posted speed limit is 45 mph in the vicinity of the site. This roadway will likely be widened to four lanes in the long term.
- **Quebec Street** is a two-lane, north-south roadway west of the site. The *City of Thornton Transportation and Mobility Master Plan* shows Quebec as a six-lane Major Arterial south of E. 160<sup>th</sup> Avenue (SH 7), a four-lane Minor Arterial north of E. 160<sup>th</sup> Avenue (SH 7), and a two-lane Minor Arterial just south of E. 168<sup>th</sup> Avenue. The intersection of Quebec Street and E. 160<sup>th</sup> Avenue (SH 7) is currently traffic signal controlled with auxiliary turn lanes. The intersection of Quebec Street and E. 168<sup>th</sup> Avenue is currently stop-sign controlled with no auxiliary turn lanes.
- **Yosemite Street** is a north-south, two-lane collector roadway that extends through the site. The posted speed limit in the vicinity of the site is 40 mph. The intersection with E. 160<sup>th</sup> Avenue (SH 7) is signalized with auxiliary turn lanes and the intersection with E. 168<sup>th</sup> Avenue is stop-sign controlled with auxiliary turn lanes. Yosemite Street is planned to be realigned as part of this development to align with Weld County Road 19 at E. 168<sup>th</sup> Avenue.
- **Havana Street/Lima Street** is a north-south, two-lane collector roadway east of the site. The intersection with E. 160<sup>th</sup> Avenue (SH 7) is signalized with auxiliary turn lanes and the intersection with E. 168<sup>th</sup> Avenue is stop-sign controlled with auxiliary turn lanes. The posted speed limit in the vicinity of the site is 40 mph.

### Existing Traffic Conditions

Figure 3a shows the existing traffic volumes in the vicinity of the site on a typical weekday. The weekday peak-hour traffic and daily traffic volumes are from the attached traffic counts con-

ducted by Counter Measures in December, 2022 and January, February, and March 2023. Figure 3b shows the existing lane geometries, traffic controls, and posted speed limits.

### **2028 and 2043 Background Traffic**

Figure 4a shows the estimated 2028 background traffic and Figure 5a shows the estimated 2043 background traffic. The 2028 background traffic is based on an annual growth rate of 3 percent for traffic on E. 168<sup>th</sup> Avenue and E. 160<sup>th</sup> Avenue (SH 7) plus traffic projected to be generated by buildout of the Baseline Lakes development located west of Havana Street/ Lima Street. The 2043 background traffic for intersections along E. 168<sup>th</sup> Avenue is based on an annual growth rate of 3 percent. The 2043 background traffic for intersections along E. 160<sup>th</sup> Avenue (SH 7) are estimates by LSC based on previous traffic reports completed in the vicinity of the site including the *Holly Village Updated Traffic Impact Analysis* by LSC Transportation Consultants, dated August 31, 2022 and the *Sack Farms Development Traffic Impact and Access Study* by Rick Engineering Company, dated April 9, 2020.

Figures 4b and 5b show the estimated lane geometry and traffic control.

### **Existing, 2028, and 2043 Background Levels of Service**

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from “A” to “F.” LOS A is indicative of little congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for signalized and unsignalized intersections.

The intersections in the study area were analyzed to determine the existing, 2028, and 2043 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

- 1. E. 168<sup>th</sup> Avenue/CR 17:** All movements at this unsignalized intersection currently operate at LOS “B” or better and are expected to do so through 2043.
- 2. E. 168<sup>th</sup> Avenue/Quebec Street:** All movements at this unsignalized intersection currently operate at LOS “B” or better and are expected to operate at LOS “C” or better through 2043.
- 3. E. 168<sup>th</sup> Avenue/West WSP Access:** This intersection was analyzed only in the total traffic scenarios.
- 4. E. 168<sup>th</sup> Avenue/CR 19:** All movements at this unsignalized intersection currently operate at LOS “B” or better and are expected to operate at LOS “C” or better through 2043.
- 5. E. 168<sup>th</sup> Avenue/Yosemite Street:** All movements at this unsignalized intersection currently operate at LOS “B” or better. Yosemite Street is planned to be realigned to align with CR 19 (Intersection #4) as part of the Todd Creek Farms development. This realignment will result in the existing Yosemite Street intersection being removed.
- 6. E. 168<sup>th</sup> Avenue/East Remington Access:** This intersection was analyzed only in the total traffic scenarios.

7. **E. 168<sup>th</sup> Avenue/Lima Street:** All movements at this unsignalized intersection currently operate at LOS “B” or better and are expected to operate at LOS “C” or better through 2043.
8. **E. 168<sup>th</sup> Avenue/CR 23½:** All movements at this unsignalized intersection currently operate at LOS “B” or better and are expected to do so through 2043.
9. **E. 168<sup>th</sup> Avenue/Tucson Street:** All movements at this unsignalized intersection currently operate at LOS “B” or better and are expected to do so through 2043.
10. **E. 160<sup>th</sup> Avenue (SH 7)/Quebec Street:** This signalized intersection currently operates at an overall LOS “C” during both morning and afternoon peak-hours. By 2028 it is expected to operate at an overall LOS “D” with no improvements. By 2043 it was assumed that E. 160<sup>th</sup> Avenue (SH 7) will be widened to a four-lane roadway. This intersection is expected to operate at an overall LOS “C” during both morning and afternoon peak-hours with two eastbound and two westbound through lanes.
11. **E. 160<sup>th</sup> Avenue (SH 7)/Yosemite Street:** This signalized intersection currently operates at an overall LOS “B” during both morning and afternoon peak-hours through 2028 with no improvements. By 2043 it was assumed that E. 160<sup>th</sup> Avenue (SH 7) will be widened to a four-lane roadway. This intersection is expected to operate at LOS “A” through 2043 with two eastbound and two westbound through lanes.
12. **E. 160<sup>th</sup> Avenue (SH 7)/Havana Street:** This signalized intersection currently operates at an overall LOS “A” during the morning peak-hour and LOS “B” during the afternoon peak-hour. In 2028, both peak-hours are expected to operate at LOS “B” with no improvements. By 2043 it was assumed that E. 160<sup>th</sup> Avenue (SH 7) will be widened to a four-lane roadway. This intersection is expected to operate at LOS “A” through 2043 with two eastbound and two westbound through lanes.
13. **E. 160<sup>th</sup> Avenue (SH 7)/Riverdale Road:** All movements at this unsignalized intersection currently operate at LOS “C” or better and are expected to operate at LOS “D” or better through 2028. By 2043, northbound and westbound left-turn movements are expected to operate at LOS “E” or “F” in one or both peak-hours if the intersection remains a full-movement stop-sign controlled intersection.
14. **E. 160<sup>th</sup> Avenue (SH 7)/Tucson Street:** All movements at this unsignalized intersection currently operate at LOS “D” or better and are expected to operate at LOS “E” or better by 2028. By 2043, this intersection is expected to be signalized and operate at an overall LOS “A”.
15. **Quebec Street/Eagle Shadow Avenue:** All movements at this unsignalized intersection currently operate at LOS “A” and are expected to do so through 2043.
16. **Quebec Street/E. 162<sup>nd</sup> Avenue:** All movements at this unsignalized intersection currently operate at LOS “A” and are expected to do so through 2043.

17. **Yosemite Street/N. Site Access:** This intersection was analyzed only in the total traffic scenarios.
18. **Yosemite Street/S. Site Access:** This intersection was analyzed only in the total traffic scenarios.
19. **Yosemite Street/E. 163<sup>rd</sup> Place:** All movements at this unsignalized intersection are expected to operate at LOS “A” through 2043.
20. **Yosemite Street/E. 162<sup>nd</sup> Avenue:** All movements at this unsignalized intersection currently operate at LOS “A” and are expected to do so through 2043.
21. **Lima Street/Lansing Court:** All movements at this unsignalized intersection currently operate at LOS “A” and are expected to do so through 2043.
22. **Lima Street/E. 166<sup>th</sup> Avenue:** All movements at this unsignalized intersection currently operate at LOS “A” and are expected to do so through 2043.

## **TRIP GENERATION**

Table 2 shows the estimated average weekday trip generation for the proposed site based on the rates from *Trip Generation, 11<sup>th</sup> Edition, 2021* by the Institute of Transportation Engineers (ITE).

The site is projected to generate about 15,426 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 296 vehicles would enter and about 781 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 859 vehicles would enter and about 541 vehicles would exit.

## **TRIP DISTRIBUTION**

Figure 6 shows the estimated directional distribution of the site-generated traffic volumes on the area roadways. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; the site’s proposed land use; and the traffic counts.

## **TRIP ASSIGNMENT**

Figure 7 shows the estimated site-generated traffic volumes based on the directional distribution percentages (from Figure 6) and the trip generation estimate (from Table 2).

## **2028 AND 2043 TOTAL TRAFFIC**

Figure 8a shows the 2028 total traffic which is the sum of the 2028 background traffic volumes (from Figure 4a) and the site-generated traffic volumes (from Figure 7). Figure 8b shows the recommended 2028 lane geometry and traffic control.

Figure 9a shows the 2043 total traffic which is the sum of 2043 background traffic volumes (from Figure 5a) and the site-generated traffic volumes (from Figure 7). Figure 9b shows the recommended 2043 lane geometry and traffic control.

### PROJECTED LEVELS OF SERVICE

The intersections in the study area were analyzed to determine the 2028 and 2043 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **E. 168<sup>th</sup> Avenue/CR 17:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better through 2043.
2. **E. 168<sup>th</sup> Avenue/Quebec Street:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better through 2043.
3. **E. 168<sup>th</sup> Avenue/West WSP Access:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better through 2043.
4. **E. 168<sup>th</sup> Avenue/CR 19:** All movements at this unsignalized intersection are expected to operate at LOS “D” or better through 2043.
5. **E. 168<sup>th</sup> Avenue/Yosemite Street:** Yosemite Street is planned to be realigned to align with CR 19 (Intersection #4) as part of the Todd Creek Farms development. This realignment will result in the existing Yosemite Street intersection being removed.
6. **E. 168<sup>th</sup> Avenue/East Remington Access:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better through 2043.
7. **E. 168<sup>th</sup> Avenue/Lima Street:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better through 2043.
8. **E. 168<sup>th</sup> Avenue/CR 23½:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better through 2043.
9. **E. 168<sup>th</sup> Avenue/Tucson Street:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better through 2043.
10. **E. 160<sup>th</sup> Avenue (SH 7)/Quebec Street:** This signalized intersection is expected to operate “D” during the morning peak-hour and at LOS “E” during the afternoon peak-hour in 2028 if E. 160<sup>th</sup> Avenue (SH 7) remains a two-lane roadway. If E. 160<sup>th</sup> Avenue (SH 7) is widened to provide two eastbound and two westbound through lanes, both peak-hours are expected to operate at an overall LOS “C” during both morning and afternoon peak-hours through 2043.
11. **E. 160<sup>th</sup> Avenue (SH 7)/Yosemite Street:** This signalized intersection is expected to operate at an overall LOS “D” during the morning peak-hour and LOS “C” during the afternoon peak-hour through 2028. By 2043 it was assumed that E. 160<sup>th</sup> Avenue (SH 7) will be widened to a four-lane roadway. This intersection is expected to operate at LOS “C”

during the morning peak-hour and LOS “B” during the afternoon peak-hour through 2043 with two eastbound and two westbound through lanes.

12. **E. 160<sup>th</sup> Avenue (SH 7)/Havana Street:** This signalized intersection is expected to operate at an overall LOS “B” during both morning and afternoon peak-hours through 2028. By 2043 it was assumed that E. 160<sup>th</sup> Avenue (SH 7) will be widened to a four-lane roadway.
13. **E. 160<sup>th</sup> Avenue (SH 7)/Riverdale Road:** The northbound and westbound left-turn movements at this unsignalized intersection are expected to operate at “E” or “F” in one or both peak-hours through 2043 if this intersections remains a stop-sign controlled full-movement intersection. Potential mitigation would be conversion to three-quarter movement.
14. **E. 160<sup>th</sup> Avenue (SH 7)/Tucson Street:** This signalized intersection is expected to operate at an overall LOS “B” during both peak-hours through 2028. By 2043 it was assumed that E. 160<sup>th</sup> Avenue (SH 7) will be widened to a four-lane roadway. This intersection is expected to operate at LOS “A” through 2043 with two eastbound and two westbound through lanes.
15. **Quebec Street/Eagle Shadow Avenue:** All movements at this unsignalized intersection are expected to operate at LOS “A” through 2043.
16. **Quebec Street/E. 162<sup>nd</sup> Avenue:** All movements at this unsignalized intersection are expected to operate at LOS “A” through 2043.
17. **Yosemite Street/N. Site Access:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better through 2043.
18. **Yosemite Street/S. Site Access:** All movements at this unsignalized intersection are expected to operate at LOS “C” or better through 2043.
19. **Yosemite Street/E. 163<sup>rd</sup> Place:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better through 2043.
20. **Yosemite Street/E. 162<sup>nd</sup> Avenue:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better through 2043.
21. **Lima Street/Lansing Court:** All movements at this unsignalized intersection are expected to operate at LOS “A” through 2043.
22. **Lima Street/E. 166<sup>th</sup> Avenue:** All movements at this unsignalized intersection are expected to operate at LOS “B” or better through 2043.

## QUEUING ANALYSIS

Table 3 shows the estimated 95<sup>th</sup> percentile queue lengths at the signalized intersections. Table 3 also shows the existing and recommended turn lane lengths.

**TRAFFIC SIGNAL WARRANT ANALYSIS**

The intersection of E. 160<sup>th</sup> Avenue (SH 7)/Tuscon Street (#14) was analyzed to determine if and when Eight-Hour, Four-Hour, and Peak-Hour Vehicular Volume Traffic Signal Warrants would be met based on the projected 2028 traffic volumes. Table 4 shows the results of the analysis.

The intersection of E. 160<sup>th</sup> Avenue (SH 7)/Tuscon Street (#14) is expected to meet the four-hour and peak-hour vehicular volume traffic signal warrants based on the projected 2028 total traffic volumes.

**CONCLUSIONS AND RECOMMENDATIONS****Trip Generation**

1. The site is projected to generate about 15,426 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 296 vehicles would enter and about 781 vehicles would exit the site. During the afternoon peak-hour, about 859 vehicles would enter and about 541 vehicles would exit.

**Projected Levels of Service**

2. The existing signalized intersection of E. 160<sup>th</sup> Avenue (SH 7) is expected to operate at LOS "E" during the afternoon peak hour by 2028 if E. 160<sup>th</sup> Avenue (SH 7) remains a two-lane roadway. If E. 160<sup>th</sup> Avenue (SH 7) is widened to provide two eastbound and two westbound through lanes in the short-term, both peak-hours are expected to operate at an overall LOS "C" during both morning and afternoon peak-hours through 2043.
3. All of the other existing signalized intersections analyzed are expected to operate at an overall LOS "D" or better during both peak-hours through 2043 with the recommended improvements.
4. The northbound and westbound left-turn movements at the unsignalized intersection of E. 160<sup>th</sup> Avenue (SH 7)/Riverdale Road are expected to operate at LOS "E" or "F" in one or both peak-hours by 2043 with or without the proposed Todd Creek Farms development if this intersections remains a stop-sign controlled full-movement intersection. This intersection will not likely meet any of the traffic signal warrants based on vehicular traffic volumes. However, signalization may be possible based on maintaining a coordinated roadway network. If a traffic signal is not allowed it may be appropriate to restrict this intersection to three-quarter movement (left-in/right-in/right-out-only) in the future.
5. The southbound approach at the intersection of E. 160<sup>th</sup> Avenue (SH 7)/Tuscon Street is expected to operate at LOS "F" during the peak-hours by 2028 with the proposed Todd Creek Farms development. This intersection is anticipated to meet multiple traffic signal warrants based on the 2028 total traffic volumes. If signalized it is expected to operate at LOS "B" or better through 2043.



- 6. All movements at all of the other unsignalized intersections analyzed are expected to operate at LOS "D" or better through 2043.

**Conclusions**

- 7. The impact of the proposed Todd Creek Farms development can be accommodated by the existing roadway network with the recommended improvements.

**Recommendations**


- 8. The 2028 and 2043 recommended improvements are shown in Figures 8b and 9b and are detailed in Tables 3 and 5.

\* \* \* \* \*

We trust our findings will assist you in gaining approval of the proposed Todd Creek Farms development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By  \_\_\_\_\_  
 Christopher S. McGranahan, PE  
 Principal/President



5-11-23

CSM/wc

- Enclosures: Tables 1 - 5  
 Figures 1 - 9b  
 Traffic Count Reports  
 Key Pages from Holly Village TIA and Sack Farms TIA  
 Level of Service Definitions  
 Level of Service Reports  
 Queuing Reports

**Table 1 (Page 1 of 5)**  
**Intersection Levels of Service Analysis**  
**Todd Creek Farm**  
**Adams County, CO**  
**LSC #221150; May, 2023**

Intersection No. & Location	Traffic Control	Existing Traffic		2028 Background Traffic		2028 Total Traffic		2028 Total Traffic Additional Mitigation		2043 Background Traffic		2043 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1) <u>E. 168th Avenue/CR 17</u>	TWSC												
EB Left/Through		A	A	A	A	A	A			A	A	A	A
SB Approach		A	B	A	B	B	C			B	B	B	B
Critical Movement Delay		9.6	10.5	9.9	11.1	11.6	15.3			10.0	11.2	11.3	14.1
2) <u>E. 168th Avenue/Quebec Street</u>	TWSC												
NB Approach		A	B	A	B	--	--			--	--	--	--
NB Left		--	--	--	--	B	C			B	C	B	C
NB Right		--	--	--	--	A	B			A	B	A	B
WB Left/Through		A	A	A	A	A	A			A	A	A	A
Critical Movement Delay		9.4	10.6	9.6	11.1	13.7	18.7			11.3	16.2	13.4	21.9
3) <u>E. 168th Avenue/West WSP Access</u>	TWSC												
NB Left		--	--	--	--	B	C			--	--	B	C
NB Right		--	--	--	--	A	B			--	--	A	B
WB Left		--	--	--	--	A	A			--	--	A	A
Critical Movement Delay		--	--	--	--	13.8	17.1			--	--	12.8	19.4
4) <u>E. 168th Avenue/CR 19</u>	TWSC												
NB Left		--	--	--	--	C	C			B	C	B	D
NB Through/Right		--	--	--	--	B	B			A	A	B	B
EB Left/Through or Left		A	A	A	A	A	A			A	A	A	A
WB Left		--	--	--	--	A	A			A	A	A	A
SB Approach		B	B	B	B	--	--			--	--	--	--
SB Left		--	--	--	--	B	C			B	C	B	C
SB Through/Right		--	--	--	--	B	B			A	A	A	B
Critical Movement Delay		10.4	11.0	10.8	11.7	15.8	21.8			12.8	18.3	14.8	29.4
5) <u>E. 168th Avenue/Yosemite Street</u>	TWSC												
NB Approach		B	B	B	B	--	--			--	--	--	--
WB Left/Through		A	A	A	A	--	--			--	--	--	--
Critical Movement Delay		10.5	10.9	10.9	11.6	--	--			--	--	--	--
6) <u>E. 168th Avenue/East Remington Access</u>	TWSC												
NB Approach		--	--	--	--	B	B			--	--	B	B
WB Left		--	--	--	--	A	A			--	--	A	A
Critical Movement Delay		--	--	--	--	10.9	13.1			--	--	10.4	13.2

**Table 1 (Page 2 of 5)**  
**Intersection Levels of Service Analysis**  
**Todd Creek Farm**  
**Adams County, CO**  
**LSC #221150; May, 2023**

Intersection No. & Location	Traffic Control	Existing Traffic		2028 Background Traffic		2028 Total Traffic		2028 Total Traffic Additional Mitigation		2043 Background Traffic		2043 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
7) <u>E. 168th Avenue/Lima Street</u>	TWSC												
NB Left		B	B	B	B	B	C			B	C	B	C
NB Right		A	A	A	B	B	B			A	A	A	B
WB Left		A	A	A	A	A	A			A	A	A	A
Critical Movement Delay		10.5	12.2	11.0	13.3	13.6	20.0			11.1	15.5	13.4	22.8
8) <u>E. 168th Avenue/CR 23 1/2</u>	TWSC												
EB Left/Through or Left		A	A	A	A	A	A			A	A	A	A
SB Approach		A	B	B	B	B	B			B	B	B	C
Critical Movement Delay		9.8	11.0	10.0	11.6	11.2	14.4			10.4	12.4	11.3	15.0
9) <u>E. 168th Avenue/Tucson Street</u>	TWSC												
NB Approach		A	B	A	B	B	C			B	B	B	C
WB Left/Through or Left		A	A	A	A	A	A			A	A	A	A
Critical Movement Delay		9.6	10.3	9.7	10.7	11.9	15.3			10.2	12.1	12.4	18.3
10) <u>E. 160th Avenue (SH 7)/Quebec Street</u>	Signalized												
EB Left		D	D	D	E	E	E	E	D	E	D	E	E
EB Through		B	C	B	D	C	F	B	B	C	C	C	C
EB Right		B	B	B	B	B	A	B	B	A	A	A	A
WB Left		D	D	E	E	E	F	E	D	D	D	D	D
WB Through		B	B	C	B	D	B	B	B	B	B	C	B
WB Right		A	A	A	A	A	A	A	A	A	B	B	B
NB Left		D	D	D	E	E	F	E	D	D	D	D	D
NB Through		C	C	C	D	D	D	D	C	C	C	C	C
NB Right		C	C	C	D	D	D	D	C	A	A	A	A
SB Left		D	D	D	E	E	E	E	D	E	D	E	D
SB Through/Right		C	D	D	D	--	--	--	--	--	--	--	--
SB Through		--	--	--	--	D	D	D	D	D	D	D	D
SB Right		--	--	--	--	D	D	D	D	D	D	D	D
Entire Intersection Delay (sec /veh)		21.4	24.0	27.2	35.3	41.8	67.6	23.2	21.1	28.4	25.1	31.1	30.5
Entire Intersection LOS		C	C	C	D	D	E	C	C	C	C	C	C

**Table 1 (Page 3 of 5)**  
**Intersection Levels of Service Analysis**  
**Todd Creek Farm**  
**Adams County, CO**  
**LSC #221150; May, 2023**

Intersection No. & Location	Traffic Control	Existing Traffic		2028 Background Traffic		2028 Total Traffic		2028 Additional Mitigation		2043 Background Traffic		2043 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
11) <u>E. 160th Avenue (SH 7)/Yosemite Street</u>	Signalized												
EB Left		A	A	B	A	D	B			A	A	C	D
EB Through		A	B	A	B	B	C			A	A	B	B
EB Right		A	A	A	A	A	A			A	A	A	A
WB Left		A	A	A	A	A	B			A	A	B	A
WB Through		B	A	B	A	D	B			A	A	B	B
WB Right		A	A	A	A	A	A			A	A	A	B
NB Left		C	C	C	C	D	C			C	C	C	C
NB Through/Right		C	C	C	C	D	C			C	C	C	C
SB Left		C	C	C	C	E	D			C	C	D	D
SB Through/Right		C	C	C	C	--	--			--	--	--	--
SB Through		--	--	--	--	D	C			C	C	C	C
SB Right		--	--	--	--	D	D			C	C	D	C
Entire Intersection Delay (sec /veh)		10.1	10.2	10.9	10.5	36.4	21.1			8.9	9.0	20.1	17.7
Entire Intersection LOS		B	B	B	B	D	C			A	A	C	B
12) <u>E. 160th Avenue (SH 7)/Havana Street</u>	Signalized												
EB Left		A	A	A	A	A	A			A	A	A	B
EB Through		A	B	A	B	A	B			A	A	A	A
EB Right		A	A	A	A	A	A			A	A	A	A
WB Left		A	A	A	B	A	B			A	A	A	A
WB Through		B	A	B	A	B	B			A	A	A	A
WB Right		A	A	A	A	A	A			A	A	A	A
NB Left		B	C	C	C	C	C			C	C	C	C
NB Through/Right		B	C	C	C	C	C			C	C	C	C
SB Left		B	C	C	C	C	C			C	C	C	C
SB Through/Right		B	C	C	C	--	--			--	--	--	--
SB Through		--	--	--	--	C	C			C	C	C	C
SB Right		--	--	--	--	C	C			C	C	C	C
Entire Intersection Delay (sec /veh)		9.8	10.4	10.1	10.9	11.9	13.0			9.1	9.2	10.4	10.5
Entire Intersection LOS		A	B	B	B	B	B			A	A	B	B
13) <u>E. 160th Avenue (SH 7)/Riverdale Road</u>	TWSC												
NB Left		C	C	D	D	D	E			F	F	F	F
NB Right		A	A	A	A	A	A			A	A	A	A
WB Left		A	B	B	B	B	B			E	C	F	C
Critical Movement Delay		22.8	24.5	29.0	31.5	32.5	39.0			>240	137.8	>240	201.4

**Table 1 (Page 4 of 5)  
Intersection Levels of Service Analysis  
Todd Creek Farm  
Adams County, CO  
LSC #221150; May, 2023**

Intersection No. & Location	Traffic Control	Existing Traffic		2028 Background Traffic		2028 Total Traffic		2028 Total Traffic Additional Mitigation		2043 Background Traffic		2043 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
14) <u>E. 160th Avenue (SH 7)/Tucson Street</u>	TWSC	B	B	B	B	B	B	--	--	--	--	--	--
EB Left		B	B	B	B	B	B	--	--	--	--	--	--
SB Approach		D	D	E	E	--	--	--	--	--	--	--	--
SB Left		--	--	--	--	F	F	--	--	--	--	--	--
SB Right		--	--	--	--	D	D	--	--	--	--	--	--
Critical Movement Delay		28.8	30.0	41.3	45.2	>240	>240	--	--	--	--	--	--
	Signalized												
EB Left		--	--	--	--	B	C	B	B	B	B	C	C
EB Through		--	--	--	--	A	B	A	A	A	A	A	A
WB Through		--	--	--	--	B	C	A	A	B	B	B	B
WB Right		--	--	--	--	A	A	A	A	A	A	A	A
SB Left		--	--	--	--	D	D	D	D	D	D	D	D
SB Right		--	--	--	--	D	D	D	D	D	D	D	D
Entire Intersection Delay (sec /veh)		--	--	--	--	14.3	17.5	8.3	7.8	9.5	9.9	9.9	9.9
Entire Intersection LOS		--	--	--	--	B	B	A	A	A	A	A	A
15) <u>Quebec Street/Eagle Shadow Avenue</u>	TWSC	A	A	A	A	A	A	A	A	A	A	A	A
NB Left		A	A	A	A	A	A	A	A	A	A	A	A
EB Approach		A	A	A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		8.7	8.7	8.7	8.7	8.9	8.8	8.7	8.6	8.8	8.7	8.7	8.7
16) <u>Quebec Street/E. 162nd Avenue</u>	TWSC	A	A	A	A	A	A	A	A	A	A	A	A
NB Left/Through or Left		A	A	A	A	A	A	A	A	A	A	A	A
EB Approach		A	A	A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		9.0	8.8	9.0	8.8	9.2	9.0	8.8	8.8	8.9	8.9	8.9	8.9
17) <u>Yosemite Street/N. Site Access</u>	TWSC	--	--	--	--	A	A	--	--	A	A	A	A
NB Left		--	--	--	--	A	A	--	--	A	A	A	A
EB Approach		--	--	--	--	--	--	--	--	--	--	--	--
EB Left		--	--	--	--	B	C	--	--	B	B	B	B
EB Through/Right		--	--	--	--	A	A	--	--	A	A	A	A
WB Left		--	--	--	--	B	C	--	--	B	B	B	B
WB Through/Right		--	--	--	--	A	A	--	--	A	A	A	A
SB Left		--	--	--	--	A	A	--	--	A	A	A	A
Critical Movement Delay		--	--	--	--	13.2	17.9	--	--	12.3	15.8	15.8	15.8



**Table 2  
Trip Generation Estimate  
Todd Creek Farms  
Adams County, CO  
LSC #220150; May, 2023**

Land Use Description	Trip Generation Units	Trip Generation Rates <sup>(1)</sup>					Total Trips Generated				
		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour	
			In	Out	In	Out		In	Out	In	Out
<b>WSP Property</b>											
Assisted Living <sup>(2)</sup>	60 Beds	2.60	0.108	0.072	0.094	0.146	156	6	4	6	9
Senior Adult Housing - Multifamily <sup>(3)</sup>	145 DU <sup>(4)</sup>	3.06	0.068	0.132	0.140	0.110	444	10	19	20	16
Senior Adult Housing - Single Family <sup>(5)</sup>	30 DU	7.10	0.079	0.161	0.183	0.117	213	2	5	5	4
Single Family Detached Housing <sup>(6)</sup>	191 DU	9.43	0.182	0.518	0.592	0.348	1,801	35	99	113	66
Multifamily Housing <sup>(7)</sup>	280 DU	6.74	0.10	0.30	0.32	0.19	1,887	27	85	90	53
	<b>706 DU</b>						<b>813</b>	<b>18</b>	<b>28</b>	<b>31</b>	<b>29</b>
<b>Remington</b>											
Single Family Detached Housing <sup>(6)</sup>	576 DU	9.43	0.182	0.518	0.592	0.348	5,432	105	298	341	200
Single Family Attached Housing <sup>(8)</sup>	334 DU	7.20	0.149	0.331	0.325	0.245	2,405	50	111	109	82
	<b>910 DU</b>						<b>7,837</b>	<b>155</b>	<b>409</b>	<b>450</b>	<b>282</b>
<b>Carlson</b>											
Single Family Detached Housing <sup>(6)</sup>	216 DU	9.43	0.182	0.518	0.592	0.348	2,037	39	112	128	75
Single Family Attached Housing <sup>(8)</sup>	146 DU	7.20	0.149	0.331	0.325	0.245	1,051	22	48	47	36
	<b>362 DU</b>						<b>3,088</b>	<b>61</b>	<b>160</b>	<b>175</b>	<b>111</b>
<b>Todd Creek Farms Total</b>	<b>1,978 DU</b>						<b>15,426</b>	<b>296</b>	<b>781</b>	<b>859</b>	<b>541</b>

**Notes:**

(1) Source: *Trip Generation, Institute of Transportation Engineers*, 11th Edition, 2021.

(2) ITE Land Use No. 254 - Assisted Living

(3) ITE Land Use No. 220 - Senior Adult Housing - Multifamily

(4) DU = dwelling unit

(5) ITE Land Use No. 251 - Senior Adult Housing - Single-Family

(6) ITE Land Use No. 210 - Single-Family Detached Housing

(7) ITE Land Use No. 220 - Multifamily Housing (Low-Rise)

(8) ITE Land Use No. 215 - Single-Family Attached Housing

Source: LSC Transportation Consultants, Inc.

**Table 3**  
**95th Percentile Queue Lengths**  
**Todd Creek Farm**  
**Adams County, CO**  
**LSC #221150; May, 2023**

Intersection No. & Location	Existing Lane Lengths (feet)	Proposed Lane Lengths (feet)	95th Percentile Queue Length	
			2043 Total	
			AM Peak (feet)	PM Peak (feet)
<b>10) <u>E. 160th Avenue (SH 7)/Quebec Street</u></b>				
EB Left	550	550	56	140
EB Through	---	---	398	495
EB Right	415	415	40	0
WB Left	1 @ 525	<b>2 @ 525</b>	201	255
WB Through	---	---	578	401
WB Right	415	415	0	0
NB Left	1 @ 250	<b>2 @ 250</b>	237	248
NB Through	---	---	48	104
NB Right	570	570	70	0
SB Left	230	230	57	60
SB Through	---	---	77	72
SB Right	---	<b>200</b>	0	0
<b>11) <u>E. 160th Avenue (SH 7)/Yosemite Street</u></b>				
EB Left	440	440	58	300
EB Through	---	---	331	334
EB Right	615	615	5	19
WB Left	800	800	25	25
WB Through	---	---	592	416
WB Right	700	700	19	28
NB Left	lane drop	lane drop	90	85
NB Through/Right	---	---	62	94
SB Left	140	140	258	154
SB Through	---	---	56	46
SB Right	---	<b>200</b>	148	64
<b>12) <u>E. 160th Avenue (SH 7)/Havana Street</u></b>				
EB Left	515	515	12	64
EB Through	---	---	282	274
EB Right	430	430	8	15
WB Left	550	550	11	46
WB Through	---	---	378	426
WB Right	420	420	0	3
NB Left	200	200	58	69
NB Through/Right	---	---	53	60
SB Left	275	275	30	23
SB Through	---	---	29	27
SB Right	---	<b>200</b>	48	39
<b>14) <u>E. 160th Avenue (SH 7)/Tucson Street</u></b>				
EB Left	450	450	22	68
EB Through	---	---	270	232
WB Through	---	---	604	653
WB Right	325	325	10	14
SB Left	---	---	96	72
SB Right	---	<b>200</b>	44	37



**Table 4**  
**Intersection #14 - E. 160th Avenue (SH 7)/Tuscon Street**  
**Todd Creek Farms**  
**Adams County, CO**  
**LSC #221150; May, 2023**

**Warrant Analysis<sup>(1)</sup>**

Hour	Traffic Volumes (vehicles per hour)		Warrant 1: Eight Hour Vehicular Volume Evaluation						Warrant 2: Four Hour Vehicular Volume		Warrant 3: Peak Hour Vehicular Volume	
			Warrant Thresholds				Warrant Threshold Met?		70% Warrant Threshold Minor Minimum	Warrant Threshold Met?	70% Warrant Threshold Minor Minimum	Warrant Threshold Met?
	Major <sup>(2)</sup>	Minor Leg <sup>(3)</sup>	Condition A (70%)		Condition B (70%)		A	B				
			Major	Minor	Major	Minor						

**2028 Background Traffic**

6-7 AM	1647	20	350	105	525	53	No	No	60	No	75	No
7-8 AM	1927	22	350	105	525	53	No	No	60	No	75	No
8-9 AM	1667	28	350	105	525	53	No	No	60	No	75	No
9-10 AM	1576	55	350	105	525	53	No	Yes	60	No	75	No
10-11 AM	1524	48	350	105	525	53	No	No	60	No	75	No
11-12 PM	1785	38	350	105	525	53	No	No	60	No	75	No
12-1 PM	1838	18	350	105	525	53	No	No	60	No	75	No
1-2 PM	1814	19	350	105	525	53	No	No	60	No	75	No
2-3 PM	1916	12	350	105	525	53	No	No	60	No	75	No
3-4 PM	2195	14	350	105	525	53	No	No	60	No	75	No
4-5 PM	2312	13	350	105	525	53	No	No	60	No	75	No
5-6 PM	2374	18	350	105	525	53	No	No	60	No	75	No
6-7 PM	1688	25	350	105	525	53	No	No	60	No	75	No
7-8 PM	1085	21	350	105	525	53	No	No	60	No	80	No
8-9 PM	662	16	350	105	525	53	No	No	90	No	175	No
9-10 PM	429	11	350	105	525	53	No	No	165	No	270	No

Numbers of Hours the Warrant Thresholds Are Met	0	1	0	0
Warrant Met?	No		No	No

**2028 Total Traffic**

6-7 AM	1814	57	350	105	525	53	No	Yes	60	No	75	No
7-8 AM	2142	65	350	105	525	53	No	Yes	60	Yes	75	No
8-9 AM	1865	82	350	105	525	53	No	Yes	60	Yes	75	Yes
9-10 AM	1748	160	350	105	525	53	Yes	Yes	60	Yes	75	Yes
10-11 AM	1690	139	350	105	525	53	Yes	Yes	60	Yes	75	Yes
11-12 PM	1980	111	350	105	525	53	Yes	Yes	60	Yes	75	Yes
12-1 PM	2075	56	350	105	525	53	No	Yes	60	No	75	No
1-2 PM	2052	60	350	105	525	53	No	Yes	60	Yes	75	No
2-3 PM	2160	38	350	105	525	53	No	No	60	No	75	No
3-4 PM	2478	43	350	105	525	53	No	No	60	No	75	No
4-5 PM	2623	39	350	105	525	53	No	No	60	No	75	No
5-6 PM	2707	56	350	105	525	53	No	Yes	60	No	75	No
6-7 PM	1916	77	350	105	525	53	No	Yes	60	Yes	75	Yes
7-8 PM	1226	65	350	105	525	53	No	Yes	60	Yes	75	No
8-9 PM	749	49	350	105	525	53	No	No	65	No	145	No
9-10 PM	488	35	350	105	525	53	No	No	165	No	270	No

Numbers of Hours the Warrant Thresholds Are Met	3	11	8	5
Warrant Met?	Yes		Yes	Yes

**Notes:**

- (1) Thresholds are based on 1 lane on the major approach and 1 lane on the minor approach with the 70% factor applied for a posted speed limit above 40 mph
- (2) The major street traffic includes all movements (left, through, and right)
- (3) The minor street traffic includes left, through, and half of right-turn volumes from the minor street

Source: LSC Transportation Consultants, Inc.

**Table 5 (Page 1 of 2)**  
**Recommended Improvements to Public Street Network**  
**Todd Creek Farms**  
**Adams County, CO**  
**LSC #221150; May, 2023**

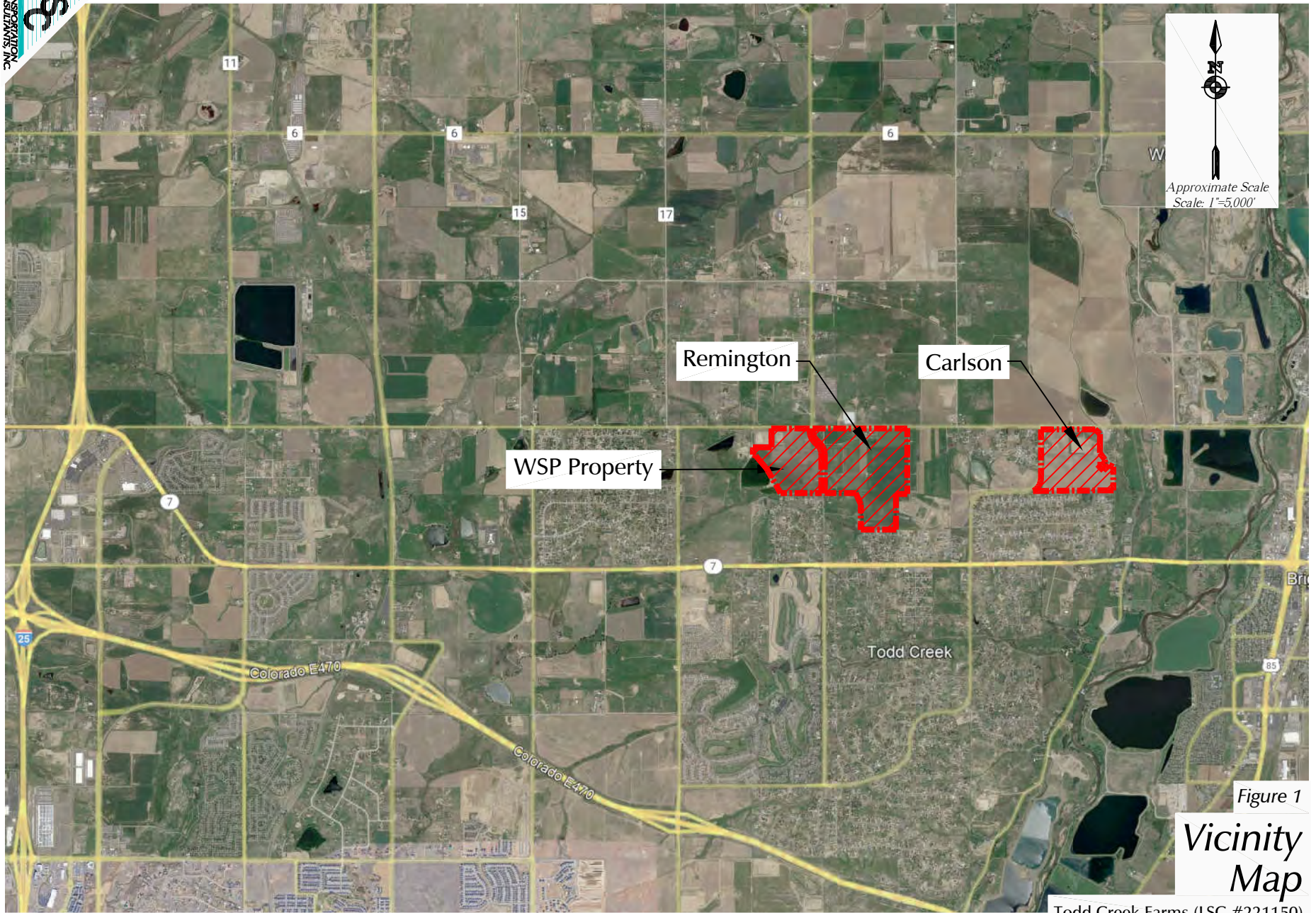
Inter-section No.	Intersection Location	Recommended Improvements by 2028 <sup>(1)</sup>	Responsibility	Recommended Improvements by 2043 <sup>(1)</sup>	Responsibility
	Yosemite Street	Realign to align with WCR 19 at E. 168th Avenue	Applicant		Others
	Quebec Street			Widen to 4 Lanes	Others
	E. 168th Avenue			Widen to 4 Lanes	Others
	E. 160th Avenue (SH 7)			Widen to 4 Lanes plus 2 transit lanes	Others
#1	E. 168th Avenue/WCR 17			EB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Others
#2	E. 168th Avenue/ Quebec Street	WB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant	EB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Others
		NB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
#3	E. 168th Avenue/ West WSP Access	WB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
		EB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
		NB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
#4	E. 168th Avenue/ Yosemite Street (realigned)/ WCR 19	EB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
		EB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
		WB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
		WB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
		NB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
		SB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
#5	E. 168th Avenue/ Yosemite Street (existing)	To be closed when Yosemite Street is realigned south of E. 168th Avenue	Applicant		
#6	E. 168th Avenue/ East Remington Access	WB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
		EB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
#7	E. 168th Avenue/Lima Street	No improvements recommended			
#8	E. 168th Avenue/WCR 23 1/2			EB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Others
#9	E. 168th Avenue/Tucson Street	EB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant	WB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Others
#10	E. 160th Avenue (SH 7)/ Quebec Street	SB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant	WB LT - construct 2nd lane - 2 @ 525 feet and 300-foot transition taper for each	Others
				NB LT - construct 2nd lane - 2 @ 250 feet and 200-foot transition taper	Others

(1) A transition taper of 25:1 was used for E. 160th Avenue (SH 7) based on a posted speed limit of 60 mph (300 feet). Dual left-turn lanes have transition taper lengths of 600 feet. An appropriate redirect taper for 60 mph is 60:1

**Table 5 (Page 2 of 2)**  
**Recommended Improvements to Public Street Network**  
**Todd Creek Farms**  
**Adams County, CO**  
**LSC #221150; May, 2023**

Inter-section	No.	Intersection Location	Recommended Improvements by 2025 <sup>(1)</sup>	Responsibility	Recommended Improvements by 2042 <sup>(1)</sup>	Responsibility
	#11	E. 160th Avenue (SH 7)/ Yosemite Street	SB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
	#12	E. 160th Avenue (SH 7)/ Lima Street	SB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
	#13	E. 160th Avenue (SH 7)/ Riverdale Road			This intersection may need to be restricted to three-quarter movement (left-in/right-in/right-out only) over time	
	#14	E. 160th Avenue (SH 7)/ Lima Street	SB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			Traffic signalization when warranted	Applicant/Others		
	#15	Quebec Street/ Eagle Shadow Avenue	No improvements recommended			
	#16	Quebec Street/E. 162nd Avenue			NB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Others
	#17	Yosemite Street/ North Site Access	EB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			WB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			NB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			NB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			SB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			SB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
	#18	Yosemite Street/ South Site Access	EB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			WB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			NB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			NB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			SB LT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
			SB RT - construct lane - 1 @ 200 feet and 100-foot transition taper	Applicant		
	#19	Yosemite Street/ E. 163rd Avenue	No improvements recommended			
	#20	Quebec Street/ E. 162nd Avenue	No improvements recommended			
	#21	Lima Street/ Lansing Court	No improvements recommended			
	#22	Lima Street/ E. 166th Avenue	Construct east leg of the intersection	Applicant		

(1) A transition taper of 25:1 was used for E. 160th Avenue (SH 7) based on a posted speed limit of 60 mph (300 feet). Dual left-turn lanes have transition taper lengths of 600 feet. An appropriate redirect taper for 60 mph is 60:1



Approximate Scale  
Scale: 1"=5,000'

Figure 1  
**Vicinity  
Map**

Todd Creek Farms (LSC #221150)



Figure 2a

# WSP Property Site Plan

Todd Creek Farms (LSC #221150)



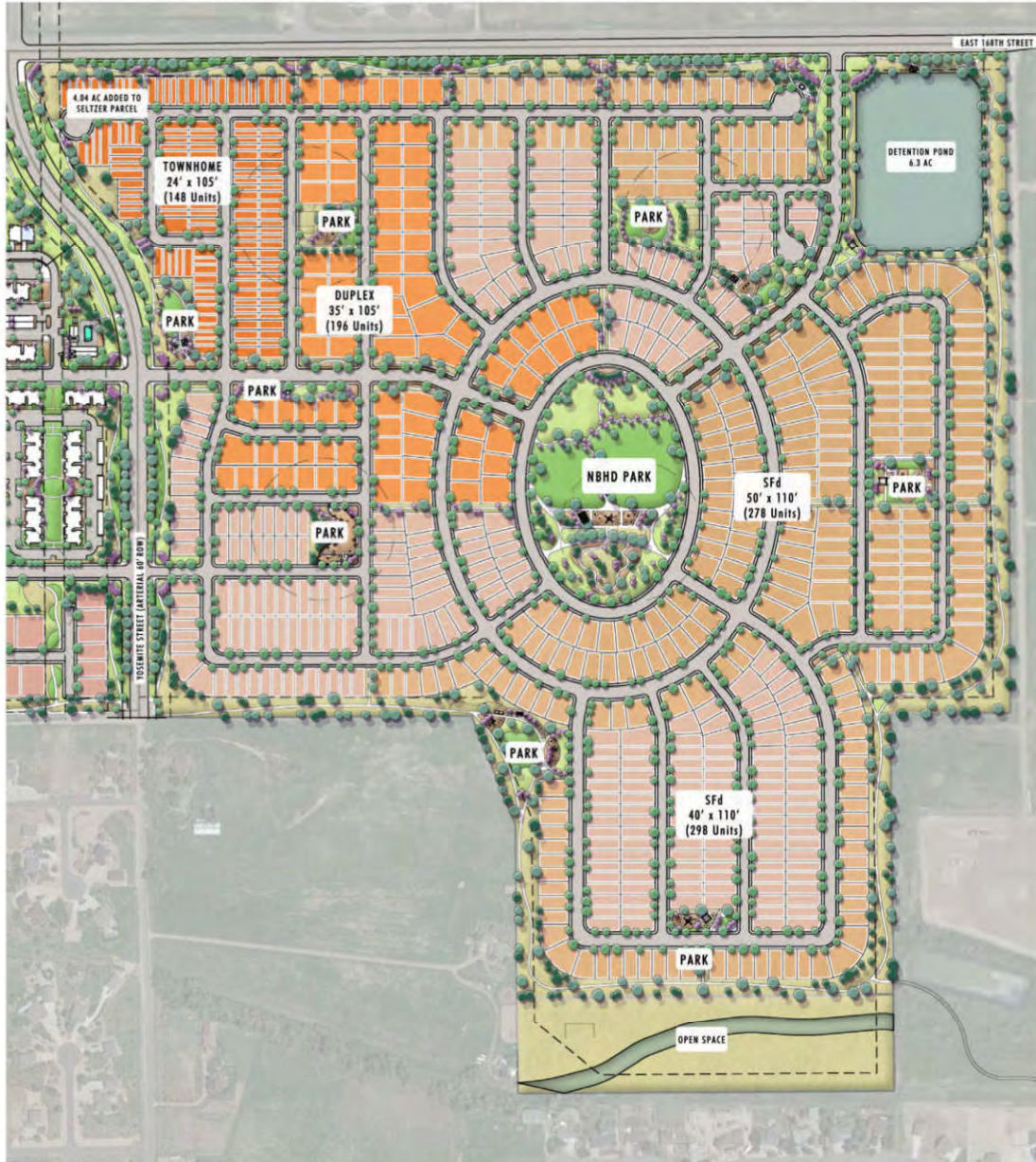


Figure 2b

# Remington Site Plan

Todd Creek Farms (LSC #221150)





Figure 2c

# Carlson Site Plan

Todd Creek Farms (LSC #221150)



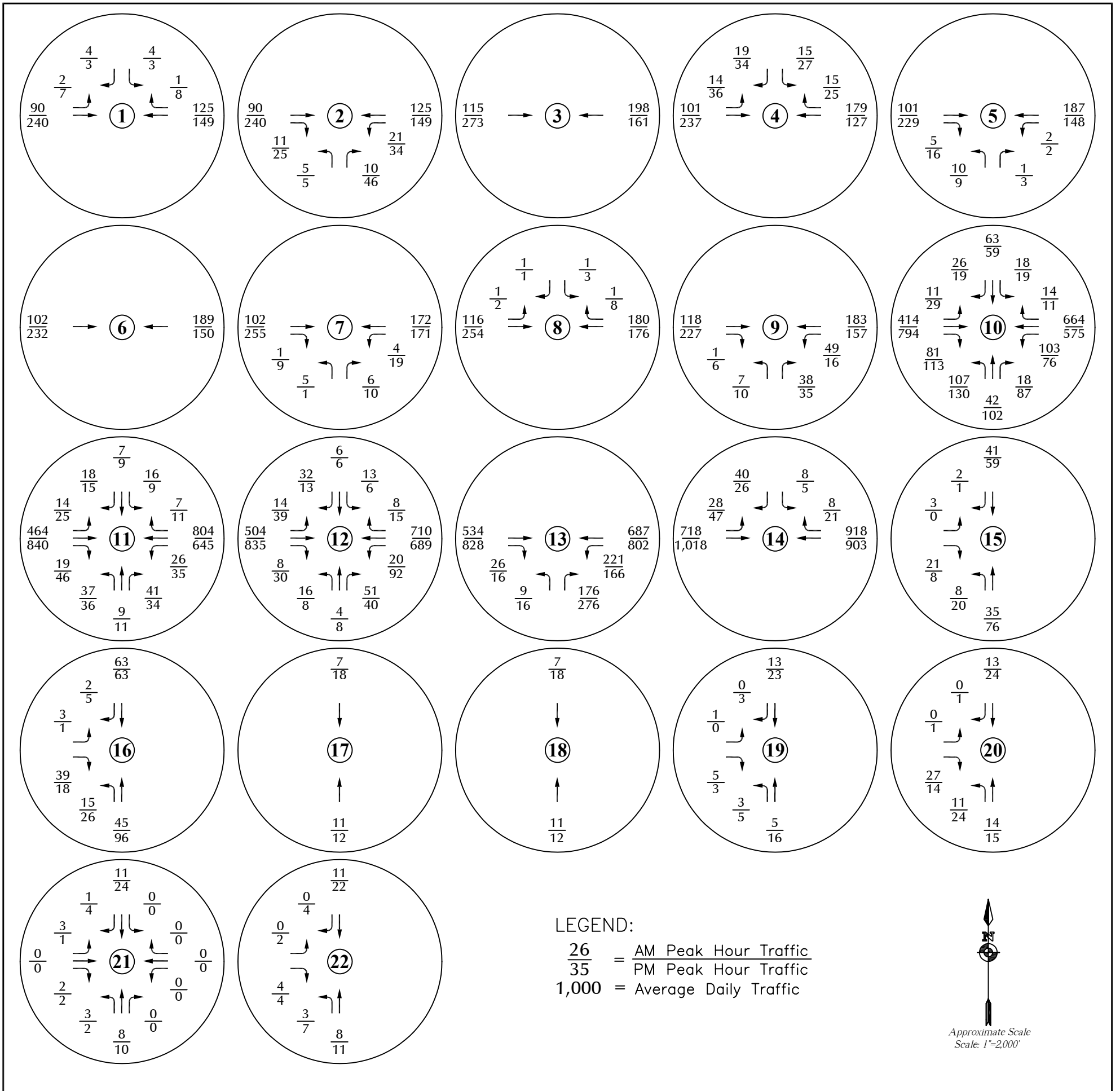


Figure 3a

**Existing Traffic**

Todd Creek Farms (LSC #221150)





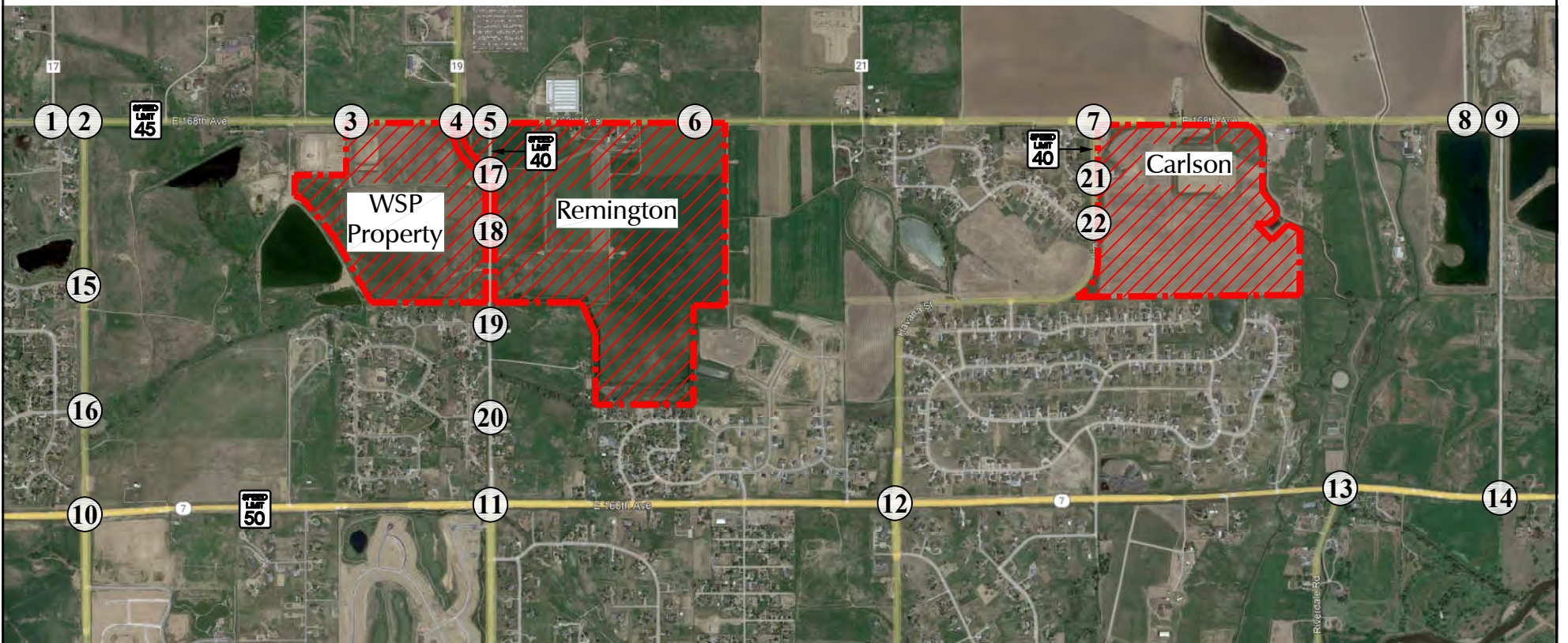
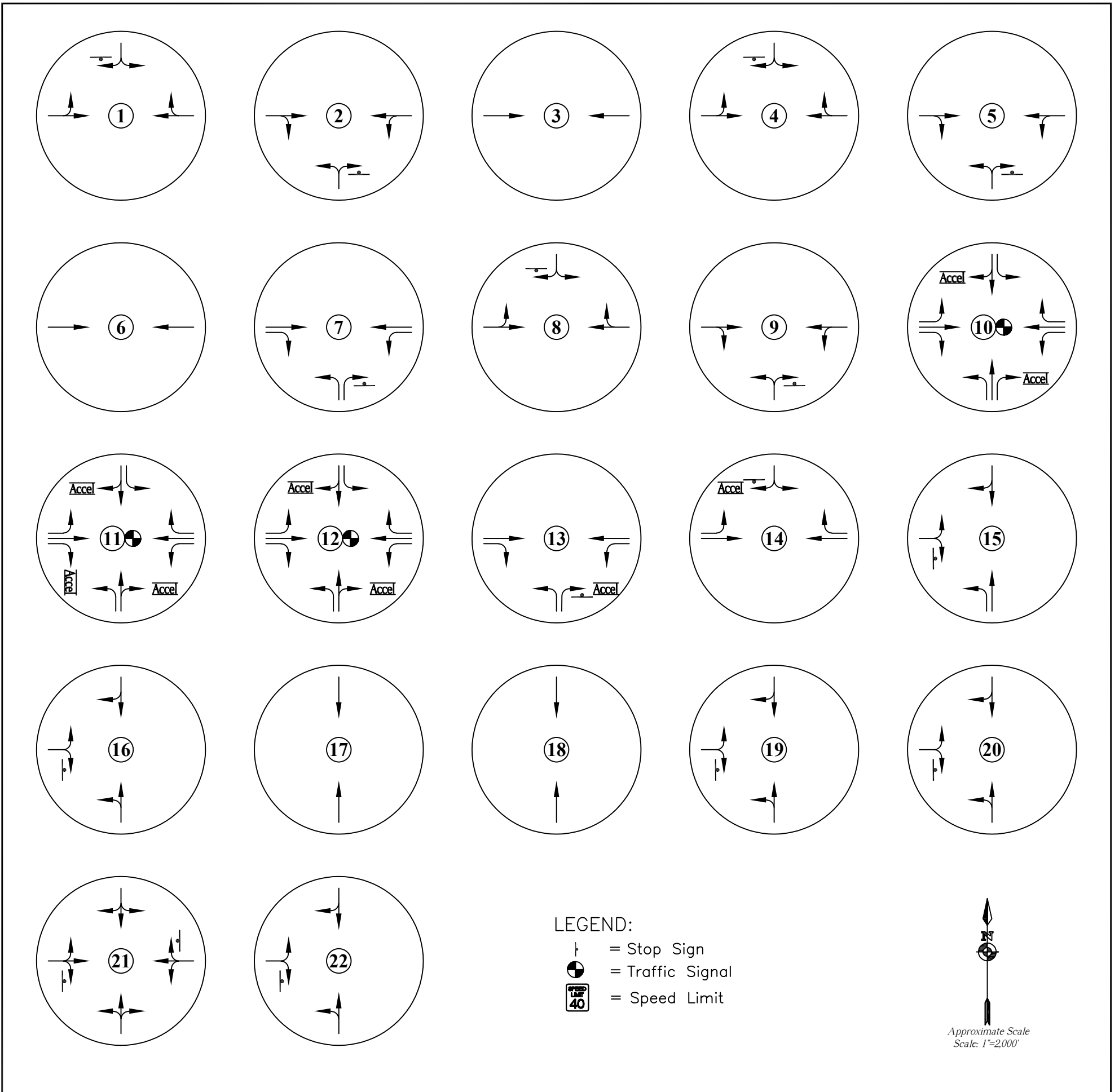
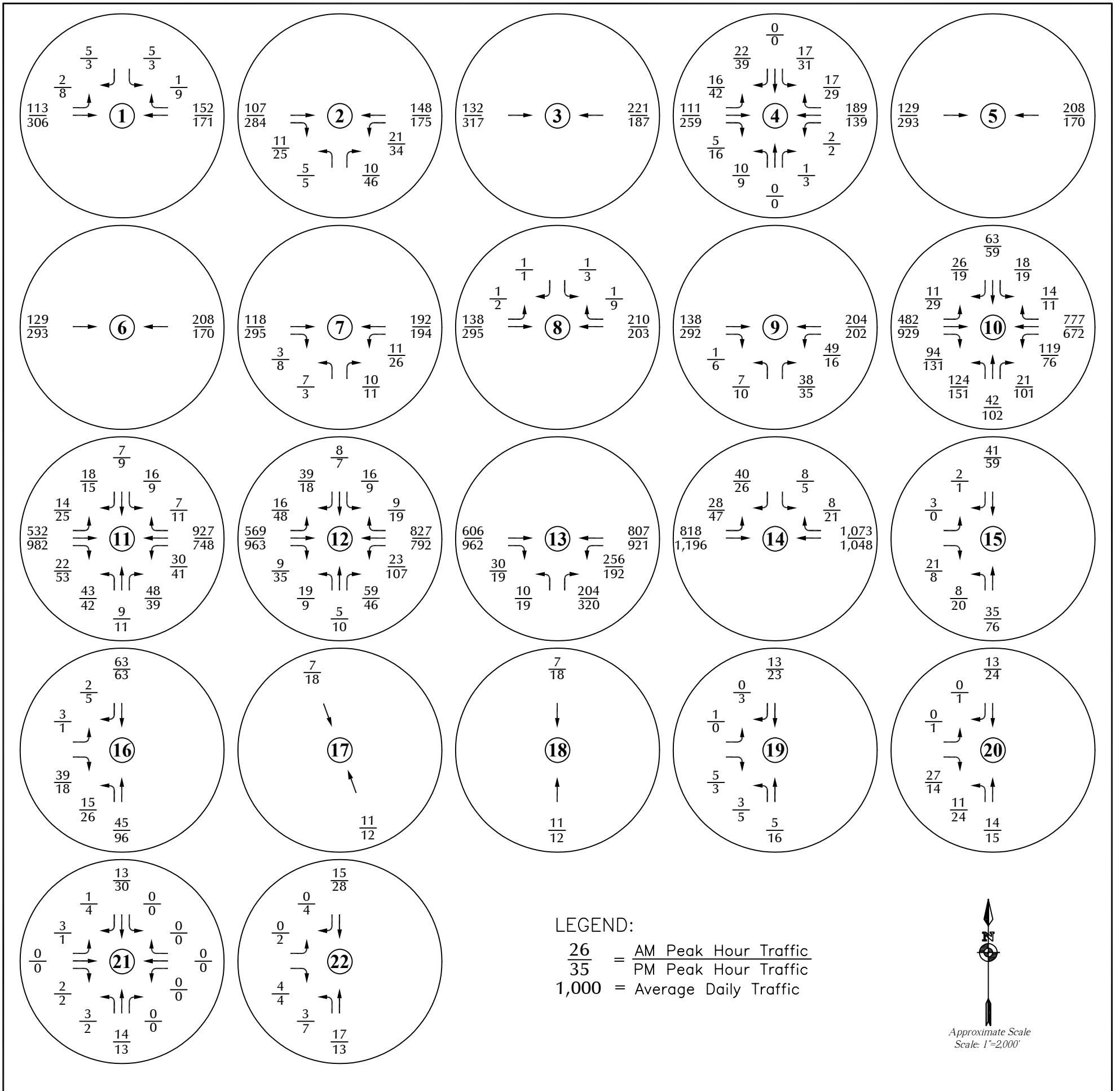


Figure 3b

## Existing Lane Geometry and Traffic Control

Todd Creek Farms (LSC #221150)





Note: Based on annual growth rate of three percent on E. 160th Avenue (SH 7) and E. 168th Avenue plus trips from the nearby Baseline Lakes development.

Figure 4a  
**Year 2028**  
**Background Traffic**  
 Todd Creek Farms (LSC #221150)



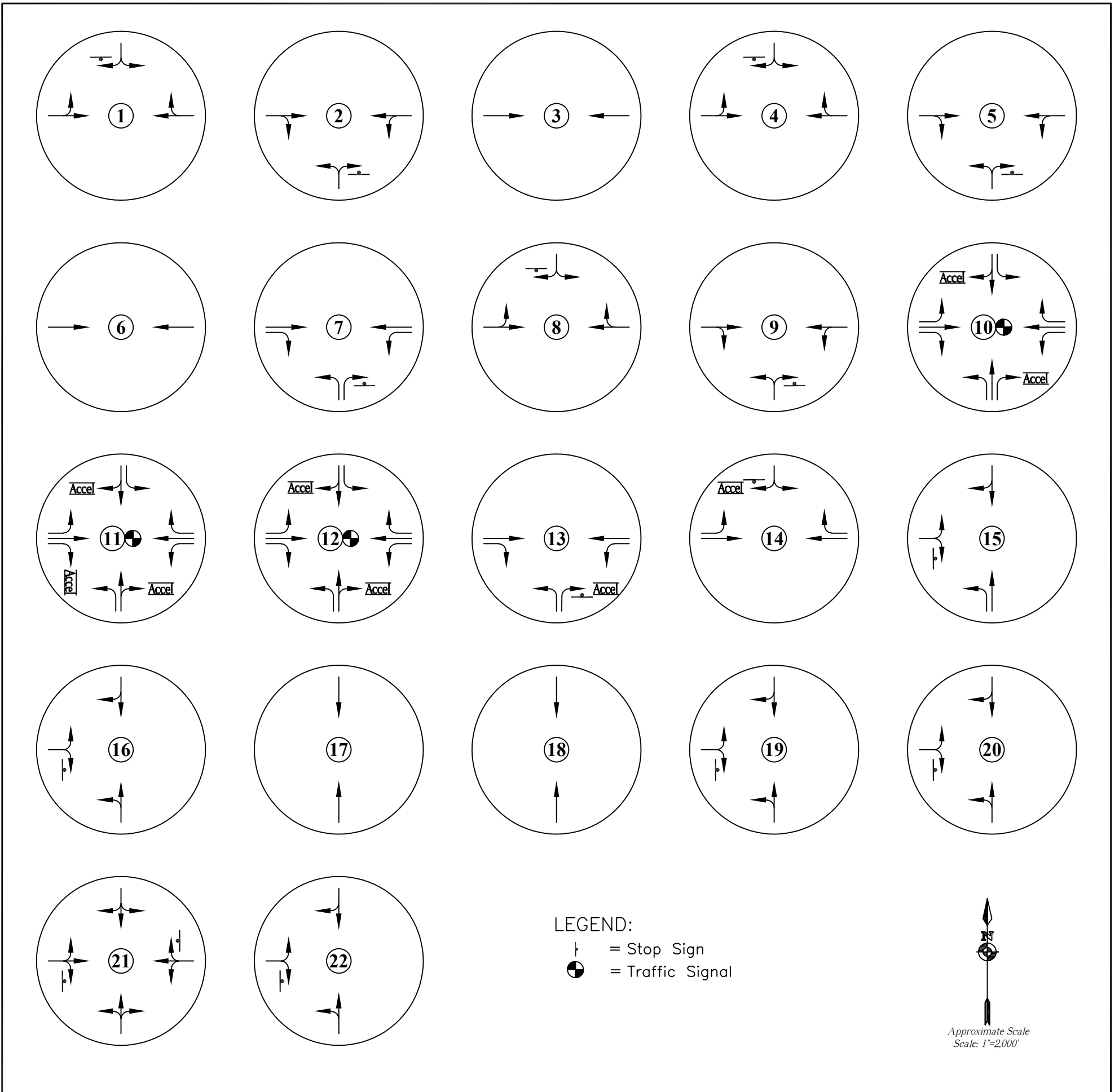
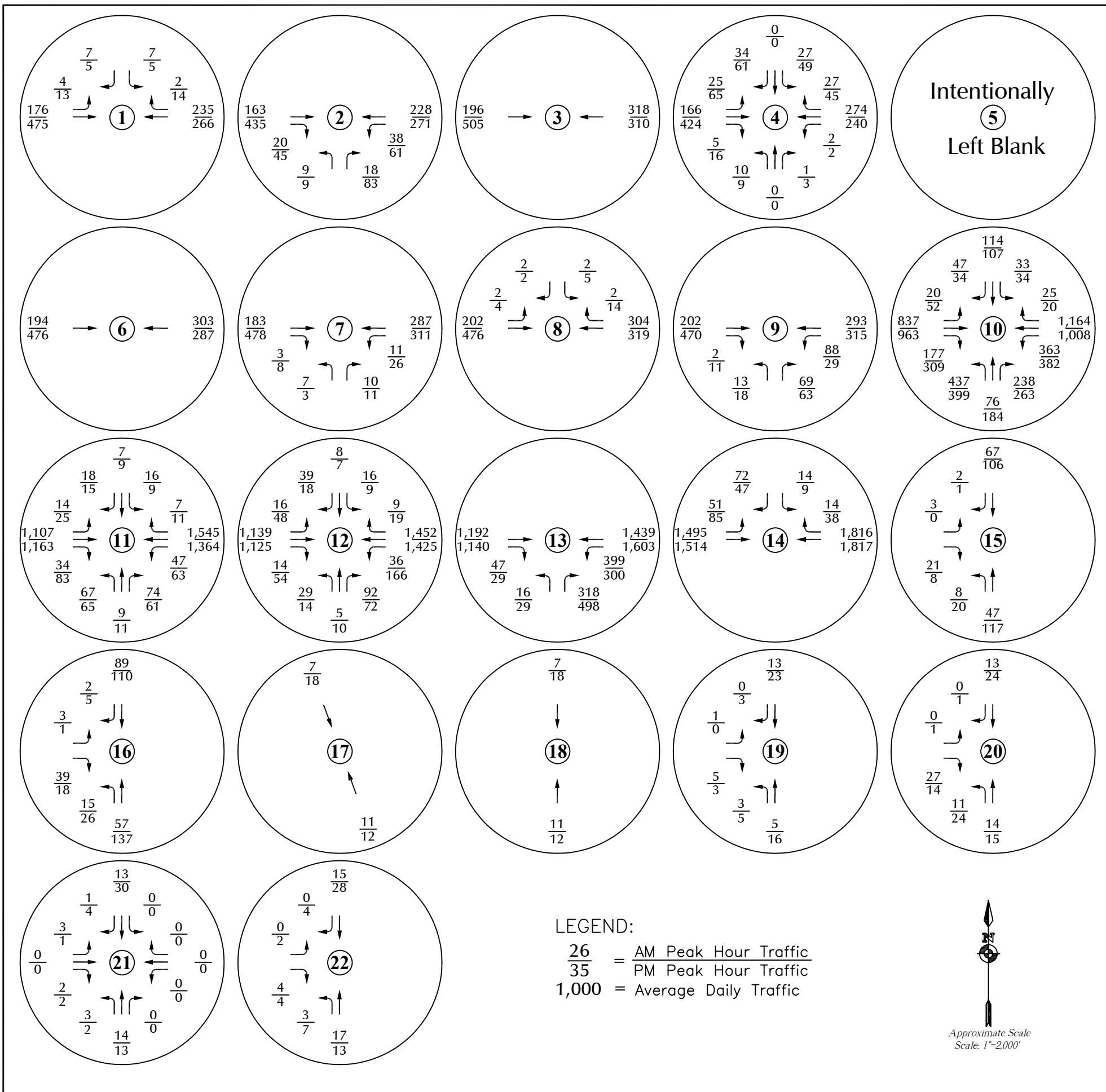


Figure 4b

# Year 2028 Background Lane Geometry and Traffic Control

Todd Creek Farms (LSC #221150)





Note: Based on annual growth rate of three percent and projections from the Holly Village Updated TIA by LSC and the Sack Farms TIA by Rick Engineering Company.

Figure 5a  
**Year 2043**  
**Background Traffic**  
 Todd Creek Farms (LSC #221150)



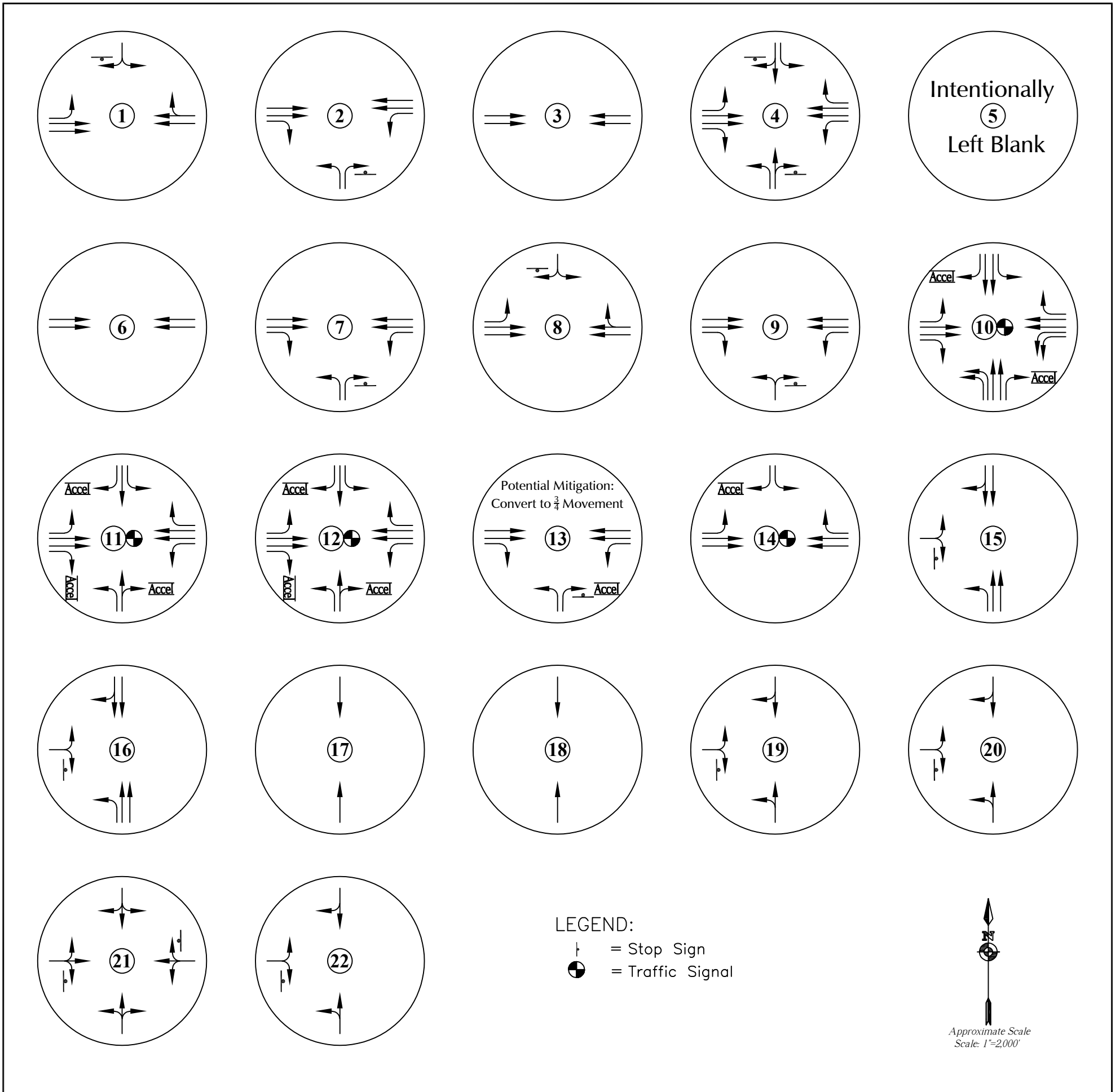
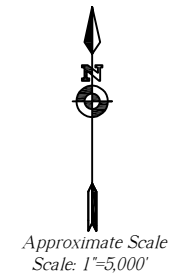


Figure 5b

# Year 2043 Background Lane Geometry and Traffic Control

Todd Creek Farms (LSC #221150)



LEGEND:

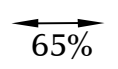
 = Percent Directional Distribution

Figure 6  
*Directional Distribution of Site-Generated Traffic*

Todd Creek Farms (LSC #221150)

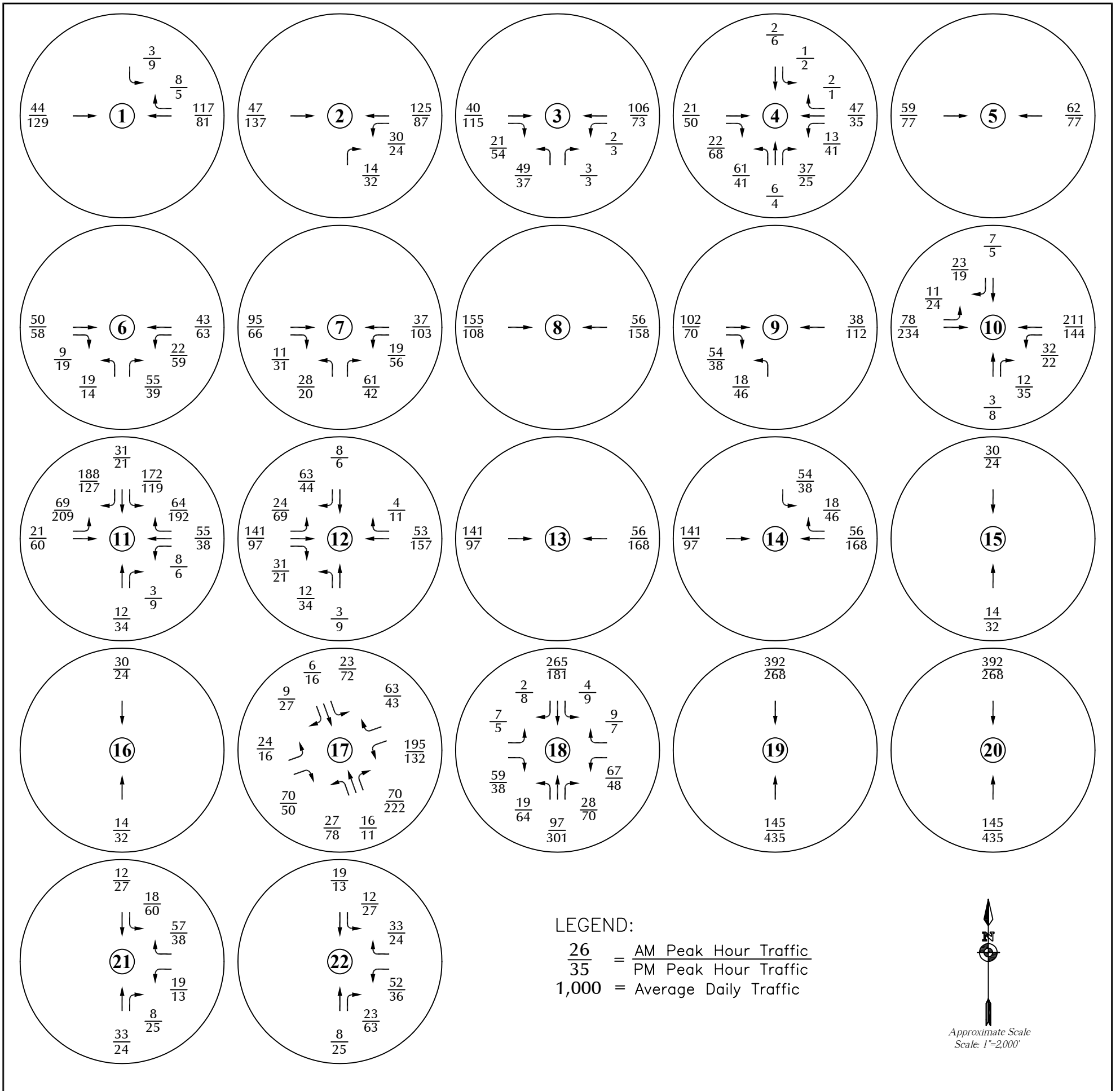
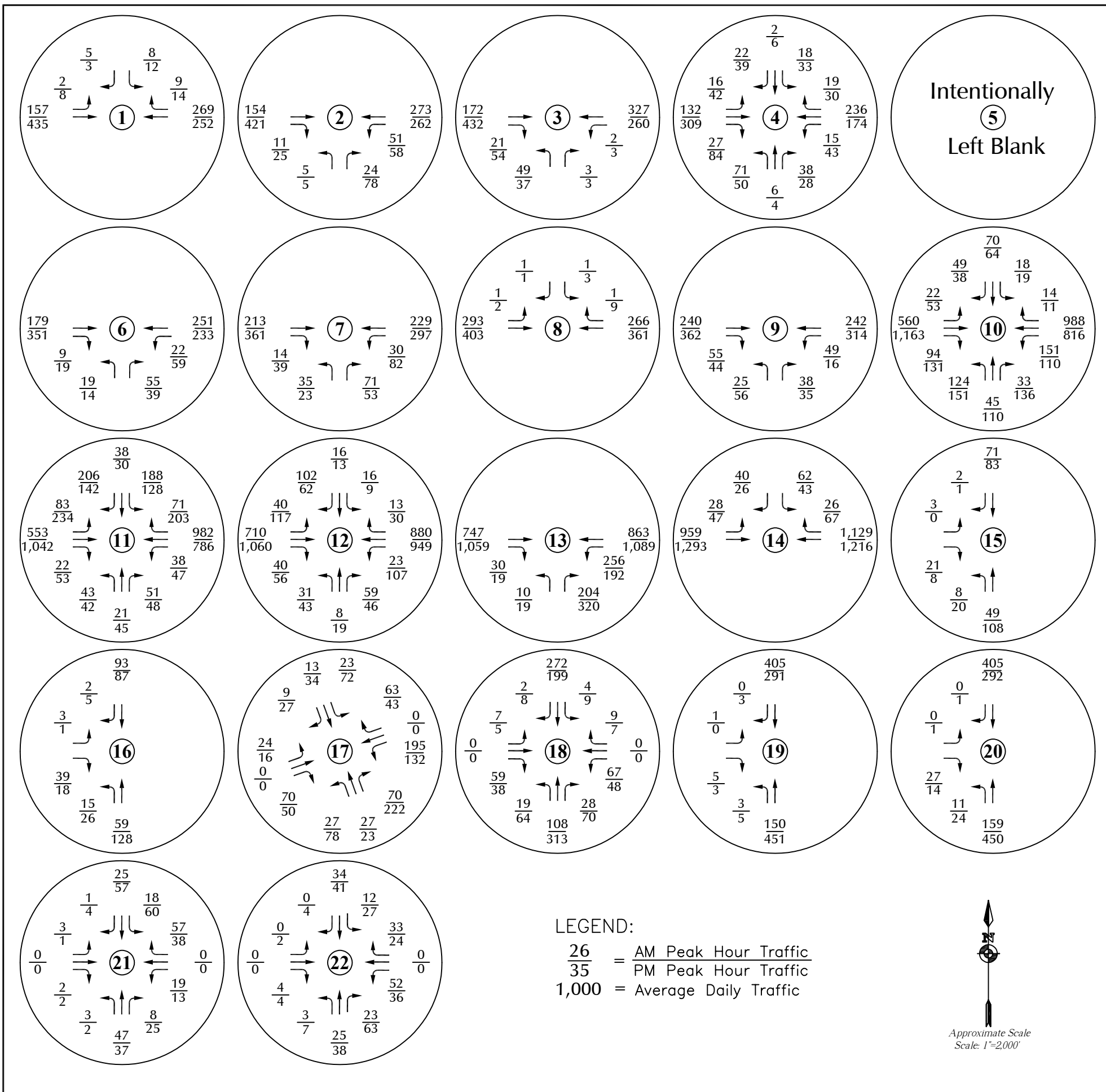


Figure 7

## Assignment of Site-Generated Traffic

Todd Creek Farms (LSC #221150)





Note: These volumes are the sum of the volumes in Figures 4a and 7.

Figure 8a

# Year 2028 Total Traffic

Todd Creek Farms (LSC #221150)





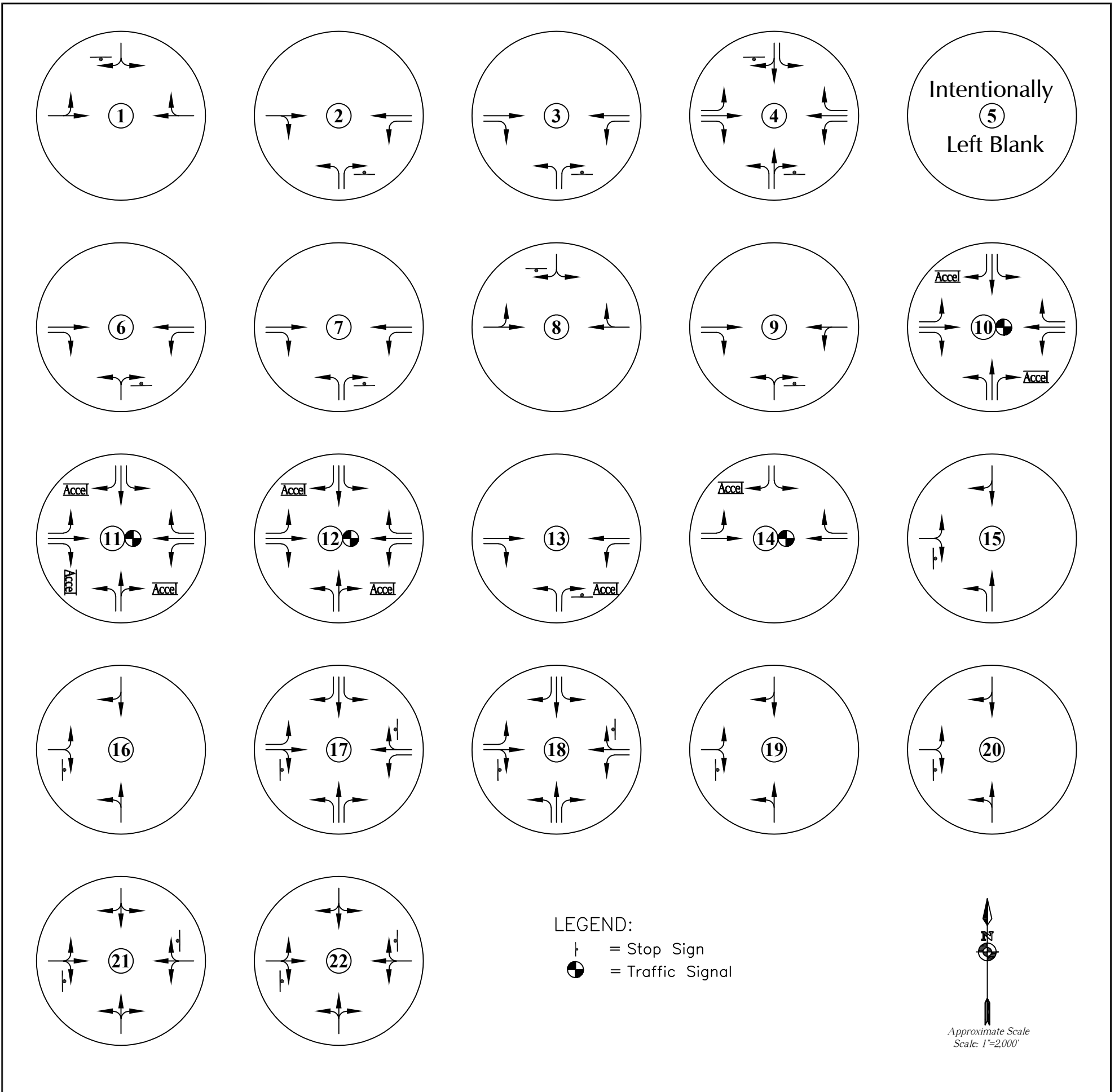
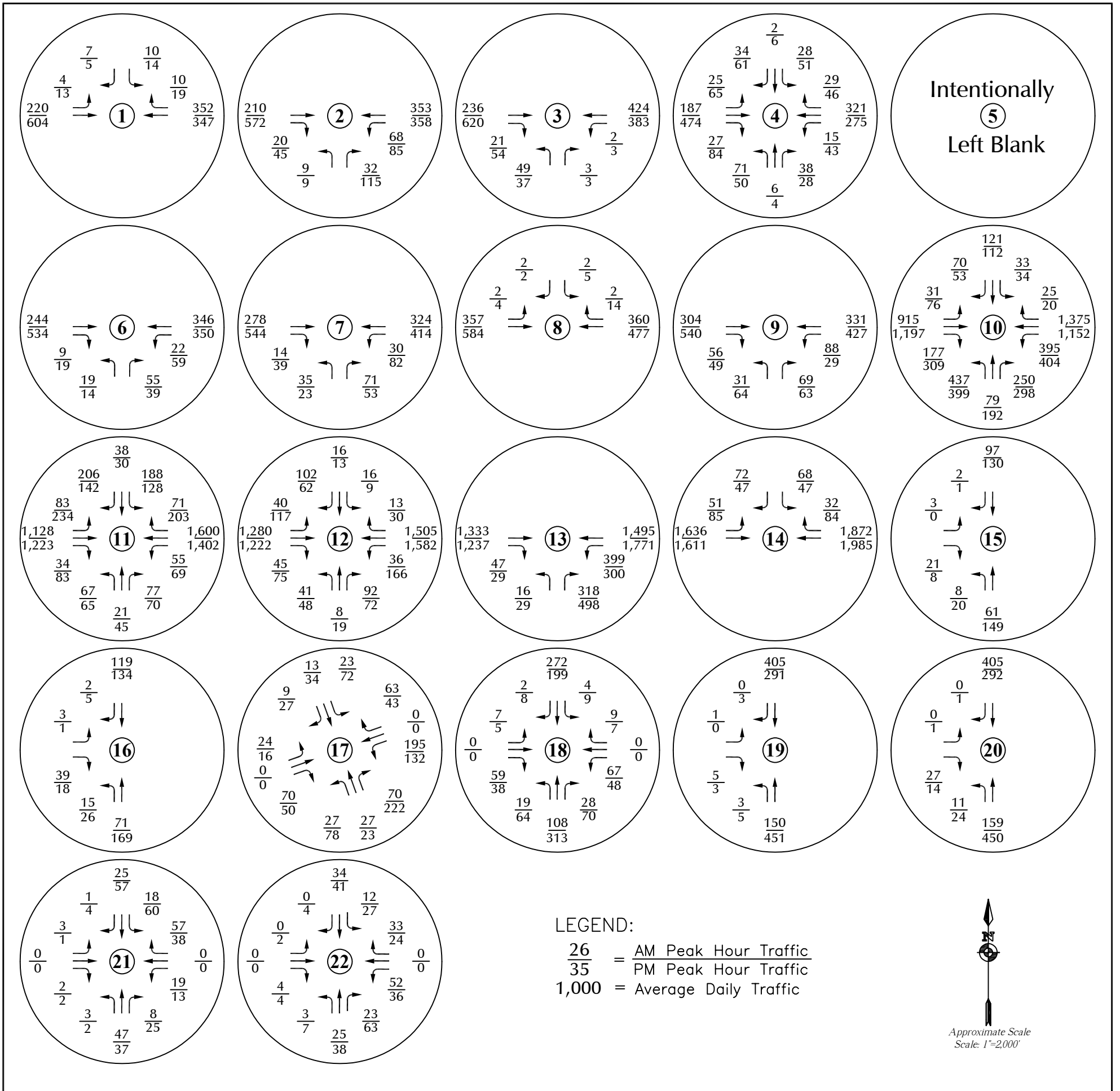


Figure 8b

# Year 2028 Total Lane Geometry and Traffic Control

Todd Creek Farms (LSC #221150)



Note: These volumes are the sum of the volumes in Figures 5a and 7.

Figure 9a

# Year 2043 Total Traffic

Todd Creek Farms (LSC #221150)



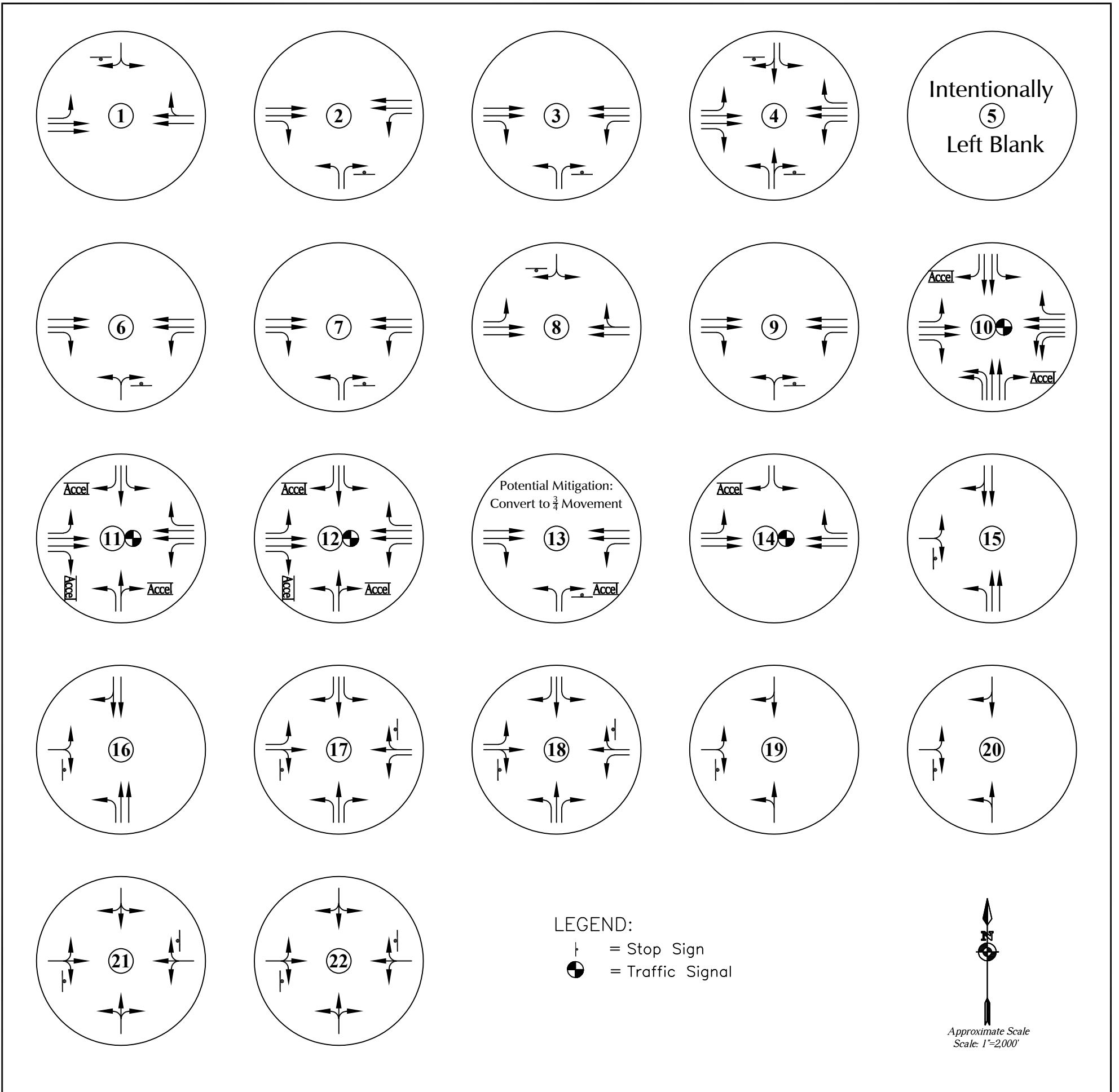


Figure 9b

# Year 2043 Total Lane Geometry and Traffic Control

Todd Creek Farms (LSC #221150)

# **Traffic Counts**

---

**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: CR 17  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : CR17168TH  
Site Code : 00000005  
Start Date : 2/9/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	CR 17 Southbound			E. 168TH AVE Westbound			NO ACCESS Northbound			E. 168TH AVE Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	26	0	0	0	0	0	17	0	43
06:45 AM	0	0	1	0	27	0	0	0	0	0	23	0	51
Total	0	0	1	0	53	0	0	0	0	0	40	0	94
07:00 AM	1	0	0	0	18	0	0	0	0	0	26	0	45
07:15 AM	0	0	1	0	43	1	0	0	0	0	27	0	72
07:30 AM	1	0	2	0	44	0	0	0	0	1	23	0	71
07:45 AM	2	0	1	0	32	1	0	0	0	0	19	0	55
Total	4	0	4	0	137	2	0	0	0	1	95	0	243
08:00 AM	1	0	0	0	31	0	0	0	0	1	27	0	60
08:15 AM	0	0	1	0	18	0	0	0	0	0	21	0	40
Total	1	0	1	0	49	0	0	0	0	1	48	0	100
04:00 PM	0	0	1	0	33	2	0	0	0	0	66	0	102
04:15 PM	1	0	0	0	28	1	0	0	0	2	58	0	90
04:30 PM	0	0	1	0	43	1	0	0	0	1	47	0	93
04:45 PM	2	0	1	0	26	3	0	0	0	1	49	0	82
Total	3	0	3	0	130	7	0	0	0	4	220	0	367
05:00 PM	0	0	0	0	45	2	0	0	0	2	73	0	122
05:15 PM	1	0	1	0	35	2	0	0	0	3	71	0	113
05:30 PM	1	0	1	0	38	1	0	0	0	1	79	0	121
05:45 PM	0	0	0	0	35	1	0	0	0	0	65	0	101
Total	2	0	2	0	153	6	0	0	0	6	288	0	457
Grand Total	10	0	11	0	522	15	0	0	0	12	691	0	1261
Apprch %	47.6	0.0	52.4	0.0	97.2	2.8	0.0	0.0	0.0	1.7	98.3	0.0	
Total %	0.8	0.0	0.9	0.0	41.4	1.2	0.0	0.0	0.0	1.0	54.8	0.0	

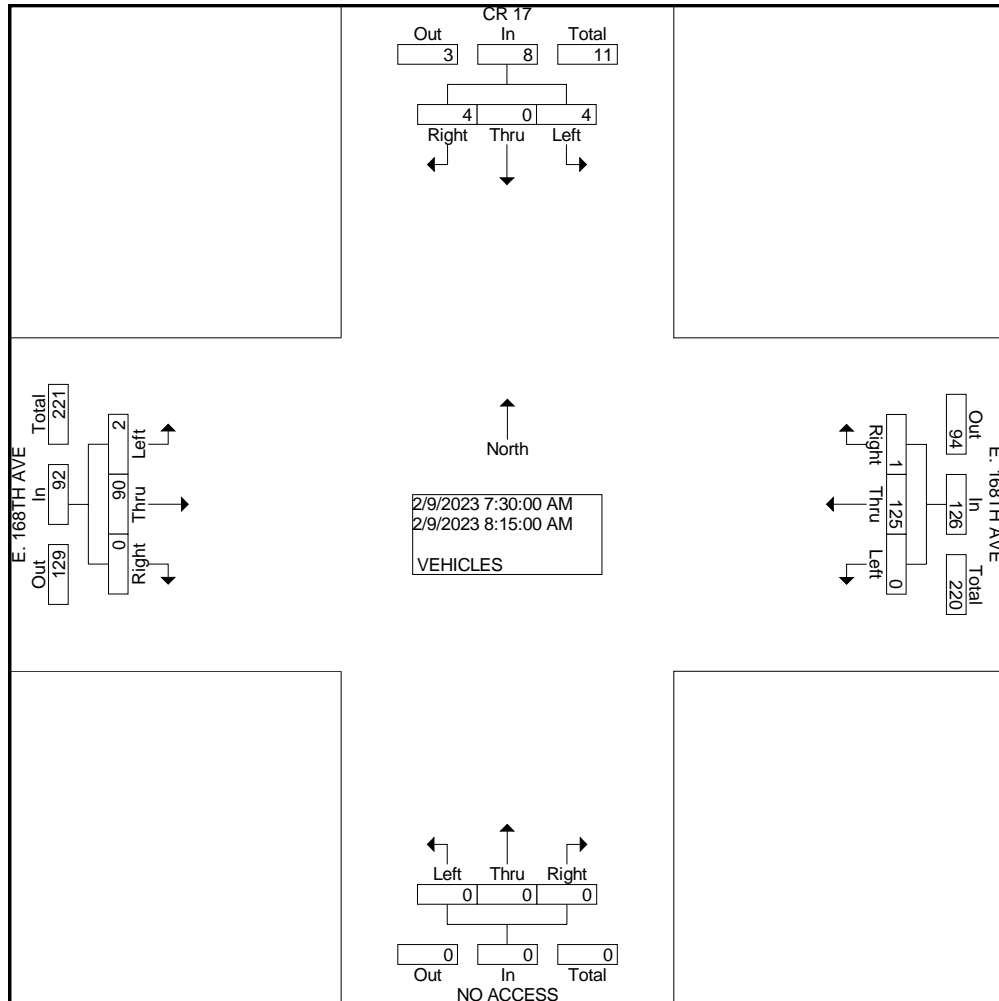
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR 17  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : CR17168TH  
Site Code : 00000005  
Start Date : 2/9/2023  
Page No : 2

Start Time	CR 17 Southbound				E. 168TH AVE Westbound				NO ACCESS Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	4	0	4	8	0	125	1	126	0	0	0	0	2	90	0	92	226
Percent	50.0	0.0	50.0		0.0	99.2	0.8		0.0	0.0	0.0		2.2	97.8	0.0		
07:30 Volume	1	0	2	3	0	44	0	44	0	0	0	0	1	23	0	24	71
Peak Factor																	0.796
High Int.	07:30 AM				07:30 AM								08:00 AM				
Volume	1	0	2	3	0	44	0	44	0	0	0	0	1	27	0	28	
Peak Factor	0.667								0.716								0.821



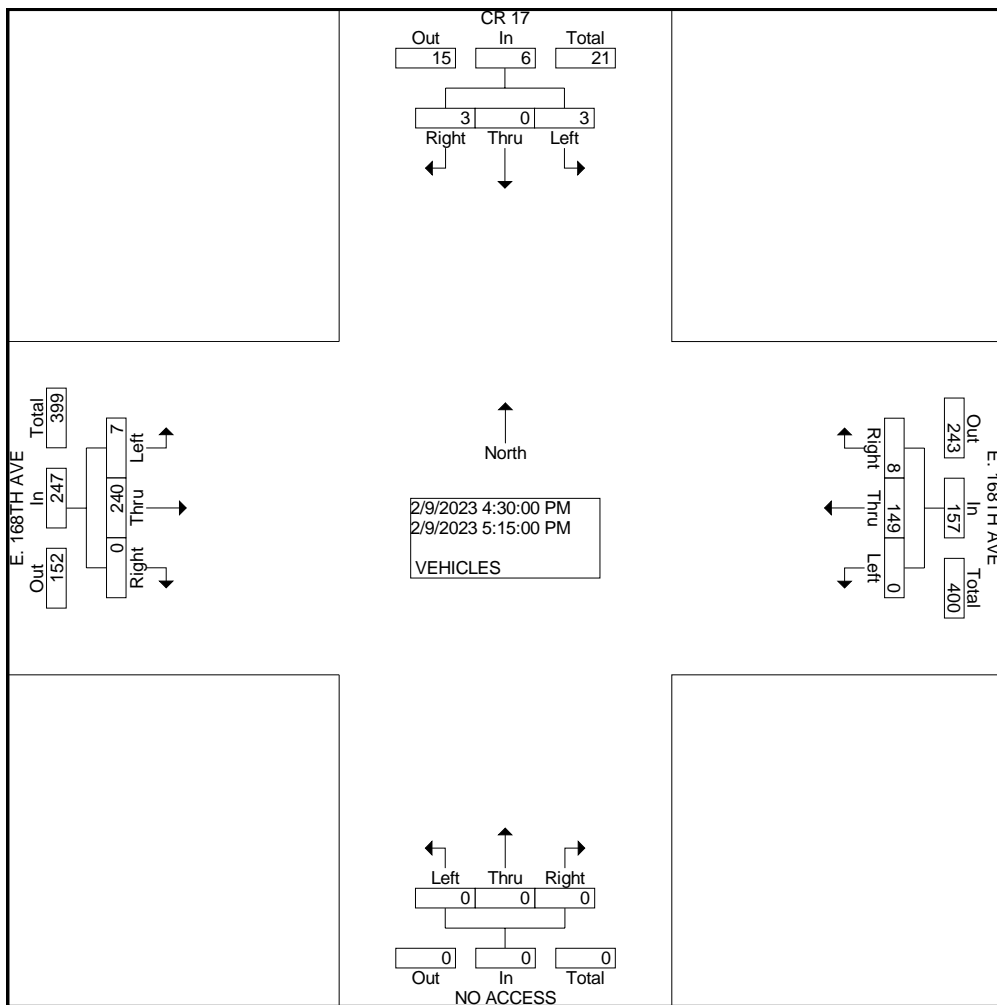
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR 17  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : CR17168TH  
Site Code : 00000005  
Start Date : 2/9/2023  
Page No : 3

Start Time	CR 17 Southbound				E. 168TH AVE Westbound				NO ACCESS Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	3	0	3	6	0	149	8	157	0	0	0	0	7	240	0	247	410
Percent	50.0	0.0	50.0		0.0	94.9	5.1		0.0	0.0	0.0		2.8	97.2	0.0		
05:00																	
Volume	0	0	0	0	0	45	2	47	0	0	0	0	2	73	0	75	122
Peak Factor	0.840																
High Int.	04:45 PM																
Volume	2	0	1	3	0	45	2	47	0	0	0	0	2	73	0	75	
Peak Factor	0.500				0.835								0.823				



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: CR 19  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : CR19168TH  
Site Code : 00000005  
Start Date : 1/26/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	CR 19 Southbound				E. 168TH AVE Westbound				NO ACCESS Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	3	0	0	0	0	34	6	0	0	0	0	0	2	19	0	0	64
06:45 AM	2	0	7	0	0	49	1	0	0	0	0	0	4	22	0	0	85
Total	5	0	7	0	0	83	7	0	0	0	0	0	6	41	0	0	149
07:00 AM	0	0	5	0	0	64	5	0	0	0	0	0	6	24	0	0	104
07:15 AM	5	0	5	0	0	69	0	0	0	0	0	0	2	26	0	0	107
07:30 AM	4	0	9	0	0	53	7	0	0	0	0	0	5	27	0	0	105
07:45 AM	4	0	4	0	0	46	5	0	0	0	0	0	4	25	0	0	88
Total	13	0	23	0	0	232	17	0	0	0	0	0	17	102	0	0	404
08:00 AM	4	0	2	0	0	39	1	0	0	0	0	0	3	31	0	0	80
08:15 AM	3	0	4	0	0	41	2	0	0	0	0	0	2	18	0	0	70
Total	7	0	6	0	0	80	3	0	0	0	0	0	5	49	0	0	150
04:00 PM	4	0	2	0	0	33	3	0	0	0	0	0	6	70	0	0	118
04:15 PM	4	0	8	0	0	38	3	0	0	0	0	0	5	61	0	0	119
04:30 PM	6	0	7	0	0	30	9	0	0	0	0	0	9	53	0	0	114
04:45 PM	7	0	12	0	0	37	4	0	0	0	0	0	9	64	0	0	133
Total	21	0	29	0	0	138	19	0	0	0	0	0	29	248	0	0	484
05:00 PM	6	0	8	0	0	32	8	0	0	0	0	0	8	75	0	0	137
05:15 PM	8	0	7	0	0	28	4	0	0	0	0	0	10	45	0	0	102
05:30 PM	3	0	3	0	0	38	4	0	0	0	0	0	4	59	0	0	111
05:45 PM	4	0	9	0	0	22	2	0	0	0	0	0	7	52	0	0	96
Total	21	0	27	0	0	120	18	0	0	0	0	0	29	231	0	0	446
Grand Total	67	0	92	0	0	653	64	0	0	0	0	0	86	671	0	0	1633
Apprch %	42.1	0.0	57.9	0.0	0.0	91.1	8.9	0.0	0.0	0.0	0.0	0.0	11.4	88.6	0.0	0.0	
Total %	4.1	0.0	5.6	0.0	0.0	40.0	3.9	0.0	0.0	0.0	0.0	0.0	5.3	41.1	0.0	0.0	



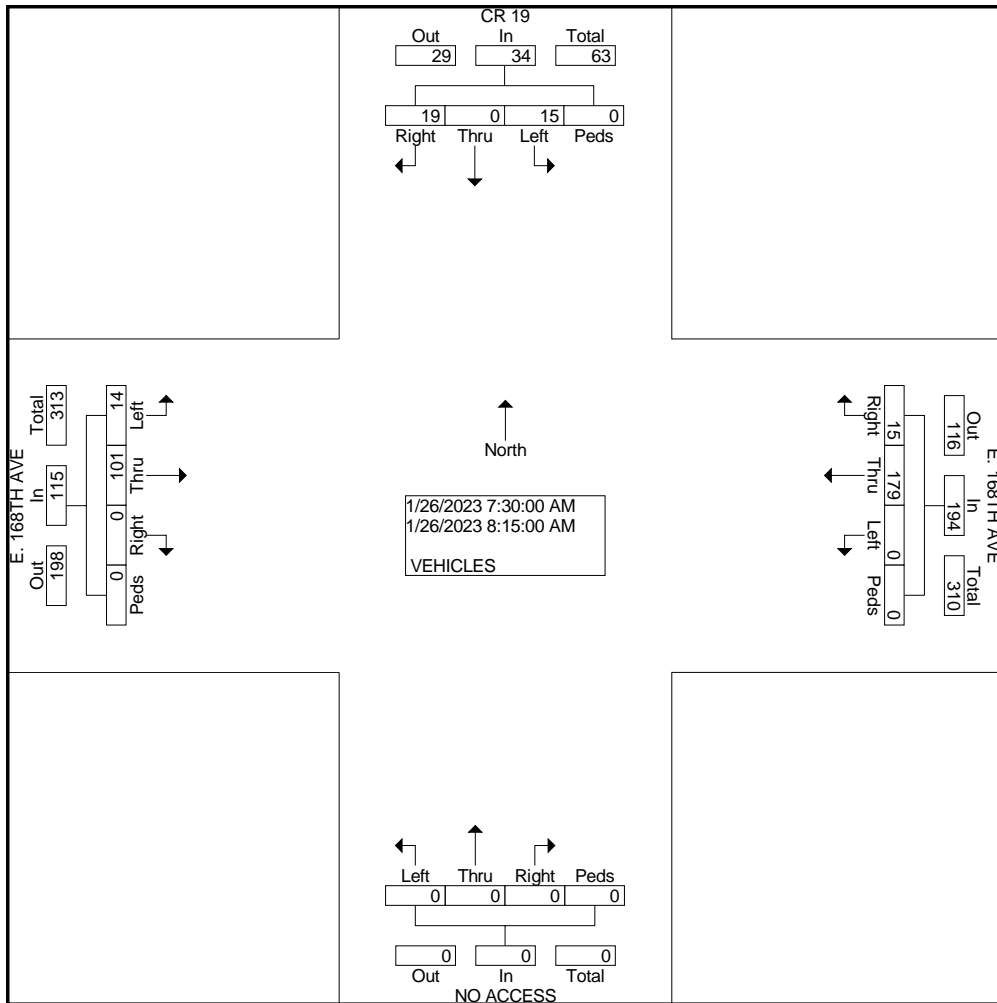
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR 19  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : CR19168TH  
Site Code : 00000005  
Start Date : 1/26/2023  
Page No : 2

Start Time	CR 19 Southbound					E. 168TH AVE Westbound					NO ACCESS Northbound					E. 168TH AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	15	0	19	0	34	0	179	15	0	194	0	0	0	0	0	14	101	0	0	115	343
Percent	44.1	0.0	55.9	0.0		0.0	92.3	7.7	0.0		0.0	0.0	0.0	0.0		12.2	87.8	0.0	0.0		
07:30 Volume	4	0	9	0	13	0	53	7	0	60	0	0	0	0	0	5	27	0	0	32	105
Peak Factor																					
High Int. Volume	07:30 AM					07:30 AM										08:00 AM					
Peak Factor																					



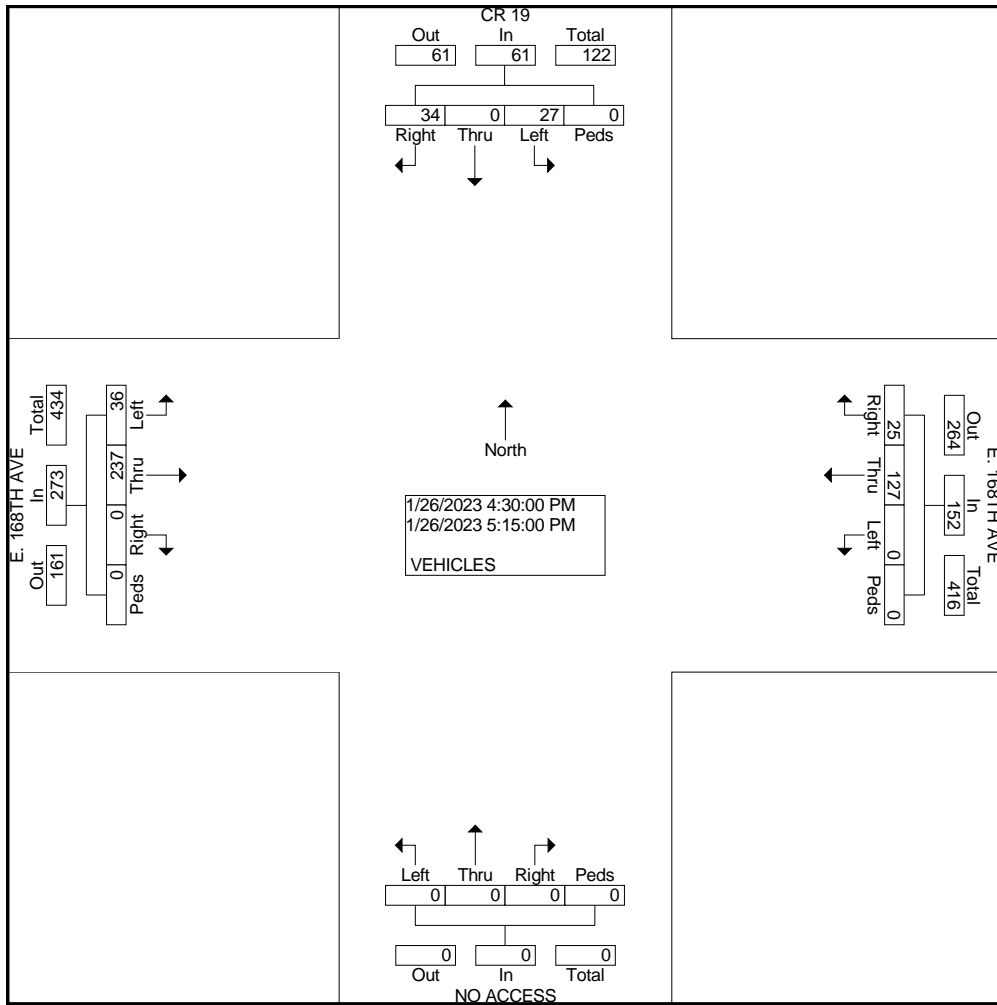
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR 19  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : CR19168TH  
Site Code : 00000005  
Start Date : 1/26/2023  
Page No : 3

Start Time	CR 19 Southbound					E. 168TH AVE Westbound					NO ACCESS Northbound					E. 168TH AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersect on	04:30 PM																				
Volume	27	0	34	0	61	0	127	25	0	152	0	0	0	0	0	36	237	0	0	273	486
Percent	44.3	0.0	55.7	0.0		0.0	83.6	16.4	0.0		0.0	0.0	0.0	0.0		13.2	86.8	0.0	0.0		
05:00 Volume	6	0	8	0	14	0	32	8	0	40	0	0	0	0	0	8	75	0	0	83	137
Peak Factor	0.887																				
High Int.	04:45 PM																				
Volume	7	0	12	0	19	0	37	4	0	41	0	0	0	0	0	8	75	0	0	83	137
Peak Factor	0.80					0.92										0.82					2



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: CR 23.5  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : CR23.5168TH  
Site Code : 00000015  
Start Date : 2/9/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	CR 23 1/2 Southbound			E. 168TH AVE Westbound			NO ACCESS Northbound			E. 168TH AVE Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	2	0	1	0	46	0	0	0	0	0	29	0	78
06:45 AM	2	0	2	0	40	1	0	0	0	0	20	0	65
Total	4	0	3	0	86	1	0	0	0	0	49	0	143
07:00 AM	1	0	0	0	64	0	0	0	0	0	25	0	90
07:15 AM	2	0	0	0	61	0	0	0	0	0	23	0	86
07:30 AM	0	0	0	0	54	0	0	0	0	0	26	0	80
07:45 AM	0	0	1	0	46	1	0	0	0	0	33	0	81
Total	3	0	1	0	225	1	0	0	0	0	107	0	337
08:00 AM	0	0	0	0	38	0	0	0	0	0	26	0	64
08:15 AM	1	0	0	0	42	0	0	0	0	1	31	0	75
Total	1	0	0	0	80	0	0	0	0	1	57	0	139
04:00 PM	4	0	0	0	33	3	0	0	0	0	66	0	106
04:15 PM	1	0	1	0	49	1	0	0	0	1	49	0	102
04:30 PM	1	0	0	0	46	0	0	0	0	1	66	0	114
04:45 PM	0	0	1	0	39	0	0	0	0	0	63	0	103
Total	6	0	2	0	167	4	0	0	0	2	244	0	425
05:00 PM	0	0	0	0	45	5	0	1	0	1	68	0	120
05:15 PM	2	0	0	0	46	3	0	0	0	0	57	0	108
05:30 PM	0	0	1	0	34	2	0	0	0	0	47	0	84
05:45 PM	1	0	0	0	36	1	0	0	0	0	58	0	96
Total	3	0	1	0	161	11	0	1	0	1	230	0	408
Grand Total	17	0	7	0	719	17	0	1	0	4	687	0	1452
Apprch %	70.8	0.0	29.2	0.0	97.7	2.3	0.0	100.0	0.0	0.6	99.4	0.0	
Total %	1.2	0.0	0.5	0.0	49.5	1.2	0.0	0.1	0.0	0.3	47.3	0.0	

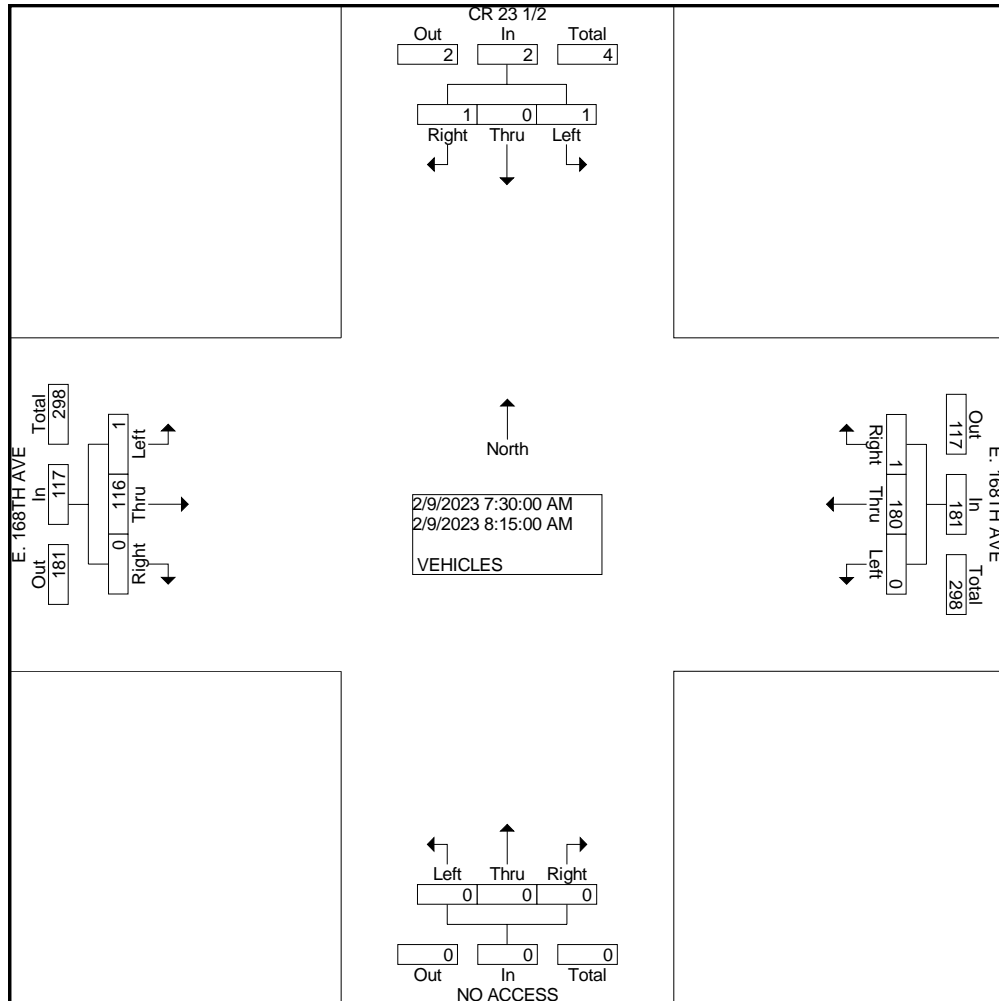
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR 23.5  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : CR23.5168TH  
Site Code : 00000015  
Start Date : 2/9/2023  
Page No : 2

Start Time	CR 23 1/2 Southbound				E. 168TH AVE Westbound				NO ACCESS Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	1	0	1	2	0	180	1	181	0	0	0	0	1	116	0	117	300
Percent	50.0	0.0	50.0		0.0	99.4	0.6		0.0	0.0	0.0		0.9	99.1	0.0		
07:45																	
Volume	0	0	1	1	0	46	1	47	0	0	0	0	0	33	0	33	81
Peak Factor	0.926																
High Int.	07:45 AM																
Volume	0	0	1	1	0	54	0	54	0	0	0	0	0	33	0	33	
Peak Factor	0.500				0.838								0.886				



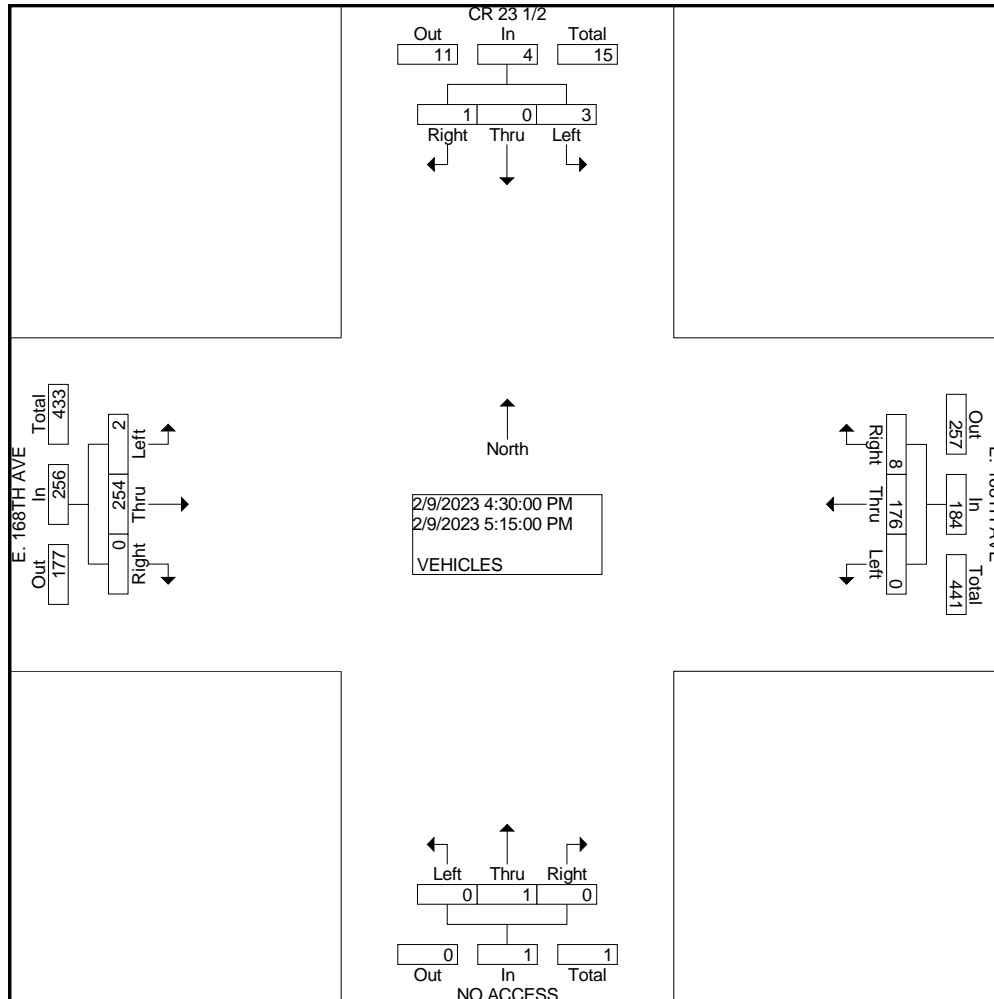
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: CR 23.5  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : CR23.5168TH  
Site Code : 00000015  
Start Date : 2/9/2023  
Page No : 3

Start Time	CR 23 1/2 Southbound				E. 168TH AVE Westbound				NO ACCESS Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	3	0	1	4	0	176	8	184	0	1	0	1	2	254	0	256	445
Percent	75.0	0.0	25.0		0.0	95.7	4.3		0.0	100.0	0.0		0.8	99.2	0.0		
05:00 Volume	0	0	0	0	0	45	5	50	0	1	0	1	1	68	0	69	120
Peak Factor	0.927																
High Int.	05:15 PM																
Volume	2	0	0	2	0	45	5	50	0	1	0	1	1	68	0	69	
Peak Factor	0.500				0.920				0.250				0.928				



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: HAVANA ST  
E/W STREET: HWY 7  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : HAVAHWY7  
Site Code : 00000005  
Start Date : 1/17/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	HAVANA ST Southbound				HWY 7 Westbound				HAVANA ST Northbound				HWY 7 Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	2	0	8	0	3	181	0	0	5	0	6	0	0	102	0	0	307
06:45 AM	1	1	4	0	12	147	0	0	3	0	10	0	2	114	2	0	296
Total	3	1	12	0	15	328	0	0	8	0	16	0	2	216	2	0	603
07:00 AM	2	2	7	0	3	196	1	0	7	1	13	0	3	110	0	0	345
07:15 AM	4	2	17	0	3	185	1	0	11	0	8	0	1	137	1	0	370
07:30 AM	7	5	7	0	3	184	0	0	2	0	12	0	0	143	0	0	363
07:45 AM	2	0	9	0	2	154	3	0	3	1	15	0	4	125	2	0	320
Total	15	9	40	0	11	719	5	0	23	2	48	0	8	515	3	0	1398
08:00 AM	2	1	5	0	5	187	4	0	4	2	10	0	3	114	1	0	338
08:15 AM	2	0	11	0	10	185	1	0	7	1	14	0	7	122	5	0	365
Total	4	1	16	0	15	372	5	0	11	3	24	0	10	236	6	0	703
04:00 PM	1	2	1	0	12	175	1	0	4	4	12	0	2	183	5	0	402
04:15 PM	2	1	2	0	11	162	5	0	3	0	11	0	3	171	6	0	377
04:30 PM	1	1	1	0	16	178	3	0	0	1	12	0	8	216	6	0	443
04:45 PM	1	2	8	0	35	167	4	0	2	0	15	0	16	196	5	0	451
Total	5	6	12	0	74	682	13	0	9	5	50	0	29	766	22	0	1673
05:00 PM	1	2	2	0	16	173	7	0	3	3	8	0	9	210	11	0	445
05:15 PM	3	1	2	0	25	171	1	0	3	4	5	0	6	213	8	0	442
05:30 PM	0	2	2	0	5	123	1	0	3	3	4	0	3	166	6	0	318
05:45 PM	0	0	3	0	8	107	1	0	3	2	13	0	6	163	5	0	311
Total	4	5	9	0	54	574	10	0	12	12	30	0	24	752	30	0	1516
Grand Total	31	22	89	0	169	2675	33	0	63	22	168	0	73	2485	63	0	5893
Apprch %	21.8	15.5	62.7	0.0	5.9	93.0	1.1	0.0	24.9	8.7	66.4	0.0	2.8	94.8	2.4	0.0	
Total %	0.5	0.4	1.5	0.0	2.9	45.4	0.6	0.0	1.1	0.4	2.9	0.0	1.2	42.2	1.1	0.0	

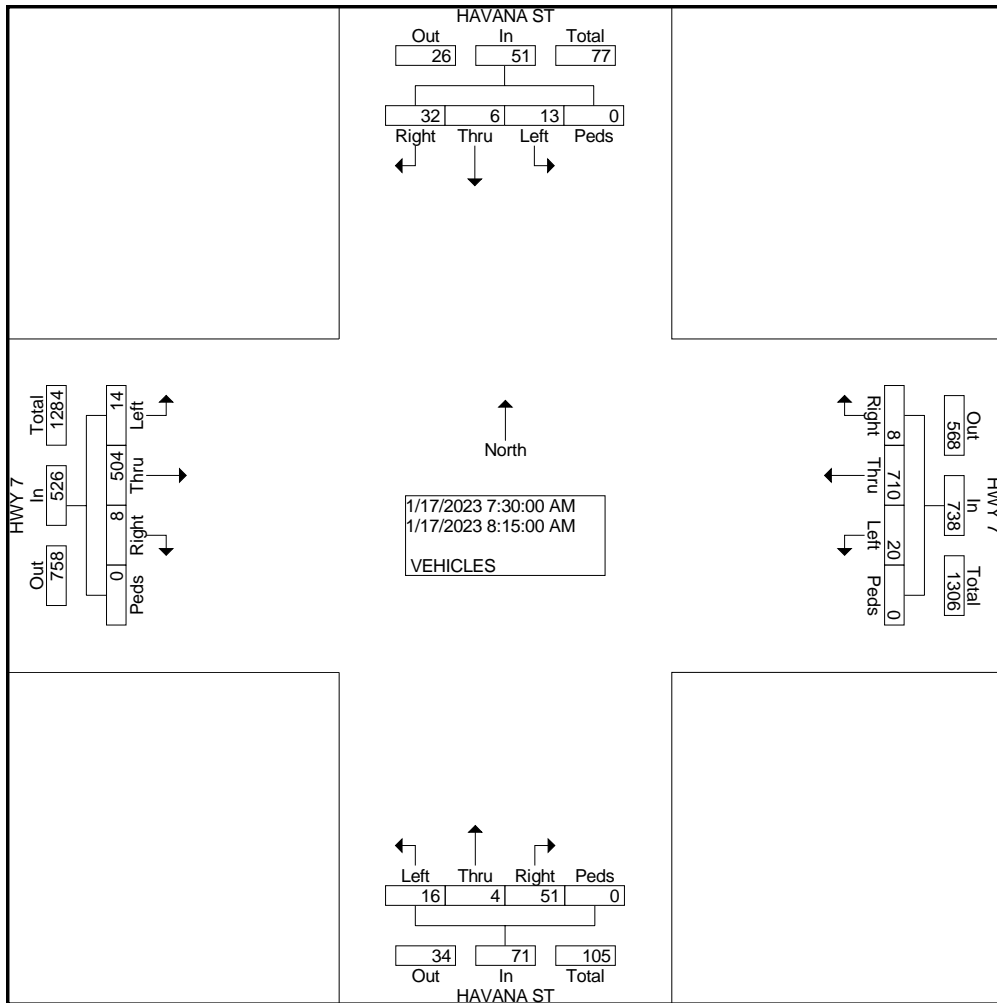
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: HAVANA ST  
E/W STREET: HWY 7  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : HAVAHWY7  
Site Code : 0000005  
Start Date : 1/17/2023  
Page No : 2

Start Time	HAVANA ST Southbound					HWY 7 Westbound					HAVANA ST Northbound					HWY 7 Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Intersection	07:30 AM																				
Volume	13	6	32	0	51	20	710	8	0	738	16	4	51	0	71	14	504	8	0	526	1386
Percent	25.5	11.8	62.7	0.0		2.7	96.2	1.1	0.0		22.5	5.6	71.8	0.0		2.7	95.8	1.5	0.0		
08:15 Peak Factor	0.949																				
High Int. Volume	07:30 AM					08:00 AM					08:15 AM					07:30 AM					
Peak Factor	0.67					0.94					0.80					0.92					
	1					1					7					0					



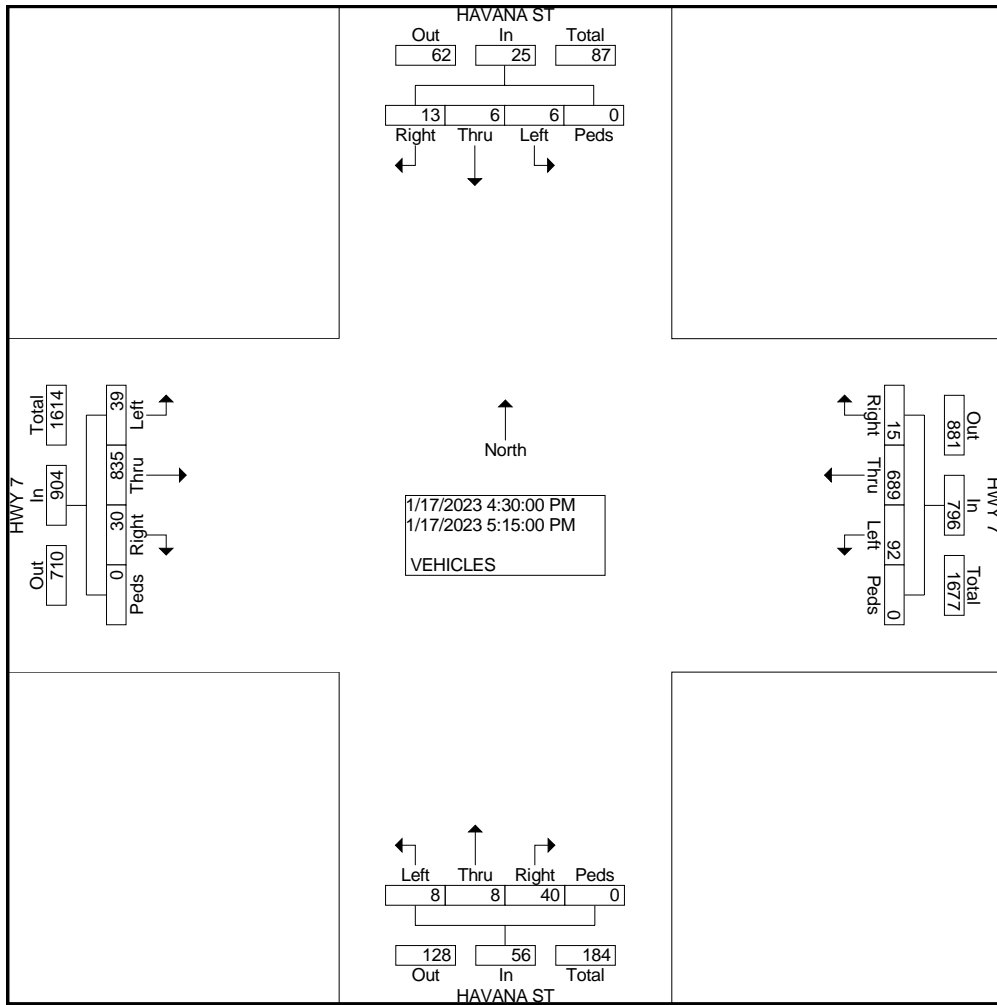
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: HAVANA ST  
E/W STREET: HWY 7  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : HAVAHWY7  
Site Code : 0000005  
Start Date : 1/17/2023  
Page No : 3

Start Time	HAVANA ST Southbound					HWY 7 Westbound					HAVANA ST Northbound					HWY 7 Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersect on	04:30 PM																				
Volume	6	6	13	0	25	92	689	15	0	796	8	8	40	0	56	39	835	30	0	904	1781
Percent	24.	24.	52.	0.0		11.	86.	1.9	0.0		14.	14.	71.	0.0		4.3	92.	3.3	0.0		
	0	0	0			6	6				3	3	4				4				
04:45 Volume	1	2	8	0	11	35	167	4	0	206	2	0	15	0	17	16	196	5	0	217	451
Peak Factor	0.987																				
High Int.	04:45 PM																				
Volume	1	2	8	0	11	35	167	4	0	206	2	0	15	0	17	8	216	6	0	230	
Peak Factor	0.56					0.96					0.82					0.98					3
	8					6					4					3					





**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: LIMA ST  
E/W STREET: E. 166TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : LIMA166TH  
Site Code : 00000005  
Start Date : 2/2/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	LIMA ST Southbound			NO ACCESS Westbound			LIMA ST Northbound			E. 166TH AVE Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	2	1	0	0	0	0	0	0	0	0	2	5
06:45 AM	0	1	1	0	0	0	2	3	0	1	0	2	10
Total	0	3	2	0	0	0	2	3	0	1	0	4	15
07:00 AM	0	3	0	0	0	0	0	5	0	1	0	0	9
07:15 AM	0	2	0	0	0	0	1	6	0	0	0	0	9
07:30 AM	0	2	0	0	0	0	1	1	0	0	0	1	5
07:45 AM	0	5	0	0	0	0	0	1	0	0	0	1	7
Total	0	12	0	0	0	0	2	13	0	1	0	2	30
08:00 AM	0	2	0	0	0	0	2	3	0	0	0	0	7
08:15 AM	0	2	0	0	0	0	0	3	0	0	0	2	7
Total	0	4	0	0	0	0	2	6	0	0	0	2	14
04:00 PM	0	3	2	0	0	0	0	6	0	1	0	1	13
04:15 PM	0	3	0	0	0	0	1	2	0	0	0	2	8
04:30 PM	0	0	0	0	0	0	1	2	0	0	0	2	5
04:45 PM	0	11	0	0	0	0	0	2	0	2	0	0	15
Total	0	17	2	0	0	0	2	12	0	3	0	5	41
05:00 PM	0	6	3	0	0	0	5	5	0	0	0	1	20
05:15 PM	0	5	1	0	0	0	1	2	0	0	0	1	10
05:30 PM	0	9	0	0	0	0	1	3	0	1	0	0	14
05:45 PM	0	4	0	0	0	0	0	2	0	1	0	0	7
Total	0	24	4	0	0	0	7	12	0	2	0	2	51
Grand Total	0	60	8	0	0	0	15	46	0	7	0	15	151
Apprch %	0.0	88.2	11.8	0.0	0.0	0.0	24.6	75.4	0.0	31.8	0.0	68.2	
Total %	0.0	39.7	5.3	0.0	0.0	0.0	9.9	30.5	0.0	4.6	0.0	9.9	

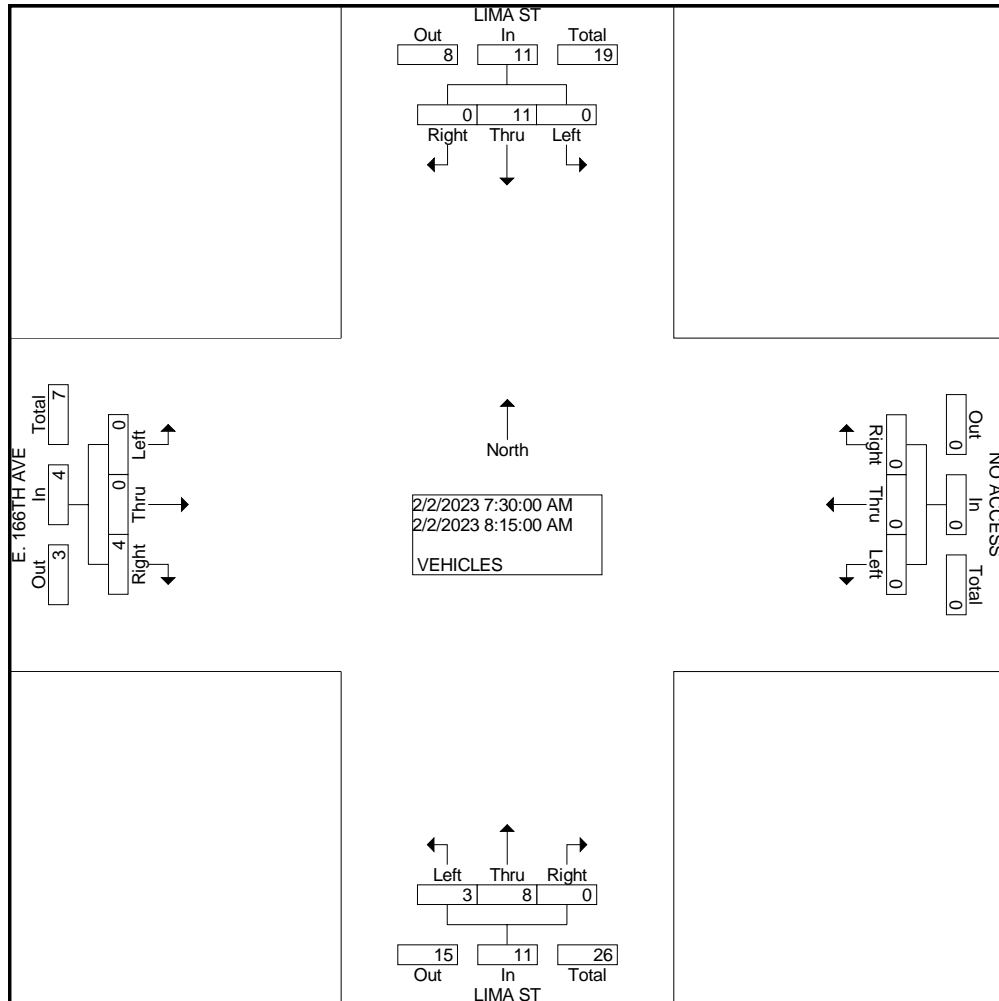
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: LIMA ST  
E/W STREET: E. 166TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : LIMA166TH  
Site Code : 00000005  
Start Date : 2/2/2023  
Page No : 2

Start Time	LIMA ST Southbound				NO ACCESS Westbound				LIMA ST Northbound				E. 166TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	0	11	0	11	0	0	0	0	3	8	0	11	0	0	4	4	26
Percent	0.0	100.0	0.0		0.0	0.0	0.0		27.3	72.7	0.0		0.0	0.0	100.0		
		0												0			
08:15 Volume	0	2	0	2	0	0	0	0	0	3	0	3	0	0	2	2	7
Peak Factor	0.929																
High Int.	07:45 AM																
Volume	0	5	0	5	0	0	0	0	08:00 AM				08:15 AM				
Peak Factor				0.550					2	3	0	5	0	0	2	2	0.500
									0.550				0.500				



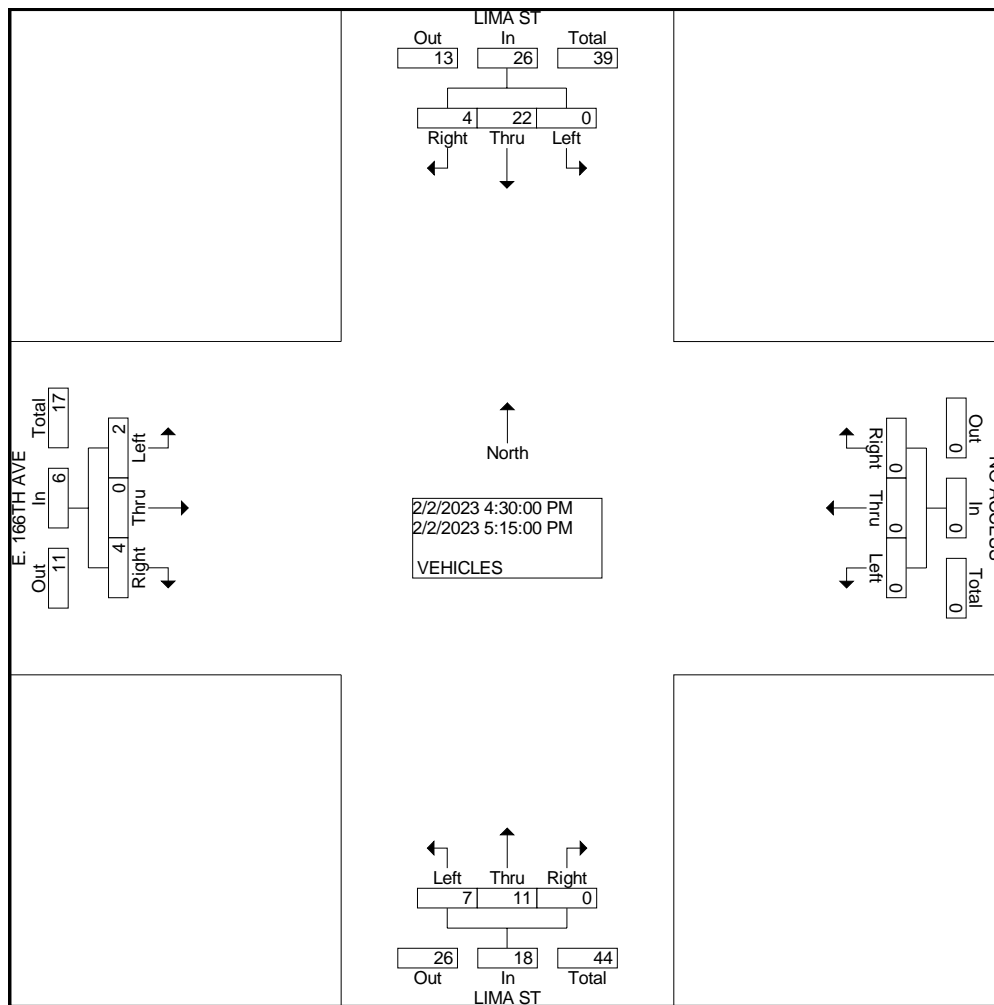
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: LIMA ST  
E/W STREET: E. 166TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : LIMA166TH  
Site Code : 00000005  
Start Date : 2/2/2023  
Page No : 3

Start Time	LIMA ST Southbound				NO ACCESS Westbound				LIMA ST Northbound				E. 166TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	22	4	26	0	0	0	0	7	11	0	18	2	0	4	6	50
Percent	0.0	84.6	15.4		0.0	0.0	0.0		38.9	61.1	0.0		33.3	0.0	66.7		
05:00	05:00 PM																
Volume	0	6	3	9	0	0	0	0	5	5	0	10	0	0	1	1	20
Peak Factor	0.625																
High Int.	04:45 PM																
Volume	0	11	0	11	0	0	0	0	5	5	0	10	0	0	2	2	
Peak Factor	0.591								0.450				0.750				



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: LIMA ST  
E/W STREET: E. 168TH AVE (HWY 7)  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : LIMA168THAVE  
Site Code : 00000015  
Start Date : 2/2/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	NO ACCESS Southbound			E. 168TH AVE Westbound			LIMA ST Northbound			E. 168TH AVE Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	1	29	0	0	0	1	0	19	0	50
06:45 AM	0	0	0	0	31	0	1	0	0	0	25	1	58
Total	0	0	0	1	60	0	1	0	1	0	44	1	108
07:00 AM	0	0	0	2	26	0	4	0	7	0	28	0	67
07:15 AM	0	0	0	0	41	0	3	0	1	0	29	0	74
07:30 AM	0	0	0	0	58	0	2	0	0	0	21	0	81
07:45 AM	0	0	0	3	39	0	1	0	1	0	21	1	66
Total	0	0	0	5	164	0	10	0	9	0	99	1	288
08:00 AM	0	0	0	0	45	0	2	0	2	0	35	0	84
08:15 AM	0	0	0	1	30	0	0	0	3	0	25	0	59
Total	0	0	0	1	75	0	2	0	5	0	60	0	143
04:00 PM	0	0	0	4	45	0	3	0	5	0	65	2	124
04:15 PM	0	0	0	1	32	0	1	0	1	0	51	3	89
04:30 PM	0	0	0	1	47	0	0	0	0	4	51	0	103
04:45 PM	0	0	0	10	30	0	0	0	4	0	53	3	100
Total	0	0	0	16	154	0	4	0	10	4	220	8	416
05:00 PM	0	0	0	5	52	0	0	0	4	0	72	2	135
05:15 PM	0	0	0	3	42	0	1	0	2	0	79	4	131
05:30 PM	0	0	0	4	35	0	0	0	4	0	85	6	134
05:45 PM	0	0	0	1	30	1	1	0	2	0	71	3	109
Total	0	0	0	13	159	1	2	0	12	0	307	15	509
Grand Total	0	0	0	36	612	1	19	0	37	4	730	25	1464
Apprch %	0.0	0.0	0.0	5.5	94.3	0.2	33.9	0.0	66.1	0.5	96.2	3.3	
Total %	0.0	0.0	0.0	2.5	41.8	0.1	1.3	0.0	2.5	0.3	49.9	1.7	

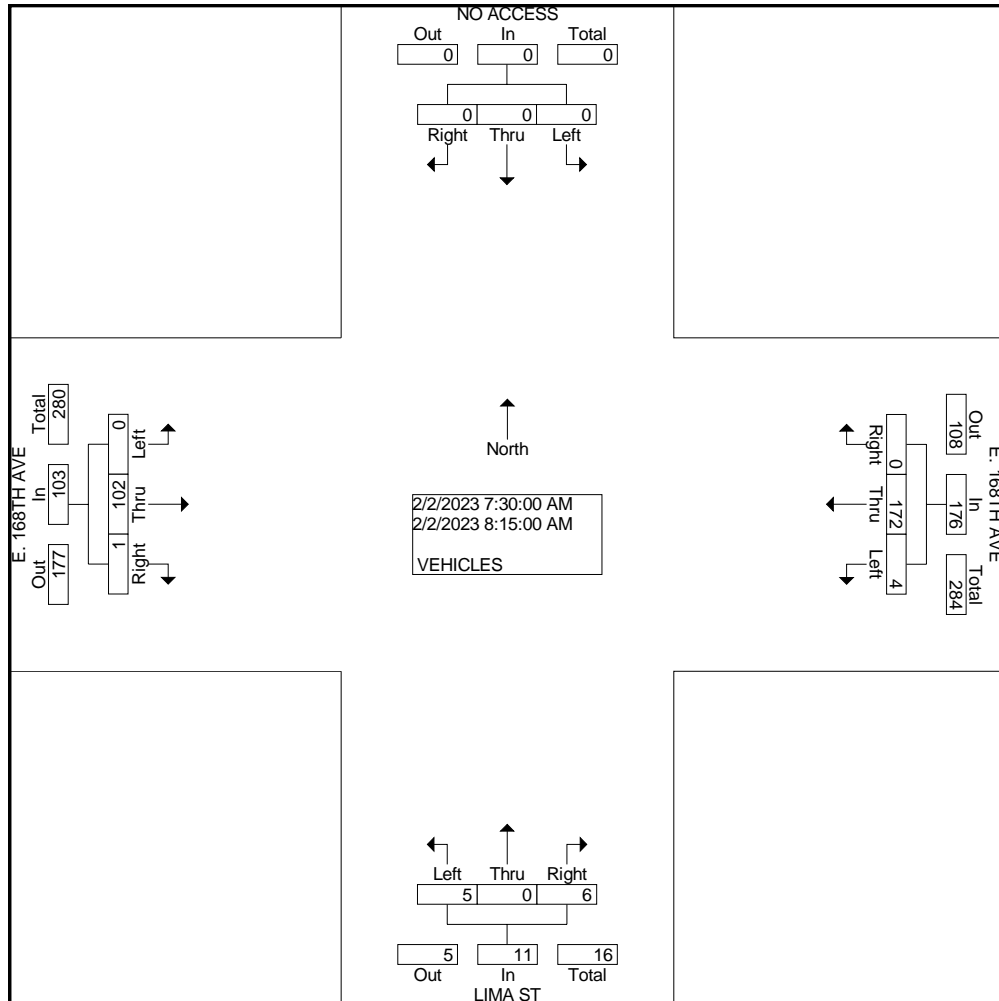
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: LIMA ST  
E/W STREET: E. 168TH AVE (HWY 7)  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : LIMA168THAVE  
Site Code : 00000015  
Start Date : 2/2/2023  
Page No : 2

Start Time	NO ACCESS Southbound				E. 168TH AVE Westbound				LIMA ST Northbound				E. 168TH AVE Eastbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																		
Intersection 07:30 AM																		
Volume	0	0	0	0	4	172	0	176	5	0	6	11	0	102	1	103	290	
Percent	0.0	0.0	0.0	0.0	2.3	97.7	0.0		45.5	0.0	54.5		0.0	99.0	1.0			
08:00 Volume	0	0	0	0	0	45	0	45	2	0	2	4	0	35	0	35	84	
Peak Factor																	0.863	
High Int.																		
08:00 Volume	0	0	0	0	0	58	0	58	2	0	2	4	0	35	0	35		
Peak Factor					0.759				0.688				0.736					



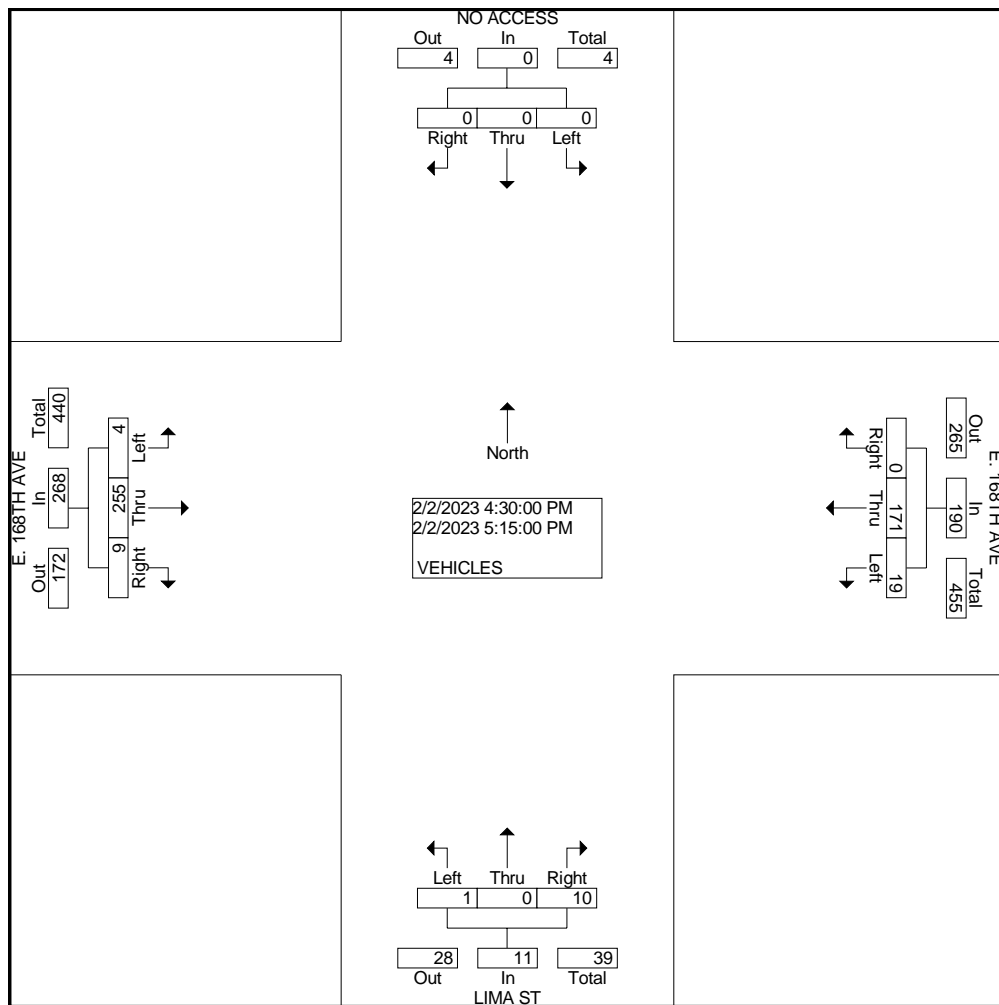
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: LIMA ST  
E/W STREET: E. 168TH AVE (HWY 7)  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : LIMA168THAVE  
Site Code : 00000015  
Start Date : 2/2/2023  
Page No : 3

Start Time	NO ACCESS Southbound				E. 168TH AVE Westbound				LIMA ST Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	0	0	0	19	171	0	190	1	0	10	11	4	255	9	268	469
Percent	0.0	0.0	0.0	0	10.0	90.0	0.0	190	9.1	0.0	90.9	11	1.5	95.1	3.4	268	
05:00	05:00 PM																
Volume	0	0	0	0	5	52	0	57	0	0	4	4	0	72	2	74	135
Peak Factor	0.869																
High Int.	05:00 PM																
Volume	0	0	0	0	5	52	0	57	0	0	4	4	0	79	4	83	83
Peak Factor	0.807																



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: LIMA ST  
E/W STREET: LANSING CT  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : LIMALANSING  
Site Code : 00000005  
Start Date : 2/2/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	LIMA ST Southbound			NO ACCESS Westbound			LIMA ST Northbound			LANSING CT Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	2	0	0	0	0	0	0	0	0	0	1	3
06:45 AM	0	1	0	0	0	0	0	3	0	0	0	1	5
Total	0	3	0	0	0	0	0	3	0	0	0	2	8
07:00 AM	0	3	0	0	0	0	0	5	0	1	0	0	9
07:15 AM	0	2	1	0	0	0	1	6	0	2	0	0	12
07:30 AM	0	2	0	0	0	0	0	1	0	0	0	1	4
07:45 AM	0	5	0	0	0	0	1	1	0	1	0	0	8
Total	0	12	1	0	0	0	2	13	0	4	0	1	33
08:00 AM	0	2	1	0	0	0	1	3	0	1	0	0	8
08:15 AM	0	2	0	0	0	0	1	3	0	1	0	1	8
Total	0	4	1	0	0	0	2	6	0	2	0	1	16
04:00 PM	0	6	0	0	0	0	1	5	0	1	0	0	13
04:15 PM	0	3	1	0	0	0	0	2	0	0	0	0	6
04:30 PM	0	0	1	0	0	0	1	1	0	0	0	0	3
04:45 PM	0	11	2	0	0	0	0	3	0	0	0	0	16
Total	0	20	4	0	0	0	2	11	0	1	0	0	38
05:00 PM	0	7	0	0	0	0	1	4	0	0	0	2	14
05:15 PM	0	6	1	0	0	0	0	2	0	1	0	0	10
05:30 PM	0	9	0	0	0	0	0	4	0	0	0	0	13
05:45 PM	0	4	0	0	0	0	0	3	0	0	0	0	7
Total	0	26	1	0	0	0	1	13	0	1	0	2	44
Grand Total	0	65	7	0	0	0	7	46	0	8	0	6	139
Apprch %	0.0	90.3	9.7	0.0	0.0	0.0	13.2	86.8	0.0	57.1	0.0	42.9	
Total %	0.0	46.8	5.0	0.0	0.0	0.0	5.0	33.1	0.0	5.8	0.0	4.3	

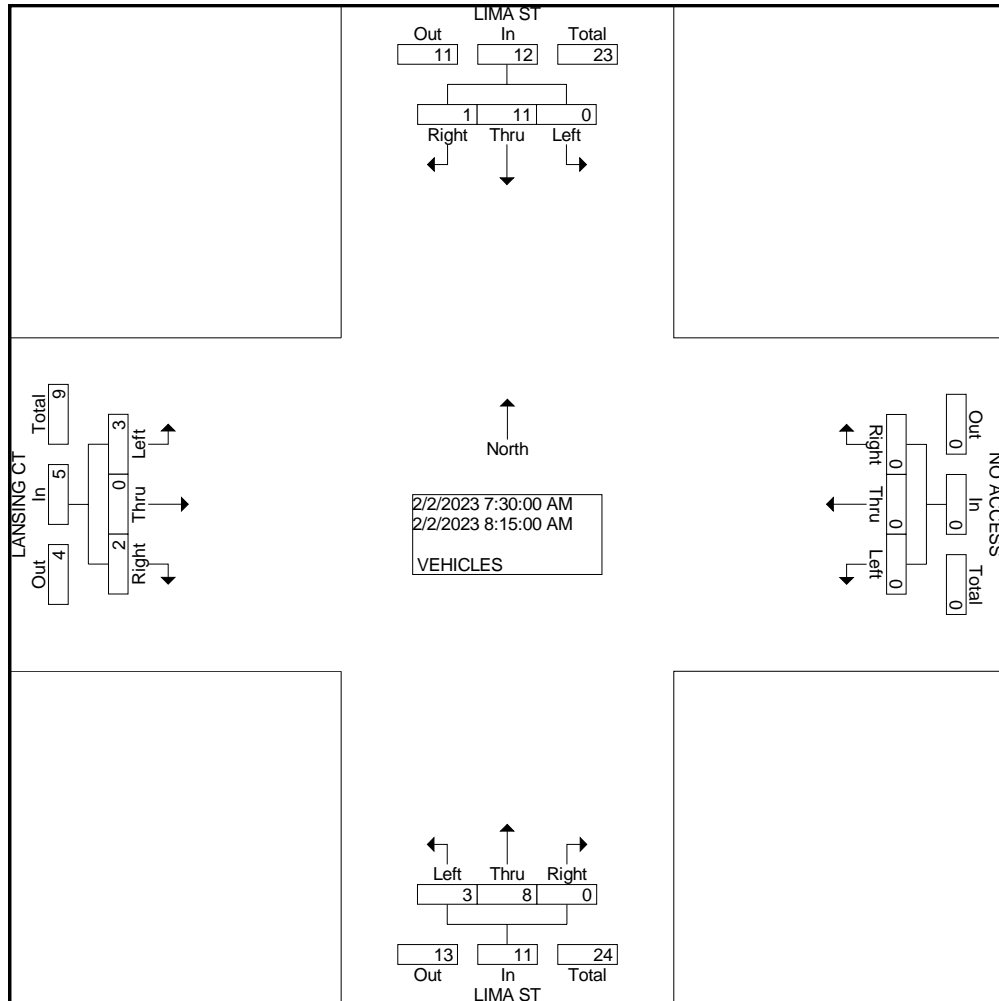
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: LIMA ST  
E/W STREET: LANSING CT  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : LIMALANSING  
Site Code : 00000005  
Start Date : 2/2/2023  
Page No : 2

Start Time	LIMA ST Southbound				NO ACCESS Westbound				LIMA ST Northbound				LANSING CT Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	0	11	1	12	0	0	0	0	3	8	0	11	3	0	2	5	28
Percent	0.0	91.7	8.3		0.0	0.0	0.0		27.3	72.7	0.0		60.0	0.0	40.0		
Volume	0	2	0	2	0	0	0	0	1	3	0	4	1	0	1	2	8
Peak Factor	0.875																
High Int.	07:45 AM																
Volume	0	5	0	5	0	0	0	0	1	3	0	4	1	0	1	2	
Peak Factor	0.600								0.688				0.625				





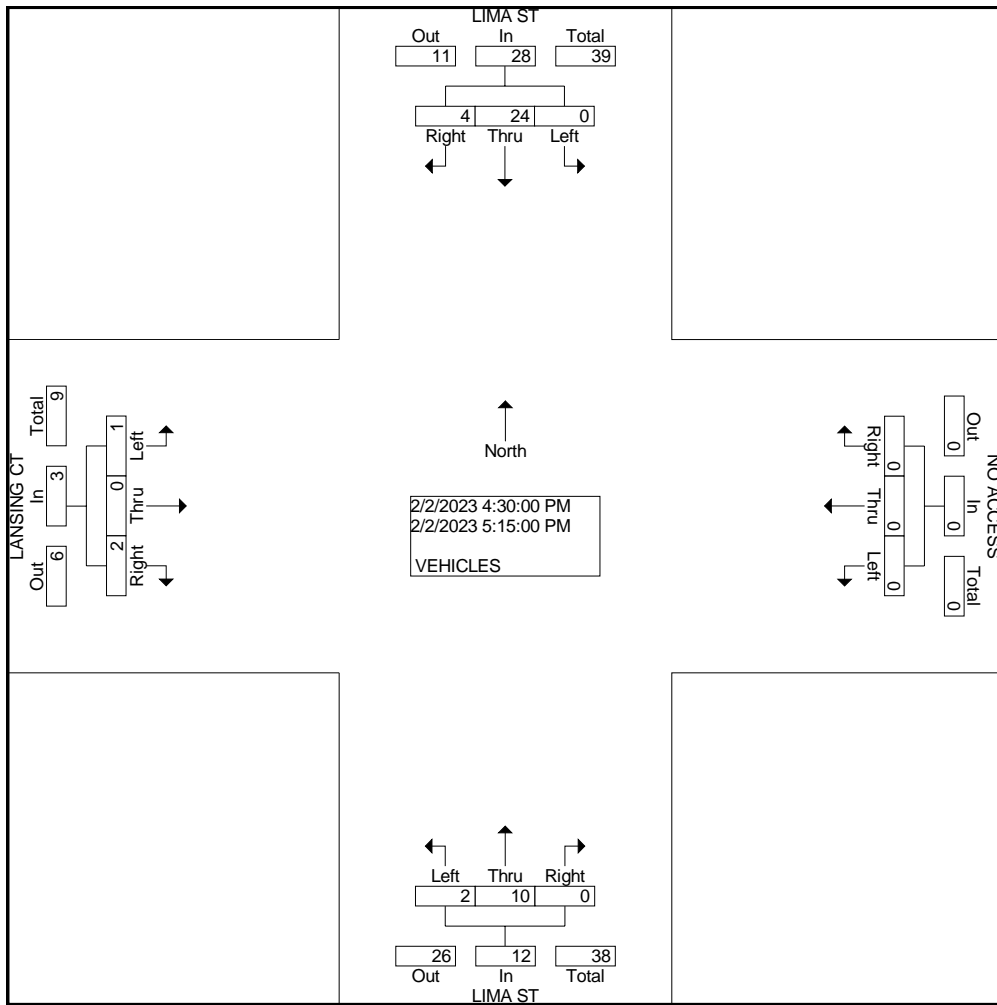
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: LIMA ST  
E/W STREET: LANSING CT  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : LIMALANSING  
Site Code : 00000005  
Start Date : 2/2/2023  
Page No : 3

Start Time	LIMA ST Southbound				NO ACCESS Westbound				LIMA ST Northbound				LANSING CT Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	24	4	28	0	0	0	0	2	10	0	12	1	0	2	3	43
Percent	0.0	85.7	14.3		0.0	0.0	0.0		16.7	83.3	0.0		33.3	0.0	66.7		
04:45																	
Volume	0	11	2	13	0	0	0	0	0	3	0	3	0	0	0	0	16
Peak Factor	0.672																
High Int.	04:45 PM																
Volume	0	11	2	13	0	0	0	0	1	4	0	5	0	0	2	2	
Peak Factor	0.538								0.600				0.375				



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: E. 160TH AVE (HWY 7)  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEB160TH  
Site Code : 00000013  
Start Date : 1/25/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	QUEBEC ST Southbound				E. 160TH AVE Westbound				QUEBEC ST Northbound				E. 160TH AVE Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
06:30 AM	5	18	6	0	14	182	0	1	23	4	3	0	2	92	8	0	358
06:45 AM	2	12	10	0	11	176	3	0	14	5	2	0	2	95	22	0	354
Total	7	30	16	0	25	358	3	1	37	9	5	0	4	187	30	0	712
07:00 AM	2	14	4	0	18	183	1	0	23	8	5	0	0	94	15	0	367
07:15 AM	1	12	6	0	28	197	3	0	23	10	6	0	2	122	29	0	439
07:30 AM	6	25	13	0	27	206	6	0	24	16	4	0	1	107	23	0	458
07:45 AM	2	18	4	0	28	186	3	0	29	16	5	0	6	105	22	4	428
Total	11	69	27	0	101	772	13	0	99	50	20	0	9	428	89	4	1692
08:00 AM	8	12	6	0	32	117	3	0	26	6	0	0	1	98	20	0	329
08:15 AM	2	8	3	0	16	155	2	0	28	4	9	0	3	104	16	0	350
Total	10	20	9	0	48	272	5	0	54	10	9	0	4	202	36	0	679
04:00 PM	3	14	5	0	9	156	8	0	17	7	3	0	7	151	45	0	425
04:15 PM	2	15	4	0	32	126	3	0	26	19	8	0	7	178	41	0	461
04:30 PM	2	13	2	0	25	145	4	0	30	15	15	0	8	208	19	0	486
04:45 PM	3	13	10	0	15	144	4	0	43	24	26	0	5	206	26	0	519
Total	10	55	21	0	81	571	19	0	116	65	52	0	27	743	131	0	1891
05:00 PM	8	12	2	0	19	134	0	0	38	31	18	0	8	164	30	0	464
05:15 PM	6	21	5	0	17	152	3	0	19	32	28	0	8	216	38	0	545
05:30 PM	5	13	2	0	20	123	4	0	25	37	15	0	4	182	39	0	469
05:45 PM	3	7	8	0	16	119	1	0	19	13	19	0	4	178	31	0	418
Total	22	53	17	0	72	528	8	0	101	113	80	0	24	740	138	0	1896
Grand Total	60	227	90	0	327	2501	48	1	407	247	166	0	68	2300	424	4	6870
Apprch %	15.9	60.2	23.9	0.0	11.4	86.9	1.7	0.0	49.6	30.1	20.2	0.0	2.4	82.3	15.2	0.1	
Total %	0.9	3.3	1.3	0.0	4.8	36.4	0.7	0.0	5.9	3.6	2.4	0.0	1.0	33.5	6.2	0.1	

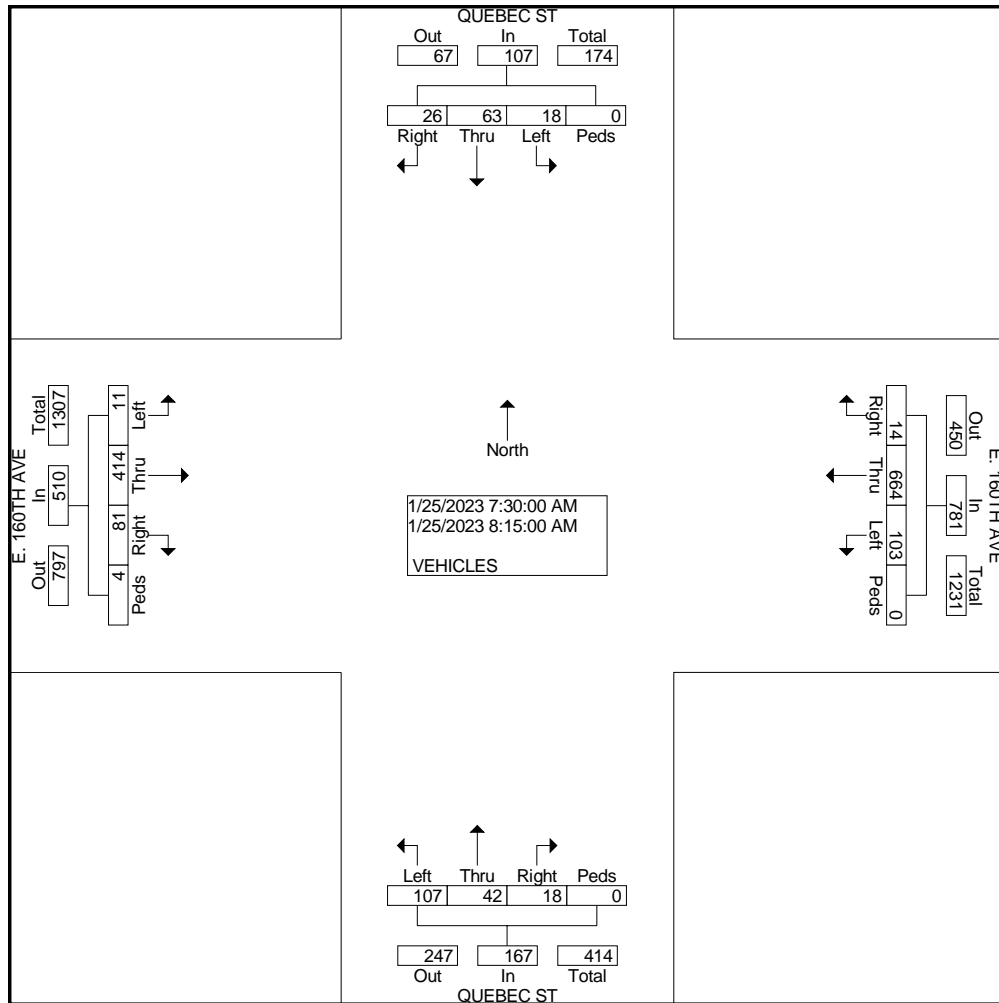
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: E. 160TH AVE (HWY 7)  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEB160TH  
Site Code : 0000013  
Start Date : 1/25/2023  
Page No : 2

Start Time	QUEBEC ST Southbound					E. 160TH AVE Westbound					QUEBEC ST Northbound					E. 160TH AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	18	63	26	0	107	103	664	14	0	781	107	42	18	0	167	11	414	81	4	510	1565
Percent	16.8	58.9	24.3	0.0		13.2	85.0	1.8	0.0		64.1	25.1	10.8	0.0		2.2	81.2	15.9	0.8		
07:30 Volume	6	25	13	0	44	27	206	6	0	239	24	16	4	0	44	1	107	23	0	131	458
Peak Factor																					
High Int. Volume	07:30 AM					07:30 AM					07:45 AM					07:45 AM					
Peak Factor						0.608					0.817					0.835					0.931



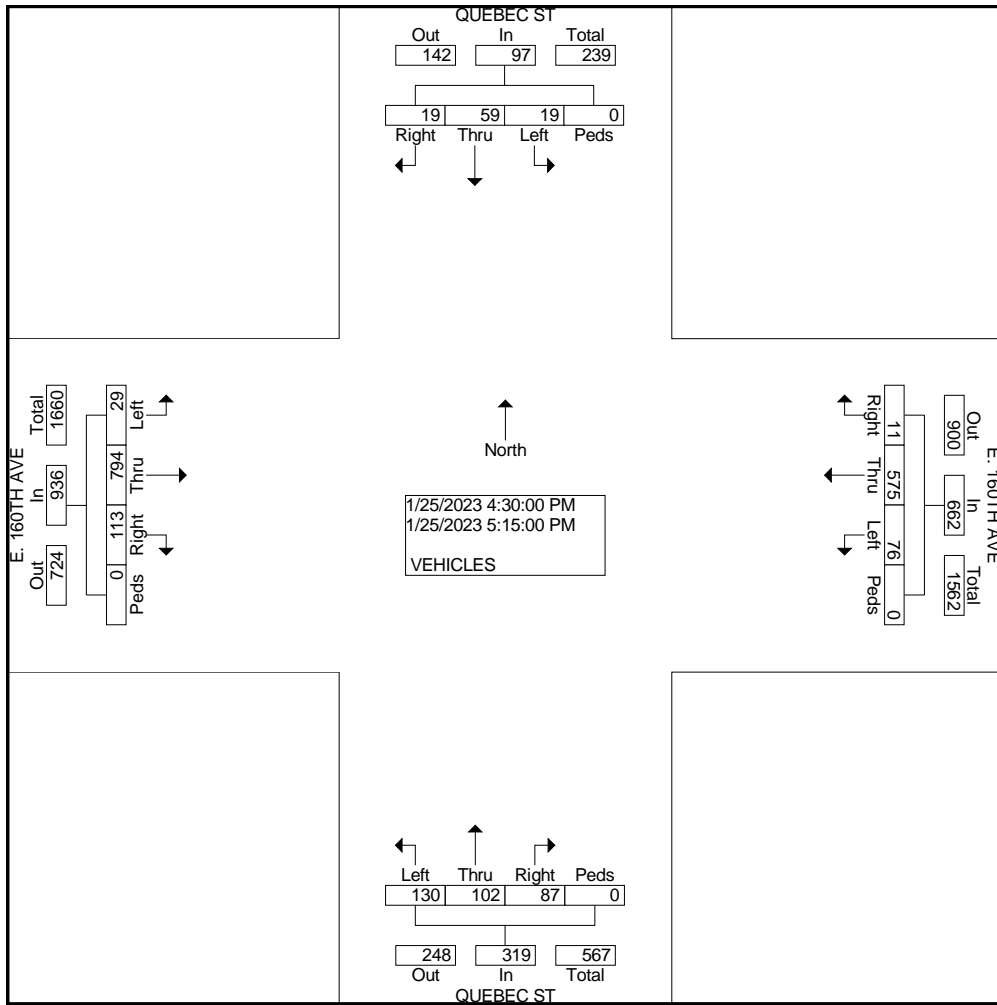
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: E. 160TH AVE (HWY 7)  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEB160TH  
Site Code : 00000013  
Start Date : 1/25/2023  
Page No : 3

Start Time	QUEBEC ST Southbound					E. 160TH AVE Westbound					QUEBEC ST Northbound					E. 160TH AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersect on	04:30 PM																				
Volume	19	59	19	0	97	76	575	11	0	662	130	102	87	0	319	29	794	113	0	936	2014
Percent	19.6	60.8	19.6	0.0		11.5	86.9	1.7	0.0		40.8	32.0	27.3	0.0		3.1	84.8	12.1	0.0		
05:15 Volume	6	21	5	0	32	17	152	3	0	172	19	32	28	0	79	8	216	38	0	262	545
Peak Factor																					0.924
High Int.	05:15 PM																				
Volume	6	21	5	0	32	04:30 PM 25	145	4	0	174	04:45 PM 43	24	26	0	93	05:15 PM 8	216	38	0	262	
Peak Factor																					0.893



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEB168TH  
Site Code : 00000015  
Start Date : 2/9/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	NO ACCESS Southbound			E. 168TH AVE Westbound			QUEBEC ST Northbound			E. 168TH AVE Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	1	26	0	0	0	2	0	17	0	46
06:45 AM	0	0	0	2	27	0	1	0	3	0	23	1	57
Total	0	0	0	3	53	0	1	0	5	0	40	1	103
07:00 AM	0	0	0	3	18	0	2	0	7	0	26	1	57
07:15 AM	0	0	0	2	43	0	3	0	3	0	27	2	80
07:30 AM	0	0	0	4	44	0	2	0	2	0	23	3	78
07:45 AM	0	0	0	5	32	0	2	0	1	0	19	3	62
Total	0	0	0	14	137	0	9	0	13	0	95	9	277
08:00 AM	0	0	0	6	31	0	1	0	2	0	27	3	70
08:15 AM	0	0	0	6	18	0	0	0	5	0	21	2	52
Total	0	0	0	12	49	0	1	0	7	0	48	5	122
04:00 PM	0	0	0	4	33	0	2	0	7	0	66	2	114
04:15 PM	0	0	0	5	28	0	1	0	8	0	58	4	104
04:30 PM	0	0	0	6	43	0	1	0	11	4	47	5	117
04:45 PM	0	0	0	8	26	0	2	0	12	0	49	5	102
Total	0	0	0	23	130	0	6	0	38	4	220	16	437
05:00 PM	0	0	0	9	45	0	0	0	14	0	73	7	148
05:15 PM	0	0	0	11	35	0	2	0	9	0	71	8	136
05:30 PM	0	0	0	6	38	0	1	0	11	0	79	5	140
05:45 PM	0	0	0	4	35	0	1	0	13	0	65	6	124
Total	0	0	0	30	153	0	4	0	47	0	288	26	548
Grand Total	0	0	0	82	522	0	21	0	110	4	691	57	1487
Apprch %	0.0	0.0	0.0	13.6	86.4	0.0	16.0	0.0	84.0	0.5	91.9	7.6	
Total %	0.0	0.0	0.0	5.5	35.1	0.0	1.4	0.0	7.4	0.3	46.5	3.8	

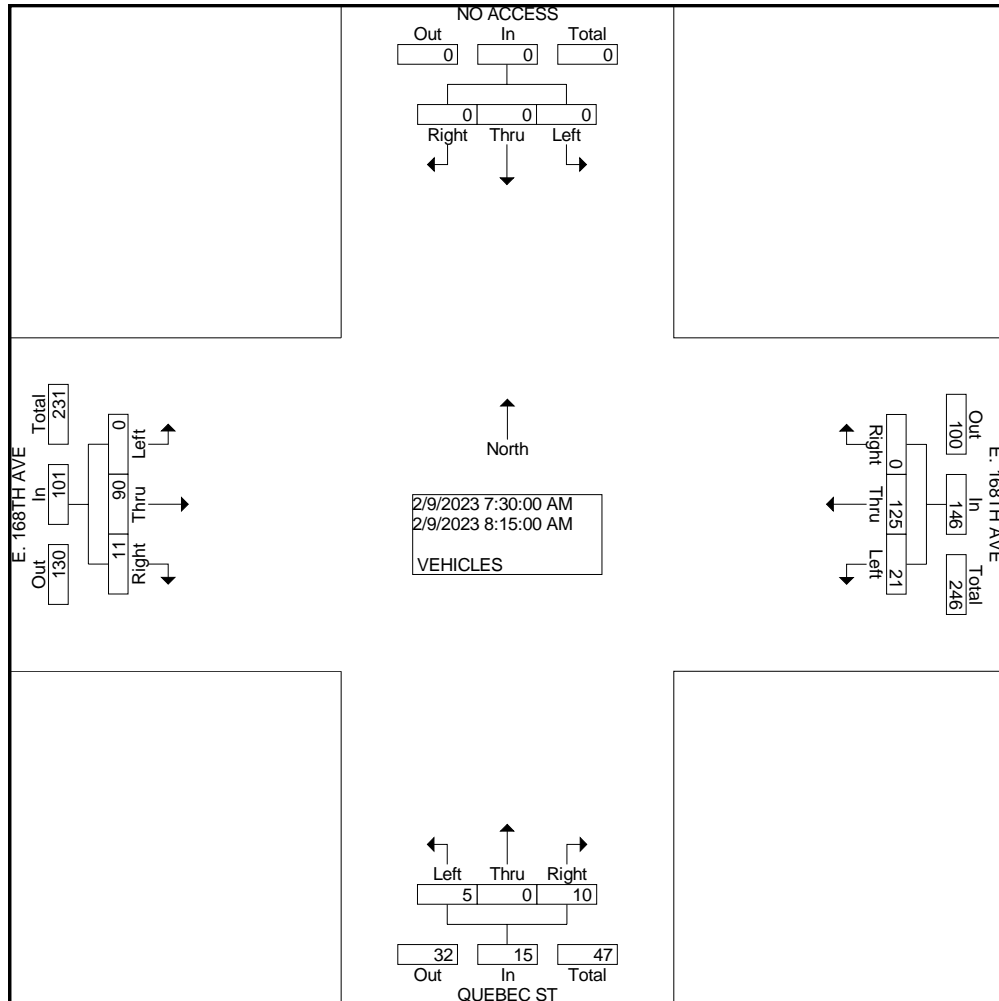
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEB168TH  
Site Code : 0000015  
Start Date : 2/9/2023  
Page No : 2

Start Time	NO ACCESS Southbound				E. 168TH AVE Westbound				QUEBEC ST Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	0	0	0	0	21	125	0	146	5	0	10	15	0	90	11	101	262
Percent	0.0	0.0	0.0	0.0	14.4	85.6	0.0		33.3	0.0	66.7		0.0	89.1	10.9		
07:30 Volume	0	0	0	0	4	44	0	48	2	0	2	4	0	23	3	26	78
Peak Factor	0.840																
High Int.																	
08:00 AM Volume	0	0	0	0	4	44	0	48	0	0	5	5	0	27	3	30	
Peak Factor	0.760 0.750 0.842																



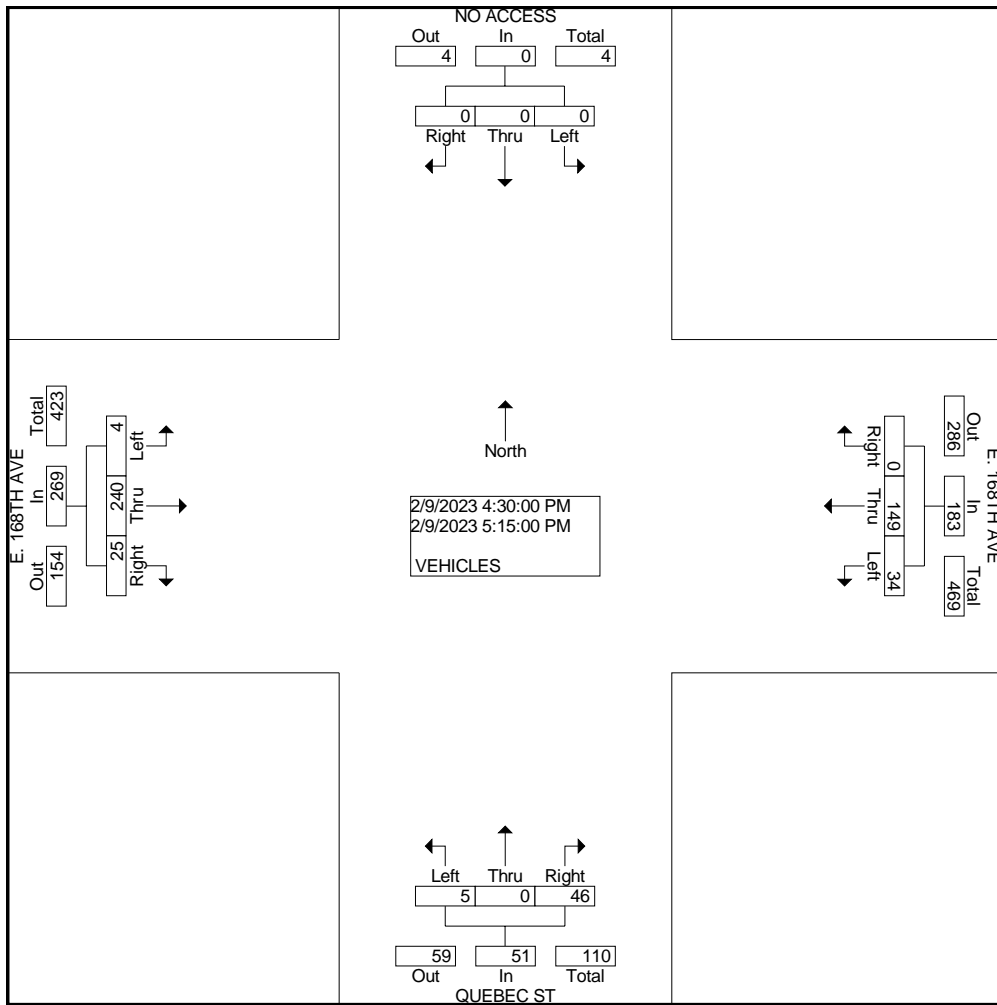
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEB168TH  
Site Code : 0000015  
Start Date : 2/9/2023  
Page No : 3

Start Time	NO ACCESS Southbound				E. 168TH AVE Westbound				QUEBEC ST Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	0	0	0	34	149	0	183	5	0	46	51	4	240	25	269	503
Percent	0.0	0.0	0.0		18.6	81.4	0.0		9.8	0.0	90.2		1.5	89.2	9.3		
05:00																	
Volume	0	0	0	0	9	45	0	54	0	0	14	14	0	73	7	80	148
Peak Factor																	0.850
High Int.					05:00 PM				04:45 PM				05:00 PM				
Volume	0	0	0	0	9	45	0	54	2	0	12	14	0	73	7	80	
Peak Factor					0.847				0.911				0.841				



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: E 162ND AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEBEAGLES  
Site Code : 00000005  
Start Date : 1/24/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	QUEBEC ST Southbound				NO ACCESS Westbound				QUEBEC ST Northbound				E. 162ND AVE Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
06:30 AM	0	14	0	0	2	0	0	0	1	9	0	0	1	0	5	1	33
06:45 AM	0	19	0	0	0	0	0	0	1	7	0	0	0	0	3	0	30
Total	0	33	0	0	2	0	0	0	2	16	0	0	1	0	8	1	63
07:00 AM	0	13	0	0	0	0	0	0	2	10	0	0	2	0	6	0	33
07:15 AM	0	10	0	0	0	0	0	0	0	7	0	0	0	0	14	0	31
07:30 AM	0	20	1	0	0	0	0	0	1	11	0	0	1	0	19	0	53
07:45 AM	0	17	0	0	0	0	0	0	7	10	0	0	1	0	12	0	47
Total	0	60	1	0	0	0	0	0	10	38	0	0	4	0	51	0	164
08:00 AM	0	16	1	0	0	0	0	0	3	15	0	0	1	0	4	0	40
08:15 AM	0	10	0	0	0	0	0	0	4	9	0	0	0	0	4	0	27
Total	0	26	1	0	0	0	0	0	7	24	0	0	1	0	8	0	67
04:00 PM	0	19	1	0	0	0	0	0	12	14	0	0	2	0	3	0	51
04:15 PM	0	21	0	0	0	0	0	0	5	19	0	0	0	0	5	0	50
04:30 PM	0	17	2	0	0	0	0	0	5	17	0	0	1	0	4	0	46
04:45 PM	0	19	1	0	0	0	0	0	6	29	0	0	0	0	5	0	60
Total	0	76	4	0	0	0	0	0	28	79	0	0	3	0	17	0	207
05:00 PM	0	11	2	0	0	0	0	0	10	30	0	0	0	0	3	0	56
05:15 PM	0	16	0	0	0	0	0	0	5	20	0	0	0	0	6	0	47
05:30 PM	0	10	1	0	0	0	0	0	4	21	0	0	0	0	6	0	42
05:45 PM	0	21	2	0	0	0	0	0	6	14	0	0	0	0	4	0	47
Total	0	58	5	0	0	0	0	0	25	85	0	0	0	0	19	0	192
Grand Total	0	253	11	0	2	0	0	0	72	242	0	0	9	0	103	1	693
Apprch %	0.0	95.8	4.2	0.0	100.0	0.0	0.0	0.0	22.9	77.1	0.0	0.0	8.0	0.0	91.2	0.9	
Total %	0.0	36.5	1.6	0.0	0.3	0.0	0.0	0.0	10.4	34.9	0.0	0.0	1.3	0.0	14.9	0.1	



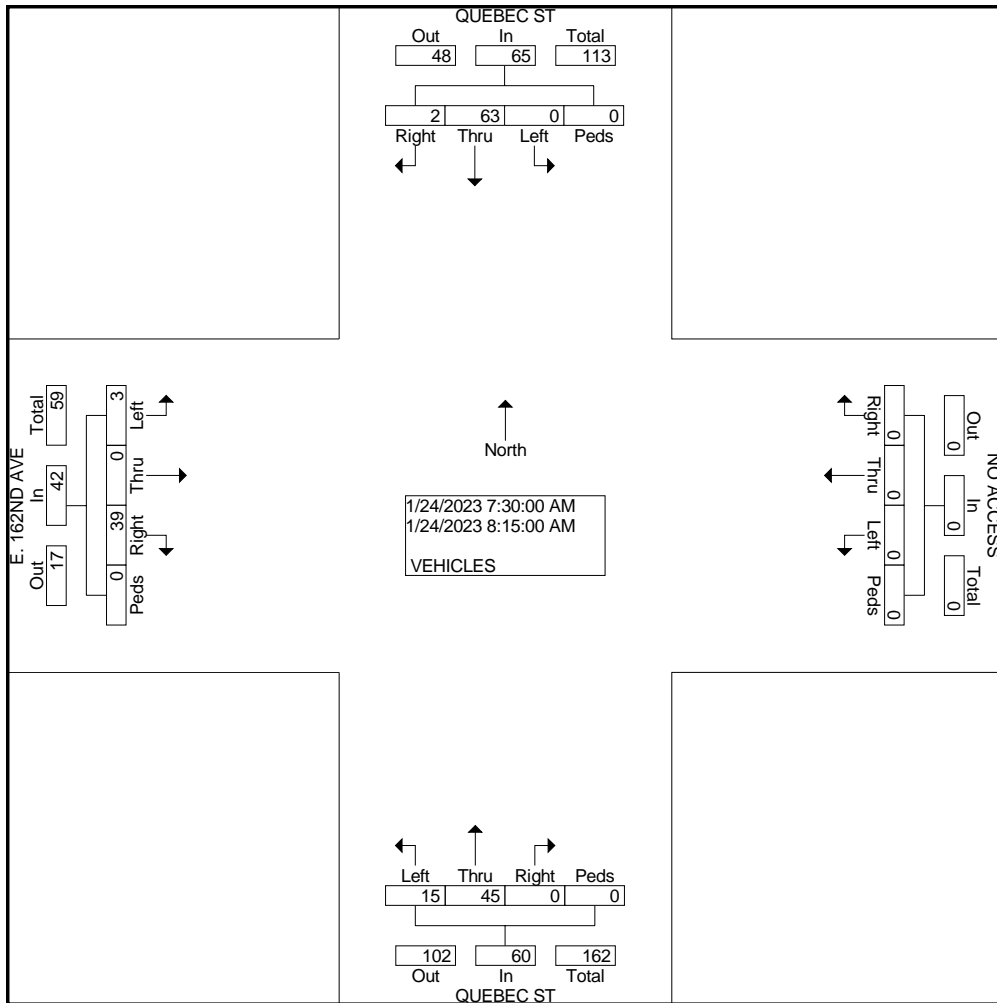
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: E 162ND AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEBEAGLES  
Site Code : 00000005  
Start Date : 1/24/2023  
Page No : 2

Start Time	QUEBEC ST Southbound					NO ACCESS Westbound					QUEBEC ST Northbound					E. 162ND AVE Eastbound					Int. Total		
	Left	Thru	Rig ht	Ped s	App. Total	Left	Thru	Rig ht	Ped s	App. Total	Left	Thru	Rig ht	Ped s	App. Total	Left	Thru	Rig ht	Ped s	App. Total			
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																							
Intersecti on	07:30 AM																						
Volume	0	63	2	0	65	0	0	0	0	0	15	45	0	0	60	3	0	39	0	42	167		
Percent	0.0	96.9	3.1	0.0		0.0	0.0	0.0	0.0		25.0	75.0	0.0	0.0		7.1	0.0	92.9	0.0				
07:30 Volume	0	20	1	0	21	0	0	0	0	0	1	11	0	0	12	1	0	19	0	20	53		
Peak Factor	0.788																						
High Int. Volume	07:30 AM																						
Peak Factor	0	20	1	0	21	0	0	0	0	0	08:00 AM	3	15	0	0	18	07:30 AM	1	0	19	0	20	0.525
											0.833												



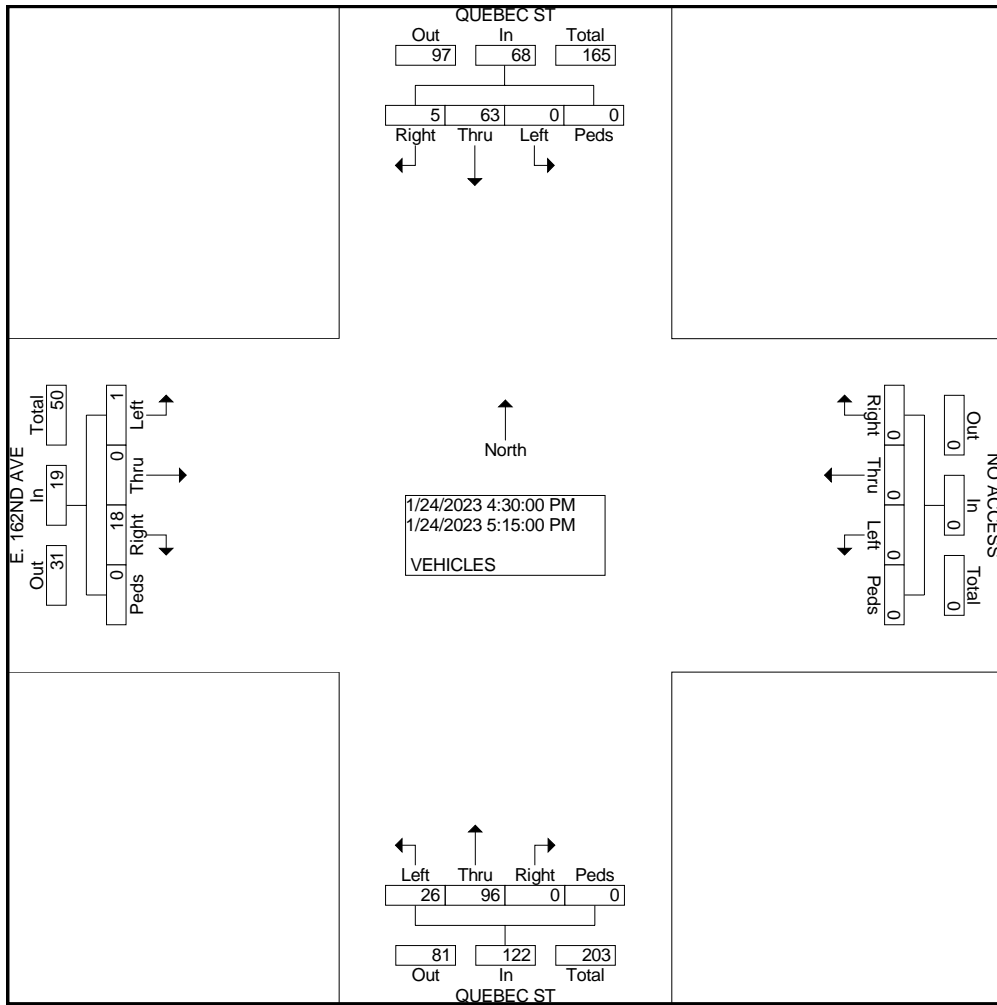
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: E 162ND AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEBEAGLES  
Site Code : 00000005  
Start Date : 1/24/2023  
Page No : 3

Start Time	QUEBEC ST Southbound					NO ACCESS Westbound					QUEBEC ST Northbound					E. 162ND AVE Eastbound					Int. Total
	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersect on	04:30 PM																				
Volume	0	63	5	0	68	0	0	0	0	0	26	96	0	0	122	1	0	18	0	19	209
Percent	0.0	92.6	7.4	0.0		0.0	0.0	0.0	0.0		21.3	78.7	0.0	0.0		5.3	0.0	94.7	0.0		
04:45 Volume	0	19	1	0	20	0	0	0	0	0	6	29	0	0	35	0	0	5	0	5	60
Peak Factor																					
High Int.	04:45 PM																				
Volume	0	19	1	0	20	0	0	0	0	0	05:00 PM					05:15 PM					0.871
Peak Factor	0.85										0.76					0.79					2
	0										3					2					



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: EAGLE SHADOW AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEBEAGLEN  
Site Code : 00000011  
Start Date : 1/24/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	QUEBEC ST Southbound				EAGLE SHADOW AVE Westbound				QUEBEC ST Northbound				EAGLE SHADOW AVE Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	12	0	0	0	0	0	0	1	8	0	0	1	0	7	0	29
06:45 AM	0	12	0	0	0	0	0	0	1	6	0	0	2	0	6	0	27
Total	0	24	0	0	0	0	0	0	2	14	0	0	3	0	13	0	56
07:00 AM	0	12	1	0	0	0	0	0	0	11	0	0	1	0	3	0	28
07:15 AM	0	7	0	0	0	0	0	0	1	6	0	0	0	0	2	0	16
07:30 AM	0	10	1	0	0	0	0	0	1	10	0	0	2	0	9	0	33
07:45 AM	0	13	1	0	0	0	0	0	1	8	0	0	0	0	3	0	26
Total	0	42	3	0	0	0	0	0	3	35	0	0	3	0	17	0	103
08:00 AM	0	10	0	0	0	0	0	0	4	10	0	0	0	0	7	0	31
08:15 AM	0	8	0	0	0	0	0	0	2	7	0	0	1	0	2	0	20
Total	0	18	0	0	0	0	0	0	6	17	0	0	1	0	9	0	51
04:00 PM	0	18	0	0	0	0	0	0	3	13	0	0	1	0	2	0	37
04:15 PM	0	17	0	0	0	0	0	0	2	18	0	0	1	0	6	0	44
04:30 PM	0	15	1	0	0	0	0	0	2	16	0	0	0	0	3	0	37
04:45 PM	0	19	0	0	0	0	0	0	7	21	0	0	0	0	0	0	47
Total	0	69	1	0	0	0	0	0	14	68	0	0	2	0	11	0	165
05:00 PM	0	10	0	0	0	0	0	0	8	23	0	0	0	0	3	0	44
05:15 PM	0	15	0	0	0	0	0	0	3	16	0	0	0	0	2	0	36
05:30 PM	0	11	0	0	0	0	0	0	8	14	0	0	0	0	1	0	34
05:45 PM	0	13	1	0	0	0	0	0	3	11	0	0	1	0	8	0	37
Total	0	49	1	0	0	0	0	0	22	64	0	0	1	0	14	0	151
Grand Total	0	202	5	0	0	0	0	0	47	198	0	0	10	0	64	0	526
Apprch %	0.0	97.6	2.4	0.0	0.0	0.0	0.0	0.0	19.2	80.8	0.0	0.0	13.5	0.0	86.5	0.0	
Total %	0.0	38.4	1.0	0.0	0.0	0.0	0.0	0.0	8.9	37.6	0.0	0.0	1.9	0.0	12.2	0.0	

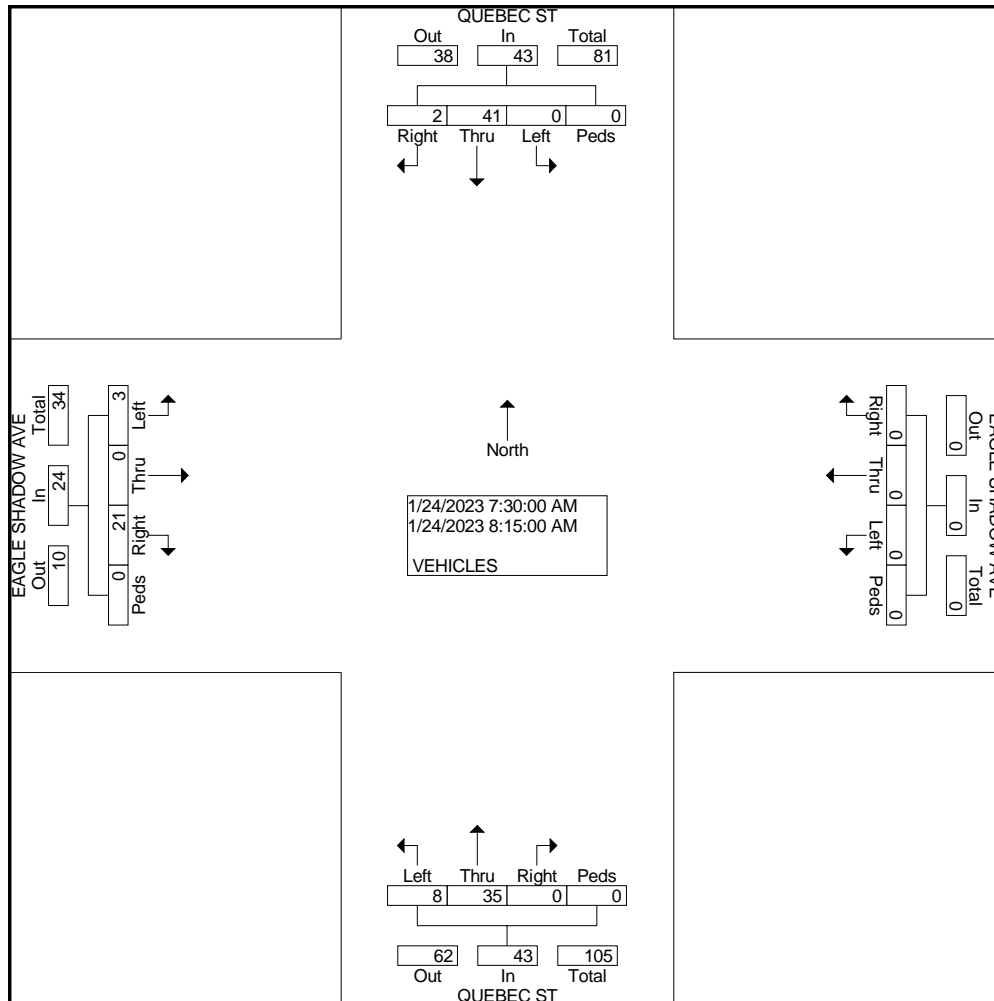
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: EAGLE SHADOW AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEBEAGLEN  
Site Code : 00000011  
Start Date : 1/24/2023  
Page No : 2

Start Time	QUEBEC ST Southbound					EAGLE SHADOW AVE Westbound					QUEBEC ST Northbound					EAGLE SHADOW AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	0	41	2	0	43	0	0	0	0	0	8	35	0	0	43	3	0	21	0	24	110
Percent	0.0	95.3	4.7	0.0		0.0	0.0	0.0	0.0		18.6	81.4	0.0	0.0		12.5	0.0	87.5	0.0		
07:30 Volume	0	10	1	0	11	0	0	0	0	0	1	10	0	0	11	2	0	9	0	11	33
Peak Factor	0.833																				
High Int.	07:45 AM																				
Volume	0	13	1	0	14	0	0	0	0	0	08:00 AM 4	10	0	0	14	07:30 AM 2	0	9	0	11	
Peak Factor	0.768										0.768					0.545					



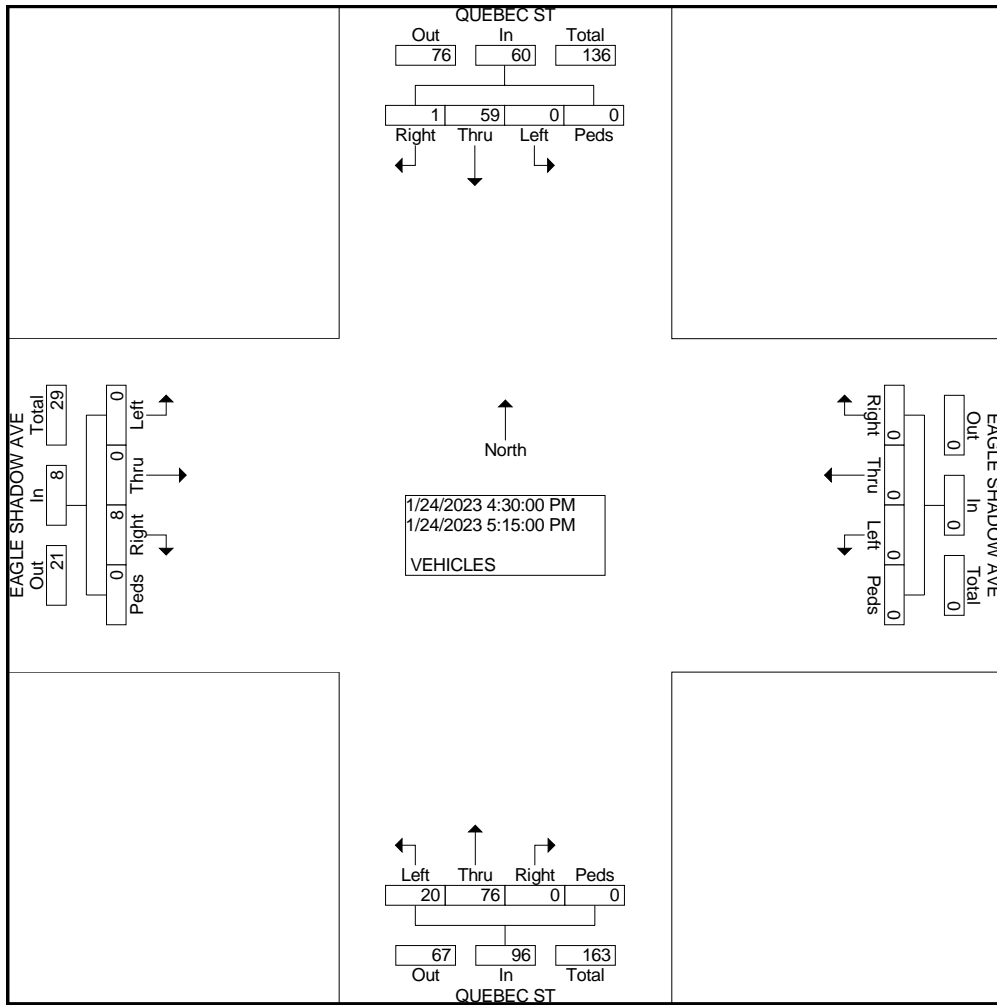
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: QUEBEC ST  
E/W STREET: EAGLE SHADOW AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : QUEBEAGLEN  
Site Code : 00000011  
Start Date : 1/24/2023  
Page No : 3

Start Time	QUEBEC ST Southbound					EAGLE SHADOW AVE Westbound					QUEBEC ST Northbound					EAGLE SHADOW AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersect on	04:30 PM																				
Volume	0	59	1	0	60	0	0	0	0	0	20	76	0	0	96	0	0	8	0	8	164
Percent	0.0	98.3	1.7	0.0		0.0	0.0	0.0	0.0		20.8	79.2	0.0	0.0		0.0	0.0	100.0	0.0		
04:45 Volume	0	19	0	0	19	0	0	0	0	0	7	21	0	0	28	0	0	0	0	0	47
Peak Factor	0.872																				
High Int.	04:45 PM																				
Volume	0	19	0	0	19	0	0	0	0	0	05:00 PM					04:30 PM					
Peak Factor	0.789										0.774					0.667					



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: RIVERDALE RD  
E/W STREET: HWY 7  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : RIVERHWY7  
Site Code : 00000013  
Start Date : 12/7/2022  
Page No : 1

Groups Printed- VEHICLES

Start Time	CONST. ACCESS Southbound				HWY 7 Westbound				RIVERDALE RD Northbound				HWY 7 Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	20	179	1	0	1	0	24	0	1	111	0	0	337
06:45 AM	0	0	0	0	24	159	1	0	2	0	17	0	0	113	2	0	318
Total	0	0	0	0	44	338	2	0	3	0	41	0	1	224	2	0	655
07:00 AM	0	0	0	0	39	189	0	0	1	0	26	0	0	136	2	0	393
07:15 AM	0	0	0	0	35	159	0	0	0	0	28	0	0	138	4	0	364
07:30 AM	0	0	1	0	57	190	0	0	1	1	35	0	0	132	5	0	422
07:45 AM	0	0	0	0	72	168	0	0	0	0	26	0	0	128	7	0	401
Total	0	0	1	0	203	706	0	0	2	1	115	0	0	534	18	0	1580
08:00 AM	0	0	0	0	63	165	0	0	1	0	41	0	0	136	9	0	415
08:15 AM	0	0	0	0	29	164	0	0	7	0	74	0	0	138	5	0	417
Total	0	0	0	0	92	329	0	0	8	0	115	0	0	274	14	0	832
04:00 PM	0	0	0	0	52	179	0	0	2	0	34	0	0	179	7	0	453
04:15 PM	0	0	2	0	56	212	0	0	2	0	32	0	0	217	1	0	522
04:30 PM	0	0	0	0	49	181	0	0	6	0	75	0	0	215	6	0	532
04:45 PM	0	0	2	0	29	203	0	0	7	0	97	0	0	185	5	0	528
Total	0	0	4	0	186	775	0	0	17	0	238	0	0	796	19	0	2035
05:00 PM	1	0	1	0	47	195	0	0	2	0	53	0	0	216	4	0	519
05:15 PM	0	0	0	0	41	223	0	0	1	0	51	0	0	212	1	0	529
05:30 PM	0	0	0	0	31	196	0	0	1	0	54	0	0	167	1	0	450
05:45 PM	0	0	0	0	35	187	0	0	8	0	56	0	0	193	0	0	479
Total	1	0	1	0	154	801	0	0	12	0	214	0	0	788	6	0	1977
Grand Total	1	0	6	0	679	2949	2	0	42	1	723	0	1	2616	59	0	7079
Apprch %	14.3	0.0	85.7	0.0	18.7	81.2	0.1	0.0	5.5	0.1	94.4	0.0	0.0	97.8	2.2	0.0	
Total %	0.0	0.0	0.1	0.0	9.6	41.7	0.0	0.0	0.6	0.0	10.2	0.0	0.0	37.0	0.8	0.0	

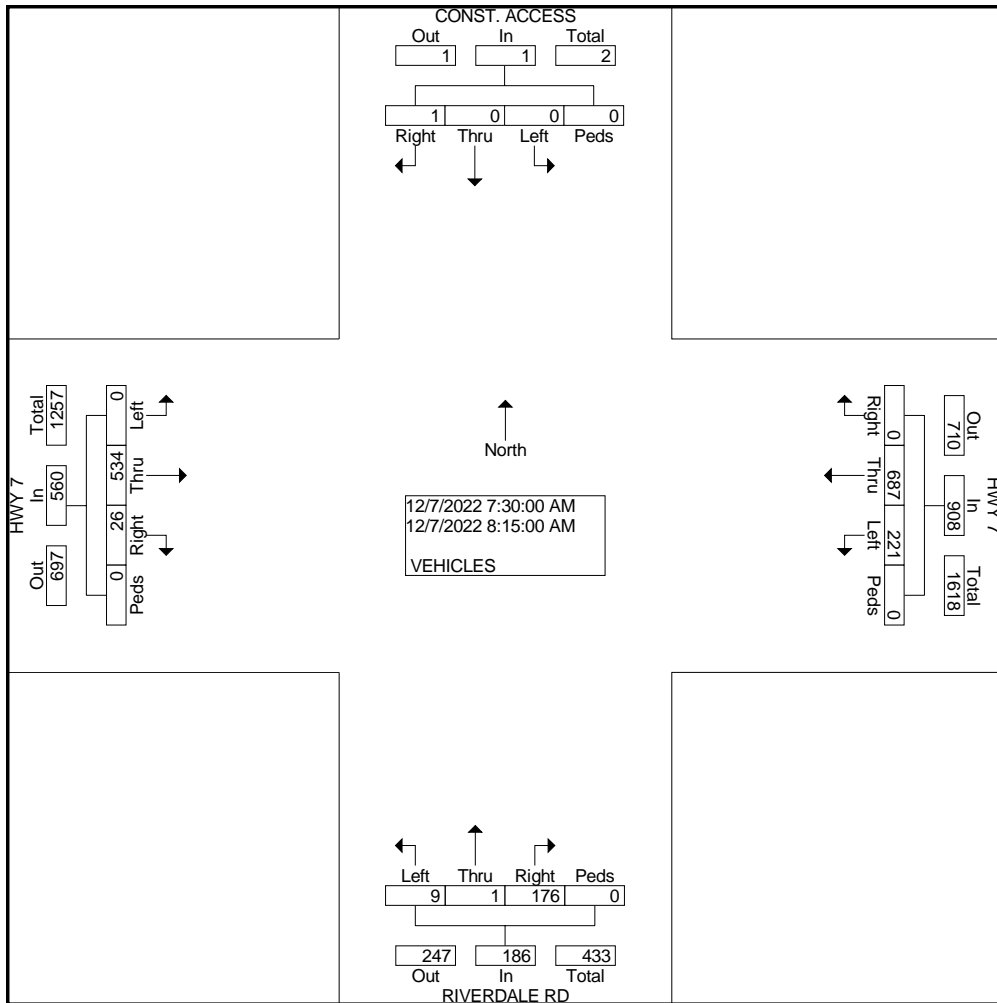
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: RIVERDALE RD  
E/W STREET: HWY 7  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : RIVERHWY7  
Site Code : 00000013  
Start Date : 12/7/2022  
Page No : 2

Start Time	CONST. ACCESS Southbound					HWY 7 Westbound					RIVERDALE RD Northbound					HWY 7 Eastbound					Int. Total
	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersecti on	07:30 AM																				
Volume	0	0	1	0	1	221	687	0	0	908	9	1	176	0	186	0	534	26	0	560	1655
Percent	0.0	0.0	100.0	0.0		24.3	75.7	0.0	0.0		4.8	0.5	94.6	0.0		0.0	95.4	4.6	0.0		
07:30 Volume	0	0	1	0	1	57	190	0	0	247	1	1	35	0	37	0	132	5	0	137	422
Peak Factor	0.980																				
High Int. Volume	07:30 AM																				
Peak Factor	0.25					0.91					0.57					0.96					
	0					9					4					6					



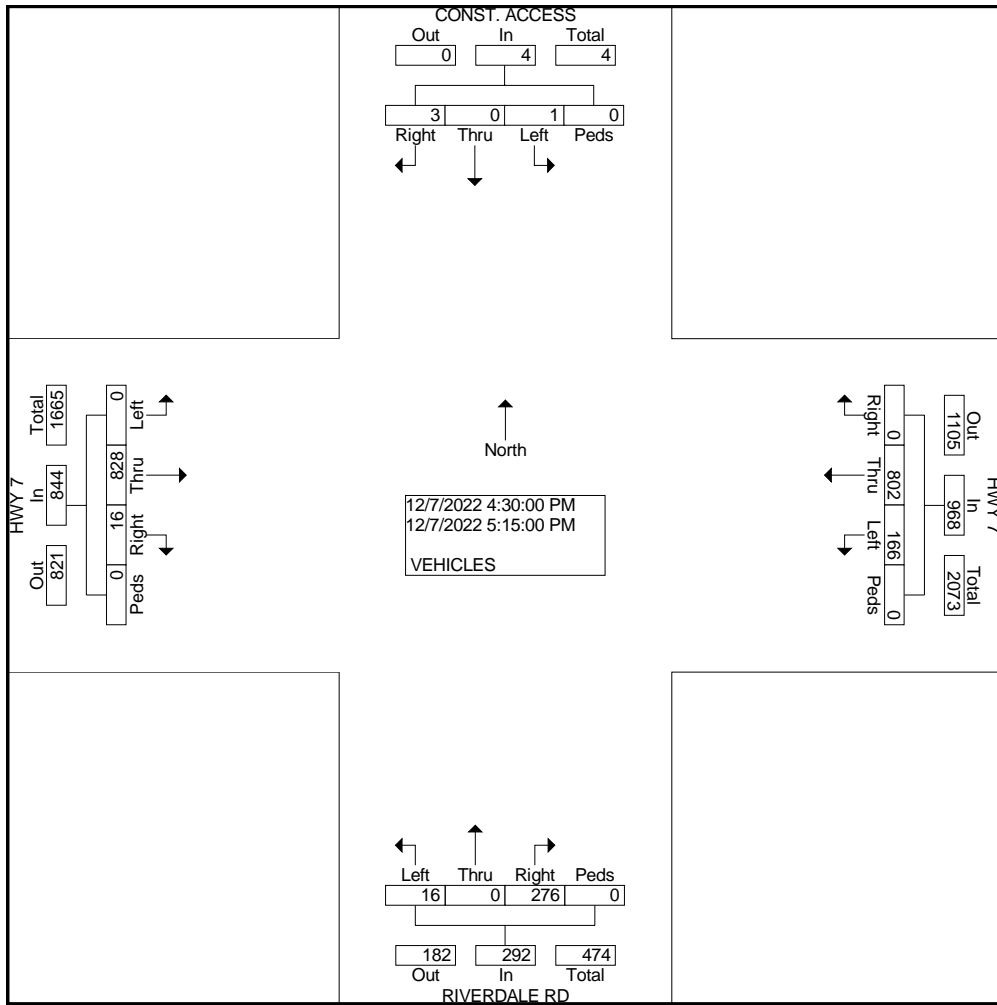
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: RIVERDALE RD  
E/W STREET: HWY 7  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : RIVERHWY7  
Site Code : 00000013  
Start Date : 12/7/2022  
Page No : 3

Start Time	CONST. ACCESS Southbound					HWY 7 Westbound					RIVERDALE RD Northbound					HWY 7 Eastbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																						
Intersect on	04:30 PM																					
Volume	1	0	3	0	4	166	802	0	0	968	16	0	276	0	292	0	828	16	0	844	2108	
Percent	25.0	0.0	75.0	0.0		17.1	82.9	0.0	0.0		5.5	0.0	94.5	0.0		0.0	98.1	1.9	0.0			
04:30 Volume	0	0	0	0	0	49	181	0	0	230	6	0	75	0	81	0	215	6	0	221	532	
Peak Factor																						0.991
High Int.	04:45 PM																					
Volume	0	0	2	0	2	41	223	0	0	264	7	0	97	0	104	0	215	6	0	221		
Peak Factor	0.50					0.91					0.70					0.95						
	0					7					2					5						





**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: TUCSON ST  
E/W STREET: HWY 7  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : TUCSONHWY7  
Site Code : 00000052  
Start Date : 12/7/2022  
Page No : 1

Groups Printed- VEHICLES

Start Time	TUCSON ST Southbound				HWY 7 Westbound				NO ACCESS Northbound				HWY 7 Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	8	0	0	208	1	0	0	0	0	0	6	130	0	0	353
06:45 AM	0	0	13	0	0	173	2	0	0	0	0	0	6	151	0	0	345
Total	0	0	21	0	0	381	3	0	0	0	0	0	12	281	0	0	698
07:00 AM	0	0	8	0	0	231	3	0	0	0	0	0	5	157	0	0	404
07:15 AM	2	0	8	0	0	165	2	0	0	0	0	0	5	169	0	0	351
07:30 AM	1	0	11	0	0	273	2	0	0	0	0	0	2	181	0	0	470
07:45 AM	2	0	12	0	0	244	3	0	0	0	0	0	4	169	0	0	434
Total	5	0	39	0	0	913	10	0	0	0	0	0	16	676	0	0	1659
08:00 AM	3	0	10	0	0	216	1	0	0	0	0	0	11	168	0	0	409
08:15 AM	2	0	7	0	0	185	2	0	0	0	0	0	11	200	0	0	407
Total	5	0	17	0	0	401	3	0	0	0	0	0	22	368	0	0	816
04:00 PM	1	0	13	0	0	231	6	0	0	0	0	0	3	212	0	0	466
04:15 PM	3	0	11	0	0	209	34	0	0	0	0	0	10	224	0	0	491
04:30 PM	1	0	4	0	0	206	4	0	0	0	0	0	9	250	0	0	474
04:45 PM	1	0	6	0	0	214	5	0	0	0	0	0	12	258	0	0	496
Total	6	0	34	0	0	860	49	0	0	0	0	0	34	944	0	0	1927
05:00 PM	1	0	8	0	0	239	6	0	0	0	0	0	13	257	0	0	524
05:15 PM	2	0	8	0	0	244	6	0	0	0	0	0	13	253	0	0	526
05:30 PM	1	0	4	0	0	210	1	0	0	0	0	0	8	215	0	0	439
05:45 PM	2	0	7	0	0	215	2	0	0	0	0	0	11	229	0	0	466
Total	6	0	27	0	0	908	15	0	0	0	0	0	45	954	0	0	1955
Grand Total	22	0	138	0	0	3463	80	0	0	0	0	0	129	3223	0	0	7055
Apprch %	13.8	0.0	86.3	0.0	0.0	97.7	2.3	0.0	0.0	0.0	0.0	0.0	3.8	96.2	0.0	0.0	
Total %	0.3	0.0	2.0	0.0	0.0	49.1	1.1	0.0	0.0	0.0	0.0	0.0	1.8	45.7	0.0	0.0	

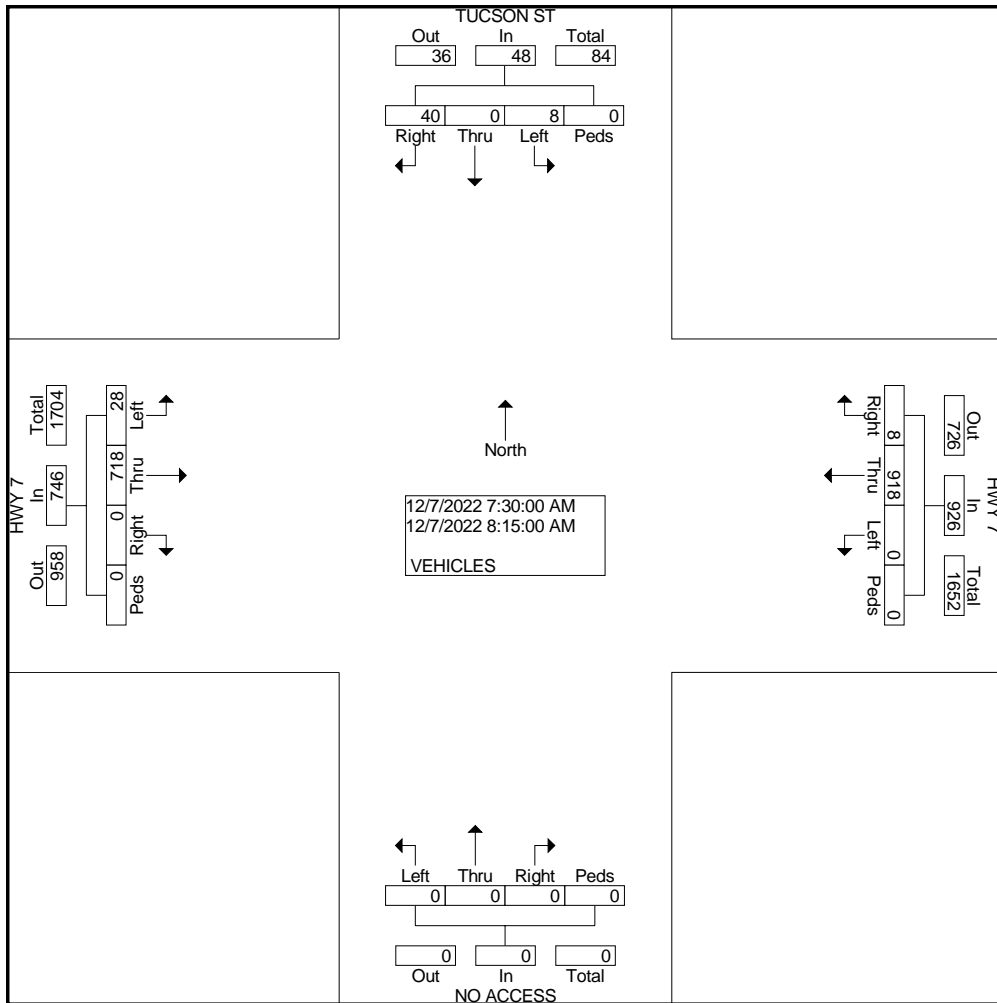
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: TUCSON ST  
E/W STREET: HWY 7  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : TUCSONHWY7  
Site Code : 0000052  
Start Date : 12/7/2022  
Page No : 2

Start Time	TUCSON ST Southbound					HWY 7 Westbound					NO ACCESS Northbound					HWY 7 Eastbound					Int. Total
	Left	Thru	Rig ht	Ped s	App. Total	Left	Thru	Rig ht	Ped s	App. Total	Left	Thru	Rig ht	Ped s	App. Total	Left	Thru	Rig ht	Ped s	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersecti on	07:30 AM																				
Volume	8	0	40	0	48	0	918	8	0	926	0	0	0	0	0	28	718	0	0	746	1720
Percent	16.7	0.0	83.3	0.0		0.0	99.1	0.9	0.0		0.0	0.0	0.0	0.0		3.8	96.2	0.0	0.0		
07:30 Volume	1	0	11	0	12	0	273	2	0	275	0	0	0	0	0	2	181	0	0	183	470
Peak Factor																					
High Int. Volume	07:45 AM					07:30 AM					08:15 AM										
Peak Factor	2	0	12	0	14	0	273	2	0	275	0	0	0	0	0	11	200	0	0	211	0.915
						0.85					0.84					0.88					4
						7					2										



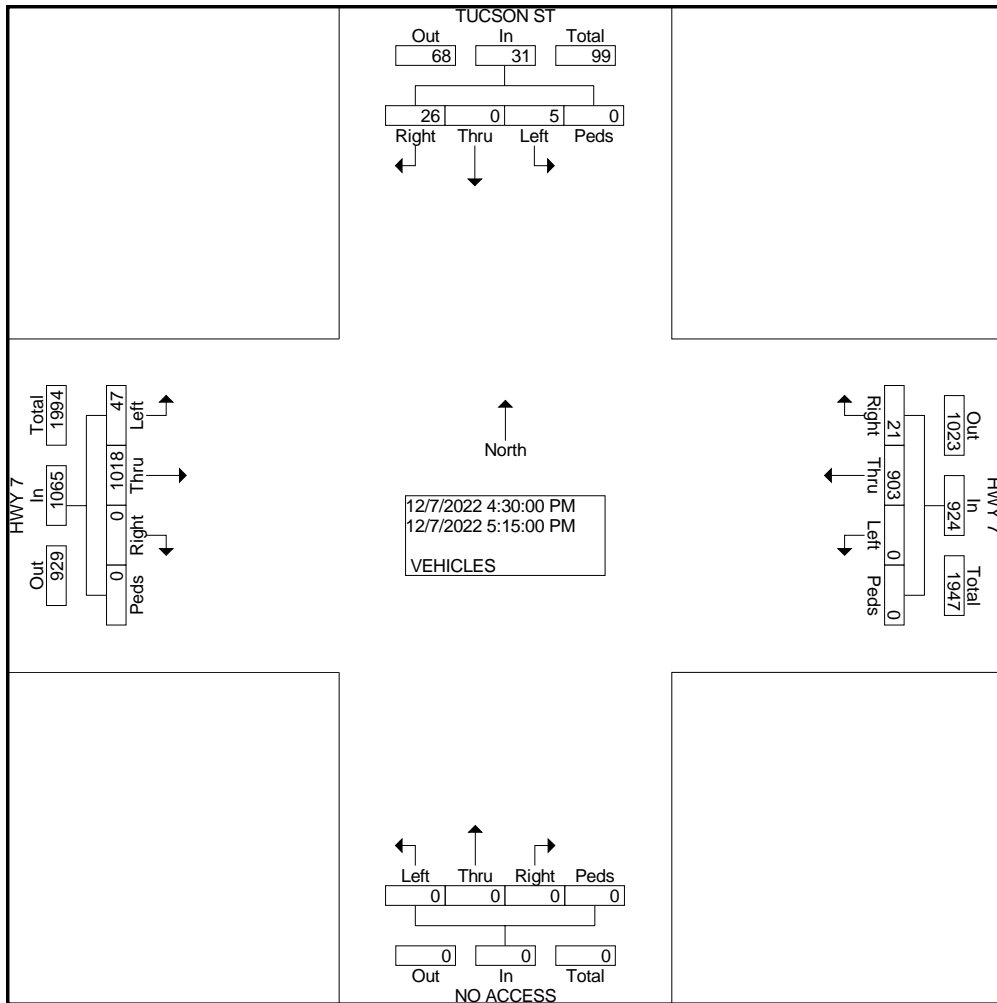
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: TUCSON ST  
E/W STREET: HWY 7  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : TUCSONHWY7  
Site Code : 0000052  
Start Date : 12/7/2022  
Page No : 3

Start Time	TUCSON ST Southbound					HWY 7 Westbound					NO ACCESS Northbound					HWY 7 Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersecti on	04:30 PM																				
Volume	5	0	26	0	31	0	903	21	0	924	0	0	0	0	0	47	1018	0	0	1065	2020
Percent	16.1	0.0	83.9	0.0		0.0	97.7	2.3	0.0		0.0	0.0	0.0	0.0		4.4	95.6	0.0	0.0		
05:15 Volume	2	0	8	0	10	0	244	6	0	250	0	0	0	0	0	13	253	0	0	266	526
Peak Factor																					
High Int. Volume	05:15 PM					05:15 PM					04:45 PM										
Peak Factor	2	0	8	0	10	0	244	6	0	250	0	0	0	0	0	12	258	0	0	270	0.960
						0.77					0.92					0.98					
	5					4					6										



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: TUCSON ST  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : TUCS168TH  
Site Code : 0000013  
Start Date : 2/9/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	NO ACCESS Southbound			E. 168TH AVE Westbound			TUCSON ST Northbound			E. 168TH AVE Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:00 AM	0	0	0	3	37	0	0	0	4	0	15	1	60
06:15 AM	0	0	0	5	54	0	0	0	7	0	11	1	78
06:30 AM	0	0	0	7	47	0	0	0	5	0	33	0	92
06:45 AM	0	0	0	8	40	0	1	0	4	0	22	2	77
Total	0	0	0	23	178	0	1	0	20	0	81	4	307
07:00 AM	0	0	0	5	59	0	2	0	4	0	31	1	102
07:15 AM	0	0	0	5	64	0	1	0	0	0	26	1	97
07:30 AM	0	0	0	18	54	0	1	0	7	0	27	0	107
07:45 AM	0	0	0	14	48	0	4	0	6	0	31	0	103
Total	0	0	0	42	225	0	8	0	17	0	115	2	409
08:00 AM	0	0	0	11	36	0	1	0	12	0	28	1	89
08:15 AM	0	0	0	6	45	0	1	0	13	0	32	0	97
Total	0	0	0	17	81	0	2	0	25	0	60	1	186
04:00 PM	0	0	0	10	35	0	1	0	5	0	63	1	115
04:15 PM	0	0	0	5	41	0	2	0	7	0	43	2	100
04:30 PM	0	0	0	8	39	0	4	0	9	0	58	2	120
04:45 PM	0	0	0	5	35	0	1	0	10	0	52	0	103
Total	0	0	0	28	150	0	8	0	31	0	216	5	438
05:00 PM	0	0	0	0	35	0	4	0	10	0	61	1	111
05:15 PM	0	0	0	3	48	0	1	0	6	0	56	3	117
05:30 PM	0	0	0	5	37	0	2	0	11	0	41	2	98
05:45 PM	0	0	0	6	35	0	0	0	0	0	55	2	98
Total	0	0	0	14	155	0	7	0	27	0	213	8	424
Grand Total	0	0	0	124	789	0	26	0	120	0	685	20	1764
Apprch %	0.0	0.0	0.0	13.6	86.4	0.0	17.8	0.0	82.2	0.0	97.2	2.8	
Total %	0.0	0.0	0.0	7.0	44.7	0.0	1.5	0.0	6.8	0.0	38.8	1.1	

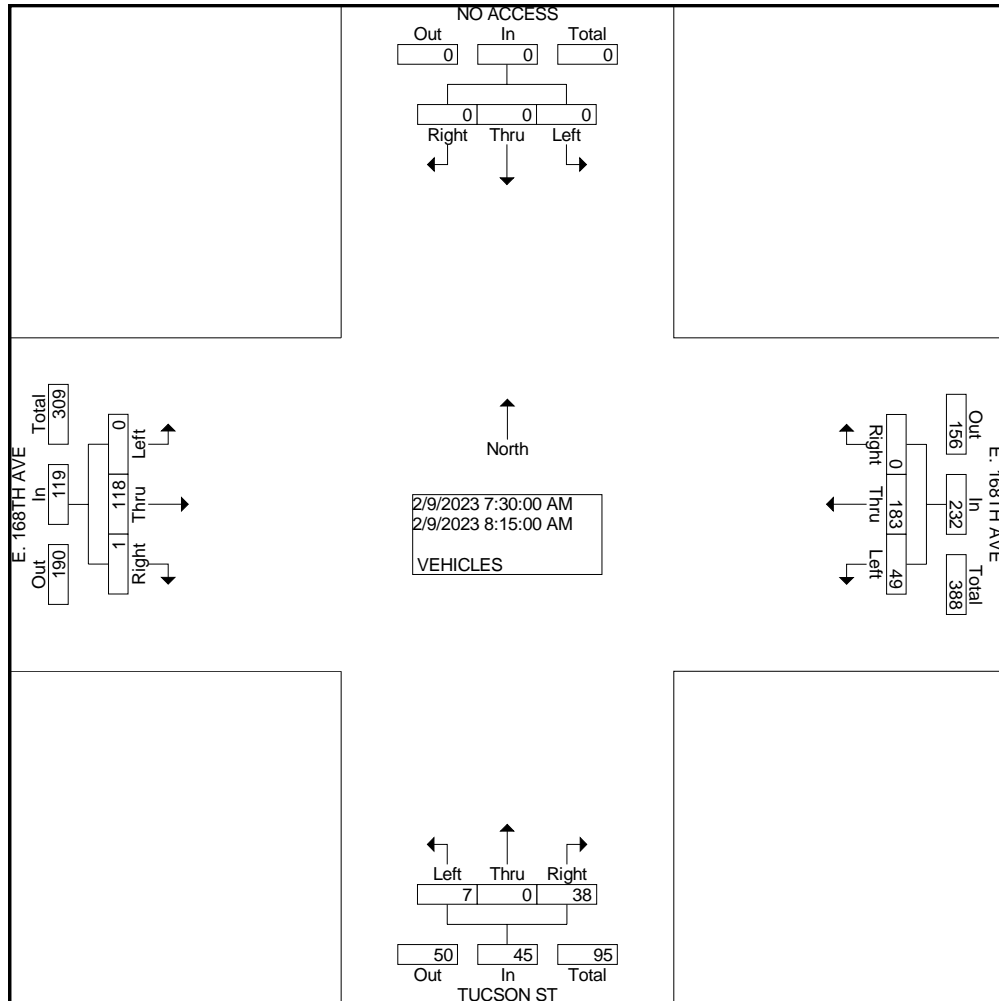
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: TUCSON ST  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : TUCS168TH  
Site Code : 0000013  
Start Date : 2/9/2023  
Page No : 2

Start Time	NO ACCESS Southbound				E. 168TH AVE Westbound				TUCSON ST Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Intersection 07:30 AM																	
Volume	0	0	0	0	49	183	0	232	7	0	38	45	0	118	1	119	396
Percent	0.0	0.0	0.0		21.1	78.9	0.0		15.6	0.0	84.4		0.0	99.2	0.8		
07:30 Volume	0	0	0	0	18	54	0	72	1	0	7	8	0	27	0	27	107
Peak Factor	0.925																
High Int.																	
08:15 Volume	0	0	0	0	18	54	0	72	1	0	13	14	0	32	0	32	
Peak Factor					0.806				0.804				0.930				



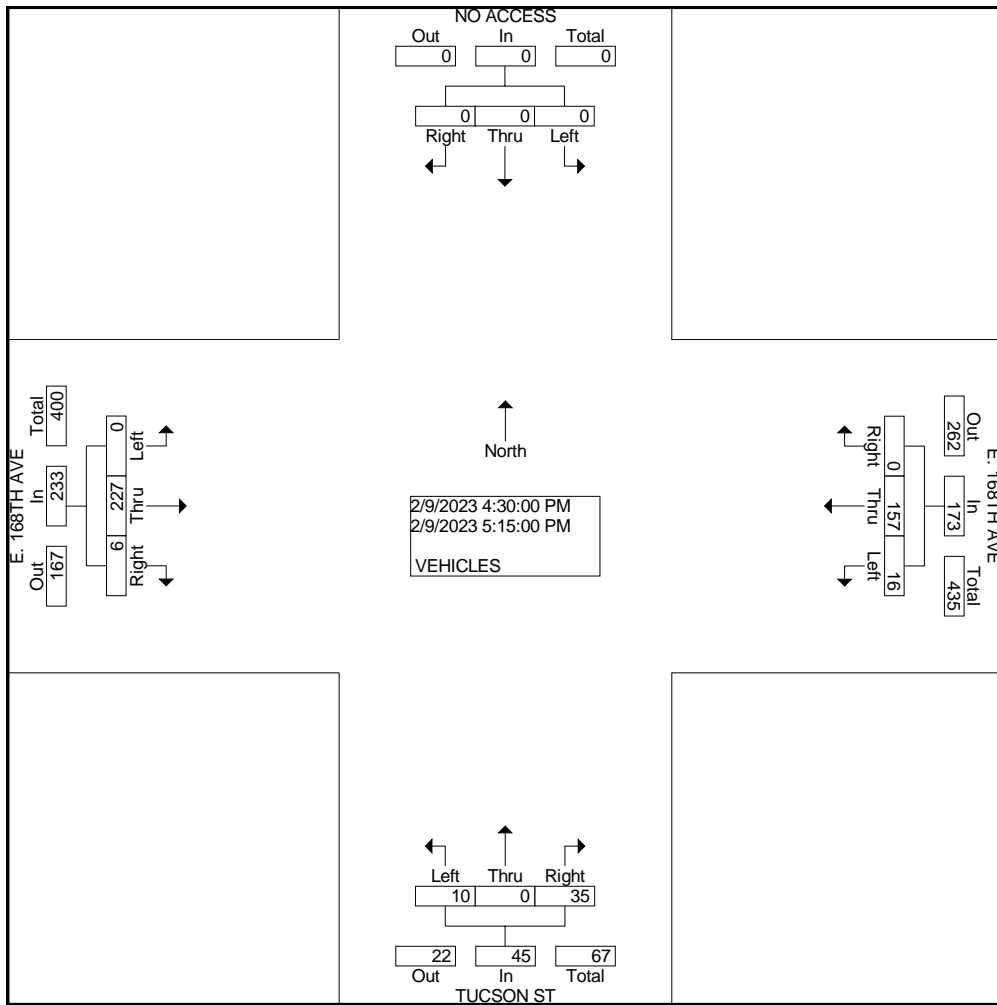
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: TUCSON ST  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : TUCS168TH  
Site Code : 0000013  
Start Date : 2/9/2023  
Page No : 3

Start Time	NO ACCESS Southbound				E. 168TH AVE Westbound				TUCSON ST Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	0	0	0	16	157	0	173	10	0	35	45	0	227	6	233	451
Percent	0.0	0.0	0.0	0.0	9.2	90.8	0.0		22.2	0.0	77.8		0.0	97.4	2.6		
04:30 Volume	0	0	0	0	8	39	0	47	4	0	9	13	0	58	2	60	120
Peak Factor High Int.	05:15 PM																
Volume	0	0	0	0	3	48	0	51	4	0	10	14	0	61	1	62	0.940
Peak Factor	05:00 PM																
								0.848				0.804				0.940	



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 160TH AVE (HWY 7)  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE160TH  
Site Code : 00000025  
Start Date : 1/24/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	YOSEMITE ST Southbound				E. 160TH AVE Westbound				YOSEMITE ST Northbound				E. 160TH AVE Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	1	1	4	0	1	184	1	0	10	1	6	0	1	86	5	0	301
06:45 AM	2	2	5	0	5	158	1	0	5	2	7	0	2	88	1	0	278
Total	3	3	9	0	6	342	2	0	15	3	13	0	3	174	6	0	579
07:00 AM	0	1	4	0	5	196	2	0	14	1	11	0	3	113	6	0	356
07:15 AM	5	3	11	1	2	209	3	0	19	0	4	0	1	118	7	0	383
07:30 AM	3	1	11	0	5	258	1	0	12	3	7	0	1	123	1	0	426
07:45 AM	3	4	1	0	5	172	3	0	10	3	14	0	5	112	4	0	336
Total	11	9	27	1	17	835	9	0	55	7	36	0	10	466	18	0	1501
08:00 AM	6	2	5	0	8	179	2	0	7	3	10	0	7	112	5	0	346
08:15 AM	4	0	1	0	8	195	1	0	8	0	10	0	1	117	9	0	354
Total	10	2	6	0	16	374	3	0	15	3	20	0	8	229	14	0	700
04:00 PM	5	4	1	0	10	143	3	0	3	1	8	0	5	198	12	0	393
04:15 PM	1	3	1	0	15	143	4	0	9	0	3	0	2	190	8	0	379
04:30 PM	2	3	1	0	15	157	2	0	11	1	10	0	9	199	16	0	426
04:45 PM	1	2	5	0	9	150	5	0	11	6	7	0	8	207	15	0	426
Total	9	12	8	0	49	593	14	0	34	8	28	0	24	794	51	0	1624
05:00 PM	3	1	3	0	7	179	1	0	10	3	8	0	2	220	4	0	441
05:15 PM	3	3	6	0	4	159	3	0	4	1	9	0	6	214	11	0	423
05:30 PM	2	1	2	0	10	141	1	0	11	1	12	0	5	194	12	0	392
05:45 PM	1	2	1	0	7	119	7	1	2	0	1	0	5	172	9	0	327
Total	9	7	12	0	28	598	12	1	27	5	30	0	18	800	36	0	1583
Grand Total	42	33	62	1	116	2742	40	1	146	26	127	0	63	2463	125	0	5987
Apprch %	30.4	23.9	44.9	0.7	4.0	94.6	1.4	0.0	48.8	8.7	42.5	0.0	2.4	92.9	4.7	0.0	
Total %	0.7	0.6	1.0	0.0	1.9	45.8	0.7	0.0	2.4	0.4	2.1	0.0	1.1	41.1	2.1	0.0	

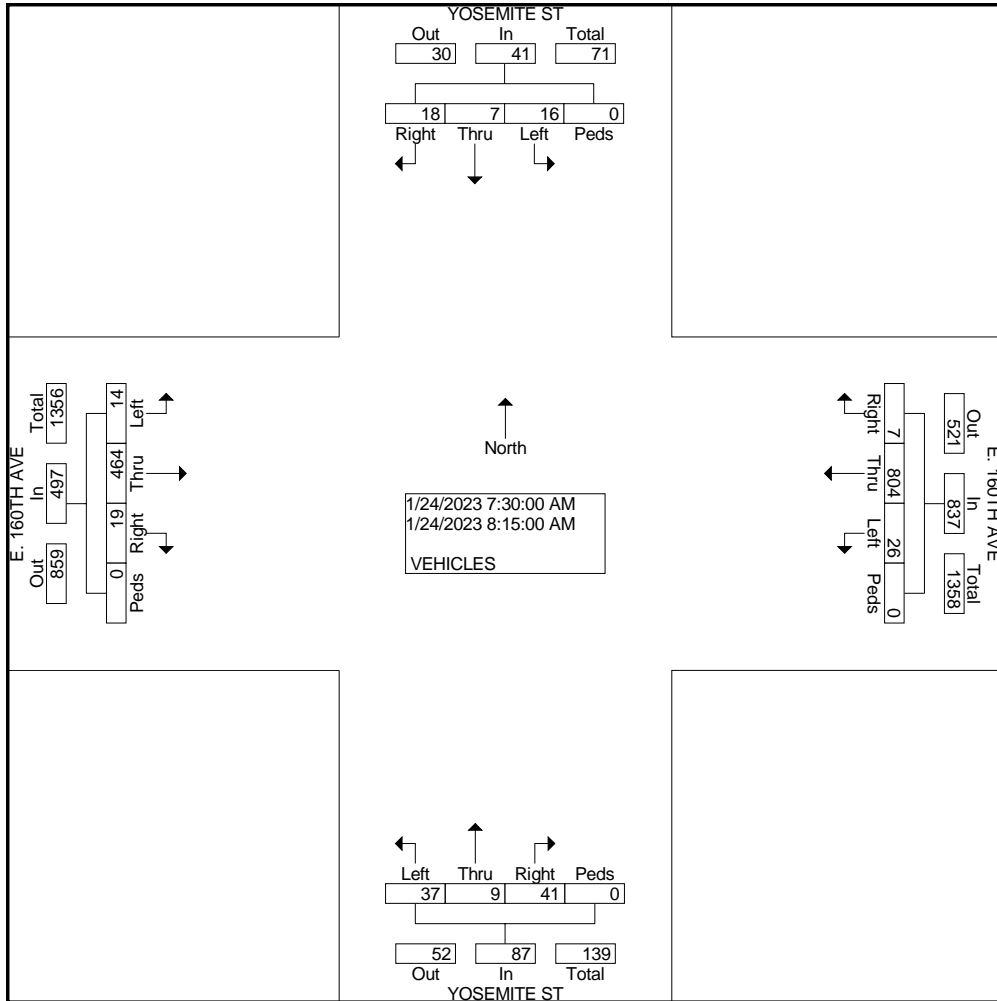
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 160TH AVE (HWY 7)  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE160TH  
Site Code : 0000025  
Start Date : 1/24/2023  
Page No : 2

Start Time	YOSEMITE ST Southbound					E. 160TH AVE Westbound					YOSEMITE ST Northbound					E. 160TH AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	16	7	18	0	41	26	804	7	0	837	37	9	41	0	87	14	464	19	0	497	1462
Percent	39.0	17.1	43.9	0.0		3.1	96.1	0.8	0.0		42.5	10.3	47.1	0.0		2.8	93.4	3.8	0.0		
07:30 Volume	3	1	11	0	15	5	258	1	0	264	12	3	7	0	22	1	123	1	0	125	426
Peak Factor																					
High Int. Volume	07:30 AM					07:30 AM					07:45 AM					08:15 AM					
Peak Factor																					0.858
	3	1	11	0	15	5	258	1	0	264	10	3	14	0	27	1	117	9	0	127	127
	0.68					0.79					0.80					0.97					8
	3					3					6					8					





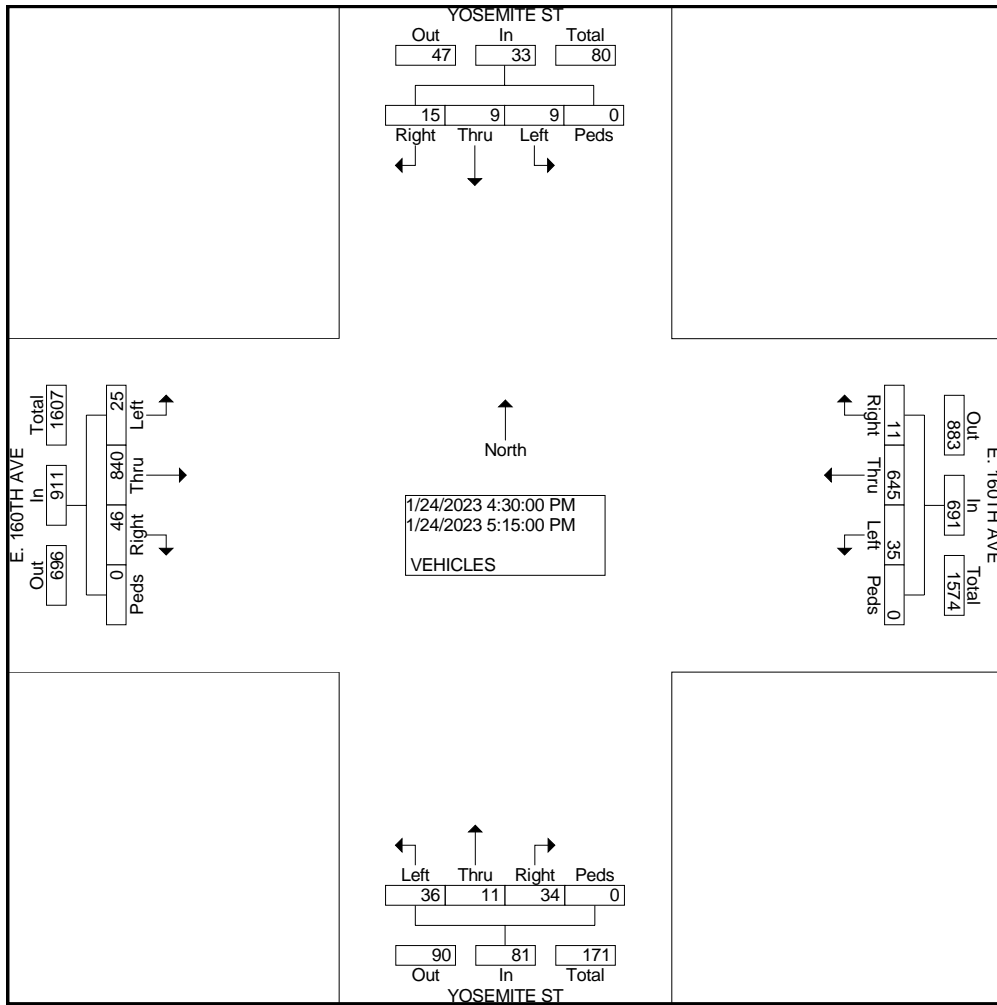
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 160TH AVE (HWY 7)  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE160TH  
Site Code : 0000025  
Start Date : 1/24/2023  
Page No : 3

Start Time	YOSEMITE ST Southbound					E. 160TH AVE Westbound					YOSEMITE ST Northbound					E. 160TH AVE Eastbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																						
Intersect on	04:30 PM																					
Volume	9	9	15	0	33	35	645	11	0	691	36	11	34	0	81	25	840	46	0	911	1716	
Percent	27.3	27.3	45.5	0.0		5.1	93.3	1.6	0.0		44.4	13.6	42.0	0.0		2.7	92.2	5.0	0.0			
05:00 Volume	3	1	3	0	7	7	179	1	0	187	10	3	8	0	21	2	220	4	0	226	441	
Peak Factor																						0.973
High Int.	05:15 PM																					
Volume	3	3	6	0	12	7	179	1	0	187	11	6	7	0	24	6	214	11	0	231		
Peak Factor	0.688										0.924					0.846						



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 162ND AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE162ND  
Site Code : 00000008  
Start Date : 1/26/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	YOSEMITE ST Southbound				PRIVATE DRIVE Westbound				YOSEMITE ST Northbound				E. 162ND AVE Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
06:30 AM	0	1	0	0	0	0	0	0	1	1	0	0	0	0	3	0	6
06:45 AM	0	1	0	0	0	0	0	0	1	2	0	0	0	0	2	0	6
Total	0	2	0	0	0	0	0	0	2	3	0	0	0	0	5	0	12
07:00 AM	0	3	0	0	0	0	0	0	0	3	0	0	0	0	3	0	9
07:15 AM	0	4	0	0	0	0	0	0	3	2	0	0	2	0	10	0	21
07:30 AM	0	1	0	0	1	0	0	0	2	5	0	0	0	1	14	0	24
07:45 AM	0	6	0	0	0	0	0	0	0	3	0	0	0	0	5	1	15
Total	0	14	0	0	1	0	0	0	5	13	0	0	2	1	32	1	69
08:00 AM	0	2	0	0	0	0	0	0	6	1	0	0	0	0	5	0	14
08:15 AM	0	4	0	0	0	0	0	0	3	5	0	0	0	0	3	0	15
Total	0	6	0	0	0	0	0	0	9	6	0	0	0	0	8	0	29
04:00 PM	0	3	0	0	0	0	0	0	6	3	0	2	0	0	3	0	17
04:15 PM	0	4	0	0	0	0	0	0	4	4	0	0	0	0	4	0	16
04:30 PM	0	6	1	0	0	0	0	0	5	6	0	0	0	0	3	0	21
04:45 PM	0	4	0	0	0	0	0	0	3	5	0	0	0	0	1	0	13
Total	0	17	1	0	0	0	0	0	18	18	0	2	0	0	11	0	67
05:00 PM	0	6	0	0	0	0	0	0	9	2	0	0	0	0	5	0	22
05:15 PM	0	8	0	0	0	0	0	0	7	2	0	0	1	0	5	0	23
05:30 PM	0	3	0	0	0	0	0	0	1	2	0	1	0	0	5	1	13
05:45 PM	0	2	0	0	0	0	0	0	2	3	0	0	0	0	0	0	7
Total	0	19	0	0	0	0	0	0	19	9	0	1	1	0	15	1	65
Grand Total	0	58	1	0	1	0	0	0	53	49	0	3	3	1	71	2	242
Apprch %	0.0	98.3	1.7	0.0	100.0	0.0	0.0	0.0	50.5	46.7	0.0	2.9	3.9	1.3	92.2	2.6	
Total %	0.0	24.0	0.4	0.0	0.4	0.0	0.0	0.0	21.9	20.2	0.0	1.2	1.2	0.4	29.3	0.8	

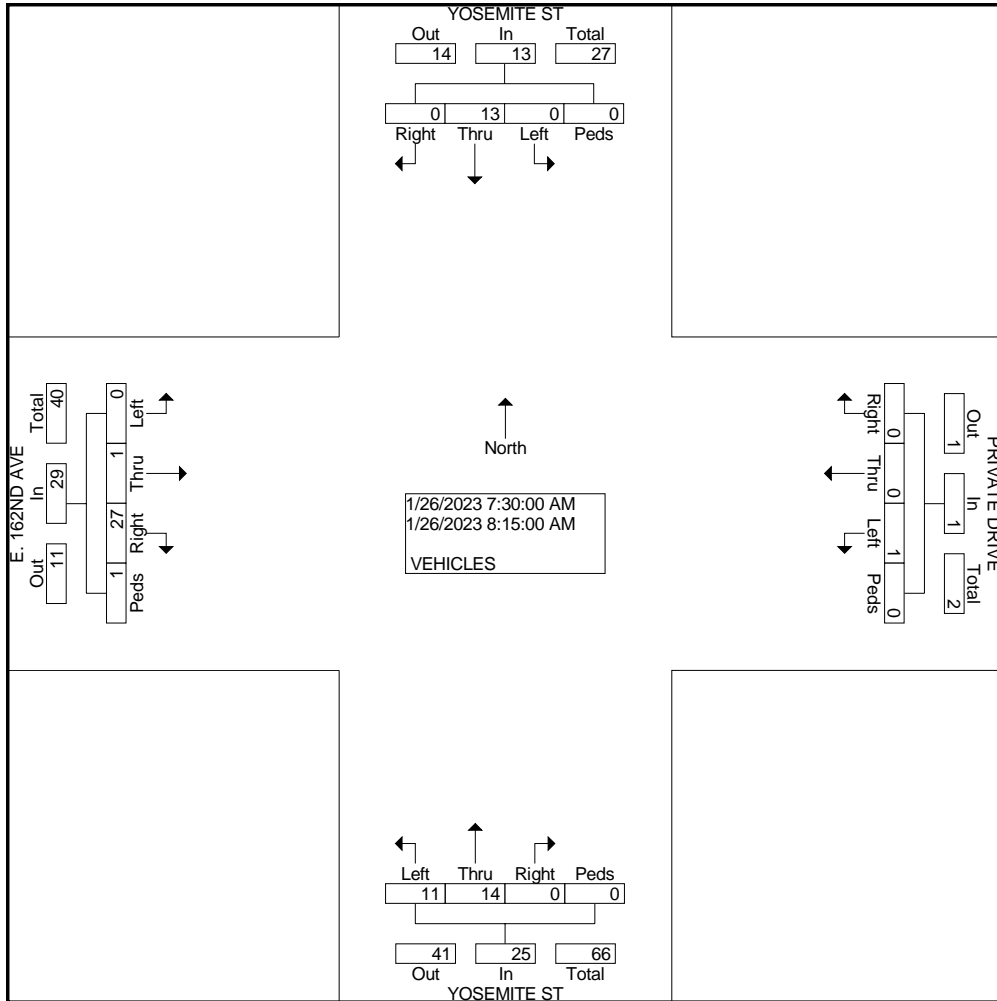
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 162ND AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE162ND  
Site Code : 00000008  
Start Date : 1/26/2023  
Page No : 2

Start Time	YOSEMITE ST Southbound					PRIVATE DRIVE Westbound					YOSEMITE ST Northbound					E. 162ND AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	0	13	0	0	13	1	0	0	0	1	11	14	0	0	25	0	1	27	1	29	68
Percent	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		44.0	56.0	0.0	0.0		0.0	3.4	93.1	3.4		
07:30 Volume Peak Factor	0	1	0	0	1	1	0	0	0	1	2	5	0	0	7	0	1	14	0	15	24
High Int. Factor	0.708																				
07:45 AM	07:30 AM																				
Volume	0	6	0	0	6	1	0	0	0	1	3	5	0	0	8	0	1	14	0	15	15
Peak Factor	0.54					0.25					0.78					0.48					3



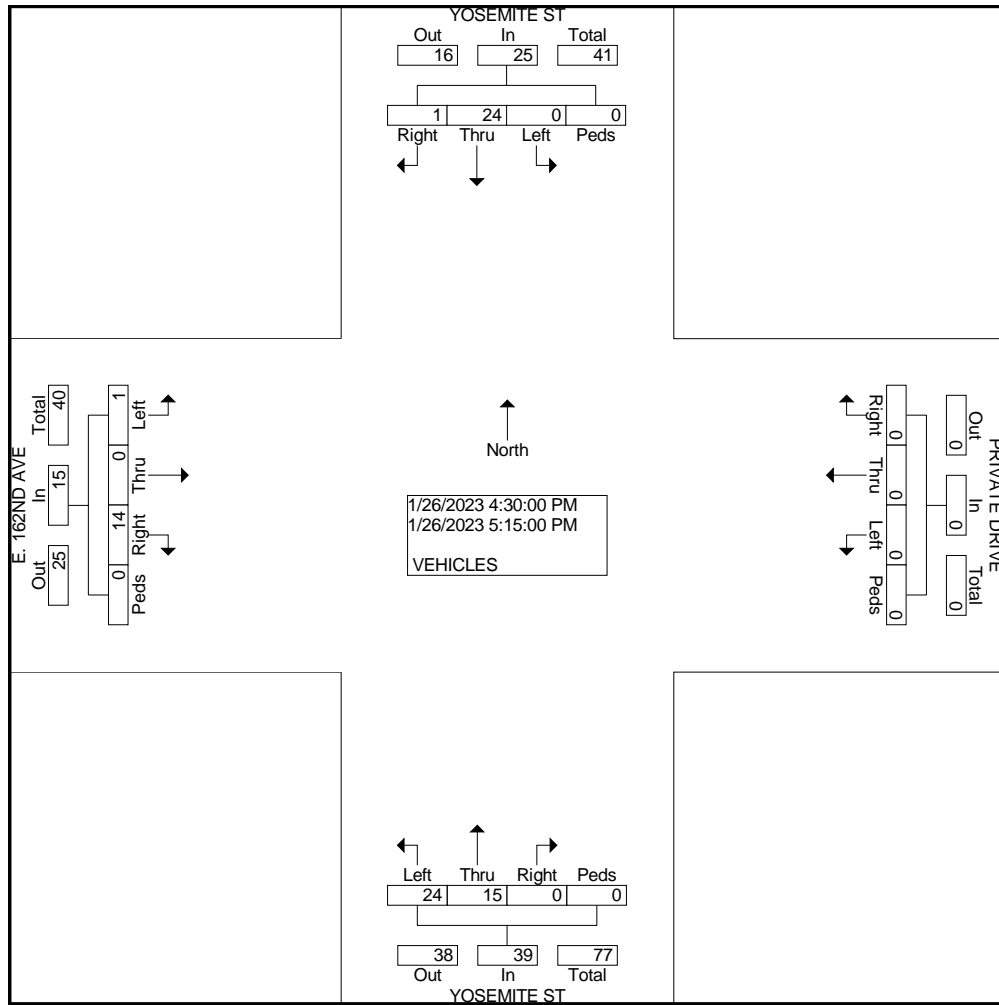
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 162ND AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE162ND  
Site Code : 00000008  
Start Date : 1/26/2023  
Page No : 3

Start Time	YOSEMITE ST Southbound					PRIVATE DRIVE Westbound					YOSEMITE ST Northbound					E. 162ND AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersect on	04:30 PM																				
Volume	0	24	1	0	25	0	0	0	0	0	24	15	0	0	39	1	0	14	0	15	79
Percent	0.0	96.0	4.0	0.0		0.0	0.0	0.0	0.0		61.5	38.5	0.0	0.0		6.7	0.0	93.3	0.0		
05:15	05:15 PM																				
Volume	0	8	0	0	8	0	0	0	0	0	7	2	0	0	9	1	0	5	0	6	23
Peak Factor	0.859																				
High Int.	04:30 PM																				
Volume	0	8	0	0	8	0	0	0	0	0	5	6	0	0	11	1	0	5	0	6	6
Peak Factor	0.78										0.88					0.62					5



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 163RD AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE163RD  
Site Code : 00000005  
Start Date : 1/26/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	YOSEMITE ST Southbound			NO ACCESS Westbound			YOSEMITE ST Northbound			E. 163RD AVE Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	1	0	0	0	0	0	1	0	0	0	1	3
06:45 AM	0	1	0	0	0	0	0	2	0	0	0	0	3
Total	0	2	0	0	0	0	0	3	0	0	0	1	6
07:00 AM	0	2	1	0	0	0	1	3	0	0	0	2	9
07:15 AM	0	4	0	0	0	0	1	1	0	1	0	0	7
07:30 AM	0	2	0	0	0	0	0	3	0	0	0	1	6
07:45 AM	0	5	0	0	0	0	1	1	0	0	0	3	10
Total	0	13	1	0	0	0	3	8	0	1	0	6	32
08:00 AM	0	2	0	0	0	0	2	1	0	1	0	1	7
08:15 AM	0	4	0	0	0	0	0	0	0	0	0	0	4
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	6	0	0	0	0	2	1	0	1	0	2	12
04:00 PM	0	3	0	0	0	0	1	3	0	0	0	1	8
04:15 PM	0	3	1	0	0	0	1	4	0	0	0	1	10
04:30 PM	0	6	0	0	0	0	0	6	0	0	0	0	12
04:45 PM	0	4	2	0	0	0	2	5	0	0	0	2	15
Total	0	16	3	0	0	0	4	18	0	0	0	4	45
05:00 PM	0	5	1	0	0	0	2	3	0	0	0	0	11
05:15 PM	0	8	0	0	0	0	1	2	0	0	0	1	12
05:30 PM	0	3	1	0	0	0	1	2	0	0	0	1	8
05:45 PM	0	2	1	0	0	0	0	3	0	0	0	2	8
Total	0	18	3	0	0	0	4	10	0	0	0	4	39
Grand Total	0	55	7	0	0	0	13	40	0	2	0	17	134
Apprch %	0.0	88.7	11.3	0.0	0.0	0.0	24.5	75.5	0.0	10.5	0.0	89.5	
Total %	0.0	41.0	5.2	0.0	0.0	0.0	9.7	29.9	0.0	1.5	0.0	12.7	

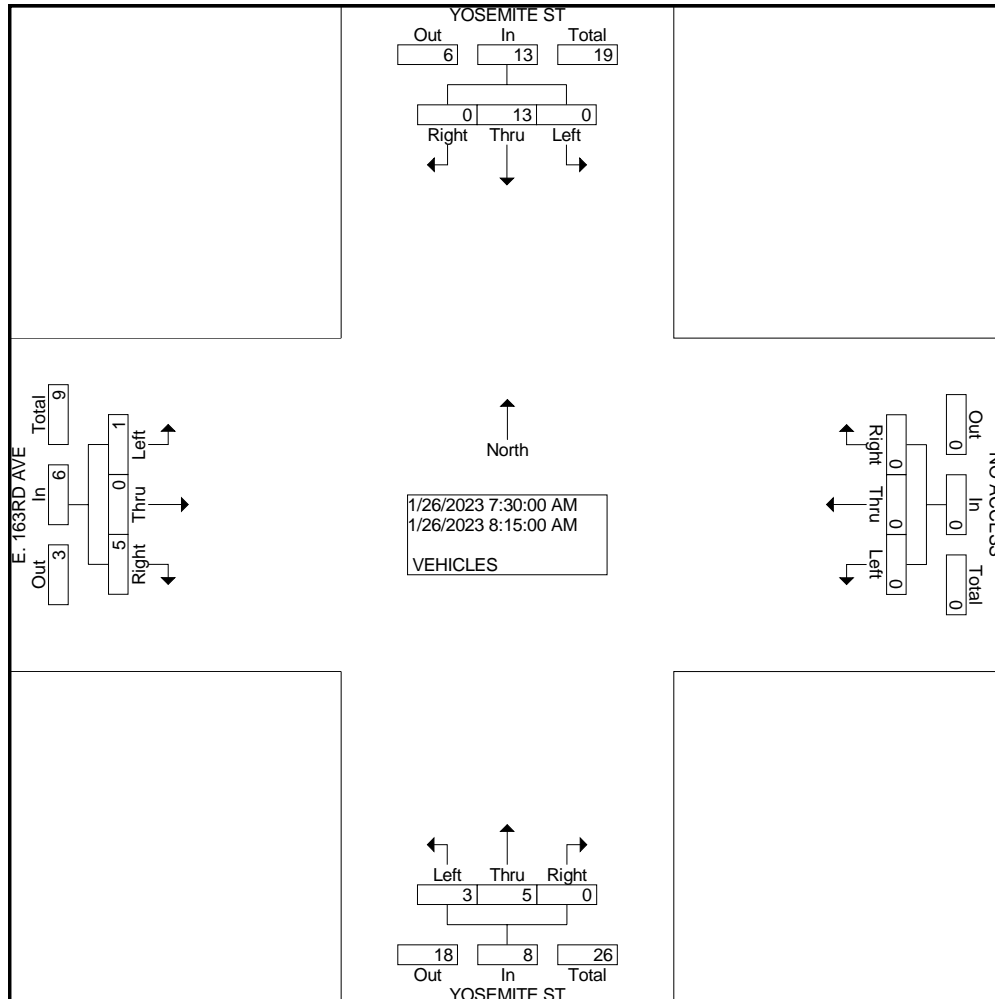
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 163RD AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE163RD  
Site Code : 00000005  
Start Date : 1/26/2023  
Page No : 2

Start Time	YOSEMITE ST Southbound				NO ACCESS Westbound				YOSEMITE ST Northbound				E. 163RD AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	0	13	0	13	0	0	0	0	3	5	0	8	1	0	5	6	27
Percent	0.0	100.0	0.0		0.0	0.0	0.0		37.5	62.5	0.0		16.7	0.0	83.3		
07:45 Volume	0	5	0	5	0	0	0	0	1	1	0	2	0	0	3	3	10
Peak Factor	0.675																
High Int.	07:45 AM																
Volume	0	5	0	5	0	0	0	0	0	3	0	3	0	0	3	3	
Peak Factor	0.650								0.667				0.500				



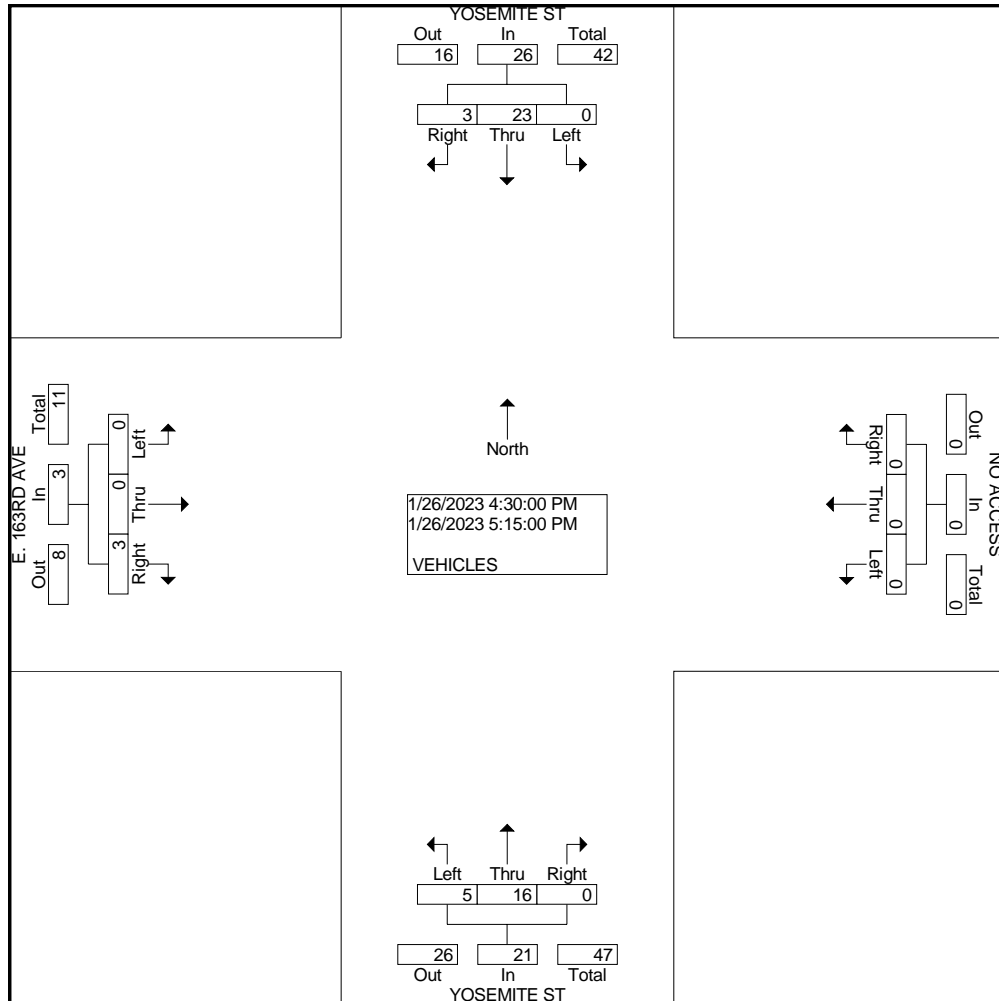
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 163RD AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE163RD  
Site Code : 00000005  
Start Date : 1/26/2023  
Page No : 3

Start Time	YOSEMITE ST Southbound				NO ACCESS Westbound				YOSEMITE ST Northbound				E. 163RD AVE Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	23	3	26	0	0	0	0	5	16	0	21	0	0	3	3	50
Percent	0.0	88.5	11.5		0.0	0.0	0.0		23.8	76.2	0.0		0.0	0.0	100.0		
04:45 Volume	0	4	2	6	0	0	0	0	2	5	0	7	0	0	2	2	15
Peak Factor	0.833																
High Int.	05:15 PM																
Volume	0	8	0	8	0	0	0	0	2	5	0	7	0	0	2	2	
Peak Factor	0.813								0.750				0.375				



**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE168TH  
Site Code : 0000011  
Start Date : 1/26/2023  
Page No : 1

Groups Printed- VEHICLES

Start Time	NO ACCESS Southbound				E. 168TH AVE Westbound				YOSEMITE ST Northbound				E. 168TH AVE Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	1	35	0	0	1	0	0	0	0	25	0	0	62
06:45 AM	0	0	0	0	1	50	0	0	2	0	1	0	0	20	1	0	75
Total	0	0	0	0	2	85	0	0	3	0	1	0	0	45	1	0	137
07:00 AM	0	0	0	0	0	64	0	0	3	0	0	0	0	23	0	0	90
07:15 AM	0	0	0	0	0	63	0	0	3	0	0	0	0	28	0	0	94
07:30 AM	0	0	0	0	0	55	0	0	5	0	0	0	0	29	0	0	89
07:45 AM	0	0	0	0	1	49	0	0	2	0	0	0	0	22	2	0	76
Total	0	0	0	0	1	231	0	0	13	0	0	0	0	102	2	0	349
08:00 AM	0	0	0	0	0	41	0	0	2	0	0	0	0	32	1	0	76
08:15 AM	0	0	0	0	1	42	0	0	1	0	1	0	0	18	2	0	65
Total	0	0	0	0	1	83	0	0	3	0	1	0	0	50	3	0	141
04:00 PM	0	0	0	0	0	34	0	0	4	0	0	0	0	64	3	0	105
04:15 PM	0	0	0	0	2	35	0	0	3	0	0	0	0	59	0	0	99
04:30 PM	0	0	0	0	0	37	0	0	3	0	1	0	0	54	5	0	100
04:45 PM	0	0	0	0	1	45	0	0	3	0	1	0	0	58	4	0	112
Total	0	0	0	0	3	151	0	0	13	0	2	0	0	235	12	0	416
05:00 PM	0	0	0	0	0	34	0	0	1	0	0	0	0	72	3	0	110
05:15 PM	0	0	0	0	1	32	1	0	2	0	1	0	0	45	4	0	86
05:30 PM	0	0	0	0	1	41	0	0	1	0	1	0	0	63	2	0	109
05:45 PM	0	0	0	0	1	23	0	0	0	0	1	0	0	47	1	0	73
Total	0	0	0	0	3	130	1	0	4	0	3	0	0	227	10	0	378
Grand Total	0	0	0	0	10	680	1	0	36	0	7	0	0	659	28	0	1421
Apprch %	0.0	0.0	0.0	0.0	1.4	98.4	0.1	0.0	83.7	0.0	16.3	0.0	0.0	95.9	4.1	0.0	
Total %	0.0	0.0	0.0	0.0	0.7	47.9	0.1	0.0	2.5	0.0	0.5	0.0	0.0	46.4	2.0	0.0	



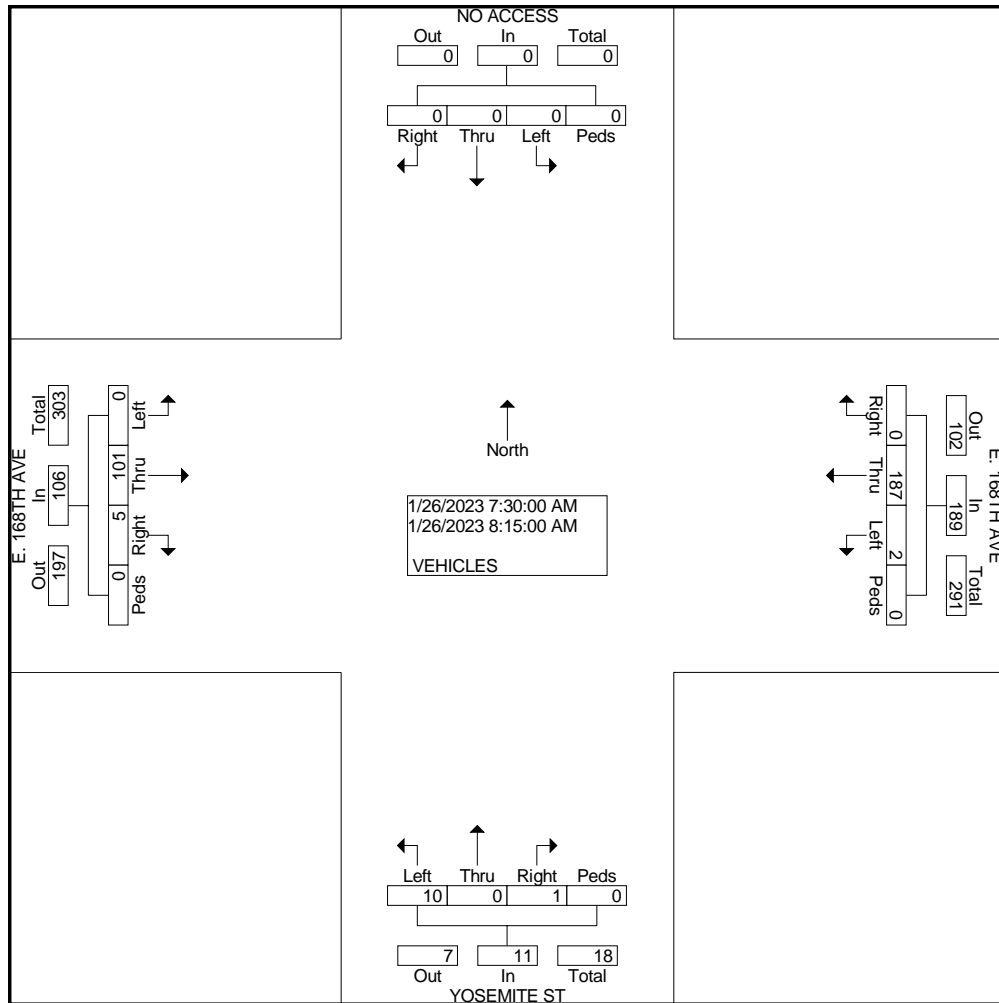
**COUNTER MEASURES INC.**

1889 YORK STREET  
DENVER.COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE168TH  
Site Code : 0000011  
Start Date : 1/26/2023  
Page No : 2

Start Time	NO ACCESS Southbound					E. 168TH AVE Westbound					YOSEMITE ST Northbound					E. 168TH AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection 07:30 AM																					
Volume	0	0	0	0	0	2	187	0	0	189	10	0	1	0	11	0	101	5	0	106	306
Percent	0.0	0.0	0.0	0.0		1.1	98.9	0.0	0.0		90.9	0.0	9.1	0.0		0.0	95.3	4.7	0.0		
07:30 Volume	0	0	0	0	0	0	55	0	0	55	5	0	0	0	5	0	29	0	0	29	89
Peak Factor																					0.860
High Int. Volume																					
Peak Factor																					
	0	0	0	0	0	07:30 AM 0	55	0	0	55	07:30 AM 5	0	0	0	5	08:00 AM 0	32	1	0	33	33
																					0.803



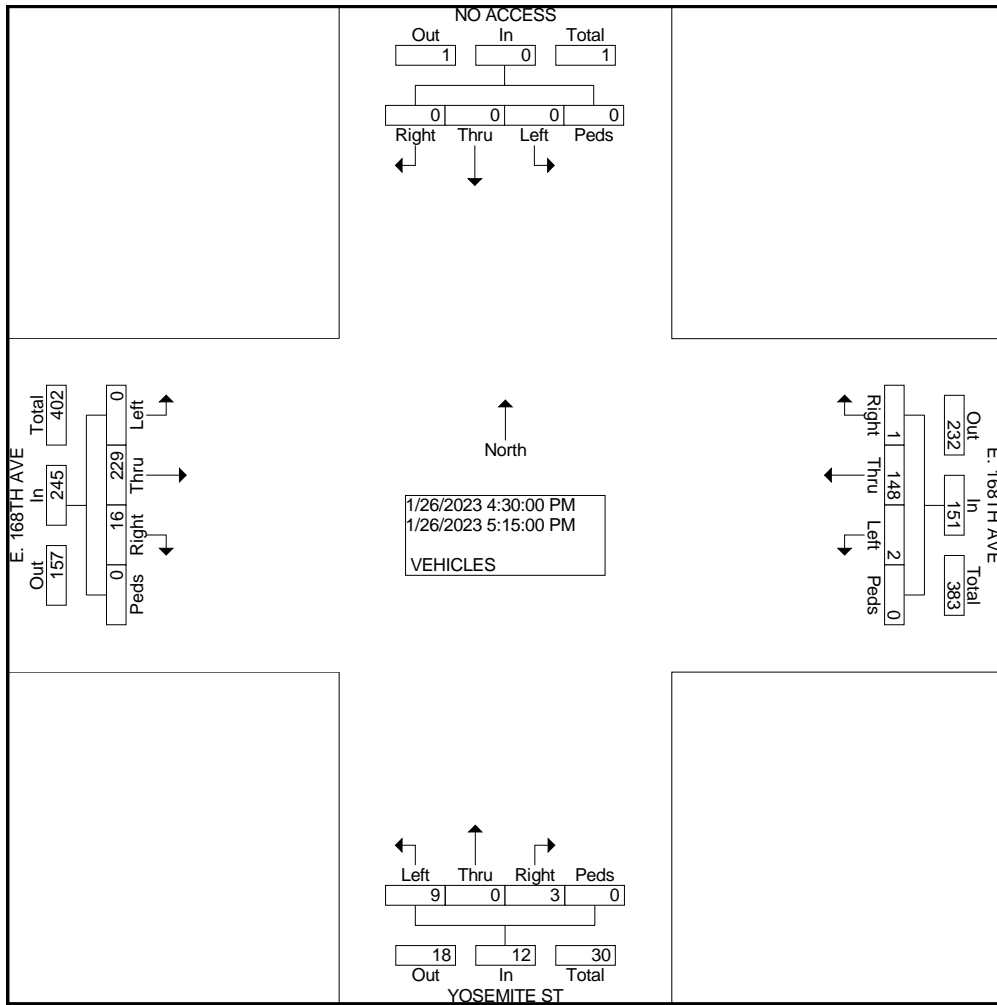
### COUNTER MEASURES INC.

1889 YORK STREET  
DENVER, COLORADO  
303-333-7409

N/S STREET: YOSEMITE ST  
E/W STREET: E. 168TH AVE  
CITY: BRIGHTON  
COUNTY: ADAMS

File Name : YOSE168TH  
Site Code : 0000011  
Start Date : 1/26/2023  
Page No : 3

Start Time	NO ACCESS Southbound					E. 168TH AVE Westbound					YOSEMITE ST Northbound					E. 168TH AVE Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersect on	04:30 PM																				
Volume	0	0	0	0	0	2	148	1	0	151	9	0	3	0	12	0	229	16	0	245	408
Percent	0.0	0.0	0.0	0.0		1.3	98.0	0.7	0.0		75.0	0.0	25.0	0.0		0.0	93.5	6.5	0.0		
04:45 Volume	0	0	0	0	0	1	45	0	0	46	3	0	1	0	4	0	58	4	0	62	112
Peak Factor																					
High Int.																					
Volume	04:45 PM					04:30 PM					05:00 PM										
Peak Factor	0	0	0	0	0	1	45	0	0	46	3	0	1	0	4	0	72	3	0	75	
						0.82					0.75										
						1					0										
											0										
											7										



**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: TUCSON ST N-O HWY7  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232820  
 Station ID: 232820

Start Time	28-Mar-23 Tue	NORTH	SOUTH							Total
12:00 AM		*	*							*
01:00		*	*							*
02:00		*	*							*
03:00		*	*							*
04:00		*	*							*
05:00		*	*							*
06:00		*	*							*
07:00		*	*							*
08:00		*	*							*
09:00		*	*							*
10:00		*	*							*
11:00		<b>21</b>	<b>26</b>							<b>47</b>
12:00 PM		19	31							50
01:00		21	24							45
02:00		23	23							46
03:00		37	21							58
04:00		51	30							81
05:00		<b>80</b>	<b>41</b>							<b>121</b>
06:00		61	35							96
07:00		41	26							67
08:00		25	19							44
09:00		21	14							35
10:00		11	9							20
11:00		6	5							11
Total		417	304							721
Percent		57.8%	42.2%							
AM Peak	-	11:00	11:00	-	-	-	-	-	-	11:00
Vol.	-	21	26	-	-	-	-	-	-	47
PM Peak	-	17:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	80	41	-	-	-	-	-	-	121

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: TUCSON ST N-O HWY7  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232820  
 Station ID: 232820

Start Time	29-Mar-23 Wed	NORTH	SOUTH							Total
12:00 AM		4	4							8
01:00		3	4							7
02:00		4	3							7
03:00		6	3							9
04:00		12	11							23
05:00		15	16							31
06:00		21	18							39
07:00		26	23							49
08:00		28	45							73
09:00		32	39							71
10:00		26	31							57
11:00		21	26							47
12:00 PM		19	33							52
01:00		21	16							37
02:00		*	*							*
03:00		*	*							*
04:00		*	*							*
05:00		*	*							*
06:00		*	*							*
07:00		*	*							*
08:00		*	*							*
09:00		*	*							*
10:00		*	*							*
11:00		*	*							*
Total		238	272							510
Percent		46.7%	53.3%							
AM Peak	-	09:00	08:00	-	-	-	-	-	-	08:00
Vol.	-	32	45	-	-	-	-	-	-	73
PM Peak	-	13:00	12:00	-	-	-	-	-	-	12:00
Vol.	-	21	33	-	-	-	-	-	-	52
Grand Total		655	576							1231
Percent		53.2%	46.8%							
ADT		ADT 1,092	AADT 1,092							

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: RIVERDALE RD S-O HWY 7  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232819  
 Station ID: 232819

Start Time	28-Mar-23 Tue	NB	SB							Total
12:00 AM		*	*							*
01:00		*	*							*
02:00		*	*							*
03:00		*	*							*
04:00		*	*							*
05:00		*	*							*
06:00		*	*							*
07:00		*	*							*
08:00		*	*							*
09:00		*	*							*
10:00		<b>131</b>	<b>128</b>							<b>259</b>
11:00		126	112							238
12:00 PM		128	121							249
01:00		119	109							228
02:00		122	101							223
03:00		121	98							219
04:00		189	145							334
05:00		<b>251</b>	<b>211</b>							<b>462</b>
06:00		231	165							396
07:00		149	120							269
08:00		121	108							229
09:00		89	77							166
10:00		43	51							94
11:00		23	41							64
Total		1843	1587							3430
Percent		53.7%	46.3%							
AM Peak	-	10:00	10:00	-	-	-	-	-	-	10:00
Vol.	-	131	128	-	-	-	-	-	-	259
PM Peak	-	17:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	251	211	-	-	-	-	-	-	462

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: RIVERDALE RD S-O HWY 7  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232819  
 Station ID: 232819

Start Time	29-Mar-23 Wed	NB	SB	Total
12:00 AM		19	32	51
01:00		16	21	37
02:00		11	13	24
03:00		10	14	24
04:00		16	21	37
05:00		19	31	50
06:00		26	40	66
07:00		47	77	124
08:00		118	231	349
09:00		142	140	282
10:00		*	*	*
11:00		*	*	*
12:00 PM		*	*	*
01:00		*	*	*
02:00		*	*	*
03:00		*	*	*
04:00		*	*	*
05:00		*	*	*
06:00		*	*	*
07:00		*	*	*
08:00		*	*	*
09:00		*	*	*
10:00		*	*	*
11:00		*	*	*
Total		424	620	1044
Percent		40.6%	59.4%	
AM Peak	-	09:00	08:00	08:00
Vol.	-	142	231	349
PM Peak	-	-	-	-
Vol.	-	-	-	-
Grand Total		2267	2207	4474
Percent		50.7%	49.3%	
ADT		ADT 3,267	AADT 3,267	

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: HAVANA ST N-O HWY 7  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232808  
 Station ID: 232808

Start Time	29-Mar-23 Wed	NB	SB							Total
12:00 AM		1	2							3
01:00		3	0							3
02:00		2	1							3
03:00		5	2							7
04:00		4	9							13
05:00		9	21							30
06:00		16	51							67
07:00		21	24							45
08:00		24	23							47
09:00		19	17							36
10:00		17	18							35
11:00		16	20							36
12:00 PM		19	14							33
01:00		20	13							33
02:00		21	19							40
03:00		37	24							61
04:00		49	24							73
05:00		48	32							80
06:00		21	24							45
07:00		19	14							33
08:00		16	9							25
09:00		12	7							19
10:00		11	5							16
11:00		9	4							13
Total		419	377							796
Percent		52.6%	47.4%							
AM Peak	-	08:00	06:00	-	-	-	-	-	-	06:00
Vol.	-	24	51	-	-	-	-	-	-	67
PM Peak	-	16:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	49	32	-	-	-	-	-	-	80

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: HAVANA ST N-O HWY 7  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232808  
 Station ID: 232808

Start Time	30-Mar-23 Thu	NB	SB							Total
12:00 AM		<b>3</b>	<b>3</b>							<b>6</b>
01:00		*	*							*
02:00		*	*							*
03:00		*	*							*
04:00		*	*							*
05:00		*	*							*
06:00		*	*							*
07:00		*	*							*
08:00		*	*							*
09:00		*	*							*
10:00		*	*							*
11:00		*	*							*
12:00 PM		*	*							*
01:00		*	*							*
02:00		*	*							*
03:00		*	*							*
04:00		*	*							*
05:00		*	*							*
06:00		*	*							*
07:00		*	*							*
08:00		*	*							*
09:00		*	*							*
10:00		*	*							*
11:00		*	*							*
Total		3	3							6
Percent		50.0%	50.0%							
AM Peak	-	00:00	00:00	-	-	-	-	-	-	00:00
Vol.	-	3	3	-	-	-	-	-	-	6
PM Peak	-	-	-	-	-	-	-	-	-	-
Vol.	-	-	-	-	-	-	-	-	-	-
Grand Total		422	380							802
Percent		52.6%	47.4%							
ADT		ADT 521	AADT 521							



**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: YOSEMITE ST N-O HWY 7  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232803  
 Station ID: 232803

Start Time	29-Mar-23 Wed	NB	SB	Total						
12:00 AM		2	3	5						
01:00		0	2	2						
02:00		0	0	0						
03:00		1	1	2						
04:00		1	2	3						
05:00		5	9	14						
06:00		9	21	30						
07:00		11	51	62						
08:00		26	24	50						
09:00		16	23	39						
10:00		12	17	29						
11:00		13	18	31						
12:00 PM		18	20	38						
01:00		13	14	27						
02:00		16	13	29						
03:00		21	19	40						
04:00		27	24	51						
05:00		48	24	72						
06:00		39	32	71						
07:00		25	24	49						
08:00		17	14	31						
09:00		11	9	20						
10:00		8	7	15						
11:00		4	5	9						
Total		343	376	719						
Percent		47.7%	52.3%							
AM Peak	-	08:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	26	51	-	-	-	-	-	-	62
PM Peak	-	17:00	18:00	-	-	-	-	-	-	17:00
Vol.	-	48	32	-	-	-	-	-	-	72

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: YOSEMITE ST N-O HWY 7  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232803  
 Station ID: 232803

Start Time	30-Mar-23 Thu	NB	SB							Total
12:00 AM		<b>3</b>	<b>4</b>							<b>7</b>
01:00		*	*							*
02:00		*	*							*
03:00		*	*							*
04:00		*	*							*
05:00		*	*							*
06:00		*	*							*
07:00		*	*							*
08:00		*	*							*
09:00		*	*							*
10:00		*	*							*
11:00		*	*							*
12:00 PM		*	*							*
01:00		*	*							*
02:00		*	*							*
03:00		*	*							*
04:00		*	*							*
05:00		*	*							*
06:00		*	*							*
07:00		*	*							*
08:00		*	*							*
09:00		*	*							*
10:00		*	*							*
11:00		*	*							*
Total		3	4							7
Percent		42.9%	57.1%							
AM Peak	-	00:00	00:00	-	-	-	-	-	-	00:00
Vol.	-	3	4	-	-	-	-	-	-	7
PM Peak	-	-	-	-	-	-	-	-	-	-
Vol.	-	-	-	-	-	-	-	-	-	-
Grand Total		346	380							726
Percent		47.7%	52.3%							
ADT		ADT 373	AADT 373							

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: YOSEMITE ST S-O 168TH AVE  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232903  
 Station ID: 232903

Start Time	29-Mar-23 Wed	NB	SB	Total						
12:00 AM		1	1	2						
01:00		0	0	0						
02:00		0	1	1						
03:00		1	1	2						
04:00		1	2	3						
05:00		4	3	7						
06:00		5	3	8						
07:00		14	4	18						
08:00		6	8	14						
09:00		5	5	10						
10:00		5	4	9						
11:00		5	4	9						
12:00 PM		5	3	8						
01:00		7	4	11						
02:00		7	5	12						
03:00		9	7	16						
04:00		12	9	21						
05:00		8	16	24						
06:00		9	12	21						
07:00		9	9	18						
08:00		7	7	14						
09:00		5	5	10						
10:00		4	5	9						
11:00		2	2	4						
Total		131	120	251						
Percent		52.2%	47.8%							
AM Peak	-	07:00	08:00	-	-	-	-	-	-	07:00
Vol.	-	14	8	-	-	-	-	-	-	18
PM Peak	-	16:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	12	16	-	-	-	-	-	-	24

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: YOSEMITE ST S-O 168TH AVE  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232903  
 Station ID: 232903

Start Time	30-Mar-23 Thu	NB	SB							Total
12:00 AM		2	2							4
01:00		*	*							*
02:00		*	*							*
03:00		*	*							*
04:00		*	*							*
05:00		*	*							*
06:00		*	*							*
07:00		*	*							*
08:00		*	*							*
09:00		*	*							*
10:00		*	*							*
11:00		*	*							*
12:00 PM		*	*							*
01:00		*	*							*
02:00		*	*							*
03:00		*	*							*
04:00		*	*							*
05:00		*	*							*
06:00		*	*							*
07:00		*	*							*
08:00		*	*							*
09:00		*	*							*
10:00		*	*							*
11:00		*	*							*
Total		2	2							4
Percent		50.0%	50.0%							
AM Peak	-	00:00	00:00	-	-	-	-	-	-	00:00
Vol.	-	2	2	-	-	-	-	-	-	4
PM Peak	-	-	-	-	-	-	-	-	-	-
Vol.	-	-	-	-	-	-	-	-	-	-
Grand Total		133	122							255
Percent		52.2%	47.8%							
ADT		ADT 293	ADT 293							

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: LIMA ST S-O 168TH AVE  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232920  
 Station ID: 232920

Start Time	29-Mar-23 Wed	NB	SB	Total						
12:00 AM		1	2	3						
01:00		1	4	5						
02:00		0	0	0						
03:00		0	0	0						
04:00		1	1	2						
05:00		2	6	8						
06:00		2	4	6						
07:00		6	5	11						
08:00		<b>17</b>	<b>14</b>	<b>31</b>						
09:00		11	8	19						
10:00		7	4	11						
11:00		4	5	9						
12:00 PM		3	5	8						
01:00		4	5	9						
02:00		6	8	14						
03:00		5	10	15						
04:00		7	18	25						
05:00		4	24	28						
06:00		14	<b>30</b>	<b>44</b>						
07:00		<b>16</b>	21	37						
08:00		9	14	23						
09:00		8	11	19						
10:00		6	9	15						
11:00		4	8	12						
Total		138	216	354						
Percent		39.0%	61.0%							
AM Peak	-	08:00	08:00	-	-	-	-	-	-	08:00
Vol.	-	17	14	-	-	-	-	-	-	31
PM Peak	-	19:00	18:00	-	-	-	-	-	-	18:00
Vol.	-	16	30	-	-	-	-	-	-	44

**COUNTER MEASURES INC.**  
**1889 YORK STREET**  
**DENVER, COLORADO 80206**  
**303-333-7409**

Location: LIMA ST S-O 168TH AVE  
 City: BRIGHTON  
 County: ADAMS  
 Direction: NORTH/SOUTH

Site Code: 232920  
 Station ID: 232920

Start Time	30-Mar-23 Thu	NB	SB	Total
12:00 AM		<b>3</b>	<b>9</b>	<b>12</b>
01:00		*	*	*
02:00		*	*	*
03:00		*	*	*
04:00		*	*	*
05:00		*	*	*
06:00		*	*	*
07:00		*	*	*
08:00		*	*	*
09:00		*	*	*
10:00		*	*	*
11:00		*	*	*
12:00 PM		*	*	*
01:00		*	*	*
02:00		*	*	*
03:00		*	*	*
04:00		*	*	*
05:00		*	*	*
06:00		*	*	*
07:00		*	*	*
08:00		*	*	*
09:00		*	*	*
10:00		*	*	*
11:00		*	*	*
Total		3	9	12
Percent		25.0%	75.0%	
AM Peak	-	00:00	00:00	00:00
Vol.	-	3	9	12
PM Peak	-	-	-	-
Vol.	-	-	-	-
Grand Total		141	225	366
Percent		38.5%	61.5%	
ADT		ADT 306	AADT 306	

## **Key Pages**

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August 31, 2022

Mr. Mike Cooper  
Boulder Creek Neighborhoods  
712 Main Street  
Louisville, CO 80027

Re: Holly Village - Updated  
Traffic Impact Analysis  
Thornton, CO  
LSC #200760

Dear Mr. Cooper:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed Holly Village development to address City and CDOT comments. As shown on Figure 1, the site is located north of E. 160<sup>th</sup> Avenue (State Highway 7) and west of Holly Street in Thornton, Colorado.

## **REPORT CONTENTS**

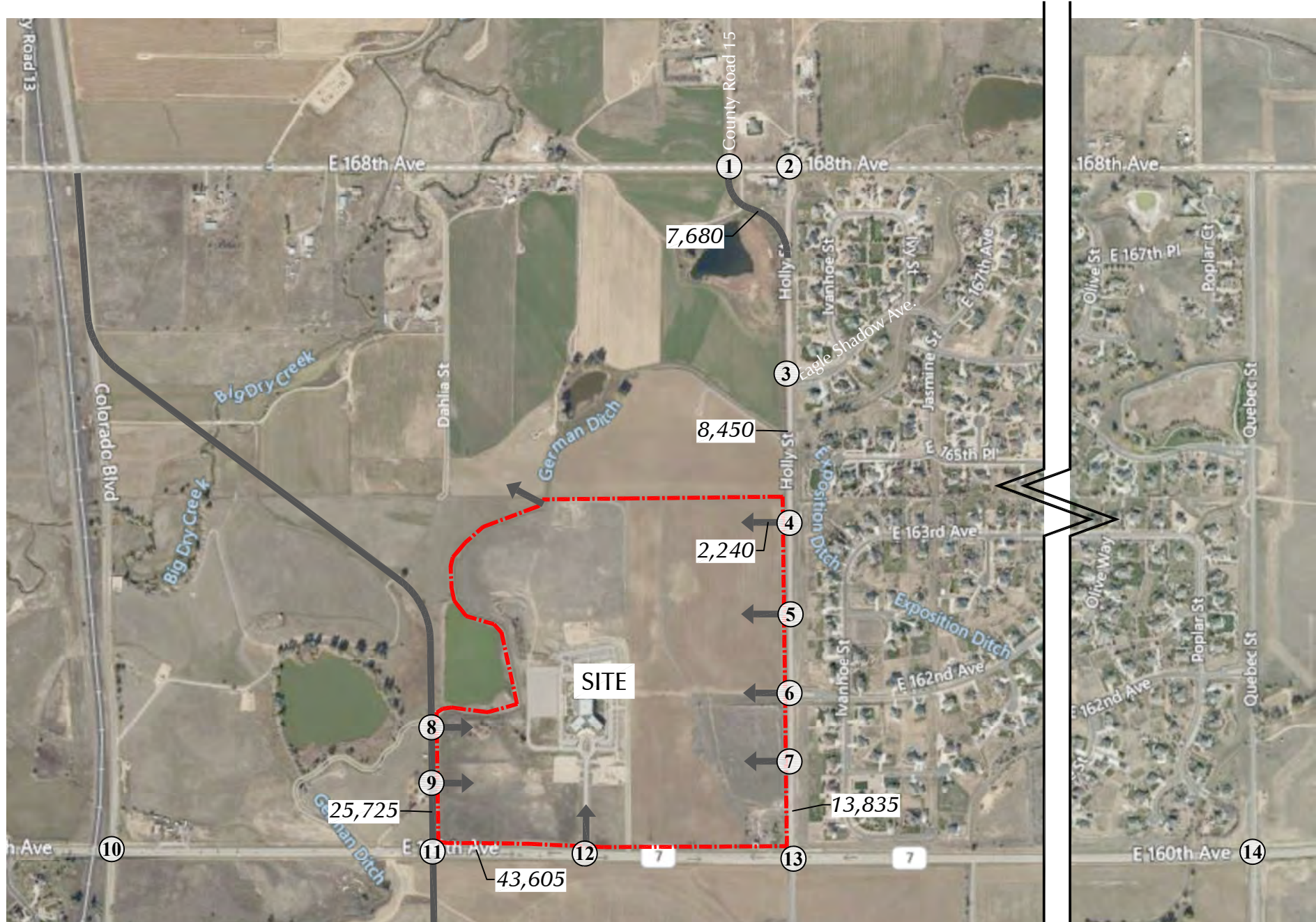
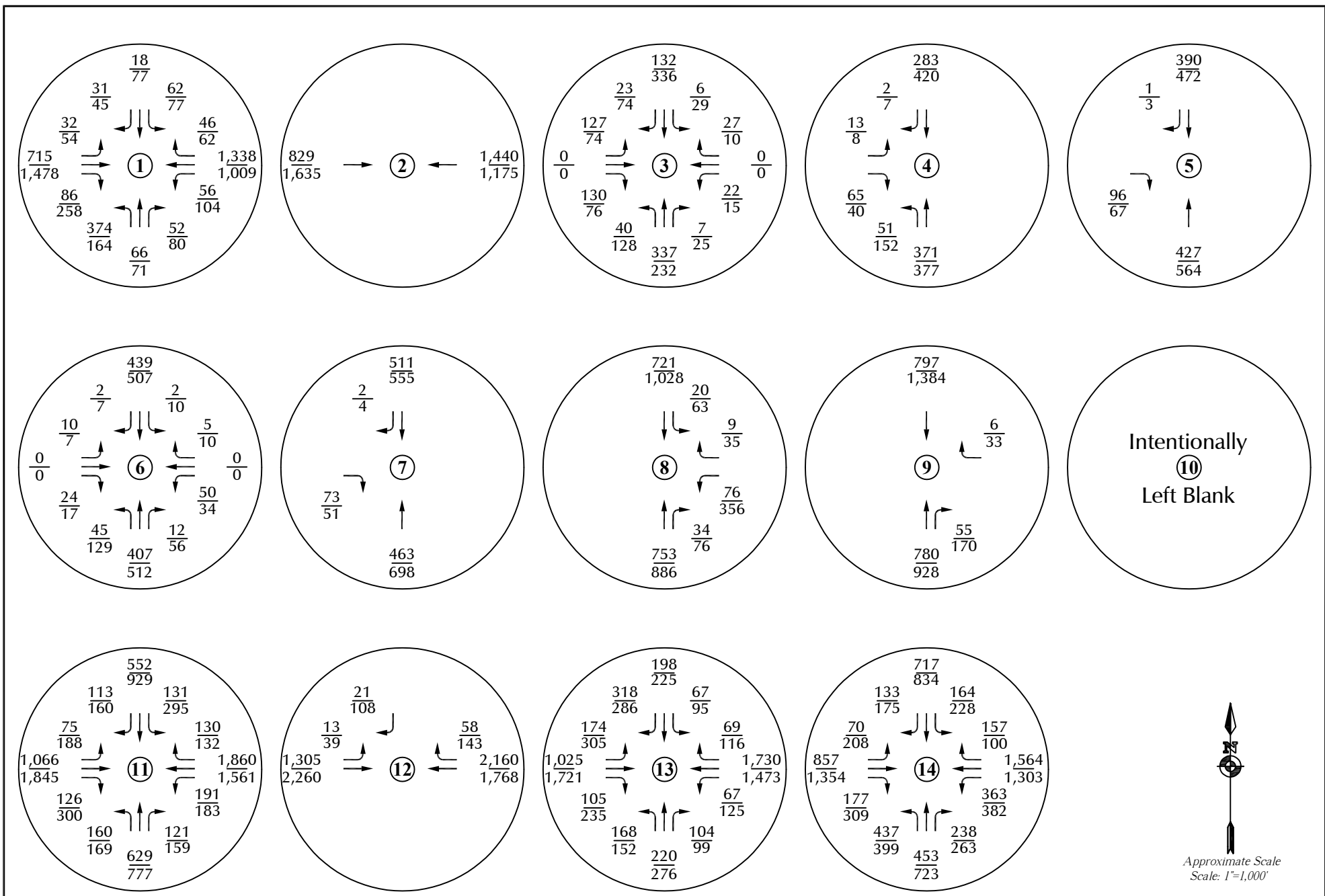
The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; the projected short-term and long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate growth in background traffic or the impacts of the site.

## **LAND USE AND ACCESS**

The existing 141-acre site includes an existing 77,230 square-foot church. The church has an existing full movement access to E. 160<sup>th</sup> Avenue (SH 7) about 1,535 feet west of Holly Street. There are existing single-family homes east of the site. The area north of the site is planned to be developed with about 810 single-family homes by 2025 as part of the Sack Farms development.

In the short-term the areas east and north of the church are planned to be developed with 565 residential dwelling units. These dwelling units are planned to include a mix of single-family homes, duplexes, patio homes, and "wee cottages". Two full movement and two right-in/right-out access points are proposed to Holly Street. The southern full movement access aligns with E. 162<sup>nd</sup> Avenue and the northern full movement access will be located about 1,270 feet to the





LEGEND:  
 $\frac{26}{35}$  = AM Peak Hour Traffic  
 = PM Peak Hour Traffic  
 1,000 = Average Daily Traffic

Figure 9a  
**Year 2042**  
**Total Traffic**  
 Holly Village (LSC #200760)



**SACK FARMS DEVELOPMENT  
TRAFFIC IMPACT AND ACCESS STUDY (TIAS)**

**CITY OF THORNTON, CO**

**APRIL 9, 2020**

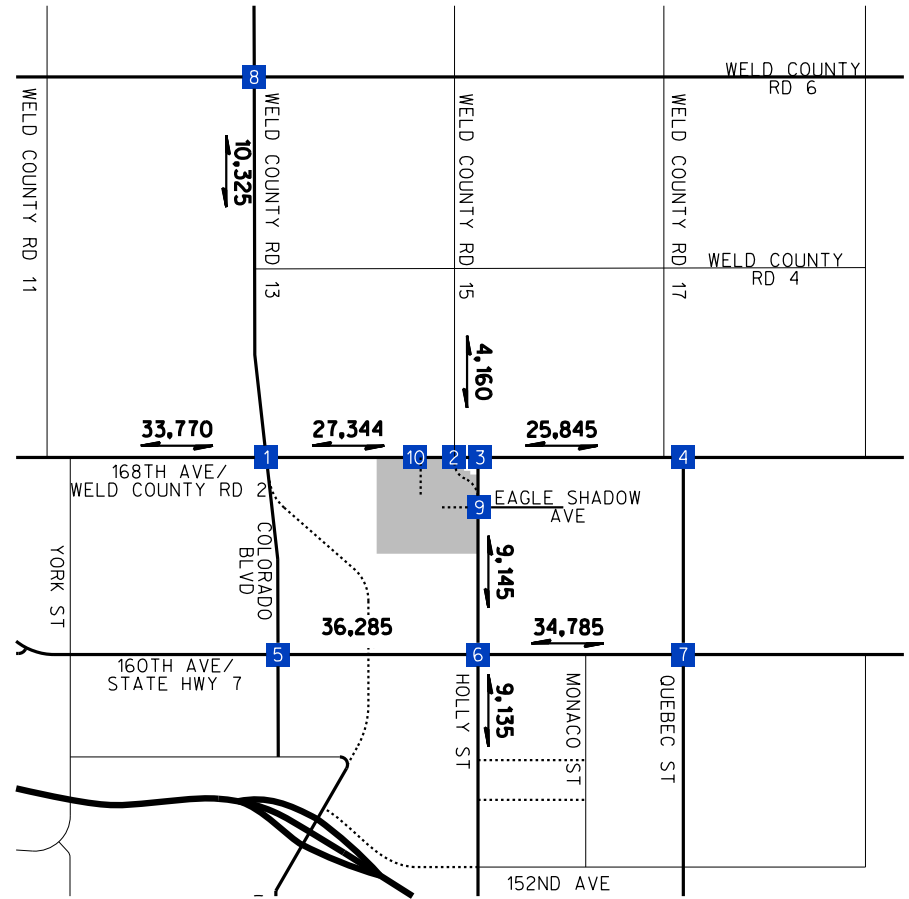
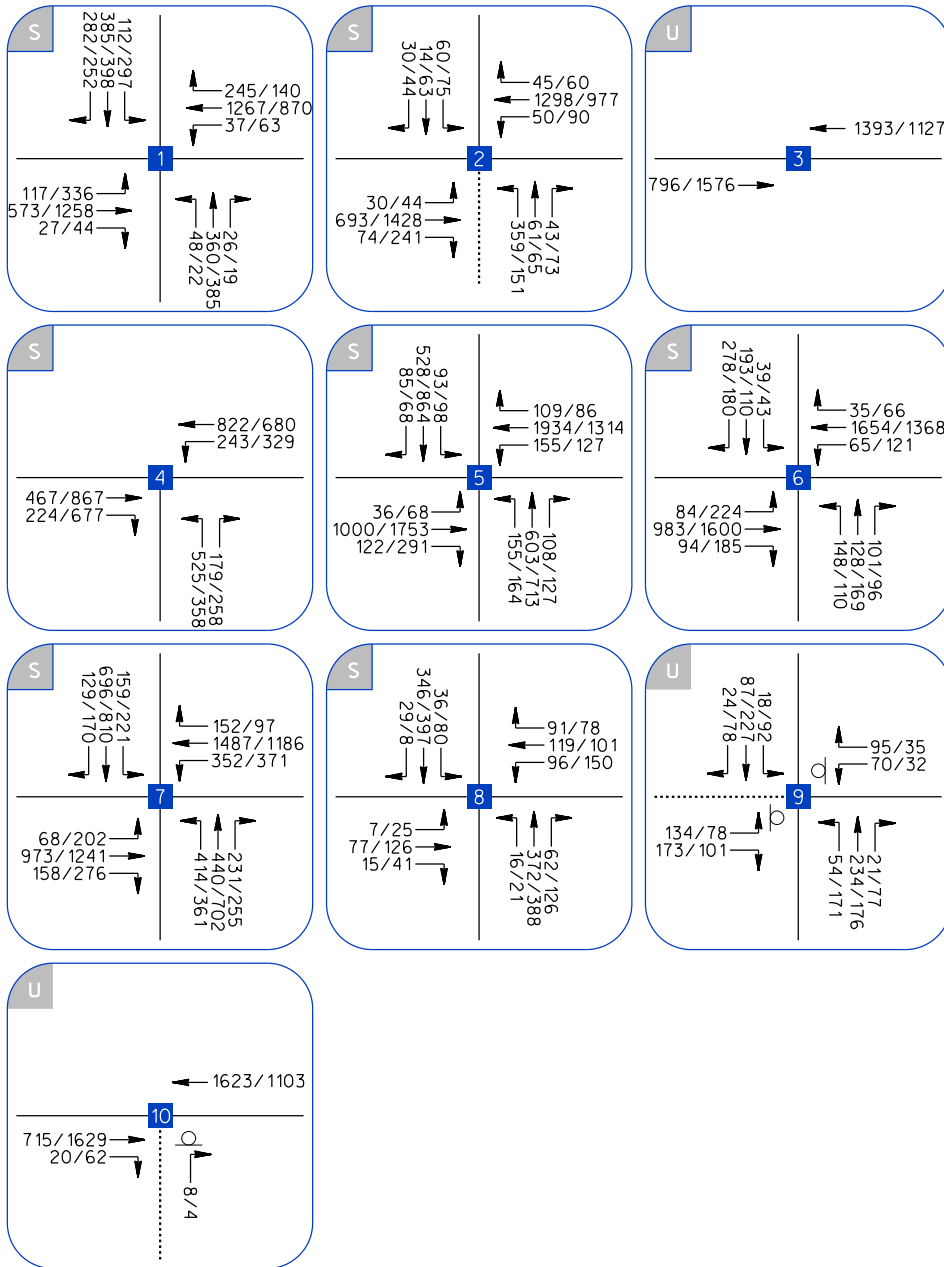
**JOB NUMBER: 18464-T**

**RICK**

**RICK ENGINEERING COMPANY**



[rickengineering.com](http://rickengineering.com)



NOT TO SCALE



**EXHIBIT 16**  
 LONG-TERM (2040) TOTAL TRAFFIC VOLUMES  
 SACK FARMS DEVELOPMENT

**LEGEND**

AM/PM=PEAK HOUR VOLUMES

X,XXX =TWO-WAY ADT

1 =INTERSECTION NUMBER

[Shaded Area] =PROJECT SITE

[Dotted Line] =FUTURE ROADWAY

# **Level of Service Definitions**

## LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

### SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

<b>LOS</b>	<b><u>Average Vehicle Delay</u></b> sec/vehicle	<b><u>Operational Characteristics</u></b>
<b>A</b>	<10 seconds	Describes operations with low control delay, up to 10 sec/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
<b>B</b>	10 to 20 seconds	Describes operations with control delay greater than 10 seconds and up to 20 sec/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
<b>C</b>	20 to 35 seconds	Describes operations with control delay greater than 20 and up to 35 sec/veh. These higher delays may result from only fair progression, longer cycle length, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
<b>D</b>	35 to 55 seconds	Describes operations with control delay greater than 35 and up to 55 sec/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
<b>E</b>	55 to 80 seconds	Describes operations with control delay greater than 55 and up to 80 sec/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
<b>F</b>	>80 seconds	Describes operations with control delay in excess of 80 sec/veh. This level, considered unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

## LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

### UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

LOS	Average Vehicle Control Delay	<u>Operational Characteristics</u>
A	<10 seconds	Normally, vehicles on the stop-controlled approach only have to wait up to 10 seconds before being able to clear the intersection. Left-turning vehicles on the uncontrolled street do not have to wait to make their turn.
B	10 to 15 seconds	Vehicles on the stop-controlled approach will experience delays before being able to clear the intersection. <u>The delay could be up to 15 seconds.</u> Left-turning vehicles on the uncontrolled street may have to wait to make their turn.
C	15 to 25 seconds	Vehicles on the stop-controlled approach can expect delays in the range of 15 to 25 seconds before clearing the intersection. Motorists may begin to take chances due to the long delays, thereby posing a safety risk to through traffic. <u>Left-turning vehicles on the uncontrolled street will now be required to wait to make their turn causing a queue to be created in the turn lane.</u>
D	25 to 35 seconds	<u>This is the point at which a traffic signal may be warranted for this intersection.</u> The delays for the stop-controlled intersection are not considered to be excessive. The length of the queue may begin to block other public and private access points.
E	35 to 50 seconds	The delays for all critical traffic movements are considered to be unacceptable. The length of the queues for the stop-controlled approaches as well as the left-turn movements are extremely long. <u>There is a high probability that this intersection will meet traffic signal warrants.</u> The ability to install a traffic signal is affected by the location of other existing traffic signals. Consideration may be given to restricting the accesses by eliminating the left-turn movements from and to the stop-controlled approach.
F	>50 seconds	The delay for the critical traffic movements are probably in excess of 100 seconds. The length of the queues are extremely long. Motorists are selecting alternative routes due to the long delays. <u>The only remedy for these long delays is installing a traffic signal or restricting the accesses.</u> The potential for accidents at this intersection are extremely high due to motorist taking more risky chances. If the median permits, motorists begin making two-stage left-turns.

# **Level of Service Reports**

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	2	90	125	1	4	4
Future Vol, veh/h	2	90	125	1	4	4
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	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	113	156	1	5	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	157	0	0	276	157
Stage 1	-	-	-	157	-
Stage 2	-	-	-	119	-
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	1423	-	-	714	889
Stage 1	-	-	-	871	-
Stage 2	-	-	-	906	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1423	-	-	713	889
Mov Cap-2 Maneuver	-	-	-	713	-
Stage 1	-	-	-	869	-
Stage 2	-	-	-	906	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1423	-	-	-	791
HCM Lane V/C Ratio	0.002	-	-	-	0.013
HCM Control Delay (s)	7.5	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0



Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	90	11	21	125	5	10
Future Vol, veh/h	90	11	21	125	5	10
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	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	13	25	149	6	12

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	120	0	313
Stage 1	-	-	-	-	114
Stage 2	-	-	-	-	199
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1468	-	680
Stage 1	-	-	-	-	911
Stage 2	-	-	-	-	835
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1468	-	667
Mov Cap-2 Maneuver	-	-	-	-	667
Stage 1	-	-	-	-	911
Stage 2	-	-	-	-	819

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	827	-	-	1468	-
HCM Lane V/C Ratio	0.022	-	-	0.017	-
HCM Control Delay (s)	9.4	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	14	101	179	15	15	19
Future Vol, veh/h	14	101	179	15	15	19
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	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	125	221	19	19	23

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	240	0	-	0	390 231
Stage 1	-	-	-	-	231 -
Stage 2	-	-	-	-	159 -
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	1327	-	-	-	614 808
Stage 1	-	-	-	-	807 -
Stage 2	-	-	-	-	870 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1327	-	-	-	605 808
Mov Cap-2 Maneuver	-	-	-	-	605 -
Stage 1	-	-	-	-	796 -
Stage 2	-	-	-	-	870 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1327	-	-	-	704
HCM Lane V/C Ratio	0.013	-	-	-	0.06
HCM Control Delay (s)	7.7	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	101	5	2	187	10	1
Future Vol, veh/h	101	5	2	187	10	1
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	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	117	6	2	217	12	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	123	0	341
Stage 1	-	-	-	-	120
Stage 2	-	-	-	-	221
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1464	-	655
Stage 1	-	-	-	-	905
Stage 2	-	-	-	-	816
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1464	-	654
Mov Cap-2 Maneuver	-	-	-	-	654
Stage 1	-	-	-	-	905
Stage 2	-	-	-	-	814

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	672	-	-	1464	-
HCM Lane V/C Ratio	0.019	-	-	0.002	-
HCM Control Delay (s)	10.5	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	102	1	4	172	5	6
Future Vol, veh/h	102	1	4	172	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	119	1	5	200	6	7

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	120	0	329
Stage 1	-	-	-	-	119
Stage 2	-	-	-	-	210
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1468	-	665
Stage 1	-	-	-	-	906
Stage 2	-	-	-	-	825
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1468	-	663
Mov Cap-2 Maneuver	-	-	-	-	663
Stage 1	-	-	-	-	906
Stage 2	-	-	-	-	823

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	663	933	-	-	1468	-
HCM Lane V/C Ratio	0.009	0.007	-	-	0.003	-
HCM Control Delay (s)	10.5	8.9	-	-	7.5	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	1	116	180	1	1	1
Future Vol, veh/h	1	116	180	1	1	1
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	125	194	1	1	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	195	0	-	0	322
Stage 1	-	-	-	-	195
Stage 2	-	-	-	-	127
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1378	-	-	-	672
Stage 1	-	-	-	-	838
Stage 2	-	-	-	-	899
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1378	-	-	-	671
Mov Cap-2 Maneuver	-	-	-	-	671
Stage 1	-	-	-	-	837
Stage 2	-	-	-	-	899

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1378	-	-	-	748
HCM Lane V/C Ratio	0.001	-	-	-	0.003
HCM Control Delay (s)	7.6	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	118	1	49	183	7	38
Future Vol, veh/h	118	1	49	183	7	38
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	1	53	197	8	41

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	128	0	431
Stage 1	-	-	-	-	128
Stage 2	-	-	-	-	303
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1458	-	581
Stage 1	-	-	-	-	898
Stage 2	-	-	-	-	749
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1458	-	557
Mov Cap-2 Maneuver	-	-	-	-	557
Stage 1	-	-	-	-	898
Stage 2	-	-	-	-	718

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	837	-	-	1458	-
HCM Lane V/C Ratio	0.058	-	-	0.036	-
HCM Control Delay (s)	9.6	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Timings  
10: Quebec St & E. 160th Ave (SH 7)

Existing Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	11	414	81	103	664	14	107	42	18	18	63
Future Volume (vph)	11	414	81	103	664	14	107	42	18	18	63
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0
Total Split (s)	12.0	71.0	71.0	12.0	71.0	71.0	12.0	25.0	25.0	12.0	25.0
Total Split (%)	10.0%	59.2%	59.2%	10.0%	59.2%	59.2%	10.0%	20.8%	20.8%	10.0%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min
Act Effect Green (s)	6.4	30.7	30.7	7.5	41.9	41.9	7.5	19.1	19.1	6.6	10.1
Actuated g/C Ratio	0.08	0.40	0.40	0.10	0.54	0.54	0.10	0.25	0.25	0.09	0.13
v/c Ratio	0.09	0.70	0.14	0.71	0.77	0.02	0.74	0.11	0.04	0.14	0.43
Control Delay	44.2	23.4	2.4	63.3	20.3	0.0	66.0	33.4	0.2	44.1	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	23.4	2.4	63.3	20.3	0.0	66.0	33.4	0.2	44.1	37.2
LOS	D	C	A	E	C	A	E	C	A	D	D
Approach Delay		20.7			25.6			50.8			38.3
Approach LOS		C			C			D			D

Intersection Summary

























Cycle Length: 120  
 Actuated Cycle Length: 77.1  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 27.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 64.2%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

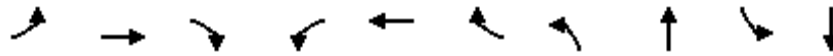
Existing Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	414	81	103	664	14	107	42	18	18	63	26
Future Volume (veh/h)	11	414	81	103	664	14	107	42	18	18	63	26
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	518	95	121	781	16	126	49	21	21	74	31
Peak Hour Factor	0.85	0.80	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	780	661	154	912	773	160	298	253	43	117	49
Arrive On Green	0.02	0.42	0.42	0.09	0.49	0.49	0.09	0.16	0.16	0.02	0.09	0.09
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1252	524
Grp Volume(v), veh/h	13	518	95	121	781	16	126	49	21	21	0	105
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	0	1776
Q Serve(g_s), s	0.5	14.3	2.4	4.3	23.5	0.3	4.4	1.4	0.7	0.7	0.0	3.6
Cycle Q Clear(g_c), s	0.5	14.3	2.4	4.3	23.5	0.3	4.4	1.4	0.7	0.7	0.0	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	29	780	661	154	912	773	160	298	253	43	0	166
V/C Ratio(X)	0.45	0.66	0.14	0.78	0.86	0.02	0.79	0.16	0.08	0.48	0.00	0.63
Avail Cap(c_a), veh/h	195	1928	1634	195	1928	1634	195	584	495	195	0	555
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.2	15.0	11.6	28.7	14.4	8.5	28.5	23.2	22.9	30.8	0.0	28.0
Incr Delay (d2), s/veh	10.7	1.0	0.1	14.9	2.4	0.0	15.8	0.3	0.1	8.1	0.0	3.9
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	0.3	4.9	0.7	2.3	7.7	0.1	2.4	0.6	0.3	0.4	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	16.0	11.7	43.5	16.9	8.5	44.3	23.5	23.1	39.0	0.0	31.9
LnGrp LOS	D	B	B	D	B	A	D	C	C	D	A	C
Approach Vol, veh/h		626			918			196				126
Approach Delay, s/veh		15.9			20.2			36.8				33.0
Approach LOS		B			C			D				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.6	31.7	10.8	11.0	6.0	36.2	6.6	15.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	66.0	7.0	20.0	7.0	66.0	7.0	20.0				
Max Q Clear Time (g_c+I1), s	6.3	16.3	6.4	5.6	2.5	25.5	2.7	3.4				
Green Ext Time (p_c), s	0.0	3.5	0.0	0.4	0.0	5.7	0.0	0.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				21.4								
HCM 6th LOS				C								



Timings  
11: Yosemite St & E. 160th Ave (SH 7)

Existing Traffic  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↗
Traffic Volume (vph)	14	464	19	26	804	7	37	9	16	7
Future Volume (vph)	14	464	19	26	804	7	37	9	16	7
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	36.6	34.7	34.7	37.2	36.5	36.5	8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.63	0.60	0.60	0.64	0.63	0.63	0.15	0.15	0.15	0.15
v/c Ratio	0.05	0.49	0.02	0.05	0.80	0.01	0.21	0.20	0.10	0.11
Control Delay	3.1	8.7	0.1	3.1	14.4	0.0	33.2	15.8	32.7	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	8.7	0.1	3.1	14.4	0.0	33.2	15.8	32.7	19.8
LOS	A	A	A	A	B	A	C	B	C	B
Approach Delay		8.2			13.9			23.2		24.9
Approach LOS		A			B			C		C

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 58.3  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 12.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 59.4%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

Existing Traffic  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	464	19	26	804	7	37	9	41	16	7	18
Future Volume (veh/h)	14	464	19	26	804	7	37	9	41	16	7	18
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	16	540	0	30	935	8	43	10	48	19	8	21
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	1089		556	1115	945	248	27	129	222	44	115
Arrive On Green	0.02	0.58	0.00	0.03	0.60	0.60	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1381	281	1347	1345	456	1198
Grp Volume(v), veh/h	16	540	0	30	935	8	43	0	58	19	0	29
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1381	0	1628	1345	0	1655
Q Serve(g_s), s	0.2	8.8	0.0	0.3	21.0	0.1	1.5	0.0	1.7	0.7	0.0	0.8
Cycle Q Clear(g_c), s	0.2	8.8	0.0	0.3	21.0	0.1	2.4	0.0	1.7	2.4	0.0	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		0.72
Lane Grp Cap(c), veh/h	288	1089		556	1115	945	248	0	156	222	0	159
V/C Ratio(X)	0.06	0.50		0.05	0.84	0.01	0.17	0.00	0.37	0.09	0.00	0.18
Avail Cap(c_a), veh/h	492	2799		735	2799	2372	646	0	625	609	0	635
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	6.4	0.0	4.7	8.5	4.3	22.8	0.0	22.1	23.2	0.0	21.7
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.0	1.8	0.0	0.3	0.0	1.5	0.2	0.0	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	0.0	1.8	0.0	0.1	4.4	0.0	0.5	0.0	0.6	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.3	6.7	0.0	4.7	10.3	4.3	23.1	0.0	23.5	23.4	0.0	22.2
LnGrp LOS	A	A		A	B	A	C	A	C	C	A	C
Approach Vol, veh/h		556			973			101				48
Approach Delay, s/veh		6.8			10.0			23.4				22.7
Approach LOS		A			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	35.4		10.0	6.0	36.1		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.3	10.8		4.4	2.2	23.0		4.4				
Green Ext Time (p_c), s	0.0	3.3		0.1	0.0	8.1		0.3				

Intersection Summary

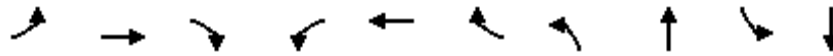
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

Existing Traffic  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖
Traffic Volume (vph)	14	504	8	20	710	8	16	4	13	6
Future Volume (vph)	14	504	8	20	710	8	16	4	13	6
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	25.2	24.4	24.4	25.0	24.3	24.3	6.9	6.9	6.9	6.9
Actuated g/C Ratio	0.58	0.56	0.56	0.57	0.55	0.55	0.16	0.16	0.16	0.16
v/c Ratio	0.04	0.52	0.01	0.04	0.73	0.01	0.08	0.19	0.07	0.14
Control Delay	3.0	8.1	0.0	3.0	12.3	0.0	24.0	11.3	23.9	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	8.1	0.0	3.0	12.3	0.0	24.0	11.3	23.9	13.1
LOS	A	A	A	A	B	A	C	B	C	B
Approach Delay		7.8			11.9			14.2		15.9
Approach LOS		A			B			B		B

Intersection Summary

























Cycle Length: 120  
 Actuated Cycle Length: 43.8  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 10.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 53.3%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

Existing Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	504	8	20	710	8	16	4	51	13	6	32
Future Volume (veh/h)	14	504	8	20	710	8	16	4	51	13	6	32
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	15	536	9	21	755	9	17	4	54	14	6	34
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	328	940	797	477	952	807	301	13	176	284	29	163
Arrive On Green	0.02	0.50	0.50	0.03	0.51	0.51	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1367	110	1491	1345	243	1379
Grp Volume(v), veh/h	15	536	9	21	755	9	17	0	58	14	0	40
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1367	0	1602	1345	0	1622
Q Serve(g_s), s	0.2	8.5	0.1	0.2	14.1	0.1	0.5	0.0	1.4	0.4	0.0	0.9
Cycle Q Clear(g_c), s	0.2	8.5	0.1	0.2	14.1	0.1	1.4	0.0	1.4	1.8	0.0	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.93	1.00		0.85
Lane Grp Cap(c), veh/h	328	940	797	477	952	807	301	0	189	284	0	191
V/C Ratio(X)	0.05	0.57	0.01	0.04	0.79	0.01	0.06	0.00	0.31	0.05	0.00	0.21
Avail Cap(c_a), veh/h	588	3440	2916	725	3440	2916	784	0	756	760	0	765
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.2	7.4	5.3	5.6	8.6	5.1	17.6	0.0	17.1	17.9	0.0	16.9
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.0	1.5	0.0	0.1	0.0	0.9	0.1	0.0	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	0.0	1.7	0.0	0.0	2.9	0.0	0.1	0.0	0.5	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	7.9	5.3	5.7	10.1	5.1	17.6	0.0	18.0	18.0	0.0	17.5
LnGrp LOS	A	A	A	A	B	A	B	A	B	B	A	B
Approach Vol, veh/h		560			785			75				54
Approach Delay, s/veh		7.8			9.9			17.9				17.6
Approach LOS		A			A			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	26.3		10.0	5.8	26.6		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.2	10.5		3.8	2.2	16.1		3.4				
Green Ext Time (p_c), s	0.0	3.3		0.1	0.0	5.5		0.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			9.8									
HCM 6th LOS			A									

HCM 6th TWSC  
 13: Riverdale Rd & E. 160th Ave (SH 7)

Existing Traffic  
 AM Peak Hour

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	534	26	221	687	9	176
Future Vol, veh/h	534	26	221	687	9	176
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	545	27	226	701	9	180

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	572	0	1698
Stage 1	-	-	-	-	545
Stage 2	-	-	-	-	1153
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1001	-	102
Stage 1	-	-	-	-	581
Stage 2	-	-	-	-	301
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1001	-	79
Mov Cap-2 Maneuver	-	-	-	-	211
Stage 1	-	-	-	-	581
Stage 2	-	-	-	-	233

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	22.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	211	-	-	-	1001	-
HCM Lane V/C Ratio	0.044	-	-	-	0.225	-
HCM Control Delay (s)	22.8	0	-	-	9.6	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9	-

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↗
Traffic Vol, veh/h	28	718	918	8	8	40
Future Vol, veh/h	28	718	918	8	8	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	450	-	-	325	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	30	780	998	9	9	43

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1007	0	-	0	1838 998
Stage 1	-	-	-	-	998 -
Stage 2	-	-	-	-	840 -
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	688	-	-	-	83 296
Stage 1	-	-	-	-	357 -
Stage 2	-	-	-	-	424 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	688	-	-	-	79 296
Mov Cap-2 Maneuver	-	-	-	-	79 -
Stage 1	-	-	-	-	341 -
Stage 2	-	-	-	-	424 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	28.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	688	-	-	-	203
HCM Lane V/C Ratio	0.044	-	-	-	0.257
HCM Control Delay (s)	10.5	-	-	-	28.8
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	1

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	21	8	35	41	2
Future Vol, veh/h	3	21	8	35	41	2
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	-	155	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	25	10	42	49	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	112	50	51	0	0
Stage 1	50	-	-	-	-
Stage 2	62	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	885	1018	1555	-	-
Stage 1	972	-	-	-	-
Stage 2	961	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	880	1018	1555	-	-
Mov Cap-2 Maneuver	880	-	-	-	-
Stage 1	966	-	-	-	-
Stage 2	961	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1555	-	998	-	-
HCM Lane V/C Ratio	0.006	-	0.029	-	-
HCM Control Delay (s)	7.3	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	3	39	15	45	63	2
Future Vol, veh/h	3	39	15	45	63	2
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	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	49	19	57	80	3

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	177	82	83	0	0
Stage 1	82	-	-	-	-
Stage 2	95	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	813	978	1514	-	-
Stage 1	941	-	-	-	-
Stage 2	929	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	802	978	1514	-	-
Mov Cap-2 Maneuver	802	-	-	-	-
Stage 1	929	-	-	-	-
Stage 2	929	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1514	-	963	-	-
HCM Lane V/C Ratio	0.013	-	0.055	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	1	5	3	5	13	0
Future Vol, veh/h	1	5	3	5	13	0
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	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	8	5	8	20	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	38	20	20	0	0
Stage 1	20	-	-	-	-
Stage 2	18	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	974	1058	1596	-	-
Stage 1	1003	-	-	-	-
Stage 2	1005	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	971	1058	1596	-	-
Mov Cap-2 Maneuver	971	-	-	-	-
Stage 1	1000	-	-	-	-
Stage 2	1005	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1596	-	1042	-	-
HCM Lane V/C Ratio	0.003	-	0.009	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	11	14	13	0
Future Vol, veh/h	0	27	11	14	13	0
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	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	38	15	20	18	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	68	18	18	0	0
Stage 1	18	-	-	-	-
Stage 2	50	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	937	1061	1599	-	-
Stage 1	1005	-	-	-	-
Stage 2	972	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	929	1061	1599	-	-
Mov Cap-2 Maneuver	929	-	-	-	-
Stage 1	996	-	-	-	-
Stage 2	972	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	1061	-	-
HCM Lane V/C Ratio	0.01	-	0.036	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	2	0	1	0	3	8	0	0	11	1
Future Vol, veh/h	3	0	2	0	1	0	3	8	0	0	11	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	2	0	1	0	3	9	0	0	13	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	30	29	14	30	29	9	14	0	0	9	0	0
Stage 1	14	14	-	15	15	-	-	-	-	-	-	-
Stage 2	16	15	-	15	14	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	979	864	1066	979	864	1073	1604	-	-	1611	-	-
Stage 1	1006	884	-	1005	883	-	-	-	-	-	-	-
Stage 2	1004	883	-	1005	884	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	976	862	1066	975	862	1073	1604	-	-	1611	-	-
Mov Cap-2 Maneuver	976	862	-	975	862	-	-	-	-	-	-	-
Stage 1	1004	884	-	1003	881	-	-	-	-	-	-	-
Stage 2	1001	881	-	1003	884	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.6		9.2		2		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1604	-	-	1010	862	1611	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.001	-	-	-
HCM Control Delay (s)	7.2	0	-	8.6	9.2	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	4	3	8	11	0
Future Vol, veh/h	0	4	3	8	11	0
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	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	4	11	15	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	34	15	15	0	0
Stage 1	15	-	-	-	-
Stage 2	19	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	979	1065	1603	-	-
Stage 1	1008	-	-	-	-
Stage 2	1004	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	976	1065	1603	-	-
Mov Cap-2 Maneuver	976	-	-	-	-
Stage 1	1005	-	-	-	-
Stage 2	1004	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1603	-	1065	-	-
HCM Lane V/C Ratio	0.003	-	0.005	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	7	240	149	8	3	3
Future Vol, veh/h	7	240	149	8	3	3
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	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	286	177	10	4	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	187	0	-	0	484 182
Stage 1	-	-	-	-	182 -
Stage 2	-	-	-	-	302 -
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	1387	-	-	-	542 861
Stage 1	-	-	-	-	849 -
Stage 2	-	-	-	-	750 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1387	-	-	-	538 861
Mov Cap-2 Maneuver	-	-	-	-	538 -
Stage 1	-	-	-	-	843 -
Stage 2	-	-	-	-	750 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1387	-	-	-	662
HCM Lane V/C Ratio	0.006	-	-	-	0.011
HCM Control Delay (s)	7.6	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	240	25	34	149	5	46
Future Vol, veh/h	240	25	34	149	5	46
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	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	282	29	40	175	6	54

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	311	0	552	297
Stage 1	-	-	-	-	297	-
Stage 2	-	-	-	-	255	-
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	-	-	1249	-	495	742
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	788	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1249	-	478	742
Mov Cap-2 Maneuver	-	-	-	-	478	-
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	760	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	704	-	-	1249	-
HCM Lane V/C Ratio	0.085	-	-	0.032	-
HCM Control Delay (s)	10.6	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	36	237	127	25	27	34
Future Vol, veh/h	36	237	127	25	27	34
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	266	143	28	30	38

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	171	0	-	0	503 157
Stage 1	-	-	-	-	157 -
Stage 2	-	-	-	-	346 -
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	1406	-	-	-	528 889
Stage 1	-	-	-	-	871 -
Stage 2	-	-	-	-	716 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1406	-	-	-	511 889
Mov Cap-2 Maneuver	-	-	-	-	511 -
Stage 1	-	-	-	-	842 -
Stage 2	-	-	-	-	716 -

Approach	EB	WB	SB
HCM Control Delay, s	1	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	670
HCM Lane V/C Ratio	0.029	-	-	-	0.102
HCM Control Delay (s)	7.6	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	229	16	2	148	9	3
Future Vol, veh/h	229	16	2	148	9	3
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	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	18	2	163	10	3

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	270	0	428
Stage 1	-	-	-	-	261
Stage 2	-	-	-	-	167
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1293	-	584
Stage 1	-	-	-	-	783
Stage 2	-	-	-	-	863
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1293	-	583
Mov Cap-2 Maneuver	-	-	-	-	583
Stage 1	-	-	-	-	783
Stage 2	-	-	-	-	861

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	622	-	-	1293	-
HCM Lane V/C Ratio	0.021	-	-	0.002	-
HCM Control Delay (s)	10.9	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	255	9	19	171	1	10
Future Vol, veh/h	255	9	19	171	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	293	10	22	197	1	11

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	303	0	534 293
Stage 1	-	-	-	-	293 -
Stage 2	-	-	-	-	241 -
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	-	-	1258	-	507 746
Stage 1	-	-	-	-	757 -
Stage 2	-	-	-	-	799 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1258	-	498 746
Mov Cap-2 Maneuver	-	-	-	-	498 -
Stage 1	-	-	-	-	757 -
Stage 2	-	-	-	-	785 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	498	746	-	-	1258	-
HCM Lane V/C Ratio	0.002	0.015	-	-	0.017	-
HCM Control Delay (s)	12.2	9.9	-	-	7.9	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	254	176	8	3	1
Future Vol, veh/h	2	254	176	8	3	1
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	273	189	9	3	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	198	0	-	0	471 194
Stage 1	-	-	-	-	194 -
Stage 2	-	-	-	-	277 -
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	1375	-	-	-	551 847
Stage 1	-	-	-	-	839 -
Stage 2	-	-	-	-	770 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1375	-	-	-	550 847
Mov Cap-2 Maneuver	-	-	-	-	550 -
Stage 1	-	-	-	-	837 -
Stage 2	-	-	-	-	770 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1375	-	-	-	603
HCM Lane V/C Ratio	0.002	-	-	-	0.007
HCM Control Delay (s)	7.6	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	227	6	16	157	10	35
Future Vol, veh/h	227	6	16	157	10	35
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	241	6	17	167	11	37

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	247	0	445 244
Stage 1	-	-	-	-	244 -
Stage 2	-	-	-	-	201 -
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	-	-	1319	-	571 795
Stage 1	-	-	-	-	797 -
Stage 2	-	-	-	-	833 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1319	-	563 795
Mov Cap-2 Maneuver	-	-	-	-	563 -
Stage 1	-	-	-	-	797 -
Stage 2	-	-	-	-	821 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	728	-	-	1319	-
HCM Lane V/C Ratio	0.066	-	-	0.013	-
HCM Control Delay (s)	10.3	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Timings  
10: Quebec St & E. 160th Ave (SH 7)

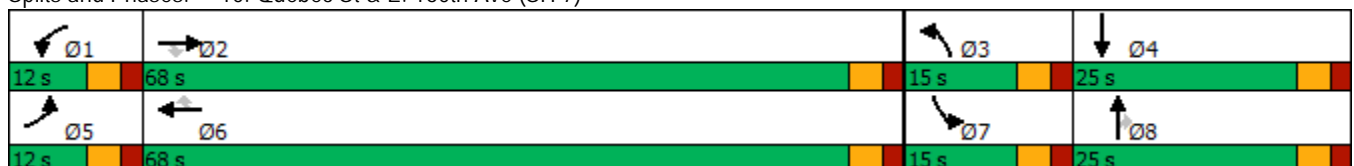
Existing Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	29	794	113	76	575	11	130	102	87	19	59
Future Volume (vph)	29	794	113	76	575	11	130	102	87	19	59
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0
Total Split (s)	12.0	68.0	68.0	12.0	68.0	68.0	15.0	25.0	25.0	15.0	25.0
Total Split (%)	10.0%	56.7%	56.7%	10.0%	56.7%	56.7%	12.5%	20.8%	20.8%	12.5%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min
Act Effect Green (s)	6.6	50.8	50.8	7.2	56.6	56.6	10.2	20.6	20.6	6.9	9.8
Actuated g/C Ratio	0.07	0.52	0.52	0.07	0.57	0.57	0.10	0.21	0.21	0.07	0.10
v/c Ratio	0.27	0.90	0.14	0.65	0.58	0.01	0.77	0.29	0.23	0.17	0.45
Control Delay	55.0	34.8	2.6	72.7	17.5	0.0	74.0	41.2	8.1	51.6	46.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	34.8	2.6	72.7	17.5	0.0	74.0	41.2	8.1	51.6	46.9
LOS	D	C	A	E	B	A	E	D	A	D	D
Approach Delay		31.6			23.6			45.5			47.8
Approach LOS		C			C			D			D

Intersection Summary

























Cycle Length: 120  
 Actuated Cycle Length: 98.5  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 31.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 72.4%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)



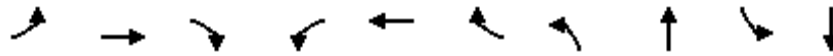
HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

Existing Traffic  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	794	113	76	575	11	130	102	87	19	59	19
Future Volume (veh/h)	29	794	113	76	575	11	130	102	87	19	59	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	32	863	123	83	625	12	141	111	95	21	64	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	56	972	824	107	1025	868	176	280	237	41	100	33
Arrive On Green	0.03	0.52	0.52	0.06	0.55	0.55	0.10	0.15	0.15	0.02	0.07	0.07
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1348	442
Grp Volume(v), veh/h	32	863	123	83	625	12	141	111	95	21	0	85
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	0	1791
Q Serve(g_s), s	1.4	33.2	3.3	3.7	18.3	0.3	6.3	4.3	4.4	0.9	0.0	3.7
Cycle Q Clear(g_c), s	1.4	33.2	3.3	3.7	18.3	0.3	6.3	4.3	4.4	0.9	0.0	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	56	972	824	107	1025	868	176	280	237	41	0	133
V/C Ratio(X)	0.57	0.89	0.15	0.78	0.61	0.01	0.80	0.40	0.40	0.51	0.00	0.64
Avail Cap(c_a), veh/h	154	1459	1236	154	1459	1236	221	463	393	221	0	443
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.6	17.3	10.1	37.4	12.4	8.3	35.6	31.1	31.1	39.0	0.0	36.3
Incr Delay (d2), s/veh	8.6	4.8	0.1	14.2	0.6	0.0	15.5	0.9	1.1	9.3	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	12.5	1.0	1.9	6.1	0.1	3.3	1.9	1.7	0.5	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	22.1	10.2	51.7	13.0	8.3	51.1	32.0	32.2	48.2	0.0	41.4
LnGrp LOS	D	C	B	D	B	A	D	C	C	D	A	D
Approach Vol, veh/h		1018			720			347			106	
Approach Delay, s/veh		21.4			17.4			39.8			42.8	
Approach LOS		C			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	47.0	13.0	11.0	7.6	49.3	6.9	17.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	63.0	10.0	20.0	7.0	63.0	10.0	20.0				
Max Q Clear Time (g_c+I1), s	5.7	35.2	8.3	5.7	3.4	20.3	2.9	6.4				
Green Ext Time (p_c), s	0.0	6.7	0.1	0.3	0.0	4.1	0.0	0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			24.0									
HCM 6th LOS			C									

Timings  
11: Yosemite St & E. 160th Ave (SH 7)

Existing Traffic  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↗
Traffic Volume (vph)	25	840	46	35	645	11	36	11	9	9
Future Volume (vph)	25	840	46	35	645	11	36	11	9	9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	37.1	34.1	34.1	37.9	36.1	36.1	8.3	8.3	8.3	8.3
Actuated g/C Ratio	0.62	0.57	0.57	0.64	0.61	0.61	0.14	0.14	0.14	0.14
v/c Ratio	0.05	0.81	0.05	0.10	0.59	0.01	0.19	0.18	0.05	0.10
Control Delay	2.9	17.5	1.3	3.3	9.9	0.0	33.9	17.7	32.4	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.9	17.5	1.3	3.3	9.9	0.0	33.9	17.7	32.4	22.1
LOS	A	B	A	A	A	A	C	B	C	C
Approach Delay		16.2			9.4			24.9		24.9
Approach LOS		B			A			C		C

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 59.4  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 14.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 61.2%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

Existing Traffic  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	840	46	35	645	11	36	11	34	9	9	15
Future Volume (veh/h)	25	840	46	35	645	11	36	11	34	9	9	15
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	26	866	0	36	665	11	37	11	35	9	9	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	450	1046		329	1063	901	266	39	126	246	63	105
Arrive On Green	0.03	0.56	0.00	0.04	0.57	0.57	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1387	393	1252	1360	630	1051
Grp Volume(v), veh/h	26	866	0	36	665	11	37	0	46	9	0	24
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1387	0	1645	1360	0	1681
Q Serve(g_s), s	0.3	18.9	0.0	0.4	11.9	0.2	1.2	0.0	1.3	0.3	0.0	0.6
Cycle Q Clear(g_c), s	0.3	18.9	0.0	0.4	11.9	0.2	1.9	0.0	1.3	1.6	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.76	1.00		0.63
Lane Grp Cap(c), veh/h	450	1046		329	1063	901	266	0	165	246	0	169
V/C Ratio(X)	0.06	0.83		0.11	0.63	0.01	0.14	0.00	0.28	0.04	0.00	0.14
Avail Cap(c_a), veh/h	647	2927		509	2927	2481	683	0	660	655	0	675
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.6	9.0	0.0	7.9	7.2	4.7	21.3	0.0	20.7	21.5	0.0	20.5
Incr Delay (d2), s/veh	0.1	1.7	0.0	0.1	0.6	0.0	0.2	0.0	0.9	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.2	0.0	0.1	2.5	0.0	0.4	0.0	0.5	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.7	10.8	0.0	8.1	7.8	4.7	21.6	0.0	21.7	21.5	0.0	20.8
LnGrp LOS	A	B		A	A	A	C	A	C	C	A	C
Approach Vol, veh/h		892			712			83				33
Approach Delay, s/veh		10.6			7.8			21.6				21.0
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	32.9		10.0	6.5	33.3		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.4	20.9		3.6	2.3	13.9		3.9				
Green Ext Time (p_c), s	0.0	6.9		0.1	0.0	4.5		0.2				

Intersection Summary

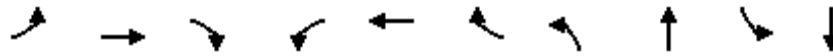
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

Existing Traffic  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↗
Traffic Volume (vph)	39	835	30	92	689	15	8	8	6	6
Future Volume (vph)	39	835	30	92	689	15	8	8	6	6
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	39.3	34.6	34.6	40.6	37.1	37.1	6.7	6.7	6.7	6.7
Actuated g/C Ratio	0.65	0.57	0.57	0.67	0.61	0.61	0.11	0.11	0.11	0.11
v/c Ratio	0.08	0.79	0.03	0.25	0.61	0.02	0.05	0.22	0.04	0.10
Control Delay	2.7	17.2	0.5	4.2	10.9	0.0	31.6	16.5	31.5	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	17.2	0.5	4.2	10.9	0.0	31.6	16.5	31.5	21.4
LOS	A	B	A	A	B	A	C	B	C	C
Approach Delay		16.1			9.9			18.6		23.8
Approach LOS		B			A			B		C

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 60.6  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 13.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 68.2%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)





HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

Existing Traffic  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	39	835	30	92	689	15	8	8	40	6	6	13
Future Volume (veh/h)	39	835	30	92	689	15	8	8	40	6	6	13
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	39	843	30	93	696	15	8	8	40	6	6	13
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	449	1016	861	372	1071	908	259	26	131	232	51	110
Arrive On Green	0.04	0.54	0.54	0.07	0.57	0.57	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1393	271	1355	1357	526	1139
Grp Volume(v), veh/h	39	843	30	93	696	15	8	0	48	6	0	19
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1393	0	1626	1357	0	1665
Q Serve(g_s), s	0.5	19.4	0.5	1.1	13.1	0.2	0.3	0.0	1.4	0.2	0.0	0.5
Cycle Q Clear(g_c), s	0.5	19.4	0.5	1.1	13.1	0.2	0.8	0.0	1.4	1.6	0.0	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		0.68
Lane Grp Cap(c), veh/h	449	1016	861	372	1071	908	259	0	157	232	0	161
V/C Ratio(X)	0.09	0.83	0.03	0.25	0.65	0.02	0.03	0.00	0.31	0.03	0.00	0.12
Avail Cap(c_a), veh/h	615	2814	2385	486	2814	2385	662	0	627	625	0	642
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.9	9.9	5.5	8.3	7.5	4.8	21.8	0.0	21.8	22.6	0.0	21.4
Incr Delay (d2), s/veh	0.1	1.8	0.0	0.3	0.7	0.0	0.0	0.0	1.1	0.0	0.0	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	0.1	4.8	0.1	0.2	2.8	0.0	0.1	0.0	0.5	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	11.7	5.5	8.7	8.2	4.8	21.8	0.0	22.9	22.6	0.0	21.7
LnGrp LOS	A	B	A	A	A	A	C	A	C	C	A	C
Approach Vol, veh/h		912			804			56			25	
Approach Delay, s/veh		11.2			8.2			22.7			21.9	
Approach LOS		B			A			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	33.2		10.0	7.1	34.7		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	3.1	21.4		3.6	2.5	15.1		3.4				
Green Ext Time (p_c), s	0.1	6.7		0.0	0.0	4.9		0.2				

Intersection Summary

HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

HCM 6th TWSC  
 13: Riverdale Rd & E. 160th Ave (SH 7)

Existing Traffic  
 PM Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	828	16	166	802	16	276
Future Vol, veh/h	828	16	166	802	16	276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	836	16	168	810	16	279

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	852	0	1982
Stage 1	-	-	-	-	836
Stage 2	-	-	-	-	1146
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	787	-	68
Stage 1	-	-	-	-	425
Stage 2	-	-	-	-	303
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	787	-	54
Mov Cap-2 Maneuver	-	-	-	-	201
Stage 1	-	-	-	-	425
Stage 2	-	-	-	-	238

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	24.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	201	-	-	-	787	-
HCM Lane V/C Ratio	0.08	-	-	-	0.213	-
HCM Control Delay (s)	24.5	0	-	-	10.8	-
HCM Lane LOS	C	A	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	-	0.8	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	47	1018	903	21	5	26
Future Vol, veh/h	47	1018	903	21	5	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	450	-	-	325	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	1060	941	22	5	27

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	963	0	-	0	2099 941
Stage 1	-	-	-	-	941 -
Stage 2	-	-	-	-	1158 -
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	715	-	-	-	57 319
Stage 1	-	-	-	-	380 -
Stage 2	-	-	-	-	299 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	715	-	-	-	53 319
Mov Cap-2 Maneuver	-	-	-	-	53 -
Stage 1	-	-	-	-	354 -
Stage 2	-	-	-	-	299 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	30
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	715	-	-	-	176
HCM Lane V/C Ratio	0.068	-	-	-	0.183
HCM Control Delay (s)	10.4	-	-	-	30
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	0.7

HCM 6th TWSC  
15: Quebec St & Eagle Shadow Ave

Existing Traffic  
PM Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	20	76	59	1
Future Vol, veh/h	0	8	20	76	59	1
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	-	155	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	23	87	68	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	202	69	69	0	0
Stage 1	69	-	-	-	-
Stage 2	133	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	787	994	1532	-	-
Stage 1	954	-	-	-	-
Stage 2	893	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	775	994	1532	-	-
Mov Cap-2 Maneuver	775	-	-	-	-
Stage 1	940	-	-	-	-
Stage 2	893	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1532	-	994	-	-
HCM Lane V/C Ratio	0.015	-	0.009	-	-
HCM Control Delay (s)	7.4	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	18	26	96	63	5
Future Vol, veh/h	1	18	26	96	63	5
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	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	21	30	110	72	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	245	75	78	0	0
Stage 1	75	-	-	-	-
Stage 2	170	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	743	986	1520	-	-
Stage 1	948	-	-	-	-
Stage 2	860	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	727	986	1520	-	-
Mov Cap-2 Maneuver	727	-	-	-	-
Stage 1	928	-	-	-	-
Stage 2	860	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1520	-	968	-	-
HCM Lane V/C Ratio	0.02	-	0.023	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	3	5	16	23	3
Future Vol, veh/h	0	3	5	16	23	3
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	6	19	28	4

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	61	30	32	0	0
Stage 1	30	-	-	-	-
Stage 2	31	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	945	1044	1580	-	-
Stage 1	993	-	-	-	-
Stage 2	992	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	941	1044	1580	-	-
Mov Cap-2 Maneuver	941	-	-	-	-
Stage 1	989	-	-	-	-
Stage 2	992	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	1.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1580	-	1044	-	-
HCM Lane V/C Ratio	0.004	-	0.003	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	14	24	15	24	1
Future Vol, veh/h	1	14	24	15	24	1
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	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	16	28	17	28	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	102	29	29	0	0
Stage 1	29	-	-	-	-
Stage 2	73	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	896	1046	1584	-	-
Stage 1	994	-	-	-	-
Stage 2	950	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	880	1046	1584	-	-
Mov Cap-2 Maneuver	880	-	-	-	-
Stage 1	976	-	-	-	-
Stage 2	950	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	4.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1584	-	1033	-	-
HCM Lane V/C Ratio	0.018	-	0.017	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	2	0	1	0	2	10	0	0	24	4
Future Vol, veh/h	1	0	2	0	1	0	2	10	0	0	24	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	3	0	1	0	3	15	0	0	36	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	61	60	39	62	63	15	42	0	0	15	0	0
Stage 1	39	39	-	21	21	-	-	-	-	-	-	-
Stage 2	22	21	-	41	42	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	934	831	1033	933	828	1065	1567	-	-	1603	-	-
Stage 1	976	862	-	998	878	-	-	-	-	-	-	-
Stage 2	996	878	-	974	860	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	931	829	1033	929	826	1065	1567	-	-	1603	-	-
Mov Cap-2 Maneuver	931	829	-	929	826	-	-	-	-	-	-	-
Stage 1	974	862	-	996	876	-	-	-	-	-	-	-
Stage 2	992	876	-	971	860	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.6		9.4		1.2		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1567	-	-	997	826	1603	-
HCM Lane V/C Ratio	0.002	-	-	0.004	0.002	-	-
HCM Control Delay (s)	7.3	0	-	8.6	9.4	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-



Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	2	4	7	11	22	4
Future Vol, veh/h	2	4	7	11	22	4
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	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	6	11	17	35	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	77	38	41	0	0
Stage 1	38	-	-	-	-
Stage 2	39	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	926	1034	1568	-	-
Stage 1	984	-	-	-	-
Stage 2	983	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	920	1034	1568	-	-
Mov Cap-2 Maneuver	920	-	-	-	-
Stage 1	977	-	-	-	-
Stage 2	983	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	2.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1568	-	993	-	-
HCM Lane V/C Ratio	0.007	-	0.01	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	113	152	1	5	5
Future Vol, veh/h	2	113	152	1	5	5
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	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	141	190	1	6	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	191	0	0	338	191
Stage 1	-	-	-	191	-
Stage 2	-	-	-	147	-
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	1383	-	-	658	851
Stage 1	-	-	-	841	-
Stage 2	-	-	-	880	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1383	-	-	657	851
Mov Cap-2 Maneuver	-	-	-	657	-
Stage 1	-	-	-	839	-
Stage 2	-	-	-	880	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1383	-	-	-	742
HCM Lane V/C Ratio	0.002	-	-	-	0.017
HCM Control Delay (s)	7.6	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	107	11	21	148	5	10
Future Vol, veh/h	107	11	21	148	5	10
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	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	13	25	176	6	12

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	140	0	360
Stage 1	-	-	-	-	134
Stage 2	-	-	-	-	226
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1443	-	639
Stage 1	-	-	-	-	892
Stage 2	-	-	-	-	812
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1443	-	627
Mov Cap-2 Maneuver	-	-	-	-	627
Stage 1	-	-	-	-	892
Stage 2	-	-	-	-	797

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	794	-	-	1443	-
HCM Lane V/C Ratio	0.022	-	-	0.017	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	16	116	199	17	17	22
Future Vol, veh/h	16	116	199	17	17	22
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	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	143	246	21	21	27

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	267	0	-	0	440 257
Stage 1	-	-	-	-	257 -
Stage 2	-	-	-	-	183 -
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	1297	-	-	-	574 782
Stage 1	-	-	-	-	786 -
Stage 2	-	-	-	-	848 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1297	-	-	-	564 782
Mov Cap-2 Maneuver	-	-	-	-	564 -
Stage 1	-	-	-	-	773 -
Stage 2	-	-	-	-	848 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1297	-	-	-	669
HCM Lane V/C Ratio	0.015	-	-	-	0.072
HCM Control Delay (s)	7.8	0	-	-	10.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	128	5	2	206	10	1
Future Vol, veh/h	128	5	2	206	10	1
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	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	149	6	2	240	12	1

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	155	0	396
Stage 1	-	-	-	-	152
Stage 2	-	-	-	-	244
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1425	-	609
Stage 1	-	-	-	-	876
Stage 2	-	-	-	-	797
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1425	-	608
Mov Cap-2 Maneuver	-	-	-	-	608
Stage 1	-	-	-	-	876
Stage 2	-	-	-	-	795

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	626	-	-	1425	-
HCM Lane V/C Ratio	0.02	-	-	0.002	-
HCM Control Delay (s)	10.9	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	118	3	11	192	7	10
Future Vol, veh/h	118	3	11	192	7	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	137	3	13	223	8	12

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	140	0	386
Stage 1	-	-	-	-	137
Stage 2	-	-	-	-	249
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1443	-	617
Stage 1	-	-	-	-	890
Stage 2	-	-	-	-	792
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1443	-	611
Mov Cap-2 Maneuver	-	-	-	-	611
Stage 1	-	-	-	-	890
Stage 2	-	-	-	-	785

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	611	911	-	-	1443	-
HCM Lane V/C Ratio	0.013	0.013	-	-	0.009	-
HCM Control Delay (s)	11	9	-	-	7.5	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	1	136	201	1	1	1
Future Vol, veh/h	1	136	201	1	1	1
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	146	216	1	1	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	217	0	-	0	365
Stage 1	-	-	-	-	217
Stage 2	-	-	-	-	148
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1353	-	-	-	635
Stage 1	-	-	-	-	819
Stage 2	-	-	-	-	880
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1353	-	-	-	634
Mov Cap-2 Maneuver	-	-	-	-	634
Stage 1	-	-	-	-	818
Stage 2	-	-	-	-	880

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1353	-	-	-	716
HCM Lane V/C Ratio	0.001	-	-	-	0.003
HCM Control Delay (s)	7.7	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	138	1	49	204	7	38
Future Vol, veh/h	138	1	49	204	7	38
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	148	1	53	219	8	41

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	149	0	474
Stage 1	-	-	-	-	149
Stage 2	-	-	-	-	325
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1432	-	549
Stage 1	-	-	-	-	879
Stage 2	-	-	-	-	732
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1432	-	526
Mov Cap-2 Maneuver	-	-	-	-	526
Stage 1	-	-	-	-	879
Stage 2	-	-	-	-	701

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	809	-	-	1432	-
HCM Lane V/C Ratio	0.06	-	-	0.037	-
HCM Control Delay (s)	9.7	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



Timings  
10: Quebec St & E. 160th Ave (SH 7)

2028 Background Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	11	482	94	119	777	14	124	42	21	18	63
Future Volume (vph)	11	482	94	119	777	14	124	42	21	18	63
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0
Total Split (s)	12.0	68.0	68.0	12.0	68.0	68.0	15.0	28.0	28.0	12.0	25.0
Total Split (%)	10.0%	56.7%	56.7%	10.0%	56.7%	56.7%	12.5%	23.3%	23.3%	10.0%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min
Act Effect Green (s)	6.4	39.8	39.8	7.3	50.5	50.5	10.4	22.2	22.2	6.5	10.5
Actuated g/C Ratio	0.07	0.45	0.45	0.08	0.57	0.57	0.12	0.25	0.25	0.07	0.12
v/c Ratio	0.10	0.72	0.14	0.97	0.86	0.02	0.71	0.11	0.05	0.16	0.47
Control Delay	48.9	24.8	3.0	113.7	27.2	0.0	62.3	35.2	0.2	49.3	42.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	24.8	3.0	113.7	27.2	0.0	62.3	35.2	0.2	49.3	42.6
LOS	D	C	A	F	C	A	E	D	A	D	D
Approach Delay		21.9			38.1			49.2			43.7
Approach LOS		C			D			D			D

Intersection Summary

























Cycle Length: 120  
 Actuated Cycle Length: 88.9  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 34.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 71.1%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)



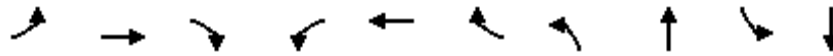
HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

2028 Background Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	482	94	119	777	14	124	42	21	18	63	26
Future Volume (veh/h)	11	482	94	119	777	14	124	42	21	18	63	26
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	602	111	140	914	16	146	49	25	21	74	31
Peak Hour Factor	0.85	0.80	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	28	886	751	156	1020	865	181	309	262	42	108	45
Arrive On Green	0.02	0.47	0.47	0.09	0.55	0.55	0.10	0.17	0.17	0.02	0.09	0.09
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1252	524
Grp Volume(v), veh/h	13	602	111	140	914	16	146	49	25	21	0	105
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	0	1776
Q Serve(g_s), s	0.6	20.0	3.2	6.2	34.7	0.4	6.4	1.8	1.1	0.9	0.0	4.6
Cycle Q Clear(g_c), s	0.6	20.0	3.2	6.2	34.7	0.4	6.4	1.8	1.1	0.9	0.0	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	28	886	751	156	1020	865	181	309	262	42	0	154
V/C Ratio(X)	0.47	0.68	0.15	0.90	0.90	0.02	0.81	0.16	0.10	0.51	0.00	0.68
Avail Cap(c_a), veh/h	156	1475	1250	156	1475	1250	223	539	456	156	0	445
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	16.3	11.9	36.1	16.1	8.3	35.1	28.6	28.3	38.6	0.0	35.4
Incr Delay (d2), s/veh	11.6	0.9	0.1	43.4	5.5	0.0	16.0	0.2	0.2	9.2	0.0	5.2
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	0.3	7.2	1.0	4.4	12.8	0.1	3.4	0.8	0.4	0.5	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.5	17.2	12.0	79.5	21.6	8.3	51.1	28.8	28.4	47.8	0.0	40.6
LnGrp LOS	D	B	B	E	C	A	D	C	C	D	A	D
Approach Vol, veh/h		726			1070			220			126	
Approach Delay, s/veh		17.0			29.0			43.5			41.8	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	42.8	13.1	11.9	6.3	48.6	6.9	18.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	63.0	10.0	20.0	7.0	63.0	7.0	23.0				
Max Q Clear Time (g_c+I1), s	8.2	22.0	8.4	6.6	2.6	36.7	2.9	3.8				
Green Ext Time (p_c), s	0.0	4.2	0.1	0.3	0.0	6.9	0.0	0.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				27.2								
HCM 6th LOS				C								

Timings  
11: Yosemite St & E. 160th Ave (SH 7)

2028 Background Traffic  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	14	532	22	30	927	7	43	9	16	7
Future Volume (vph)	14	532	22	30	927	7	43	9	16	7
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	50.7	47.3	47.3	51.6	49.8	49.8	9.5	9.5	9.5	9.5
Actuated g/C Ratio	0.68	0.64	0.64	0.70	0.67	0.67	0.13	0.13	0.13	0.13
v/c Ratio	0.06	0.52	0.03	0.06	0.86	0.01	0.29	0.26	0.11	0.13
Control Delay	3.0	9.3	0.0	2.8	18.9	0.0	43.4	18.1	41.9	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	9.3	0.0	2.8	18.9	0.0	43.4	18.1	41.9	23.9
LOS	A	A	A	A	B	A	D	B	D	C
Approach Delay		8.8			18.3			29.0		31.0
Approach LOS		A			B			C		C

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 74.2  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 16.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 66.2%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

2028 Background Traffic  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	532	22	30	927	7	43	9	48	16	7	18
Future Volume (veh/h)	14	532	22	30	927	7	43	9	48	16	7	18
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	16	619	0	35	1078	8	50	10	56	19	8	21
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	1203		552	1235	1046	210	22	120	177	40	105
Arrive On Green	0.02	0.64	0.00	0.04	0.66	0.66	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1381	246	1377	1335	456	1198
Grp Volume(v), veh/h	16	619	0	35	1078	8	50	0	66	19	0	29
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1381	0	1623	1335	0	1655
Q Serve(g_s), s	0.2	11.4	0.0	0.4	29.8	0.1	2.2	0.0	2.5	0.9	0.0	1.0
Cycle Q Clear(g_c), s	0.2	11.4	0.0	0.4	29.8	0.1	3.3	0.0	2.5	3.4	0.0	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.85	1.00		0.72
Lane Grp Cap(c), veh/h	249	1203		552	1235	1046	210	0	142	177	0	145
V/C Ratio(X)	0.06	0.51		0.06	0.87	0.01	0.24	0.00	0.47	0.11	0.00	0.20
Avail Cap(c_a), veh/h	408	2267		681	2267	1921	519	0	504	475	0	514
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.3	6.1	0.0	4.4	8.8	3.7	28.8	0.0	27.9	29.5	0.0	27.3
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	2.1	0.0	0.6	0.0	2.4	0.3	0.0	0.7
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	0.1	2.5	0.0	0.1	6.5	0.0	0.7	0.0	1.0	0.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.4	6.5	0.0	4.5	10.9	3.7	29.4	0.0	30.3	29.8	0.0	27.9
LnGrp LOS	B	A		A	B	A	C	A	C	C	A	C
Approach Vol, veh/h		635			1121			116				48
Approach Delay, s/veh		6.6			10.6			29.9				28.7
Approach LOS		A			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	46.4		10.6	6.2	47.5		10.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.4	13.4		5.4	2.2	31.8		5.3				
Green Ext Time (p_c), s	0.0	4.0		0.1	0.0	10.7		0.3				

Intersection Summary

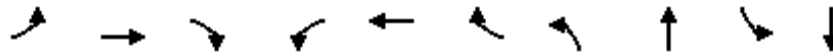
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

2028 Background Traffic  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	569	9	23	827	9	19	5	16	8
Future Volume (vph)	16	569	9	23	827	9	19	5	16	8
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	31.6	29.7	29.7	32.2	31.4	31.4	7.3	7.3	7.3	7.3
Actuated g/C Ratio	0.61	0.58	0.58	0.62	0.61	0.61	0.14	0.14	0.14	0.14
v/c Ratio	0.05	0.56	0.01	0.05	0.78	0.01	0.10	0.24	0.09	0.19
Control Delay	2.9	9.6	0.0	2.8	13.1	0.0	29.6	13.1	29.5	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.9	9.6	0.0	2.8	13.1	0.0	29.6	13.1	29.5	15.3
LOS	A	A	A	A	B	A	C	B	C	B
Approach Delay		9.2			12.7			16.8		18.9
Approach LOS		A			B			B		B

Intersection Summary























Cycle Length: 120  
 Actuated Cycle Length: 51.6  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 11.9  
 Intersection Capacity Utilization 59.6%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

2028 Background Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	569	9	23	827	9	19	5	59	16	8	39
Future Volume (veh/h)	16	569	9	23	827	9	19	5	59	16	8	39
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	17	605	10	24	880	10	20	5	63	17	9	41
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	302	1052	892	483	1066	903	247	12	152	230	30	137
Arrive On Green	0.02	0.56	0.56	0.03	0.57	0.57	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1355	118	1485	1333	293	1336
Grp Volume(v), veh/h	17	605	10	24	880	10	20	0	68	17	0	50
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1355	0	1603	1333	0	1630
Q Serve(g_s), s	0.2	10.2	0.1	0.3	18.7	0.1	0.7	0.0	1.9	0.6	0.0	1.4
Cycle Q Clear(g_c), s	0.2	10.2	0.1	0.3	18.7	0.1	2.1	0.0	1.9	2.5	0.0	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.93	1.00		0.82
Lane Grp Cap(c), veh/h	302	1052	892	483	1066	903	247	0	164	230	0	167
V/C Ratio(X)	0.06	0.57	0.01	0.05	0.83	0.01	0.08	0.00	0.41	0.07	0.00	0.30
Avail Cap(c_a), veh/h	520	2983	2528	688	2983	2528	663	0	656	639	0	666
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.8	6.9	4.7	5.2	8.5	4.6	21.3	0.0	20.6	21.8	0.0	20.3
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.0	1.7	0.0	0.1	0.0	1.7	0.1	0.0	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	0.0	2.1	0.0	0.0	3.9	0.0	0.2	0.0	0.7	0.2	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	7.4	4.7	5.3	10.2	4.6	21.4	0.0	22.3	21.9	0.0	21.3
LnGrp LOS	A	A	A	A	B	A	C	A	C	C	A	C
Approach Vol, veh/h		632			914			88				67
Approach Delay, s/veh		7.4			10.0			22.1				21.5
Approach LOS		A			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	32.5		10.0	6.0	32.9		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.3	12.2		4.5	2.2	20.7		4.1				
Green Ext Time (p_c), s	0.0	3.9		0.2	0.0	7.2		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				10.1								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	606	30	256	807	10	204
Future Vol, veh/h	606	30	256	807	10	204
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	618	31	261	823	10	208

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	649	0	1963
Stage 1	-	-	-	-	618
Stage 2	-	-	-	-	1345
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	937	-	69
Stage 1	-	-	-	-	538
Stage 2	-	-	-	-	243
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	937	-	50
Mov Cap-2 Maneuver	-	-	-	-	160
Stage 1	-	-	-	-	538
Stage 2	-	-	-	-	175

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	29
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	160	-	-	-	937	-
HCM Lane V/C Ratio	0.064	-	-	-	0.279	-
HCM Control Delay (s)	29	0	-	-	10.3	-
HCM Lane LOS	D	A	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	-	1.1	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	818	1073	8	8	40
Future Vol, veh/h	28	818	1073	8	8	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	450	-	-	325	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	30	889	1166	9	9	43

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1175	0	0 2115 1166
Stage 1	-	-	- 1166 -
Stage 2	-	-	- 949 -
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	594	-	- 56 236
Stage 1	-	-	- 296 -
Stage 2	-	-	- 376 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	594	-	- 53 236
Mov Cap-2 Maneuver	-	-	- 53 -
Stage 1	-	-	- 281 -
Stage 2	-	-	- 376 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	41.3
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	594	-	-	-	150
HCM Lane V/C Ratio	0.051	-	-	-	0.348
HCM Control Delay (s)	11.4	-	-	-	41.3
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	1.4



Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	21	8	35	41	2
Future Vol, veh/h	3	21	8	35	41	2
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	-	155	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	25	10	42	49	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	112	50	51	0	0
Stage 1	50	-	-	-	-
Stage 2	62	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	885	1018	1555	-	-
Stage 1	972	-	-	-	-
Stage 2	961	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	880	1018	1555	-	-
Mov Cap-2 Maneuver	880	-	-	-	-
Stage 1	966	-	-	-	-
Stage 2	961	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1555	-	998	-	-
HCM Lane V/C Ratio	0.006	-	0.029	-	-
HCM Control Delay (s)	7.3	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	3	39	15	45	63	2
Future Vol, veh/h	3	39	15	45	63	2
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	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	49	19	57	80	3

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	177	82	83	0	0
Stage 1	82	-	-	-	-
Stage 2	95	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	813	978	1514	-	-
Stage 1	941	-	-	-	-
Stage 2	929	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	802	978	1514	-	-
Mov Cap-2 Maneuver	802	-	-	-	-
Stage 1	929	-	-	-	-
Stage 2	929	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1514	-	963	-	-
HCM Lane V/C Ratio	0.013	-	0.055	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	5	3	5	13	0
Future Vol, veh/h	1	5	3	5	13	0
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	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	8	5	8	20	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	38	20	20	0	0
Stage 1	20	-	-	-	-
Stage 2	18	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	974	1058	1596	-	-
Stage 1	1003	-	-	-	-
Stage 2	1005	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	971	1058	1596	-	-
Mov Cap-2 Maneuver	971	-	-	-	-
Stage 1	1000	-	-	-	-
Stage 2	1005	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1596	-	1042	-	-
HCM Lane V/C Ratio	0.003	-	0.009	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	11	14	13	0
Future Vol, veh/h	0	27	11	14	13	0
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	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	38	15	20	18	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	68	18	18	0	0
Stage 1	18	-	-	-	-
Stage 2	50	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	937	1061	1599	-	-
Stage 1	1005	-	-	-	-
Stage 2	972	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	929	1061	1599	-	-
Mov Cap-2 Maneuver	929	-	-	-	-
Stage 1	996	-	-	-	-
Stage 2	972	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	1061	-	-
HCM Lane V/C Ratio	0.01	-	0.036	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	2	0	0	0	3	14	0	0	13	1
Future Vol, veh/h	3	0	2	0	0	0	3	14	0	0	13	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	2	0	0	0	3	16	0	0	15	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	38	38	16	39	38	16	16	0	0	16	0	0
Stage 1	16	16	-	22	22	-	-	-	-	-	-	-
Stage 2	22	22	-	17	16	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	967	854	1063	966	854	1063	1602	-	-	1602	-	-
Stage 1	1004	882	-	996	877	-	-	-	-	-	-	-
Stage 2	996	877	-	1002	882	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	965	852	1063	962	852	1063	1602	-	-	1602	-	-
Mov Cap-2 Maneuver	965	852	-	962	852	-	-	-	-	-	-	-
Stage 1	1002	882	-	994	875	-	-	-	-	-	-	-
Stage 2	994	875	-	1000	882	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.6		0		1.3		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1602	-	-	1002	-	1602	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	-	-	-	-
HCM Control Delay (s)	7.3	0	-	8.6	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	4	3	17	15	0
Future Vol, veh/h	0	4	3	17	15	0
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	73	73	73	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	4	23	21	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	52	21	21	0	0
Stage 1	21	-	-	-	-
Stage 2	31	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	957	1056	1595	-	-
Stage 1	1002	-	-	-	-
Stage 2	992	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	954	1056	1595	-	-
Mov Cap-2 Maneuver	954	-	-	-	-
Stage 1	999	-	-	-	-
Stage 2	992	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1595	-	1056	-	-
HCM Lane V/C Ratio	0.003	-	0.005	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	8	306	171	9	3	3
Future Vol, veh/h	8	306	171	9	3	3
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	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	364	204	11	4	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	215	0	-	0	594 210
Stage 1	-	-	-	-	210 -
Stage 2	-	-	-	-	384 -
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	1355	-	-	-	468 830
Stage 1	-	-	-	-	825 -
Stage 2	-	-	-	-	688 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1355	-	-	-	464 830
Mov Cap-2 Maneuver	-	-	-	-	464 -
Stage 1	-	-	-	-	818 -
Stage 2	-	-	-	-	688 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1355	-	-	-	595
HCM Lane V/C Ratio	0.007	-	-	-	0.012
HCM Control Delay (s)	7.7	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	284	25	34	175	5	46
Future Vol, veh/h	284	25	34	175	5	46
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	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	334	29	40	206	6	54

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	363	0	635	349
Stage 1	-	-	-	-	349	-
Stage 2	-	-	-	-	286	-
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	-	-	1196	-	443	694
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1196	-	426	694
Mov Cap-2 Maneuver	-	-	-	-	426	-
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	734	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	654	-	-	1196	-
HCM Lane V/C Ratio	0.092	-	-	0.033	-
HCM Control Delay (s)	11.1	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-



Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	42	275	148	29	31	39
Future Vol, veh/h	42	275	148	29	31	39
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	309	166	33	35	44

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	199	0	-	0	586 183
Stage 1	-	-	-	-	183 -
Stage 2	-	-	-	-	403 -
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	1373	-	-	-	473 859
Stage 1	-	-	-	-	848 -
Stage 2	-	-	-	-	675 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1373	-	-	-	454 859
Mov Cap-2 Maneuver	-	-	-	-	454 -
Stage 1	-	-	-	-	813 -
Stage 2	-	-	-	-	675 -

Approach	EB	WB	SB
HCM Control Delay, s	1	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1373	-	-	-	616
HCM Lane V/C Ratio	0.034	-	-	-	0.128
HCM Control Delay (s)	7.7	0	-	-	11.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	290	16	2	168	9	3
Future Vol, veh/h	290	16	2	168	9	3
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	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	319	18	2	185	10	3

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	337	0	517
Stage 1	-	-	-	-	328
Stage 2	-	-	-	-	189
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1222	-	518
Stage 1	-	-	-	-	730
Stage 2	-	-	-	-	843
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1222	-	517
Mov Cap-2 Maneuver	-	-	-	-	517
Stage 1	-	-	-	-	730
Stage 2	-	-	-	-	841

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	555	-	-	1222	-
HCM Lane V/C Ratio	0.024	-	-	0.002	-
HCM Control Delay (s)	11.6	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	295	8	26	194	3	11
Future Vol, veh/h	295	8	26	194	3	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	339	9	30	223	3	13

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	348	0	622	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	283	-
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	-	-	1211	-	450	703
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	765	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1211	-	439	703
Mov Cap-2 Maneuver	-	-	-	-	439	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	746	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	439	703	-	-	1211	-
HCM Lane V/C Ratio	0.008	0.018	-	-	0.025	-
HCM Control Delay (s)	13.3	10.2	-	-	8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	295	203	9	3	1
Future Vol, veh/h	2	295	203	9	3	1
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	317	218	10	3	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	228	0	-	0	544 223
Stage 1	-	-	-	-	223 -
Stage 2	-	-	-	-	321 -
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	1340	-	-	-	500 817
Stage 1	-	-	-	-	814 -
Stage 2	-	-	-	-	735 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1340	-	-	-	499 817
Mov Cap-2 Maneuver	-	-	-	-	499 -
Stage 1	-	-	-	-	812 -
Stage 2	-	-	-	-	735 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1340	-	-	-	553
HCM Lane V/C Ratio	0.002	-	-	-	0.008
HCM Control Delay (s)	7.7	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	268	6	16	185	10	35
Future Vol, veh/h	268	6	16	185	10	35
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	285	6	17	197	11	37

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	291	0	519 288
Stage 1	-	-	-	-	288 -
Stage 2	-	-	-	-	231 -
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	-	-	1271	-	517 751
Stage 1	-	-	-	-	761 -
Stage 2	-	-	-	-	807 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1271	-	509 751
Mov Cap-2 Maneuver	-	-	-	-	509 -
Stage 1	-	-	-	-	761 -
Stage 2	-	-	-	-	795 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	679	-	-	1271	-
HCM Lane V/C Ratio	0.071	-	-	0.013	-
HCM Control Delay (s)	10.7	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Timings  
10: Quebec St & E. 160th Ave (SH 7)

2028 Background Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	29	929	131	88	672	11	151	102	101	19	59
Future Volume (vph)	29	929	131	88	672	11	151	102	101	19	59
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0
Total Split (s)	12.0	63.0	63.0	12.0	63.0	63.0	20.0	33.0	33.0	12.0	25.0
Total Split (%)	10.0%	52.5%	52.5%	10.0%	52.5%	52.5%	16.7%	27.5%	27.5%	10.0%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min
Act Effect Green (s)	6.6	58.1	58.1	7.0	63.1	63.1	13.6	23.8	23.8	6.4	9.8
Actuated g/C Ratio	0.06	0.53	0.53	0.06	0.58	0.58	0.13	0.22	0.22	0.06	0.09
v/c Ratio	0.30	1.01	0.15	0.84	0.67	0.01	0.74	0.27	0.25	0.20	0.49
Control Delay	57.8	58.8	2.3	102.4	22.1	0.0	66.5	38.8	9.1	54.8	50.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	58.8	2.3	102.4	22.1	0.0	66.5	38.8	9.1	54.8	50.3
LOS	E	E	A	F	C	A	E	D	A	D	D
Approach Delay		52.0			31.0			42.1			51.2
Approach LOS		D			C			D			D

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 108.6  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 43.4  
 Intersection LOS: D  
 Intersection Capacity Utilization 81.3%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

2028 Background Traffic  
 PM Peak Hour

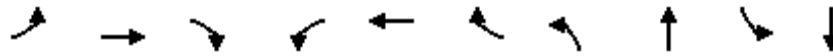


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	929	131	88	672	11	151	102	101	19	59	19
Future Volume (veh/h)	29	929	131	88	672	11	151	102	101	19	59	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	32	1010	142	96	730	12	164	111	110	21	64	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	52	1043	884	121	1116	945	196	293	248	39	92	30
Arrive On Green	0.03	0.56	0.56	0.07	0.60	0.60	0.11	0.16	0.16	0.02	0.07	0.07
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1348	442
Grp Volume(v), veh/h	32	1010	142	96	730	12	164	111	110	21	0	85
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	0	1791
Q Serve(g_s), s	1.8	53.0	4.4	5.4	26.4	0.3	9.2	5.4	6.4	1.2	0.0	4.7
Cycle Q Clear(g_c), s	1.8	53.0	4.4	5.4	26.4	0.3	9.2	5.4	6.4	1.2	0.0	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	52	1043	884	121	1116	945	196	293	248	39	0	123
V/C Ratio(X)	0.62	0.97	0.16	0.79	0.65	0.01	0.84	0.38	0.44	0.54	0.00	0.69
Avail Cap(c_a), veh/h	122	1062	900	122	1116	945	262	513	435	122	0	351
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.0	21.7	11.0	46.9	13.6	8.4	44.5	38.6	39.0	49.4	0.0	46.5
Incr Delay (d2), s/veh	11.2	20.1	0.1	29.0	1.4	0.0	16.0	0.8	1.2	10.9	0.0	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	25.1	1.5	3.3	9.6	0.1	4.8	2.5	2.5	0.6	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	41.9	11.1	75.9	15.0	8.4	60.5	39.4	40.3	60.4	0.0	53.4
LnGrp LOS	E	D	B	E	B	A	E	D	D	E	A	D
Approach Vol, veh/h		1184			838			385			106	
Approach Delay, s/veh		38.7			21.9			48.7			54.7	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	62.0	16.2	12.0	8.0	65.9	7.2	21.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	58.0	15.0	20.0	7.0	58.0	7.0	28.0				
Max Q Clear Time (g_c+I1), s	7.4	55.0	11.2	6.7	3.8	28.4	3.2	8.4				
Green Ext Time (p_c), s	0.0	1.9	0.1	0.2	0.0	4.9	0.0	0.8				

Intersection Summary												
HCM 6th Ctrl Delay											35.3	
HCM 6th LOS											D	

Timings  
11: Yosemite St & E. 160th Ave (SH 7)

2028 Background Traffic  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	25	982	53	41	748	11	42	11	9	9
Future Volume (vph)	25	982	53	41	748	11	42	11	9	9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	51.7	48.6	48.6	52.7	50.8	50.8	8.9	8.9	8.9	8.9
Actuated g/C Ratio	0.69	0.65	0.65	0.71	0.68	0.68	0.12	0.12	0.12	0.12
v/c Ratio	0.06	0.83	0.05	0.14	0.61	0.01	0.26	0.22	0.06	0.11
Control Delay	2.6	17.9	1.3	3.5	9.3	0.0	43.4	20.3	41.0	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.6	17.9	1.3	3.5	9.3	0.0	43.4	20.3	41.0	26.6
LOS	A	B	A	A	A	A	D	C	D	C
Approach Delay		16.7			8.9			30.9		30.5
Approach LOS		B			A			C		C

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 74.7  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 14.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 69.0%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)





HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

2028 Background Traffic  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	982	53	41	748	11	42	11	39	9	9	15
Future Volume (veh/h)	25	982	53	41	748	11	42	11	39	9	9	15
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	26	1012	0	42	771	11	43	11	40	9	9	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	439	1173		298	1197	1014	215	29	106	191	52	87
Arrive On Green	0.03	0.63	0.00	0.04	0.64	0.64	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1387	354	1285	1354	630	1051
Grp Volume(v), veh/h	26	1012	0	42	771	11	43	0	51	9	0	24
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1387	0	1639	1354	0	1681
Q Serve(g_s), s	0.3	26.6	0.0	0.5	15.3	0.2	1.8	0.0	1.8	0.4	0.0	0.8
Cycle Q Clear(g_c), s	0.3	26.6	0.0	0.5	15.3	0.2	2.6	0.0	1.8	2.2	0.0	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.78	1.00		0.63
Lane Grp Cap(c), veh/h	439	1173		298	1197	1014	215	0	136	191	0	139
V/C Ratio(X)	0.06	0.86		0.14	0.64	0.01	0.20	0.00	0.38	0.05	0.00	0.17
Avail Cap(c_a), veh/h	593	2413		430	2413	2045	559	0	542	527	0	556
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.4	9.1	0.0	9.7	6.7	3.9	27.0	0.0	26.3	27.3	0.0	25.8
Incr Delay (d2), s/veh	0.1	2.0	0.0	0.2	0.6	0.0	0.4	0.0	1.7	0.1	0.0	0.6
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	0.1	6.1	0.0	0.2	3.2	0.0	0.6	0.0	0.7	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	11.2	0.0	9.9	7.3	4.0	27.5	0.0	28.0	27.4	0.0	26.4
LnGrp LOS	A	B		A	A	A	C	A	C	C	A	C
Approach Vol, veh/h		1038			824			94				33
Approach Delay, s/veh		11.0			7.3			27.7				26.7
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	42.9		10.0	6.8	43.7		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.5	28.6		4.2	2.3	17.3		4.6				
Green Ext Time (p_c), s	0.0	9.4		0.1	0.0	5.7		0.3				

Intersection Summary

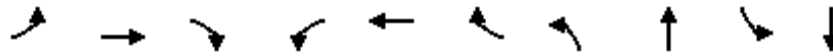
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

2028 Background Traffic  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↙	↑	↘	↙	↑	↘	↙	↘	↙	↘
Traffic Volume (vph)	48	963	35	107	792	19	9	10	9	7
Future Volume (vph)	48	963	35	107	792	19	9	10	9	7
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	49.4	44.6	44.6	50.8	47.3	47.3	7.0	7.0	7.0	7.0
Actuated g/C Ratio	0.69	0.63	0.63	0.71	0.66	0.66	0.10	0.10	0.10	0.10
v/c Ratio	0.11	0.84	0.03	0.34	0.65	0.02	0.07	0.28	0.07	0.14
Control Delay	2.6	18.4	0.5	5.4	10.8	0.1	39.1	19.5	39.2	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.6	18.4	0.5	5.4	10.8	0.1	39.1	19.5	39.2	23.6
LOS	A	B	A	A	B	A	D	B	D	C
Approach Delay		17.1			9.9			22.3		27.8
Approach LOS		B			A			C		C

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 71.3  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 14.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 76.3%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

2028 Background Traffic  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	963	35	107	792	19	9	10	46	9	7	18
Future Volume (veh/h)	48	963	35	107	792	19	9	10	46	9	7	18
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	48	973	35	108	800	19	9	10	46	9	7	18
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	432	1131	958	338	1174	995	211	24	109	184	38	97
Arrive On Green	0.05	0.60	0.60	0.07	0.63	0.63	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1386	291	1338	1348	464	1192
Grp Volume(v), veh/h	48	973	35	108	800	19	9	0	56	9	0	25
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1386	0	1629	1348	0	1656
Q Serve(g_s), s	0.6	26.2	0.5	1.3	17.0	0.3	0.4	0.0	2.0	0.4	0.0	0.9
Cycle Q Clear(g_c), s	0.6	26.2	0.5	1.3	17.0	0.3	1.2	0.0	2.0	2.4	0.0	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.82	1.00		0.72
Lane Grp Cap(c), veh/h	432	1131	958	338	1174	995	211	0	133	184	0	135
V/C Ratio(X)	0.11	0.86	0.04	0.32	0.68	0.02	0.04	0.00	0.42	0.05	0.00	0.18
Avail Cap(c_a), veh/h	555	2383	2019	420	2383	2019	551	0	532	514	0	541
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	10.0	4.9	10.4	7.4	4.3	26.8	0.0	26.7	27.9	0.0	26.2
Incr Delay (d2), s/veh	0.1	2.1	0.0	0.5	0.7	0.0	0.1	0.0	2.1	0.1	0.0	0.7
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	0.1	6.6	0.1	0.5	3.8	0.1	0.1	0.0	0.8	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.1	12.0	4.9	11.0	8.1	4.3	26.9	0.0	28.8	28.0	0.0	26.9
LnGrp LOS	A	B	A	B	A	A	C	A	C	C	A	C
Approach Vol, veh/h		1056			927			65				34
Approach Delay, s/veh		11.5			8.4			28.6				27.2
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	42.0		10.0	7.8	43.4		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	3.3	28.2		4.4	2.6	19.0		4.0				
Green Ext Time (p_c), s	0.1	8.8		0.1	0.0	6.1		0.2				

Intersection Summary

HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	962	19	192	921	19	320
Future Vol, veh/h	962	19	192	921	19	320
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	972	19	194	930	19	323

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	991	0	2290
Stage 1	-	-	-	-	972
Stage 2	-	-	-	-	1318
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	698	-	43
Stage 1	-	-	-	-	367
Stage 2	-	-	-	-	250
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	698	-	31
Mov Cap-2 Maneuver	-	-	-	-	155
Stage 1	-	-	-	-	367
Stage 2	-	-	-	-	181

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	31.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	155	-	-	-	698	-
HCM Lane V/C Ratio	0.124	-	-	-	0.278	-
HCM Control Delay (s)	31.5	0	-	-	12.1	-
HCM Lane LOS	D	A	-	-	B	-
HCM 95th %tile Q(veh)	0.4	-	-	-	1.1	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	47	1196	1048	21	5	26
Future Vol, veh/h	47	1196	1048	21	5	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	450	-	-	325	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	1246	1092	22	5	27

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1114	0	0 2436 1092
Stage 1	-	-	- 1092 -
Stage 2	-	-	- 1344 -
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	627	-	- 35 261
Stage 1	-	-	- 322 -
Stage 2	-	-	- 243 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	627	-	- 32 261
Mov Cap-2 Maneuver	-	-	- 32 -
Stage 1	-	-	- 297 -
Stage 2	-	-	- 243 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	45.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	627	-	-	-	121
HCM Lane V/C Ratio	0.078	-	-	-	0.267
HCM Control Delay (s)	11.2	-	-	-	45.2
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	1

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	20	76	59	1
Future Vol, veh/h	0	8	20	76	59	1
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	-	155	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	23	87	68	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	202	69	69	0	-	0
Stage 1	69	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	787	994	1532	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	775	994	1532	-	-	-
Mov Cap-2 Maneuver	775	-	-	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	893	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1532	-	994	-	-
HCM Lane V/C Ratio	0.015	-	0.009	-	-
HCM Control Delay (s)	7.4	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	18	26	96	63	5
Future Vol, veh/h	1	18	26	96	63	5
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	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	21	30	110	72	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	245	75	78	0	0
Stage 1	75	-	-	-	-
Stage 2	170	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	743	986	1520	-	-
Stage 1	948	-	-	-	-
Stage 2	860	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	727	986	1520	-	-
Mov Cap-2 Maneuver	727	-	-	-	-
Stage 1	928	-	-	-	-
Stage 2	860	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1520	-	968	-	-
HCM Lane V/C Ratio	0.02	-	0.023	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	3	5	16	23	3
Future Vol, veh/h	0	3	5	16	23	3
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	6	19	28	4

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	61	30	32	0	0
Stage 1	30	-	-	-	-
Stage 2	31	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	945	1044	1580	-	-
Stage 1	993	-	-	-	-
Stage 2	992	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	941	1044	1580	-	-
Mov Cap-2 Maneuver	941	-	-	-	-
Stage 1	989	-	-	-	-
Stage 2	992	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	1.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1580	-	1044	-	-
HCM Lane V/C Ratio	0.004	-	0.003	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	14	24	15	24	1
Future Vol, veh/h	1	14	24	15	24	1
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	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	16	28	17	28	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	102	29	29	0	0
Stage 1	29	-	-	-	-
Stage 2	73	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	896	1046	1584	-	-
Stage 1	994	-	-	-	-
Stage 2	950	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	880	1046	1584	-	-
Mov Cap-2 Maneuver	880	-	-	-	-
Stage 1	976	-	-	-	-
Stage 2	950	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	4.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1584	-	1033	-	-
HCM Lane V/C Ratio	0.018	-	0.017	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	2	0	0	0	2	13	0	0	30	4
Future Vol, veh/h	1	0	2	0	0	0	2	13	0	0	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	3	0	0	0	3	19	0	0	45	6

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	73	73	48	75	76	19	51	0	0	19	0	0
Stage 1	48	48	-	25	25	-	-	-	-	-	-	-
Stage 2	25	25	-	50	51	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	918	817	1021	915	814	1059	1555	-	-	1597	-	-
Stage 1	965	855	-	993	874	-	-	-	-	-	-	-
Stage 2	993	874	-	963	852	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	916	815	1021	911	812	1059	1555	-	-	1597	-	-
Mov Cap-2 Maneuver	916	815	-	911	812	-	-	-	-	-	-	-
Stage 1	963	855	-	991	872	-	-	-	-	-	-	-
Stage 2	991	872	-	960	852	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.7		0		1		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1555	-	-	983	-	1597	-
HCM Lane V/C Ratio	0.002	-	-	0.005	-	-	-
HCM Control Delay (s)	7.3	0	-	8.7	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	2	4	7	13	28	4
Future Vol, veh/h	2	4	7	13	28	4
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	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	6	11	21	44	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	90	47	50	0	0
Stage 1	47	-	-	-	-
Stage 2	43	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	910	1022	1557	-	-
Stage 1	975	-	-	-	-
Stage 2	979	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	904	1022	1557	-	-
Mov Cap-2 Maneuver	904	-	-	-	-
Stage 1	968	-	-	-	-
Stage 2	979	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1557	-	979	-	-
HCM Lane V/C Ratio	0.007	-	0.01	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	2	157	269	9	8	5
Future Vol, veh/h	2	157	269	9	8	5
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	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	196	336	11	10	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	347	0	-	0	544 342
Stage 1	-	-	-	-	342 -
Stage 2	-	-	-	-	202 -
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	1212	-	-	-	500 701
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	832 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1212	-	-	-	499 701
Mov Cap-2 Maneuver	-	-	-	-	499 -
Stage 1	-	-	-	-	717 -
Stage 2	-	-	-	-	832 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1212	-	-	-	561
HCM Lane V/C Ratio	0.002	-	-	-	0.029
HCM Control Delay (s)	8	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	154	11	51	273	5	24
Future Vol, veh/h	154	11	51	273	5	24
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	-	200	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	183	13	61	325	6	29

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	196	0	637 190
Stage 1	-	-	-	-	190 -
Stage 2	-	-	-	-	447 -
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	-	-	1377	-	441 852
Stage 1	-	-	-	-	842 -
Stage 2	-	-	-	-	644 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1377	-	422 852
Mov Cap-2 Maneuver	-	-	-	-	422 -
Stage 1	-	-	-	-	842 -
Stage 2	-	-	-	-	616 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	422	852	-	-	1377	-
HCM Lane V/C Ratio	0.014	0.034	-	-	0.044	-
HCM Control Delay (s)	13.7	9.4	-	-	7.7	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	173	21	2	327	49	3
Future Vol, veh/h	173	21	2	327	49	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	204	25	2	385	58	4

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	229	0	593	204
Stage 1	-	-	-	-	204	-
Stage 2	-	-	-	-	389	-
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	-	-	1339	-	468	837
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	685	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1339	-	468	837
Mov Cap-2 Maneuver	-	-	-	-	468	-
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	684	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	468	837	-	-	1339	-
HCM Lane V/C Ratio	0.123	0.004	-	-	0.002	-
HCM Control Delay (s)	13.8	9.3	-	-	7.7	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↗		↖	↗	
Traffic Vol, veh/h	16	132	27	15	236	19	71	6	38	18	2	22
Future Vol, veh/h	16	132	27	15	236	19	71	6	38	18	2	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	250	-	250	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	85	85	81	81	85	85	85	81	85	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	163	32	18	291	23	84	7	45	22	2	27

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	314	0	0	195	0	0	556	553	163	572	562	291
Stage 1	-	-	-	-	-	-	203	203	-	327	327	-
Stage 2	-	-	-	-	-	-	353	350	-	245	235	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1246	-	-	1378	-	-	442	441	882	431	436	748
Stage 1	-	-	-	-	-	-	799	733	-	686	648	-
Stage 2	-	-	-	-	-	-	664	633	-	759	710	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1246	-	-	1378	-	-	415	428	882	395	423	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	415	428	-	395	423	-
Stage 1	-	-	-	-	-	-	786	721	-	675	640	-
Stage 2	-	-	-	-	-	-	629	625	-	702	699	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.7		0.4		13.6		12.2	
HCM LOS					B		B	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	415	771	1246	-	-	1378	-	-	395	705
HCM Lane V/C Ratio	0.201	0.067	0.016	-	-	0.013	-	-	0.056	0.042
HCM Control Delay (s)	15.8	10	7.9	-	-	7.6	-	-	14.7	10.3
HCM Lane LOS	C	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.7	0.2	0	-	-	0	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	↙
Traffic Vol, veh/h	179	9	22	251	19	55
Future Vol, veh/h	179	9	22	251	19	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	211	11	26	295	22	65

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	222	0	558	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	347	-
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	-	-	1347	-	491	829
Stage 1	-	-	-	-	824	-
Stage 2	-	-	-	-	716	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1347	-	482	829
Mov Cap-2 Maneuver	-	-	-	-	482	-
Stage 1	-	-	-	-	824	-
Stage 2	-	-	-	-	702	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	700	-	-	1347	-
HCM Lane V/C Ratio	0.124	-	-	0.019	-
HCM Control Delay (s)	10.9	-	-	7.7	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-



Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	213	14	30	229	35	71
Future Vol, veh/h	213	14	30	229	35	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	16	35	266	41	83

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	264	0	584	248
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	336	-
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	-	-	1300	-	474	791
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	724	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1300	-	461	791
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	704	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	461	791	-	-	1300	-
HCM Lane V/C Ratio	0.088	0.104	-	-	0.027	-
HCM Control Delay (s)	13.6	10.1	-	-	7.8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	1	291	257	1	1	1
Future Vol, veh/h	1	291	257	1	1	1
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	313	276	1	1	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	277	0	-	0	592 277
Stage 1	-	-	-	-	277 -
Stage 2	-	-	-	-	315 -
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	1286	-	-	-	469 762
Stage 1	-	-	-	-	770 -
Stage 2	-	-	-	-	740 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1286	-	-	-	469 762
Mov Cap-2 Maneuver	-	-	-	-	469 -
Stage 1	-	-	-	-	769 -
Stage 2	-	-	-	-	740 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1286	-	-	-	581
HCM Lane V/C Ratio	0.001	-	-	-	0.004
HCM Control Delay (s)	7.8	0	-	-	11.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	240	55	49	242	25	38
Future Vol, veh/h	240	55	49	242	25	38
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	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	258	59	53	260	27	41

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	317	0	624 258
Stage 1	-	-	-	-	258 -
Stage 2	-	-	-	-	366 -
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	-	-	1243	-	449 781
Stage 1	-	-	-	-	785 -
Stage 2	-	-	-	-	702 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1243	-	427 781
Mov Cap-2 Maneuver	-	-	-	-	427 -
Stage 1	-	-	-	-	785 -
Stage 2	-	-	-	-	667 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	588	-	-	1243	-
HCM Lane V/C Ratio	0.115	-	-	0.042	-
HCM Control Delay (s)	11.9	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Timings  
10: Quebec St & E. 160th Ave (SH 7)

2028 Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	560	94	151	988	14	124	45	33	18	70	49
Future Volume (vph)	22	560	94	151	988	14	124	45	33	18	70	49
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
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)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	61.0	61.0	18.0	67.0	67.0	17.0	28.0	28.0	13.0	24.0	24.0
Total Split (%)	10.0%	50.8%	50.8%	15.0%	55.8%	55.8%	14.2%	23.3%	23.3%	10.8%	20.0%	20.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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	Max	Max	None	Max	Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	6.5	56.0	56.0	13.0	67.0	67.0	11.6	21.9	21.9	6.7	10.2	10.2
Actuated g/C Ratio	0.06	0.50	0.50	0.12	0.60	0.60	0.10	0.20	0.20	0.06	0.09	0.09
v/c Ratio	0.25	0.74	0.13	0.86	1.03	0.02	0.78	0.14	0.09	0.20	0.48	0.20
Control Delay	57.0	28.4	1.2	84.3	60.3	0.0	77.5	40.6	0.4	54.7	57.3	1.6
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	57.0	28.4	1.2	84.3	60.3	0.0	77.5	40.6	0.4	54.7	57.3	1.6
LOS	E	C	A	F	E	A	E	D	A	D	E	A
Approach Delay		25.7			62.8			56.7			36.9	
Approach LOS		C			E			E			D	

Intersection Summary

























Cycle Length: 120	
Actuated Cycle Length: 110.9	
Natural Cycle: 130	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 48.6	Intersection LOS: D
Intersection Capacity Utilization 82.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

2028 Total Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	560	94	151	988	14	124	45	33	18	70	49
Future Volume (veh/h)	22	560	94	151	988	14	124	45	33	18	70	49
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	26	700	111	178	1162	16	146	53	39	21	82	58
Peak Hour Factor	0.85	0.80	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	991	840	208	1162	985	175	266	225	39	122	104
Arrive On Green	0.03	0.53	0.53	0.12	0.62	0.62	0.10	0.14	0.14	0.02	0.07	0.07
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	26	700	111	178	1162	16	146	53	39	21	82	58
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.5	29.7	3.7	10.4	65.6	0.4	8.5	2.6	2.3	1.2	4.5	3.7
Cycle Q Clear(g_c), s	1.5	29.7	3.7	10.4	65.6	0.4	8.5	2.6	2.3	1.2	4.5	3.7
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	45	991	840	208	1162	985	175	266	225	39	122	104
V/C Ratio(X)	0.58	0.71	0.13	0.86	1.00	0.02	0.83	0.20	0.17	0.54	0.67	0.56
Avail Cap(c_a), veh/h	118	991	840	219	1162	985	202	407	345	135	336	285
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.9	18.6	12.5	45.8	20.0	7.6	46.8	40.0	39.9	51.1	48.3	47.9
Incr Delay (d2), s/veh	11.2	4.2	0.3	26.0	26.3	0.0	22.1	0.4	0.4	11.2	6.2	4.7
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	0.8	12.3	1.3	5.9	31.0	0.1	4.8	1.2	0.9	0.7	2.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.1	22.9	12.9	71.8	46.3	7.7	68.9	40.4	40.2	62.4	54.5	52.5
LnGrp LOS	E	C	B	E	D	A	E	D	D	E	D	D
Approach Vol, veh/h		837			1356			238			161	
Approach Delay, s/veh		22.8			49.2			57.8			54.8	
Approach LOS		C			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.3	61.0	15.4	11.9	7.7	70.7	7.3	20.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	56.0	12.0	19.0	7.0	62.0	8.0	23.0				
Max Q Clear Time (g_c+I1), s	12.4	31.7	10.5	6.5	3.5	67.6	3.2	4.6				
Green Ext Time (p_c), s	0.0	4.8	0.0	0.4	0.0	0.0	0.0	0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			41.8									
HCM 6th LOS			D									

Timings

2028 Total Traffic

10: Quebec St & E. 160th Ave (SH 7) W/ 2 EB/WB TH

AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	560	94	151	988	14	124	45	33	18	70	49
Future Volume (vph)	22	560	94	151	988	14	124	45	33	18	70	49
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
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)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	57.0	57.0	18.0	63.0	63.0	20.0	33.0	33.0	12.0	25.0	25.0
Total Split (%)	10.0%	47.5%	47.5%	15.0%	52.5%	52.5%	16.7%	27.5%	27.5%	10.0%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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	Max	Max	None	Max	Max	None	Min	Min	None	Min	Min
Act Effect Green (s)	6.5	52.1	52.1	13.0	63.1	63.1	13.0	23.6	23.6	6.4	10.1	10.1
Actuated g/C Ratio	0.06	0.48	0.48	0.12	0.58	0.58	0.12	0.22	0.22	0.06	0.09	0.09
v/c Ratio	0.25	0.41	0.13	0.84	0.56	0.02	0.69	0.13	0.08	0.20	0.47	0.18
Control Delay	56.0	19.7	0.3	79.5	17.2	0.0	63.3	37.1	0.4	54.8	56.0	1.2
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	56.0	19.7	0.3	79.5	17.2	0.0	63.3	37.1	0.4	54.8	56.0	1.2
LOS	E	B	A	E	B	A	E	D	A	D	E	A
Approach Delay		18.3			25.2			47.2			36.1	
Approach LOS		B			C			D			D	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 108.3  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 25.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 57.5%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7) W/ 2 EB/WB TH



HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7) W/ 2 EB/WB TH

2028 Total Traffic  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↑	↗
Traffic Volume (veh/h)	22	560	94	151	988	14	124	45	33	18	70	49
Future Volume (veh/h)	22	560	94	151	988	14	124	45	33	18	70	49
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	26	700	111	178	1162	16	146	53	39	21	82	58
Peak Hour Factor	0.85	0.80	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	1837	819	209	2164	965	178	270	229	39	125	106
Arrive On Green	0.03	0.52	0.52	0.12	0.61	0.61	0.10	0.14	0.14	0.02	0.07	0.07
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	26	700	111	178	1162	16	146	53	39	21	82	58
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.5	11.9	3.7	9.9	19.1	0.4	8.1	2.5	2.2	1.2	4.3	3.6
Cycle Q Clear(g_c), s	1.5	11.9	3.7	9.9	19.1	0.4	8.1	2.5	2.2	1.2	4.3	3.6
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	46	1837	819	209	2164	965	178	270	229	39	125	106
V/C Ratio(X)	0.57	0.38	0.14	0.85	0.54	0.02	0.82	0.20	0.17	0.53	0.66	0.55
Avail Cap(c_a), veh/h	124	1837	819	230	2164	965	266	521	441	124	372	315
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.5	14.6	12.6	43.5	11.4	7.8	44.4	37.9	37.7	48.7	45.8	45.5
Incr Delay (d2), s/veh	10.6	0.6	0.3	23.3	1.0	0.0	11.8	0.4	0.3	10.8	5.8	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.4	1.3	5.5	6.5	0.1	4.1	1.1	0.8	0.6	2.1	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	15.2	13.0	66.9	12.4	7.8	56.2	38.2	38.1	59.5	51.6	49.8
LnGrp LOS	E	B	B	E	B	A	E	D	D	E	D	D
Approach Vol, veh/h		837			1356			238			161	
Approach Delay, s/veh		16.3			19.5			49.2			52.0	
Approach LOS		B			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.8	57.0	15.1	11.7	7.6	66.2	7.2	19.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	13.0	52.0	15.0	20.0	7.0	58.0	7.0	28.0				
Max Q Clear Time (g_c+I1), s	11.9	13.9	10.1	6.3	3.5	21.1	3.2	4.5				
Green Ext Time (p_c), s	0.1	5.1	0.1	0.4	0.0	9.3	0.0	0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											23.2	
HCM 6th LOS											C	

Timings  
11: Yosemite St & E. 160th Ave (SH 7)

2028 Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	83	553	22	38	982	71	43	21	188	38	206
Future Volume (vph)	83	553	22	38	982	71	43	21	188	38	206
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	78.0	78.0	12.0	78.0	78.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)	81.5	76.0	76.0	79.3	73.1	73.1	22.5	22.5	22.5	22.5	22.5
Actuated g/C Ratio	0.69	0.65	0.65	0.67	0.62	0.62	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.58	0.53	0.02	0.09	0.99	0.08	0.19	0.23	0.88	0.12	0.54
Control Delay	31.4	14.5	0.0	5.7	46.8	2.2	41.5	16.9	78.8	39.8	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	14.5	0.0	5.7	46.8	2.2	41.5	16.9	78.8	39.8	16.9
LOS	C	B	A	A	D	A	D	B	E	D	B
Approach Delay		16.2			42.4			26.1		45.9	
Approach LOS		B			D			C		D	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 117.6  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 34.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 85.9%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)





HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

2028 Total Traffic  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	553	22	38	982	71	43	21	51	188	38	206
Future Volume (veh/h)	83	553	22	38	982	71	43	21	51	188	38	206
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	97	643	0	44	1142	83	50	24	59	219	44	240
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	1174		459	1158	981	273	102	251	286	398	337
Arrive On Green	0.04	0.63	0.00	0.03	0.62	0.62	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1095	479	1179	1315	1870	1585
Grp Volume(v), veh/h	97	643	0	44	1142	83	50	0	83	219	44	240
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1095	0	1658	1315	1870	1585
Q Serve(g_s), s	2.3	23.0	0.0	1.0	70.2	2.5	4.5	0.0	4.9	19.5	2.2	16.5
Cycle Q Clear(g_c), s	2.3	23.0	0.0	1.0	70.2	2.5	6.8	0.0	4.9	24.4	2.2	16.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	144	1174		459	1158	981	273	0	352	286	398	337
V/C Ratio(X)	0.67	0.55		0.10	0.99	0.08	0.18	0.00	0.24	0.77	0.11	0.71
Avail Cap(c_a), veh/h	177	1174		507	1161	984	273	0	352	286	398	337
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	12.4	0.0	9.5	21.9	9.0	40.1	0.0	38.4	48.5	37.3	43.0
Incr Delay (d2), s/veh	7.2	0.5	0.0	0.1	23.0	0.0	0.3	0.0	0.3	11.7	0.1	6.9
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	1.9	8.4	0.0	0.4	32.8	0.8	1.2	0.0	2.0	7.2	1.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8	13.0	0.0	9.6	44.9	9.0	40.4	0.0	38.7	60.1	37.5	49.9
LnGrp LOS	D	B		A	D	A	D	A	D	E	D	D
Approach Vol, veh/h		740			1269			133			503	
Approach Delay, s/veh		16.1			41.3			39.3			53.2	
Approach LOS		B			D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	78.8		30.0	9.8	77.8		30.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	73.0		25.0	7.0	73.0		25.0				
Max Q Clear Time (g_c+I1), s	3.0	25.0		26.4	4.3	72.2		8.8				
Green Ext Time (p_c), s	0.0	4.2		0.0	0.0	0.6		0.5				

Intersection Summary

HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

2028 Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	40	710	40	23	880	13	31	8	16	16	102
Future Volume (vph)	40	710	40	23	880	13	31	8	16	16	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	45.3	43.2	43.2	43.6	40.7	40.7	8.2	8.2	8.2	8.2	8.2
Actuated g/C Ratio	0.68	0.65	0.65	0.66	0.61	0.61	0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.13	0.62	0.04	0.05	0.82	0.01	0.19	0.28	0.10	0.07	0.38
Control Delay	3.2	9.7	0.8	2.7	17.6	0.0	38.0	16.1	37.3	36.3	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	9.7	0.8	2.7	17.6	0.0	38.0	16.1	37.3	36.3	12.7
LOS	A	A	A	A	B	A	D	B	D	D	B
Approach Delay		8.9			16.9			23.0		18.4	
Approach LOS		A			B			C		B	

Intersection Summary
























Cycle Length: 120  
 Actuated Cycle Length: 66.3  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 14.1  
 Intersection Capacity Utilization 69.3%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

2028 Total Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	710	40	23	880	13	31	8	59	16	16	102
Future Volume (veh/h)	40	710	40	23	880	13	31	8	59	16	16	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	43	755	43	24	936	14	33	9	63	17	17	109
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	306	1129	957	404	1100	932	250	22	151	212	200	169
Arrive On Green	0.04	0.60	0.60	0.03	0.59	0.59	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1265	202	1414	1328	1870	1585
Grp Volume(v), veh/h	43	755	43	24	936	14	33	0	72	17	17	109
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1265	0	1616	1328	1870	1585
Q Serve(g_s), s	0.5	15.4	0.6	0.3	23.6	0.2	1.4	0.0	2.4	0.7	0.5	3.8
Cycle Q Clear(g_c), s	0.5	15.4	0.6	0.3	23.6	0.2	1.9	0.0	2.4	3.1	0.5	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	306	1129	957	404	1100	932	250	0	173	212	200	169
V/C Ratio(X)	0.14	0.67	0.04	0.06	0.85	0.02	0.13	0.00	0.42	0.08	0.09	0.64
Avail Cap(c_a), veh/h	447	2546	2157	572	2546	2157	557	0	564	534	653	553
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.2	7.5	4.6	6.2	9.7	4.9	23.9	0.0	23.9	25.4	23.1	24.6
Incr Delay (d2), s/veh	0.2	0.7	0.0	0.1	2.0	0.0	0.2	0.0	1.6	0.2	0.2	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.4	0.1	0.1	5.8	0.0	0.4	0.0	0.9	0.2	0.2	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.5	8.2	4.6	6.2	11.7	4.9	24.1	0.0	25.5	25.5	23.3	28.6
LnGrp LOS	A	A	A	A	B	A	C	A	C	C	C	C
Approach Vol, veh/h		841			974			105			143	
Approach Delay, s/veh		8.1			11.5			25.1			27.6	
Approach LOS		A			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	39.6		11.1	7.5	38.7		11.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.3	17.4		5.8	2.5	25.6		4.4				
Green Ext Time (p_c), s	0.0	5.6		0.3	0.0	8.1		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				11.9								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	747	30	256	863	10	204
Future Vol, veh/h	747	30	256	863	10	204
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	762	31	261	881	10	208

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	793	0	2165
Stage 1	-	-	-	-	762
Stage 2	-	-	-	-	1403
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	828	-	52
Stage 1	-	-	-	-	461
Stage 2	-	-	-	-	227
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	828	-	36
Mov Cap-2 Maneuver	-	-	-	-	141
Stage 1	-	-	-	-	461
Stage 2	-	-	-	-	155

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	32.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	141	-	-	-	828	-
HCM Lane V/C Ratio	0.072	-	-	-	0.315	-
HCM Control Delay (s)	32.5	0	-	-	11.3	-
HCM Lane LOS	D	A	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	-	1.4	-

HCM 6th TWSC  
 14: E. 160th Ave (SH 7) & Tuscon St

2028 Total Traffic  
 AM Peak Hour

Intersection						
Int Delay, s/veh	16.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	28	959	1129	26	62	40
Future Vol, veh/h	28	959	1129	26	62	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	450	-	-	325	0	200
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	30	1042	1227	28	67	43

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1255	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	554	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	554	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	\$ 359.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	554	-	-	-	39	217
HCM Lane V/C Ratio	0.055	-	-	-	1.728	0.2
HCM Control Delay (s)	11.9	-	-	-	\$ 575.1	25.7
HCM Lane LOS	B	-	-	-	F	D
HCM 95th %tile Q(veh)	0.2	-	-	-	7.1	0.7

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Timings  
 14: E. 160th Ave (SH 7) & Tuscon St

2028 Total Traffic  
 AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↶	↷	↶	↷
Traffic Volume (vph)	28	959	1129	26	62	40
Future Volume (vph)	28	959	1129	26	62	40
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	95.0	83.0	83.0	25.0	25.0
Total Split (%)	10.0%	79.2%	69.2%	69.2%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effct Green (s)	93.0	94.0	87.4	87.4	10.8	10.8
Actuated g/C Ratio	0.84	0.85	0.79	0.79	0.10	0.10
v/c Ratio	0.14	0.66	0.84	0.02	0.39	0.22
Control Delay	3.5	6.6	18.1	2.0	53.8	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.5	6.6	18.1	2.0	53.8	16.6
LOS	A	A	B	A	D	B
Approach Delay		6.5	17.8		39.3	
Approach LOS		A	B		D	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 110.8  
 Natural Cycle: 100  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 13.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 76.1%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 14: E. 160th Ave (SH 7) & Tuscon St



HCM 6th Signalized Intersection Summary  
 14: E. 160th Ave (SH 7) & Tuscon St

2028 Total Traffic  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	959	1129	26	62	40
Future Volume (veh/h)	28	959	1129	26	62	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	1042	1227	28	67	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	232	1535	1399	1185	157	139
Arrive On Green	0.03	0.82	0.75	0.75	0.09	0.09
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	30	1042	1227	28	67	43
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	0.4	24.7	52.7	0.5	3.9	2.8
Cycle Q Clear(g_c), s	0.4	24.7	52.7	0.5	3.9	2.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	232	1535	1399	1185	157	139
V/C Ratio(X)	0.13	0.68	0.88	0.02	0.43	0.31
Avail Cap(c_a), veh/h	298	1535	1399	1185	325	289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	4.0	10.1	3.5	47.4	46.9
Incr Delay (d2), s/veh	0.2	2.4	8.0	0.0	1.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.0	17.0	0.1	1.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.3	6.4	18.2	3.6	49.2	48.1
LnGrp LOS	B	A	B	A	D	D
Approach Vol, veh/h		1072	1255		110	
Approach Delay, s/veh		6.7	17.8		48.8	
Approach LOS		A	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.0		14.6	8.0	87.0
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s		90.0		20.0	7.0	78.0
Max Q Clear Time (g_c+I1), s		26.7		5.9	2.4	54.7
Green Ext Time (p_c), s		10.2		0.2	0.0	11.2
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			14.3			
HCM 6th LOS			B			

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	21	8	49	71	2
Future Vol, veh/h	3	21	8	49	71	2
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	-	155	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	25	10	59	86	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	166	87	88	0	0
Stage 1	87	-	-	-	-
Stage 2	79	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	824	971	1508	-	-
Stage 1	936	-	-	-	-
Stage 2	944	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	818	971	1508	-	-
Mov Cap-2 Maneuver	818	-	-	-	-
Stage 1	929	-	-	-	-
Stage 2	944	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1508	-	949	-	-
HCM Lane V/C Ratio	0.006	-	0.03	-	-
HCM Control Delay (s)	7.4	-	8.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	3	39	15	59	93	2
Future Vol, veh/h	3	39	15	59	93	2
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	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	49	19	75	118	3

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	233	120	121	0	0
Stage 1	120	-	-	-	-
Stage 2	113	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	755	931	1467	-	-
Stage 1	905	-	-	-	-
Stage 2	912	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	744	931	1467	-	-
Mov Cap-2 Maneuver	744	-	-	-	-
Stage 1	892	-	-	-	-
Stage 2	912	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1467	-	915	-	-
HCM Lane V/C Ratio	0.013	-	0.058	-	-
HCM Control Delay (s)	7.5	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection												
Int Delay, s/veh	8.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↑	↗
Traffic Vol, veh/h	24	0	70	195	0	63	27	27	70	23	13	9
Future Vol, veh/h	24	0	70	195	0	63	27	27	70	23	13	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	0	82	229	0	74	32	32	82	27	15	11

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	243	247	15	212	176	32	26	0	0	114	0	0
Stage 1	69	69	-	96	96	-	-	-	-	-	-	-
Stage 2	174	178	-	116	80	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	711	655	1065	745	717	1042	1588	-	-	1475	-	-
Stage 1	941	837	-	911	815	-	-	-	-	-	-	-
Stage 2	828	752	-	889	828	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	641	630	1065	668	690	1042	1588	-	-	1475	-	-
Mov Cap-2 Maneuver	641	630	-	668	690	-	-	-	-	-	-	-
Stage 1	922	822	-	893	799	-	-	-	-	-	-	-
Stage 2	754	737	-	805	813	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	9.3		12.1			1.6		3.8		
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1588	-	-	641	1065	668	1042	1475	-	-
HCM Lane V/C Ratio	0.02	-	-	0.044	0.077	0.343	0.071	0.018	-	-
HCM Control Delay (s)	7.3	-	-	10.9	8.7	13.2	8.7	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	1.5	0.2	0.1	-	-

HCM 6th TWSC  
 18: Yosemite St & South Site Access

2028 Total Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↶	↶	↶	↶	↶
Traffic Vol, veh/h	7	0	59	67	0	9	19	108	28	4	272	2
Future Vol, veh/h	7	0	59	67	0	9	19	108	28	4	272	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	69	79	0	11	22	127	33	5	320	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	523	534	320	537	503	127	322	0	0	160	0	0
Stage 1	330	330	-	171	171	-	-	-	-	-	-	-
Stage 2	193	204	-	366	332	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	465	452	721	455	471	923	1238	-	-	1419	-	-
Stage 1	683	646	-	831	757	-	-	-	-	-	-	-
Stage 2	809	733	-	653	644	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	452	442	721	404	461	923	1238	-	-	1419	-	-
Mov Cap-2 Maneuver	452	442	-	404	461	-	-	-	-	-	-	-
Stage 1	671	643	-	816	743	-	-	-	-	-	-	-
Stage 2	786	720	-	588	641	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	10.8		15.2		1		0.1			
HCM LOS	B		C							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1238	-	-	452	721	404	923	1419	-	-
HCM Lane V/C Ratio	0.018	-	-	0.018	0.096	0.195	0.011	0.003	-	-
HCM Control Delay (s)	8	-	-	13.1	10.5	16.1	8.9	7.5	-	-
HCM Lane LOS	A	-	-	B	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0.7	0	0	-	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	1	5	3	150	405	0
Future Vol, veh/h	1	5	3	150	405	0
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	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	8	5	227	614	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	851	614	614	0	-	0
Stage 1	614	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	330	492	965	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	802	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	328	492	965	-	-	-
Mov Cap-2 Maneuver	328	-	-	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	802	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	965	-	454	-	-
HCM Lane V/C Ratio	0.005	-	0.02	-	-
HCM Control Delay (s)	8.7	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	11	159	405	0
Future Vol, veh/h	0	27	11	159	405	0
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	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	38	15	224	570	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	824	570	570	0	-	0
Stage 1	570	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	343	521	1002	-	-	-
Stage 1	566	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	337	521	1002	-	-	-
Mov Cap-2 Maneuver	337	-	-	-	-	-
Stage 1	556	-	-	-	-	-
Stage 2	788	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1002	-	521	-	-
HCM Lane V/C Ratio	0.015	-	0.073	-	-
HCM Control Delay (s)	8.6	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	2	19	0	57	3	47	8	18	25	1
Future Vol, veh/h	3	0	2	19	0	57	3	47	8	18	25	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	2	22	0	65	3	53	9	20	28	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	165	137	29	134	133	58	29	0	0	62	0	0
Stage 1	69	69	-	64	64	-	-	-	-	-	-	-
Stage 2	96	68	-	70	69	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	800	754	1046	838	758	1008	1584	-	-	1541	-	-
Stage 1	941	837	-	947	842	-	-	-	-	-	-	-
Stage 2	911	838	-	940	837	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	740	743	1046	826	747	1008	1584	-	-	1541	-	-
Mov Cap-2 Maneuver	740	743	-	826	747	-	-	-	-	-	-	-
Stage 1	939	826	-	945	840	-	-	-	-	-	-	-
Stage 2	851	836	-	926	826	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.3		9.1		0.4		3	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1584	-	-	838	955	1541	-
HCM Lane V/C Ratio	0.002	-	-	0.007	0.09	0.013	-
HCM Control Delay (s)	7.3	0	-	9.3	9.1	7.4	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	4	52	0	33	3	25	23	12	34	0
Future Vol, veh/h	0	0	4	52	0	33	3	25	23	12	34	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	85	73	85	85	85	73	73	85	85	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	61	0	39	4	34	27	14	47	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	150	144	47	134	131	48	47	0	0	61	0	0
Stage 1	75	75	-	56	56	-	-	-	-	-	-	-
Stage 2	75	69	-	78	75	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	818	747	1022	838	760	1021	1560	-	-	1542	-	-
Stage 1	934	833	-	956	848	-	-	-	-	-	-	-
Stage 2	934	837	-	931	833	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	780	738	1022	826	751	1021	1560	-	-	1542	-	-
Mov Cap-2 Maneuver	780	738	-	826	751	-	-	-	-	-	-	-
Stage 1	931	826	-	953	845	-	-	-	-	-	-	-
Stage 2	896	834	-	918	826	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		9.5		0.5		1.7	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1560	-	-	1022	892	1542	-	-
HCM Lane V/C Ratio	0.003	-	-	0.005	0.112	0.009	-	-
HCM Control Delay (s)	7.3	0	-	8.5	9.5	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	8	435	252	14	12	3
Future Vol, veh/h	8	435	252	14	12	3
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	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	518	300	17	14	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	317	0	-	0	847 309
Stage 1	-	-	-	-	309 -
Stage 2	-	-	-	-	538 -
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	1243	-	-	-	332 731
Stage 1	-	-	-	-	745 -
Stage 2	-	-	-	-	585 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1243	-	-	-	328 731
Mov Cap-2 Maneuver	-	-	-	-	328 -
Stage 1	-	-	-	-	737 -
Stage 2	-	-	-	-	585 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1243	-	-	-	369
HCM Lane V/C Ratio	0.008	-	-	-	0.048
HCM Control Delay (s)	7.9	0	-	-	15.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	421	25	58	262	5	78
Future Vol, veh/h	421	25	58	262	5	78
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	-	200	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	495	29	68	308	6	92

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	524	0	954
Stage 1	-	-	-	-	510
Stage 2	-	-	-	-	444
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1043	-	287
Stage 1	-	-	-	-	603
Stage 2	-	-	-	-	646
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1043	-	268
Mov Cap-2 Maneuver	-	-	-	-	268
Stage 1	-	-	-	-	603
Stage 2	-	-	-	-	604

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	268	563	-	-	1043	-
HCM Lane V/C Ratio	0.022	0.163	-	-	0.065	-
HCM Control Delay (s)	18.7	12.6	-	-	8.7	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0.2	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	433	54	3	261	37	3
Future Vol, veh/h	433	54	3	261	37	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	509	64	4	307	44	4

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	573	0	824	509
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	315	-
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	-	-	1000	-	343	564
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	740	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1000	-	342	564
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	737	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	342	564	-	-	1000	-
HCM Lane V/C Ratio	0.127	0.006	-	-	0.004	-
HCM Control Delay (s)	17.1	11.4	-	-	8.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↗		↖	↗	
Traffic Vol, veh/h	42	309	84	43	174	30	50	4	28	33	6	39
Future Vol, veh/h	42	309	84	43	174	30	50	4	28	33	6	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	250	-	250	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	85	85	89	89	85	85	85	89	85	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	347	99	51	196	34	59	5	33	37	7	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	230	0	0	446	0	0	782	773	347	808	838	196
Stage 1	-	-	-	-	-	-	441	441	-	298	298	-
Stage 2	-	-	-	-	-	-	341	332	-	510	540	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1338	-	-	1114	-	-	312	330	696	299	302	845
Stage 1	-	-	-	-	-	-	595	577	-	711	667	-
Stage 2	-	-	-	-	-	-	674	644	-	546	521	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1338	-	-	1114	-	-	273	304	696	264	278	845
Mov Cap-2 Maneuver	-	-	-	-	-	-	273	304	-	264	278	-
Stage 1	-	-	-	-	-	-	574	557	-	686	636	-
Stage 2	-	-	-	-	-	-	603	614	-	498	503	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.5	17.7	15.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	273	599	1338	-	-	1114	-	-	264	659
HCM Lane V/C Ratio	0.215	0.063	0.035	-	-	0.045	-	-	0.14	0.077
HCM Control Delay (s)	21.8	11.4	7.8	-	-	8.4	-	-	20.9	10.9
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.8	0.2	0.1	-	-	0.1	-	-	0.5	0.2

HCM 6th TWSC  
6: East Remington Access & E. 168th Ave

2028 Total Traffic  
PM Peak Hour

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	
Traffic Vol, veh/h	351	19	59	233	14	39
Future Vol, veh/h	351	19	59	233	14	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	413	22	69	274	16	46

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	435	0	825 413
Stage 1	-	-	-	-	413 -
Stage 2	-	-	-	-	412 -
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	-	-	1125	-	342 639
Stage 1	-	-	-	-	668 -
Stage 2	-	-	-	-	669 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1125	-	321 639
Mov Cap-2 Maneuver	-	-	-	-	321 -
Stage 1	-	-	-	-	668 -
Stage 2	-	-	-	-	628 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	506	-	-	1125	-
HCM Lane V/C Ratio	0.123	-	-	0.062	-
HCM Control Delay (s)	13.1	-	-	8.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-

Intersection						
Int Delay, s/veh	2.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	361	39	82	297	23	53
Future Vol, veh/h	361	39	82	297	23	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	415	45	94	341	26	61

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	460	0	944
Stage 1	-	-	-	-	415
Stage 2	-	-	-	-	529
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1101	-	291
Stage 1	-	-	-	-	666
Stage 2	-	-	-	-	591
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1101	-	266
Mov Cap-2 Maneuver	-	-	-	-	266
Stage 1	-	-	-	-	666
Stage 2	-	-	-	-	541

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	266	637	-	-	1101	-
HCM Lane V/C Ratio	0.099	0.096	-	-	0.086	-
HCM Control Delay (s)	20	11.2	-	-	8.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.3	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	403	361	9	3	1
Future Vol, veh/h	2	403	361	9	3	1
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	433	388	10	3	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	398	0	0	830	393
Stage 1	-	-	-	393	-
Stage 2	-	-	-	437	-
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	1161	-	-	340	656
Stage 1	-	-	-	682	-
Stage 2	-	-	-	651	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1161	-	-	339	656
Mov Cap-2 Maneuver	-	-	-	339	-
Stage 1	-	-	-	681	-
Stage 2	-	-	-	651	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1161	-	-	-	386
HCM Lane V/C Ratio	0.002	-	-	-	0.011
HCM Control Delay (s)	8.1	0	-	-	14.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	362	44	16	314	56	35
Future Vol, veh/h	362	44	16	314	56	35
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	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	385	47	17	334	60	37

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	432	0	753	385
Stage 1	-	-	-	-	385	-
Stage 2	-	-	-	-	368	-
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	-	-	1128	-	377	663
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	700	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1128	-	370	663
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	687	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	446	-	-	1128	-
HCM Lane V/C Ratio	0.217	-	-	0.015	-
HCM Control Delay (s)	15.3	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-

Timings  
10: Quebec St & E. 160th Ave (SH 7)

2028 Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	1163	131	110	816	11	151	110	136	19	64	38
Future Volume (vph)	53	1163	131	110	816	11	151	110	136	19	64	38
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
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)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	71.0	71.0	12.0	71.0	71.0	12.0	25.0	25.0	12.0	25.0	25.0
Total Split (%)	10.0%	59.2%	59.2%	10.0%	59.2%	59.2%	10.0%	20.8%	20.8%	10.0%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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	Min	Min	None	Min	Min
Act Effect Green (s)	6.8	66.1	66.1	7.0	68.6	68.6	7.0	18.4	18.4	6.4	11.0	11.0
Actuated g/C Ratio	0.06	0.59	0.59	0.06	0.62	0.62	0.06	0.17	0.17	0.06	0.10	0.10
v/c Ratio	0.54	1.14	0.14	1.08	0.77	0.01	1.48	0.39	0.38	0.21	0.38	0.16
Control Delay	70.6	98.9	2.7	158.3	23.4	0.0	293.0	47.1	10.4	56.4	52.3	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	70.6	98.9	2.7	158.3	23.4	0.0	293.0	47.1	10.4	56.4	52.3	1.4
LOS	E	F	A	F	C	A	F	D	B	E	D	A
Approach Delay		88.5			39.0			127.9			37.1	
Approach LOS		F			D			F			D	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 111.1  
 Natural Cycle: 150  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.48  
 Intersection Signal Delay: 75.3  
 Intersection LOS: E  
 Intersection Capacity Utilization 94.8%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)





HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

2028 Total Traffic  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	1163	131	110	816	11	151	110	136	19	64	38
Future Volume (veh/h)	53	1163	131	110	816	11	151	110	136	19	64	38
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	58	1264	142	120	887	12	164	120	148	21	70	41
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	75	1145	970	116	1188	1007	116	216	183	39	135	115
Arrive On Green	0.04	0.61	0.61	0.06	0.64	0.64	0.06	0.12	0.12	0.02	0.07	0.07
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	58	1264	142	120	887	12	164	120	148	21	70	41
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.5	66.0	4.1	7.0	35.5	0.3	7.0	6.5	9.8	1.3	3.9	2.7
Cycle Q Clear(g_c), s	3.5	66.0	4.1	7.0	35.5	0.3	7.0	6.5	9.8	1.3	3.9	2.7
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	75	1145	970	116	1188	1007	116	216	183	39	135	115
V/C Ratio(X)	0.78	1.10	0.15	1.04	0.75	0.01	1.42	0.55	0.81	0.54	0.52	0.36
Avail Cap(c_a), veh/h	116	1145	970	116	1188	1007	116	347	294	116	347	294
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	20.9	8.9	50.4	13.6	7.2	50.4	45.0	46.5	52.2	48.2	47.6
Incr Delay (d2), s/veh	15.8	59.8	0.1	94.1	2.6	0.0	231.0	2.2	8.3	11.4	3.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	42.2	1.3	6.0	12.9	0.1	10.5	3.1	4.2	0.7	1.9	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.9	80.7	9.0	144.5	16.3	7.2	281.4	47.3	54.8	63.6	51.2	49.5
LnGrp LOS	E	F	A	F	B	A	F	D	D	E	D	D
Approach Vol, veh/h		1464			1019			432			132	
Approach Delay, s/veh		73.2			31.3			138.7			52.7	
Approach LOS		E			C			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	71.0	12.0	12.8	9.5	73.5	7.3	17.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	66.0	7.0	20.0	7.0	66.0	7.0	20.0				
Max Q Clear Time (g_c+I1), s	9.0	68.0	9.0	5.9	5.5	37.5	3.3	11.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	6.7	0.0	0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			67.6									
HCM 6th LOS			E									

Timings

2028 Total Traffic

10: Quebec St & E. 160th Ave (SH 7) W/ 2 EB/WB TH

PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	1163	131	110	816	11	151	110	136	19	64	38
Future Volume (vph)	53	1163	131	110	816	11	151	110	136	19	64	38
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
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)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	66.0	66.0	12.0	66.0	66.0	17.0	30.0	30.0	12.0	25.0	25.0
Total Split (%)	10.0%	55.0%	55.0%	10.0%	55.0%	55.0%	14.2%	25.0%	25.0%	10.0%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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	Min	Min	None	Min	Min
Act Effect Green (s)	6.8	40.4	40.4	7.1	43.3	43.3	12.1	22.0	22.0	6.4	9.0	9.0
Actuated g/C Ratio	0.08	0.45	0.45	0.08	0.49	0.49	0.14	0.25	0.25	0.07	0.10	0.10
v/c Ratio	0.43	0.79	0.18	0.85	0.52	0.01	0.68	0.26	0.29	0.17	0.37	0.16
Control Delay	53.8	24.5	2.9	89.5	17.5	0.0	55.6	34.2	8.4	47.1	46.2	1.3
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	53.8	24.5	2.9	89.5	17.5	0.0	55.6	34.2	8.4	47.1	46.2	1.3
LOS	D	C	A	F	B	A	E	C	A	D	D	A
Approach Delay		23.6			25.8			33.5			32.4	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 89  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 26.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 65.8%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7) W/ 2 EB/WB TH



HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7) W/ 2 EB/WB TH

2028 Total Traffic  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↑	↗
Traffic Volume (veh/h)	53	1163	131	110	816	11	151	110	136	19	64	38
Future Volume (veh/h)	53	1163	131	110	816	11	151	110	136	19	64	38
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	58	1264	142	120	887	12	164	120	148	21	70	41
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	83	1665	743	152	1802	804	203	295	250	42	125	106
Arrive On Green	0.05	0.47	0.47	0.09	0.51	0.51	0.11	0.16	0.16	0.02	0.07	0.07
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	58	1264	142	120	887	12	164	120	148	21	70	41
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.4	22.1	3.9	5.0	12.4	0.3	6.8	4.4	6.5	0.9	2.7	1.9
Cycle Q Clear(g_c), s	2.4	22.1	3.9	5.0	12.4	0.3	6.8	4.4	6.5	0.9	2.7	1.9
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	83	1665	743	152	1802	804	203	295	250	42	125	106
V/C Ratio(X)	0.70	0.76	0.19	0.79	0.49	0.01	0.81	0.41	0.59	0.50	0.56	0.39
Avail Cap(c_a), veh/h	165	2874	1282	165	2874	1282	283	620	525	165	496	420
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	16.5	11.7	33.9	12.2	9.2	32.6	28.6	29.5	36.4	34.1	33.7
Incr Delay (d2), s/veh	10.1	0.7	0.1	21.0	0.2	0.0	11.1	0.9	2.2	8.9	3.8	2.3
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	1.2	7.4	1.2	2.9	3.9	0.1	3.4	1.9	2.5	0.5	1.3	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.5	17.3	11.8	54.9	12.4	9.2	43.7	29.5	31.8	45.3	37.9	36.0
LnGrp LOS	D	B	B	D	B	A	D	C	C	D	D	D
Approach Vol, veh/h		1464			1019			432			132	
Approach Delay, s/veh		17.9			17.4			35.7			38.5	
Approach LOS		B			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	40.3	13.6	10.1	8.5	43.2	6.8	16.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	61.0	12.0	20.0	7.0	61.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	7.0	24.1	8.8	4.7	4.4	14.4	2.9	8.5				
Green Ext Time (p_c), s	0.0	11.2	0.1	0.3	0.0	6.5	0.0	0.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				21.1								
HCM 6th LOS				C								

Timings  
11: Yosemite St & E. 160th Ave (SH 7)

2028 Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	234	1042	53	47	786	203	42	45	128	30	142	
Future Volume (vph)	234	1042	53	47	786	203	42	45	128	30	142	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	5	2		1	6			8		4		
Permitted Phases	2		2	6		6	8		4		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4	4	
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	
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0	25.0	
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%	20.8%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
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	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	
Act Effect Green (s)	67.9	62.8	62.8	64.6	58.0	58.0	15.4	15.4	15.4	15.4	15.4	
Actuated g/C Ratio	0.70	0.64	0.64	0.66	0.59	0.59	0.16	0.16	0.16	0.16	0.16	
v/c Ratio	0.67	0.90	0.05	0.24	0.73	0.20	0.20	0.31	0.65	0.11	0.39	
Control Delay	15.0	27.2	1.6	6.7	17.7	1.6	44.0	30.6	59.4	42.0	10.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.0	27.2	1.6	6.7	17.7	1.6	44.0	30.6	59.4	42.0	10.8	
LOS	B	C	A	A	B	A	D	C	E	D	B	
Approach Delay		24.0			14.1			34.8		34.7		
Approach LOS		C			B			C		C		

Intersection Summary
























Cycle Length: 120  
 Actuated Cycle Length: 97.5  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 22.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 85.3%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

2028 Total Traffic  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	1042	53	47	786	203	42	45	48	128	30	142
Future Volume (veh/h)	234	1042	53	47	786	203	42	45	48	128	30	142
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	241	1074	0	48	810	209	43	46	49	132	31	146
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	363	1172		211	1106	938	270	144	153	240	324	275
Arrive On Green	0.07	0.63	0.00	0.04	0.59	0.59	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1207	829	883	1301	1870	1585
Grp Volume(v), veh/h	241	1074	0	48	810	209	43	0	95	132	31	146
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1207	0	1711	1301	1870	1585
Q Serve(g_s), s	4.8	46.7	0.0	1.0	29.0	5.8	2.9	0.0	4.5	9.2	1.3	7.8
Cycle Q Clear(g_c), s	4.8	46.7	0.0	1.0	29.0	5.8	4.2	0.0	4.5	13.7	1.3	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	363	1172		211	1106	938	270	0	297	240	324	275
V/C Ratio(X)	0.66	0.92		0.23	0.73	0.22	0.16	0.00	0.32	0.55	0.10	0.53
Avail Cap(c_a), veh/h	366	1571		277	1571	1331	321	0	369	294	403	341
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	15.2	0.0	17.7	13.7	8.9	34.0	0.0	33.6	39.6	32.3	34.9
Incr Delay (d2), s/veh	4.4	7.1	0.0	0.5	1.1	0.1	0.3	0.0	0.6	2.0	0.1	1.6
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	2.3	17.1	0.0	0.5	10.0	1.7	0.8	0.0	1.9	3.0	0.6	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.5	22.3	0.0	18.3	14.7	9.0	34.3	0.0	34.2	41.5	32.4	36.5
LnGrp LOS	B	C		B	B	A	C	A	C	D	C	D
Approach Vol, veh/h		1315			1067			138			309	
Approach Delay, s/veh		21.6			13.8			34.2			38.3	
Approach LOS		C			B			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	63.2		21.1	11.8	59.9		21.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	3.0	48.7		15.7	6.8	31.0		6.5				
Green Ext Time (p_c), s	0.0	9.5		0.4	0.0	7.0		0.4				

Intersection Summary

HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

2028 Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	117	1060	56	107	949	30	43	19	9	13	62
Future Volume (vph)	117	1060	56	107	949	30	43	19	9	13	62
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	63.5	58.2	58.2	61.1	54.3	54.3	8.7	8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.73	0.67	0.67	0.71	0.63	0.63	0.10	0.10	0.10	0.10	0.10
v/c Ratio	0.37	0.85	0.05	0.41	0.82	0.03	0.31	0.31	0.07	0.07	0.29
Control Delay	5.9	19.9	1.3	7.7	18.2	0.3	48.7	23.6	44.3	43.8	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	19.9	1.3	7.7	18.2	0.3	48.7	23.6	44.3	43.8	15.3
LOS	A	B	A	A	B	A	D	C	D	D	B
Approach Delay		17.7			16.7			33.6		22.7	
Approach LOS		B			B			C		C	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 86.4  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 18.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 83.3%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

2028 Total Traffic  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗		↖	↗	↘
Traffic Volume (veh/h)	117	1060	56	107	949	30	43	19	46	9	13	62
Future Volume (veh/h)	117	1060	56	107	949	30	43	19	46	9	13	62
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	118	1071	57	108	959	30	43	19	46	9	13	63
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	374	1215	1029	303	1212	1027	193	36	88	152	141	119
Arrive On Green	0.06	0.65	0.65	0.06	0.65	0.65	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1323	485	1174	1337	1870	1585
Grp Volume(v), veh/h	118	1071	57	108	959	30	43	0	65	9	13	63
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1323	0	1659	1337	1870	1585
Q Serve(g_s), s	1.4	33.1	0.9	1.3	26.1	0.5	2.2	0.0	2.7	0.5	0.5	2.7
Cycle Q Clear(g_c), s	1.4	33.1	0.9	1.3	26.1	0.5	2.7	0.0	2.7	3.1	0.5	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	374	1215	1029	303	1212	1027	193	0	125	152	141	119
V/C Ratio(X)	0.32	0.88	0.06	0.36	0.79	0.03	0.22	0.00	0.52	0.06	0.09	0.53
Avail Cap(c_a), veh/h	437	2072	1756	369	2072	1756	470	0	471	432	531	450
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.2	10.1	4.5	13.0	9.0	4.4	31.6	0.0	31.3	32.8	30.3	31.4
Incr Delay (d2), s/veh	0.5	2.6	0.0	0.7	1.2	0.0	0.6	0.0	3.3	0.2	0.3	3.6
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	8.5	0.2	0.8	6.5	0.1	0.7	0.0	1.1	0.1	0.2	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.7	12.7	4.5	13.7	10.2	4.5	32.1	0.0	34.7	33.0	30.6	35.0
LnGrp LOS	A	B	A	B	B	A	C	A	C	C	C	C
Approach Vol, veh/h		1246			1097			108				85
Approach Delay, s/veh		12.0			10.4			33.7				34.1
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	50.7		10.3	9.5	50.6		10.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	3.3	35.1		5.1	3.4	28.1		4.7				
Green Ext Time (p_c), s	0.1	10.7		0.2	0.1	8.5		0.3				

Intersection Summary

HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	1059	19	192	1089	19	320
Future Vol, veh/h	1059	19	192	1089	19	320
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1070	19	194	1100	19	323

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1089	0	2558
Stage 1	-	-	-	-	1070
Stage 2	-	-	-	-	1488
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	641	-	29
Stage 1	-	-	-	-	329
Stage 2	-	-	-	-	207
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	641	-	20
Mov Cap-2 Maneuver	-	-	-	-	125
Stage 1	-	-	-	-	329
Stage 2	-	-	-	-	144

Approach	EB	WB	NB
HCM Control Delay, s	0	2	39
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	125	-	-	-	641	-
HCM Lane V/C Ratio	0.154	-	-	-	0.303	-
HCM Control Delay (s)	39	0	-	-	13	-
HCM Lane LOS	E	A	-	-	B	-
HCM 95th %tile Q(veh)	0.5	-	-	-	1.3	-



HCM 6th TWSC  
 14: E. 160th Ave (SH 7) & Tuscon St

2028 Total Traffic  
 PM Peak Hour

Intersection						
Int Delay, s/veh	15					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	47	1293	1216	67	43	26
Future Vol, veh/h	47	1293	1216	67	43	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	450	-	-	325	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	1347	1267	70	45	27

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1337	0	0 2712 1267
Stage 1	-	-	- 1267 -
Stage 2	-	-	- 1445 -
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	516	-	- ~ 23 206
Stage 1	-	-	- 265 -
Stage 2	-	-	- 217 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	516	-	- ~ 21 206
Mov Cap-2 Maneuver	-	-	- ~ 21 -
Stage 1	-	-	- 240 -
Stage 2	-	-	- 217 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	\$ 576.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	516	-	-	-	21	206
HCM Lane V/C Ratio	0.095	-	-	-	2.133	0.131
HCM Control Delay (s)	12.7	-	-	-	\$ 910.4	25.1
HCM Lane LOS	B	-	-	-	F	D
HCM 95th %tile Q(veh)	0.3	-	-	-	5.8	0.4

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Timings  
 14: E. 160th Ave (SH 7) & Tuscon St

2028 Total Traffic  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↑	↗	↖	↗
Traffic Volume (vph)	47	1293	1216	67	43	26
Future Volume (vph)	47	1293	1216	67	43	26
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	95.0	83.0	83.0	25.0	25.0
Total Split (%)	10.0%	79.2%	69.2%	69.2%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	93.0	94.0	85.0	85.0	10.2	10.2
Actuated g/C Ratio	0.84	0.85	0.77	0.77	0.09	0.09
v/c Ratio	0.27	0.85	0.88	0.06	0.28	0.16
Control Delay	5.5	13.2	22.1	1.5	51.2	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	13.2	22.1	1.5	51.2	19.0
LOS	A	B	C	A	D	B
Approach Delay		13.0	21.1		39.1	
Approach LOS		B	C		D	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 110.2  
 Natural Cycle: 100  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 17.5  
 Intersection Capacity Utilization 84.7%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service E

Splits and Phases: 14: E. 160th Ave (SH 7) & Tuscon St



HCM 6th Signalized Intersection Summary  
 14: E. 160th Ave (SH 7) & Tuscon St

2028 Total Traffic  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	47	1293	1216	67	43	26
Future Volume (veh/h)	47	1293	1216	67	43	26
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	1347	1267	70	45	27
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	215	1546	1394	1181	145	129
Arrive On Green	0.04	0.83	0.75	0.75	0.08	0.08
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	49	1347	1267	70	45	27
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	0.6	48.6	58.2	1.3	2.6	1.7
Cycle Q Clear(g_c), s	0.6	48.6	58.2	1.3	2.6	1.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	215	1546	1394	1181	145	129
V/C Ratio(X)	0.23	0.87	0.91	0.06	0.31	0.21
Avail Cap(c_a), veh/h	267	1546	1394	1181	327	291
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	5.8	10.9	3.7	47.1	46.7
Incr Delay (d2), s/veh	0.5	7.0	10.3	0.1	1.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	10.0	19.4	0.3	1.2	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.7	12.9	21.2	3.8	48.3	47.5
LnGrp LOS	C	B	C	A	D	D
Approach Vol, veh/h		1396	1337		72	
Approach Delay, s/veh		13.2	20.3		48.0	
Approach LOS		B	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.0		13.9	8.9	86.1
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s		90.0		20.0	7.0	78.0
Max Q Clear Time (g_c+I1), s		50.6		4.6	2.6	60.2
Green Ext Time (p_c), s		17.8		0.1	0.0	10.2
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			17.5			
HCM 6th LOS			B			

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	20	108	83	1
Future Vol, veh/h	0	8	20	108	83	1
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	-	155	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	23	124	95	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	266	96	96	0	-	0
Stage 1	96	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	723	960	1498	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	712	960	1498	-	-	-
Mov Cap-2 Maneuver	712	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	860	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1498	-	960	-	-
HCM Lane V/C Ratio	0.015	-	0.01	-	-
HCM Control Delay (s)	7.4	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	18	26	128	87	5
Future Vol, veh/h	1	18	26	128	87	5
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	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	21	30	147	100	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	310	103	106	0	0
Stage 1	103	-	-	-	-
Stage 2	207	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	682	952	1485	-	-
Stage 1	921	-	-	-	-
Stage 2	828	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	667	952	1485	-	-
Mov Cap-2 Maneuver	667	-	-	-	-
Stage 1	901	-	-	-	-
Stage 2	828	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1485	-	931	-	-
HCM Lane V/C Ratio	0.02	-	0.023	-	-
HCM Control Delay (s)	7.5	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

HCM 6th TWSC  
 17: Yosemite St & North Site Access

2028 Total Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	6.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↶	↶	↶	↶	↶
Traffic Vol, veh/h	16	0	50	132	0	43	78	23	222	72	34	27
Future Vol, veh/h	16	0	50	132	0	43	78	23	222	72	34	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	59	155	0	51	92	27	261	85	40	32

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	577	682	40	467	453	27	72	0	0	288	0	0
Stage 1	210	210	-	211	211	-	-	-	-	-	-	-
Stage 2	367	472	-	256	242	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	428	372	1031	506	503	1048	1528	-	-	1274	-	-
Stage 1	792	728	-	791	728	-	-	-	-	-	-	-
Stage 2	653	559	-	749	705	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	369	326	1031	432	441	1048	1528	-	-	1274	-	-
Mov Cap-2 Maneuver	369	326	-	432	441	-	-	-	-	-	-	-
Stage 1	744	679	-	744	684	-	-	-	-	-	-	-
Stage 2	584	525	-	659	658	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	10.3		15.6		1.8		4.3			
HCM LOS	B		C							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1528	-	-	369	1031	432	1048	1274	-	-
HCM Lane V/C Ratio	0.06	-	-	0.051	0.057	0.359	0.048	0.066	-	-
HCM Control Delay (s)	7.5	-	-	15.3	8.7	17.9	8.6	8	-	-
HCM Lane LOS	A	-	-	C	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0.2	1.6	0.2	0.2	-	-

HCM 6th TWSC  
 18: Yosemite St & South Site Access

2028 Total Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↶	↶	↶	↶	↶
Traffic Vol, veh/h	5	0	38	48	0	7	64	313	70	9	199	8
Future Vol, veh/h	5	0	38	48	0	7	64	313	70	9	199	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	0	45	56	0	8	75	368	82	11	234	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	819	856	234	801	783	368	243	0	0	450	0	0
Stage 1	256	256	-	518	518	-	-	-	-	-	-	-
Stage 2	563	600	-	283	265	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	294	295	805	303	325	677	1323	-	-	1110	-	-
Stage 1	749	696	-	541	533	-	-	-	-	-	-	-
Stage 2	511	490	-	724	689	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	276	276	805	272	304	677	1323	-	-	1110	-	-
Mov Cap-2 Maneuver	276	276	-	272	304	-	-	-	-	-	-	-
Stage 1	706	689	-	510	503	-	-	-	-	-	-	-
Stage 2	476	462	-	677	682	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.7		20.3		1.1		0.3	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1323	-	-	276	805	272	677	1110	-	-
HCM Lane V/C Ratio	0.057	-	-	0.021	0.056	0.208	0.012	0.01	-	-
HCM Control Delay (s)	7.9	-	-	18.3	9.7	21.7	10.4	8.3	-	-
HCM Lane LOS	A	-	-	C	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.2	0.8	0	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	3	5	451	291	3
Future Vol, veh/h	0	3	5	451	291	3
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	6	543	351	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	908	353	355	0	-	0
Stage 1	353	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	306	691	1204	-	-	-
Stage 1	711	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	304	691	1204	-	-	-
Mov Cap-2 Maneuver	304	-	-	-	-	-
Stage 1	706	-	-	-	-	-
Stage 2	575	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1204	-	691	-	-
HCM Lane V/C Ratio	0.005	-	0.005	-	-
HCM Control Delay (s)	8	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	14	24	450	292	1
Future Vol, veh/h	1	14	24	450	292	1
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	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	16	28	523	340	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	920	341	341	0	0
Stage 1	341	-	-	-	-
Stage 2	579	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	301	701	1218	-	-
Stage 1	720	-	-	-	-
Stage 2	560	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	291	701	1218	-	-
Mov Cap-2 Maneuver	291	-	-	-	-
Stage 1	697	-	-	-	-
Stage 2	560	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1218	-	641	-	-
HCM Lane V/C Ratio	0.023	-	0.027	-	-
HCM Control Delay (s)	8	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	2	13	0	38	2	37	25	60	57	4
Future Vol, veh/h	1	0	2	13	0	38	2	37	25	60	57	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	3	19	0	57	3	55	37	90	85	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	376	366	88	350	351	74	91	0	0	92	0	0
Stage 1	268	268	-	80	80	-	-	-	-	-	-	-
Stage 2	108	98	-	270	271	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	581	562	970	605	573	988	1504	-	-	1503	-	-
Stage 1	738	687	-	929	828	-	-	-	-	-	-	-
Stage 2	897	814	-	736	685	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	521	525	970	573	536	988	1504	-	-	1503	-	-
Mov Cap-2 Maneuver	521	525	-	573	536	-	-	-	-	-	-	-
Stage 1	737	644	-	927	826	-	-	-	-	-	-	-
Stage 2	844	812	-	688	642	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.8		9.8		0.2		3.7	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1504	-	-	754	834	1503	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.091	0.06	-	-
HCM Control Delay (s)	7.4	0	-	9.8	9.8	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.2	-	-

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	4	36	0	24	7	38	63	27	41	4
Future Vol, veh/h	2	0	4	36	0	24	7	38	63	27	41	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	85	63	85	85	85	63	63	85	85	63	63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	6	42	0	28	11	60	74	32	65	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	265	288	68	254	254	97	71	0	0	134	0	0
Stage 1	132	132	-	119	119	-	-	-	-	-	-	-
Stage 2	133	156	-	135	135	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	688	622	995	699	650	959	1529	-	-	1451	-	-
Stage 1	871	787	-	885	797	-	-	-	-	-	-	-
Stage 2	870	769	-	868	785	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	652	603	995	678	630	959	1529	-	-	1451	-	-
Mov Cap-2 Maneuver	652	603	-	678	630	-	-	-	-	-	-	-
Stage 1	864	769	-	878	791	-	-	-	-	-	-	-
Stage 2	838	763	-	843	767	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	9.3		10.2		0.6		2.3			
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1529	-	-	847	768	1451	-
HCM Lane V/C Ratio	0.007	-	-	0.011	0.092	0.022	-
HCM Control Delay (s)	7.4	0	-	9.3	10.2	7.5	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.1	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	176	235	2	7	7
Future Vol, veh/h	4	176	235	2	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	187	250	2	7	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	252	0	-	0	353
Stage 1	-	-	-	-	251
Stage 2	-	-	-	-	102
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1310	-	-	-	618
Stage 1	-	-	-	-	768
Stage 2	-	-	-	-	911
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1310	-	-	-	616
Mov Cap-2 Maneuver	-	-	-	-	616
Stage 1	-	-	-	-	766
Stage 2	-	-	-	-	911

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1310	-	-	-	732
HCM Lane V/C Ratio	0.003	-	-	-	0.02
HCM Control Delay (s)	7.8	-	-	-	10
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	163	20	38	228	9	18
Future Vol, veh/h	163	20	38	228	9	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	173	21	40	243	10	19

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	194	0	375
Stage 1	-	-	-	-	173
Stage 2	-	-	-	-	202
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1377	-	599
Stage 1	-	-	-	-	840
Stage 2	-	-	-	-	812
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1377	-	582
Mov Cap-2 Maneuver	-	-	-	-	582
Stage 1	-	-	-	-	840
Stage 2	-	-	-	-	788

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	582	954	-	-	1377	-
HCM Lane V/C Ratio	0.016	0.02	-	-	0.029	-
HCM Control Delay (s)	11.3	8.9	-	-	7.7	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙	↑↑	↗	↙	↗		↙	↗	
Traffic Vol, veh/h	25	166	5	2	274	27	10	0	1	27	0	34
Future Vol, veh/h	25	166	5	2	274	27	10	0	1	27	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	250	-	250	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	177	5	2	291	29	11	0	1	29	0	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	320	0	0	182	0	0	381	555	89	438	531	146
Stage 1	-	-	-	-	-	-	231	231	-	295	295	-
Stage 2	-	-	-	-	-	-	150	324	-	143	236	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1237	-	-	1391	-	-	552	438	951	502	452	875
Stage 1	-	-	-	-	-	-	751	712	-	689	668	-
Stage 2	-	-	-	-	-	-	837	648	-	845	708	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1237	-	-	1391	-	-	520	428	951	492	442	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	520	428	-	492	442	-
Stage 1	-	-	-	-	-	-	734	696	-	674	667	-
Stage 2	-	-	-	-	-	-	801	647	-	826	692	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			11.8			10.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	520	951	1237	-	-	1391	-	-	492	875
HCM Lane V/C Ratio	0.02	0.001	0.022	-	-	0.002	-	-	0.058	0.041
HCM Control Delay (s)	12.1	8.8	8	-	-	7.6	-	-	12.8	9.3
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	0	0.1	-	-	0	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	183	3	11	287	7	10
Future Vol, veh/h	183	3	11	287	7	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	195	3	12	305	7	11

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	198	0	372
Stage 1	-	-	-	-	195
Stage 2	-	-	-	-	177
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1372	-	602
Stage 1	-	-	-	-	819
Stage 2	-	-	-	-	836
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1372	-	597
Mov Cap-2 Maneuver	-	-	-	-	597
Stage 1	-	-	-	-	819
Stage 2	-	-	-	-	828

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	597	939	-	-	1372	-
HCM Lane V/C Ratio	0.012	0.011	-	-	0.009	-
HCM Control Delay (s)	11.1	8.9	-	-	7.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	202	304	2	2	2
Future Vol, veh/h	2	202	304	2	2	2
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	215	323	2	2	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	325	0	-	0	436 163
Stage 1	-	-	-	-	324 -
Stage 2	-	-	-	-	112 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1231	-	-	-	549 853
Stage 1	-	-	-	-	705 -
Stage 2	-	-	-	-	900 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1231	-	-	-	548 853
Mov Cap-2 Maneuver	-	-	-	-	548 -
Stage 1	-	-	-	-	704 -
Stage 2	-	-	-	-	900 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1231	-	-	-	667
HCM Lane V/C Ratio	0.002	-	-	-	0.006
HCM Control Delay (s)	7.9	-	-	-	10.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0



Intersection						
Int Delay, s/veh	2.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	202	2	88	293	13	69
Future Vol, veh/h	202	2	88	293	13	69
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	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	215	2	94	312	14	73

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	217	0	559 108
Stage 1	-	-	-	-	215 -
Stage 2	-	-	-	-	344 -
Critical Hdwy	-	-	4.14	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	-	-	2.22	-	3.52 3.32
Pot Cap-1 Maneuver	-	-	1350	-	459 925
Stage 1	-	-	-	-	800 -
Stage 2	-	-	-	-	689 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1350	-	427 925
Mov Cap-2 Maneuver	-	-	-	-	427 -
Stage 1	-	-	-	-	800 -
Stage 2	-	-	-	-	641 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	781	-	-	1350	-
HCM Lane V/C Ratio	0.112	-	-	0.069	-
HCM Control Delay (s)	10.2	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-

Timings  
10: Quebec St & E. 160th Ave (SH 7)

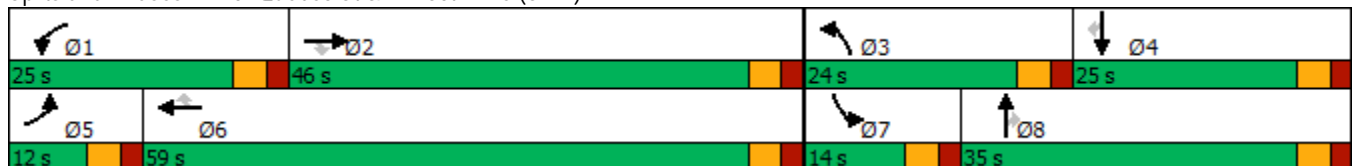
2043 Background Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	837	177	363	1164	25	437	76	238	33	114	47
Future Volume (vph)	20	837	177	363	1164	25	437	76	238	33	114	47
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
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)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	46.0	46.0	25.0	59.0	59.0	24.0	35.0	35.0	14.0	25.0	25.0
Total Split (%)	10.0%	38.3%	38.3%	20.8%	49.2%	49.2%	20.0%	29.2%	29.2%	11.7%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effect Green (s)	6.4	41.3	41.3	16.6	58.4	58.4	17.9	24.2	24.2	7.4	9.0	9.0
Actuated g/C Ratio	0.06	0.39	0.39	0.16	0.56	0.56	0.17	0.23	0.23	0.07	0.09	0.09
v/c Ratio	0.19	0.64	0.25	0.71	0.63	0.03	0.80	0.10	0.45	0.28	0.40	0.16
Control Delay	53.2	29.1	3.7	50.0	19.1	0.0	53.4	35.5	7.8	53.7	50.3	1.1
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	53.2	29.1	3.7	50.0	19.1	0.0	53.4	35.5	7.8	53.7	50.3	1.1
LOS	D	C	A	D	B	A	D	D	A	D	D	A
Approach Delay		25.3			26.0			37.1			38.9	
Approach LOS		C			C			D			D	

Intersection Summary

























Cycle Length: 120  
 Actuated Cycle Length: 104.8  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 28.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 68.0%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

2043 Background Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	837	177	363	1164	25	437	76	238	33	114	47
Future Volume (veh/h)	20	837	177	363	1164	25	437	76	238	33	114	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	890	0	386	1238	27	465	81	0	35	121	50
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	40	1560		474	1968	878	548	666		56	214	95
Arrive On Green	0.02	0.44	0.00	0.14	0.55	0.55	0.16	0.19	0.00	0.03	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	21	890	0	386	1238	27	465	81	0	35	121	50
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.1	18.3	0.0	10.6	23.3	0.8	12.8	1.8	0.0	1.9	3.2	3.0
Cycle Q Clear(g_c), s	1.1	18.3	0.0	10.6	23.3	0.8	12.8	1.8	0.0	1.9	3.2	3.0
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	40	1560		474	1968	878	548	666		56	214	95
V/C Ratio(X)	0.53	0.57		0.81	0.63	0.03	0.85	0.12		0.63	0.57	0.52
Avail Cap(c_a), veh/h	128	1560		709	1968	878	673	1093		164	729	325
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	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	20.5	0.0	40.8	14.9	9.9	39.9	32.9	0.0	46.7	44.6	44.5
Incr Delay (d2), s/veh	10.5	1.5	0.0	4.5	1.5	0.1	8.4	0.1	0.0	10.9	2.4	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	7.1	0.0	4.6	8.3	0.3	5.9	0.8	0.0	1.0	1.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	22.0	0.0	45.3	16.4	9.9	48.3	33.0	0.0	57.6	46.9	48.9
LnGrp LOS	E	C		D	B	A	D	C		E	D	D
Approach Vol, veh/h		911			1651			546			206	
Approach Delay, s/veh		22.8			23.1			46.0			49.2	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.4	47.8	20.5	10.9	7.2	59.0	8.1	23.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	41.0	19.0	20.0	7.0	54.0	9.0	30.0				
Max Q Clear Time (g_c+I1), s	12.6	20.3	14.8	5.2	3.1	25.3	3.9	3.8				
Green Ext Time (p_c), s	0.8	5.6	0.7	0.6	0.0	9.6	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Notes

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

Timings  
11: Yosemite St & E. 160th Ave (SH 7)

2043 Background Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	14	1107	34	47	1545	7	67	9	16	7	18
Future Volume (vph)	14	1107	34	47	1545	7	67	9	16	7	18
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	78.0	78.0	12.0	78.0	78.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	40.2	37.0	37.0	42.3	41.4	41.4	10.1	10.1	10.1	10.1	10.1
Actuated g/C Ratio	0.63	0.58	0.58	0.66	0.64	0.64	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.05	0.58	0.04	0.14	0.72	0.01	0.32	0.28	0.08	0.02	0.06
Control Delay	3.8	10.6	0.7	4.2	10.0	0.0	34.8	13.2	32.5	31.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	10.6	0.7	4.2	10.0	0.0	34.8	13.2	32.5	31.9	0.4
LOS	A	B	A	A	B	A	C	B	C	C	A
Approach Delay		10.2			9.8			22.8		18.2	
Approach LOS		B			A			C		B	

Intersection Summary
























Cycle Length: 120  
 Actuated Cycle Length: 64.2  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 10.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 63.5%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

2043 Background Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	1107	34	47	1545	7	67	9	74	16	7	18
Future Volume (veh/h)	14	1107	34	47	1545	7	67	9	74	16	7	18
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	15	1178	0	50	1644	7	71	10	79	17	7	19
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	2161		398	2262	1009	251	18	142	179	186	157
Arrive On Green	0.02	0.61	0.00	0.05	0.64	0.64	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1385	181	1431	1308	1870	1585
Grp Volume(v), veh/h	15	1178	0	50	1644	7	71	0	89	17	7	19
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1385	0	1613	1308	1870	1585
Q Serve(g_s), s	0.2	11.9	0.0	0.6	19.1	0.1	3.0	0.0	3.2	0.8	0.2	0.7
Cycle Q Clear(g_c), s	0.2	11.9	0.0	0.6	19.1	0.1	3.2	0.0	3.2	4.0	0.2	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.89	1.00		1.00
Lane Grp Cap(c), veh/h	249	2161		398	2262	1009	251	0	160	179	186	157
V/C Ratio(X)	0.06	0.55		0.13	0.73	0.01	0.28	0.00	0.56	0.10	0.04	0.12
Avail Cap(c_a), veh/h	420	4251		519	4251	1896	681	0	661	585	766	649
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.9	7.0	0.0	5.0	7.5	4.0	26.3	0.0	26.2	28.1	24.9	25.1
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.1	0.5	0.0	0.6	0.0	3.0	0.2	0.1	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	0.0	2.6	0.0	0.1	3.8	0.0	0.9	0.0	1.3	0.2	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0	7.2	0.0	5.2	8.0	4.1	26.9	0.0	29.2	28.3	24.9	25.4
LnGrp LOS	A	A		A	A	A	C	A	C	C	C	C
Approach Vol, veh/h		1193			1701			160			43	
Approach Delay, s/veh		7.2			7.9			28.2			26.5	
Approach LOS		A			A			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	42.1		11.1	6.1	43.8		11.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	73.0		25.0	7.0	73.0		25.0				
Max Q Clear Time (g_c+I1), s	2.6	13.9		6.0	2.2	21.1		5.2				
Green Ext Time (p_c), s	0.0	10.0		0.1	0.0	17.8		0.6				

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

2043 Background Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	16	1139	14	36	1452	9	29	5	16	8	39
Future Volume (vph)	16	1139	14	36	1452	9	29	5	16	8	39
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	34.3	32.3	32.3	35.1	34.3	34.3	7.6	7.6	7.6	7.6	7.6
Actuated g/C Ratio	0.63	0.59	0.59	0.65	0.63	0.63	0.14	0.14	0.14	0.14	0.14
v/c Ratio	0.05	0.57	0.02	0.10	0.69	0.01	0.16	0.34	0.10	0.03	0.15
Control Delay	3.1	8.6	0.0	3.4	8.7	0.0	29.7	11.9	29.4	28.5	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	8.6	0.0	3.4	8.7	0.0	29.7	11.9	29.4	28.5	6.3
LOS	A	A	A	A	A	A	C	B	C	C	A
Approach Delay		8.4			8.6			16.0		15.1	
Approach LOS		A			A			B		B	

Intersection Summary
























Cycle Length: 120  
 Actuated Cycle Length: 54.3  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 9.0  
 Intersection Capacity Utilization 61.0%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

2043 Background Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1139	14	36	1452	9	29	5	92	16	8	39
Future Volume (veh/h)	16	1139	14	36	1452	9	29	5	92	16	8	39
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	17	1212	15	38	1545	10	31	5	98	17	9	41
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	264	2107	940	367	2173	969	267	9	168	187	206	175
Arrive On Green	0.02	0.59	0.59	0.04	0.61	0.61	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1355	78	1519	1291	1870	1585
Grp Volume(v), veh/h	17	1212	15	38	1545	10	31	0	103	17	9	41
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1355	0	1597	1291	1870	1585
Q Serve(g_s), s	0.2	12.3	0.2	0.5	17.4	0.1	1.2	0.0	3.6	0.7	0.3	1.4
Cycle Q Clear(g_c), s	0.2	12.3	0.2	0.5	17.4	0.1	1.5	0.0	3.6	4.3	0.3	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		1.00
Lane Grp Cap(c), veh/h	264	2107	940	367	2173	969	267	0	176	187	206	175
V/C Ratio(X)	0.06	0.58	0.02	0.10	0.71	0.01	0.12	0.00	0.58	0.09	0.04	0.23
Avail Cap(c_a), veh/h	441	4757	2122	511	4757	2122	583	0	548	488	642	544
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.8	7.3	4.9	5.4	7.8	4.4	23.8	0.0	24.7	26.7	23.2	23.7
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.1	0.4	0.0	0.2	0.0	3.1	0.2	0.1	0.7
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	0.0	2.6	0.0	0.1	3.5	0.0	0.4	0.0	1.4	0.2	0.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.9	7.6	4.9	5.6	8.2	4.4	24.0	0.0	27.7	26.9	23.3	24.4
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	C	C
Approach Vol, veh/h		1244			1593			134			67	
Approach Delay, s/veh		7.5			8.1			26.9			24.9	
Approach LOS		A			A			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	39.5		11.4	6.2	40.6		11.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.5	14.3		6.3	2.2	19.4		5.6				
Green Ext Time (p_c), s	0.0	10.6		0.1	0.0	16.2		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				9.1								
HCM 6th LOS				A								

Intersection						
Int Delay, s/veh	6.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	1192	47	399	1439	16	318
Future Vol, veh/h	1192	47	399	1439	16	318
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1268	50	424	1531	17	338

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1318	0	2882
Stage 1	-	-	-	-	1268
Stage 2	-	-	-	-	1614
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	520	-	~ 13
Stage 1	-	-	-	-	228
Stage 2	-	-	-	-	148
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	520	-	~ 2
Mov Cap-2 Maneuver	-	-	-	-	25
Stage 1	-	-	-	-	228
Stage 2	-	-	-	-	27

Approach	EB	WB	NB
HCM Control Delay, s	0	7.8	299.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	25	-	-	-	520	-
HCM Lane V/C Ratio	0.681	-	-	-	0.816	-
HCM Control Delay (s)	299.2	0	-	-	35.8	-
HCM Lane LOS	F	A	-	-	E	-
HCM 95th %tile Q(veh)	2.1	-	-	-	8	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



Timings  
14: E. 160th Ave (SH 7) & Tuscon St

2043 Background Traffic  
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↕	↕	↗	↖	↗
Traffic Volume (vph)	51	1495	1816	14	14	72
Future Volume (vph)	51	1495	1816	14	14	72
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	95.0	83.0	83.0	25.0	25.0
Total Split (%)	10.0%	79.2%	69.2%	69.2%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	93.0	94.0	85.0	85.0	10.0	10.0
Actuated g/C Ratio	0.85	0.85	0.77	0.77	0.09	0.09
v/c Ratio	0.28	0.53	0.71	0.01	0.09	0.36
Control Delay	5.4	3.6	10.4	2.1	47.4	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	3.6	10.4	2.1	47.4	15.7
LOS	A	A	B	A	D	B
Approach Delay		3.6	10.3		20.9	
Approach LOS		A	B		C	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 110  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 7.6  
 Intersection Capacity Utilization 66.9%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service C

Splits and Phases: 14: E. 160th Ave (SH 7) & Tuscon St



HCM 6th Signalized Intersection Summary  
 14: E. 160th Ave (SH 7) & Tuscon St

2043 Background Traffic  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↘	↙	↘
Traffic Volume (veh/h)	51	1495	1816	14	14	72
Future Volume (veh/h)	51	1495	1816	14	14	72
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	1590	1932	15	15	77
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	229	2924	2630	1173	153	136
Arrive On Green	0.04	0.82	0.74	0.74	0.09	0.09
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	54	1590	1932	15	15	77
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	0.7	15.7	33.9	0.3	0.8	5.1
Cycle Q Clear(g_c), s	0.7	15.7	33.9	0.3	0.8	5.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	229	2924	2630	1173	153	136
V/C Ratio(X)	0.24	0.54	0.73	0.01	0.10	0.57
Avail Cap(c_a), veh/h	277	2924	2630	1173	326	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.1	3.1	8.1	3.7	46.1	48.0
Incr Delay (d2), s/veh	0.5	0.7	1.9	0.0	0.3	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.6	9.4	0.1	0.4	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.6	3.8	10.0	3.7	46.4	51.7
LnGrp LOS	B	A	A	A	D	D
Approach Vol, veh/h		1644	1947		92	
Approach Delay, s/veh		4.1	9.9		50.8	
Approach LOS		A	A		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.0		14.4	9.0	86.0
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s		90.0		20.0	7.0	78.0
Max Q Clear Time (g_c+I1), s		17.7		7.1	2.7	35.9
Green Ext Time (p_c), s		17.6		0.2	0.0	21.9
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			8.3			
HCM 6th LOS			A			

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑↑	↑↑	
Traffic Vol, veh/h	3	21	8	47	67	2
Future Vol, veh/h	3	21	8	47	67	2
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	22	9	50	71	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	115	37	73	0	-	0
Stage 1	72	-	-	-	-	-
Stage 2	43	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	869	1027	1525	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	864	1027	1525	-	-	-
Mov Cap-2 Maneuver	864	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	974	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1525	-	1003	-	-
HCM Lane V/C Ratio	0.006	-	0.025	-	-
HCM Control Delay (s)	7.4	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Traffic Vol, veh/h	3	39	15	57	89	2
Future Vol, veh/h	3	39	15	57	89	2
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	41	16	61	95	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	159	49	97	0	0
Stage 1	96	-	-	-	-
Stage 2	63	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-
Pot Cap-1 Maneuver	816	1009	1494	-	-
Stage 1	917	-	-	-	-
Stage 2	952	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	807	1009	1494	-	-
Mov Cap-2 Maneuver	807	-	-	-	-
Stage 1	907	-	-	-	-
Stage 2	952	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1494	-	991	-	-
HCM Lane V/C Ratio	0.011	-	0.045	-	-
HCM Control Delay (s)	7.4	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	1	5	3	5	13	0
Future Vol, veh/h	1	5	3	5	13	0
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	3	5	14	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	25	14	14	0	0
Stage 1	14	-	-	-	-
Stage 2	11	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	991	1066	1604	-	-
Stage 1	1009	-	-	-	-
Stage 2	1012	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	989	1066	1604	-	-
Mov Cap-2 Maneuver	989	-	-	-	-
Stage 1	1007	-	-	-	-
Stage 2	1012	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1604	-	1052	-	-
HCM Lane V/C Ratio	0.002	-	0.006	-	-
HCM Control Delay (s)	7.2	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	11	14	13	0
Future Vol, veh/h	0	27	11	14	13	0
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	29	12	15	14	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	53	14	14	0	0
Stage 1	14	-	-	-	-
Stage 2	39	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	955	1066	1604	-	-
Stage 1	1009	-	-	-	-
Stage 2	983	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	947	1066	1604	-	-
Mov Cap-2 Maneuver	947	-	-	-	-
Stage 1	1001	-	-	-	-
Stage 2	983	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1604	-	1066	-	-
HCM Lane V/C Ratio	0.007	-	0.027	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	2	0	0	0	3	14	0	0	13	1
Future Vol, veh/h	3	0	2	0	0	0	3	14	0	0	13	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	2	0	0	0	3	15	0	0	14	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	36	36	15	37	36	15	15	0	0	15	0	0
Stage 1	15	15	-	21	21	-	-	-	-	-	-	-
Stage 2	21	21	-	16	15	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	970	856	1065	968	856	1065	1603	-	-	1603	-	-
Stage 1	1005	883	-	998	878	-	-	-	-	-	-	-
Stage 2	998	878	-	1004	883	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	968	854	1065	964	854	1065	1603	-	-	1603	-	-
Mov Cap-2 Maneuver	968	854	-	964	854	-	-	-	-	-	-	-
Stage 1	1003	883	-	996	876	-	-	-	-	-	-	-
Stage 2	996	876	-	1002	883	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.6		0		1.3		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1603	-	-	1005	-	1603	-
HCM Lane V/C Ratio	0.002	-	-	0.005	-	-	-
HCM Control Delay (s)	7.2	0	-	8.6	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	4	3	17	15	0
Future Vol, veh/h	0	4	3	17	15	0
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	3	18	16	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	40	16	16	0	0
Stage 1	16	-	-	-	-
Stage 2	24	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	972	1063	1602	-	-
Stage 1	1007	-	-	-	-
Stage 2	999	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	970	1063	1602	-	-
Mov Cap-2 Maneuver	970	-	-	-	-
Stage 1	1005	-	-	-	-
Stage 2	999	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1602	-	1063	-	-
HCM Lane V/C Ratio	0.002	-	0.004	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	475	266	14	5	5
Future Vol, veh/h	13	475	266	14	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	505	283	15	5	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	298	0	-	0	572 149
Stage 1	-	-	-	-	291 -
Stage 2	-	-	-	-	281 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1260	-	-	-	450 871
Stage 1	-	-	-	-	733 -
Stage 2	-	-	-	-	741 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1260	-	-	-	445 871
Mov Cap-2 Maneuver	-	-	-	-	445 -
Stage 1	-	-	-	-	725 -
Stage 2	-	-	-	-	741 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1260	-	-	-	589
HCM Lane V/C Ratio	0.011	-	-	-	0.018
HCM Control Delay (s)	7.9	-	-	-	11.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	435	45	61	271	9	83
Future Vol, veh/h	435	45	61	271	9	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	463	48	65	288	10	88

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	511	0	737 232
Stage 1	-	-	-	-	463 -
Stage 2	-	-	-	-	274 -
Critical Hdwy	-	-	4.14	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	-	-	2.22	-	3.52 3.32
Pot Cap-1 Maneuver	-	-	1050	-	354 770
Stage 1	-	-	-	-	600 -
Stage 2	-	-	-	-	747 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1050	-	332 770
Mov Cap-2 Maneuver	-	-	-	-	332 -
Stage 1	-	-	-	-	600 -
Stage 2	-	-	-	-	701 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	332	770	-	-	1050	-
HCM Lane V/C Ratio	0.029	0.115	-	-	0.062	-
HCM Control Delay (s)	16.2	10.3	-	-	8.7	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0.2	-

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙	↑↑	↗	↙	↗		↙	↗	
Traffic Vol, veh/h	65	424	16	2	240	45	9	0	3	49	0	61
Future Vol, veh/h	65	424	16	2	240	45	9	0	3	49	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	250	-	250	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	69	451	17	2	255	48	10	0	3	52	0	65

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	303	0	0	468	0	0	721	896	226	623	865	128
Stage 1	-	-	-	-	-	-	589	589	-	259	259	-
Stage 2	-	-	-	-	-	-	132	307	-	364	606	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1255	-	-	1090	-	-	315	278	777	370	290	898
Stage 1	-	-	-	-	-	-	461	494	-	723	692	-
Stage 2	-	-	-	-	-	-	858	660	-	627	485	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1255	-	-	1090	-	-	280	262	777	353	273	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	280	262	-	353	273	-
Stage 1	-	-	-	-	-	-	436	467	-	683	691	-
Stage 2	-	-	-	-	-	-	795	659	-	590	458	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	1		0.1		16.2		12.7	
HCM LOS					C		B	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	280	777	1255	-	-	1090	-	-	353	898
HCM Lane V/C Ratio	0.034	0.004	0.055	-	-	0.002	-	-	0.148	0.072
HCM Control Delay (s)	18.3	9.7	8	-	-	8.3	-	-	17	9.3
HCM Lane LOS	C	A	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.1	0	0.2	-	-	0	-	-	0.5	0.2

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	478	8	26	311	3	11
Future Vol, veh/h	478	8	26	311	3	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	509	9	28	331	3	12

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	518	0	731
Stage 1	-	-	-	-	509
Stage 2	-	-	-	-	222
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1044	-	357
Stage 1	-	-	-	-	569
Stage 2	-	-	-	-	794
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1044	-	347
Mov Cap-2 Maneuver	-	-	-	-	347
Stage 1	-	-	-	-	569
Stage 2	-	-	-	-	773

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	347	744	-	-	1044	-
HCM Lane V/C Ratio	0.009	0.016	-	-	0.026	-
HCM Control Delay (s)	15.5	9.9	-	-	8.5	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	476	319	14	5	2
Future Vol, veh/h	4	476	319	14	5	2
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	506	339	15	5	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	354	0	-	0	608
Stage 1	-	-	-	-	347
Stage 2	-	-	-	-	261
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1201	-	-	-	427
Stage 1	-	-	-	-	687
Stage 2	-	-	-	-	759
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1201	-	-	-	426
Mov Cap-2 Maneuver	-	-	-	-	426
Stage 1	-	-	-	-	685
Stage 2	-	-	-	-	759

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1201	-	-	-	495
HCM Lane V/C Ratio	0.004	-	-	-	0.015
HCM Control Delay (s)	8	-	-	-	12.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	470	11	29	315	18	63
Future Vol, veh/h	470	11	29	315	18	63
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	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	12	31	335	19	67

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	512	0	730
Stage 1	-	-	-	-	500
Stage 2	-	-	-	-	230
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1050	-	357
Stage 1	-	-	-	-	575
Stage 2	-	-	-	-	786
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1050	-	346
Mov Cap-2 Maneuver	-	-	-	-	346
Stage 1	-	-	-	-	575
Stage 2	-	-	-	-	762

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	595	-	-	1050	-
HCM Lane V/C Ratio	0.145	-	-	0.029	-
HCM Control Delay (s)	12.1	-	-	8.5	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Timings  
10: Quebec St & E. 160th Ave (SH 7)

2043 Background Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	963	309	382	1008	20	399	184	263	34	107	34
Future Volume (vph)	52	963	309	382	1008	20	399	184	263	34	107	34
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			4
Detector Phase	5	2		1	6	6	3	8		7	4	4
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
Minimum Split (s)	10.0	20.0		10.0	20.0	20.0	10.0	20.0		10.0	20.0	20.0
Total Split (s)	12.0	55.0		20.0	63.0	63.0	20.0	33.0		12.0	25.0	25.0
Total Split (%)	10.0%	45.8%		16.7%	52.5%	52.5%	16.7%	27.5%		10.0%	20.8%	20.8%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Min		None	Min	Min
Act Effect Green (s)	6.8	33.7	92.5	14.9	44.3	44.3	15.1	22.0	92.5	6.6	8.5	8.5
Actuated g/C Ratio	0.07	0.36	1.00	0.16	0.48	0.48	0.16	0.24	1.00	0.07	0.09	0.09
v/c Ratio	0.43	0.79	0.21	0.73	0.63	0.03	0.76	0.23	0.18	0.29	0.35	0.11
Control Delay	54.8	31.3	0.3	47.4	20.6	0.1	48.3	33.0	0.2	50.2	44.2	0.7
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	54.8	31.3	0.3	47.4	20.6	0.1	48.3	33.0	0.2	50.2	44.2	0.7
LOS	D	C	A	D	C	A	D	C	A	D	D	A
Approach Delay		25.0			27.6			30.0			36.9	
Approach LOS		C			C			C			D	

Intersection Summary

























Cycle Length: 120  
 Actuated Cycle Length: 92.5  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 27.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 69.7%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

2043 Background Traffic  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	963	309	382	1008	20	399	184	263	34	107	34
Future Volume (veh/h)	52	963	309	382	1008	20	399	184	263	34	107	34
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	55	1024	0	406	1072	21	424	196	0	36	114	36
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	1331		509	1694	756	527	649		62	232	103
Arrive On Green	0.04	0.37	0.00	0.15	0.48	0.48	0.15	0.18	0.00	0.03	0.07	0.07
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	55	1024	0	406	1072	21	424	196	0	36	114	36
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.3	19.4	0.0	8.7	17.3	0.5	9.1	3.7	0.0	1.5	2.4	1.7
Cycle Q Clear(g_c), s	2.3	19.4	0.0	8.7	17.3	0.5	9.1	3.7	0.0	1.5	2.4	1.7
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	80	1331		509	1694	756	527	649		62	232	103
V/C Ratio(X)	0.69	0.77		0.80	0.63	0.03	0.81	0.30		0.58	0.49	0.35
Avail Cap(c_a), veh/h	163	2316		676	2687	1198	676	1297		163	926	413
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	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	21.1	0.0	31.6	15.0	10.6	31.4	27.1	0.0	36.5	34.6	34.3
Incr Delay (d2), s/veh	9.9	1.0	0.0	5.0	0.4	0.0	5.5	0.3	0.0	8.2	1.6	2.0
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	1.2	7.0	0.0	3.7	5.7	0.2	4.0	1.5	0.0	0.8	1.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	22.0	0.0	36.6	15.4	10.7	36.9	27.4	0.0	44.7	36.3	36.3
LnGrp LOS	D	C		D	B	B	D	C		D	D	D
Approach Vol, veh/h		1079			1499			620			186	
Approach Delay, s/veh		23.3			21.1			33.9			37.9	
Approach LOS		C			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.3	33.7	16.7	10.0	8.5	41.6	7.7	19.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	50.0	15.0	20.0	7.0	58.0	7.0	28.0				
Max Q Clear Time (g_c+I1), s	10.7	21.4	11.1	4.4	4.3	19.3	3.5	5.7				
Green Ext Time (p_c), s	0.6	7.3	0.6	0.6	0.0	8.4	0.0	1.1				

Intersection Summary

HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

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



Timings  
11: Yosemite St & E. 160th Ave (SH 7)

2043 Background Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	25	1163	83	63	1364	11	65	11	9	9	15
Future Volume (vph)	25	1163	83	63	1364	11	65	11	9	9	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)	36.7	33.5	33.5	37.9	35.9	35.9	9.4	9.4	9.4	9.4	9.4
Actuated g/C Ratio	0.61	0.56	0.56	0.63	0.60	0.60	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.09	0.63	0.10	0.19	0.69	0.01	0.32	0.25	0.05	0.03	0.05
Control Delay	3.9	11.2	2.2	4.7	10.9	0.0	32.9	13.6	30.0	29.7	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
Total Delay	3.9	11.2	2.2	4.7	10.9	0.0	32.9	13.6	30.0	29.7	0.3
LOS	A	B	A	A	B	A	C	B	C	C	A
Approach Delay		10.5			10.5			22.7		16.7	
Approach LOS		B			B			C		B	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 60  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 11.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 64.6%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

2043 Background Traffic  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↗		↘	↑	↗
Traffic Volume (veh/h)	25	1163	83	63	1364	11	65	11	61	9	9	15
Future Volume (veh/h)	25	1163	83	63	1364	11	65	11	61	9	9	15
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	27	1237	0	67	1451	12	69	12	65	10	10	16
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	2000		388	2100	937	264	25	134	205	184	156
Arrive On Green	0.03	0.56	0.00	0.06	0.59	0.59	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1385	253	1371	1322	1870	1585
Grp Volume(v), veh/h	27	1237	0	67	1451	12	69	0	77	10	10	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1385	0	1624	1322	1870	1585
Q Serve(g_s), s	0.3	12.5	0.0	0.8	15.1	0.2	2.5	0.0	2.4	0.4	0.3	0.5
Cycle Q Clear(g_c), s	0.3	12.5	0.0	0.8	15.1	0.2	2.8	0.0	2.4	2.8	0.3	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.84	1.00		1.00
Lane Grp Cap(c), veh/h	301	2000		388	2100	937	264	0	159	205	184	156
V/C Ratio(X)	0.09	0.62		0.17	0.69	0.01	0.26	0.00	0.48	0.05	0.05	0.10
Avail Cap(c_a), veh/h	479	5177		516	5177	2309	645	0	606	569	699	592
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.4	7.8	0.0	5.7	7.6	4.5	23.2	0.0	22.9	24.2	21.9	22.0
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.2	0.4	0.0	0.5	0.0	2.3	0.1	0.1	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	0.1	2.7	0.0	0.1	2.9	0.0	0.8	0.0	0.9	0.1	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	8.2	0.0	5.9	8.0	4.5	23.7	0.0	25.1	24.3	22.0	22.3
LnGrp LOS	A	A		A	A	A	C	A	C	C	C	C
Approach Vol, veh/h		1264			1530			146				36
Approach Delay, s/veh		8.1			7.9			24.4				22.8
Approach LOS		A			A			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	35.1		10.3	6.7	36.6		10.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.8	14.5		4.8	2.3	17.1		4.8				
Green Ext Time (p_c), s	0.0	10.9		0.1	0.0	14.5		0.4				

Intersection Summary

HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

2043 Background Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	48	1125	54	166	1425	19	14	10	9	7	18
Future Volume (vph)	48	1125	54	166	1425	19	14	10	9	7	18
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	40.3	33.7	33.7	43.5	39.8	39.8	7.0	7.0	7.0	7.0	7.0
Actuated g/C Ratio	0.63	0.53	0.53	0.69	0.63	0.63	0.11	0.11	0.11	0.11	0.11
v/c Ratio	0.17	0.64	0.07	0.49	0.68	0.02	0.10	0.36	0.07	0.03	0.08
Control Delay	3.9	11.7	1.8	9.4	10.7	0.1	32.7	15.4	32.3	31.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.9	11.7	1.8	9.4	10.7	0.1	32.7	15.4	32.3	31.6	0.7
LOS	A	B	A	A	B	A	C	B	C	C	A
Approach Delay		10.9			10.5			17.9		15.5	
Approach LOS		B			B			B		B	

Intersection Summary
























Cycle Length: 120  
 Actuated Cycle Length: 63.5  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 11.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 63.5%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

2043 Background Traffic  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	1125	54	166	1425	19	14	10	72	9	7	18
Future Volume (veh/h)	48	1125	54	166	1425	19	14	10	72	9	7	18
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	51	1197	57	177	1516	20	15	11	77	10	7	19
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	2019	900	421	2134	952	249	19	134	179	177	150
Arrive On Green	0.05	0.57	0.57	0.08	0.60	0.60	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1385	202	1414	1309	1870	1585
Grp Volume(v), veh/h	51	1197	57	177	1516	20	15	0	88	10	7	19
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1385	0	1616	1309	1870	1585
Q Serve(g_s), s	0.7	12.8	0.9	2.3	17.4	0.3	0.6	0.0	3.0	0.4	0.2	0.6
Cycle Q Clear(g_c), s	0.7	12.8	0.9	2.3	17.4	0.3	0.8	0.0	3.0	3.5	0.2	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	312	2019	900	421	2134	952	249	0	153	179	177	150
V/C Ratio(X)	0.16	0.59	0.06	0.42	0.71	0.02	0.06	0.00	0.58	0.06	0.04	0.13
Avail Cap(c_a), veh/h	439	4743	2116	491	4743	2116	592	0	553	503	640	542
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.8	8.2	5.7	6.3	8.1	4.7	24.4	0.0	25.3	27.0	24.0	24.2
Incr Delay (d2), s/veh	0.2	0.3	0.0	0.7	0.4	0.0	0.1	0.0	3.4	0.1	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.0	0.2	0.5	3.7	0.1	0.2	0.0	1.2	0.1	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	8.5	5.7	7.0	8.6	4.7	24.5	0.0	28.7	27.1	24.1	24.6
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	C	C
Approach Vol, veh/h		1305			1713			103				36
Approach Delay, s/veh		8.3			8.4			28.1				25.2
Approach LOS		A			A			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	38.2		10.5	7.8	40.1		10.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	4.3	14.8		5.5	2.7	19.4		5.0				
Green Ext Time (p_c), s	0.1	10.6		0.0	0.0	15.7		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				9.2								
HCM 6th LOS				A								

Intersection						
Int Delay, s/veh	3.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	1140	29	300	1603	29	498
Future Vol, veh/h	1140	29	300	1603	29	498
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1213	31	319	1705	31	530

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1244
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	555
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	555
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.1	137.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	54	-	-	-	555	-
HCM Lane V/C Ratio	0.571	-	-	-	0.575	-
HCM Control Delay (s)	137.8	0	-	-	19.9	-
HCM Lane LOS	F	A	-	-	C	-
HCM 95th %tile Q(veh)	2.2	-	-	-	3.6	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Timings  
 14: E. 160th Ave (SH 7) & Tuscon St

2043 Background Traffic  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↕↕	↕↕	↷	↶	↷
Traffic Volume (vph)	85	1514	1817	38	9	47
Future Volume (vph)	85	1514	1817	38	9	47
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	95.0	83.0	83.0	25.0	25.0
Total Split (%)	10.0%	79.2%	69.2%	69.2%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	93.0	94.0	84.6	84.6	10.0	10.0
Actuated g/C Ratio	0.85	0.85	0.77	0.77	0.09	0.09
v/c Ratio	0.45	0.53	0.71	0.03	0.06	0.26
Control Delay	13.4	3.6	10.7	1.6	46.8	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	3.6	10.7	1.6	46.8	16.9
LOS	B	A	B	A	D	B
Approach Delay		4.1	10.5		21.9	
Approach LOS		A	B		C	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 110  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 7.8  
 Intersection Capacity Utilization 75.8%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service D

Splits and Phases: 14: E. 160th Ave (SH 7) & Tuscon St



HCM 6th Signalized Intersection Summary  
 14: E. 160th Ave (SH 7) & Tuscon St

2043 Background Traffic  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	1514	1817	38	9	47
Future Volume (veh/h)	85	1514	1817	38	9	47
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	1611	1933	40	10	50
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	239	2952	2635	1175	137	122
Arrive On Green	0.04	0.83	0.74	0.74	0.08	0.08
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	90	1611	1933	40	10	50
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	1.1	15.2	33.4	0.7	0.6	3.3
Cycle Q Clear(g_c), s	1.1	15.2	33.4	0.7	0.6	3.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	239	2952	2635	1175	137	122
V/C Ratio(X)	0.38	0.55	0.73	0.03	0.07	0.41
Avail Cap(c_a), veh/h	277	2952	2635	1175	329	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.0	2.8	7.9	3.7	46.4	47.6
Incr Delay (d2), s/veh	1.0	0.7	1.9	0.1	0.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.2	9.2	0.2	0.3	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.0	3.6	9.8	3.8	46.6	49.8
LnGrp LOS	B	A	A	A	D	D
Approach Vol, veh/h		1701	1973		60	
Approach Delay, s/veh		4.1	9.7		49.3	
Approach LOS		A	A		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.0		13.4	9.7	85.3
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s		90.0		20.0	7.0	78.0
Max Q Clear Time (g_c+I1), s		17.2		5.3	3.1	35.4
Green Ext Time (p_c), s		18.1		0.1	0.1	22.2
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Traffic Vol, veh/h	0	8	20	117	106	1
Future Vol, veh/h	0	8	20	117	106	1
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	21	124	113	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	218	57	114	0	0
Stage 1	114	-	-	-	-
Stage 2	104	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-
Pot Cap-1 Maneuver	750	997	1473	-	-
Stage 1	898	-	-	-	-
Stage 2	909	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	740	997	1473	-	-
Mov Cap-2 Maneuver	740	-	-	-	-
Stage 1	885	-	-	-	-
Stage 2	909	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1473	-	997	-	-
HCM Lane V/C Ratio	0.014	-	0.009	-	-
HCM Control Delay (s)	7.5	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Traffic Vol, veh/h	1	18	26	137	110	5
Future Vol, veh/h	1	18	26	137	110	5
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	19	28	146	117	5

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	249	61	122	0	0
Stage 1	120	-	-	-	-
Stage 2	129	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-
Pot Cap-1 Maneuver	718	991	1463	-	-
Stage 1	892	-	-	-	-
Stage 2	883	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	704	991	1463	-	-
Mov Cap-2 Maneuver	704	-	-	-	-
Stage 1	875	-	-	-	-
Stage 2	883	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1463	-	970	-	-
HCM Lane V/C Ratio	0.019	-	0.021	-	-
HCM Control Delay (s)	7.5	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	3	5	16	23	3
Future Vol, veh/h	0	3	5	16	23	3
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	5	17	24	3

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	53	26	27	0	0
Stage 1	26	-	-	-	-
Stage 2	27	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	955	1050	1587	-	-
Stage 1	997	-	-	-	-
Stage 2	996	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	952	1050	1587	-	-
Mov Cap-2 Maneuver	952	-	-	-	-
Stage 1	994	-	-	-	-
Stage 2	996	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	1.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1587	-	1050	-	-
HCM Lane V/C Ratio	0.003	-	0.003	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	14	24	15	24	1
Future Vol, veh/h	1	14	24	15	24	1
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	15	26	16	26	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	95	27	27	0	0
Stage 1	27	-	-	-	-
Stage 2	68	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	905	1048	1587	-	-
Stage 1	996	-	-	-	-
Stage 2	955	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	890	1048	1587	-	-
Mov Cap-2 Maneuver	890	-	-	-	-
Stage 1	979	-	-	-	-
Stage 2	955	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	4.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1587	-	1036	-	-
HCM Lane V/C Ratio	0.016	-	0.015	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	2	0	0	0	2	13	0	0	30	4
Future Vol, veh/h	1	0	2	0	0	0	2	13	0	0	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	2	0	0	0	2	14	0	0	32	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	52	52	34	53	54	14	36	0	0	14	0	0
Stage 1	34	34	-	18	18	-	-	-	-	-	-	-
Stage 2	18	18	-	35	36	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	947	839	1039	946	837	1066	1575	-	-	1604	-	-
Stage 1	982	867	-	1001	880	-	-	-	-	-	-	-
Stage 2	1001	880	-	981	865	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	946	838	1039	943	836	1066	1575	-	-	1604	-	-
Mov Cap-2 Maneuver	946	838	-	943	836	-	-	-	-	-	-	-
Stage 1	981	867	-	1000	879	-	-	-	-	-	-	-
Stage 2	1000	879	-	979	865	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	0	1	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	1006	-	1604	-
HCM Lane V/C Ratio	0.001	-	-	0.003	-	-	-
HCM Control Delay (s)	7.3	0	-	8.6	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	2	4	7	13	28	4
Future Vol, veh/h	2	4	7	13	28	4
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	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	6	11	21	44	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	90	47	50	0	0
Stage 1	47	-	-	-	-
Stage 2	43	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	910	1022	1557	-	-
Stage 1	975	-	-	-	-
Stage 2	979	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	904	1022	1557	-	-
Mov Cap-2 Maneuver	904	-	-	-	-
Stage 1	968	-	-	-	-
Stage 2	979	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1557	-	979	-	-
HCM Lane V/C Ratio	0.007	-	0.01	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	220	352	10	10	7
Future Vol, veh/h	4	220	352	10	10	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	234	374	11	11	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	385	0	-	0	505 193
Stage 1	-	-	-	-	380 -
Stage 2	-	-	-	-	125 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1170	-	-	-	496 816
Stage 1	-	-	-	-	661 -
Stage 2	-	-	-	-	887 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1170	-	-	-	495 816
Mov Cap-2 Maneuver	-	-	-	-	495 -
Stage 1	-	-	-	-	659 -
Stage 2	-	-	-	-	887 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1170	-	-	-	591
HCM Lane V/C Ratio	0.004	-	-	-	0.031
HCM Control Delay (s)	8.1	-	-	-	11.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	210	20	68	353	9	32
Future Vol, veh/h	210	20	68	353	9	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	223	21	72	376	10	34

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	244	0	555
Stage 1	-	-	-	-	223
Stage 2	-	-	-	-	332
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1319	-	462
Stage 1	-	-	-	-	793
Stage 2	-	-	-	-	699
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1319	-	437
Mov Cap-2 Maneuver	-	-	-	-	437
Stage 1	-	-	-	-	793
Stage 2	-	-	-	-	661

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	437	920	-	-	1319	-
HCM Lane V/C Ratio	0.022	0.037	-	-	0.055	-
HCM Control Delay (s)	13.4	9.1	-	-	7.9	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.2	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Vol, veh/h	237	21	2	424	49	3
Future Vol, veh/h	237	21	2	424	49	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	22	2	451	52	3

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	274	0	482
Stage 1	-	-	-	-	252
Stage 2	-	-	-	-	230
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1286	-	513
Stage 1	-	-	-	-	767
Stage 2	-	-	-	-	786
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1286	-	512
Mov Cap-2 Maneuver	-	-	-	-	512
Stage 1	-	-	-	-	767
Stage 2	-	-	-	-	784

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	512	901	-	-	1286	-
HCM Lane V/C Ratio	0.102	0.004	-	-	0.002	-
HCM Control Delay (s)	12.8	9	-	-	7.8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-



Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	187	27	15	321	29	71	6	38	28	2	34
Future Vol, veh/h	25	187	27	15	321	29	71	6	38	28	2	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	250	-	250	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	199	29	16	341	31	76	6	40	30	2	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	0	228	0	0	457	657	100	530	655	171
Stage 1	-	-	-	-	-	-	253	253	-	373	373	-
Stage 2	-	-	-	-	-	-	204	404	-	157	282	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1183	-	-	1337	-	-	487	383	936	432	384	843
Stage 1	-	-	-	-	-	-	729	696	-	620	617	-
Stage 2	-	-	-	-	-	-	779	598	-	829	676	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1183	-	-	1337	-	-	452	370	936	397	371	843
Mov Cap-2 Maneuver	-	-	-	-	-	-	452	370	-	397	371	-
Stage 1	-	-	-	-	-	-	712	680	-	606	610	-
Stage 2	-	-	-	-	-	-	734	591	-	768	660	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.3			12.8			12		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	452	774	1183	-	-	1337	-	-	397	787
HCM Lane V/C Ratio	0.167	0.06	0.022	-	-	0.012	-	-	0.075	0.049
HCM Control Delay (s)	14.6	10	8.1	-	-	7.7	-	-	14.8	9.8
HCM Lane LOS	B	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.6	0.2	0.1	-	-	0	-	-	0.2	0.2

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	244	9	22	346	19	55
Future Vol, veh/h	244	9	22	346	19	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	260	10	23	368	20	59

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	270	0	490
Stage 1	-	-	-	-	260
Stage 2	-	-	-	-	230
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1290	-	507
Stage 1	-	-	-	-	760
Stage 2	-	-	-	-	786
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1290	-	498
Mov Cap-2 Maneuver	-	-	-	-	498
Stage 1	-	-	-	-	760
Stage 2	-	-	-	-	772

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	743	-	-	1290	-
HCM Lane V/C Ratio	0.106	-	-	0.018	-
HCM Control Delay (s)	10.4	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	278	14	30	324	35	71
Future Vol, veh/h	278	14	30	324	35	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	296	15	32	345	37	76

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	311	0	533	148
Stage 1	-	-	-	-	296	-
Stage 2	-	-	-	-	237	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1246	-	477	872
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	780	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1246	-	465	872
Mov Cap-2 Maneuver	-	-	-	-	465	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	760	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	465	872	-	-	1246	-
HCM Lane V/C Ratio	0.08	0.087	-	-	0.026	-
HCM Control Delay (s)	13.4	9.5	-	-	8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑		↘	
Traffic Vol, veh/h	2	357	360	2	2	2
Future Vol, veh/h	2	357	360	2	2	2
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	380	383	2	2	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	385	0	-	0	578 193
Stage 1	-	-	-	-	384 -
Stage 2	-	-	-	-	194 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1170	-	-	-	446 816
Stage 1	-	-	-	-	658 -
Stage 2	-	-	-	-	820 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1170	-	-	-	445 816
Mov Cap-2 Maneuver	-	-	-	-	445 -
Stage 1	-	-	-	-	657 -
Stage 2	-	-	-	-	820 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1170	-	-	-	576
HCM Lane V/C Ratio	0.002	-	-	-	0.007
HCM Control Delay (s)	8.1	-	-	-	11.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	2.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	304	56	88	331	31	69
Future Vol, veh/h	304	56	88	331	31	69
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	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	323	60	94	352	33	73

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	383	0	687
Stage 1	-	-	-	-	323
Stage 2	-	-	-	-	364
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1172	-	381
Stage 1	-	-	-	-	706
Stage 2	-	-	-	-	673
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1172	-	351
Mov Cap-2 Maneuver	-	-	-	-	351
Stage 1	-	-	-	-	706
Stage 2	-	-	-	-	619

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	591	-	-	1172	-
HCM Lane V/C Ratio	0.18	-	-	0.08	-
HCM Control Delay (s)	12.4	-	-	8.3	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-

Timings  
10: Quebec St & E. 160th Ave (SH 7)

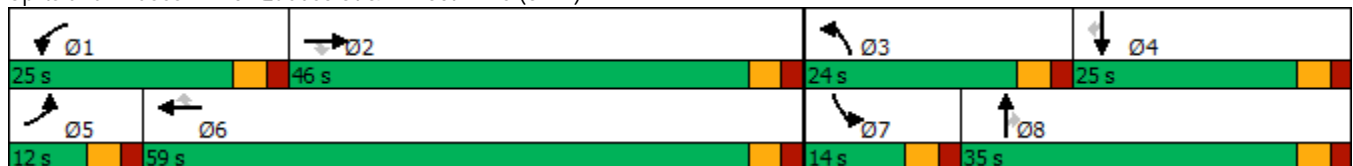
2043 Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	915	177	395	1375	25	437	79	250	33	121	70
Future Volume (vph)	31	915	177	395	1375	25	437	79	250	33	121	70
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
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)	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0	10.0	20.0	20.0
Total Split (s)	12.0	46.0	46.0	25.0	59.0	59.0	24.0	35.0	35.0	14.0	25.0	25.0
Total Split (%)	10.0%	38.3%	38.3%	20.8%	49.2%	49.2%	20.0%	29.2%	29.2%	11.7%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.6	41.5	41.5	17.4	57.0	57.0	17.9	24.5	24.5	7.4	9.3	9.3
Actuated g/C Ratio	0.06	0.39	0.39	0.16	0.54	0.54	0.17	0.23	0.23	0.07	0.09	0.09
v/c Ratio	0.30	0.70	0.25	0.75	0.77	0.03	0.80	0.10	0.47	0.28	0.42	0.23
Control Delay	56.9	31.4	3.8	51.5	24.7	0.0	54.6	35.7	7.7	54.3	50.9	1.7
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	56.9	31.4	3.8	51.5	24.7	0.0	54.6	35.7	7.7	54.3	50.9	1.7
LOS	E	C	A	D	C	A	D	D	A	D	D	A
Approach Delay		27.8			30.2			37.3			36.1	
Approach LOS		C			C			D			D	

Intersection Summary

























Cycle Length: 120	
Actuated Cycle Length: 106.1	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 75.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

2043 Total Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	915	177	395	1375	25	437	79	250	33	121	70
Future Volume (veh/h)	31	915	177	395	1375	25	437	79	250	33	121	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	33	973	0	420	1463	27	465	84	0	35	129	74
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	1506		505	1918	856	545	708		55	258	115
Arrive On Green	0.03	0.42	0.00	0.15	0.54	0.54	0.16	0.20	0.00	0.03	0.07	0.07
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	33	973	0	420	1463	27	465	84	0	35	129	74
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.8	21.7	0.0	11.8	32.2	0.8	13.1	1.9	0.0	1.9	3.5	4.5
Cycle Q Clear(g_c), s	1.8	21.7	0.0	11.8	32.2	0.8	13.1	1.9	0.0	1.9	3.5	4.5
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	53	1506		505	1918	856	545	708		55	258	115
V/C Ratio(X)	0.62	0.65		0.83	0.76	0.03	0.85	0.12		0.63	0.50	0.64
Avail Cap(c_a), veh/h	125	1506		691	1918	856	656	1066		160	711	317
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	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	22.9	0.0	41.5	18.0	10.8	41.0	32.9	0.0	47.9	44.6	45.1
Incr Delay (d2), s/veh	11.0	2.2	0.0	6.3	2.9	0.1	9.2	0.1	0.0	11.3	1.5	5.9
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	0.9	8.6	0.0	5.2	12.0	0.3	6.1	0.8	0.0	1.0	1.6	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	25.0	0.0	47.8	20.9	10.8	50.2	32.9	0.0	59.2	46.1	51.0
LnGrp LOS	E	C		D	C	B	D	C		E	D	D
Approach Vol, veh/h		1006			1910			549			238	
Approach Delay, s/veh		26.1			26.7			47.5			49.6	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.6	47.4	20.8	12.3	8.0	59.0	8.1	24.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	41.0	19.0	20.0	7.0	54.0	9.0	30.0				
Max Q Clear Time (g_c+I1), s	13.8	23.7	15.1	6.5	3.8	34.2	3.9	3.9				
Green Ext Time (p_c), s	0.8	5.7	0.7	0.7	0.0	10.1	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	31.1
HCM 6th LOS	C

Notes

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

Timings  
11: Yosemite St & E. 160th Ave (SH 7)

2043 Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	83	1128	34	55	1600	71	67	21	188	38	206
Future Volume (vph)	83	1128	34	55	1600	71	67	21	188	38	206
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	78.0	78.0	12.0	78.0	78.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	64.5	59.4	59.4	64.0	59.1	59.1	20.8	20.8	20.8	20.8	20.8
Actuated g/C Ratio	0.65	0.60	0.60	0.64	0.59	0.59	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.44	0.57	0.04	0.20	0.81	0.08	0.25	0.25	0.75	0.10	0.52
Control Delay	17.7	14.1	0.8	6.9	20.4	2.4	40.3	14.8	58.8	37.5	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	14.1	0.8	6.9	20.4	2.4	40.3	14.8	58.8	37.5	23.6
LOS	B	B	A	A	C	A	D	B	E	D	C
Approach Delay		14.0			19.2			25.2		40.2	
Approach LOS		B			B			C		D	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 99.4  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 20.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 78.4%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)





HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

2043 Total Traffic  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗	↘	↗		↘	↗	↗
Traffic Volume (veh/h)	83	1128	34	55	1600	71	67	21	77	188	38	206
Future Volume (veh/h)	83	1128	34	55	1600	71	67	21	77	188	38	206
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	88	1200	0	59	1702	76	71	22	82	200	40	219
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	2060		315	2040	910	310	79	295	300	428	362
Arrive On Green	0.05	0.58	0.00	0.04	0.57	0.57	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1120	346	1291	1290	1870	1585
Grp Volume(v), veh/h	88	1200	0	59	1702	76	71	0	104	200	40	219
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1120	0	1638	1290	1870	1585
Q Serve(g_s), s	2.0	21.2	0.0	1.3	38.8	2.1	5.3	0.0	5.2	15.0	1.7	12.3
Cycle Q Clear(g_c), s	2.0	21.2	0.0	1.3	38.8	2.1	7.0	0.0	5.2	20.2	1.7	12.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	203	2060		315	2040	910	310	0	374	300	428	362
V/C Ratio(X)	0.43	0.58		0.19	0.83	0.08	0.23	0.00	0.28	0.67	0.09	0.60
Avail Cap(c_a), veh/h	247	2617		369	2617	1167	336	0	413	331	472	400
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.8	13.2	0.0	10.1	17.3	9.4	32.9	0.0	31.5	39.8	30.1	34.2
Incr Delay (d2), s/veh	1.5	0.3	0.0	0.3	2.0	0.0	0.4	0.0	0.4	4.4	0.1	2.2
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	1.0	7.1	0.0	0.4	13.5	0.6	1.4	0.0	2.0	4.9	0.7	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.3	13.5	0.0	10.4	19.2	9.5	33.3	0.0	31.9	44.2	30.2	36.4
LnGrp LOS	C	B		B	B	A	C	A	C	D	C	D
Approach Vol, veh/h		1288			1837			175			459	
Approach Delay, s/veh		14.0			18.5			32.4			39.3	
Approach LOS		B			B			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	62.4		27.7	9.6	61.9		27.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	73.0		25.0	7.0	73.0		25.0				
Max Q Clear Time (g_c+I1), s	3.3	23.2		22.2	4.0	40.8		9.0				
Green Ext Time (p_c), s	0.0	10.2		0.5	0.0	16.1		0.7				

Intersection Summary

HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

2043 Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	40	1280	45	36	1505	13	41	8	16	16	102
Future Volume (vph)	40	1280	45	36	1505	13	41	8	16	16	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	45.0	41.6	41.6	44.4	41.3	41.3	8.5	8.5	8.5	8.5	8.5
Actuated g/C Ratio	0.67	0.62	0.62	0.66	0.62	0.62	0.13	0.13	0.13	0.13	0.13
v/c Ratio	0.15	0.62	0.05	0.12	0.73	0.01	0.25	0.37	0.10	0.07	0.37
Control Delay	3.9	9.7	1.2	3.5	11.9	0.0	37.2	14.0	35.6	34.6	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.9	9.7	1.2	3.5	11.9	0.0	37.2	14.0	35.6	34.6	12.0
LOS	A	A	A	A	B	A	D	B	D	C	B
Approach Delay		9.2			11.6			20.7		17.5	
Approach LOS		A			B			C		B	

Intersection Summary
























Cycle Length: 120  
 Actuated Cycle Length: 66.9  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 11.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 64.6%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

2043 Total Traffic  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1280	45	36	1505	13	41	8	92	16	16	102
Future Volume (veh/h)	40	1280	45	36	1505	13	41	8	92	16	16	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	43	1362	48	38	1601	14	44	9	98	17	17	109
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	2194	979	324	2182	973	243	15	165	174	210	178
Arrive On Green	0.04	0.62	0.62	0.04	0.61	0.61	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1265	135	1471	1287	1870	1585
Grp Volume(v), veh/h	43	1362	48	38	1601	14	44	0	107	17	17	109
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1265	0	1606	1287	1870	1585
Q Serve(g_s), s	0.6	15.4	0.8	0.5	20.4	0.2	2.1	0.0	4.1	0.8	0.5	4.2
Cycle Q Clear(g_c), s	0.6	15.4	0.8	0.5	20.4	0.2	2.6	0.0	4.1	4.9	0.5	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.92	1.00		1.00
Lane Grp Cap(c), veh/h	279	2194	979	324	2182	973	243	0	180	174	210	178
V/C Ratio(X)	0.15	0.62	0.05	0.12	0.73	0.01	0.18	0.00	0.59	0.10	0.08	0.61
Avail Cap(c_a), veh/h	398	4292	1914	449	4292	1914	493	0	497	428	579	491
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	7.7	4.9	6.0	8.8	4.9	26.9	0.0	27.3	29.6	25.7	27.3
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.2	0.5	0.0	0.4	0.0	3.1	0.2	0.2	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.5	0.2	0.1	4.7	0.0	0.6	0.0	1.6	0.2	0.2	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	8.0	4.9	6.1	9.2	4.9	27.2	0.0	30.4	29.9	25.9	30.7
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	C	C
Approach Vol, veh/h		1453			1653			151			143	
Approach Delay, s/veh		7.9			9.1			29.5			30.1	
Approach LOS		A			A			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	44.9		12.2	7.7	44.7		12.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	2.5	17.4		6.9	2.6	22.4		6.1				
Green Ext Time (p_c), s	0.0	13.2		0.3	0.0	17.2		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				10.4								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	12.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	1333	47	399	1495	16	318
Future Vol, veh/h	1333	47	399	1495	16	318
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1418	50	424	1590	17	338

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1468	0	3061
Stage 1	-	-	-	-	1418
Stage 2	-	-	-	-	1643
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	456	-	~ 10
Stage 1	-	-	-	-	189
Stage 2	-	-	-	-	143
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	456	-	~ 1
Mov Cap-2 Maneuver	-	-	-	-	~ 9
Stage 1	-	-	-	-	189
Stage 2	-	-	-	-	~ 10

Approach	EB	WB	NB
HCM Control Delay, s	0	12	\$ 1222.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	9	-	-	-	456	-
HCM Lane V/C Ratio	1.891	-	-	-	0.931	-
HCM Control Delay (s)	\$ 1222.5	0	-	-	56.9	-
HCM Lane LOS	F	A	-	-	F	-
HCM 95th %tile Q(veh)	3.1	-	-	-	10.8	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Timings  
 14: E. 160th Ave (SH 7) & Tuscon St

2043 Total Traffic  
 AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↗	↖	↗
Traffic Volume (vph)	51	1636	1872	32	68	72
Future Volume (vph)	51	1636	1872	32	68	72
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	95.0	83.0	83.0	25.0	25.0
Total Split (%)	10.0%	79.2%	69.2%	69.2%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	90.0	90.0	81.0	81.0	11.0	11.0
Actuated g/C Ratio	0.81	0.81	0.73	0.73	0.10	0.10
v/c Ratio	0.32	0.61	0.77	0.03	0.41	0.34
Control Delay	8.8	5.1	12.9	1.9	54.4	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	5.1	12.9	1.9	54.4	14.7
LOS	A	A	B	A	D	B
Approach Delay		5.2	12.7		33.9	
Approach LOS		A	B		C	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 111  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 10.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 68.4%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 14: E. 160th Ave (SH 7) & Tuscon St



HCM 6th Signalized Intersection Summary  
 14: E. 160th Ave (SH 7) & Tuscon St

2043 Total Traffic  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↗	↖	↗
Traffic Volume (veh/h)	51	1636	1872	32	68	72
Future Volume (veh/h)	51	1636	1872	32	68	72
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	1740	1991	34	72	77
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	215	2910	2618	1168	160	143
Arrive On Green	0.04	0.82	0.74	0.74	0.09	0.09
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	54	1740	1991	34	72	77
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	0.7	19.1	36.9	0.6	4.2	5.1
Cycle Q Clear(g_c), s	0.7	19.1	36.9	0.6	4.2	5.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	215	2910	2618	1168	160	143
V/C Ratio(X)	0.25	0.60	0.76	0.03	0.45	0.54
Avail Cap(c_a), veh/h	263	2910	2618	1168	324	288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	3.5	8.7	3.9	47.4	47.8
Incr Delay (d2), s/veh	0.6	0.9	2.1	0.0	2.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.3	10.5	0.2	1.9	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.3	4.4	10.8	3.9	49.4	51.0
LnGrp LOS	B	A	B	A	D	D
Approach Vol, veh/h		1794	2025		149	
Approach Delay, s/veh		4.7	10.7		50.2	
Approach LOS		A	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.0		14.9	9.0	86.0
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s		90.0		20.0	7.0	78.0
Max Q Clear Time (g_c+I1), s		21.1		7.1	2.7	38.9
Green Ext Time (p_c), s		21.1		0.3	0.0	22.2
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			9.5			
HCM 6th LOS			A			

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	21	8	61	97	2
Future Vol, veh/h	3	21	8	61	97	2
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	22	9	65	103	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	155	53	105	0	-	0
Stage 1	104	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	821	1003	1484	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	816	1003	1484	-	-	-
Mov Cap-2 Maneuver	816	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1484	-	975	-	-
HCM Lane V/C Ratio	0.006	-	0.026	-	-
HCM Control Delay (s)	7.4	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Traffic Vol, veh/h	3	39	15	71	119	2
Future Vol, veh/h	3	39	15	71	119	2
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	41	16	76	127	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	198	65	129	0	-	0
Stage 1	128	-	-	-	-	-
Stage 2	70	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	772	986	1454	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	764	986	1454	-	-	-
Mov Cap-2 Maneuver	764	-	-	-	-	-
Stage 1	874	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1454	-	966	-	-
HCM Lane V/C Ratio	0.011	-	0.046	-	-
HCM Control Delay (s)	7.5	-	8.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



HCM 6th TWSC  
 17: Yosemite St & North Site Access

2043 Total Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↑	↗
Traffic Vol, veh/h	24	0	70	195	0	63	27	27	70	23	13	9
Future Vol, veh/h	24	0	70	195	0	63	27	27	70	23	13	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	0	74	207	0	67	29	29	74	24	14	10

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	220	223	14	191	159	29	24	0	0	103	0	0
Stage 1	62	62	-	87	87	-	-	-	-	-	-	-
Stage 2	158	161	-	104	72	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	736	676	1066	769	733	1046	1591	-	-	1489	-	-
Stage 1	949	843	-	921	823	-	-	-	-	-	-	-
Stage 2	844	765	-	902	835	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	671	653	1066	697	708	1046	1591	-	-	1489	-	-
Mov Cap-2 Maneuver	671	653	-	697	708	-	-	-	-	-	-	-
Stage 1	932	830	-	904	808	-	-	-	-	-	-	-
Stage 2	776	751	-	825	822	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.1		11.4		1.6		3.8	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1591	-	-	671	1066	697	1046	1489	-	-
HCM Lane V/C Ratio	0.018	-	-	0.038	0.07	0.298	0.064	0.016	-	-
HCM Control Delay (s)	7.3	-	-	10.6	8.6	12.3	8.7	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	1.2	0.2	0.1	-	-

HCM 6th TWSC  
 18: Yosemite St & South Site Access

2043 Total Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↑	↵	↵	↑	↵
Traffic Vol, veh/h	7	0	59	67	0	9	19	108	28	4	272	2
Future Vol, veh/h	7	0	59	67	0	9	19	108	28	4	272	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	63	71	0	10	20	115	30	4	289	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	472	482	289	485	454	115	291	0	0	145	0	0
Stage 1	297	297	-	155	155	-	-	-	-	-	-	-
Stage 2	175	185	-	330	299	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	502	484	750	492	502	937	1271	-	-	1437	-	-
Stage 1	712	668	-	847	769	-	-	-	-	-	-	-
Stage 2	827	747	-	683	666	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	490	475	750	444	492	937	1271	-	-	1437	-	-
Mov Cap-2 Maneuver	490	475	-	444	492	-	-	-	-	-	-	-
Stage 1	701	666	-	833	757	-	-	-	-	-	-	-
Stage 2	806	735	-	624	664	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	10.4		14		1		0.1			
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1271	-	-	490	750	444	937	1437	-	-
HCM Lane V/C Ratio	0.016	-	-	0.015	0.084	0.161	0.01	0.003	-	-
HCM Control Delay (s)	7.9	-	-	12.5	10.2	14.7	8.9	7.5	-	-
HCM Lane LOS	A	-	-	B	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.6	0	0	-	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	1	5	3	150	405	0
Future Vol, veh/h	1	5	3	150	405	0
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	3	160	431	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	597	431	431	0	-	0
Stage 1	431	-	-	-	-	-
Stage 2	166	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	466	624	1129	-	-	-
Stage 1	655	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	465	624	1129	-	-	-
Mov Cap-2 Maneuver	465	-	-	-	-	-
Stage 1	653	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.2	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1129	-	590	-	-
HCM Lane V/C Ratio	0.003	-	0.011	-	-
HCM Control Delay (s)	8.2	0	11.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	27	11	159	405	0
Future Vol, veh/h	0	27	11	159	405	0
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	29	12	169	431	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	624	431	431	0	-	0
Stage 1	431	-	-	-	-	-
Stage 2	193	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	449	624	1129	-	-	-
Stage 1	655	-	-	-	-	-
Stage 2	840	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	444	624	1129	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	840	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1129	-	624	-	-
HCM Lane V/C Ratio	0.01	-	0.046	-	-
HCM Control Delay (s)	8.2	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	2	19	0	57	3	47	8	18	25	1
Future Vol, veh/h	3	0	2	19	0	57	3	47	8	18	25	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	2	20	0	61	3	50	9	19	27	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	157	131	28	128	127	55	28	0	0	59	0	0
Stage 1	66	66	-	61	61	-	-	-	-	-	-	-
Stage 2	91	65	-	67	66	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	809	760	1047	845	764	1012	1585	-	-	1545	-	-
Stage 1	945	840	-	950	844	-	-	-	-	-	-	-
Stage 2	916	841	-	943	840	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	752	749	1047	834	753	1012	1585	-	-	1545	-	-
Mov Cap-2 Maneuver	752	749	-	834	753	-	-	-	-	-	-	-
Stage 1	943	830	-	948	842	-	-	-	-	-	-	-
Stage 2	859	839	-	930	830	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.3		9.1		0.4		3	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	848	961	1545	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.084	0.012	-
HCM Control Delay (s)	7.3	0	-	9.3	9.1	7.4	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	4	52	0	33	3	25	23	12	34	0
Future Vol, veh/h	0	0	4	52	0	33	3	25	23	12	34	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	4	55	0	35	3	27	24	13	36	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	125	119	36	109	107	39	36	0	0	51	0	0
Stage 1	62	62	-	45	45	-	-	-	-	-	-	-
Stage 2	63	57	-	64	62	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	849	771	1037	870	783	1033	1575	-	-	1555	-	-
Stage 1	949	843	-	969	857	-	-	-	-	-	-	-
Stage 2	948	847	-	947	843	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	813	763	1037	860	774	1033	1575	-	-	1555	-	-
Mov Cap-2 Maneuver	813	763	-	860	774	-	-	-	-	-	-	-
Stage 1	947	835	-	967	855	-	-	-	-	-	-	-
Stage 2	914	845	-	935	835	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		9.3		0.4		1.9	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	1037	920	1555	-
HCM Lane V/C Ratio	0.002	-	-	0.004	0.098	0.008	-
HCM Control Delay (s)	7.3	0	-	8.5	9.3	7.3	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	604	347	19	14	5
Future Vol, veh/h	13	604	347	19	14	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	250	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	643	369	20	15	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	389	0	-	0	729 195
Stage 1	-	-	-	-	379 -
Stage 2	-	-	-	-	350 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1166	-	-	-	358 814
Stage 1	-	-	-	-	662 -
Stage 2	-	-	-	-	684 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1166	-	-	-	354 814
Mov Cap-2 Maneuver	-	-	-	-	354 -
Stage 1	-	-	-	-	654 -
Stage 2	-	-	-	-	684 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1166	-	-	-	416
HCM Lane V/C Ratio	0.012	-	-	-	0.049
HCM Control Delay (s)	8.1	-	-	-	14.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	572	45	85	358	9	115
Future Vol, veh/h	572	45	85	358	9	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	-	250	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	609	48	90	381	10	122

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	657	980
Stage 1	-	-	-	609
Stage 2	-	-	-	371
Critical Hdwy	-	-	4.14	6.84
Critical Hdwy Stg 1	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	3.52
Pot Cap-1 Maneuver	-	-	926	691
Stage 1	-	-	-	505
Stage 2	-	-	-	668
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	926	691
Mov Cap-2 Maneuver	-	-	-	223
Stage 1	-	-	-	505
Stage 2	-	-	-	603

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	223	691	-	-	926	-
HCM Lane V/C Ratio	0.043	0.177	-	-	0.098	-
HCM Control Delay (s)	21.9	11.3	-	-	9.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0.3	-



Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Vol, veh/h	621	54	3	384	37	3
Future Vol, veh/h	621	54	3	384	37	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	661	57	3	409	39	3

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	718	0	872
Stage 1	-	-	-	-	661
Stage 2	-	-	-	-	211
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	879	-	290
Stage 1	-	-	-	-	475
Stage 2	-	-	-	-	804
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	879	-	289
Mov Cap-2 Maneuver	-	-	-	-	289
Stage 1	-	-	-	-	475
Stage 2	-	-	-	-	802

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	18.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	289	665	-	-	879	-
HCM Lane V/C Ratio	0.136	0.005	-	-	0.004	-
HCM Control Delay (s)	19.4	10.4	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	474	84	43	275	46	50	4	28	51	6	61
Future Vol, veh/h	65	474	84	43	275	46	50	4	28	51	6	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	250	-	250	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	69	504	89	46	293	49	53	4	30	54	6	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	342	0	0	593	0	0	884	1076	252	777	1116	147
Stage 1	-	-	-	-	-	-	642	642	-	385	385	-
Stage 2	-	-	-	-	-	-	242	434	-	392	731	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1214	-	-	979	-	-	240	218	748	287	206	873
Stage 1	-	-	-	-	-	-	429	467	-	610	609	-
Stage 2	-	-	-	-	-	-	740	579	-	604	425	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1214	-	-	979	-	-	200	196	748	250	185	873
Mov Cap-2 Maneuver	-	-	-	-	-	-	200	196	-	250	185	-
Stage 1	-	-	-	-	-	-	405	440	-	575	580	-
Stage 2	-	-	-	-	-	-	646	552	-	542	401	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1	22.6	16.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	200	553	1214	-	-	979	-	-	250	655
HCM Lane V/C Ratio	0.266	0.062	0.057	-	-	0.047	-	-	0.217	0.109
HCM Control Delay (s)	29.4	11.9	8.1	-	-	8.9	-	-	23.3	11.2
HCM Lane LOS	D	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	1	0.2	0.2	-	-	0.1	-	-	0.8	0.4

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	534	19	59	350	14	39
Future Vol, veh/h	534	19	59	350	14	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	568	20	63	372	15	41

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	588	0	880
Stage 1	-	-	-	-	568
Stage 2	-	-	-	-	312
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	983	-	287
Stage 1	-	-	-	-	530
Stage 2	-	-	-	-	715
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	983	-	269
Mov Cap-2 Maneuver	-	-	-	-	269
Stage 1	-	-	-	-	530
Stage 2	-	-	-	-	669

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	497	-	-	983	-
HCM Lane V/C Ratio	0.113	-	-	0.064	-
HCM Control Delay (s)	13.2	-	-	8.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	544	39	82	414	23	53
Future Vol, veh/h	544	39	82	414	23	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	250	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	579	41	87	440	24	56

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	620	0	973
Stage 1	-	-	-	-	579
Stage 2	-	-	-	-	394
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	956	-	250
Stage 1	-	-	-	-	524
Stage 2	-	-	-	-	650
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	956	-	227
Mov Cap-2 Maneuver	-	-	-	-	227
Stage 1	-	-	-	-	524
Stage 2	-	-	-	-	591

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	227	707	-	-	956	-
HCM Lane V/C Ratio	0.108	0.08	-	-	0.091	-
HCM Control Delay (s)	22.8	10.5	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.3	-	-	0.3	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	584	477	14	5	2
Future Vol, veh/h	4	584	477	14	5	2
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	621	507	15	5	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	522	0	-	0	834 261
Stage 1	-	-	-	-	515 -
Stage 2	-	-	-	-	319 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1041	-	-	-	307 738
Stage 1	-	-	-	-	565 -
Stage 2	-	-	-	-	710 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1041	-	-	-	306 738
Mov Cap-2 Maneuver	-	-	-	-	306 -
Stage 1	-	-	-	-	563 -
Stage 2	-	-	-	-	710 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1041	-	-	-	367
HCM Lane V/C Ratio	0.004	-	-	-	0.02
HCM Control Delay (s)	8.5	-	-	-	15
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	2.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	540	49	29	427	64	63
Future Vol, veh/h	540	49	29	427	64	63
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	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	574	52	31	454	68	67

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	626	0	863 287
Stage 1	-	-	-	-	574 -
Stage 2	-	-	-	-	289 -
Critical Hdwy	-	-	4.14	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	-	-	2.22	-	3.52 3.32
Pot Cap-1 Maneuver	-	-	952	-	294 710
Stage 1	-	-	-	-	527 -
Stage 2	-	-	-	-	735 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	952	-	284 710
Mov Cap-2 Maneuver	-	-	-	-	284 -
Stage 1	-	-	-	-	527 -
Stage 2	-	-	-	-	711 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	404	-	-	952	-
HCM Lane V/C Ratio	0.334	-	-	0.032	-
HCM Control Delay (s)	18.3	-	-	8.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

Timings  
10: Quebec St & E. 160th Ave (SH 7)

2043 Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	1197	309	404	1152	20	399	192	298	34	112	53
Future Volume (vph)	76	1197	309	404	1152	20	399	192	298	34	112	53
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			Free			4
Detector Phase	5	2		1	6	6	3	8		7	4	4
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
Minimum Split (s)	10.0	20.0		10.0	20.0	20.0	10.0	20.0		10.0	20.0	20.0
Total Split (s)	12.0	55.0		20.0	63.0	63.0	20.0	33.0		12.0	25.0	25.0
Total Split (%)	10.0%	45.8%		16.7%	52.5%	52.5%	16.7%	27.5%		10.0%	20.8%	20.8%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Min		None	Min	Min
Act Effct Green (s)	7.0	43.5	102.8	15.1	51.6	51.6	15.1	22.3	102.8	6.6	8.9	8.9
Actuated g/C Ratio	0.07	0.42	1.00	0.15	0.50	0.50	0.15	0.22	1.00	0.06	0.09	0.09
v/c Ratio	0.67	0.85	0.21	0.85	0.69	0.02	0.84	0.27	0.20	0.32	0.39	0.18
Control Delay	76.0	33.0	0.3	61.3	21.9	0.1	60.1	37.8	0.3	56.4	49.5	1.2
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	76.0	33.0	0.3	61.3	21.9	0.1	60.1	37.8	0.3	56.4	49.5	1.2
LOS	E	C	A	E	C	A	E	D	A	E	D	A
Approach Delay		28.7			31.7			35.2			37.9	
Approach LOS		C			C			D			D	

Intersection Summary

























Cycle Length: 120  
 Actuated Cycle Length: 102.8  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 31.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 76.8%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 10: Quebec St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 10: Quebec St & E. 160th Ave (SH 7)

2043 Total Traffic  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	1197	309	404	1152	20	399	192	298	34	112	53
Future Volume (veh/h)	76	1197	309	404	1152	20	399	192	298	34	112	53
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	81	1273	0	430	1226	21	424	204	0	36	119	56
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	1525		506	1837	820	501	623		58	224	100
Arrive On Green	0.06	0.43	0.00	0.15	0.52	0.52	0.14	0.18	0.00	0.03	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	81	1273	0	430	1226	21	424	204	0	36	119	56
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.1	29.4	0.0	11.2	23.5	0.6	11.0	4.6	0.0	1.8	3.0	3.2
Cycle Q Clear(g_c), s	4.1	29.4	0.0	11.2	23.5	0.6	11.0	4.6	0.0	1.8	3.0	3.2
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	104	1525		506	1837	820	501	623		58	224	100
V/C Ratio(X)	0.78	0.84		0.85	0.67	0.03	0.85	0.33		0.62	0.53	0.56
Avail Cap(c_a), veh/h	135	1926		562	2234	996	562	1078		135	770	344
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	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	23.4	0.0	38.4	16.4	10.9	38.4	33.3	0.0	44.1	41.9	42.0
Incr Delay (d2), s/veh	19.1	2.7	0.0	11.0	0.6	0.0	10.6	0.3	0.0	10.2	2.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	11.3	0.0	5.2	8.2	0.2	5.2	2.0	0.0	1.0	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.0	26.1	0.0	49.4	17.0	10.9	49.0	33.6	0.0	54.3	43.9	46.8
LnGrp LOS	E	C		D	B	B	D	C		D	D	D
Approach Vol, veh/h		1354			1677			628			211	
Approach Delay, s/veh		28.3			25.2			44.0			46.4	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.5	44.6	18.4	10.8	10.4	52.7	8.0	21.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	50.0	15.0	20.0	7.0	58.0	7.0	28.0				
Max Q Clear Time (g_c+I1), s	13.2	31.4	13.0	5.2	6.1	25.5	3.8	6.6				
Green Ext Time (p_c), s	0.3	8.2	0.3	0.6	0.0	9.8	0.0	1.1				

Intersection Summary

HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

Notes

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



Timings  
11: Yosemite St & E. 160th Ave (SH 7)

2043 Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	234	1223	83	69	1402	203	65	45	128	30	142
Future Volume (vph)	234	1223	83	69	1402	203	65	45	128	30	142
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	56.2	50.9	50.9	54.0	47.3	47.3	15.5	15.5	15.5	15.5	15.5
Actuated g/C Ratio	0.66	0.59	0.59	0.63	0.55	0.55	0.18	0.18	0.18	0.18	0.18
v/c Ratio	1.04	0.62	0.09	0.25	0.76	0.22	0.28	0.35	0.60	0.09	0.38
Control Delay	94.8	13.7	2.3	6.8	17.7	1.9	37.0	23.1	47.3	33.9	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.8	13.7	2.3	6.8	17.7	1.9	37.0	23.1	47.3	33.9	11.5
LOS	F	B	A	A	B	A	D	C	D	C	B
Approach Delay		25.4			15.3			28.1		29.0	
Approach LOS		C			B			C		C	

Intersection Summary
























Cycle Length: 120  
 Actuated Cycle Length: 85.7  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.04  
 Intersection Signal Delay: 21.3  
 Intersection LOS: C  
 Intersection Capacity Utilization 78.0%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 11: Yosemite St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 11: Yosemite St & E. 160th Ave (SH 7)

2043 Total Traffic  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	1223	83	69	1402	203	65	45	70	128	30	142
Future Volume (veh/h)	234	1223	83	69	1402	203	65	45	70	128	30	142
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	249	1301	0	73	1491	216	69	48	74	136	32	151
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	2055		314	1933	862	303	130	200	254	365	310
Arrive On Green	0.08	0.58	0.00	0.05	0.54	0.54	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1201	663	1023	1269	1870	1585
Grp Volume(v), veh/h	249	1301	0	73	1491	216	69	0	122	136	32	151
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1201	0	1686	1269	1870	1585
Q Serve(g_s), s	5.1	20.6	0.0	1.5	27.8	6.1	4.2	0.0	5.3	8.8	1.2	7.2
Cycle Q Clear(g_c), s	5.1	20.6	0.0	1.5	27.8	6.1	5.4	0.0	5.3	14.1	1.2	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.61	1.00		1.00
Lane Grp Cap(c), veh/h	294	2055		314	1933	862	303	0	329	254	365	310
V/C Ratio(X)	0.85	0.63		0.23	0.77	0.25	0.23	0.00	0.37	0.54	0.09	0.49
Avail Cap(c_a), veh/h	294	3284		375	3284	1465	353	0	400	306	443	376
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	11.8	0.0	9.5	15.1	10.2	30.0	0.0	29.5	35.6	27.8	30.2
Incr Delay (d2), s/veh	19.8	0.3	0.0	0.4	0.7	0.2	0.4	0.0	0.7	1.8	0.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	6.3	0.0	0.5	9.0	1.8	1.2	0.0	2.1	2.7	0.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	12.2	0.0	9.9	15.8	10.3	30.4	0.0	30.1	37.3	27.9	31.4
LnGrp LOS	D	B		A	B	B	C	A	C	D	C	C
Approach Vol, veh/h		1550			1780			191			319	
Approach Delay, s/veh		16.1			14.9			30.2			33.6	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	53.8		21.5	12.0	50.9		21.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	3.5	22.6		16.1	7.1	29.8		7.4				
Green Ext Time (p_c), s	0.0	11.8		0.4	0.0	16.1		0.6				

Intersection Summary

HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

Notes

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

Timings  
12: Havana St & E. 160th Ave (SH 7)

2043 Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	117	1222	75	166	1582	30	48	19	9	13	62
Future Volume (vph)	117	1222	75	166	1582	30	48	19	9	13	62
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			8		4	
Permitted Phases	2		2	6		6	8		4		4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
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
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	83.0	83.0	12.0	83.0	83.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	10.0%	69.2%	69.2%	10.0%	69.2%	69.2%	20.8%	20.8%	20.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)	54.3	47.1	47.1	54.2	47.1	47.1	8.7	8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.69	0.60	0.60	0.69	0.60	0.60	0.11	0.11	0.11	0.11	0.11
v/c Ratio	0.49	0.61	0.08	0.54	0.79	0.03	0.33	0.39	0.07	0.07	0.28
Control Delay	16.0	11.1	1.7	10.8	15.0	0.5	42.6	18.5	38.0	37.4	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	11.1	1.7	10.8	15.0	0.5	42.6	18.5	38.0	37.4	13.8
LOS	B	B	A	B	B	A	D	B	D	D	B
Approach Delay		11.0			14.4			26.8		20.2	
Approach LOS		B			B			C		C	

Intersection Summary
























Cycle Length: 120  
 Actuated Cycle Length: 78.6  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 13.6  
 Intersection Capacity Utilization 72.0%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 12: Havana St & E. 160th Ave (SH 7)



HCM 6th Signalized Intersection Summary  
 12: Havana St & E. 160th Ave (SH 7)

2043 Total Traffic  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	1222	75	166	1582	30	48	19	72	9	13	62
Future Volume (veh/h)	117	1222	75	166	1582	30	48	19	72	9	13	62
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	124	1300	80	177	1683	32	51	20	77	10	14	66
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	300	2218	989	384	2232	996	218	32	124	151	178	151
Arrive On Green	0.06	0.62	0.62	0.07	0.63	0.63	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1319	337	1299	1298	1870	1585
Grp Volume(v), veh/h	124	1300	80	177	1683	32	51	0	97	10	14	66
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1319	0	1637	1298	1870	1585
Q Serve(g_s), s	1.6	15.3	1.4	2.4	23.7	0.5	2.6	0.0	4.0	0.5	0.5	2.8
Cycle Q Clear(g_c), s	1.6	15.3	1.4	2.4	23.7	0.5	3.1	0.0	4.0	4.6	0.5	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	300	2218	989	384	2232	996	218	0	156	151	178	151
V/C Ratio(X)	0.41	0.59	0.08	0.46	0.75	0.03	0.23	0.00	0.62	0.07	0.08	0.44
Avail Cap(c_a), veh/h	362	3918	1748	438	3918	1748	466	0	463	395	529	448
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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.5	7.9	5.3	6.7	9.3	5.0	30.6	0.0	30.8	33.0	29.2	30.2
Incr Delay (d2), s/veh	0.9	0.2	0.0	0.9	0.5	0.0	0.5	0.0	4.0	0.2	0.2	2.0
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	0.7	3.7	0.3	0.5	5.8	0.1	0.8	0.0	1.7	0.2	0.2	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	8.1	5.3	7.6	9.8	5.0	31.1	0.0	34.8	33.2	29.4	32.2
LnGrp LOS	B	A	A	A	A	A	C	A	C	C	C	C
Approach Vol, veh/h		1504			1892			148			90	
Approach Delay, s/veh		8.2			9.5			33.5			31.9	
Approach LOS		A			A			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	49.2		11.7	9.6	49.4		11.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	78.0		20.0	7.0	78.0		20.0				
Max Q Clear Time (g_c+I1), s	4.4	17.3		6.6	3.6	25.7		6.0				
Green Ext Time (p_c), s	0.1	12.3		0.2	0.1	18.8		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				10.5								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	3.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	1237	29	300	1771	29	498
Future Vol, veh/h	1237	29	300	1771	29	498
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	475	475	-	0	85
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1316	31	319	1884	31	530

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1347	0	2896
Stage 1	-	-	-	-	1316
Stage 2	-	-	-	-	1580
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	507	-	~ 13
Stage 1	-	-	-	-	215
Stage 2	-	-	-	-	155
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	507	-	~ 5
Mov Cap-2 Maneuver	-	-	-	-	43
Stage 1	-	-	-	-	215
Stage 2	-	-	-	-	58

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	201.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	43	-	-	-	507	-
HCM Lane V/C Ratio	0.717	-	-	-	0.629	-
HCM Control Delay (s)	201.4	0	-	-	23.4	-
HCM Lane LOS	F	A	-	-	C	-
HCM 95th %tile Q(veh)	2.7	-	-	-	4.3	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Timings  
 14: E. 160th Ave (SH 7) & Tuscon St

2043 Total Traffic  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↗	↖	↗
Traffic Volume (vph)	85	1611	1985	84	47	47
Future Volume (vph)	85	1611	1985	84	47	47
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	12.0	95.0	83.0	83.0	25.0	25.0
Total Split (%)	10.0%	79.2%	69.2%	69.2%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effct Green (s)	93.0	94.0	84.6	84.6	10.3	10.3
Actuated g/C Ratio	0.84	0.85	0.77	0.77	0.09	0.09
v/c Ratio	0.53	0.57	0.78	0.07	0.30	0.26
Control Delay	26.0	4.1	12.9	1.2	51.9	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	4.1	12.9	1.2	51.9	16.5
LOS	C	A	B	A	D	B
Approach Delay		5.1	12.4		34.2	
Approach LOS		A	B		C	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 110.3  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 9.8  
 Intersection Capacity Utilization 80.4%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service D

Splits and Phases: 14: E. 160th Ave (SH 7) & Tuscon St



HCM 6th Signalized Intersection Summary  
 14: E. 160th Ave (SH 7) & Tuscon St

2043 Total Traffic  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷	↷	↶	↷
Traffic Volume (veh/h)	85	1611	1985	84	47	47
Future Volume (veh/h)	85	1611	1985	84	47	47
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	1714	2112	89	50	50
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	202	2920	2606	1162	155	138
Arrive On Green	0.04	0.82	0.73	0.73	0.09	0.09
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	90	1714	2112	89	50	50
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	1.2	18.2	42.8	1.7	2.9	3.3
Cycle Q Clear(g_c), s	1.2	18.2	42.8	1.7	2.9	3.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	202	2920	2606	1162	155	138
V/C Ratio(X)	0.44	0.59	0.81	0.08	0.32	0.36
Avail Cap(c_a), veh/h	240	2920	2606	1162	325	289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.7	3.4	9.6	4.1	47.0	47.1
Incr Delay (d2), s/veh	1.5	0.9	2.9	0.1	1.2	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	3.1	12.3	0.4	1.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.3	4.2	12.5	4.3	48.2	48.7
LnGrp LOS	C	A	B	A	D	D
Approach Vol, veh/h		1804	2201		100	
Approach Delay, s/veh		5.1	12.1		48.5	
Approach LOS		A	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.0		14.5	9.7	85.3
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s		90.0		20.0	7.0	78.0
Max Q Clear Time (g_c+I1), s		20.2		5.3	3.2	44.8
Green Ext Time (p_c), s		20.5		0.2	0.1	22.1
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			9.9			
HCM 6th LOS			A			

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	20	149	130	1
Future Vol, veh/h	0	8	20	149	130	1
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	21	159	138	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	261	70	139	0	-	0
Stage 1	139	-	-	-	-	-
Stage 2	122	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	706	978	1442	-	-	-
Stage 1	873	-	-	-	-	-
Stage 2	890	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	695	978	1442	-	-	-
Mov Cap-2 Maneuver	695	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	890	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1442	-	978	-	-
HCM Lane V/C Ratio	0.015	-	0.009	-	-
HCM Control Delay (s)	7.5	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Traffic Vol, veh/h	1	18	26	169	134	5
Future Vol, veh/h	1	18	26	169	134	5
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	19	28	180	143	5

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	292	74	148	0	-	0
Stage 1	146	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	675	973	1431	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	662	973	1431	-	-	-
Mov Cap-2 Maneuver	662	-	-	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	866	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1431	-	950	-	-
HCM Lane V/C Ratio	0.019	-	0.021	-	-
HCM Control Delay (s)	7.6	-	8.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

HCM 6th TWSC  
 17: Yosemite St & North Site Access

2043 Total Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↶	↶	↶	↶	↶
Traffic Vol, veh/h	16	0	50	132	0	43	78	23	222	72	34	27
Future Vol, veh/h	16	0	50	132	0	43	78	23	222	72	34	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	53	140	0	46	83	24	236	77	36	29

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	521	616	36	421	409	24	65	0	0	260	0	0
Stage 1	190	190	-	190	190	-	-	-	-	-	-	-
Stage 2	331	426	-	231	219	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	466	406	1037	543	532	1052	1537	-	-	1304	-	-
Stage 1	812	743	-	812	743	-	-	-	-	-	-	-
Stage 2	682	586	-	772	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	408	361	1037	472	473	1052	1537	-	-	1304	-	-
Mov Cap-2 Maneuver	408	361	-	472	473	-	-	-	-	-	-	-
Stage 1	768	699	-	768	703	-	-	-	-	-	-	-
Stage 2	617	554	-	689	679	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	14	1.8	4.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1537	-	-	408	1037	472	1052	1304	-	-
HCM Lane V/C Ratio	0.054	-	-	0.042	0.051	0.298	0.043	0.059	-	-
HCM Control Delay (s)	7.5	-	-	14.2	8.7	15.8	8.6	7.9	-	-
HCM Lane LOS	A	-	-	B	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.2	1.2	0.1	0.2	-	-

HCM 6th TWSC  
 18: Yosemite St & South Site Access

2043 Total Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↑	↔	↔	↑	↔
Traffic Vol, veh/h	5	0	38	48	0	7	64	313	70	9	199	8
Future Vol, veh/h	5	0	38	48	0	7	64	313	70	9	199	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	40	51	0	7	68	333	74	10	212	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	742	775	212	726	710	333	221	0	0	407	0	0
Stage 1	232	232	-	469	469	-	-	-	-	-	-	-
Stage 2	510	543	-	257	241	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	332	329	828	340	359	709	1348	-	-	1152	-	-
Stage 1	771	713	-	575	561	-	-	-	-	-	-	-
Stage 2	546	520	-	748	706	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	314	310	828	309	338	709	1348	-	-	1152	-	-
Mov Cap-2 Maneuver	314	310	-	309	338	-	-	-	-	-	-	-
Stage 1	732	707	-	546	533	-	-	-	-	-	-	-
Stage 2	513	494	-	705	700	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.4		17.8		1.1		0.3	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1348	-	-	314	828	309	709	1152	-	-
HCM Lane V/C Ratio	0.051	-	-	0.017	0.049	0.165	0.011	0.008	-	-
HCM Control Delay (s)	7.8	-	-	16.7	9.6	18.9	10.1	8.2	-	-
HCM Lane LOS	A	-	-	C	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.2	0.6	0	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	3	5	451	291	3
Future Vol, veh/h	0	3	5	451	291	3
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	5	480	310	3

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	802	312	313	0	-	0
Stage 1	312	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	353	728	1247	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	351	728	1247	-	-	-
Mov Cap-2 Maneuver	351	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	616	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1247	-	728	-	-
HCM Lane V/C Ratio	0.004	-	0.004	-	-
HCM Control Delay (s)	7.9	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	1	14	24	450	292	1
Future Vol, veh/h	1	14	24	450	292	1
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	15	26	479	311	1

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	843	312	312	0	-	0
Stage 1	312	-	-	-	-	-
Stage 2	531	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	334	728	1248	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	325	728	1248	-	-	-
Mov Cap-2 Maneuver	325	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	590	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1248	-	672	-	-
HCM Lane V/C Ratio	0.02	-	0.024	-	-
HCM Control Delay (s)	7.9	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	2	13	0	38	2	37	25	60	57	4
Future Vol, veh/h	1	0	2	13	0	38	2	37	25	60	57	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	2	14	0	40	2	39	27	64	61	4

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	268	261	63	249	250	53	65	0	0	66	0	0
Stage 1	191	191	-	57	57	-	-	-	-	-	-	-
Stage 2	77	70	-	192	193	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	685	644	1002	705	653	1014	1537	-	-	1536	-	-
Stage 1	811	742	-	955	847	-	-	-	-	-	-	-
Stage 2	932	837	-	810	741	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	636	616	1002	680	624	1014	1537	-	-	1536	-	-
Mov Cap-2 Maneuver	636	616	-	680	624	-	-	-	-	-	-	-
Stage 1	810	710	-	954	846	-	-	-	-	-	-	-
Stage 2	894	836	-	774	709	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.3		9.3		0.2		3.7	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1537	-	-	841	901	1536	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.06	0.042	-
HCM Control Delay (s)	7.3	0	-	9.3	9.3	7.4	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	4	36	0	24	7	38	63	27	41	4
Future Vol, veh/h	2	0	4	36	0	24	7	38	63	27	41	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	4	38	0	26	7	40	67	29	44	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	205	225	46	194	194	74	48	0	0	107	0	0
Stage 1	104	104	-	88	88	-	-	-	-	-	-	-
Stage 2	101	121	-	106	106	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	753	674	1023	765	701	988	1559	-	-	1484	-	-
Stage 1	902	809	-	920	822	-	-	-	-	-	-	-
Stage 2	905	796	-	900	807	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	720	657	1023	747	683	988	1559	-	-	1484	-	-
Mov Cap-2 Maneuver	720	657	-	747	683	-	-	-	-	-	-	-
Stage 1	897	793	-	915	818	-	-	-	-	-	-	-
Stage 2	877	792	-	878	791	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9		9.7		0.5		2.8	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1559	-	-	897	828	1484	-
HCM Lane V/C Ratio	0.005	-	-	0.007	0.077	0.019	-
HCM Control Delay (s)	7.3	0	-	9	9.7	7.5	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-













# **Queuing Reports**

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Queues  
10: Quebec St & E. 160th Ave (SH 7)

2043 Total Traffic  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	973	188	420	1463	27	465	84	266	35	129	74
v/c Ratio	0.30	0.70	0.25	0.75	0.77	0.03	0.80	0.10	0.47	0.28	0.42	0.23
Control Delay	56.9	31.4	3.8	51.5	24.7	0.0	54.6	35.7	7.7	54.3	50.9	1.7
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	56.9	31.4	3.8	51.5	24.7	0.0	54.6	35.7	7.7	54.3	50.9	1.7
Queue Length 50th (ft)	23	297	0	145	449	0	162	25	0	24	45	0
Queue Length 95th (ft)	56	398	40	201	578	0	#237	48	70	57	77	0
Internal Link Dist (ft)		888			1060			849			1281	
Turn Bay Length (ft)	550		415	525		415	250		570	230		200
Base Capacity (vph)	117	1382	740	649	1900	921	616	1012	642	150	669	461
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.70	0.25	0.65	0.77	0.03	0.75	0.08	0.41	0.23	0.19	0.16

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues  
 11: Yosemite St & E. 160th Ave (SH 7)

2043 Total Traffic  
 AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	88	1200	36	59	1702	76	71	104	200	40	219
v/c Ratio	0.44	0.57	0.04	0.20	0.81	0.08	0.25	0.25	0.75	0.10	0.52
Control Delay	17.7	14.1	0.8	6.9	20.4	2.4	40.3	14.8	58.8	37.5	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	14.1	0.8	6.9	20.4	2.4	40.3	14.8	58.8	37.5	23.6
Queue Length 50th (ft)	18	258	0	12	471	0	41	12	129	22	59
Queue Length 95th (ft)	58	331	5	25	592	19	90	62	#258	56	148
Internal Link Dist (ft)	1070		840				637		1040		
Turn Bay Length (ft)	435		615	800		700	200		140	150	
Base Capacity (vph)	205	2620	1189	312	2620	1192	366	501	345	501	512
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.46	0.03	0.19	0.65	0.06	0.19	0.21	0.58	0.08	0.43

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Queues  
12: Havana St & E. 160th Ave (SH 7)

2043 Total Traffic  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	43	1362	48	38	1601	14	44	107	17	17	109
v/c Ratio	0.15	0.62	0.05	0.12	0.73	0.01	0.25	0.37	0.10	0.07	0.37
Control Delay	3.9	9.7	1.2	3.5	11.9	0.0	37.2	14.0	35.6	34.6	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.9	9.7	1.2	3.5	11.9	0.0	37.2	14.0	35.6	34.6	12.0
Queue Length 50th (ft)	4	184	0	3	249	0	18	4	7	7	0
Queue Length 95th (ft)	12	282	8	11	378	0	58	53	30	29	48
Internal Link Dist (ft)		861			1065			1073		396	
Turn Bay Length (ft)	515		425	550		425	200		275		
Base Capacity (vph)	307	3390	1519	351	3390	1519	465	604	429	624	603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.40	0.03	0.11	0.47	0.01	0.09	0.18	0.04	0.03	0.18

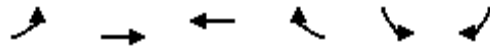
Intersection Summary

Queues

14: E. 160th Ave (SH 7) & Tuscon St

2043 Total Traffic

AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	54	1740	1991	34	72	77
v/c Ratio	0.32	0.61	0.77	0.03	0.41	0.34
Control Delay	8.8	5.1	12.9	1.9	54.4	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	5.1	12.9	1.9	54.4	14.7
Queue Length 50th (ft)	5	175	418	0	49	0
Queue Length 95th (ft)	22	270	604	10	96	44
Internal Link Dist (ft)		1375	1198		2530	
Turn Bay Length (ft)	450			325		
Base Capacity (vph)	183	2869	2581	1164	318	348
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.61	0.77	0.03	0.23	0.22

Intersection Summary

Queues  
10: Quebec St & E. 160th Ave (SH 7)

2043 Total Traffic  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	81	1273	329	430	1226	21	424	204	317	36	119	56
v/c Ratio	0.67	0.85	0.21	0.85	0.69	0.02	0.84	0.27	0.20	0.32	0.39	0.18
Control Delay	76.0	33.0	0.3	61.3	21.9	0.1	60.1	37.8	0.3	56.4	49.5	1.2
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	76.0	33.0	0.3	61.3	21.9	0.1	60.1	37.8	0.3	56.4	49.5	1.2
Queue Length 50th (ft)	54	385	0	147	308	0	144	64	0	23	40	0
Queue Length 95th (ft)	#140	495	0	#255	401	0	#248	104	0	60	72	0
Internal Link Dist (ft)		888			1060			849			1281	
Turn Bay Length (ft)	550		415	525		415	250		570	230		200
Base Capacity (vph)	121	1733	1583	504	2010	966	504	970	1583	121	693	471
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.73	0.21	0.85	0.61	0.02	0.84	0.21	0.20	0.30	0.17	0.12

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues  
11: Yosemite St & E. 160th Ave (SH 7)

2043 Total Traffic  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	249	1301	88	73	1491	216	69	122	136	32	151
v/c Ratio	1.04	0.62	0.09	0.25	0.76	0.22	0.28	0.35	0.60	0.09	0.38
Control Delay	94.8	13.7	2.3	6.8	17.7	1.9	37.0	23.1	47.3	33.9	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.8	13.7	2.3	6.8	17.7	1.9	37.0	23.1	47.3	33.9	11.5
Queue Length 50th (ft)	~101	241	0	11	305	0	32	30	68	14	7
Queue Length 95th (ft)	#300	334	19	25	416	28	85	94	154	46	64
Internal Link Dist (ft)		1070			840			637		1040	
Turn Bay Length (ft)	435		615	800		700	200		140		150
Base Capacity (vph)	239	3132	1411	302	3132	1425	332	452	303	451	486
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.42	0.06	0.24	0.48	0.15	0.21	0.27	0.45	0.07	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues  
12: Havana St & E. 160th Ave (SH 7)

2043 Total Traffic  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	124	1300	80	177	1683	32	51	97	10	14	66
v/c Ratio	0.49	0.61	0.08	0.54	0.79	0.03	0.33	0.39	0.07	0.07	0.28
Control Delay	16.0	11.1	1.7	10.9	15.1	0.5	42.6	18.5	38.0	37.4	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	11.1	1.7	10.9	15.1	0.5	42.6	18.5	38.0	37.4	13.8
Queue Length 50th (ft)	12	184	0	17	287	0	23	9	4	6	0
Queue Length 95th (ft)	64	274	15	46	426	3	69	60	23	27	39
Internal Link Dist (ft)		861			1065			1073		396	
Turn Bay Length (ft)	515		425	550		425	200		275		
Base Capacity (vph)	258	3289	1477	331	3289	1476	369	491	342	493	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.40	0.05	0.53	0.51	0.02	0.14	0.20	0.03	0.03	0.14

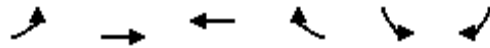
Intersection Summary

Queues

14: E. 160th Ave (SH 7) & Tuscon St

2043 Total Traffic

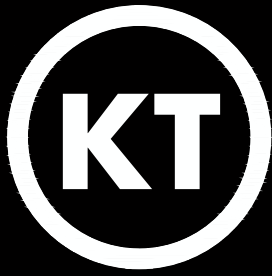
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	90	1714	2112	89	50	50
v/c Ratio	0.53	0.57	0.78	0.07	0.30	0.26
Control Delay	26.0	4.1	12.9	1.2	51.9	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	4.1	12.9	1.2	51.9	16.5
Queue Length 50th (ft)	13	170	490	0	34	0
Queue Length 95th (ft)	68	232	653	14	72	37
Internal Link Dist (ft)		1375	1198		2530	
Turn Bay Length (ft)	450			325		
Base Capacity (vph)	178	3016	2716	1235	320	327
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.57	0.78	0.07	0.16	0.15

Intersection Summary





**KT ENGINEERING**  
ENGINEERS • SURVEYORS

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PROJECT:  
**TODD CREEK PUD AMENDMENT**

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REPORT:  
**PRELIMINARY REGIONAL  
DRAINAGE REPORT**

---

ISSUE DATE:  
**JUNE 5, 2023**

---

REVISIONS:



**Engineer Certification Statement**

I hereby certify that this report for the Preliminary Regional Drainage Report of the Todd Creek PUD Amendment was prepared by me or under my direct supervision in accordance with the provisions of Adams County Storm Drainage Design and Technical Criteria for owners thereof. I understand that Adams County does not and will not assume liability for drainage facilities designed by others.

Kenneth Paul Toland  
Registered Professional Engineer  
State of Colorado No. 33801  
For and on behalf of KT Engineering

**Developer Certification Statement**

Remington Homes hereby certifies that the drainage facilities for the Preliminary Regional Drainage Report of the Todd Creek PUD Amendment 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 Statutes Title 30, Article 28; but cannot, on behalf of Remington Homes, guarantee that final drainage design review will absolve Remington Homes 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.

\_\_\_\_\_  
HSG Land LLC

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Remington Homes

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Taylor Carlson

\_\_\_\_\_  
Date:

## Table of Contents

I. Purpose and Scope.....	1
II. General Location and Description .....	2
Location.....	2
Description of Property.....	2
III. Drainage Basin and Sub-Basins .....	6
Major Basin Description.....	6
Sub-Basin Description .....	6
Regulations.....	7
Hydrological Criteria .....	7
Hydraulic Criteria .....	7
IV. Drainage Facility Design .....	8
General Concept .....	8
V. Conclusion.....	12
VI. References.....	12

### Appendix

- A. Vicinity Map & Design Charts, Land Use Maps, Soils Map
- B. CUHP/SWMM Model Summary & Inputs
- C. Historic CUHP/SWMM Model
- D. Existing Condition CUHP/SWMM Model
- E. Proposed Condition CUHP/SWMM Model
- F. Future Condition CUHP/SWMM Model
- G. FEMA Floodplain Map

### Maps

- Existing Topography Map
- Existing Condition Drainage Plan
- Proposed Condition Drainage Plan
- Detailed Proposed Condition Drainage Plan (WSP & Remington)
- Detailed Proposed Condition Drainage Plan (Carlson)
- Future Condition Drainage Plan

## **I. Purpose and Scope**

The Todd Creek PUD Amendment area is composed of 3 separate properties totaling approximately 443.7 acres. The three properties are proposed to be developed into residential communities totaling 1,978 dwelling units consisting of mainly single-family dwellings, townhomes, and duplexes. One of the properties is proposed to have some apartments and an assisted living campus.

The properties are located in two distinct watersheds that encompass an area of approximately 3.75 square miles within the South Platte River watershed. The two drainages have been designated as E. 168<sup>th</sup> Avenue Drainage #1 and #2 in this report. The purpose of this drainage study is to analyze the total watershed area to determine existing constraints and evaluate both local and regional drainage improvements necessary within the watershed in general and with the development of the Todd Creek PUD Amendment area. There are four different scenarios analyzed in this report and are as follows: Historic Condition, Existing Condition, Proposed Condition and Future Condition. Each one is discussed in more detail below.

### Historic Condition

The historic condition assumes all sub-basins are 2% impervious. No existing detention ponds are modeled in this condition. The purpose of this model is to establish a baseline for comparing flowrates in both proposed and future models.

### Existing Condition

The existing condition model uses current land uses to establish a percent impervious for each sub-basin. An existing detention pond within the Shook Subdivision (Pond 2003) was modeled and assumed to release 100-year developed flowrates at approximately 1.0 cfs/acre. The purpose of this model is to establish existing flowrates within the watershed.

### Proposed Condition

The proposed condition analyzes the existing condition and adds imperviousness increases and drainage improvements that will be constructed as part of the Todd Creek PUD Amendment. This includes modeling five proposed detention ponds (Ponds 1001, 1006, 2012A, 2012B and 2012C) while utilizing a medium density residential land use within the Todd Creek PUD Amendment Area. A future planned detention pond associated with Baseline Lakes Filing 2 (Pond 2005) was also added to the model utilizing UD-Detention data presented in the Baseline Lakes Filing 2 Final Drainage Report. The purpose of this model is to analyze the effects and mitigation measures proposed as part of the Todd Creek PUD Amendment.

### Future Condition

The future condition builds upon the proposed condition model and analyzes what additional future improvements might be necessary from upstream reaches to the outfall of each of the drainages to the South Platte River.

## **II. General Location and Description**

### **Location**

The Todd Creek PUD Amendment area is composed of 3 separate properties along the south side of E. 168<sup>th</sup> Avenue. The Parcels from east to west are known as the Carlson Property (11750 E. 168<sup>th</sup> Avenue), Remington Property (9230 E. 168<sup>th</sup> Avenue), and the WSP Property (8120 E. 168<sup>th</sup> Avenue). The Carlson Property is located in the NE ¼ of Section 2, the Remington Property is located in the W ½ of Section 3, and the WSP Property is located in the NE ¼ of Section 4, all within Township 1 South and Range 67 West of the Sixth Principal Meridian. In general, the properties are bound to the north by E. 168<sup>th</sup> Avenue. All the properties abut agricultural land or subdivisions such as Baseline Lakes, Bartley Subdivision, Shook Subdivision, Hi Land Acres, and Todd Creek Meadows. The WSP Property abuts the Signal Reservoirs #1 and #2 along the west property line. A vicinity map has been provided in the appendix of this report.

The overall watershed for this project encompasses 3.75 square miles and is bound to the west by a high point at E. 168<sup>th</sup> Avenue just west of the WSP Property and by a portion of Weld County Road 19 and the berms of the Signal Reservoirs #1 and #2. It is bound to the north by a ridge in topography up to Weld County Road No. 4 and then by a ridge in topography along agricultural land in the southeast direction. It is bound to the east by the gravel mining operations that existing within the South Platte 100-year FEMA Floodplain. It is bound to south by several fairly recent subdivisions including the Bartley Subdivision, Shook Subdivision, Hi Land Acres, a high point in Yosemite Street and Todd Creek Meadows.

### **Description of Property**

#### **Existing Conditions**

All three subject properties within the Todd Creek PUD Amendment Area are located within unincorporated Adams County. The total combined area of the 3 parcels is approximately 443.7 acres and can be broken down as follows: Carlson (118.9 acres), Remington (215.9 acres), and WSP (108.9 acres). All three parcels are largely undeveloped. Existing houses and out buildings are located within the Remington Property. All three parcels contain oil and gas wells and most notably the Carlson Property and WSP Property contain large oil and gas well pads and tank batteries. The Carlson Property also contains a retention pond associated with the Baseline Lakes subdivision and surrounding development of Lima and Havana Street. In general, all the properties are covered in native grasses common for the area. The properties tend to slope to the northeast at approximate slopes of 1.0 to 3.0 percent.

According to the USDA Web Soil Survey, the soils on within the Todd Creek PUD Amendment Area are made of Hydrologic Soil Group C soils consisting of Platner Loam (0-3% slopes), Platner Loam (3-5% slopes), and Ulm Loam (3-5% slopes). The Carlson Property does contain a small area of Gravelly land shale outcropping (Hydrologic Soil Group A) along the eastern boundary.

The Todd Creek PUD Amendment Area properties are located in two drainage basins. The WSP and Remington properties are located in the E. 168<sup>th</sup> Avenue Drainage #1 basin and the Carlson property is located in the E. 168<sup>th</sup> Avenue Drainage #2 basin. Both drainage basins begin as a roadside channel on the south side of E. 168<sup>th</sup> Avenue drainage to the east. From the westernmost extents of the basin at E. 168<sup>th</sup> Avenue, there are 2 channels that convey runoff to the east along E. 168<sup>th</sup> Avenue. Both channels are conveyed to the north side of E. 168<sup>th</sup> Avenue via two separate culverts at the same location at the southwest corner of the property located at 9945 E. 168<sup>th</sup> Avenue (aka Weld County Road 2). Once on the north side of E. 168<sup>th</sup> Avenue, the drainage enters Weld County. A smaller roadside channel resumes east of the dual culvert crossing which marks the start of E. 168<sup>th</sup> Avenue Drainage #2. The E. 168<sup>th</sup> Avenue Drainage #1 encompasses approximately 1,583 acres. Of which, approximately 425 acres are from the south side of E. 168<sup>th</sup> Avenue and the remaining 1,158 acres of tributary area are on the north side of E. 168<sup>th</sup> Avenue. In general, the land appears to be mostly agricultural land with small areas dedicated to houses with outbuildings. There are numerous oil and gas facilities located throughout the watershed. There are 2 commercial uses that exist within the watershed including an outdoor RV storage facility and a ModBox Storage facility. There is also an existing water reservoir located within the watershed and two water ditches that traverse the watershed, the Brantner and Brighton Ditches. At the eastern extents of the watershed area within the South Platte 100-yr FEMA Floodplain, it is hard to distinguish where surface runoff is conveyed to the South Platte River. This is largely due to the gravel mine operations that have been built in the area combined with the flat nature of the South Platte floodplain area. There are several low areas that appear to not release; however, an overflow path can be distinguished to the north within the 100-yr FEMA Floodplain.

The E. 168<sup>th</sup> Avenue Drainage #2 Basin encompasses approximately 815 acres and in general contains lands located south of E. 168<sup>th</sup> Avenue with the exception of 1 basin on the at the eastern end of the watershed that is located on the north side of E. 168<sup>th</sup> Avenue and drains south to the E. 168<sup>th</sup> Avenue Right-of-Way. In general the land consists of mostly agricultural land with larger lot residential subdivisions within the basin. There are three existing water reservoirs that exists within the water shed known as Stouffer Reservoirs #1, #2, and #3. The Brantner and Brighton ditches also traverse this water shed as well. At the eastern extents of the watershed area within the South Platte 100-yr FEMA Floodplain it is hard to distinguish where surface runoff is conveyed to the South Platte River. This is largely due to the gravel mine operations that have been built in the area combined with the flat nature of the South Platte floodplain area. The low point in E. 168<sup>th</sup> Avenue is shifted west of the South Platte River and appears to be conveyed to the north or northeasterly direction towards with South Platte River.

For this analysis all water ditches were ignored assumed to be flowing full.

A soils map has been included for the entire watershed area. The overall watershed contains Hydrologic Soil Groups A, B, C and D; however, it is predominantly Type C Soils which for simplicity has been assumed for the entire watershed area for this drainage report.

## **Proposed Conditions**

The Carlson Property, Remington Property and WSP Property will all be developed as part of the Todd Creek PUD Amendment. Approximately 1,978 dwelling units are to be constructed across 443.7 acres (4.5 d.u. per acre). The dwellings will consist of single family houses, duplexes, townhomes and an assisted/independent living facility and apartments. A Medium Density Residential designation (50% imperviousness) was assumed across the three properties.

### E. 168<sup>th</sup> Avenue Drainage #1

For the Remington and WSP Property which will discharge to the E. 168<sup>th</sup> Avenue Drainage #1, two Extended Detention Basins (EDB) are proposed as Ponds 1001 and 1006. Ponds 1001 and 1006 are proposed as Water Quality Capture Volume and will provide 100-year Detention which will release at a 5-year Historic flowrate per Weld County Drainage Criteria. The 100-year discharge rate of Pond 1001 is 10.3 cfs and will flow into Pond 1006 in series. The 100-year discharge rate of Pond 1006 is 19.9 cfs. These release rates correspond to the release rates generated in the 5-year historic CUHP/SWMM model. The roadside channels will be consolidated into a single channel and the culvert crossing will be replaced with a single 30-inch RCP conveyance with an approximately 19.9 cfs capacity. There are no other improvements associated with the Todd Creek PUD Amendment that are proposed downstream.

### E. 168<sup>th</sup> Avenue Drainage #2

The Carlson Property discharges to the E. 168<sup>th</sup> Avenue Drainage #2. It is proposed that the existing Retention Pond will be converted to a series of 3 EDBs identified as Ponds 2012A, 2012B and 2012C. The series of ponds will be Water Quality Capture Volume, 5-year + 100% WQCV, and 100-yr + 50% WQCV ponds located in a series due to space constraints. The Design 100-year release will be 44.0 cfs (0.1 cfs/acre) and will discharge to a proposed 30-42-inch diameter RCP that will be extended approximately 1.1 miles in E. 168<sup>th</sup> Avenue from the South Platte River outfall to the Carlson Property. The South Platte River outfall should be constructed so that an additional 72-inch diameter pipe can be constructed within the same headwall as presented in the Future Condition analysis. There are no other improvements associated with the Todd Creek PUD Amendment that are proposed downstream. It should be noted that Basin 219 which consists of the northern half of the Bartley Subdivision has been excluded from carrying capacity within the proposed drainage pipe. This is due to the fact the development has an existing retention pond facility in place.

## **Future Conditions**

### E. 168<sup>th</sup> Avenue Drainage #1

In addition to the drainage improvements discussed in the proposed condition scenario, the entire watershed was also analyzed to determine any constraints or potential issues in conveying water to the South Platte River. One of the biggest issues is that a defined drainage path cannot be determined to the South Platte River once in the 100-year FEMA Floodplain. There appears to be a lot of grading operations within the Floodplain associated with gravel mining along the banks of the South Platte River. An overflow path can be made out to some degree as flowing north approximately 3.0 miles before joining the South Platte River. Disturbances associated with the gravel mining has disrupted the historic floodplain drainage path. For purposes of this report, a possible storm drain alignment location to the South Platte River is proposed that minimizes

impacts to surrounding properties. The constraint of this storm drain outfall is a flat slope of 0.12%. Due to this flat slope and minimal space to install a pipe, upstream EDB's are proposed in order to attenuate flows to downstream properties while minimizing the size of Pond 1010 so that it does not cross the threshold of a Colorado Jurisdictional Dam. Ponds 1010, 1022, and 1027 are also proposed along with Ponds 1001 and 1006 (located within the Todd Creek PUD Amendment). Ponds 1010, 1022, and 1027 are proposed to be Water Quality Capture Volume and will provide 100-year Detention which will release at a 10-year Historic flowrate per Weld County Drainage Criteria. The most downstream Pond 1010 is proposed to release a 10-year historic flow of 234.7 cfs during the 100-year storm event. This flow is proposed to be carried by 4,400 LF of a 10'W x 4'H RCBC at 0.12%.

#### E. 168<sup>th</sup> Avenue Drainage #2

Additional regional drainage improvements are necessary along E. 168<sup>th</sup> Avenue Drainage #2 as other adjacent sites may develop in the future. It is proposed that a parallel storm pipe be installed along the 30-42-inch RCP previously installed as part of the Proposed Condition. The additional Future Condition pipe size ranges from 30-72-inch RCP. As previously discussed in the Proposed Condition, both pipes (42-inch – Proposed, 72-inch – Future) would outfall at the South Platte River at the same location. The Future Condition pipe would include additional capacity for not only the Carlson property, but for additional properties along E. 168<sup>th</sup> Avenue. Due to the additional capacity of the pipe provided, the Carlson property series of detention ponds would be consolidated to a single EDB (Pond 2012). Additional developable area could be added to the Carlson property at this time in areas that previously contained Ponds 2012A and 2012B. The additional Future Condition pipe would range in size from 30-36-inch diameter upstream of Carlson Pond 2012 tie-in and 48-inch diameter downstream of the Carlson Pond 2102 tie-in. The pipe size is proposed to increase as additional flows are anticipated to be introduced to the system. The ultimate size of the Future Condition pipe is 72-inch diameter at the most downstream reaches. Future Condition Pond 2012 within the Carlson property can release 158.3 cfs, of which 44.8 cfs will be diverted to the 30-42-inch diameter RCP previously installed in the Proposed Condition. The remaining 113.5 cfs will be discharged to a 48-inch diameter RCP installed as part of the Future Condition storm improvements. The Carlson Property Future Pond 2012 will be restricted to a 100-year release rate of approximately 0.35 cfs per acre (158.3 cfs / 448.01 acres). The future storm line in general is designed to accept flows from other adjacent properties at the rate of 0.5 cfs per acre. The Adjacent properties included in this analysis are located in Sub-basins 200, 214, 215 and 216. Preliminary Ponds 2000, 2014, 2015, and 2016 have been sized in this report utilizing existing imperviousness associated with the adjacent properties. It should be noted that Basin 219 which consists of the northern half of the Bartley Subdivision has been excluded from carrying capacity within the proposed drainage pipe. This is due to the fact the development has an existing retention pond facility in place and an effort to minimize pipe sizes to the extent practical.



### **III. Drainage Basin and Sub-Basins**

#### **Major Basin Description**

The watershed lies within the South Platte River major drainage basin. All three sites are within the direct watershed of the South Platte River. The South Platte River is a major conveyance in the Colorado Front Range. The watershed extends over an area of 23,000 square miles and is located in 3 states. Development within the South Platte River major drainage basin is controlled by the South Platte Major Drainageway Plan (June 2000), prepared by Camp Dresser & McKee Inc. All three of the proposed sites are located along the northern boundary of the study at E. 168<sup>th</sup> Avenue.

There are no FEMA floodplains within the Todd Creek PUD Amendment properties. According to Flood Insurance Rate Map Numbers 08001C0326H and 08001C0307H with effective dates of March 5, 200, all three properties are located in Zone X, which is an area determined to be outside the 500-year floodplain.

#### **Sub-Basin Description**

The watershed has been broken up into 41 sub-basins with an average area of 58.5 acres. The smallest basin is 2.9 acres and the largest basin is 169.3 acres. All basins designated in the 100's are tributary to E. 168<sup>th</sup> Avenue Drainage #1 and all basins in the 200's are tributary to E. 168<sup>th</sup> Avenue Drainage #2. The E. 168<sup>th</sup> Avenue Drainage #1 has a tributary area of 1,583 acres. The E. 168<sup>th</sup> Avenue Drainage #2 has a tributary area of 815 acres.

#### **E. 168<sup>th</sup> Avenue Drainage #1**

The E. 168<sup>th</sup> Avenue Drainage #1 is composed of 21 separate sub-basins. 7 basins are comprised of sub-basins south of E. 168<sup>th</sup> Avenue (Basins 100-106) and 14 are comprised of sub-basins north of E. 168<sup>th</sup> Avenue (Basins 107-129). As previously discussed, Sub-basins 100-106 are transferred to the north side of E. 168<sup>th</sup> Avenue via 2 culverts and grading located at the southwest corner of 9945 E. 168<sup>th</sup> Avenue. There are two separate flowlines that make up the majority of the E. 168<sup>th</sup> Avenue Drainage #1 Basin. Sub-basins 100-109 convey one of the flowlines and Sub-basins 120-128 convey the second flowline. The flowlines combine within Sub-basin 129 and overtop the Brighton Ditch within an additional Sub-Basin 110. The drainage path outside of Sub-Basin 110 is unable to be determined, however, it appears that an overflow path exists to the north that ultimately joins the South Platte River approximately 3 miles north.

#### **E. 168<sup>th</sup> Avenue Drainage #2**

The E. 168<sup>th</sup> Avenue Drainage #2 is composed of 20 separate sub-basins. Basin 219 historically has contributed flows, however, upon development of the Bartley Subdivision, a retention pond was constructed for this development. Due to this and an effort to reduce master planned flows where practical, Sub-Basin 219 was removed from this drainage study. The E. 168<sup>th</sup> Avenue Drainage #2 basin is primarily composed of runoff produced along the E. 168<sup>th</sup> Avenue roadside channel (downstream of the existing 2 culverts that separate E. 168<sup>th</sup> Avenue Drainage #1). In Addition, runoff from the Shook Subdivision, Havana Street/Lima Street, and the Baseline Lakes subdivision also make up flow paths within the watershed. An existing EDB within the Shook Subdivision (Pond

2003) and planned EDB within Baseline Lakes Filing 2 (Pond 2005) were incorporated into the proposed and future models. Pond 2003 was assumed to release the 100-year storm at 1 cfs per acre as allowed by Adams County Criteria and is also likely higher than the design. Pond 2005 information was obtained from the Baseline Lakes Filing 2 Final Drainage Report. Upon modeling, the Pond 2005 release rate is approximately 1 cfs per acre as well.

### **Regulations**

Ponds 1001 and 1006 and drainage facilities in Weld County have been designed in compliance with criteria set forth in Chapter 5: Drainage Criteria in the Weld County Engineering and Construction Criteria. Other drainage facilities in Adams County have been designed in compliance with criteria set forth in Chapter 9: Storm Drainage Design and Stormwater Quality Control Regulations in the Adams County Development Standards and Regulations.

All facilities have been designed in compliance with the Mile High Flood District (MHFD) Urban Storm Drainage Criteria Manuals, Volumes 1-3.

### **Hydrological Criteria**

1-hour point rainfall data for this watershed was obtained from NOAA Atlas 14. Sub-Basin hydrographs were generated in CUHP 2005 Version 2.0.1. Three storms were analyzed, the 5-year, 10-year and 100-year storm events. This report places emphasis on the 100-year storm event as this event will dictate overall pond and pipe infrastructure sizes. The Weld County Municipal Code does allow for the use of CUHP in areas located in the southwest portion of Weld County, in areas larger than 160 acres that have drainage characteristics similar to an urban area per Chapter 8, Article XI, Section 8-11-60.

Watersheds were delineated from Lidar Topography obtained from the Denver Regional Council of Governments (DRCOG) Regional Data Catalog. The Lidar was collected in 2020 and is Quality Level 2 Lidar (QL2) and was part of the DRCOG Regional Lidar Project 2020.

### **Hydraulic Criteria**

EPA SWMM 5.2 was used to route flows through the drainage basins. Hydraflow AutoCAD extension software was used for preliminary channel and pipe capacities.

## **IV. Drainage Facility Design**

### **General Concept**

In general, drainage patterns remain the same from existing and future conditions. Runoff is either conveyed to E. 168<sup>th</sup> Avenue Drainage #1 or #2. Direct outfalls are proposed as part of this report which do not currently exist to minimize impacts to adjacent properties. The storm systems included with this report have been designed to capture and convey runoff up to the 100-year storm event.

### **E. 168<sup>th</sup> Avenue Drainage #1**

#### **Pond 1001 (Proposed)**

Pond 1001 is a WQCV + 100-yr Detention Pond located on the WSP Property within the Todd Creek PUD Amendment area. This pond receives runoff from Sub-Basins 101 and 100 for a total tributary area of 153.8 acres. The future imperviousness assuming future development of the WSP Parcel as Medium Density Residential is 39.38% imperviousness. The 100-year release rate of this pond is 10.3 cfs, which corresponds to the Historic 5-year storm per Weld County Drainage Criteria. The pond is approximately 24.0 ac-ft in size. This pond outfalls to E. 168<sup>th</sup> Avenue Drainage #1.

#### **Pond 1006 (Proposed)**

Pond 1001 is a WQCV + 100-yr Detention Pond located on the Remington Property within the Todd Creek PUD Amendment area. This pond receives runoff from Sub-Basins 100-106 for a total tributary area of 424.5 acres. It is anticipated that outflows from Pond 1001 will enter Pond 1006. Due to Pond 1001's attenuation rates, Pond 1001 tributary area has little to no effect on Pond 1006's function based on results of the SWMM Model. Excluding Pond 1001's tributary area, direct inflows to Pond 1006 is 270.7 acres. The future imperviousness of the direct inflow basins assuming future development of the Remington Property as Medium Density Residential is 41.98% imperviousness. The 100-year release rate of this pond is 19.9 cfs, which corresponds to the historic 5-year storm per Weld County Drainage Criteria. The pond is approximately 44.3 ac-ft in size. This pond outfalls to E. 168<sup>th</sup> Avenue Drainage #1.

#### **Pond 1022 (Future)**

Pond 1022 is a WQCV + 100-yr Detention Pond located off-site in Weld County. This pond receives runoff from Sub-Basins 120, 121, and 122 for a total tributary area of 283.2 acres. The future imperviousness assuming no further future development is 11.32% imperviousness. This is due to the existing outdoor storage facility and ModBox Storage facility within the upstream watersheds. The 100-year release rate of this pond is 51.3 cfs, which corresponds to the historic 10-year storm event per Weld County Drainage Criteria. The pond is approximately 28.4 ac-ft in size. The pond outfalls on the northern flowline of the E. 168<sup>th</sup> Avenue Drainage #1. The purpose of this pond is to attenuate flows to downstream facilities so that downstream facilities do not satisfy Colorado Jurisdictional Dam Criteria.

### **Pond 1027 (Future)**

Pond 1027 is a WQCV+100-yr Detention Pond located off-site in Weld County. This pond receives runoff from Sub-Basins 120-127 for a total tributary area of 664.1 acres. It is anticipated that flows from Pond 1022 will enter Pond 1027. Due to Pond 1022's attenuation rates, tributary area to Pond 1022 has little effect on Pond 1027's function based on the SWMM Model. Excluding Pond 1022 tributary area, direct inflows to Pond 1006 is 381.0 acres. The future imperviousness in direct inflow basins assuming no future development is 2.1% imperviousness. The 100-year release rate of this pond is 101.3 cfs, which corresponds to the historic 10-year storm per Weld County Drainage Criteria. The pond is approximately 43.4 ac-ft in size. This pond outfalls on the northern flowline of the E. 168<sup>th</sup> Drainage #1. The location of the pond was chosen due to an existing 8-ft low area that currently pools water. The purpose of this pond is to attenuate flows to downstream facilities so that downstream facilities do not satisfy Colorado Jurisdictional Dam Criteria.

### **Pond 1010 (Future)**

Pond 1027 is a WQCV + 100-yr Detention Pond located off-site in Weld County. This pond receives runoff from Sub-Basins 100-127 for a total tributary area of 1,582.6 acres. Pond 1010 is the most downstream pond located in the E. 168<sup>th</sup> Avenue Drainage #1 Watershed and controls the release rate to the proposed box culvert outfall to the South Platte River. Ponds 1001, 1006, 1022, and 1027 discharge to Pond 1010. Due to the upstream Ponds attenuation rates, upstream Pond tributary area has a small effect on Pond 1010's function based on the SWMM Model. Excluding the upstream ponds tributary area, direct inflows to Pond 1010 is 493.9 acres. The future imperviousness assuming no further development in direct tributaries is 2.89% imperviousness. The 100-year release rate of this pond is 233.7 cfs, which corresponds to the historic 10-year storm per Weld County Drainage Criteria. The pond is approximately 46.5 ac-ft in size. This pond will outfall into a proposed 10'W x 4'H RCBC sloped at 0.12% and outfalls directly into the South Platte River.

### **E. 168<sup>th</sup> Avenue Drainage #1 Ditch Crossings**

E. 168<sup>th</sup> Avenue Drainage #1 crosses two pronounced ditches in the Brantner and Brighton Ditches. There is a pronounced 7' low area at the Brantner Ditch Crossing. This area needs to be re-graded so that the low point is removed to provide a clear overflow path that is not in Ditch or Unnamed Reservoir. It is recommended that a concrete flow regulator and downstream weir wall be placed on the ditches. The purpose of this structure is to seal either end of the ditch with a channel section of ditch capacity. Any flows over the ditch capacity (or if the ditch is full of ditch water) would be regulated by the weir wall and passed downstream of the ditch.

### **E. 168<sup>th</sup> Avenue Drainage #2**

#### **Pond 2000 (Future)**

Pond 2000 is a WQCV + 5-yr (+WQCV) + 100-yr (+ ½ WQCV) Detention Pond located off-site in Adams County. This pond receives runoff from Sub-Basin 200 with a tributary area of 52.3 acres. The future imperviousness assuming no further future development is 4.4% imperviousness. It is anticipated that this pond will be conveyed to the off-site storm pipe extended in the Future phase (30"-72" diameter RCP). The proposed 100-year release rate is 26.0 cfs. The pond is approximately 3.2 ac-ft in size. It is anticipated that the pond will outfall to a 30-inch RCP installed in the Future

Phase of the project. It is estimated that the 30-inch pipe will extend to DP 607.

### **Pond 2003 (Existing)**

Pond 2003 is an existing EDB for the Shook Subdivision. This pond receives runoff from Sub-Basin 203 with a tributary area of 81.3 acres at 23.3% imperviousness. It has been assumed that the 100-year release rate for this pond is approximately 1 cfs/acre (82.1 cfs). This pond currently outfalls to a drainage channel and is conveyed to the Baseline Lakes Subdivision. It is anticipated that flows from this pond will enter Pond 2005 associated with Baseline Lakes Filing 2. Ultimately, flows enter the Carlson Property and would enter Ponds 2012A, 2012B, and 2012C or Future condition Pond 2012.

### **Pond 2005 (Proposed/Future)**

Pond 2005 is a proposed EDB for Baseline Lakes Filing 2. This pond receives runoff from Sub-Basins 204 and 205 along with Pond 2003 outflows. Pond 2005 volumes and outlet rating curve information was obtained from UD-Detention Spreadsheets for Pond A included in the Baseline Lakes Filing 2 Final Drainage Report. It should be noted that the Final Drainage Report states that flows from the Shook Subdivision pond were not accounted to be detained within Pond A (Pond 2005 in this report). The SWMM Model shows a 100-year release rate of 156.3 cfs. This correlates to a release rate of 0.93 cfs per acre release (Sub-basins 203+204+205, or 168.4 acres), which seems reasonable. Flows from this pond are combined with other flows from Baseline Lakes Subdivision and ultimately enter the Pond(s) 2012 associated with the Todd Creek PUD Amendment Carlson Property.

### **Ponds 2012A, 2012B, 2012C (Proposed)**

Ponds 2012A, 2012B and 2012C are a proposed series of Ponds located in Sub-basin 212 within the Carlson Property of the Todd Creek PUD Amendment. This is proposed to be a series of ponds that receives runoff from basins 202 through 213 with a tributary area of 448.0 acres. This includes outflows from Ponds 2003 and 2005. It is anticipated that the series of EDB's will provide WQCV + 5-yr (+WQCV) + 100-yr (+ ½ WQCV) detention. The primary function of these ponds is to attenuate flows to approximately 0.1 cfs/acre (44.0 cfs) to minimize off-site infrastructure required. This results in a combined size of the three ponds at 71.7 ac-ft (2012A: 25.7 ac-ft; 2012B: 23.7 ac-ft; 2012C: 22.3 ac-ft). Flows from Ponds 2012A, 2012B and 2012C will be conveyed to a regional storm pipe that consists of 30-42-inch diameter off-site storm drain within E. 168<sup>th</sup> Avenue and ultimately outfalls in the South Platte River. The anticipated peak 100-year flowrate out of the ponds is 46.7 cfs entering the 30-inch outfall pipe. It should be noted that Sub-Basin 219 was excluded from the pond calculations CUHP/SWMM Model because it currently discharges to an existing Retention Pond.

### **Pond 2012 (Future)**

In the Future condition when another regional storm drainage pipe is extended up E. 168<sup>th</sup> Avenue, the Ponds 2012A, 2012B, and 2012C will be revised to one Pond 2012. Additional capacity in the future storm pipe will serve the Carlson property as well as adjoining properties generally along the south side of E. 168<sup>th</sup> Avenue. It is anticipated that Pond 2012 will provide WQCV + 5-yr (+WQCV) + 100-yr (+ ½ WQCV) detention. Flows will be attenuated to approximately 0.36 cfs/acre (161.2 cfs).

The pond is approximately 40.1 ac-ft in size. The first 47.0 cfs out of the pond will be directed to the off-site storm pipe (30"-42" diameter RCP) installed during the Proposed phase. Another storm pipe will be extended in E. 168<sup>th</sup> Avenue during the Future phase (30"-72" diameter RCP) and will take 114.2 cfs from Pond 2012. The Carlson property will have a proposed 100-yr release rate of 0.36 cfs/acre (161.2 cfs / 448 acres). Ultimately outflows outfall in the South Platte River. It should be noted that Sub-Basin 219 was excluded from the pond calculations CUHP/SWMM Model because it currently discharges to an existing Retention Pond.

#### **Pond 2014 (Future)**

Pond 2014 is a WQCV + 5-yr (+WQCV) + 100-yr (+ ½ WQCV) Detention Pond located off-site in Adams County. This pond receives runoff from Sub-Basin 214 with a tributary area of 66.9 acres. The future imperviousness assuming no further future development is 12.2% imperviousness. It is anticipated that this pond will be conveyed to the off-site storm pipe extended in the Future phase (30"-72" diameter RCP). The proposed 100-year release rate has been capped at 0.5 cfs per acre, which corresponds to an allowable 100-year release rate of 33.4 cfs. The pond is approximately 5.3 ac-ft in size. It is estimated that the pond will outfall to a 54-inch RCP that installed in the future phase of the project. It is estimated that the 54-inch pipe will extend to DP 612.

#### **Pond 2015 (Future)**

Pond 2015 is a WQCV + 5-yr (+WQCV) + 100-yr (+ ½ WQCV) Detention Pond located off-site in Adams County. This pond receives runoff from Sub-Basin 215 with a tributary area of 41.8 acres. The future imperviousness assuming no further future development is 9.2% imperviousness. It is anticipated that this pond will be conveyed to the off-site storm pipe extended in the Future phase (30"-72" diameter RCP). The proposed 100-year release rate has been capped at 0.5 cfs per acre, which corresponds to an allowable 100-year release rate of 21.3 cfs. The pond is approximately 2.4 ac-ft in size. It is estimated that the pond will outfall to a 72-inch RCP installed in the future phase of the project. It is estimated that the 72-inch pipe will extend to the outfall point at the South Platte River at DP 614.

#### **Pond 2016 (Future)**

Pond 2016 is a WQCV + 5-yr (+WQCV) + 100-yr (+ ½ WQCV) Detention Pond located off-site in Weld County. This pond receives runoff from Sub-Basin 216 with a tributary area of 19.4 acres. The future imperviousness assuming no further future development is 4.0% imperviousness. It is anticipated that this pond will be conveyed to the off-site storm pipe extended in the Future phase (30"-72" diameter RCP). The proposed 100-year release rate has been capped at 0.5 cfs per acre, which corresponds to an allowable 100-year release rate of 9.5 cfs. The pond is approximately 1.6 ac-ft in size. It is anticipated that the pond will outfall to a 72-inch RCP installed in the future phase of the project. It is estimated that the 72-inch pipe will extend to the outfall point at the South Platte River at DP 614. Because this Sub-Basin is discharging to the storm drain designed by Adams County Drainage Criteria, Adams County Drainage Criteria should be used upon development of the parcel and tie-in at the storm pipe.

### **Sub-Basins 201, 217, 218**

Sub-Basins 201 is along the existing portion of Baseline Lakes Subdivision. This basin currently flows along the Right-of-Way of E. 168<sup>th</sup> Avenue and is not captured in the existing retention pond within Sub-Basin 212. This basin will need to be treated by other means for Water Quality and discharge to the 30-inch diameter RCP associated with the Future Phased drainage pipe.

Sub-Basins 217 and 218 are the north and south sides of E. 168<sup>th</sup> Avenue nearest the proposed outfall discharge to the South Platte River. This basin will need to be treated by other means for Water Quality and discharged to the 72-inch diameter RCP associated with the Future Phased drainage pipe.

### **V. Conclusion**

This drainage report has been prepared in conformity with Chapter 5: Drainage Criteria in the Weld County Engineering and Construction Criteria and Chapter 9: Storm Drainage Design and Stormwater Quality Control Regulations in the Adams County Development Standards and Regulations. This drainage report is also in conformity with the MHFD Urban Storm Drainage Criteria Manuals.

### **VI. References**

- 1. Weld County Engineering and Construction Criteria**  
Atkins, January 2021.
- 2. Adams County Development Standards and Regulations, Chapter 9**  
Adams County, December 8, 2020.
- 3. Urban Storm Drainage Design & Technical Criteria Manual Volumes 1-3**  
Urban Drainage and Flood Control District, Revised August, 2018.
- 4. National Resources Conservation Service Web Soil Survey Golden Area, CO**  
U.S. Department of Agriculture, Natural Resources Conservation Service
- 5. FIRM Map Numbers 08001C0326H & 08001C0307H**  
Federal Emergency Management Agency, Effective Date: March 5, 2007.
- 6. Final Drainage Report: Baseline Lakes Filing 2**  
Ware Malcomb, Dated December 9, 2022.


APPENDIX A  
VICINITY MAP  
DESIGN CHARTS  
EXISTING LAND USE MAP  
FUTURE LAND USE MAP  
SOILS MAP

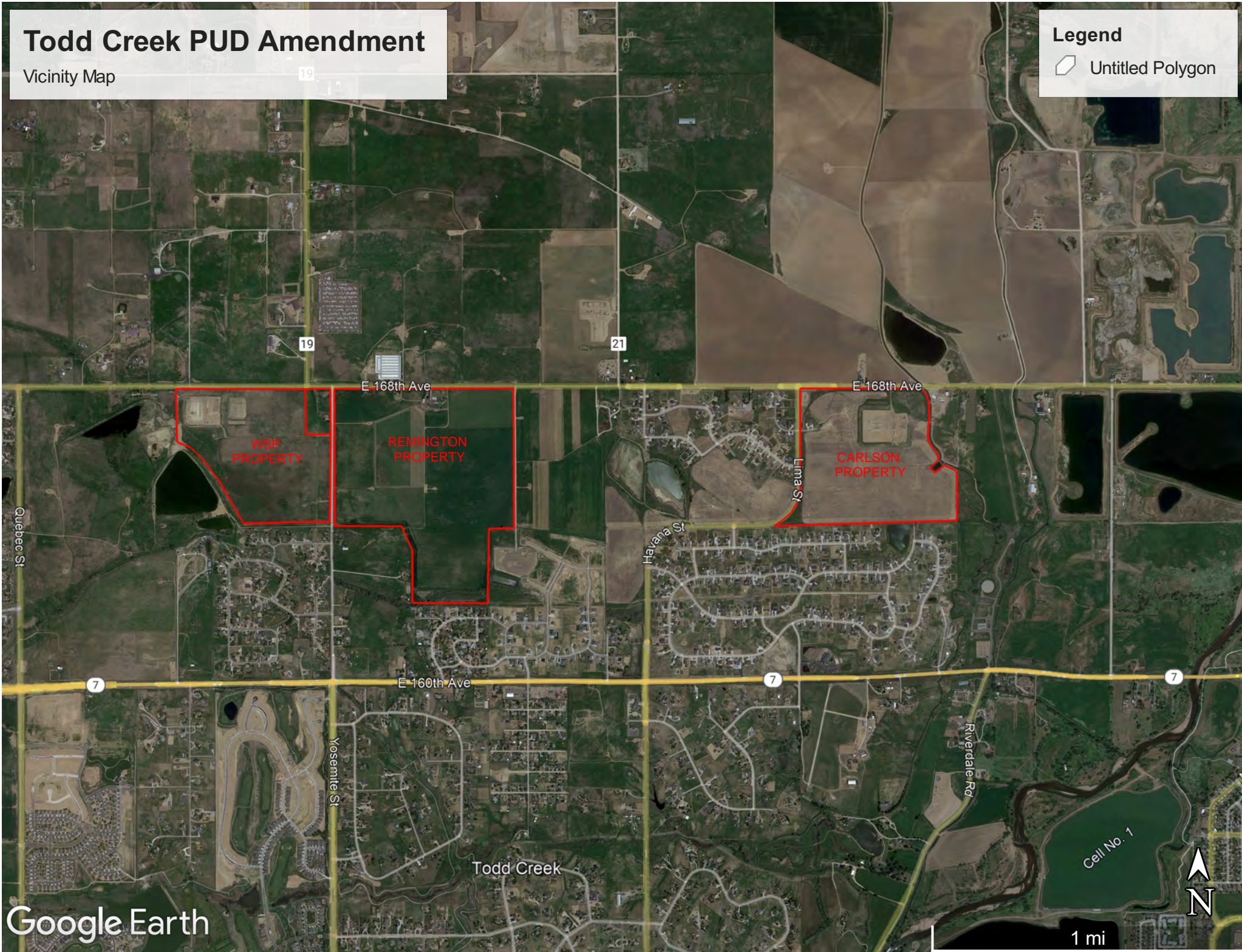


# Todd Creek PUD Amendment

Vicinity Map

## Legend

 Untitled Polygon



Google Earth



**NOAA Atlas 14, Volume 8, Version 2**  
**Location name: Brighton, Colorado, USA\***  
**Latitude: 40.0004°, Longitude: -104.8616°**  
**Elevation: m/ft\*\***  
 \* source: ESRI Maps  
 \*\* source: USGS



**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffrey Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

**1-hr Depth Rainfall  
 amounts input to CUHP**

[PF\\_tabular](#) | [PF\\_graphical](#) | [Maps\\_&\\_aerials](#)

**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b>										
<b>Duration</b>	<b>Average recurrence interval (years)</b>									
	<b>1</b>	<b>2</b>	<b>5</b>	<b>10</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>	<b>1000</b>
<b>5-min</b>	<b>0.226</b> (0.174-0.294)	<b>0.277</b> (0.213-0.360)	<b>0.373</b> (0.285-0.486)	<b>0.464</b> (0.353-0.609)	<b>0.608</b> (0.457-0.852)	<b>0.734</b> (0.536-1.04)	<b>0.872</b> (0.616-1.26)	<b>1.02</b> (0.696-1.52)	<b>1.25</b> (0.815-1.91)	<b>1.43</b> (0.905-2.19)
<b>10-min</b>	<b>0.332</b> (0.255-0.431)	<b>0.405</b> (0.311-0.528)	<b>0.545</b> (0.418-0.712)	<b>0.680</b> (0.517-0.892)	<b>0.891</b> (0.670-1.25)	<b>1.08</b> (0.785-1.52)	<b>1.28</b> (0.902-1.85)	<b>1.50</b> (1.02-2.23)	<b>1.83</b> (1.19-2.79)	<b>2.10</b> (1.33-3.21)
<b>15-min</b>	<b>0.404</b> (0.311-0.526)	<b>0.494</b> (0.380-0.644)	<b>0.665</b> (0.509-0.869)	<b>0.829</b> (0.631-1.09)	<b>1.09</b> (0.817-1.52)	<b>1.31</b> (0.957-1.85)	<b>1.56</b> (1.10-2.25)	<b>1.83</b> (1.24-2.72)	<b>2.23</b> (1.46-3.40)	<b>2.56</b> (1.62-3.92)
<b>30-min</b>	<b>0.557</b> (0.428-0.725)	<b>0.677</b> (0.520-0.882)	<b>0.906</b> (0.693-1.18)	<b>1.13</b> (0.857-1.48)	<b>1.47</b> (1.11-2.07)	<b>1.78</b> (1.30-2.51)	<b>2.11</b> (1.49-3.06)	<b>2.49</b> (1.69-3.70)	<b>3.03</b> (1.98-4.63)	<b>3.48</b> (2.20-5.33)
<b>60-min</b>	<b>0.681</b> (0.523-0.885)	<b>0.828</b> (0.636-1.08)	<b>1.11</b> (0.849-1.45)	<b>1.38</b> (1.05-1.81)	<b>1.81</b> (1.36-2.53)	<b>2.18</b> (1.59-3.08)	<b>2.60</b> (1.83-3.76)	<b>3.05</b> (2.07-4.54)	<b>3.72</b> (2.43-5.68)	<b>4.27</b> (2.70-6.55)
<b>2-hr</b>	<b>0.804</b> (0.624-1.03)	<b>0.979</b> (0.759-1.26)	<b>1.31</b> (1.01-1.70)	<b>1.63</b> (1.26-2.12)	<b>2.14</b> (1.63-2.97)	<b>2.59</b> (1.91-3.61)	<b>3.08</b> (2.20-4.40)	<b>3.62</b> (2.48-5.32)	<b>4.41</b> (2.91-6.66)	<b>5.06</b> (3.24-7.67)
<b>3-hr</b>	<b>0.868</b> (0.678-1.11)	<b>1.06</b> (0.824-1.35)	<b>1.41</b> (1.10-1.82)	<b>1.76</b> (1.36-2.27)	<b>2.30</b> (1.76-3.17)	<b>2.77</b> (2.06-3.84)	<b>3.30</b> (2.37-4.68)	<b>3.87</b> (2.67-5.65)	<b>4.72</b> (3.13-7.06)	<b>5.41</b> (3.48-8.13)
<b>6-hr</b>	<b>1.03</b> (0.812-1.30)	<b>1.24</b> (0.974-1.57)	<b>1.63</b> (1.28-2.07)	<b>2.00</b> (1.56-2.56)	<b>2.59</b> (2.00-3.52)	<b>3.11</b> (2.33-4.25)	<b>3.67</b> (2.66-5.15)	<b>4.30</b> (3.00-6.18)	<b>5.21</b> (3.50-7.69)	<b>5.96</b> (3.87-8.83)
<b>12-hr</b>	<b>1.27</b> (1.02-1.60)	<b>1.50</b> (1.20-1.88)	<b>1.93</b> (1.53-2.42)	<b>2.33</b> (1.84-2.94)	<b>2.96</b> (2.30-3.95)	<b>3.50</b> (2.65-4.72)	<b>4.10</b> (3.00-5.66)	<b>4.76</b> (3.35-6.74)	<b>5.71</b> (3.87-8.31)	<b>6.49</b> (4.26-9.49)
<b>24-hr</b>	<b>1.53</b> (1.23-1.90)	<b>1.81</b> (1.46-2.25)	<b>2.32</b> (1.86-2.88)	<b>2.78</b> (2.21-3.47)	<b>3.46</b> (2.70-4.53)	<b>4.04</b> (3.07-5.34)	<b>4.65</b> (3.43-6.30)	<b>5.31</b> (3.76-7.39)	<b>6.24</b> (4.27-8.93)	<b>6.99</b> (4.65-10.1)
<b>2-day</b>	<b>1.75</b> (1.42-2.14)	<b>2.12</b> (1.72-2.60)	<b>2.75</b> (2.23-3.38)	<b>3.29</b> (2.65-4.06)	<b>4.04</b> (3.16-5.18)	<b>4.65</b> (3.56-6.03)	<b>5.26</b> (3.90-7.00)	<b>5.90</b> (4.21-8.06)	<b>6.77</b> (4.67-9.51)	<b>7.45</b> (5.01-10.6)
<b>3-day</b>	<b>1.90</b> (1.56-2.32)	<b>2.29</b> (1.87-2.79)	<b>2.93</b> (2.38-3.58)	<b>3.47</b> (2.81-4.26)	<b>4.24</b> (3.34-5.39)	<b>4.85</b> (3.74-6.25)	<b>5.48</b> (4.09-7.22)	<b>6.13</b> (4.40-8.30)	<b>7.01</b> (4.86-9.75)	<b>7.69</b> (5.20-10.9)
<b>4-day</b>	<b>2.03</b> (1.67-2.46)	<b>2.41</b> (1.98-2.92)	<b>3.04</b> (2.49-3.70)	<b>3.59</b> (2.92-4.38)	<b>4.36</b> (3.45-5.52)	<b>4.98</b> (3.85-6.38)	<b>5.61</b> (4.21-7.36)	<b>6.27</b> (4.53-8.45)	<b>7.17</b> (4.99-9.92)	<b>7.86</b> (5.34-11.0)
<b>7-day</b>	<b>2.33</b> (1.93-2.79)	<b>2.71</b> (2.25-3.26)	<b>3.36</b> (2.78-4.05)	<b>3.92</b> (3.22-4.74)	<b>4.71</b> (3.76-5.90)	<b>5.34</b> (4.17-6.77)	<b>5.98</b> (4.53-7.77)	<b>6.66</b> (4.85-8.87)	<b>7.57</b> (5.32-10.4)	<b>8.29</b> (5.68-11.5)
<b>10-day</b>	<b>2.58</b> (2.15-3.08)	<b>2.98</b> (2.48-3.56)	<b>3.66</b> (3.04-4.38)	<b>4.23</b> (3.50-5.09)	<b>5.05</b> (4.05-6.27)	<b>5.69</b> (4.46-7.16)	<b>6.34</b> (4.83-8.17)	<b>7.02</b> (5.14-9.28)	<b>7.94</b> (5.61-10.8)	<b>8.65</b> (5.97-11.9)
<b>20-day</b>	<b>3.30</b> (2.78-3.90)	<b>3.77</b> (3.17-4.45)	<b>4.53</b> (3.80-5.36)	<b>5.17</b> (4.31-6.15)	<b>6.05</b> (4.90-7.40)	<b>6.74</b> (5.34-8.36)	<b>7.43</b> (5.71-9.43)	<b>8.14</b> (6.02-10.6)	<b>9.08</b> (6.49-12.1)	<b>9.80</b> (6.84-13.3)
<b>30-day</b>	<b>3.88</b> (3.29-4.55)	<b>4.41</b> (3.73-5.17)	<b>5.28</b> (4.45-6.21)	<b>5.99</b> (5.03-7.08)	<b>6.97</b> (5.67-8.44)	<b>7.72</b> (6.15-9.48)	<b>8.46</b> (6.54-10.6)	<b>9.21</b> (6.85-11.9)	<b>10.2</b> (7.32-13.5)	<b>10.9</b> (7.68-14.7)
<b>45-day</b>	<b>4.57</b> (3.90-5.32)	<b>5.21</b> (4.44-6.07)	<b>6.24</b> (5.30-7.29)	<b>7.08</b> (5.99-8.30)	<b>8.21</b> (6.71-9.85)	<b>9.06</b> (7.26-11.0)	<b>9.89</b> (7.69-12.3)	<b>10.7</b> (8.02-13.7)	<b>11.8</b> (8.51-15.4)	<b>12.6</b> (8.88-16.8)
<b>60-day</b>	<b>5.13</b> (4.39-5.94)	<b>5.88</b> (5.03-6.82)	<b>7.08</b> (6.04-8.23)	<b>8.04</b> (6.83-9.39)	<b>9.33</b> (7.65-11.1)	<b>10.3</b> (8.27-12.4)	<b>11.2</b> (8.74-13.9)	<b>12.1</b> (9.10-15.3)	<b>13.3</b> (9.62-17.2)	<b>14.1</b> (10.0-18.7)

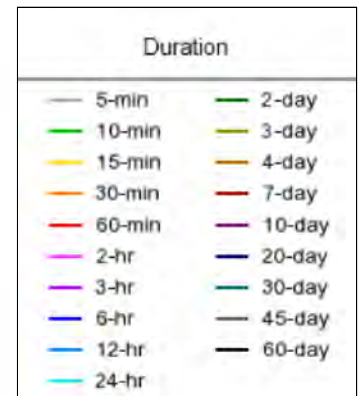
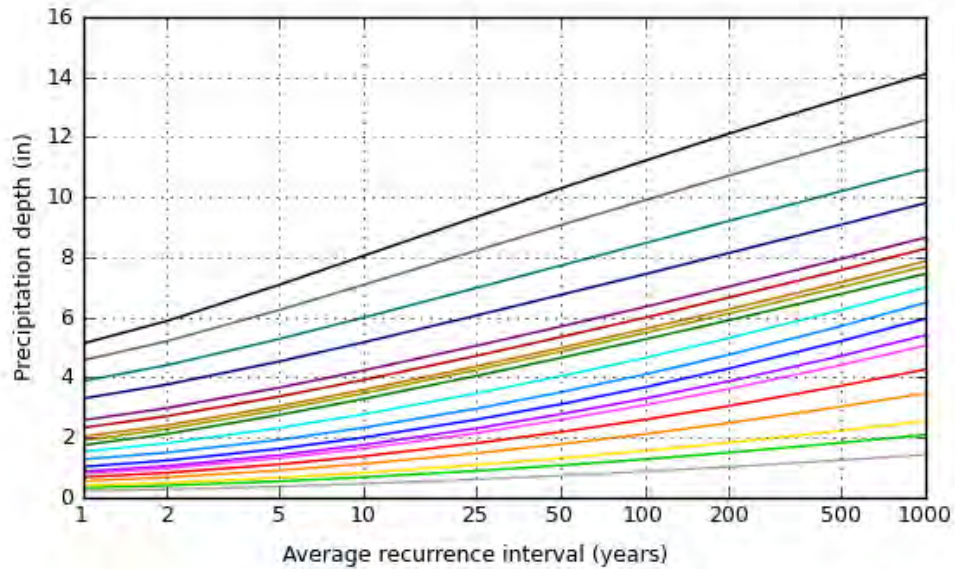
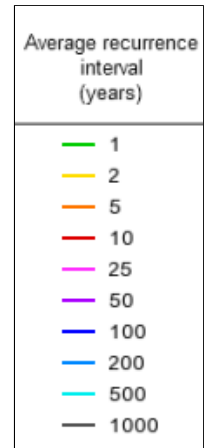
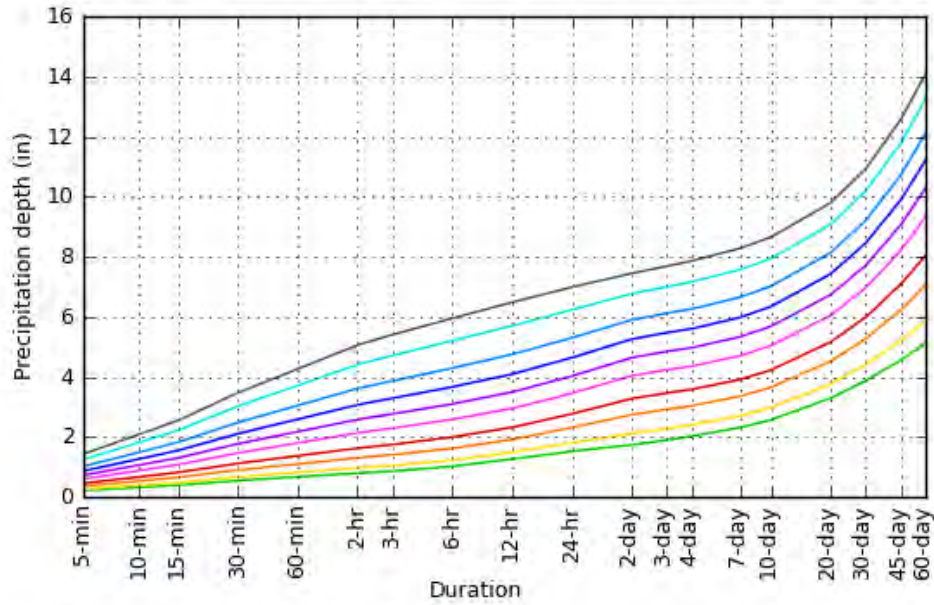
<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

**PF graphical**

PDS-based depth-duration-frequency (DDF) curves

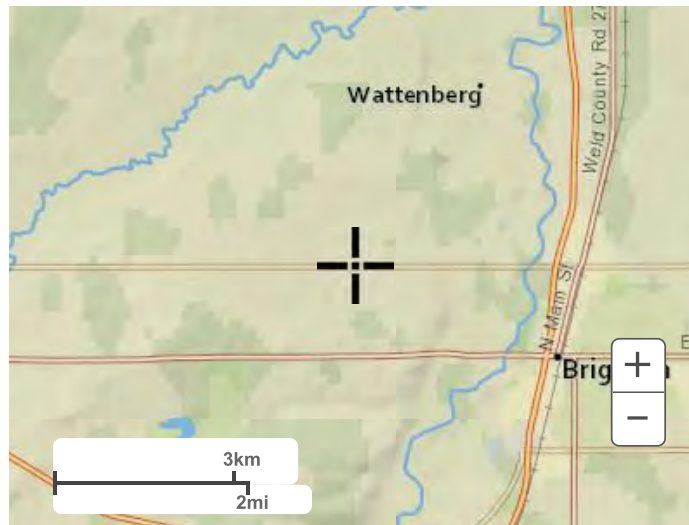
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[Back to Top](#)

**Maps & aerials**

**Small scale terrain**



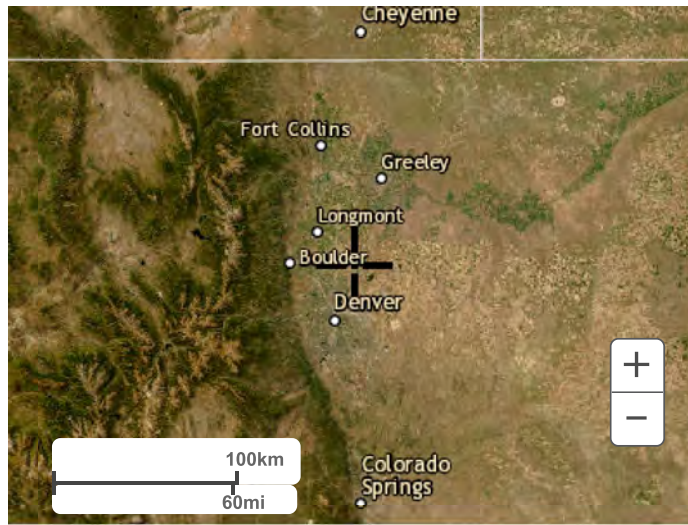
Large scale terrain



Large scale map



Large scale aerial



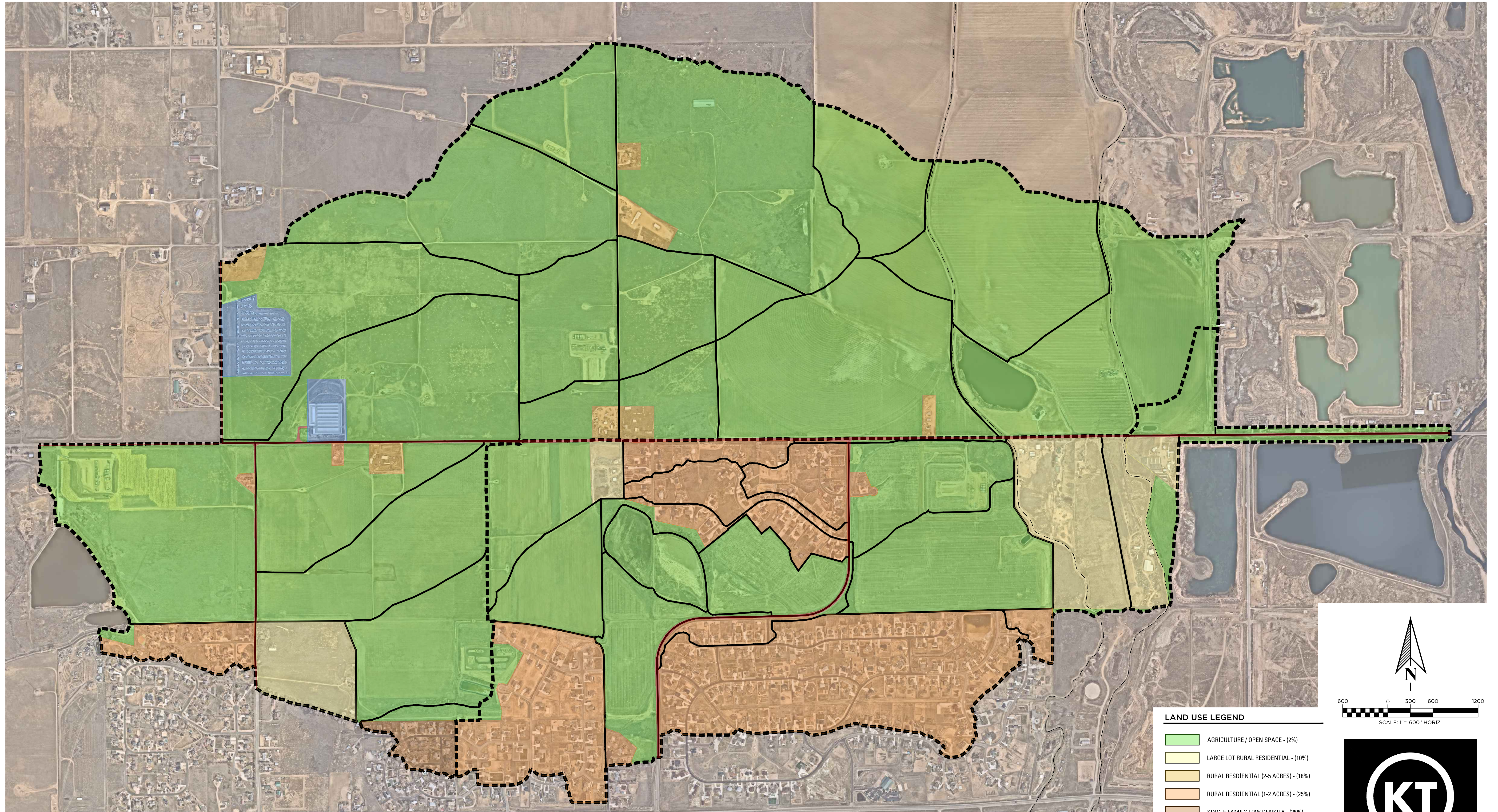
[Back to Top](#)

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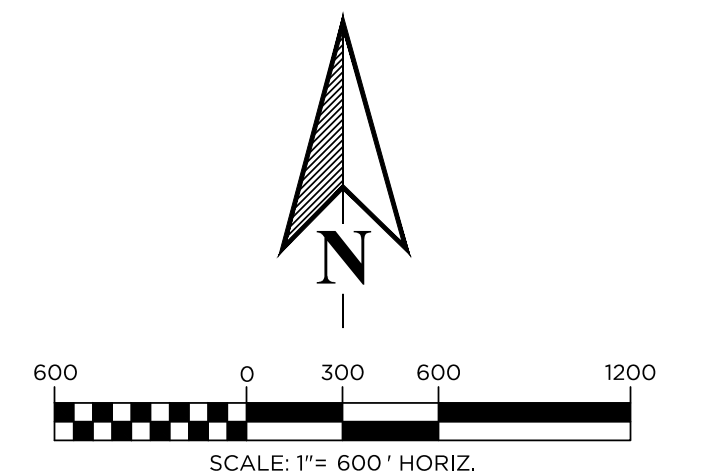
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[National Weather Service](#)  
[National Water Center](#)  
1325 East West Highway  
Silver Spring, MD 20910  
Questions?: [HDSC.Questions@noaa.gov](mailto:HDSC.Questions@noaa.gov)

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# E. 168TH AVENUE DRAINAGE ANALYSIS EXISTING LAND USES

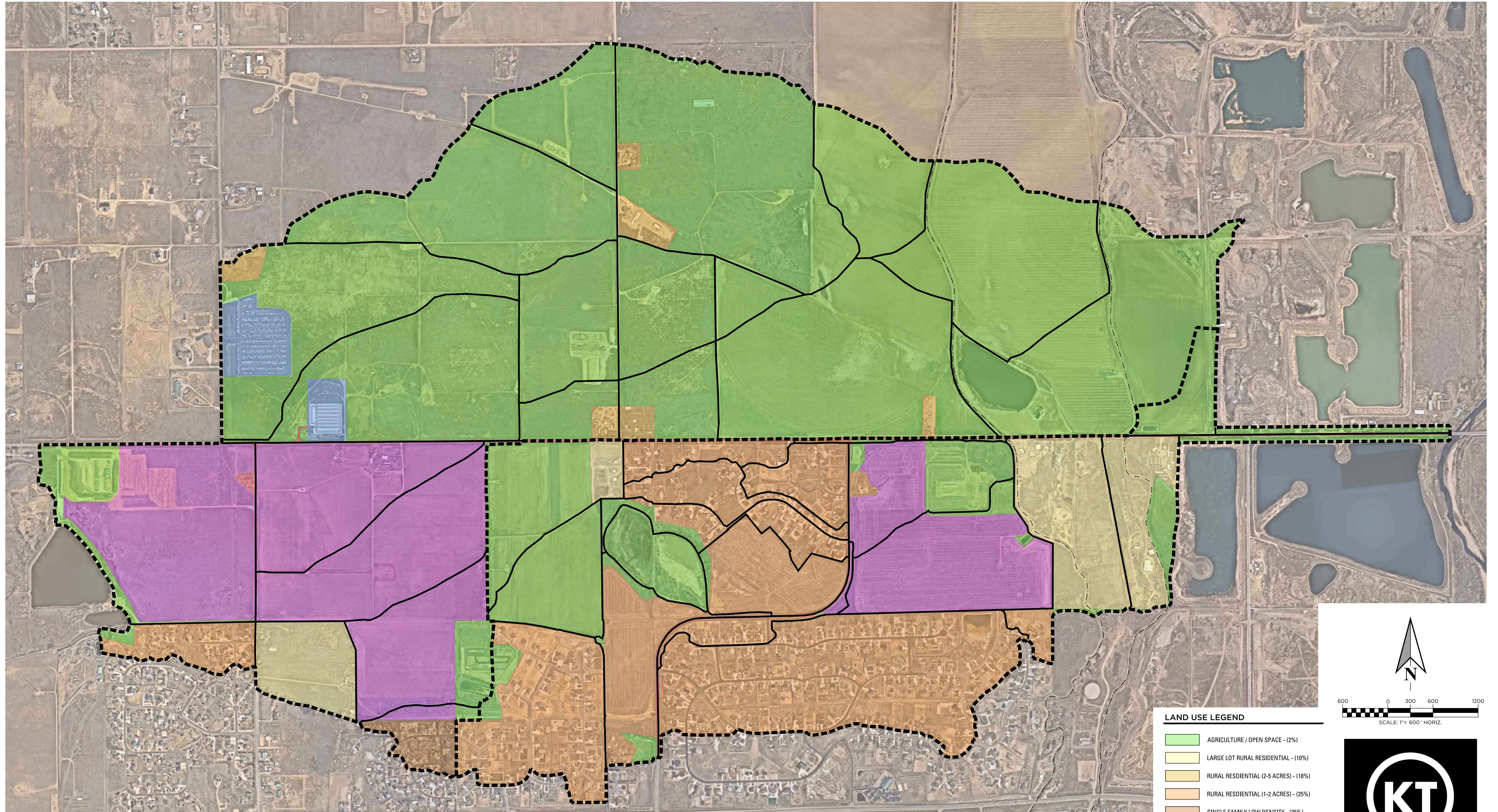


LAND USE LEGEND	
	AGRICULTURE / OPEN SPACE - (2%)
	LARGE LOT RURAL RESIDENTIAL - (10%)
	RURAL RESIDENTIAL (2-5 ACRES) - (18%)
	RURAL RESIDENTIAL (1-2 ACRES) - (25%)
	SINGLE FAMILY LOW DENSITY - (35%)
	LIGHT INDUSTRIAL - (80%)
	STREETS - (100%)

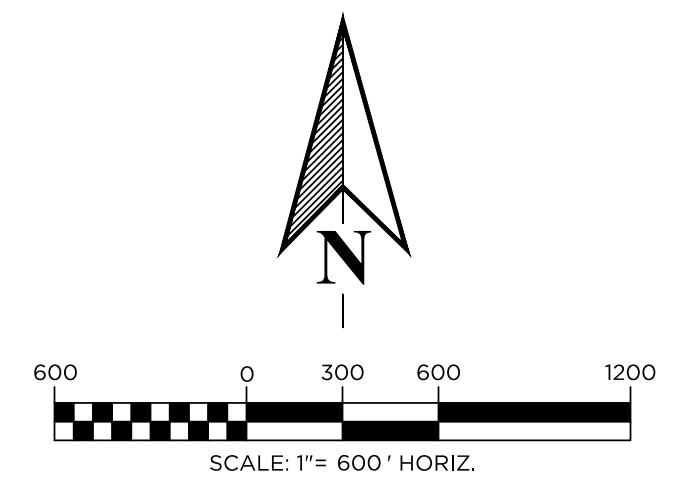


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ARVADA, CO 80002  
PH: 720.638.5190

# E. 168TH AVENUE DRAINAGE ANALYSIS FUTURE LAND USES

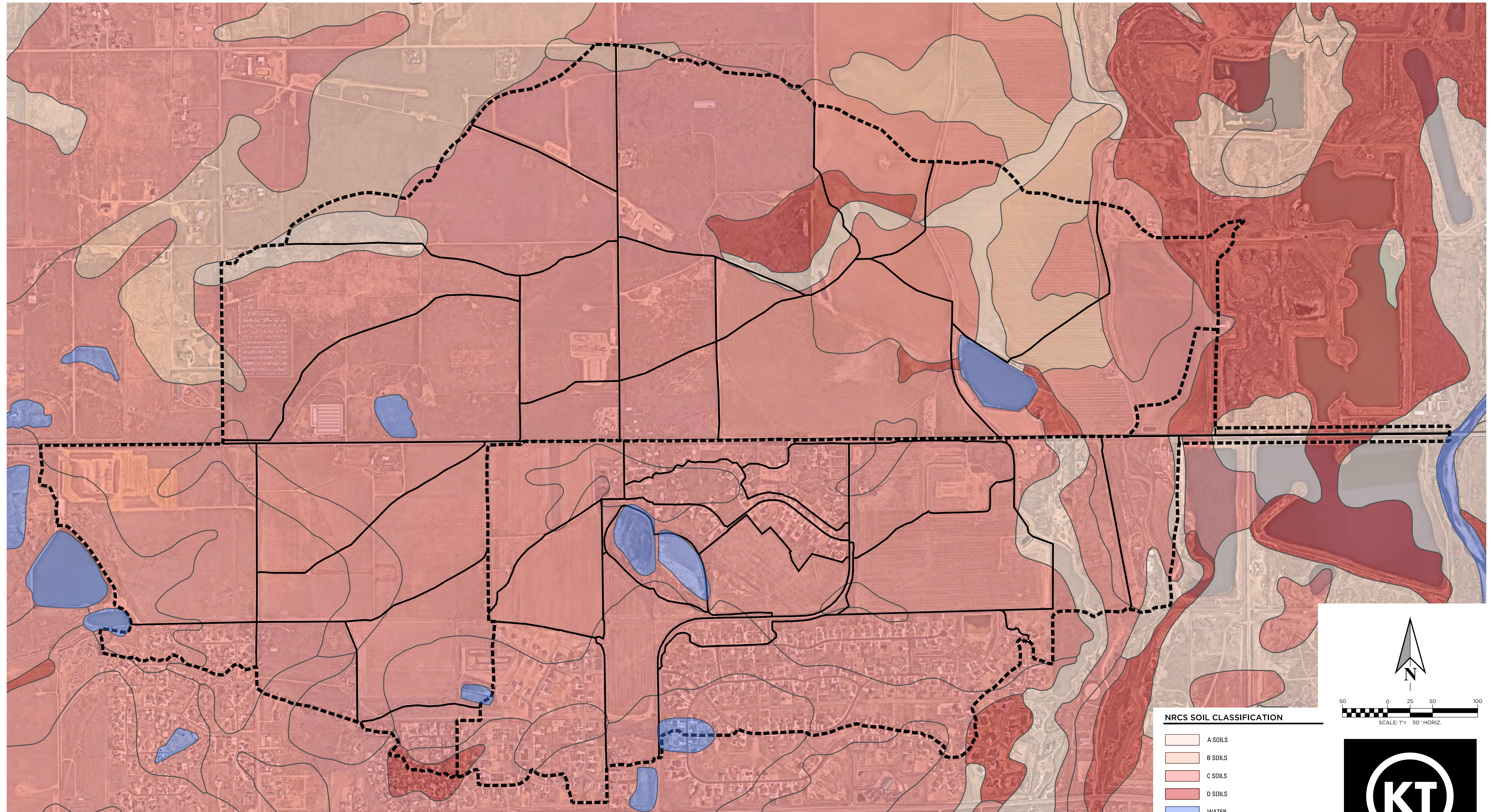


LAND USE LEGEND	
	AGRICULTURE / OPEN SPACE - (2%)
	LARGE LOT RURAL RESIDENTIAL - (10%)
	RURAL RESIDENTIAL (2-5 ACRES) - (18%)
	RURAL RESIDENTIAL (1-2 ACRES) - (25%)
	SINGLE FAMILY LOW DENSITY - (35%)
	MEDIUM DENSITY RESIDENTIAL - (50%)
	LIGHT INDUSTRIAL - (80%)
	STREETS - (100%)



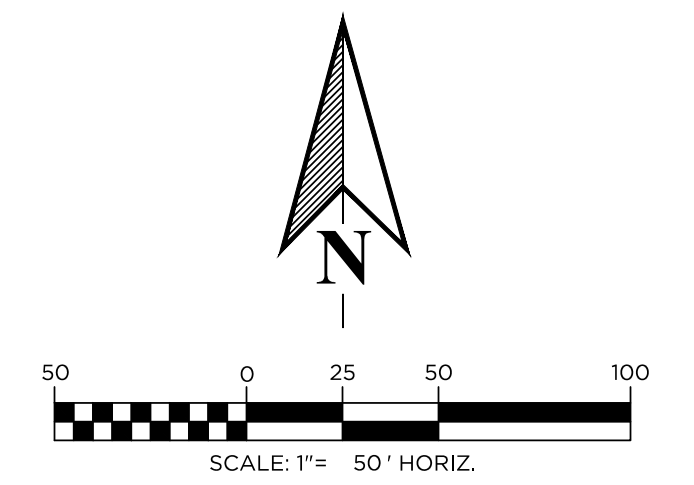
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# E. 168TH AVENUE DRAINAGE ANALYSIS SOILS CONDITIONS MAP



**NRCS SOIL CLASSIFICATION**

	A SOILS
	B SOILS
	C SOILS
	D SOILS
	WATER



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APPENDIX B  
CUHP / SWMM MODEL SUMMARY  
CUHP INPUTS  
POND SUMMARY SWMM INPUTS  
SWMM MODEL INPUTS

PROJECT: TODD CREEK PUD AMENDMENT – E. 168TH AVE – REGIONAL DRAINAGE  
SHEET TITLE: PEAK FLOW SUMMARY

E. 168th Ave Tributaries			Peak Discharge (cfs) - Historic			Peak Discharge (cfs) - Existing Condition			Peak Discharge (cfs) - Proposed Condition			Peak Discharge (cfs) - Future Condition		
SWMM Node	Drainage Area Existing (Acres)	Drainage Area Future (Acres)	5-year	10-year	100-year	5-year	10-year	100-year	5-year	10-year	100-year	5-year	10-year	100-year
300	153.8	153.8	10.6	38.3	218.1	13.9	42.6	226.4	1.5	6.3	10.3	1.5	6.3	10.3
301	226.6	226.6	11.2	46.3	289.0	16.0	52.1	298.3	38.6	55.6	156.2	38.6	55.6	156.2
302	117.8	117.8	6.9	28.1	167.0	14.0	36.0	176.2	43.7	72.8	244.3	43.7	72.8	244.3
303	424.5	424.5	20.3	85.2	528.9	32.1	98.9	546.9	2.7	9.5	19.9	2.7	9.5	19.9
304	445.4	445.4	20.8	87.9	552.6	33.0	102.2	571.3	3.3	9.7	40.0	3.3	9.7	40.0
305	477.1	477.1	21.9	93.3	594.7	34.8	108.6	614.5	5.6	15.7	79.8	5.6	15.7	79.8
306	620.9	620.9	22.5	104.9	743.2	35.4	120.6	764.6	12.3	43.9	263.2	12.3	43.9	263.2
307	115.2	115.2	6.7	24.1	136.6	12.3	29.8	142.7	12.3	29.8	142.7	12.3	29.8	142.7
308	115.4	115.4	4.7	17.3	103.9	12.6	25.8	114.6	12.6	25.8	114.6	12.6	25.8	114.6
309	230.6	230.6	11.1	40.7	235.7	24.6	55.1	254.2	24.6	55.1	254.2	24.6	55.1	254.2
310	283.2	283.2	13.5	51.5	306.4	27.4	66.6	327.2	27.4	66.6	327.1	1.0	15.1	51.3
311	327.9	327.9	14.7	58.3	356.9	28.7	73.7	378.2	28.7	73.7	378.1	2.7	16.1	86.7
312	106.6	106.6	4.2	15.6	93.8	4.2	15.6	93.8	4.2	15.6	93.8	4.2	15.6	93.8
313	434.5	434.5	18.7	73.3	447.7	32.5	88.4	467.2	32.5	88.4	467.1	6.0	22.9	180.2
314	45.8	45.8	3.2	11.4	62.5	3.2	11.4	62.5	3.2	11.4	62.5	3.2	11.4	62.5
315	14.6	14.6	1.3	4.7	24.8	1.3	4.7	24.8	1.3	4.7	24.8	1.3	4.7	24.8
316	664.1	664.1	24.1	104.8	720.2	37.8	120.2	744.0	38.0	120.7	745.4	1.6	3.7	101.3
317	712.0	712.0	24.5	109.6	768.0	38.1	125.0	793.0	38.3	125.4	794.3	3.5	12.4	104.1
318	1,446.2	1,446.2	47.5	222.7	1616.0	73.6	253.7	1664.7	48.7	170.8	1156.2	19.0	75.1	478.1
319	1,582.6	1,582.6	49.4	236.1	1742.4	75.6	267.4	1792.7	51.1	185.6	1287.9	2.2	3.4	233.7
500	81.3	81.3	5.7	20.2	111.5	2.9	7.0	82.1	2.9	7.0	82.1	2.9	7.0	82.1
501	128.7	128.7	6.4	25.9	158.6	3.7	10.5	119.1	9.1	16.3	124.2	9.1	16.3	124.2
502	259.2	259.2	11.1	46.0	293.6	10.5	32.9	240.7	5.7	17.9	245.0	5.7	17.9	245.0
503	282.4	296.1	11.7	48.5	308.9	13.2	37.8	258.8	10.6	26.0	274.0	10.6	26.0	274.0
504	305.4	319.1	12.5	52.0	335.8	17.5	45.5	287.3	15.2	34.3	303.1	14.9	33.7	298.8
505	370.8	448.0	13.8	58.5	386.1	20.7	54.3	337.8	44.1	65.4	187.8	53.1	81.4	408.2
506	74.3	74.3	5.0	18.0	99.6	5.0	18.0	99.6	43.8	65.0	186.4	44.0	65.3	186.8
508	-	-	-	-	-	-	-	-	1.8	2.3	46.7	2.5	5.3	47.0
511	-	-	-	-	-	-	-	-	1.8	2.3	46.7	2.5	5.3	47.0
512	-	-	-	-	-	-	-	-	1.8	2.3	46.7	2.5	5.3	47.0
513	-	-	-	-	-	-	-	-	1.8	2.3	46.7	2.5	5.3	47.0
514	-	-	-	-	-	-	-	-	1.8	2.3	46.7	2.5	5.3	47.0
606	52.3	52.3	3.1	11.1	62.4	3.9	11.8	63.2	3.9	11.8	63.2	0.3	5.5	26.0
607	70.9	70.9	2.9	11.6	72.8	5.6	14.8	78.3	5.6	14.8	78.3	2.7	9.1	40.5
608	444.6	518.9	16.1	68.8	457.1	26.0	68.1	414.9	5.2	13.8	76.9	2.7	9.0	147.6
611	585.7	585.7	20.3	89.9	619.7	34.2	94.6	559.6	10.1	26.5	154.7	2.9	16.6	179.8
612	627.5	627.5	21.4	95.3	663.0	36.8	102.1	600.0	14.3	33.8	201.0	6.7	21.7	200.5
613	646.9	646.9	21.6	97.1	683.4	37.3	104.6	618.4	15.4	38.0	223.3	6.7	22.2	209.4
614	662.3	662.3	20.3	92.9	671.5	36.1	101.5	620.1	13.6	37.0	223.6	7.3	23.6	214.5

PROJECT: TODD CREEK PUD AMENDMENT - E. 168TH AVE - REGIONAL DRAINAGE  
 SHEET TITLE: CUHP INPUTS

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Basin Name	Total Area (sq. miles)	Length To Centroid (miles)	Length (miles)	Slope (ft/ft)
100	0.0375	0.2119	0.4318	0.0237
101	0.2028	0.3134	0.5438	0.0247
102	0.1136	0.4163	0.6566	0.0193
103	0.0529	0.1572	0.2483	0.0191
104	0.0303	0.0701	0.1826	0.0456
105	0.1009	0.2858	0.5345	0.0145
106	0.1252	0.4591	0.8307	0.0173
107	0.0327	0.1241	0.2723	0.0111
108	0.0494	0.1070	0.2693	0.0127
109	0.2248	0.2646	0.6299	0.0123
110	0.2131	0.2913	0.8030	0.0116
120	0.1800	0.3434	0.7458	0.0135
121	0.1803	0.5699	0.9413	0.0127
122	0.0821	0.1534	0.2905	0.0104
123	0.0700	0.2080	0.3845	0.0103
124	0.0228	0.0672	0.1769	0.0139
125	0.1665	0.4428	0.9917	0.0088
126	0.0715	0.1708	0.3163	0.0084
127	0.2645	0.2506	0.6981	0.0165
128	0.0748	0.1648	0.4085	0.0148
129	0.1770	0.2455	0.5813	0.0173
200	0.0816	0.2051	0.5246	0.0119
201	0.0290	0.3108	0.5782	0.0128
202	0.0046	0.2797	0.5233	0.0080
203	0.1270	0.2931	0.5782	0.0272
204	0.0740	0.2692	0.5601	0.0169
205	0.0620	0.2464	0.4621	0.0114
206	0.0214	0.4103	0.6914	0.0137
207	0.0621	0.1830	0.3847	0.0123
208	0.0388	0.1087	0.2397	0.0071
209	0.0412	0.3381	0.6977	0.0106
210	0.0361	0.4097	0.7119	0.0186
211	0.0360	0.1785	0.2960	0.0221
212	0.0808	0.2803	0.5628	0.0077
213	0.1160	0.2038	0.5582	0.0129
214	0.1045	0.3042	0.3574	0.0201
215	0.0653	0.2002	0.3851	0.0089
216	0.0302	0.0564	0.1816	0.0049
217	0.0112	0.1634	0.4590	0.0019
218	0.0129	0.2218	0.5591	0.0017
219	0.2388	0.4618	1.1354	0.0110

PROJECT: TODD CREEK PUD AMENDMENT – E. 168TH AVE – REGIONAL DRAINAGE  
 SHEET TITLE: EXISTING COMPOSITE RUNOFF FACTORS

Basin Name	Total Area (sq. miles)	Total Area (Acres)	Total Area (Sq. Ft.)	Agriculture/Open Space (Sq. Ft.)	Large Lot Rural Residential (Sq. Ft.)	Rural Residential (Sq. Ft.)	Rural Estate Residential (Sq. Ft.)	Single Family Low Density (Sq. Ft.)	Light Industrial (Sq. Ft.)	Streets (Sq. Ft.)	Soil Type "C" Composite Runoff Factors		
											C <sub>5</sub>	C <sub>100</sub>	I %
100	0.0375	24.02	1,046,369	74,060			964,891			7,418	0.23	0.58	23.90
101	0.2028	129.81	5,654,474	5,538,938			47,448			68,088	0.06	0.49	3.37
102	0.1136	72.72	3,167,594	2,858,546		190,051	48,321			70,676	0.08	0.50	5.50
103	0.0529	33.84	1,474,165	0	1,459,654					14,511	0.12	0.52	10.89
104	0.0303	19.40	845,194	249,637				595,557			0.24	0.59	25.25
105	0.1009	64.59	2,813,649	2,813,649							0.05	0.49	2.00
106	0.1252	80.13	3,490,662	3,481,402						9,260	0.05	0.49	2.26
107	0.0327	20.93	911,621	737,387		155,612				18,622	0.09	0.51	6.73
108	0.0494	31.63	1,377,978	1,149,147		206,415				22,416	0.08	0.50	5.99
109	0.2248	143.86	6,266,401	6,106,048		101,257				59,096	0.06	0.49	3.18
110	0.2131	136.40	5,941,560	5,921,424						20,136	0.05	0.49	2.33
120	0.1800	115.22	5,018,961	4,529,900					427,480	61,581	0.12	0.52	9.85
121	0.1803	115.41	5,027,163	4,115,873					882,590	28,700	0.17	0.55	16.25
122	0.0821	52.53	2,287,991	2,287,991							0.05	0.49	2.00
123	0.0700	44.78	1,950,635	1,950,635							0.05	0.49	2.00
124	0.0228	14.58	635,079	635,079							0.05	0.49	2.00
125	0.1665	106.57	4,642,077	4,642,077							0.05	0.49	2.00
126	0.0715	45.77	1,993,702	1,993,702							0.05	0.49	2.00
127	0.2645	169.27	7,373,366	7,257,487		115,879					0.05	0.49	2.25
128	0.0748	47.86	2,084,756	2,084,756							0.05	0.49	2.00
129	0.1770	113.26	4,933,711	4,933,711							0.05	0.49	2.00
200	0.0816	52.26	2,276,233	1,909,889	339,026					27,318	0.07	0.50	4.37
201	0.0290	18.59	809,795	0			768,458			41,337	0.27	0.60	28.83
202	0.0046	2.91	126,941	54,955			22,372			49,614	0.39	0.67	44.36
203	0.1270	81.30	3,541,467	258,475			3,282,992				0.22	0.58	23.32
204	0.0740	47.35	2,062,568	1,849,807			153,799			58,962	0.09	0.51	6.52
205	0.0620	39.71	1,729,769	1,704,104						25,665	0.06	0.49	3.45
206	0.0214	13.72	597,759	70,046			452,168			75,545	0.29	0.62	31.78
207	0.0621	39.71	1,729,942	1,729,942							0.05	0.49	2.00
208	0.0388	24.83	1,081,442	1,081,442							0.05	0.49	2.00
209	0.0412	26.35	1,147,717	251,658			892,141			3,918	0.20	0.57	20.21
210	0.0361	23.12	1,007,042	0			1,002,726			4,316	0.24	0.59	25.32
211	0.0360	23.01	1,002,279	0			985,115			17,164	0.25	0.59	26.28
212	0.0808	51.73	2,253,456	2,133,966			91,325			28,165	0.07	0.50	4.16
213	0.1160	74.26	3,234,963	3,234,963							0.05	0.49	2.00
214	0.1045	66.87	2,912,853	41,603	2,550,474		295,211			25,565	0.14	0.53	12.20
215	0.0653	41.77	1,819,547	393,550	1,407,384					18,613	0.11	0.52	9.19
216	0.0302	19.35	842,895	825,576						17,319	0.07	0.50	4.01
217	0.0112	7.15	311,508	261,217						50,291	0.18	0.56	17.82
218	0.0129	8.26	359,977	294,372						65,605	0.20	0.57	19.86
219	0.2388	152.85	6,658,264	0			6,658,264				0.24	0.59	25.00

Land Use	Imp., I %
Agriculture/Open Space	2
Large Lot Rural Residential	10
Rural Residential (2-5 ac.)	18
Rural Estate Residential (1-2 ac.)	25
Single Family Low Density	35
Light Industrial	80
Streets	100

PROJECT: TODD CREEK PUD AMENDMENT - E. 168TH AVE - REGIONAL DRAINAGE  
 SHEET TITLE: PROPOSED COMPOSITE RUNOFF FACTORS

Basin Name	Total Area (sq. miles)	Total Area (Acres)	Total Area (Sq. Ft.)	Agriculture/Open Space (Sq. Ft.)	Large Lot Rural Residential (Sq. Ft.)	Rural Residential (Sq. Ft.)	Rural Estate Residential (Sq. Ft.)	Single Family Low Density (Sq. Ft.)	Light Industrial (Sq. Ft.)	Streets (Sq. Ft.)	Medium Density Residential (Sq. Ft.)	Soil Type "C" Composite Runoff Factors		
												C <sub>s</sub>	C <sub>100</sub>	I %
100	0.0375	24.02	1,046,369	74,060			964,891			7,418		0.23	0.58	23.90
101	0.2028	129.81	5,654,474	959,247			47,448			68,088	4,579,691	0.38	0.66	42.25
102	0.1136	72.72	3,167,594	0						70,676	3,096,918	0.45	0.69	51.12
103	0.0529	33.84	1,474,165	0	1,459,654					14,511		0.12	0.52	10.89
104	0.0303	19.40	845,194	67,977				595,557			181,660	0.32	0.63	35.57
105	0.1009	64.59	2,813,649	559,560							2,254,089	0.36	0.65	40.45
106	0.1252	80.13	3,490,662	38,533						9,260	3,442,869	0.44	0.69	49.60
107	0.0327	20.93	911,621	737,387		155,612				18,622		0.09	0.51	6.73
108	0.0494	31.63	1,377,978	1,149,147		206,415				22,416		0.08	0.50	5.99
109	0.2248	143.86	6,266,401	6,106,048		101,257				59,096		0.06	0.49	3.18
110	0.2131	136.40	5,941,560	5,921,424						20,136		0.05	0.49	2.33
120	0.1800	115.22	5,018,961	4,529,900					427,480	61,581		0.12	0.52	9.85
121	0.1803	115.41	5,027,163	4,115,873					882,590	28,700		0.17	0.55	16.25
122	0.0821	52.53	2,287,991	2,287,991								0.05	0.49	2.00
123	0.0700	44.78	1,950,635	1,950,635								0.05	0.49	2.00
124	0.0228	14.58	635,079	635,079								0.05	0.49	2.00
125	0.1665	106.57	4,642,077	4,642,077								0.05	0.49	2.00
126	0.0715	45.77	1,993,702	1,993,702								0.05	0.49	2.00
127	0.2645	169.27	7,373,366	7,257,487		115,879						0.05	0.49	2.25
128	0.0748	47.86	2,084,756	2,084,756								0.05	0.49	2.00
129	0.1770	113.26	4,933,711	4,933,711								0.05	0.49	2.00
200	0.0816	52.26	2,276,233	1,909,889	339,026					27,318		0.07	0.50	4.37
201	0.0290	18.59	809,795	0			768,458			41,337		0.27	0.60	28.83
202	0.0046	2.91	126,941	54,955			22,372			49,614		0.39	0.67	44.36
203	0.1270	81.30	3,541,467	258,475			3,282,992					0.22	0.58	23.32
204	0.0740	47.35	2,062,568	240,216			1,763,390			58,962		0.23	0.59	24.47
205	0.0620	39.71	1,729,769	57,930			1,646,174			25,665		0.24	0.59	25.34
206	0.0214	13.72	597,759	3,213			452,168			75,545	66,833	0.34	0.64	37.15
207	0.0621	39.71	1,729,942	1,729,942								0.05	0.49	2.00
208	0.0388	24.83	1,081,442	1,081,442								0.05	0.49	2.00
209	0.0412	26.35	1,147,717	251,658			892,141			3,918		0.20	0.57	20.21
210	0.0361	23.12	1,007,042	0			1,002,726			4,316		0.24	0.59	25.32
211	0.0360	23.01	1,002,279	0			985,115			17,164		0.25	0.59	26.28
212	0.0808	51.73	2,253,456	1,701,155			91,325			28,165	432,811	0.14	0.54	13.38
213	0.1160	74.26	3,234,963	218,967							3,015,996	0.41	0.68	46.75
214	0.1045	66.87	2,912,853	41,603	2,550,474		295,211			25,565		0.14	0.53	12.20
215	0.0653	41.77	1,819,547	393,550	1,407,384					18,613		0.11	0.52	9.19
216	0.0302	19.35	842,895	825,576						17,319		0.07	0.50	4.01
217	0.0112	7.15	311,508	261,217						50,291		0.18	0.56	17.82
218	0.0129	8.26	359,977	294,372						65,605		0.20	0.57	19.86
219	0.2388	152.85	6,658,264	0			6,658,264					0.24	0.59	25.00
POND1001	0.2404	153.83	6,700,843	1,033,307	0	0	1,012,339	0	0	75,506	4,579,691	0.35	0.65	39.38
POND1006	0.4230	270.69	11,791,264	666,070	1,459,654	0	0	595,557	0	94,447	8,975,536	0.37	0.66	41.98
POND1022	0.4424	283.15	12,334,115.00	12,884,399.00	0.00	0.00	0.00	0.00	1,310,070.00	90,281.00	0.00	0.13	0.53	11.32
POND1027	0.5953	380.97	16,594,859.00	16,478,980.00	0.00	115,879.00	0.00	0.00	0.00	0.00	0.00	0.05	0.49	2.11
POND1010	0.7718	493.94	21,516,027.00	20,932,473.00	0.00	463,284.00	0.00	0.00	0.00	120,270.00	0.00	0.06	0.49	2.89
POND2012	0.7000	448.01	19,515,345	5,597,953	0	0	10,138,403	0	0	263,349	3,515,640	0.23	0.58	23.92
POND2005	0.1360	87.06	3,792,337	298,146	0	0	3,409,564	0	0	84,627	0	0.24	0.59	24.87
200 BASINS (excl 219)	1.0348	662.26	28,848,153	9,324,160	4,296,884	0	11,202,072	0	0	509,397	3,515,640	0.20	0.57	19.70

Land Use	Imp., I %
Agriculture/Open Space	2
Large Lot Rural Residential	10
Rural Residential (2-5 ac.)	18
Rural Estate Residential (1-2 ac)	25
Single Family Low Density	35
Light Industrial	80
Streets	100
Medium Density Residential	50

PROJECT: TODD CREEK PUD AMENDMENT – E. 168TH AVE – REGIONAL DRAINAGE  
 SHEET TITLE: FUTURE COMPOSITE RUNOFF FACTORS

Basin Name	Total Area (sq. miles)	Total Area (Acres)	Total Area (Sq. Ft.)	Agriculture/Open Space (Sq. Ft.)	Large Lot Rural Residential (Sq. Ft.)	Rural Residential (Sq. Ft.)	Rural Estate Residential (Sq. Ft.)	Single Family Low Density (Sq. Ft.)	Light Industrial (Sq. Ft.)	Streets (Sq. Ft.)	Medium Density Residential (Sq. Ft.)	Soil Type "C" Composite Runoff Factors		
												C <sub>s</sub>	C <sub>100</sub>	I %
100	0.0375	24.02	1,046,369	74,060			964,891			7,418		0.23	0.58	23.90
101	0.2028	129.81	5,654,474	959,247			47,448			68,088	4,579,691	0.38	0.66	42.25
102	0.1136	72.72	3,167,594	0						70,676	3,096,918	0.45	0.69	51.12
103	0.0529	33.84	1,474,165	0	1,459,654					14,511		0.12	0.52	10.89
104	0.0303	19.40	845,194	67,977				595,557			181,660	0.32	0.63	35.57
105	0.1009	64.59	2,813,649	559,560							2,254,089	0.36	0.65	40.45
106	0.1252	80.13	3,490,662	38,533						9,260	3,442,869	0.44	0.69	49.60
107	0.0327	20.93	911,621	737,387		155,612				18,622		0.09	0.51	6.73
108	0.0494	31.63	1,377,978	1,149,147		206,415				22,416		0.08	0.50	5.99
109	0.2248	143.86	6,266,401	6,106,048		101,257				59,096		0.06	0.49	3.18
110	0.2131	136.40	5,941,560	5,921,424						20,136		0.05	0.49	2.33
120	0.1800	115.22	5,018,961	4,529,900					427,480	61,581		0.12	0.52	9.85
121	0.1803	115.41	5,027,163	4,115,873					882,590	28,700		0.17	0.55	16.25
122	0.0821	52.53	2,287,991	2,287,991								0.05	0.49	2.00
123	0.0700	44.78	1,950,635	1,950,635								0.05	0.49	2.00
124	0.0228	14.58	635,079	635,079								0.05	0.49	2.00
125	0.1665	106.57	4,642,077	4,642,077								0.05	0.49	2.00
126	0.0715	45.77	1,993,702	1,993,702								0.05	0.49	2.00
127	0.2645	169.27	7,373,366	7,257,487		115,879						0.05	0.49	2.25
128	0.0748	47.86	2,084,756	2,084,756								0.05	0.49	2.00
129	0.1770	113.26	4,933,711	4,933,711								0.05	0.49	2.00
200	0.0816	52.26	2,276,233	1,909,889	339,026					27,318		0.07	0.50	4.37
201	0.0290	18.59	809,795	0			768,458			41,337		0.27	0.60	28.83
202	0.0046	2.91	126,941	54,955			22,372			49,614		0.39	0.67	44.36
203	0.1270	81.30	3,541,467	258,475			3,282,992					0.22	0.58	23.32
204	0.0740	47.35	2,062,568	240,216			1,763,390			58,962		0.23	0.59	24.47
205	0.0620	39.71	1,729,769	57,930			1,646,174			25,665		0.24	0.59	25.34
206	0.0214	13.72	597,759	3,213			452,168			75,545	66,833	0.34	0.64	37.15
207	0.0621	39.71	1,729,942	1,729,942								0.05	0.49	2.00
208	0.0388	24.83	1,081,442	1,081,442								0.05	0.49	2.00
209	0.0412	26.35	1,147,717	251,658			892,141			3,918		0.20	0.57	20.21
210	0.0361	23.12	1,007,042	0			1,002,726			4,316		0.24	0.59	25.32
211	0.0360	23.01	1,002,279	0			985,115			17,164		0.25	0.59	26.28
212	0.0808	51.73	2,253,456	1,044,447			91,325			28,165	1,089,519	0.26	0.60	27.36
213	0.1160	74.26	3,234,963	209,662							3,025,301	0.41	0.68	46.89
214	0.1045	66.87	2,912,853	41,603	2,550,474		295,211			25,565		0.14	0.53	12.20
215	0.0653	41.77	1,819,547	393,550	1,407,384					18,613		0.11	0.52	9.19
216	0.0302	19.35	842,895	825,576						17,319		0.07	0.50	4.01
217	0.0112	7.15	311,508	261,217						50,291		0.18	0.56	17.82
218	0.0129	8.26	359,977	294,372						65,605		0.20	0.57	19.86
219	0.2388	152.85	6,658,264	0			6,658,264					0.24	0.59	25.00
POND1001	0.2404	153.83	6,700,843	1,033,307	0	0	1,012,339	0	0	75,506	4,579,691	0.35	0.65	39.38
POND1006	0.4230	270.69	11,791,264	666,070	1,459,654	0	0	595,557	0	94,447	8,975,536	0.37	0.66	41.98
POND1022	0.4424	283.15	12,334,115.00	12,884,399.00	0.00	0.00	0.00	0.00	1,310,070.00	90,281.00	0.00	0.13	0.53	11.32
POND1027	0.5953	380.97	16,594,859.00	16,478,980.00	0.00	115,879.00	0.00	0.00	0.00	0.00	0.00	0.05	0.49	2.11
POND1010	0.7718	493.94	21,516,027.00	20,932,473.00	0.00	463,284.00	0.00	0.00	0.00	120,270.00	0.00	0.06	0.49	2.89
POND2012	0.7000	448.01	19,515,345	4,931,940	0	0	10,138,403	0	0	263,349	4,181,653	0.24	0.59	25.56
POND2005	0.1360	87.06	3,792,337	298,146	0	0	3,409,564	0	0	84,627	0	0.24	0.59	24.87
200 BASINS (excl 219)	1.0348	662.26	28,848,153	8,658,147	4,296,884	0	11,202,072	0	0	509,397	4,181,653	0.20	0.57	20.81

Land Use	Imp., I %
Agriculture/Open Space	2
Large Lot Rural Residential	10
Rural Residential (2-5 ac.)	18
Rural Estate Residential (1-2 ac.)	25
Single Family Low Density	35
Light Industrial	80
Streets	100
Medium Density Residential	50

PROJECT: TODD CREEK PUD AMENDMENT – E. 168TH AVE – REGIONAL DRAINAGE  
 SHEET TITLE: POND SUMMARY

Pond 2003 - Existing/Proposed/Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 5073.00 ft			
0.00	0	0.000	0.00
1.00	32,230	0.370	0.29
1.90	35,857	1.073	0.60
2.00	36,260	1.156	0.69
3.00	40,465	2.037	5.49
4.00	44,670	3.014	8.60
5.00	49,085	4.090	50.69
6.00	53,500	5.268	82.07
6.50	55,804	5.895	86.20
7.00	58,107	6.549	118.35
8.00	62,715	7.936	261.78

Pond 1001 - Proposed/Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 5104.00 ft			
0.00	0	0.000	0.00
1.00	9,857	0.113	0.31
2.00	37,869	0.661	0.67
3.00	82,301	2.040	1.04
4.00	143,286	4.630	1.44
4.50	182,711	6.501	1.59
5.00	222,137	8.824	8.57
6.00	301,546	14.835	9.40
7.00	359,433	22.422	10.16
7.50	393,938	26.746	10.51
8.00	428,444	31.466	118.63
9.00	510,705	42.246	589.11

Pond 1006 - Proposed/Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 5061.00 ft			
0.00	0	0.000	0.00
1.00	8,515	0.098	0.51
2.00	46,413	0.728	1.04
3.00	106,407	2.482	1.48
4.00	195,675	5.950	2.26
5.00	314,128	11.801	2.76
6.00	451,369	20.588	17.36
7.00	571,482	32.329	18.80
8.00	658,875	46.451	20.13
9.00	709,743	62.161	390.98
10.00	833,347	79.873	1,095.11

Pond 2012A - Proposed			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 5006.00 ft			
0.00	0	0.000	0.00
1.00	15,308	0.176	0.39
2.00	57,402	1.010	0.88
3.00	120,424	3.051	1.46
3.75	162,151	5.484	1.80
4.00	176,060	6.455	2.13
5.00	217,001	10.966	6.52
5.50	231,898	13.543	10.26
6.00	246,796	16.290	45.29
7.00	272,800	22.254	140.25
7.75	289,475	27.095	149.10
8.00	295,034	28.772	227.24
9.00	313,445	35.756	1,018.10

Pond 2012B - Proposed			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 4998.00 ft			
0.00	0	0.000	0.00
1.00	10,404	0.119	0.39
2.00	41,028	0.710	0.88
3.00	80,490	2.105	1.46
3.75	112,567	3.767	1.80
4.00	123,259	4.443	2.10
5.00	170,565	7.816	6.07
5.50	197,719	9.930	9.44
6.00	224,874	12.355	13.64
6.25	237,442	13.682	16.04
7.00	275,146	18.094	47.86
7.75	309,879	23.131	50.50
8.00	321,457	24.942	126.65
9.00	361,282	32.779	909.92

Pond 2012C - Proposed			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 4995.00 ft			
0.00	0	0.000	0.00
1.00	12,370	0.142	0.59
2.00	50,712	0.866	1.21
3.00	115,595	2.775	1.71
3.75	173,357	5.263	2.44
4.00	192,611	6.313	2.62
5.00	249,089	11.383	3.18
5.50	265,768	14.338	3.43
6.00	282,448	17.484	3.65
7.00	298,725	24.155	62.41
7.75	306,851	29.368	65.94
8.00	309,560	31.137	179.87
9.00	320,509	38.369	1,345.98

Pond 1022 - Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 5035.00 ft			
0.00	0	0.000	0.00
1.00	12,185	0.140	0.23
2.00	56,214	0.925	0.57
3.00	112,430	2.861	0.97
3.50	147,042	4.350	1.09
4.00	181,655	6.236	16.48
5.00	253,737	11.234	41.63
6.00	323,976	17.865	46.19
7.00	392,862	26.093	50.34
7.50	415,696	30.734	52.30
8.00	438,530	35.636	161.94
9.00	482,383	46.207	635.35

Pond 1027 - Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 5008.00 ft			
0.00	0	0.000	0.00
1.00	17,656	0.203	0.16
1.75	51,959	0.802	0.31
2.00	63,393	1.133	0.82
3.00	141,611	3.486	2.52
4.00	253,371	8.020	3.41
5.00	397,337	15.489	4.11
5.80	537,943	24.077	4.59
6.00	573,095	26.628	10.94
7.00	764,456	41.981	96.95
8.00	950,977	61.671	151.87
9.00	1,133,350	85.596	773.08
10.00	1,299,443	113.521	1,925.68

Pond 1010 - Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 4947.00 ft			
0.00	0	0.000	0.00
1.00	16,369	0.188	0.21
2.00	65,176	1.124	0.45
3.00	145,906	3.547	2.02
4.00	257,874	8.182	2.79
5.00	400,190	15.735	3.38
5.85	538,814	24.897	3.82
6.00	563,277	26.794	11.61
7.00	734,073	41.686	168.23
7.50	821,029	50.611	286.22
8.00	907,985	60.534	690.57
9.00	1,070,023	83.238	1,906.53
10.00	1,261,095	109.996	3,597.40

PROJECT: TODD CREEK PUD AMENDMENT – E. 168TH AVE – REGIONAL DRAINAGE  
 SHEET TITLE: POND SUMMARY

Pond 2000 - Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 5051.0 ft			
0.00	0	0.000	0.00
1.00	4,000	0.046	0.04
1.60	11,500	0.153	0.07
2.00	16,500	0.281	0.31
2.50	25,000	0.519	0.46
3.00	33,500	0.855	10.85
4.00	46,000	1.768	22.36
5.00	54,000	2.916	25.29
5.50	56,000	3.547	26.64
6.00	58,000	4.201	82.65
7.00	63,000	5.590	332.34

Pond 2012 - Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 4995.0 ft			
0.00	0	0.000	0.00
1.00	15,815	0.182	0.52
2.00	56,799	1.015	1.18
3.00	120,972	3.056	1.95
4.00	211,402	6.871	2.53
5.00	311,244	12.870	5.25
5.70	369,582	18.340	6.77
6.00	394,584	20.972	7.30
6.25	409,530	23.279	7.70
6.90	448,390	29.680	46.95
7.00	454,368	30.716	56.26
8.00	485,053	41.499	179.25
9.00	502,082	52.830	1,101.31

Pond 2014 - Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 4967.00 ft			
0.00	0	0.000	0.00
1.00	8,000	0.092	0.11
2.00	33,000	0.562	0.24
2.50	50,000	1.039	0.62
3.00	67,000	1.710	14.52
4.00	92,000	3.535	30.08
5.00	108,000	5.831	34.24
5.50	112,000	7.094	36.14
6.00	116,000	8.402	145.71
7.00	126,000	11.180	618.91

Pond 2015 - Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 4959.00 ft			
0.00	0	0.000	0.00
1.00	4,000	0.046	0.06
2.00	16,500	0.281	0.12
3.00	33,500	0.855	0.67
4.00	46,000	1.768	18.63
5.00	54,000	2.916	21.02
5.50	56,000	3.547	22.11
6.00	58,000	4.201	130.92
7.00	63,000	5.590	602.70

Pond 2016 - Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 4952.50 ft			
0.00	0	0.000	0.00
1.00	2,000	0.023	0.03
2.00	8,500	0.143	0.06
3.00	17,000	0.436	0.59
3.50	20,000	0.649	0.72
4.00	23,000	0.895	8.31
5.00	27,000	1.469	9.32
5.50	28,000	1.785	9.79
6.00	29,000	2.112	118.00
7.00	31,500	2.806	588.66

Pond 2005 - Proposed/Future			
Stage (ft)	Surface Area (ft <sup>2</sup> )	Storage (ac-ft)	Discharge (cfs)
Stage 0.00 = 5026.70 ft			
0.00	200	0.000	0.00
1.00	1,606	0.021	0.08
2.00	16,032	0.178	0.24
2.80	39,761	0.664	0.34
3.00	46,852	0.863	0.66
4.00	69,526	2.243	2.94
5.00	78,814	3.973	57.21
5.30	80,584	4.522	68.92
6.00	84,141	5.845	429.90
6.30	85,665	6.430	686.46



[TITLE]

;;Project Title/Notes  
Todd Creek PUD Amendment  
Historic Condition Model  
KT Engineering - June 2023

[OPTIONS]

;;Option	Value
FLOW_UNITS	CFS
INFILTRATION	HORTON
FLOW_ROUTING	KINWAVE
LINK_OFFSETS	DEPTH
MIN_SLOPE	0
ALLOW_PONDING	YES
SKIP_STEADY_STATE	NO
START_DATE	01/01/2005
START_TIME	00:00:00
REPORT_START_DATE	01/01/2005
REPORT_START_TIME	00:00:00
END_DATE	01/01/2005
END_TIME	12:00:00
SWEEP_START	01/01
SWEEP_END	01/01
DRY_DAYS	0
REPORT_STEP	00:01:00
WET_STEP	00:01:00
DRY_STEP	00:01:00
ROUTING_STEP	0:01:00
RULE_STEP	00:00:00
INERTIAL_DAMPING	PARTIAL
NORMAL_FLOW_LIMITED	BOTH
FORCE_MAIN_EQUATION	H-W
VARIABLE_STEP	0.75
LENGTHENING_STEP	0
MIN_SURFAREA	12.566
MAX_TRIALS	8
HEAD_TOLERANCE	0.005

SYS\_FLOW\_TOL 5  
LAT\_FLOW\_TOL 5  
MINIMUM\_STEP 0.5  
THREADS 1

[FILES]

;;Interfacing Files

USE INFLOWS "J:\0009\2207\CIVIL\DRAINAGE\PHASE I\REPORTS\CUHP\CUHP OUTPUT\SWMM  
FILES\RG-SELTZER-HIST-100YR.txt"

[EVAPORATION]

;;Data Source Parameters

;;-----  
CONSTANT 0.0  
DRY\_ONLY NO

[JUNCTIONS]

;;Name	Elevation	MaxDepth	InitDepth	SurDepth	Aponded
;;-----	-----	-----	-----	-----	-----
JUNCT_101	5106.5	0	0	0	0
JUNCT_300	5106.4	0	0	0	0
JUNCT_100	5136.6	0	0	0	0
JUNCT_301	5064.0	0	0	0	0
JUNCT_102	5064.1	0	0	0	0
JUNCT_303	5057.3	0	0	0	0
JUNCT_106	5057.4	0	0	0	0
JUNCT_302	5078.2	0	0	0	0
JUNCT_103	5112.7	0	0	0	0
JUNCT_104	5117.6	0	0	0	0
JUNCT_105	5078.3	0	0	0	0
JUNCT_304	5039.8	0	0	0	0
JUNCT_107	5039.9	0	0	0	0
JUNCT_305	5028.7	0	0	0	0
JUNCT_108	5028.8	0	0	0	0
JUNCT_306	4995.2	0	0	0	0
JUNCT_109	4995.3	0	0	0	0
JUNCT_110	5945.4	0	0	0	0
JUNCT_318	4960.1	0	0	0	0
JUNCT_129	4960.2	0	0	0	0

JUNCT_317	4999.7	0	0	0	0
JUNCT_128	4999.8	0	0	0	0
JUNCT_316	5008.5	0	0	0	0
JUNCT_127	5008.6	0	0	0	0
JUNCT_126	5040.7	0	0	0	0
JUNCT_314	5040.6	0	0	0	0
JUNCT_124	5015.2	0	0	0	0
JUNCT_315	5015.1	0	0	0	0
JUNCT_313	5016.2	0	0	0	0
JUNCT_311	5016.3	0	0	0	0
JUNCT_312	5038.7	0	0	0	0
JUNCT_125	5038.8	0	0	0	0
JUNCT_123	5016.4	0	0	0	0
JUNCT_310	5034.7	0	0	0	0
JUNCT_309	5044.3	0	0	0	0
JUNCT_308	5050.5	0	0	0	0
JUNCT_307	5049.6	0	0	0	0
JUNCT_121	5050.6	0	0	0	0
JUNCT_120	5049.7	0	0	0	0
JUNCT_203	5072.6	0	0	0	0
JUNCT_500	5072.5	0	0	0	0
JUNCT_501	5043.4	0	0	0	0
JUNCT_204	5043.5	0	0	0	0
JUNCT_502	5022.6	0	0	0	0
JUNCT_205	5022.8	0	0	0	0
JUNCT_209	5022.7	0	0	0	0
JUNCT_207	5060.2	0	0	0	0
JUNCT_208	5051.5	0	0	0	0
JUNCT_503	5021.8	0	0	0	0
JUNCT_210	5022	0	0	0	0
JUNCT_504	5013.2	0	0	0	0
JUNCT_211	5013.3	0	0	0	0
JUNCT_505	4999.4	0	0	0	0
JUNCT_608	4999.3	0	0	0	0
JUNCT_607	5026.3	0	0	0	0
JUNCT_606	5049.8	0	0	0	0
JUNCT_200	5049.9	0	0	0	0
JUNCT_201	5026.4	0	0	0	0
JUNCT_202	4999.4	0	0	0	0

JUNCT_611	4966.6	0	0	0	0
JUNCT_214	4966.7	0	0	0	0
JUNCT_506	5004.5	0	0	0	0
JUNCT_213	5004.6	0	0	0	0
JUNCT_509	5012.0	0	0	0	0
JUNCT_219	5012.1	0	0	0	0
JUNCT_612	4958.6	0	0	0	0
JUNCT_613	4952.6	0	0	0	0
JUNCT_215	4958.7	0	0	0	0
JUNCT_216	4952.7	0	0	0	0
JUNCT_217	4950	0	0	0	0
JUNCT_218	4950	0	0	0	0
JUNCT_122	5034.8	0	0	0	0
JUNCT_212	4999.5	0	0	0	0
JUNCT_206	5021.9	0	0	0	0

[OUTFALLS]

;;Name	Elevation	Type	Stage Data	Gated	Route To
OUTFALL_614	4943	FREE		NO	
OUTFALL_319	4945.3	FREE		NO	

[CONDUITS]

;;Name	From Node	To Node	Length	Roughness	InOffset	OutOffset	InitFlow
101	JUNCT_101	JUNCT_300	1	0.01	0	0	0
100	JUNCT_100	JUNCT_300	2330	.04	0	0	0
300	JUNCT_300	JUNCT_301	3097	.04	0	0	0
102	JUNCT_102	JUNCT_301	1	0.01	0	0	0
105	JUNCT_105	JUNCT_302	1	0.01	0	0	0
106	JUNCT_106	JUNCT_303	1	0.01	0	0	0

301	JUNCT_301	JUNCT_303	445	.04	0	0	0	0
302	JUNCT_302	JUNCT_303	1872	0.04	0	0	0	0
103	JUNCT_103	JUNCT_302	2132	.04	0	0	0	0
104	JUNCT_104	JUNCT_302	2181	0.04	0	0	0	0
107	JUNCT_107	JUNCT_304	1	0.01	0	0	0	0
303	JUNCT_303	JUNCT_304	1474	.04	0	0	0	0
108	JUNCT_108	JUNCT_305	1	0.01	0	0	0	0
304	JUNCT_304	JUNCT_305	1240	0.01	0	0	0	0
305	JUNCT_305	JUNCT_306	3060	.04	0	0	0	0
109	JUNCT_109	JUNCT_306	1	0.01	0	0	0	0
306	JUNCT_306	JUNCT_318	2191	0.04	0	0	0	0
318	JUNCT_318	OUTFALL_319	1504	.04	0	0	0	0
129	JUNCT_129	JUNCT_318	1	0.01	0	0	0	0
317	JUNCT_317	JUNCT_318	2462	.04	0	0	0	0
128	JUNCT_128	JUNCT_317	1	0.01	0	0	0	0
316	JUNCT_316	JUNCT_317	1470	0.04	0	0	0	0
127	JUNCT_127	JUNCT_316	1	0.01	0	0	0	0
126	JUNCT_126	JUNCT_314	1	0.01	0	0	0	0
124	JUNCT_124	JUNCT_315	1	0.01	0	0	0	0
314	JUNCT_314	JUNCT_316	3115	.04	0	0	0	0

315	JUNCT_315	JUNCT_316	1483	0.04	0	0	0	0
313	JUNCT_313	JUNCT_316	1886	0.04	0	0	0	0
125	JUNCT_125	JUNCT_312	1	0.01	0	0	0	0
312	JUNCT_312	JUNCT_313	1448	0.04	0	0	0	0
311	JUNCT_311	JUNCT_313	1	0.01	0	0	0	0
123	JUNCT_123	JUNCT_311	1	0.01	0	0	0	0
120	JUNCT_120	JUNCT_307	1	0.01	0	0	0	0
121	JUNCT_121	JUNCT_308	1	0.01	0	0	0	0
310	JUNCT_310	JUNCT_311	1257	.04	0	0	0	0
309	JUNCT_309	JUNCT_310	804	.04	0	0	0	0
307	JUNCT_307	JUNCT_309	580	.04	0	0	0	0
308	JUNCT_308	JUNCT_309	553	0.04	0	0	0	0
203	JUNCT_203	JUNCT_500	1	0.01	0	0	0	0
204	JUNCT_204	JUNCT_501	1	0.01	0	0	0	0
500	JUNCT_500	JUNCT_501	2651	0.04	0	0	0	0
501	JUNCT_501	JUNCT_502	1674	0.04	0	0	0	0
205	JUNCT_205	JUNCT_502	1	0.01	0	0	0	0
209	JUNCT_209	JUNCT_502	1	0.01	0	0	0	0
207	JUNCT_207	JUNCT_502	3816	.04	0	0	0	0

208	JUNCT_208	JUNCT_502	2169	0.04	0	0	0	0
502	JUNCT_502	JUNCT_503	150	0.013	0	0	0	0
210	JUNCT_210	JUNCT_503	1	0.01	0	0	0	0
503	JUNCT_503	JUNCT_504	1468	0.04	0	0	0	0
211	JUNCT_211	JUNCT_504	619	0.04	0	0	0	0
504	JUNCT_504	JUNCT_505	1472	0.04	0	0	0	0
505	JUNCT_505	JUNCT_608	1	0.01	0	0	0	0
200	JUNCT_200	JUNCT_606	1	0.01	0	0	0	0
201	JUNCT_201	JUNCT_607	1	0.01	0	0	0	0
202	JUNCT_202	JUNCT_608	1	0.01	0	0	0	0
606	JUNCT_606	JUNCT_607	2536	0.04	0	0	0	0
607	JUNCT_607	JUNCT_608	2886	0.04	0	0	0	0
608	JUNCT_608	JUNCT_611	1248	0.04	0	0	0	0
219	JUNCT_219	JUNCT_509	1	0.01	0	0	0	0
509	JUNCT_509	JUNCT_506	1395	0.04	0	0	0	0
213	JUNCT_213	JUNCT_506	1	0.01	0	0	0	0
510	JUNCT_506	JUNCT_611	1897	0.04	0	0	0	0
214	JUNCT_214	JUNCT_611	1	0.01	0	0	0	0
611	JUNCT_611	JUNCT_612	510	.04	0	0	0	0
612	JUNCT_612	JUNCT_613	1002	0.04	0	0	0	0

613	JUNCT_613	OUTFALL_614	3160	0.04	0	0	0	0
215	JUNCT_215	JUNCT_612	1	0.01	0	0	0	0
216	JUNCT_216	JUNCT_613	1	0.01	0	0	0	0
217	JUNCT_217	OUTFALL_614	1	0.01	0	0	0	0
218	JUNCT_218	OUTFALL_614	1	0.01	0	0	0	0
122	JUNCT_122	JUNCT_310	1	0.01	0	0	0	0
212	JUNCT_212	JUNCT_505	1	0.01	0	0	0	0
110	JUNCT_110	OUTFALL_319	1	0.01	0	0	0	0
206	JUNCT_206	JUNCT_505	2800	.04	0	0	0	0

[XSECTIONS]

;;Link	Shape	Geom1	Geom2	Geom3	Geom4	Barrels	Culvert
;;							
101	DUMMY	0	0	0	0	1	
100	TRAPEZOIDAL	5	15	5	5	1	
300	TRAPEZOIDAL	5	15	5	5	1	
102	DUMMY	0	0	0	0	1	
105	DUMMY	0	0	0	0	1	
106	DUMMY	0	0	0	0	1	
301	TRAPEZOIDAL	5	15	5	5	1	
302	TRAPEZOIDAL	5	15	5	5	1	
103	TRAPEZOIDAL	5	15	5	5	1	
104	TRAPEZOIDAL	5	15	5	5	1	
107	DUMMY	0	0	0	0	1	
303	TRAPEZOIDAL	5	15	5	5	1	
108	DUMMY	0	0	0	0	1	
304	TRAPEZOIDAL	5	20	20	20	1	
305	TRAPEZOIDAL	5	20	20	20	1	
109	DUMMY	0	0	0	0	1	



306	TRAPEZOIDAL	5	20	20	20	1
318	TRAPEZOIDAL	5	20	20	20	1
129	DUMMY	0	0	0	0	1
317	TRAPEZOIDAL	5	20	20	20	1
128	DUMMY	0	0	0	0	1
316	TRAPEZOIDAL	5	20	20	20	1
127	DUMMY	0	0	0	0	1
126	DUMMY	0	0	0	0	1
124	DUMMY	0	0	0	0	1
314	TRAPEZOIDAL	5	20	20	20	1
315	TRAPEZOIDAL	5	20	20	20	1
313	TRAPEZOIDAL	5	20	20	20	1
125	DUMMY	0	0	0	0	1
312	TRAPEZOIDAL	5	20	20	20	1
311	DUMMY	0	0	0	0	1
123	DUMMY	0	0	0	0	1
120	DUMMY	0	0	0	0	1
121	DUMMY	0	0	0	0	1
310	TRAPEZOIDAL	5	20	20	20	1
309	TRAPEZOIDAL	5	20	20	20	1
307	TRAPEZOIDAL	5	20	20	20	1
308	TRAPEZOIDAL	5	20	20	20	1
203	DUMMY	0	0	0	0	1
204	DUMMY	0	0	0	0	1
500	TRAPEZOIDAL	5	10	5	5	1
501	TRAPEZOIDAL	5	10	5	5	1
205	DUMMY	0	0	0	0	1
209	DUMMY	0	0	0	0	1
207	TRAPEZOIDAL	5	10	5	5	1
208	TRAPEZOIDAL	5	10	5	5	1
502	TRAPEZOIDAL	5	10	5	5	2
210	DUMMY	0	0	0	0	1
503	TRAPEZOIDAL	5	10	5	5	1
211	TRAPEZOIDAL	5	10	5	5	1
504	TRAPEZOIDAL	5	10	5	5	1
505	DUMMY	0	0	0	0	1
200	DUMMY	0	0	0	0	1
201	DUMMY	0	0	0	0	1
202	DUMMY	0	0	0	0	1

606	TRAPEZOIDAL	5	10	5	5	1
607	TRAPEZOIDAL	5	10	5	5	1
608	TRAPEZOIDAL	5	10	5	5	1
219	DUMMY	0	0	0	0	1
509	TRAPEZOIDAL	5	20	20	20	1
213	DUMMY	0	0	0	0	1
510	TRAPEZOIDAL	5	20	20	20	1
214	DUMMY	0	0	0	0	1
611	TRAPEZOIDAL	5	10	5	5	1
612	TRAPEZOIDAL	5	10	5	5	1
613	TRAPEZOIDAL	5	10	5	5	1
215	DUMMY	0	0	0	0	1
216	DUMMY	0	0	0	0	1
217	DUMMY	0	0	0	0	1
218	DUMMY	0	0	0	0	1
122	DUMMY	0	0	0	0	1
212	DUMMY	0	0	0	0	1
110	DUMMY	0	0	0	0	1
206	TRAPEZOIDAL	5	20	20	20	1

[REPORT]

```
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL
```

[TAGS]

[MAP]

```
DIMENSIONS -3514.483 0.000 10000.000 10205.329
Units      None
```

[COORDINATES]

```
;;Node      X-Coord      Y-Coord
;;-----
JUNCT_101   -3047.927    7571.352
JUNCT_300   -2622.687    7570.394
JUNCT_100   -2839.903    7176.187
JUNCT_301   -2148.029    7586.484
```

JUNCT_102	-2139.984	7176.187
JUNCT_303	-1633.146	7594.529
JUNCT_106	-1633.146	8012.872
JUNCT_302	-1609.010	6942.880
JUNCT_103	-1890.587	6532.582
JUNCT_104	-1592.920	6347.546
JUNCT_105	-1311.344	6580.853
JUNCT_304	-1078.037	7610.619
JUNCT_107	-1078.037	8037.007
JUNCT_305	-547.064	7618.665
JUNCT_108	-514.883	8077.233
JUNCT_306	-40.225	7634.755
JUNCT_109	-40.225	8093.323
JUNCT_110	796.351	8139.965
JUNCT_318	288.294	8570.709
JUNCT_129	255.159	9001.454
JUNCT_317	-498.793	9179.405
JUNCT_128	-498.793	9605.792
JUNCT_316	-949.316	9163.315
JUNCT_127	-941.271	8833.467
JUNCT_126	-836.685	9919.549
JUNCT_314	-828.640	9589.702
JUNCT_124	-1238.938	9895.414
JUNCT_315	-1206.758	9565.567
JUNCT_313	-1423.974	9155.270
JUNCT_311	-1914.722	9147.224
JUNCT_312	-1423.974	9541.432
JUNCT_125	-1432.019	9903.459
JUNCT_123	-1928.557	9523.138
JUNCT_310	-2330.637	9141.162
JUNCT_309	-2809.112	9133.121
JUNCT_308	-2817.154	9515.097
JUNCT_307	-2813.133	8747.124
JUNCT_121	-2825.196	9824.698
JUNCT_120	-3042.319	8735.061
JUNCT_203	-450.523	4682.220
JUNCT_500	80.451	4690.265
JUNCT_501	651.649	4698.311
JUNCT_204	442.478	4304.103

JUNCT_502	1190.668	4698.311
JUNCT_205	1013.677	5148.833
JUNCT_209	1464.200	5156.879
JUNCT_207	1021.722	4304.103
JUNCT_208	1472.245	4296.058
JUNCT_503	1995.173	4706.356
JUNCT_210	1995.173	4263.878
JUNCT_504	2534.191	4706.356
JUNCT_211	2518.101	5181.014
JUNCT_505	3153.660	4722.446
JUNCT_608	3137.570	5671.762
JUNCT_607	2325.020	5671.762
JUNCT_606	1609.010	5663.717
JUNCT_200	1600.965	6218.825
JUNCT_201	2316.975	6234.916
JUNCT_202	3153.660	6259.051
JUNCT_611	3990.346	5679.807
JUNCT_214	3974.256	6259.051
JUNCT_506	3990.346	5108.608
JUNCT_213	3676.589	5092.518
JUNCT_509	4006.436	4674.175
JUNCT_219	4030.571	4215.607
JUNCT_612	4778.761	5703.942
JUNCT_613	5559.131	5695.897
JUNCT_215	4770.716	5132.743
JUNCT_216	5559.131	6275.141
JUNCT_217	6049.879	6259.051
JUNCT_218	6074.014	5221.239
JUNCT_122	-2339.359	8765.511
JUNCT_212	3181.774	4211.999
JUNCT_206	2905.305	4203.942
OUTFALL_614	6283.186	5711.987
OUTFALL_319	801.873	8587.277

[VERTICES]

;;Link	X-Coord	Y-Coord
;;-----	-----	-----
302	-1625.101	7546.259

[TITLE]

;;Project Title/Notes  
Todd Creek PUD Amendment  
Existing Condition Model  
KT Engineering - June 2023

[OPTIONS]

;;Option	Value
FLOW_UNITS	CFS
INFILTRATION	HORTON
FLOW_ROUTING	KINWAVE
LINK_OFFSETS	DEPTH
MIN_SLOPE	0
ALLOW_PONDING	YES
SKIP_STEADY_STATE	NO
START_DATE	01/01/2005
START_TIME	00:00:00
REPORT_START_DATE	01/01/2005
REPORT_START_TIME	00:00:00
END_DATE	01/01/2005
END_TIME	12:00:00
SWEEP_START	01/01
SWEEP_END	01/01
DRY_DAYS	0
REPORT_STEP	00:01:00
WET_STEP	00:01:00
DRY_STEP	00:01:00
ROUTING_STEP	0:01:00
RULE_STEP	00:00:00
INERTIAL_DAMPING	PARTIAL
NORMAL_FLOW_LIMITED	BOTH
FORCE_MAIN_EQUATION	H-W
VARIABLE_STEP	0.75
LENGTHENING_STEP	0

```

MIN_SURFAREA      12.566
MAX_TRIALS        8
HEAD_TOLERANCE    0.005
SYS_FLOW_TOL      5
LAT_FLOW_TOL      5
MINIMUM_STEP      0.5
THREADS           1

```

[FILES]

```

;;Interfacing Files
USE INFLOWS "J:\0009\2207\CIVIL\DRAINAGE\PHASE I\REPORTS\CUHP\CUHP OUTPUT\SWMM FILES\RG-SELTZER-EXIST-100YR.txt"

```

[EVAPORATION]

```

;;Data Source      Parameters
;;-----
CONSTANT           0.0
DRY_ONLY           NO

```

[JUNCTIONS]

;;Name	Elevation	MaxDepth	InitDepth	SurDepth	Aponded
JUNCT_101	5106.5	0	0	0	0
JUNCT_300	5106.4	0	0	0	0
JUNCT_100	5136.6	0	0	0	0
JUNCT_301	5064.0	0	0	0	0
JUNCT_102	5064.1	0	0	0	0
JUNCT_303	5057.3	0	0	0	0
JUNCT_106	5057.4	0	0	0	0
JUNCT_302	5078.2	0	0	0	0
JUNCT_103	5112.7	0	0	0	0
JUNCT_104	5117.6	0	0	0	0
JUNCT_105	5078.3	0	0	0	0
JUNCT_304	5039.8	0	0	0	0
JUNCT_107	5039.9	0	0	0	0
JUNCT_305	5028.7	0	0	0	0
JUNCT_108	5028.8	0	0	0	0

JUNCT_306	4995.2	0	0	0	0
JUNCT_109	4995.3	0	0	0	0
JUNCT_110	5945.4	0	0	0	0
JUNCT_318	4960.1	0	0	0	0
JUNCT_129	4960.2	0	0	0	0
JUNCT_317	4999.7	0	0	0	0
JUNCT_128	4999.8	0	0	0	0
JUNCT_316	5008.5	0	0	0	0
JUNCT_127	5008.6	0	0	0	0
JUNCT_126	5040.7	0	0	0	0
JUNCT_314	5040.6	0	0	0	0
JUNCT_124	5015.2	0	0	0	0
JUNCT_315	5015.1	0	0	0	0
JUNCT_313	5016.2	0	0	0	0
JUNCT_311	5016.3	0	0	0	0
JUNCT_312	5038.7	0	0	0	0
JUNCT_125	5038.8	0	0	0	0
JUNCT_123	5016.4	0	0	0	0
JUNCT_310	5034.7	0	0	0	0
JUNCT_309	5044.3	0	0	0	0
JUNCT_308	5050.5	0	0	0	0
JUNCT_307	5049.6	0	0	0	0
JUNCT_121	5050.6	0	0	0	0
JUNCT_120	5049.7	0	0	0	0
JUNCT_203	5072.6	0	0	0	0
JUNCT_500	5072.5	0	0	0	0
JUNCT_501	5043.4	0	0	0	0
JUNCT_204	5043.5	0	0	0	0
JUNCT_502	5022.6	0	0	0	0
JUNCT_205	5022.8	0	0	0	0
JUNCT_209	5022.7	0	0	0	0
JUNCT_207	5060.2	0	0	0	0
JUNCT_208	5051.5	0	0	0	0
JUNCT_503	5021.8	0	0	0	0
JUNCT_210	5022	0	0	0	0
JUNCT_504	5013.2	0	0	0	0

JUNCT_211	5013.3	0	0	0	0
JUNCT_505	4999.4	0	0	0	0
JUNCT_608	4999.3	0	0	0	0
JUNCT_607	5026.3	0	0	0	0
JUNCT_606	5049.8	0	0	0	0
JUNCT_200	5049.9	0	0	0	0
JUNCT_201	5026.4	0	0	0	0
JUNCT_202	4999.4	0	0	0	0
JUNCT_611	4966.6	0	0	0	0
JUNCT_214	4966.7	0	0	0	0
JUNCT_506	5004.5	0	0	0	0
JUNCT_213	5004.6	0	0	0	0
JUNCT_509	5012.0	0	0	0	0
JUNCT_219	5012.1	0	0	0	0
JUNCT_612	4958.6	0	0	0	0
JUNCT_613	4952.6	0	0	0	0
JUNCT_215	4958.7	0	0	0	0
JUNCT_216	4952.7	0	0	0	0
JUNCT_217	4950	0	0	0	0
JUNCT_218	4950	0	0	0	0
JUNCT_122	5034.8	0	0	0	0
JUNCT_212	4999.5	0	0	0	0
JUNCT_206	5021.9	0	0	0	0

[OUTFALLS]

;;Name	Elevation	Type	Stage Data	Gated	Route To
OUTFALL_614	4943	FREE		NO	
OUTFALL_319	4945.3	FREE		NO	

[STORAGE]

;;Name	Elev.	MaxDepth	InitDepth	Shape	Curve Type/Params	SurDepth	Fevap	Psi
STOR_2003	5073	8	0	TABULAR	STORAGE_CURVE_2003	0	0	



## [CONDUITS]

;;Name	From Node	To Node	Length	Roughness	InOffset	OutOffset	InitFlow	MaxFlow
101	JUNCT_101	JUNCT_300	1	0.01	0	0	0	0
100	JUNCT_100	JUNCT_300	2330	.04	0	0	0	0
300	JUNCT_300	JUNCT_301	3097	.04	0	0	0	0
102	JUNCT_102	JUNCT_301	1	0.01	0	0	0	0
105	JUNCT_105	JUNCT_302	1	0.01	0	0	0	0
106	JUNCT_106	JUNCT_303	1	0.01	0	0	0	0
301	JUNCT_301	JUNCT_303	445	.04	0	0	0	0
302	JUNCT_302	JUNCT_303	1872	0.04	0	0	0	0
103	JUNCT_103	JUNCT_302	2132	.04	0	0	0	0
104	JUNCT_104	JUNCT_302	2181	0.04	0	0	0	0
107	JUNCT_107	JUNCT_304	1	0.01	0	0	0	0
303	JUNCT_303	JUNCT_304	1474	.04	0	0	0	0
108	JUNCT_108	JUNCT_305	1	0.01	0	0	0	0
304	JUNCT_304	JUNCT_305	1240	0.01	0	0	0	0
305	JUNCT_305	JUNCT_306	3060	.04	0	0	0	0

109	JUNCT_109	JUNCT_306	1	0.01	0	0	0	0
306	JUNCT_306	JUNCT_318	2191	0.04	0	0	0	0
318	JUNCT_318	OUTFALL_319	1504	.04	0	0	0	0
129	JUNCT_129	JUNCT_318	1	0.01	0	0	0	0
317	JUNCT_317	JUNCT_318	2462	.04	0	0	0	0
128	JUNCT_128	JUNCT_317	1	0.01	0	0	0	0
316	JUNCT_316	JUNCT_317	1470	0.04	0	0	0	0
127	JUNCT_127	JUNCT_316	1	0.01	0	0	0	0
126	JUNCT_126	JUNCT_314	1	0.01	0	0	0	0
124	JUNCT_124	JUNCT_315	1	0.01	0	0	0	0
314	JUNCT_314	JUNCT_316	3115	.04	0	0	0	0
315	JUNCT_315	JUNCT_316	1483	0.04	0	0	0	0
313	JUNCT_313	JUNCT_316	1886	0.04	0	0	0	0
125	JUNCT_125	JUNCT_312	1	0.01	0	0	0	0
312	JUNCT_312	JUNCT_313	1448	0.04	0	0	0	0
311	JUNCT_311	JUNCT_313	1	0.01	0	0	0	0
123	JUNCT_123	JUNCT_311	1	0.01	0	0	0	0
120	JUNCT_120	JUNCT_307	1	0.01	0	0	0	0

121	JUNCT_121	JUNCT_308	1	0.01	0	0	0	0
310	JUNCT_310	JUNCT_311	1257	.04	0	0	0	0
309	JUNCT_309	JUNCT_310	804	.04	0	0	0	0
307	JUNCT_307	JUNCT_309	580	.04	0	0	0	0
308	JUNCT_308	JUNCT_309	553	0.04	0	0	0	0
204	JUNCT_204	JUNCT_501	1	0.01	0	0	0	0
500	JUNCT_500	JUNCT_501	2651	0.04	0	0	0	0
501	JUNCT_501	JUNCT_502	1674	0.04	0	0	0	0
205	JUNCT_205	JUNCT_502	1	0.01	0	0	0	0
209	JUNCT_209	JUNCT_502	1	0.01	0	0	0	0
207	JUNCT_207	JUNCT_502	3816	.04	0	0	0	0
208	JUNCT_208	JUNCT_502	2169	0.04	0	0	0	0
502	JUNCT_502	JUNCT_503	150	0.013	0	0	0	0
210	JUNCT_210	JUNCT_503	1	0.01	0	0	0	0
503	JUNCT_503	JUNCT_504	1468	0.04	0	0	0	0
211	JUNCT_211	JUNCT_504	619	0.04	0	0	0	0
504	JUNCT_504	JUNCT_505	1472	0.04	0	0	0	0
505	JUNCT_505	JUNCT_608	1	0.01	0	0	0	0

200	JUNCT_200	JUNCT_606	1	0.01	0	0	0	0
201	JUNCT_201	JUNCT_607	1	0.01	0	0	0	0
202	JUNCT_202	JUNCT_608	1	0.01	0	0	0	0
606	JUNCT_606	JUNCT_607	2536	0.04	0	0	0	0
607	JUNCT_607	JUNCT_608	2886	0.04	0	0	0	0
608	JUNCT_608	JUNCT_611	1248	0.04	0	0	0	0
219	JUNCT_219	JUNCT_509	1	0.01	0	0	0	0
509	JUNCT_509	JUNCT_506	1395	0.04	0	0	0	0
213	JUNCT_213	JUNCT_506	1	0.01	0	0	0	0
510	JUNCT_506	JUNCT_611	1897	0.04	0	0	0	0
214	JUNCT_214	JUNCT_611	1	0.01	0	0	0	0
611	JUNCT_611	JUNCT_612	510	.04	0	0	0	0
612	JUNCT_612	JUNCT_613	1002	0.04	0	0	0	0
613	JUNCT_613	OUTFALL_614	3160	0.04	0	0	0	0
215	JUNCT_215	JUNCT_612	1	0.01	0	0	0	0
216	JUNCT_216	JUNCT_613	1	0.01	0	0	0	0
217	JUNCT_217	OUTFALL_614	1	0.01	0	0	0	0
218	JUNCT_218	OUTFALL_614	1	0.01	0	0	0	0

122	JUNCT_122	JUNCT_310	1	0.01	0	0	0	0
212	JUNCT_212	JUNCT_505	1	0.01	0	0	0	0
110	JUNCT_110	OUTFALL_319	1	0.01	0	0	0	0
206	JUNCT_206	JUNCT_505	2800	.04	0	0	0	0
27	JUNCT_203	STOR_2003	400	0.01	0	0	0	0

[OUTLETS]

;;Name	From Node	To Node	Offset	Type	QTable/Qcoeff	Qexpon	Gated
OUTLET_2003	STOR_2003	JUNCT_500	0	TABULAR/DEPTH	RATING_CURVE_2003		NO

[XSECTIONS]

;;Link	Shape	Geom1	Geom2	Geom3	Geom4	Barrels	Culvert
101	DUMMY	0	0	0	0	1	
100	TRAPEZOIDAL	5	15	5	5	1	
300	TRAPEZOIDAL	5	15	5	5	1	
102	DUMMY	0	0	0	0	1	
105	DUMMY	0	0	0	0	1	
106	DUMMY	0	0	0	0	1	
301	TRAPEZOIDAL	5	15	5	5	1	
302	TRAPEZOIDAL	5	15	5	5	1	
103	TRAPEZOIDAL	5	15	5	5	1	
104	TRAPEZOIDAL	5	15	5	5	1	
107	DUMMY	0	0	0	0	1	
303	TRAPEZOIDAL	5	15	5	5	1	
108	DUMMY	0	0	0	0	1	
304	TRAPEZOIDAL	5	20	20	20	1	
305	TRAPEZOIDAL	5	20	20	20	1	
109	DUMMY	0	0	0	0	1	

306	TRAPEZOIDAL	5	20	20	20	1
318	TRAPEZOIDAL	5	20	20	20	1
129	DUMMY	0	0	0	0	1
317	TRAPEZOIDAL	5	20	20	20	1
128	DUMMY	0	0	0	0	1
316	TRAPEZOIDAL	5	20	20	20	1
127	DUMMY	0	0	0	0	1
126	DUMMY	0	0	0	0	1
124	DUMMY	0	0	0	0	1
314	TRAPEZOIDAL	5	20	20	20	1
315	TRAPEZOIDAL	5	20	20	20	1
313	TRAPEZOIDAL	5	20	20	20	1
125	DUMMY	0	0	0	0	1
312	TRAPEZOIDAL	5	20	20	20	1
311	DUMMY	0	0	0	0	1
123	DUMMY	0	0	0	0	1
120	DUMMY	0	0	0	0	1
121	DUMMY	0	0	0	0	1
310	TRAPEZOIDAL	5	20	20	20	1
309	TRAPEZOIDAL	5	20	20	20	1
307	TRAPEZOIDAL	5	20	20	20	1
308	TRAPEZOIDAL	5	20	20	20	1
204	DUMMY	0	0	0	0	1
500	TRAPEZOIDAL	5	10	5	5	1
501	TRAPEZOIDAL	5	10	5	5	1
205	DUMMY	0	0	0	0	1
209	DUMMY	0	0	0	0	1
207	TRAPEZOIDAL	5	10	5	5	1
208	TRAPEZOIDAL	5	10	5	5	1
502	TRAPEZOIDAL	5	10	5	5	2
210	DUMMY	0	0	0	0	1
503	TRAPEZOIDAL	5	10	5	5	1
211	TRAPEZOIDAL	5	10	5	5	1
504	TRAPEZOIDAL	5	10	5	5	1
505	DUMMY	0	0	0	0	1
200	DUMMY	0	0	0	0	1

201	DUMMY	0	0	0	0	1
202	DUMMY	0	0	0	0	1
606	TRAPEZOIDAL	5	10	5	5	1
607	TRAPEZOIDAL	5	10	5	5	1
608	TRAPEZOIDAL	5	10	5	5	1
219	DUMMY	0	0	0	0	1
509	TRAPEZOIDAL	5	20	20	20	1
213	DUMMY	0	0	0	0	1
510	TRAPEZOIDAL	5	20	20	20	1
214	DUMMY	0	0	0	0	1
611	TRAPEZOIDAL	5	10	5	5	1
612	TRAPEZOIDAL	5	10	5	5	1
613	TRAPEZOIDAL	5	10	5	5	1
215	DUMMY	0	0	0	0	1
216	DUMMY	0	0	0	0	1
217	DUMMY	0	0	0	0	1
218	DUMMY	0	0	0	0	1
122	DUMMY	0	0	0	0	1
212	DUMMY	0	0	0	0	1
110	DUMMY	0	0	0	0	1
206	TRAPEZOIDAL	5	20	20	20	1
27	DUMMY	0	0	0	0	1

[CURVES]

;;Name	Type	X-Value	Y-Value
;;-----	-----	-----	-----
RATING_CURVE_2003	Rating	0	0
RATING_CURVE_2003		1	0.29
RATING_CURVE_2003		1.9	0.60
RATING_CURVE_2003		2	0.69
RATING_CURVE_2003		3	5.49
RATING_CURVE_2003		4	8.60
RATING_CURVE_2003		5	50.69
RATING_CURVE_2003		6	82.07
RATING_CURVE_2003		6.5	86.20
RATING_CURVE_2003		7	118.35

RATING_CURVE_2003	8	261.78
;		
STORAGE_CURVE_2003 Storage	0	0
STORAGE_CURVE_2003	1	32230
STORAGE_CURVE_2003	2	36260
STORAGE_CURVE_2003	4	44670
STORAGE_CURVE_2003	6	53500
STORAGE_CURVE_2003	8	62715

[REPORT]  
;;Reporting Options  
SUBCATCHMENTS ALL  
NODES ALL  
LINKS ALL

[TAGS]

[MAP]  
DIMENSIONS -3514.483 0.000 10000.000 10205.329  
Units None

[COORDINATES]

;;Node	X-Coord	Y-Coord
;;-----		
JUNCT_101	-3047.927	7571.352
JUNCT_300	-2622.687	7570.394
JUNCT_100	-2839.903	7176.187
JUNCT_301	-2148.029	7586.484
JUNCT_102	-2139.984	7176.187
JUNCT_303	-1633.146	7594.529
JUNCT_106	-1633.146	8012.872
JUNCT_302	-1609.010	6942.880
JUNCT_103	-1890.587	6532.582
JUNCT_104	-1592.920	6347.546
JUNCT_105	-1311.344	6580.853
JUNCT_304	-1078.037	7610.619



JUNCT_107	-1078.037	8037.007
JUNCT_305	-547.064	7618.665
JUNCT_108	-514.883	8077.233
JUNCT_306	-40.225	7634.755
JUNCT_109	-40.225	8093.323
JUNCT_110	796.351	8139.965
JUNCT_318	288.294	8570.709
JUNCT_129	255.159	9001.454
JUNCT_317	-498.793	9179.405
JUNCT_128	-498.793	9605.792
JUNCT_316	-949.316	9163.315
JUNCT_127	-941.271	8833.467
JUNCT_126	-836.685	9919.549
JUNCT_314	-828.640	9589.702
JUNCT_124	-1238.938	9895.414
JUNCT_315	-1206.758	9565.567
JUNCT_313	-1423.974	9155.270
JUNCT_311	-1914.722	9147.224
JUNCT_312	-1423.974	9541.432
JUNCT_125	-1432.019	9903.459
JUNCT_123	-1928.557	9523.138
JUNCT_310	-2330.637	9141.162
JUNCT_309	-2809.112	9133.121
JUNCT_308	-2817.154	9515.097
JUNCT_307	-2813.133	8747.124
JUNCT_121	-2825.196	9824.698
JUNCT_120	-3042.319	8735.061
JUNCT_203	-721.463	4692.012
JUNCT_500	80.451	4690.265
JUNCT_501	651.649	4698.311
JUNCT_204	442.478	4304.103
JUNCT_502	1190.668	4698.311
JUNCT_205	1013.677	5148.833
JUNCT_209	1464.200	5156.879
JUNCT_207	1021.722	4304.103
JUNCT_208	1472.245	4296.058

JUNCT_503	1995.173	4706.356
JUNCT_210	1995.173	4263.878
JUNCT_504	2534.191	4706.356
JUNCT_211	2518.101	5181.014
JUNCT_505	3153.660	4722.446
JUNCT_608	3137.570	5671.762
JUNCT_607	2325.020	5671.762
JUNCT_606	1609.010	5663.717
JUNCT_200	1600.965	6218.825
JUNCT_201	2316.975	6234.916
JUNCT_202	3153.660	6259.051
JUNCT_611	3990.346	5679.807
JUNCT_214	3974.256	6259.051
JUNCT_506	3990.346	5108.608
JUNCT_213	3676.589	5092.518
JUNCT_509	4006.436	4674.175
JUNCT_219	4030.571	4215.607
JUNCT_612	4778.761	5703.942
JUNCT_613	5559.131	5695.897
JUNCT_215	4770.716	5132.743
JUNCT_216	5559.131	6275.141
JUNCT_217	6049.879	6259.051
JUNCT_218	6074.014	5221.239
JUNCT_122	-2339.359	8765.511
JUNCT_212	3181.774	4211.999
JUNCT_206	2905.305	4203.942
OUTFALL_614	6283.186	5711.987
OUTFALL_319	801.873	8587.277
STOR_2003	-347.403	4692.012

[VERTICES]

;;Link	X-Coord	Y-Coord
;;-----	-----	-----
302	-1625.101	7546.259

[TITLE]

;;Project Title/Notes  
Todd Creek PUD Amendment  
Proposed Condition Model  
KT Engineering - June 2023

[OPTIONS]

;;Option	Value
FLOW_UNITS	CFS
INFILTRATION	HORTON
FLOW_ROUTING	KINWAVE
LINK_OFFSETS	DEPTH
MIN_SLOPE	0
ALLOW_PONDING	YES
SKIP_STEADY_STATE	NO
START_DATE	01/01/2005
START_TIME	00:00:00
REPORT_START_DATE	01/01/2005
REPORT_START_TIME	00:00:00
END_DATE	01/01/2005
END_TIME	12:00:00
SWEEP_START	01/01
SWEEP_END	01/01
DRY_DAYS	0
REPORT_STEP	00:01:00
WET_STEP	00:01:00
DRY_STEP	00:01:00
ROUTING_STEP	0:01:00
RULE_STEP	00:00:00
INERTIAL_DAMPING	PARTIAL
NORMAL_FLOW_LIMITED	BOTH
FORCE_MAIN_EQUATION	H-W
VARIABLE_STEP	0.75
LENGTHENING_STEP	0

```

MIN_SURFAREA      12.566
MAX_TRIALS        8
HEAD_TOLERANCE    0.005
SYS_FLOW_TOL      5
LAT_FLOW_TOL      5
MINIMUM_STEP      0.5
THREADS           1

```

[FILES]

```
;;Interfacing Files
```

```
USE INFLOWS "J:\0009\2207\CIVIL\DRAINAGE\PHASE I\REPORTS\CUHP\CUHP OUTPUT\SWMM FILES\RG-SELTZER-PROP-100YR.txt"
```

[EVAPORATION]

```
;;Data Source      Parameters
```

```
;;-----
```

```
CONSTANT          0.0
DRY_ONLY          NO
```

[JUNCTIONS]

```
;;Name            Elevation  MaxDepth  InitDepth  SurDepth  Aponded
```

```
;;-----
```

```

JUNCT_101        5106.5    0         0         0         0
JUNCT_100        5136.6    0         0         0         0
JUNCT_301        5064.0    0         0         0         0
JUNCT_102        5064.1    0         0         0         0
JUNCT_106        5061.1    0         0         0         0
JUNCT_302        5078.2    0         0         0         0
JUNCT_103        5112.7    0         0         0         0
JUNCT_104        5117.6    0         0         0         0
JUNCT_105        5078.3    0         0         0         0
JUNCT_304        5039.8    0         0         0         0
JUNCT_107        5039.9    0         0         0         0
JUNCT_305        5028.7    0         0         0         0
JUNCT_108        5028.8    0         0         0         0
JUNCT_306        4995.2    0         0         0         0
JUNCT_109        4995.3    0         0         0         0

```

JUNCT_110	5945.4	0	0	0	0
JUNCT_318	4960.1	0	0	0	0
JUNCT_129	4960.2	0	0	0	0
JUNCT_317	4999.7	0	0	0	0
JUNCT_128	4999.8	0	0	0	0
JUNCT_127	5008.6	0	0	0	0
JUNCT_126	5040.7	0	0	0	0
JUNCT_314	5040.6	0	0	0	0
JUNCT_124	5015.2	0	0	0	0
JUNCT_315	5015.1	0	0	0	0
JUNCT_313	5016.2	0	0	0	0
JUNCT_311	5016.3	0	0	0	0
JUNCT_312	5038.7	0	0	0	0
JUNCT_125	5038.8	0	0	0	0
JUNCT_123	5016.4	0	0	0	0
JUNCT_309	5044.3	0	0	0	0
JUNCT_308	5050.5	0	0	0	0
JUNCT_307	5049.6	0	0	0	0
JUNCT_121	5050.6	0	0	0	0
JUNCT_120	5049.7	0	0	0	0
JUNCT_203	5072.6	0	0	0	0
JUNCT_500	5072.5	0	0	0	0
JUNCT_501	5043.4	0	0	0	0
JUNCT_204	5043.5	0	0	0	0
JUNCT_502	5022.6	0	0	0	0
JUNCT_205	5022.8	0	0	0	0
JUNCT_209	5022.7	0	0	0	0
JUNCT_207	5060.2	0	0	0	0
JUNCT_208	5051.5	0	0	0	0
JUNCT_503	5021.8	0	0	0	0
JUNCT_210	5022	0	0	0	0
JUNCT_504	5013.2	0	0	0	0
JUNCT_211	5013.3	0	0	0	0
JUNCT_508	4994.8	0	0	0	0
JUNCT_201	5026.4	0	0	0	0
JUNCT_202	4999.4	0	0	0	0

JUNCT_511	4966.6	0	0	0	0
JUNCT_506	5004.5	0	0	0	0
JUNCT_213	5004.6	0	0	0	0
JUNCT_509	5012.0	0	0	0	0
JUNCT_219	5012.1	0	0	0	0
JUNCT_512	4958.6	0	0	0	0
JUNCT_513	4952.4	0	0	0	0
JUNCT_217	4950	0	0	0	0
JUNCT_218	4950	0	0	0	0
JUNCT_122	5035.1	0	0	0	0
JUNCT_212	4999.5	0	0	0	0
JUNCT_206	5021.9	0	0	0	0
JUNCT_300	5103.8	0	0	0	0
JUNCT_303	5057.3	0	0	0	0
JUNCT_200	5051.1	0	0	0	0
JUNCT_214	4966.7	0	0	0	0
JUNCT_215	4959.1	0	0	0	0
JUNCT_216	4952.7	0	0	0	0
JUNCT_310	5034.9	0	0	0	0
JUNCT_316	5007.9	0	0	0	0
JUNCT_505	4997.9	0	0	0	0
JUNCT_613	4952.4	0	0	0	0
JUNCT_612	4958.6	0	0	0	0
JUNCT_611	4966.6	0	0	0	0
JUNCT_608	4994.8	0	0	0	0
JUNCT_607	5026.3	0	0	0	0
JUNCT_606	5049.8	0	0	0	0

[OUTFALLS]

;;Name	Elevation	Type	Stage Data	Gated	Route To
OUTFALL_514	4943	FREE		NO	
OUTFALL_319	4945.3	FREE		NO	
OUTFALL_614	4943	FREE		NO	

[STORAGE]

;;Name Ksat	IMD	Elev.	MaxDepth	InitDepth	Shape	Curve Type/Params	SurDepth	Fevap	Psi
STOR_1001		5104	9	0	TABULAR	STORAGE_CURVE_1001	0	0	
STOR_1006		5061	10	0	TABULAR	STORAGE_CURVE_1006	0	0	
STOR_2012B		4998	9	0	TABULAR	STORAGE_CURVE_2012B	0	0	
STOR_2003		5073	8	0	TABULAR	STORAGE_CURVE_2003	0	0	
STOR_2005		5026.7	6.3	0	TABULAR	STORAGE_CURVE_2005	0	0	
STOR_2012C		4995	9	0	TABULAR	STORAGE_CURVE_2012C	0	0	
STOR_2012A		5006	9	0	TABULAR	STORAGE_CURVE_2012A	0	0	

[CONDUITS]

;;Name	From Node	To Node	Length	Roughness	InOffset	OutOffset	InitFlow	MaxFlow
101	JUNCT_101	STOR_1001	1	0.01	0	0	0	0
100	JUNCT_100	STOR_1001	2330	0.013	0	0	0	0
102	JUNCT_102	JUNCT_301	1	0.01	0	0	0	0
105	JUNCT_105	JUNCT_302	1	0.01	0	0	0	0
106	JUNCT_106	STOR_1006	1	0.01	0	0	0	0
301	JUNCT_301	STOR_1006	445	.04	0	0	0	0
302	JUNCT_302	STOR_1006	1872	0.013	0	0	0	0
103	JUNCT_103	JUNCT_302	2132	.013	0	0	0	0
104	JUNCT_104	JUNCT_302	2181	0.013	0	0	0	0
107	JUNCT_107	JUNCT_304	1	0.01	0	0	0	0

108	JUNCT_108	JUNCT_305	1	0.01	0	0	0	0
304	JUNCT_304	JUNCT_305	1240	0.01	0	0	0	0
305	JUNCT_305	JUNCT_306	3060	.04	0	0	0	0
109	JUNCT_109	JUNCT_306	1	0.01	0	0	0	0
306	JUNCT_306	JUNCT_318	2191	0.04	0	0	0	0
318	JUNCT_318	OUTFALL_319	1504	.04	0	0	0	0
129	JUNCT_129	JUNCT_318	1	0.01	0	0	0	0
317	JUNCT_317	JUNCT_318	2462	.04	0	0	0	0
128	JUNCT_128	JUNCT_317	1	0.01	0	0	0	0
316	JUNCT_316	JUNCT_317	1470	0.04	0	0	0	0
127	JUNCT_127	JUNCT_316	1	0.01	0	0	0	0
126	JUNCT_126	JUNCT_314	1	0.01	0	0	0	0
124	JUNCT_124	JUNCT_315	1	0.01	0	0	0	0
314	JUNCT_314	JUNCT_316	3115	.04	0	0	0	0
315	JUNCT_315	JUNCT_316	1483	0.04	0	0	0	0
313	JUNCT_313	JUNCT_316	1886	0.04	0	0	0	0
125	JUNCT_125	JUNCT_312	1	0.01	0	0	0	0
312	JUNCT_312	JUNCT_313	1448	0.04	0	0	0	0



311	JUNCT_311	JUNCT_313	1	0.01	0	0	0	0
123	JUNCT_123	JUNCT_311	1	0.01	0	0	0	0
120	JUNCT_120	JUNCT_307	1	0.01	0	0	0	0
121	JUNCT_121	JUNCT_308	1	0.01	0	0	0	0
309	JUNCT_309	JUNCT_310	804	.04	0	0	0	0
307	JUNCT_307	JUNCT_309	580	.04	0	0	0	0
308	JUNCT_308	JUNCT_309	553	0.04	0	0	0	0
203	JUNCT_203	STOR_2003	1	0.01	0	0	0	0
204	JUNCT_204	JUNCT_501	1	0.01	0	0	0	0
500	JUNCT_500	JUNCT_501	2651	0.04	0	0	0	0
501	JUNCT_501	STOR_2005	1060	0.04	0	0	0	0
205	JUNCT_205	STOR_2005	1	0.01	0	0	0	0
209	JUNCT_209	JUNCT_502	1	0.01	0	0	0	0
207	JUNCT_207	JUNCT_502	3816	.04	0	0	0	0
208	JUNCT_208	JUNCT_502	2169	0.04	0	0	0	0
502	JUNCT_502	JUNCT_503	150	0.013	0	0	0	0
210	JUNCT_210	JUNCT_503	1	0.01	0	0	0	0
503	JUNCT_503	JUNCT_504	563	0.04	0	0	0	0

211	JUNCT_211	JUNCT_504	619	0.04	0	0	0	0
504	JUNCT_504	STOR_2012A	1472	0.04	0	0	0	0
201	JUNCT_201	JUNCT_607	1	0.01	0	0	0	0
202	JUNCT_202	JUNCT_505	1	0.01	0	0	0	0
508	JUNCT_508	JUNCT_511	1248	0.013	0	0	0	0
219	JUNCT_219	JUNCT_509	1	0.01	0	0	0	0
509	JUNCT_509	JUNCT_506	1395	0.04	0	0	0	0
213	JUNCT_213	JUNCT_506	1	0.01	0	0	0	0
506	JUNCT_506	JUNCT_505	343	0.04	0	0	0	0
511	JUNCT_511	JUNCT_512	510	0.013	0	0	0	0
512	JUNCT_512	JUNCT_513	1002	0.013	0	0	0	0
513	JUNCT_513	OUTFALL_514	3160	0.013	0	0	0	0
217	JUNCT_217	OUTFALL_614	1	0.01	0	0	0	0
218	JUNCT_218	OUTFALL_614	1	0.01	0	0	0	0
122	JUNCT_122	JUNCT_310	1	0.01	0	0	0	0
212	JUNCT_212	STOR_2012A	1	0.01	0	0	0	0
110	JUNCT_110	OUTFALL_319	1	0.01	0	0	0	0
206	JUNCT_206	JUNCT_503	1	.01	0	0	0	0

300	JUNCT_300	JUNCT_301	3097	0.04	0	0	0	0
303	JUNCT_303	JUNCT_304	1474	0.04	0	0	0	0
310	JUNCT_310	JUNCT_311	1257	0.04	0	0	0	0
505	JUNCT_505	STOR_2012C	1	0.01	0	0	0	0
606	JUNCT_606	JUNCT_607	2536	0.04	0	0	0	0
607	JUNCT_607	JUNCT_608	2886	0.04	0	0	0	0
608	JUNCT_608	JUNCT_611	1248	0.04	0	0	0	0
611	JUNCT_611	JUNCT_612	510	0.04	0	0	0	0
612	JUNCT_612	JUNCT_613	1002	.04	0	0	0	0
613	JUNCT_613	OUTFALL_614	3160	.04	0	0	0	0
200	JUNCT_200	JUNCT_606	1	0.01	0	0	0	0
214	JUNCT_214	JUNCT_611	1	0.01	0	0	0	0
215	JUNCT_215	JUNCT_612	1	0.01	0	0	0	0
216	JUNCT_216	JUNCT_613	1	0.01	0	0	0	0

[OUTLETS]

;;Name	From Node	To Node	Offset	Type	QTable/Qcoeff	Qexpon	Gated
OUTLET_1001	STOR_1001	JUNCT_300	0	TABULAR/DEPTH	RATING_CURVE_1001		NO
OUTLET_1006	STOR_1006	JUNCT_303	0	TABULAR/DEPTH	RATING_CURVE_1006		NO

OUTLET_2012B	STOR_2012B	JUNCT_505	0	TABULAR/DEPTH	RATING_CURVE_2012B	NO
OUTLET_2003	STOR_2003	JUNCT_500	0	TABULAR/DEPTH	RATING_CURVE_2003	NO
OUTLET_2005	STOR_2005	JUNCT_502	0	TABULAR/DEPTH	RATING_CURVE_2005	NO
OUTLET_2012C	STOR_2012C	JUNCT_508	0	TABULAR/DEPTH	RATING_CURVE_2012C	NO
OUTLET_2012A	STOR_2012A	STOR_2012B	0	TABULAR/DEPTH	RATING_CURVE_2012A	NO

[XSECTIONS]

;;Link	Shape	Geom1	Geom2	Geom3	Geom4	Barrels	Culvert
101	DUMMY	0	0	0	0	1	
100	CIRCULAR	2.5	0	0	0	1	
102	DUMMY	0	0	0	0	1	
105	DUMMY	0	0	0	0	1	
106	DUMMY	0	0	0	0	1	
301	TRAPEZOIDAL	5	15	5	5	1	
302	CIRCULAR	5.5	0	0	0	1	
103	CIRCULAR	3	0	0	0	1	
104	CIRCULAR	3	0	0	0	1	
107	DUMMY	0	0	0	0	1	
108	DUMMY	0	0	0	0	1	
304	TRAPEZOIDAL	5	20	20	20	1	
305	TRAPEZOIDAL	5	20	20	20	1	
109	DUMMY	0	0	0	0	1	
306	TRAPEZOIDAL	5	20	20	20	1	
318	TRAPEZOIDAL	5	20	20	20	1	
129	DUMMY	0	0	0	0	1	
317	TRAPEZOIDAL	5	20	20	20	1	
128	DUMMY	0	0	0	0	1	
316	TRAPEZOIDAL	5	20	20	20	1	
127	DUMMY	0	0	0	0	1	

126	DUMMY	0	0	0	0	1
124	DUMMY	0	0	0	0	1
314	TRAPEZOIDAL	5	20	20	20	1
315	TRAPEZOIDAL	5	20	20	20	1
313	TRAPEZOIDAL	5	20	20	20	1
125	DUMMY	0	0	0	0	1
312	TRAPEZOIDAL	5	20	20	20	1
311	DUMMY	0	0	0	0	1
123	DUMMY	0	0	0	0	1
120	DUMMY	0	0	0	0	1
121	DUMMY	0	0	0	0	1
309	TRAPEZOIDAL	5	20	20	20	1
307	TRAPEZOIDAL	5	20	20	20	1
308	TRAPEZOIDAL	5	20	20	20	1
203	DUMMY	0	0	0	0	1
204	DUMMY	0	0	0	0	1
500	TRAPEZOIDAL	5	10	5	5	1
501	TRAPEZOIDAL	5	10	5	5	1
205	DUMMY	0	0	0	0	1
209	DUMMY	0	0	0	0	1
207	TRAPEZOIDAL	5	10	5	5	1
208	TRAPEZOIDAL	5	10	5	5	1
502	TRAPEZOIDAL	5	10	5	5	2
210	DUMMY	0	0	0	0	1
503	TRAPEZOIDAL	5	10	5	5	1
211	TRAPEZOIDAL	5	10	5	5	1
504	TRAPEZOIDAL	5	10	5	5	1
201	DUMMY	0	0	0	0	1
202	DUMMY	0	0	0	0	1
508	CIRCULAR	2.5	0	0	0	1
219	DUMMY	0	0	0	0	1
509	TRAPEZOIDAL	5	20	20	20	1
213	DUMMY	0	0	0	0	1
506	TRAPEZOIDAL	5	20	20	20	1
511	CIRCULAR	2.5	0	0	0	1
512	CIRCULAR	3	0	0	0	1

513	CIRCULAR	3.5	0	0	0	1
217	DUMMY	0	0	0	0	1
218	DUMMY	0	0	0	0	1
122	DUMMY	0	0	0	0	1
212	DUMMY	0	0	0	0	1
110	DUMMY	0	0	0	0	1
206	DUMMY	0	0	0	0	1
300	TRAPEZOIDAL	5	15	5	5	1
303	TRAPEZOIDAL	5	15	5	5	1
310	TRAPEZOIDAL	5	20	20	20	1
505	DUMMY	0	0	0	0	1
606	TRAPEZOIDAL	5	10	5	5	1
607	TRAPEZOIDAL	5	10	5	5	1
608	TRAPEZOIDAL	5	10	5	5	1
611	TRAPEZOIDAL	5	10	5	5	1
612	TRAPEZOIDAL	5	10	5	5	1
613	TRAPEZOIDAL	5	10	5	5	1
200	DUMMY	0	0	0	0	1
214	DUMMY	0	0	0	0	1
215	DUMMY	0	0	0	0	1
216	DUMMY	0	0	0	0	1

[CURVES]

;;Name	Type	X-Value	Y-Value
;;-----			
RATING_CURVE_1006	Rating	0	0
RATING_CURVE_1006		1	.51
RATING_CURVE_1006		2	1.04
RATING_CURVE_1006		3	1.48
RATING_CURVE_1006		4	2.26
RATING_CURVE_1006		5	2.76
RATING_CURVE_1006		6	17.36
RATING_CURVE_1006		7	18.80
RATING_CURVE_1006		8	20.13
RATING_CURVE_1006		9	390.98
RATING_CURVE_1006		10	1095.11

```

;
RATING_CURVE_1001 Rating      0      0
RATING_CURVE_1001            1      0.31
RATING_CURVE_1001            2      0.67
RATING_CURVE_1001            3      1.04
RATING_CURVE_1001            4      1.44
RATING_CURVE_1001           4.5      1.59
RATING_CURVE_1001            5      8.57
RATING_CURVE_1001            6      9.40
RATING_CURVE_1001            7     10.16
RATING_CURVE_1001           7.5     10.51
RATING_CURVE_1001            8    118.63
RATING_CURVE_1001            9    589.11
;
RATING_CURVE_2012B Rating     0      0
RATING_CURVE_2012B           1      0.39
RATING_CURVE_2012B           2      0.88
RATING_CURVE_2012B           3      1.46
RATING_CURVE_2012B          3.75      1.80
RATING_CURVE_2012B           4      2.10
RATING_CURVE_2012B           5      6.07
RATING_CURVE_2012B          5.5      9.44
RATING_CURVE_2012B           6     13.64
RATING_CURVE_2012B          6.25     16.04
RATING_CURVE_2012B           7     47.86
RATING_CURVE_2012B          7.75     50.50
RATING_CURVE_2012B           8    126.65
RATING_CURVE_2012B           9    909.92
;
RATING_CURVE_2000 Rating     0      0
RATING_CURVE_2000            1      0.04
RATING_CURVE_2000           1.6      0.07
RATING_CURVE_2000            2      0.31
RATING_CURVE_2000           2.5      0.46
RATING_CURVE_2000            3     10.85
RATING_CURVE_2000            4     22.36

```

RATING_CURVE_2000		5	25.29
RATING_CURVE_2000		5.5	26.64
RATING_CURVE_2000		6	82.65
RATING_CURVE_2000		7	332.34
;			
RATING_CURVE_2014	Rating	0	0
RATING_CURVE_2014		1	0.11
RATING_CURVE_2014		2	0.24
RATING_CURVE_2014		2.5	0.62
RATING_CURVE_2014		3	14.52
RATING_CURVE_2014		4	30.08
RATING_CURVE_2014		5	34.24
RATING_CURVE_2014		5.5	36.14
RATING_CURVE_2014		6	145.71
RATING_CURVE_2014		7	618.91
;			
RATING_CURVE_2015	Rating	0	0
RATING_CURVE_2015		1	0.06
RATING_CURVE_2015		2	0.12
RATING_CURVE_2015		3	0.67
RATING_CURVE_2015		4	18.63
RATING_CURVE_2015		5	21.02
RATING_CURVE_2015		5.5	22.11
RATING_CURVE_2015		6	130.92
RATING_CURVE_2015		7	602.70
;			
RATING_CURVE_2016	Rating	0	0
RATING_CURVE_2016		1	0.03
RATING_CURVE_2016		2	0.06
RATING_CURVE_2016		3	0.59
RATING_CURVE_2016		3.5	0.72
RATING_CURVE_2016		4	8.31
RATING_CURVE_2016		5	9.32
RATING_CURVE_2016		5.5	9.79
RATING_CURVE_2016		6	118
RATING_CURVE_2016		7	588.66



```

;
RATING_CURVE_1022 Rating      0      0
RATING_CURVE_1022            1      0.23
RATING_CURVE_1022            2      0.57
RATING_CURVE_1022            3      0.97
RATING_CURVE_1022           3.5     1.09
RATING_CURVE_1022            4     16.48
RATING_CURVE_1022            5     44.98
RATING_CURVE_1022            6     49.98
RATING_CURVE_1022            7     54.53
RATING_CURVE_1022           7.5     56.66
RATING_CURVE_1022            8    166.48
RATING_CURVE_1022            9    640.22
;
RATING_CURVE_1027 Rating      0      0
RATING_CURVE_1027            1     0.16
RATING_CURVE_1027           1.75    0.31
RATING_CURVE_1027            2     0.82
RATING_CURVE_1027            3     2.52
RATING_CURVE_1027            4     3.41
RATING_CURVE_1027            5     4.11
RATING_CURVE_1027           5.75    4.56
RATING_CURVE_1027            6    13.42
RATING_CURVE_1027            7   102.74
RATING_CURVE_1027            8   151.87
RATING_CURVE_1027            9   773.08
RATING_CURVE_1027           10  1925.68
;
RATING_CURVE_1010 Rating      0      0
RATING_CURVE_1010            1     0.21
RATING_CURVE_1010            2     .45
RATING_CURVE_1010            3     2.02
RATING_CURVE_1010            4     2.79
RATING_CURVE_1010            5     3.38
RATING_CURVE_1010           5.85    3.82
RATING_CURVE_1010            6    11.61

```

RATING_CURVE_1010		7	168.23
RATING_CURVE_1010		7.5	286.22
RATING_CURVE_1010		8	690.57
RATING_CURVE_1010		9	1906.53
RATING_CURVE_1010		10	3597.40
;			
RATING_CURVE_2003	Rating	0	0
RATING_CURVE_2003		1	0.29
RATING_CURVE_2003		1.9	0.60
RATING_CURVE_2003		2	0.69
RATING_CURVE_2003		3	5.49
RATING_CURVE_2003		4	8.60
RATING_CURVE_2003		5	50.69
RATING_CURVE_2003		6	82.07
RATING_CURVE_2003		6.5	86.20
RATING_CURVE_2003		7	118.35
RATING_CURVE_2003		8	261.78
;			
RATING_CURVE_2005	Rating	0	0
RATING_CURVE_2005		1	0.08
RATING_CURVE_2005		2	0.24
RATING_CURVE_2005		2.8	0.34
RATING_CURVE_2005		3	0.66
RATING_CURVE_2005		4	2.94
RATING_CURVE_2005		5	57.21
RATING_CURVE_2005		5.3	68.92
RATING_CURVE_2005		6	429.90
RATING_CURVE_2005		6.3	686.46
;			
RATING_CURVE_2012C	Rating	0	0
RATING_CURVE_2012C		1	0.59
RATING_CURVE_2012C		2	1.21
RATING_CURVE_2012C		3	1.71
RATING_CURVE_2012C		3.75	2.44
RATING_CURVE_2012C		4	2.62
RATING_CURVE_2012C		5	3.18

RATING_CURVE_2012C		5.5	3.43
RATING_CURVE_2012C		6	3.65
RATING_CURVE_2012C		7	62.41
RATING_CURVE_2012C		7.75	65.94
RATING_CURVE_2012C		8	179.87
RATING_CURVE_2012C		9	1345.98
;			
RATING_CURVE_2012A	Rating	0	0
RATING_CURVE_2012A		1	0.39
RATING_CURVE_2012A		2	0.88
RATING_CURVE_2012A		3	1.46
RATING_CURVE_2012A		3.75	1.80
RATING_CURVE_2012A		4	2.13
RATING_CURVE_2012A		5	6.52
RATING_CURVE_2012A		5.5	10.26
RATING_CURVE_2012A		6	45.29
RATING_CURVE_2012A		7	140.25
RATING_CURVE_2012A		7.75	149.10
RATING_CURVE_2012A		8	227.24
RATING_CURVE_2012A		9	1018.10
;			
STORAGE_CURVE_1001	Storage	0	0
STORAGE_CURVE_1001		1	9857
STORAGE_CURVE_1001		2	37869
STORAGE_CURVE_1001		3	82301
STORAGE_CURVE_1001		4	143286
STORAGE_CURVE_1001		5	222137
STORAGE_CURVE_1001		6	301546
STORAGE_CURVE_1001		7	359433
STORAGE_CURVE_1001		8	428444
STORAGE_CURVE_1001		9	510705
;			
STORAGE_CURVE_1006	Storage	0	0
STORAGE_CURVE_1006		1	8515
STORAGE_CURVE_1006		2	46413
STORAGE_CURVE_1006		3	106407

STORAGE_CURVE_1006		4	195675
STORAGE_CURVE_1006		5	314128
STORAGE_CURVE_1006		6	451369
STORAGE_CURVE_1006		7	571482
STORAGE_CURVE_1006		8	658875
STORAGE_CURVE_1006		9	709743
STORAGE_CURVE_1006		10	833347
;			
STORAGE_CURVE_2012A	Storage	0	0
STORAGE_CURVE_2012A		1	15308
STORAGE_CURVE_2012A		2	57402
STORAGE_CURVE_2012A		3	120424
STORAGE_CURVE_2012A		4	176060
STORAGE_CURVE_2012A		5	217001
STORAGE_CURVE_2012A		6	246796
STORAGE_CURVE_2012A		7	272800
STORAGE_CURVE_2012A		8	295034
STORAGE_CURVE_2012A		9	313445
;			
STORAGE_CURVE_2000	Storage	0	0
STORAGE_CURVE_2000		1	4000
STORAGE_CURVE_2000		2	16500
STORAGE_CURVE_2000		3	33500
STORAGE_CURVE_2000		4	46000
STORAGE_CURVE_2000		5	54000
STORAGE_CURVE_2000		6	58000
STORAGE_CURVE_2000		7	63000
;			
STORAGE_CURVE_2014	Storage	0	0
STORAGE_CURVE_2014		1	8000
STORAGE_CURVE_2014		2	33000
STORAGE_CURVE_2014		3	67000
STORAGE_CURVE_2014		4	92000
STORAGE_CURVE_2014		5	108000
STORAGE_CURVE_2014		6	116000
STORAGE_CURVE_2014		7	126000

```

;
STORAGE_CURVE_2015 Storage 0 0
STORAGE_CURVE_2015 1 4000
STORAGE_CURVE_2015 2 16500
STORAGE_CURVE_2015 3 33500
STORAGE_CURVE_2015 4 46000
STORAGE_CURVE_2015 5 54000
STORAGE_CURVE_2015 6 58000
STORAGE_CURVE_2015 7 63000
;
STORAGE_CURVE_2016 Storage 0 0
STORAGE_CURVE_2016 1 2000
STORAGE_CURVE_2016 2 8500
STORAGE_CURVE_2016 3 17000
STORAGE_CURVE_2016 4 23000
STORAGE_CURVE_2016 5 27000
STORAGE_CURVE_2016 6 29000
STORAGE_CURVE_2016 7 31500
;
STORAGE_CURVE_1022 Storage 0 0
STORAGE_CURVE_1022 1 12185
STORAGE_CURVE_1022 2 56214
STORAGE_CURVE_1022 3 112430
STORAGE_CURVE_1022 4 181655
STORAGE_CURVE_1022 5 253737
STORAGE_CURVE_1022 6 323976
STORAGE_CURVE_1022 7 392862
STORAGE_CURVE_1022 8 438530
STORAGE_CURVE_1022 9 482383
;
STORAGE_CURVE_1027 Storage 0 0
STORAGE_CURVE_1027 1 17656
STORAGE_CURVE_1027 2 63393
STORAGE_CURVE_1027 3 141611
STORAGE_CURVE_1027 4 253371
STORAGE_CURVE_1027 5 397337

```

STORAGE_CURVE_1027		6	573095
STORAGE_CURVE_1027		7	764456
STORAGE_CURVE_1027		8	950977
STORAGE_CURVE_1027		9	1133350
STORAGE_CURVE_1027		10	1299443
;			
STORAGE_CURVE_1010	Storage	0	0
STORAGE_CURVE_1010		1	16369
STORAGE_CURVE_1010		2	65176
STORAGE_CURVE_1010		3	145906
STORAGE_CURVE_1010		4	257874
STORAGE_CURVE_1010		5	400190
STORAGE_CURVE_1010		6	563277
STORAGE_CURVE_1010		7	734073
STORAGE_CURVE_1010		8	907985
STORAGE_CURVE_1010		9	1070023
STORAGE_CURVE_1010		10	1261095
;			
STORAGE_CURVE_2003	Storage	0	0
STORAGE_CURVE_2003		1	32230
STORAGE_CURVE_2003		2	36260
STORAGE_CURVE_2003		4	44670
STORAGE_CURVE_2003		6	53500
STORAGE_CURVE_2003		8	62715
;			
STORAGE_CURVE_2005	Storage	0	200
STORAGE_CURVE_2005		1.30	2028
STORAGE_CURVE_2005		2.30	22034
STORAGE_CURVE_2005		3.30	57488
STORAGE_CURVE_2005		4.30	74685
STORAGE_CURVE_2005		5.30	80584
STORAGE_CURVE_2005		6.30	85665
;			
STORAGE_CURVE_2012C	Storage	0	0
STORAGE_CURVE_2012C		1	12370
STORAGE_CURVE_2012C		2	50712

STORAGE_CURVE_2012C	3	115595
STORAGE_CURVE_2012C	4	192611
STORAGE_CURVE_2012C	5	249089
STORAGE_CURVE_2012C	6	282448
STORAGE_CURVE_2012C	7	298725
STORAGE_CURVE_2012C	8	309560
STORAGE_CURVE_2012C	9	320509
;		
STORAGE_CURVE_2012B Storage	0	0
STORAGE_CURVE_2012B	1	10404
STORAGE_CURVE_2012B	2	41028
STORAGE_CURVE_2012B	3	80490
STORAGE_CURVE_2012B	4	123259
STORAGE_CURVE_2012B	5	170565
STORAGE_CURVE_2012B	6	224874
STORAGE_CURVE_2012B	7	275146
STORAGE_CURVE_2012B	8	321457
STORAGE_CURVE_2012B	9	361282

[REPORT]  
;;Reporting Options  
SUBCATCHMENTS ALL  
NODES ALL  
LINKS ALL

[TAGS]

[MAP]  
DIMENSIONS -3863.727 0.000 10000.000 10239.881  
Units None

[COORDINATES]  
;;Node X-Coord Y-Coord  
;;-----  
JUNCT\_101 -3380.541 7562.515  
JUNCT\_100 -2917.032 7172.192

JUNCT_301	-2148.029	7586.484
JUNCT_102	-2139.984	7176.187
JUNCT_106	-1633.146	8012.872
JUNCT_302	-1609.010	6942.880
JUNCT_103	-1890.587	6532.582
JUNCT_104	-1592.920	6347.546
JUNCT_105	-1311.344	6580.853
JUNCT_304	-1078.037	7610.619
JUNCT_107	-1078.037	8037.007
JUNCT_305	-547.064	7618.665
JUNCT_108	-514.883	8077.233
JUNCT_306	-40.225	7634.755
JUNCT_109	-40.225	8093.323
JUNCT_110	1014.873	8009.760
JUNCT_318	567.627	8513.928
JUNCT_129	526.969	8904.252
JUNCT_317	-498.793	9179.405
JUNCT_128	-498.793	9605.792
JUNCT_127	-941.271	8833.467
JUNCT_126	-836.685	9919.549
JUNCT_314	-828.640	9589.702
JUNCT_124	-1238.938	9895.414
JUNCT_315	-1206.758	9565.567
JUNCT_313	-1423.974	9155.270
JUNCT_311	-1914.722	9147.224
JUNCT_312	-1423.974	9541.432
JUNCT_125	-1432.019	9903.459
JUNCT_123	-1928.557	9523.138
JUNCT_309	-2809.112	9133.121
JUNCT_308	-2817.154	9515.097
JUNCT_307	-2813.133	8747.124
JUNCT_121	-2825.196	9824.698
JUNCT_120	-3042.319	8735.061
JUNCT_203	-928.612	4683.880
JUNCT_500	-367.522	4692.012
JUNCT_501	-107.307	4692.012



JUNCT_204	-375.654	4374.874
JUNCT_502	632.681	4692.012
JUNCT_205	144.777	5090.467
JUNCT_209	640.813	5082.335
JUNCT_207	429.388	4350.479
JUNCT_208	779.052	4366.743
JUNCT_503	1242.561	4708.275
JUNCT_210	1250.693	4334.216
JUNCT_504	1595.389	4724.216
JUNCT_211	1579.070	5091.383
JUNCT_508	3242.969	5684.084
JUNCT_201	2339.139	7490.606
JUNCT_202	2958.358	4236.635
JUNCT_511	3990.346	5679.807
JUNCT_506	3348.681	4317.952
JUNCT_213	3405.603	3512.910
JUNCT_509	3706.478	4163.449
JUNCT_219	3747.136	3512.910
JUNCT_512	4778.761	5703.942
JUNCT_513	5559.131	5695.897
JUNCT_217	6163.460	7129.085
JUNCT_218	6201.918	6656.599
JUNCT_122	-2239.467	8787.531
JUNCT_212	2084.945	4291.775
JUNCT_206	1513.796	4340.730
JUNCT_300	-2526.709	7562.515
JUNCT_303	-1339.475	7603.174
JUNCT_200	1554.763	7462.157
JUNCT_214	3940.405	7466.221
JUNCT_215	4749.167	7482.477
JUNCT_216	5553.622	7464.221
JUNCT_310	-2220.122	9130.221
JUNCT_316	-952.234	9169.132
JUNCT_505	2917.699	4765.198
JUNCT_613	5571.382	6896.978
JUNCT_612	4769.025	6891.483

JUNCT_611	3972.163	6891.483
JUNCT_608	3158.814	6880.491
JUNCT_607	2345.465	6853.013
JUNCT_606	1559.594	6842.022
OUTFALL_514	6283.186	5711.987
OUTFALL_319	1007.329	8525.471
OUTFALL_614	6269.323	6885.987
STOR_1001	-2917.032	7562.515
STOR_1006	-1633.146	7594.529
STOR_2012B	2492.908	4756.853
STOR_2003	-717.187	4683.880
STOR_2005	136.645	4692.012
STOR_2012C	3299.891	4748.934
STOR_2012A	1962.556	4740.535

[VERTICES]

;;Link	X-Coord	Y-Coord
;;-----	-----	-----
302	-1625.101	7546.259

[TITLE]

;;Project Title/Notes  
Todd Creek PUD Amendment  
Future Condition Model  
KT Engineering - June 2023

[OPTIONS]

;;Option	Value
FLOW_UNITS	CFS
INFILTRATION	HORTON
FLOW_ROUTING	KINWAVE
LINK_OFFSETS	DEPTH
MIN_SLOPE	0
ALLOW_PONDING	YES
SKIP_STEADY_STATE	NO
START_DATE	01/01/2005
START_TIME	00:00:00
REPORT_START_DATE	01/01/2005
REPORT_START_TIME	00:00:00
END_DATE	01/01/2005
END_TIME	12:00:00
SWEEP_START	01/01
SWEEP_END	01/01
DRY_DAYS	0
REPORT_STEP	00:01:00
WET_STEP	00:01:00
DRY_STEP	00:01:00
ROUTING_STEP	0:01:00
RULE_STEP	00:00:00
INERTIAL_DAMPING	PARTIAL
NORMAL_FLOW_LIMITED	BOTH
FORCE_MAIN_EQUATION	H-W
VARIABLE_STEP	0.75
LENGTHENING_STEP	0

MIN\_SURFAREA 12.566  
MAX\_TRIALS 8  
HEAD\_TOLERANCE 0.005  
SYS\_FLOW\_TOL 5  
LAT\_FLOW\_TOL 5  
MINIMUM\_STEP 0.5  
THREADS 1

[FILES]

;;Interfacing Files

USE INFLOWS "J:\0009\2207\CIVIL\DRAINAGE\PHASE I\REPORTS\CUHP\CUHP OUTPUT\SWMM FILES\RG-SELTZER-FUT-100YR.txt"

[EVAPORATION]

;;Data Source Parameters

;;-----

CONSTANT 0.0  
DRY\_ONLY NO

[JUNCTIONS]

;;Name Elevation MaxDepth InitDepth SurDepth Aponded

;;-----

JUNCT_101	5106.5	0	0	0	0
JUNCT_100	5136.6	0	0	0	0
JUNCT_301	5064.0	0	0	0	0
JUNCT_102	5064.1	0	0	0	0
JUNCT_106	5061.1	0	0	0	0
JUNCT_302	5078.2	0	0	0	0
JUNCT_103	5112.7	0	0	0	0
JUNCT_104	5117.6	0	0	0	0
JUNCT_105	5078.3	0	0	0	0
JUNCT_304	5039.8	0	0	0	0
JUNCT_107	5039.9	0	0	0	0
JUNCT_305	5028.7	0	0	0	0
JUNCT_108	5028.8	0	0	0	0
JUNCT_306	4995.2	0	0	0	0
JUNCT_109	4995.3	0	0	0	0

JUNCT_110	5945.4	0	0	0	0
JUNCT_318	4960.1	0	0	0	0
JUNCT_129	4960.2	0	0	0	0
JUNCT_317	4999.7	0	0	0	0
JUNCT_128	4999.8	0	0	0	0
JUNCT_127	5008.6	0	0	0	0
JUNCT_126	5040.7	0	0	0	0
JUNCT_314	5040.6	0	0	0	0
JUNCT_124	5015.2	0	0	0	0
JUNCT_315	5015.1	0	0	0	0
JUNCT_313	5016.2	0	0	0	0
JUNCT_311	5016.3	0	0	0	0
JUNCT_312	5038.7	0	0	0	0
JUNCT_125	5038.8	0	0	0	0
JUNCT_123	5016.4	0	0	0	0
JUNCT_309	5044.3	0	0	0	0
JUNCT_308	5050.5	0	0	0	0
JUNCT_307	5049.6	0	0	0	0
JUNCT_121	5050.6	0	0	0	0
JUNCT_120	5049.7	0	0	0	0
JUNCT_203	5072.6	0	0	0	0
JUNCT_500	5072.5	0	0	0	0
JUNCT_501	5043.4	0	0	0	0
JUNCT_204	5043.5	0	0	0	0
JUNCT_502	5022.6	0	0	0	0
JUNCT_205	5022.8	0	0	0	0
JUNCT_209	5022.7	0	0	0	0
JUNCT_207	5060.2	0	0	0	0
JUNCT_208	5051.5	0	0	0	0
JUNCT_503	5021.8	0	0	0	0
JUNCT_210	5022	0	0	0	0
JUNCT_504	5013.2	0	0	0	0
JUNCT_211	5013.3	0	0	0	0
JUNCT_508	4994.8	0	0	0	0
JUNCT_201	5026.4	0	0	0	0
JUNCT_202	4999.4	0	0	0	0

JUNCT_511	4966.6	0	0	0	0
JUNCT_506	5004.5	0	0	0	0
JUNCT_213	5004.6	0	0	0	0
JUNCT_509	5012.0	0	0	0	0
JUNCT_219	5012.1	0	0	0	0
JUNCT_512	4958.6	0	0	0	0
JUNCT_513	4952.4	0	0	0	0
JUNCT_217	4950	0	0	0	0
JUNCT_218	4950	0	0	0	0
JUNCT_122	5035.1	0	0	0	0
JUNCT_212	4999.5	0	0	0	0
JUNCT_206	5021.9	0	0	0	0
JUNCT_300	5103.8	0	0	0	0
JUNCT_303	5057.3	0	0	0	0
JUNCT_200	5051.1	0	0	0	0
JUNCT_214	4967.1	0	0	0	0
JUNCT_215	4959.1	0	0	0	0
JUNCT_216	4952.7	0	0	0	0
JUNCT_310	5034.9	0	0	0	0
JUNCT_316	5007.9	0	0	0	0
JUNCT_505	4994.9	0	0	0	0
JUNCT_613	4952.4	0	0	0	0
JUNCT_612	4958.6	0	0	0	0
JUNCT_611	4966.6	0	0	0	0
JUNCT_608	4994.8	0	0	0	0
JUNCT_607	5026.3	0	0	0	0
JUNCT_606	5049.8	0	0	0	0

[OUTFALLS]

;;Name	Elevation	Type	Stage Data	Gated	Route To
OUTFALL_514	4943	FREE		NO	
OUTFALL_319	4945.3	FREE		NO	
OUTFALL_614	4943	FREE		NO	

[STORAGE]

;;Name Ksat	IMD	Elev.	MaxDepth	InitDepth	Shape	Curve Type/Params	SurDepth	Fevap	Psi
STOR_1001		5104	9	0	TABULAR	STORAGE_CURVE_1001	0	0	
STOR_1006		5061	10	0	TABULAR	STORAGE_CURVE_1006	0	0	
STOR_2012		4995	9	0	TABULAR	STORAGE_CURVE_2012	0	0	
STOR_2000		5051	7	0	TABULAR	STORAGE_CURVE_2000	0	0	
STOR_2014		4967	7	0	TABULAR	STORAGE_CURVE_2014	0	0	
STOR_2015		4959	7	0	TABULAR	STORAGE_CURVE_2015	0	0	
STOR_2016		4952.5	7	0	TABULAR	STORAGE_CURVE_2016	0	0	
STOR_1022		5035.0	9	0	TABULAR	STORAGE_CURVE_1022	0	0	
STOR_1027		5008	10	0	TABULAR	STORAGE_CURVE_1027	0	0	
STOR_1010		4947	10	0	TABULAR	STORAGE_CURVE_1010	0	0	
STOR_2003		5073	8	0	TABULAR	STORAGE_CURVE_2003	0	0	
STOR_2005		5026.7	6.3	0	TABULAR	STORAGE_CURVE_2005	0	0	

[CONDUITS]

;;Name	From Node	To Node	Length	Roughness	InOffset	OutOffset	InitFlow	MaxFlow
101	JUNCT_101	STOR_1001	1	0.01	0	0	0	0
100	JUNCT_100	STOR_1001	2330	0.013	0	0	0	0
102	JUNCT_102	JUNCT_301	1	0.01	0	0	0	0
105	JUNCT_105	JUNCT_302	1	0.01	0	0	0	0
106	JUNCT_106	STOR_1006	1	0.01	0	0	0	0
301	JUNCT_301	STOR_1006	445	.04	0	0	0	0
302	JUNCT_302	STOR_1006	1872	0.013	0	0	0	0

103	JUNCT_103	JUNCT_302	2132	.013	0	0	0	0
104	JUNCT_104	JUNCT_302	2181	0.013	0	0	0	0
107	JUNCT_107	JUNCT_304	1	0.01	0	0	0	0
108	JUNCT_108	JUNCT_305	1	0.01	0	0	0	0
304	JUNCT_304	JUNCT_305	1240	0.01	0	0	0	0
305	JUNCT_305	JUNCT_306	3060	.04	0	0	0	0
109	JUNCT_109	JUNCT_306	1	0.01	0	0	0	0
306	JUNCT_306	JUNCT_318	2191	0.04	0	0	0	0
318	JUNCT_318	STOR_1010	1504	.04	0	0	0	0
129	JUNCT_129	JUNCT_318	1	0.01	0	0	0	0
317	JUNCT_317	JUNCT_318	2462	.04	0	0	0	0
128	JUNCT_128	JUNCT_317	1	0.01	0	0	0	0
316	JUNCT_316	JUNCT_317	1470	0.04	0	0	0	0
127	JUNCT_127	STOR_1027	1	0.01	0	0	0	0
126	JUNCT_126	JUNCT_314	1	0.01	0	0	0	0
124	JUNCT_124	JUNCT_315	1	0.01	0	0	0	0
314	JUNCT_314	STOR_1027	3115	.04	0	0	0	0
315	JUNCT_315	STOR_1027	1483	0.04	0	0	0	0



313	JUNCT_313	STOR_1027	1886	0.04	0	0	0	0
125	JUNCT_125	JUNCT_312	1	0.01	0	0	0	0
312	JUNCT_312	JUNCT_313	1448	0.04	0	0	0	0
311	JUNCT_311	JUNCT_313	1	0.01	0	0	0	0
123	JUNCT_123	JUNCT_311	1	0.01	0	0	0	0
120	JUNCT_120	JUNCT_307	1	0.01	0	0	0	0
121	JUNCT_121	JUNCT_308	1	0.01	0	0	0	0
309	JUNCT_309	STOR_1022	804	.04	0	0	0	0
307	JUNCT_307	JUNCT_309	580	.04	0	0	0	0
308	JUNCT_308	JUNCT_309	553	0.04	0	0	0	0
203	JUNCT_203	STOR_2003	1	0.01	0	0	0	0
204	JUNCT_204	JUNCT_501	1	0.01	0	0	0	0
500	JUNCT_500	JUNCT_501	2651	0.04	0	0	0	0
501	JUNCT_501	STOR_2005	1060	0.04	0	0	0	0
205	JUNCT_205	STOR_2005	1	0.01	0	0	0	0
209	JUNCT_209	JUNCT_502	1	0.01	0	0	0	0
207	JUNCT_207	JUNCT_502	3816	.04	0	0	0	0
208	JUNCT_208	JUNCT_502	2169	0.04	0	0	0	0

502	JUNCT_502	JUNCT_503	150	0.013	0	0	0	0
210	JUNCT_210	JUNCT_503	1	0.01	0	0	0	0
503	JUNCT_503	JUNCT_504	1468	0.04	0	0	0	0
211	JUNCT_211	JUNCT_504	619	0.04	0	0	0	0
504	JUNCT_504	JUNCT_505	1472	0.04	0	0	0	0
201	JUNCT_201	JUNCT_607	1	0.01	0	0	0	0
202	JUNCT_202	JUNCT_505	1	0.01	0	0	0	0
508	JUNCT_508	JUNCT_511	1248	0.013	0	0	0	0
219	JUNCT_219	JUNCT_509	1	0.01	0	0	0	0
509	JUNCT_509	JUNCT_506	1395	0.04	0	0	0	0
213	JUNCT_213	JUNCT_506	1	0.01	0	0	0	0
506	JUNCT_506	JUNCT_505	343	0.04	0	0	0	0
511	JUNCT_511	JUNCT_512	510	0.013	0	0	0	0
512	JUNCT_512	JUNCT_513	1002	0.013	0	0	0	0
513	JUNCT_513	OUTFALL_514	3160	0.013	0	0	0	0
217	JUNCT_217	OUTFALL_614	1	0.01	0	0	0	0
218	JUNCT_218	OUTFALL_614	1	0.01	0	0	0	0
122	JUNCT_122	STOR_1022	1	0.01	0	0	0	0

212	JUNCT_212	JUNCT_505	1	0.01	0	0	0	0
110	JUNCT_110	STOR_1010	1	0.01	0	0	0	0
206	JUNCT_206	JUNCT_503	1	.01	0	0	0	0
300	JUNCT_300	JUNCT_301	3097	0.04	0	0	0	0
303	JUNCT_303	JUNCT_304	1474	0.04	0	0	0	0
200	JUNCT_200	STOR_2000	1	0.01	0	0	0	0
214	JUNCT_214	STOR_2014	1	0.01	0	0	0	0
215	JUNCT_215	STOR_2015	1	0.01	0	0	0	0
27	JUNCT_216	STOR_2016	1	0.01	0	0	0	0
310	JUNCT_310	JUNCT_311	1257	0.04	0	0	0	0
505	JUNCT_505	STOR_2012	1	0.01	0	0	0	0
606	JUNCT_606	JUNCT_607	2536	0.013	0	0	0	0
607	JUNCT_607	JUNCT_608	2886	0.013	0	0	0	0
608	JUNCT_608	JUNCT_611	1248	0.013	0	0	0	0
611	JUNCT_611	JUNCT_612	510	0.013	0	0	0	0
612	JUNCT_612	JUNCT_613	1002	0.013	0	0	0	0
613	JUNCT_613	OUTFALL_614	3160	0.013	0	0	0	0

[OUTLETS]

;;Name	From Node	To Node	Offset	Type	QTable/Qcoeff	Qexpon	Gated
OUTLET_1001	STOR_1001	JUNCT_300	0	TABULAR/DEPTH	RATING_CURVE_1001		NO
OUTLET_1006	STOR_1006	JUNCT_303	0	TABULAR/DEPTH	RATING_CURVE_1006		NO
OUTLET_2012A	STOR_2012	JUNCT_508	0	TABULAR/DEPTH	RATING_CURVE_2012A		NO
OUTLET_2000	STOR_2000	JUNCT_606	0	TABULAR/DEPTH	RATING_CURVE_2000		NO
OUTLET_2014	STOR_2014	JUNCT_611	0	TABULAR/DEPTH	RATING_CURVE_2014		NO
OUTLET_2015	STOR_2015	JUNCT_612	0	FUNCTIONAL/DEPTH	10.0	0.5	NO
OUTLET_2016	STOR_2016	JUNCT_613	0	TABULAR/DEPTH	RATING_CURVE_2016		NO
OUTLET_1022	STOR_1022	JUNCT_310	0	TABULAR/DEPTH	RATING_CURVE_1022		NO
OUTLET_1027	STOR_1027	JUNCT_316	0	TABULAR/DEPTH	RATING_CURVE_1027		NO
OUTLET_1010	STOR_1010	OUTFALL_319	0	TABULAR/DEPTH	RATING_CURVE_1010		NO
OUTLET_2003	STOR_2003	JUNCT_500	0	TABULAR/DEPTH	RATING_CURVE_2003		NO
OUTLET_2005	STOR_2005	JUNCT_502	0	TABULAR/DEPTH	RATING_CURVE_2005		NO
OUTLET_2012B	STOR_2012	JUNCT_608	0	TABULAR/DEPTH	RATING_CURVE_2012B		NO

[XSECTIONS]

;;Link	Shape	Geom1	Geom2	Geom3	Geom4	Barrels	Culvert
101	DUMMY	0	0	0	0	1	
100	CIRCULAR	2.5	0	0	0	1	
102	DUMMY	0	0	0	0	1	
105	DUMMY	0	0	0	0	1	

106	DUMMY	0	0	0	0	1
301	TRAPEZOIDAL	5	15	5	5	1
302	CIRCULAR	5.5	0	0	0	1
103	CIRCULAR	3	0	0	0	1
104	CIRCULAR	3	0	0	0	1
107	DUMMY	0	0	0	0	1
108	DUMMY	0	0	0	0	1
304	TRAPEZOIDAL	5	20	20	20	1
305	TRAPEZOIDAL	5	20	20	20	1
109	DUMMY	0	0	0	0	1
306	TRAPEZOIDAL	5	20	20	20	1
318	TRAPEZOIDAL	5	20	20	20	1
129	DUMMY	0	0	0	0	1
317	TRAPEZOIDAL	5	20	20	20	1
128	DUMMY	0	0	0	0	1
316	TRAPEZOIDAL	5	20	20	20	1
127	DUMMY	0	0	0	0	1
126	DUMMY	0	0	0	0	1
124	DUMMY	0	0	0	0	1
314	TRAPEZOIDAL	5	20	20	20	1
315	TRAPEZOIDAL	5	20	20	20	1
313	TRAPEZOIDAL	5	20	20	20	1
125	DUMMY	0	0	0	0	1
312	TRAPEZOIDAL	5	20	20	20	1
311	DUMMY	0	0	0	0	1
123	DUMMY	0	0	0	0	1
120	DUMMY	0	0	0	0	1
121	DUMMY	0	0	0	0	1
309	TRAPEZOIDAL	5	20	20	20	1
307	TRAPEZOIDAL	5	20	20	20	1
308	TRAPEZOIDAL	5	20	20	20	1
203	DUMMY	0	0	0	0	1
204	DUMMY	0	0	0	0	1
500	TRAPEZOIDAL	5	10	5	5	1
501	TRAPEZOIDAL	5	10	5	5	1
205	DUMMY	0	0	0	0	1

209	DUMMY	0	0	0	0	1
207	TRAPEZOIDAL	5	10	5	5	1
208	TRAPEZOIDAL	5	10	5	5	1
502	TRAPEZOIDAL	5	10	5	5	2
210	DUMMY	0	0	0	0	1
503	TRAPEZOIDAL	5	10	5	5	1
211	TRAPEZOIDAL	5	10	5	5	1
504	TRAPEZOIDAL	5	10	5	5	1
201	DUMMY	0	0	0	0	1
202	DUMMY	0	0	0	0	1
508	CIRCULAR	2.5	0	0	0	1
219	DUMMY	0	0	0	0	1
509	TRAPEZOIDAL	5	20	20	20	1
213	DUMMY	0	0	0	0	1
506	TRAPEZOIDAL	5	20	20	20	1
511	CIRCULAR	2.5	0	0	0	1
512	CIRCULAR	3	0	0	0	1
513	CIRCULAR	3.5	0	0	0	1
217	DUMMY	0	0	0	0	1
218	DUMMY	0	0	0	0	1
122	DUMMY	0	0	0	0	1
212	DUMMY	0	0	0	0	1
110	DUMMY	0	0	0	0	1
206	DUMMY	0	0	0	0	1
300	TRAPEZOIDAL	5	15	5	5	1
303	TRAPEZOIDAL	5	15	5	5	1
200	DUMMY	0	0	0	0	1
214	DUMMY	0	0	0	0	1
215	DUMMY	0	0	0	0	1
27	DUMMY	0	0	0	0	1
310	TRAPEZOIDAL	5	20	20	20	1
505	DUMMY	0	0	0	0	1
606	CIRCULAR	2.5	0	0	0	1
607	CIRCULAR	3	0	0	0	1
608	CIRCULAR	4	0	0	0	1
611	CIRCULAR	4.5	0	0	0	1

612	CIRCULAR	6	0	0	0	1
613	CIRCULAR	6	0	0	0	1

[CURVES]

;;Name	Type	X-Value	Y-Value
;;			
RATING_CURVE_1006	Rating	0	0
RATING_CURVE_1006		1	.51
RATING_CURVE_1006		2	1.04
RATING_CURVE_1006		3	1.48
RATING_CURVE_1006		4	2.26
RATING_CURVE_1006		5	2.76
RATING_CURVE_1006		6	17.36
RATING_CURVE_1006		7	18.80
RATING_CURVE_1006		8	20.13
RATING_CURVE_1006		9	390.98
RATING_CURVE_1006		10	1095.11
;			
RATING_CURVE_1001	Rating	0	0
RATING_CURVE_1001		1	0.31
RATING_CURVE_1001		2	0.67
RATING_CURVE_1001		3	1.04
RATING_CURVE_1001		4	1.44
RATING_CURVE_1001		4.5	1.59
RATING_CURVE_1001		5	8.57
RATING_CURVE_1001		6	9.40
RATING_CURVE_1001		7	10.16
RATING_CURVE_1001		7.5	10.51
RATING_CURVE_1001		8	118.63
RATING_CURVE_1001		9	589.11
;			
RATING_CURVE_2012A	Rating	0	0
RATING_CURVE_2012A		1	0.52
RATING_CURVE_2012A		2	1.18
RATING_CURVE_2012A		3	1.95
RATING_CURVE_2012A		4	2.53

RATING_CURVE_2012A	5	5.25
RATING_CURVE_2012A	5.7	6.77
RATING_CURVE_2012A	6	7.30
RATING_CURVE_2012A	6.25	7.70
RATING_CURVE_2012A	6.90	46.95
RATING_CURVE_2012A	7	46.95
RATING_CURVE_2012A	8	46.95
RATING_CURVE_2012A	9	46.95
;		
RATING_CURVE_2000 Rating	0	0
RATING_CURVE_2000	1	0.04
RATING_CURVE_2000	1.6	0.07
RATING_CURVE_2000	2	0.31
RATING_CURVE_2000	2.5	0.46
RATING_CURVE_2000	3	10.85
RATING_CURVE_2000	4	22.36
RATING_CURVE_2000	5	25.29
RATING_CURVE_2000	5.5	26.64
RATING_CURVE_2000	6	82.65
RATING_CURVE_2000	7	332.34
;		
RATING_CURVE_2014 Rating	0	0
RATING_CURVE_2014	1	0.11
RATING_CURVE_2014	2	0.24
RATING_CURVE_2014	2.5	0.62
RATING_CURVE_2014	3	14.52
RATING_CURVE_2014	4	30.08
RATING_CURVE_2014	5	34.24
RATING_CURVE_2014	5.5	36.14
RATING_CURVE_2014	6	145.71
RATING_CURVE_2014	7	618.91
;		
RATING_CURVE_2015 Rating	0	0
RATING_CURVE_2015	1	0.06
RATING_CURVE_2015	2	0.12
RATING_CURVE_2015	3	0.67



RATING_CURVE_2015		4	18.63
RATING_CURVE_2015		5	21.02
RATING_CURVE_2015		5.5	22.11
RATING_CURVE_2015		6	130.92
RATING_CURVE_2015		7	602.70
;			
RATING_CURVE_2016	Rating	0	0
RATING_CURVE_2016		1	0.03
RATING_CURVE_2016		2	0.06
RATING_CURVE_2016		3	0.59
RATING_CURVE_2016		3.5	0.72
RATING_CURVE_2016		4	8.31
RATING_CURVE_2016		5	9.32
RATING_CURVE_2016		5.5	9.79
RATING_CURVE_2016		6	118
RATING_CURVE_2016		7	588.66
;			
RATING_CURVE_1022	Rating	0	0
RATING_CURVE_1022		1	0.23
RATING_CURVE_1022		2	0.57
RATING_CURVE_1022		3	0.97
RATING_CURVE_1022		3.5	1.09
RATING_CURVE_1022		4	16.48
RATING_CURVE_1022		5	41.63
RATING_CURVE_1022		6	46.19
RATING_CURVE_1022		7	50.34
RATING_CURVE_1022		7.5	52.30
RATING_CURVE_1022		8	161.94
RATING_CURVE_1022		9	635.35
;			
RATING_CURVE_1027	Rating	0	0
RATING_CURVE_1027		1	0.16
RATING_CURVE_1027		1.75	0.31
RATING_CURVE_1027		2	0.82
RATING_CURVE_1027		3	2.52
RATING_CURVE_1027		4	3.41

RATING_CURVE_1027		5	4.11
RATING_CURVE_1027		5.8	4.59
RATING_CURVE_1027		6	10.94
RATING_CURVE_1027		7	96.95
RATING_CURVE_1027		8	151.87
RATING_CURVE_1027		9	773.08
RATING_CURVE_1027		10	1925.68
;			
RATING_CURVE_1010	Rating	0	0
RATING_CURVE_1010		1	0.21
RATING_CURVE_1010		2	.45
RATING_CURVE_1010		3	2.02
RATING_CURVE_1010		4	2.79
RATING_CURVE_1010		5	3.38
RATING_CURVE_1010		5.85	3.82
RATING_CURVE_1010		6	11.61
RATING_CURVE_1010		7	168.23
RATING_CURVE_1010		7.5	286.22
RATING_CURVE_1010		8	690.57
RATING_CURVE_1010		9	1906.53
RATING_CURVE_1010		10	3597.40
;			
RATING_CURVE_2003	Rating	0	0
RATING_CURVE_2003		1	0.29
RATING_CURVE_2003		1.9	0.60
RATING_CURVE_2003		2	0.69
RATING_CURVE_2003		3	5.49
RATING_CURVE_2003		4	8.60
RATING_CURVE_2003		5	50.69
RATING_CURVE_2003		6	82.07
RATING_CURVE_2003		6.5	86.20
RATING_CURVE_2003		7	118.35
RATING_CURVE_2003		8	261.78
;			
RATING_CURVE_2005	Rating	0	0
RATING_CURVE_2005		1	0.08

RATING_CURVE_2005		2	0.24
RATING_CURVE_2005		2.8	0.34
RATING_CURVE_2005		3	0.66
RATING_CURVE_2005		4	2.94
RATING_CURVE_2005		5	57.21
RATING_CURVE_2005		5.3	68.92
RATING_CURVE_2005		6	429.90
RATING_CURVE_2005		6.3	686.46
;			
RATING_CURVE_2012B	Rating	0	0
RATING_CURVE_2012B		1	0
RATING_CURVE_2012B		2	0
RATING_CURVE_2012B		3	0
RATING_CURVE_2012B		4	0
RATING_CURVE_2012B		5	0
RATING_CURVE_2012B		5.7	0
RATING_CURVE_2012B		6	0
RATING_CURVE_2012B		6.87	0
RATING_CURVE_2012B		7	9.25
RATING_CURVE_2012B		7.75	97.07
RATING_CURVE_2012B		8	132.3
RATING_CURVE_2012B		9	1054.36
;			
STORAGE_CURVE_1001	Storage	0	0
STORAGE_CURVE_1001		1	9857
STORAGE_CURVE_1001		2	37869
STORAGE_CURVE_1001		3	82301
STORAGE_CURVE_1001		4	143286
STORAGE_CURVE_1001		5	222137
STORAGE_CURVE_1001		6	301546
STORAGE_CURVE_1001		7	359433
STORAGE_CURVE_1001		8	428444
STORAGE_CURVE_1001		9	510705
;			
STORAGE_CURVE_1006	Storage	0	0
STORAGE_CURVE_1006		1	8515

STORAGE_CURVE_1006		2	46413
STORAGE_CURVE_1006		3	106407
STORAGE_CURVE_1006		4	195675
STORAGE_CURVE_1006		5	314128
STORAGE_CURVE_1006		6	451369
STORAGE_CURVE_1006		7	571482
STORAGE_CURVE_1006		8	658875
STORAGE_CURVE_1006		9	709743
STORAGE_CURVE_1006		10	833347
;			
STORAGE_CURVE_2012	Storage	0	0
STORAGE_CURVE_2012		1	15815
STORAGE_CURVE_2012		2	56799
STORAGE_CURVE_2012		3	120972
STORAGE_CURVE_2012		4	211402
STORAGE_CURVE_2012		5	311244
STORAGE_CURVE_2012		6	394584
STORAGE_CURVE_2012		7	454368
STORAGE_CURVE_2012		8	485053
STORAGE_CURVE_2012		9	502082
;			
STORAGE_CURVE_2000	Storage	0	0
STORAGE_CURVE_2000		1	4000
STORAGE_CURVE_2000		2	16500
STORAGE_CURVE_2000		3	33500
STORAGE_CURVE_2000		4	46000
STORAGE_CURVE_2000		5	54000
STORAGE_CURVE_2000		6	58000
STORAGE_CURVE_2000		7	63000
;			
STORAGE_CURVE_2014	Storage	0	0
STORAGE_CURVE_2014		1	8000
STORAGE_CURVE_2014		2	33000
STORAGE_CURVE_2014		3	67000
STORAGE_CURVE_2014		4	92000
STORAGE_CURVE_2014		5	108000

STORAGE_CURVE_2014		6	116000
STORAGE_CURVE_2014		7	126000
;			
STORAGE_CURVE_2015	Storage	0	0
STORAGE_CURVE_2015		1	4000
STORAGE_CURVE_2015		2	16500
STORAGE_CURVE_2015		3	33500
STORAGE_CURVE_2015		4	46000
STORAGE_CURVE_2015		5	54000
STORAGE_CURVE_2015		6	58000
STORAGE_CURVE_2015		7	63000
;			
STORAGE_CURVE_2016	Storage	0	0
STORAGE_CURVE_2016		1	2000
STORAGE_CURVE_2016		2	8500
STORAGE_CURVE_2016		3	17000
STORAGE_CURVE_2016		4	23000
STORAGE_CURVE_2016		5	27000
STORAGE_CURVE_2016		6	29000
STORAGE_CURVE_2016		7	31500
;			
STORAGE_CURVE_1022	Storage	0	0
STORAGE_CURVE_1022		1	12185
STORAGE_CURVE_1022		2	56214
STORAGE_CURVE_1022		3	112430
STORAGE_CURVE_1022		4	181655
STORAGE_CURVE_1022		5	253737
STORAGE_CURVE_1022		6	323976
STORAGE_CURVE_1022		7	392862
STORAGE_CURVE_1022		8	438530
STORAGE_CURVE_1022		9	482383
;			
STORAGE_CURVE_1027	Storage	0	0
STORAGE_CURVE_1027		1	17656
STORAGE_CURVE_1027		2	63393
STORAGE_CURVE_1027		3	141611

STORAGE_CURVE_1027		4	253371
STORAGE_CURVE_1027		5	397337
STORAGE_CURVE_1027		6	573095
STORAGE_CURVE_1027		7	764456
STORAGE_CURVE_1027		8	950977
STORAGE_CURVE_1027		9	1133350
STORAGE_CURVE_1027		10	1299443
;			
STORAGE_CURVE_1010	Storage	0	0
STORAGE_CURVE_1010		1	16369
STORAGE_CURVE_1010		2	65176
STORAGE_CURVE_1010		3	145906
STORAGE_CURVE_1010		4	257874
STORAGE_CURVE_1010		5	400190
STORAGE_CURVE_1010		6	563277
STORAGE_CURVE_1010		7	734073
STORAGE_CURVE_1010		8	907985
STORAGE_CURVE_1010		9	1070023
STORAGE_CURVE_1010		10	1261095
;			
STORAGE_CURVE_2003	Storage	0	0
STORAGE_CURVE_2003		1	32230
STORAGE_CURVE_2003		2	36260
STORAGE_CURVE_2003		4	44670
STORAGE_CURVE_2003		6	53500
STORAGE_CURVE_2003		8	62715
;			
STORAGE_CURVE_2005	Storage	0	200
STORAGE_CURVE_2005		1.30	2028
STORAGE_CURVE_2005		2.30	22034
STORAGE_CURVE_2005		3.30	57488
STORAGE_CURVE_2005		4.30	74685
STORAGE_CURVE_2005		5.30	80584
STORAGE_CURVE_2005		6.30	85665

[REPORT]

;;Reporting Options

SUBCATCHMENTS ALL

NODES ALL

LINKS ALL

[TAGS]

[MAP]

DIMENSIONS -3864.083 0.000 10000.000 10237.035

Units None

[COORDINATES]

;;Node	X-Coord	Y-Coord
;;-----	-----	-----
JUNCT_101	-3380.541	7562.515
JUNCT_100	-2917.032	7172.192
JUNCT_301	-2148.029	7586.484
JUNCT_102	-2139.984	7176.187
JUNCT_106	-1633.146	8012.872
JUNCT_302	-1609.010	6942.880
JUNCT_103	-1890.587	6532.582
JUNCT_104	-1592.920	6347.546
JUNCT_105	-1311.344	6580.853
JUNCT_304	-1078.037	7610.619
JUNCT_107	-1078.037	8037.007
JUNCT_305	-547.064	7618.665
JUNCT_108	-514.883	8077.233
JUNCT_306	-40.225	7634.755
JUNCT_109	-40.225	8093.323
JUNCT_110	1014.873	8009.760
JUNCT_318	567.627	8513.928
JUNCT_129	526.969	8904.252
JUNCT_317	-498.793	9179.405
JUNCT_128	-498.793	9605.792
JUNCT_127	-941.271	8833.467
JUNCT_126	-836.685	9919.549

JUNCT_314	-828.640	9589.702
JUNCT_124	-1238.938	9895.414
JUNCT_315	-1206.758	9565.567
JUNCT_313	-1423.974	9155.270
JUNCT_311	-1914.722	9147.224
JUNCT_312	-1423.974	9541.432
JUNCT_125	-1432.019	9903.459
JUNCT_123	-1928.557	9523.138
JUNCT_309	-2809.112	9133.121
JUNCT_308	-2817.154	9515.097
JUNCT_307	-2813.133	8747.124
JUNCT_121	-2825.196	9824.698
JUNCT_120	-3042.319	8735.061
JUNCT_203	-450.523	4682.220
JUNCT_500	80.451	4690.265
JUNCT_501	651.649	4698.311
JUNCT_204	442.478	4304.103
JUNCT_502	1185.380	4696.798
JUNCT_205	878.140	5143.882
JUNCT_209	1180.398	5138.386
JUNCT_207	1043.008	4264.586
JUNCT_208	1472.245	4296.058
JUNCT_503	1995.173	4706.356
JUNCT_210	1995.173	4263.878
JUNCT_504	2534.191	4706.356
JUNCT_211	2518.101	5181.014
JUNCT_508	3341.014	5788.307
JUNCT_201	2340.346	7570.647
JUNCT_202	2828.250	5188.048
JUNCT_511	3980.484	5788.307
JUNCT_506	3177.915	4261.030
JUNCT_213	3226.705	3569.832
JUNCT_509	3519.448	4114.659
JUNCT_219	3576.370	3569.832
JUNCT_512	4801.872	5810.358
JUNCT_513	5568.134	5810.358



JUNCT_217	6163.460	7129.085
JUNCT_218	6201.918	6656.599
JUNCT_122	-2499.272	8759.351
JUNCT_212	2852.645	4228.503
JUNCT_206	2207.395	4266.111
JUNCT_300	-2526.709	7562.515
JUNCT_303	-1339.475	7603.174
JUNCT_200	1537.612	7534.468
JUNCT_214	3944.685	7523.477
JUNCT_215	4785.511	6314.444
JUNCT_216	5553.622	7464.221
JUNCT_310	-2220.122	9130.221
JUNCT_316	-683.027	9169.068
JUNCT_505	2844.514	4708.275
JUNCT_613	5571.382	6896.978
JUNCT_612	4769.025	6891.483
JUNCT_611	3972.163	6891.483
JUNCT_608	3145.388	6871.317
JUNCT_607	2345.465	6853.013
JUNCT_606	1559.594	6842.022
OUTFALL_514	6290.294	5810.358
OUTFALL_319	1460.338	8521.729
OUTFALL_614	6269.323	6885.987
STOR_1001	-2917.032	7562.515
STOR_1006	-1633.146	7594.529
STOR_2012	3153.660	4722.446
STOR_2000	1548.603	7155.271
STOR_2014	3950.180	7232.210
STOR_2015	4774.520	6528.773
STOR_2016	5561.863	7214.243
STOR_1022	-2497.319	9136.124
STOR_1027	-949.316	9163.315
STOR_1010	1023.005	8513.928
STOR_2003	-197.220	4687.177
STOR_2005	883.635	4698.738

[VERTICES]

;;Link

X-Coord

Y-Coord

;;-----

302

-1625.101

7546.259

APPENDIX C  
HISTORIC CUHP/SWMM MODEL

## CUHP SUBCATCHMENTS

Columns with this color heading are for required user-input  
 Columns with this color heading are for optional override values  
 Columns with this color heading are for program-calculated values

Subcatchment Name	EPA SWMM Target Node	Raingage	Area (mi <sup>2</sup> )	Length to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness	Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters			DCIA Level 0, 1, or 2
								Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)	
100	JUNCT_100	100-YR	0.0375	0.2119	0.4318	0.0237	2	0.38	0.1	3	0.0018	0.5	0
101	JUNCT_101	100-YR	0.2028	0.3134	0.5438	0.0247	2	0.38	0.1	3	0.0018	0.5	0
102	JUNCT_102	100-YR	0.1136	0.4163	0.6566	0.01933	2	0.38	0.1	3	0.0018	0.5	0
103	JUNCT_103	100-YR	0.0529	0.1572	0.2483	0.0191	2	0.38	0.1	3	0.0018	0.5	0
104	JUNCT_104	100-YR	0.0303	0.0701	0.1826	0.0456	2	0.38	0.1	3	0.0018	0.5	0
105	JUNCT_105	100-YR	0.1009	0.2858	0.5345	0.0145	2	0.38	0.1	3	0.0018	0.5	0
106	JUNCT_106	100-YR	0.1252	0.4591	0.8307	0.0173	2	0.38	0.1	3	0.0018	0.5	0
107	JUNCT_107	100-YR	0.0327	0.1241	0.2723	0.0111	2	0.38	0.1	3	0.0018	0.5	0
108	JUNCT_108	100-YR	0.0494	0.107	0.2693	0.0127	2	0.38	0.1	3	0.0018	0.5	0
109	JUNCT_109	100-YR	0.2248	0.2646	0.6299	0.0123	2	0.38	0.1	3	0.0018	0.5	0
110	JUNCT_110	100-YR	0.2131	0.2913	0.803	0.0116	2	0.38	0.1	3	0.0018	0.5	0
120	JUNCT_120	100-YR	0.18	0.3434	0.7458	0.0135	2	0.38	0.1	3	0.0018	0.5	0
121	JUNCT_121	100-YR	0.1803	0.5699	0.9413	0.0127	2	0.38	0.1	3	0.0018	0.5	0
122	JUNCT_122	100-YR	0.0821	0.1534	0.2905	0.0104	2	0.38	0.1	3	0.0018	0.5	0
123	JUNCT_123	100-YR	0.07	0.208	0.3845	0.0103	2	0.38	0.1	3	0.0018	0.5	0
124	JUNCT_124	100-YR	0.0228	0.0672	0.1769	0.0139	2	0.38	0.1	3	0.0018	0.5	0
125	JUNCT_125	100-YR	0.1665	0.4428	0.9917	0.0088	2	0.38	0.1	3	0.0018	0.5	0
126	JUNCT_126	100-YR	0.0715	0.1708	0.3163	0.0084	2	0.38	0.1	3	0.0018	0.5	0
127	JUNCT_127	100-YR	0.2645	0.2506	0.6981	0.0165	2	0.38	0.1	3	0.0018	0.5	0
128	JUNCT_128	100-YR	0.0748	0.1648	0.4085	0.0148	2	0.38	0.1	3	0.0018	0.5	0
129	JUNCT_129	100-YR	0.177	0.2455	0.5813	0.0173	2	0.38	0.1	3	0.0018	0.5	0
200	JUNCT_200	100-YR	0.0816	0.2051	0.5246	0.0119	2	0.38	0.1	3	0.0018	0.5	0
201	JUNCT_201	100-YR	0.029	0.31075	0.5782159	0.0128	2	0.38	0.1	3	0.0018	0.5	0
202	JUNCT_202	100-YR	0.0046	0.2797	0.5233	0.008	2	0.38	0.1	3	0.0018	0.5	0
203	JUNCT_203	100-YR	0.127	0.293140152	0.5782254	0.0272	2	0.38	0.1	3	0.0018	0.5	0
204	JUNCT_204	100-YR	0.074	0.2692	0.5601	0.0169	2	0.38	0.1	3	0.0018	0.5	0
205	JUNCT_205	100-YR	0.062	0.2464	0.4621	0.0114	2	0.38	0.1	3	0.0018	0.5	0
206	JUNCT_206	100-YR	0.0214	0.4103	0.6914	0.0137	2	0.38	0.1	3	0.0018	0.5	0
207	JUNCT_207	100-YR	0.0621	0.183	0.3847	0.0123	2	0.38	0.1	3	0.0018	0.5	0
208	JUNCT_208	100-YR	0.0388	0.10868	0.23969	0.0071	2	0.38	0.1	3	0.0018	0.5	0
209	JUNCT_209	100-YR	0.0412	0.3381	0.6977	0.0106	2	0.38	0.1	3	0.0018	0.5	0
210	JUNCT_210	100-YR	0.0361	0.4097	0.7119	0.0186	2	0.38	0.1	3	0.0018	0.5	0
211	JUNCT_211	100-YR	0.036	0.1785	0.296	0.0221	2	0.38	0.1	3	0.0018	0.5	0
212	JUNCT_212	100-YR	0.0808	0.280333333	0.5628106	0.0077	2	0.38	0.1	3	0.0018	0.5	0
213	JUNCT_213	100-YR	0.116	0.203833333	0.5581742	0.0129	2	0.38	0.1	3	0.0018	0.5	0
214	JUNCT_214	100-YR	0.1045	0.304159091	0.3573902	0.0201	2	0.38	0.1	3	0.0018	0.5	0
215	JUNCT_215	100-YR	0.0653	0.200164773	0.3851307	0.0089	2	0.38	0.1	3	0.0018	0.5	0
216	JUNCT_216	100-YR	0.0302	0.0564	0.1816	0.0049	2	0.38	0.1	3	0.0018	0.5	0
217	JUNCT_217	100-YR	0.0112	0.1634	0.459	0.0019	2	0.38	0.1	3	0.0018	0.5	0
218	JUNCT_218	100-YR	0.0129	0.2218	0.5591	0.0017	2	0.38	0.1	3	0.0018	0.5	0

HISTORIC CONDITION - 5-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

\*\*\*\*\*

Analysis Options

\*\*\*\*\*

Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... YES

Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

\*\*\*\*\*

Flow Routing Continuity

\*\*\*\*\*

	Volume acre-feet	Volume 10 <sup>6</sup> gal
	-----	-----
Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	12.439	4.053
External Outflow .....	13.345	4.349
Flooding Loss .....	0.000	0.000
Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000

Final Stored Volume ..... 0.153 0.050  
 Continuity Error (%) ..... -8.511

\*\*\*\*\*

Highest Flow Instability Indexes

\*\*\*\*\*

- Link 317 (1)
- Link 505 (1)
- Link 313 (1)
- Link 316 (1)
- Link 510 (1)

\*\*\*\*\*

Routing Time Step Summary

\*\*\*\*\*

Minimum Time Step : 60.00 sec  
 Average Time Step : 60.00 sec  
 Maximum Time Step : 60.00 sec  
 % of Time in Steady State : 0.00  
 Average Iterations per Step : 1.00  
 % of Steps Not Converging : 0.00

\*\*\*\*\*

Node Depth Summary

\*\*\*\*\*

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_101	JUNCTION	0.00	0.00	5106.50	0 00:00	0.00
JUNCT_300	JUNCTION	0.04	0.33	5106.73	0 00:45	0.33
JUNCT_100	JUNCTION	0.01	0.10	5136.70	0 00:45	0.10
JUNCT_301	JUNCTION	0.06	0.33	5064.33	0 01:04	0.33
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0 00:00	0.00

JUNCT_303	JUNCTION	0.10	0.50	5057.80	0	01:08	0.50
JUNCT_106	JUNCTION	0.00	0.00	5057.40	0	00:00	0.00
JUNCT_302	JUNCTION	0.04	0.27	5078.47	0	00:57	0.27
JUNCT_103	JUNCTION	0.01	0.14	5112.84	0	00:41	0.14
JUNCT_104	JUNCTION	0.01	0.13	5117.73	0	00:37	0.13
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.10	0.50	5040.30	0	01:16	0.50
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.09	0.42	5029.12	0	01:18	0.42
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.11	0.39	4995.59	0	01:43	0.39
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.19	0.65	4960.75	0	01:51	0.65
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.14	0.51	5000.21	0	01:40	0.51
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_316	JUNCTION	0.14	0.52	5009.02	0	01:28	0.52
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.02	0.15	5040.75	0	00:43	0.15
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.01	0.11	5015.21	0	00:39	0.11
JUNCT_313	JUNCTION	0.11	0.50	5016.70	0	01:13	0.50
JUNCT_311	JUNCTION	0.06	0.29	5016.59	0	01:13	0.29
JUNCT_312	JUNCTION	0.03	0.15	5038.85	0	00:56	0.15
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_310	JUNCTION	0.06	0.30	5035.00	0	01:03	0.30
JUNCT_309	JUNCTION	0.05	0.28	5044.58	0	00:58	0.28
JUNCT_308	JUNCTION	0.03	0.18	5050.68	0	00:56	0.18
JUNCT_307	JUNCTION	0.03	0.23	5049.83	0	00:49	0.23
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.03	0.30	5072.80	0	00:45	0.30
JUNCT_501	JUNCTION	0.06	0.31	5043.71	0	01:04	0.31
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.06	0.31	5022.91	0	01:17	0.31

JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.02	0.20	5060.40	0	00:44	0.20
JUNCT_208	JUNCTION	0.02	0.15	5051.65	0	00:42	0.15
JUNCT_503	JUNCTION	0.12	0.55	5022.35	0	01:16	0.55
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.13	0.54	5013.74	0	01:27	0.54
JUNCT_211	JUNCTION	0.06	0.48	5013.78	0	00:43	0.48
JUNCT_505	JUNCTION	0.12	0.50	4999.90	0	01:36	0.50
JUNCT_608	JUNCTION	0.11	0.43	4999.73	0	01:36	0.43
JUNCT_607	JUNCTION	0.05	0.21	5026.51	0	01:14	0.21
JUNCT_606	JUNCTION	0.03	0.22	5050.02	0	00:45	0.22
JUNCT_200	JUNCTION	0.00	0.00	5049.90	0	00:00	0.00
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_611	JUNCTION	0.15	0.57	4967.17	0	01:36	0.57
JUNCT_214	JUNCTION	0.00	0.00	4966.70	0	00:00	0.00
JUNCT_506	JUNCTION	0.02	0.16	5004.66	0	00:45	0.16
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_612	JUNCTION	0.21	0.76	4959.36	0	01:38	0.76
JUNCT_613	JUNCTION	0.26	0.92	4953.52	0	01:43	0.92
JUNCT_215	JUNCTION	0.00	0.00	4958.70	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5034.80	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.01	0.04	5021.94	0	00:59	0.04
OUTFALL_614	OUTFALL	0.27	0.88	4943.88	0	02:07	0.88
OUTFALL_319	OUTFALL	0.19	0.65	4945.95	0	02:00	0.65

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Node Inflow Summary  
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10 <sup>6</sup> gal	Total Inflow Volume 10 <sup>6</sup> gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	10.50	10.50	0 00:44	0.234	0.234	0.000
JUNCT_300	JUNCTION	0.00	10.57	0 00:45	0	0.284	0.000
JUNCT_100	JUNCTION	1.28	1.28	0 00:45	0.0433	0.0433	0.000
JUNCT_301	JUNCTION	0.00	11.15	0 01:04	0	0.44	0.000
JUNCT_102	JUNCTION	3.63	3.63	0 00:49	0.131	0.131	0.000
JUNCT_303	JUNCTION	0.00	20.34	0 01:08	0	0.823	0.000
JUNCT_106	JUNCTION	3.50	3.50	0 00:52	0.145	0.145	0.000
JUNCT_302	JUNCTION	0.00	6.86	0 00:57	0	0.229	0.000
JUNCT_103	JUNCTION	2.85	2.85	0 00:41	0.0611	0.0611	0.000
JUNCT_104	JUNCTION	2.46	2.46	0 00:37	0.035	0.035	0.000
JUNCT_105	JUNCTION	3.73	3.73	0 00:46	0.117	0.117	0.000
JUNCT_304	JUNCTION	0.00	20.79	0 01:16	0	0.865	0.000
JUNCT_107	JUNCTION	1.38	1.38	0 00:43	0.0378	0.0378	0.000
JUNCT_305	JUNCTION	0.00	21.86	0 01:18	0	0.923	0.000
JUNCT_108	JUNCTION	2.70	2.70	0 00:41	0.0571	0.0571	0.000
JUNCT_306	JUNCTION	0.00	22.52	0 01:39	0	1.2	0.000
JUNCT_109	JUNCTION	10.42	10.42	0 00:46	0.26	0.26	0.000
JUNCT_110	JUNCTION	8.28	8.28	0 00:48	0.246	0.246	0.000
JUNCT_318	JUNCTION	0.00	47.50	0 01:51	0	2.79	0.000
JUNCT_129	JUNCTION	8.85	8.85	0 00:44	0.205	0.205	0.000
JUNCT_317	JUNCTION	0.00	24.53	0 01:39	0	1.36	0.000
JUNCT_128	JUNCTION	3.50	3.50	0 00:43	0.0864	0.0864	0.000
JUNCT_316	JUNCTION	0.00	24.06	0 01:28	0	1.26	0.000
JUNCT_127	JUNCTION	13.37	13.37	0 00:45	0.306	0.306	0.000
JUNCT_126	JUNCTION	3.20	3.20	0 00:43	0.0826	0.0826	0.000
JUNCT_314	JUNCTION	0.00	3.20	0 00:43	0	0.0826	0.000
JUNCT_124	JUNCTION	1.34	1.34	0 00:39	0.0263	0.0263	0.000
JUNCT_315	JUNCTION	0.00	1.34	0 00:39	0	0.0263	0.000
JUNCT_313	JUNCTION	0.00	18.69	0 01:13	0	0.802	0.000
JUNCT_311	JUNCTION	0.00	14.74	0 01:12	0	0.605	0.000
JUNCT_312	JUNCTION	0.00	4.24	0 00:56	0	0.192	0.000
JUNCT_125	JUNCTION	4.24	4.24	0 00:56	0.192	0.192	0.000
JUNCT_123	JUNCTION	2.74	2.74	0 00:45	0.0809	0.0809	0.000
JUNCT_310	JUNCTION	0.00	13.45	0 01:03	0	0.518	0.000

JUNCT_309	JUNCTION	0.00	11.05	0	00:58	0	0.419	0.000
JUNCT_308	JUNCTION	0.00	4.72	0	00:56	0	0.208	0.000
JUNCT_307	JUNCTION	0.00	6.66	0	00:49	0	0.208	0.000
JUNCT_121	JUNCTION	4.72	4.72	0	00:56	0.208	0.208	0.000
JUNCT_120	JUNCTION	6.66	6.66	0	00:49	0.208	0.208	0.000
JUNCT_203	JUNCTION	5.67	5.67	0	00:45	0.147	0.147	0.000
JUNCT_500	JUNCTION	0.00	5.67	0	00:45	0	0.147	0.000
JUNCT_501	JUNCTION	0.00	6.35	0	01:04	0	0.247	0.000
JUNCT_204	JUNCTION	2.50	2.50	0	00:47	0.0855	0.0855	0.000
JUNCT_502	JUNCTION	0.00	11.10	0	01:16	0	0.509	0.000
JUNCT_205	JUNCTION	2.01	2.01	0	00:47	0.0716	0.0716	0.000
JUNCT_209	JUNCTION	0.79	0.79	0	00:54	0.0476	0.0476	0.000
JUNCT_207	JUNCTION	2.54	2.54	0	00:44	0.0718	0.0718	0.000
JUNCT_208	JUNCTION	1.78	1.78	0	00:42	0.0448	0.0448	0.000
JUNCT_503	JUNCTION	0.00	11.73	0	01:16	0	0.551	0.000
JUNCT_210	JUNCTION	0.67	0.67	0	00:54	0.0417	0.0417	0.000
JUNCT_504	JUNCTION	0.00	12.48	0	01:26	0	0.605	0.000
JUNCT_211	JUNCTION	1.51	1.51	0	00:43	0.0416	0.0416	0.000
JUNCT_505	JUNCTION	0.00	13.80	0	01:34	0	0.73	0.000
JUNCT_608	JUNCTION	0.00	16.12	0	01:36	0	0.88	0.000
JUNCT_607	JUNCTION	0.00	2.85	0	01:14	0	0.139	0.000
JUNCT_606	JUNCTION	0.00	3.08	0	00:45	0	0.0943	0.000
JUNCT_200	JUNCTION	3.08	3.08	0	00:45	0.0943	0.0943	0.000
JUNCT_201	JUNCTION	0.57	0.57	0	00:52	0.0335	0.0335	0.000
JUNCT_202	JUNCTION	0.04	0.04	0	01:14	0.00519	0.00519	0.000
JUNCT_611	JUNCTION	0.00	20.30	0	01:36	0	1.14	0.000
JUNCT_214	JUNCTION	4.88	4.88	0	00:44	0.121	0.121	0.000
JUNCT_506	JUNCTION	0.00	5.04	0	00:45	0	0.134	-0.000
JUNCT_213	JUNCTION	5.04	5.04	0	00:45	0.134	0.134	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_612	JUNCTION	0.00	21.38	0	01:38	0	1.22	0.000
JUNCT_613	JUNCTION	0.00	21.58	0	01:43	0	1.26	0.000
JUNCT_215	JUNCTION	2.44	2.44	0	00:45	0.0755	0.0755	0.000
JUNCT_216	JUNCTION	1.70	1.70	0	00:40	0.0349	0.0349	0.000
JUNCT_217	JUNCTION	0.14	0.14	0	01:00	0.0129	0.0129	0.000
JUNCT_218	JUNCTION	0.13	0.13	0	01:11	0.0149	0.0149	0.000
JUNCT_122	JUNCTION	4.40	4.40	0	00:42	0.0949	0.0949	0.000
JUNCT_212	JUNCTION	2.32	2.32	0	00:49	0.0934	0.0934	0.000

JUNCT_206	JUNCTION	0.30	0.30	0	00:59	0.0247	0.0247	0.000
OUTFALL_614	OUTFALL	0.00	20.25	0	02:07	0	1.31	0.000
OUTFALL_319	OUTFALL	0.00	49.37	0	01:59	0	3.04	0.000

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Node Flooding Summary  
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No nodes were flooded.

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Outfall Loading Summary  
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Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_614	96.81	4.18	20.25	1.308
OUTFALL_319	97.78	9.62	49.37	3.041
System	97.29	13.80	69.20	4.348

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Link Flow Summary  
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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	10.50	0 00:44			
100	CONDUIT	0.92	0 01:25	0.82	0.00	0.02
300	CONDUIT	8.09	0 01:08	1.86	0.00	0.06

102	DUMMY	3.63	0	00:49			
105	DUMMY	3.73	0	00:46			
106	DUMMY	3.50	0	00:52			
301	CONDUIT	11.13	0	01:07	2.04	0.01	0.07
302	CONDUIT	6.29	0	01:13	1.56	0.00	0.05
103	CONDUIT	2.07	0	01:04	1.20	0.00	0.02
104	CONDUIT	1.57	0	01:00	1.22	0.00	0.02
107	DUMMY	1.38	0	00:43			
303	CONDUIT	20.00	0	01:16	2.34	0.01	0.10
108	DUMMY	2.70	0	00:41			
304	CONDUIT	20.73	0	01:19	4.35	0.00	0.04
305	CONDUIT	19.26	0	01:43	1.88	0.00	0.08
109	DUMMY	10.42	0	00:46			
306	CONDUIT	21.87	0	01:52	2.15	0.00	0.08
318	CONDUIT	47.08	0	02:00	2.24	0.01	0.13
129	DUMMY	8.85	0	00:44			
317	CONDUIT	23.83	0	01:52	2.21	0.00	0.08
128	DUMMY	3.50	0	00:43			
316	CONDUIT	23.47	0	01:40	1.55	0.01	0.10
127	DUMMY	13.37	0	00:45			
126	DUMMY	3.20	0	00:43			
124	DUMMY	1.34	0	00:39			
314	CONDUIT	2.02	0	01:25	1.02	0.00	0.02
315	CONDUIT	0.82	0	01:15	0.58	0.00	0.02
313	CONDUIT	16.62	0	01:35	1.26	0.01	0.09
125	DUMMY	4.24	0	00:56			
312	CONDUIT	3.96	0	01:15	1.23	0.00	0.03
311	DUMMY	14.74	0	01:12			
123	DUMMY	2.74	0	00:45			
120	DUMMY	6.66	0	00:49			
121	DUMMY	4.72	0	00:56			
310	CONDUIT	12.95	0	01:13	1.76	0.00	0.06
309	CONDUIT	10.81	0	01:05	1.54	0.00	0.06
307	CONDUIT	6.50	0	00:56	1.20	0.00	0.05
308	CONDUIT	4.67	0	01:03	1.13	0.00	0.04
203	DUMMY	5.67	0	00:45			
204	DUMMY	2.50	0	00:47			
500	CONDUIT	4.36	0	01:08	1.58	0.00	0.05
501	CONDUIT	6.12	0	01:17	1.77	0.00	0.06

205	DUMMY	2.01	0	00:47			
209	DUMMY	0.79	0	00:54			
207	CONDUIT	1.64	0	01:26	1.18	0.00	0.03
208	CONDUIT	1.30	0	01:09	1.09	0.00	0.02
502	CONDUIT	11.10	0	01:16	2.63	0.00	0.04
210	DUMMY	0.67	0	00:54			
503	CONDUIT	11.46	0	01:27	1.69	0.01	0.11
211	CONDUIT	1.07	0	01:15	0.25	0.01	0.08
504	CONDUIT	12.29	0	01:36	2.01	0.01	0.10
505	DUMMY	13.80	0	01:34			
200	DUMMY	3.08	0	00:45			
201	DUMMY	0.57	0	00:52			
202	DUMMY	0.04	0	01:14			
606	CONDUIT	2.33	0	01:16	1.20	0.00	0.04
607	CONDUIT	2.42	0	01:48	1.21	0.00	0.04
608	CONDUIT	16.06	0	01:41	3.08	0.01	0.09
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	5.04	0	00:45			
510	CONDUIT	4.09	0	01:04	1.38	0.00	0.03
214	DUMMY	4.88	0	00:44			
611	CONDUIT	20.28	0	01:38	2.78	0.01	0.11
612	CONDUIT	21.26	0	01:44	2.04	0.02	0.15
613	CONDUIT	20.03	0	02:07	1.66	0.03	0.18
215	DUMMY	2.44	0	00:45			
216	DUMMY	1.70	0	00:40			
217	DUMMY	0.14	0	01:00			
218	DUMMY	0.13	0	01:11			
122	DUMMY	4.40	0	00:42			
212	DUMMY	2.32	0	00:49			
110	DUMMY	8.28	0	00:48			
206	CONDUIT	0.21	0	02:46	0.36	0.00	0.01

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Conduit Surcharge Summary

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No conduits were surcharged.

Analysis begun on: Tue Jun 6 14:55:23 2023  
Analysis ended on: Tue Jun 6 14:55:24 2023  
Total elapsed time: 00:00:01

HISTORIC CONDITION - 10-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

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Analysis Options

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Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO  
RDII ..... NO  
Snowmelt ..... NO  
Groundwater ..... NO  
Flow Routing ..... YES  
Ponding Allowed ..... YES  
Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

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Flow Routing Continuity

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	Volume acre-feet	Volume 10 <sup>6</sup> gal
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Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	47.367	15.435
External Outflow .....	49.321	16.072
Flooding Loss .....	0.000	0.000
Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000

Final Stored Volume ..... 0.175 0.057  
 Continuity Error (%) ..... -4.496

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Highest Flow Instability Indexes

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- Link 313 (1)
- Link 314 (1)
- Link 315 (1)
- Link 316 (1)
- Link 312 (1)

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Routing Time Step Summary

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Minimum Time Step : 60.00 sec  
 Average Time Step : 60.00 sec  
 Maximum Time Step : 60.00 sec  
 % of Time in Steady State : 0.00  
 Average Iterations per Step : 1.00  
 % of Steps Not Converging : 0.00

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Node Depth Summary

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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_101	JUNCTION	0.00	0.00	5106.50	0 00:00	0.00
JUNCT_300	JUNCTION	0.09	0.69	5107.09	0 00:44	0.69
JUNCT_100	JUNCTION	0.03	0.20	5136.80	0 00:46	0.20
JUNCT_301	JUNCTION	0.12	0.75	5064.75	0 00:58	0.75
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0 00:00	0.00



JUNCT_303	JUNCTION	0.19	1.12	5058.42	0	00:59	1.12
JUNCT_106	JUNCTION	0.00	0.00	5057.40	0	00:00	0.00
JUNCT_302	JUNCTION	0.08	0.61	5078.81	0	00:51	0.61
JUNCT_103	JUNCTION	0.03	0.30	5113.00	0	00:40	0.30
JUNCT_104	JUNCTION	0.02	0.26	5117.86	0	00:35	0.26
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.19	1.11	5040.91	0	01:05	1.11
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.17	0.89	5029.59	0	01:06	0.89
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.19	0.86	4996.06	0	01:20	0.86
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.34	1.38	4961.48	0	01:29	1.38
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.26	1.08	5000.78	0	01:24	1.08
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_316	JUNCTION	0.25	1.09	5009.59	0	01:15	1.09
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.04	0.30	5040.90	0	00:43	0.30
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.02	0.23	5015.33	0	00:38	0.23
JUNCT_313	JUNCTION	0.21	1.01	5017.21	0	01:04	1.01
JUNCT_311	JUNCTION	0.12	0.61	5016.91	0	01:04	0.61
JUNCT_312	JUNCTION	0.06	0.32	5039.02	0	00:56	0.32
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_310	JUNCTION	0.11	0.61	5035.31	0	00:57	0.61
JUNCT_309	JUNCTION	0.10	0.57	5044.87	0	00:55	0.57
JUNCT_308	JUNCTION	0.07	0.37	5050.87	0	00:56	0.37
JUNCT_307	JUNCTION	0.07	0.46	5050.06	0	00:49	0.46
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.07	0.63	5073.13	0	00:44	0.63
JUNCT_501	JUNCTION	0.11	0.69	5044.09	0	00:57	0.69
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.12	0.68	5023.28	0	01:05	0.68

JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.05	0.41	5060.61	0	00:44	0.41
JUNCT_208	JUNCTION	0.04	0.31	5051.81	0	00:42	0.31
JUNCT_503	JUNCTION	0.24	1.19	5022.99	0	01:05	1.19
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.25	1.18	5014.38	0	01:13	1.18
JUNCT_211	JUNCTION	0.12	0.96	5014.26	0	00:43	0.96
JUNCT_505	JUNCTION	0.23	1.08	5000.48	0	01:19	1.08
JUNCT_608	JUNCTION	0.22	0.96	5000.26	0	01:19	0.96
JUNCT_607	JUNCTION	0.10	0.48	5026.78	0	01:04	0.48
JUNCT_606	JUNCTION	0.07	0.47	5050.27	0	00:46	0.47
JUNCT_200	JUNCTION	0.00	0.00	5049.90	0	00:00	0.00
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_611	JUNCTION	0.30	1.27	4967.87	0	01:19	1.27
JUNCT_214	JUNCTION	0.00	0.00	4966.70	0	00:00	0.00
JUNCT_506	JUNCTION	0.04	0.32	5004.82	0	00:45	0.32
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_612	JUNCTION	0.40	1.67	4960.27	0	01:20	1.67
JUNCT_613	JUNCTION	0.49	1.99	4954.59	0	01:24	1.99
JUNCT_215	JUNCTION	0.00	0.00	4958.70	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5034.80	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.03	0.08	5021.98	0	01:03	0.08
OUTFALL_614	OUTFALL	0.51	1.94	4944.94	0	01:41	1.94
OUTFALL_319	OUTFALL	0.35	1.38	4946.68	0	01:35	1.38

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Node Inflow Summary

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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10 <sup>6</sup> gal	Total Inflow Volume 10 <sup>6</sup> gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	37.20	37.20	0 00:43	0.892	0.892	0.000
JUNCT_300	JUNCTION	0.00	38.28	0 00:44	0	1.07	0.000
JUNCT_100	JUNCTION	4.60	4.60	0 00:46	0.165	0.165	0.000
JUNCT_301	JUNCTION	0.00	46.27	0 00:58	0	1.62	0.000
JUNCT_102	JUNCTION	13.20	13.20	0 00:50	0.5	0.5	0.000
JUNCT_303	JUNCTION	0.00	85.17	0 00:59	0	3.03	0.000
JUNCT_106	JUNCTION	12.80	12.80	0 00:53	0.551	0.551	0.000
JUNCT_302	JUNCTION	0.00	28.05	0 00:51	0	0.841	0.000
JUNCT_103	JUNCTION	10.02	10.02	0 00:40	0.233	0.233	0.000
JUNCT_104	JUNCTION	8.42	8.42	0 00:35	0.133	0.133	0.000
JUNCT_105	JUNCTION	13.43	13.43	0 00:47	0.444	0.444	0.000
JUNCT_304	JUNCTION	0.00	87.90	0 01:04	0	3.18	0.000
JUNCT_107	JUNCTION	4.89	4.89	0 00:43	0.144	0.144	0.000
JUNCT_305	JUNCTION	0.00	93.32	0 01:06	0	3.4	0.000
JUNCT_108	JUNCTION	9.48	9.48	0 00:39	0.217	0.217	0.000
JUNCT_306	JUNCTION	0.00	104.92	0 01:20	0	4.42	0.000
JUNCT_109	JUNCTION	37.18	37.18	0 00:45	0.989	0.989	0.000
JUNCT_110	JUNCTION	29.88	29.88	0 00:48	0.938	0.938	0.000
JUNCT_318	JUNCTION	0.00	222.68	0 01:29	0	10.3	0.000
JUNCT_129	JUNCTION	31.39	31.39	0 00:43	0.779	0.779	0.000
JUNCT_317	JUNCTION	0.00	109.57	0 01:23	0	5.06	0.000
JUNCT_128	JUNCTION	12.40	12.40	0 00:42	0.329	0.329	0.000
JUNCT_316	JUNCTION	0.00	104.80	0 01:15	0	4.7	0.000
JUNCT_127	JUNCTION	47.51	47.51	0 00:44	1.16	1.16	0.000
JUNCT_126	JUNCTION	11.35	11.35	0 00:43	0.315	0.315	0.000
JUNCT_314	JUNCTION	0.00	11.35	0 00:43	0	0.315	0.000
JUNCT_124	JUNCTION	4.71	4.71	0 00:38	0.1	0.1	0.000
JUNCT_315	JUNCTION	0.00	4.71	0 00:38	0	0.1	0.000
JUNCT_313	JUNCTION	0.00	73.28	0 01:04	0	3.02	0.000
JUNCT_311	JUNCTION	0.00	58.31	0 01:03	0	2.28	0.000
JUNCT_312	JUNCTION	0.00	15.55	0 00:56	0	0.733	0.000
JUNCT_125	JUNCTION	15.55	15.55	0 00:56	0.733	0.733	0.000
JUNCT_123	JUNCTION	9.79	9.79	0 00:45	0.308	0.308	0.000
JUNCT_310	JUNCTION	0.00	51.50	0 00:57	0	1.96	-0.000

JUNCT_309	JUNCTION	0.00	40.73	0	00:55	0	1.59	0.000
JUNCT_308	JUNCTION	0.00	17.29	0	00:56	0	0.793	0.000
JUNCT_307	JUNCTION	0.00	24.07	0	00:49	0	0.792	0.000
JUNCT_121	JUNCTION	17.29	17.29	0	00:56	0.793	0.793	0.000
JUNCT_120	JUNCTION	24.07	24.07	0	00:49	0.792	0.792	0.000
JUNCT_203	JUNCTION	20.19	20.19	0	00:44	0.559	0.559	0.000
JUNCT_500	JUNCTION	0.00	20.19	0	00:44	0	0.559	0.000
JUNCT_501	JUNCTION	0.00	25.93	0	00:57	0	0.912	0.000
JUNCT_204	JUNCTION	9.02	9.02	0	00:48	0.326	0.326	0.000
JUNCT_502	JUNCTION	0.00	46.01	0	01:04	0	1.86	0.000
JUNCT_205	JUNCTION	7.29	7.29	0	00:48	0.273	0.273	0.000
JUNCT_209	JUNCTION	2.91	2.91	0	00:55	0.181	0.181	0.000
JUNCT_207	JUNCTION	9.05	9.05	0	00:44	0.273	0.273	0.000
JUNCT_208	JUNCTION	6.29	6.29	0	00:42	0.171	0.171	-0.000
JUNCT_503	JUNCTION	0.00	48.46	0	01:05	0	2.02	0.000
JUNCT_210	JUNCTION	2.49	2.49	0	00:55	0.159	0.159	0.000
JUNCT_504	JUNCTION	0.00	51.99	0	01:12	0	2.21	0.000
JUNCT_211	JUNCTION	5.36	5.36	0	00:43	0.158	0.158	0.000
JUNCT_505	JUNCTION	0.00	58.54	0	01:18	0	2.67	0.000
JUNCT_608	JUNCTION	0.00	68.80	0	01:19	0	3.22	0.000
JUNCT_607	JUNCTION	0.00	11.58	0	01:04	0	0.508	0.000
JUNCT_606	JUNCTION	0.00	11.07	0	00:46	0	0.359	0.000
JUNCT_200	JUNCTION	11.07	11.07	0	00:46	0.359	0.359	0.000
JUNCT_201	JUNCTION	2.08	2.08	0	00:53	0.128	0.128	0.000
JUNCT_202	JUNCTION	0.15	0.15	0	01:20	0.0198	0.0198	0.000
JUNCT_611	JUNCTION	0.00	89.89	0	01:19	0	4.21	0.000
JUNCT_214	JUNCTION	17.32	17.32	0	00:43	0.46	0.46	0.000
JUNCT_506	JUNCTION	0.00	17.97	0	00:45	0	0.51	0.000
JUNCT_213	JUNCTION	17.97	17.97	0	00:45	0.51	0.51	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_612	JUNCTION	0.00	95.34	0	01:20	0	4.49	0.000
JUNCT_613	JUNCTION	0.00	97.13	0	01:24	0	4.63	0.000
JUNCT_215	JUNCTION	8.76	8.76	0	00:46	0.287	0.287	0.000
JUNCT_216	JUNCTION	6.00	6.00	0	00:38	0.133	0.133	0.000
JUNCT_217	JUNCTION	0.52	0.52	0	01:11	0.0493	0.0493	0.000
JUNCT_218	JUNCTION	0.50	0.50	0	01:20	0.0567	0.0567	0.000
JUNCT_122	JUNCTION	15.49	15.49	0	00:41	0.361	0.361	0.000
JUNCT_212	JUNCTION	8.47	8.47	0	00:50	0.356	0.356	0.000

JUNCT_206	JUNCTION	1.11	1.11	0	01:03	0.0942	0.0942	0.000
OUTFALL_614	OUTFALL	0.00	92.91	0	01:41	0	4.8	0.000
OUTFALL_319	OUTFALL	0.00	236.05	0	01:34	0	11.3	0.000

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Node Flooding Summary  
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No nodes were flooded.

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Outfall Loading Summary  
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Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_614	96.94	15.32	92.91	4.799
OUTFALL_319	97.92	35.62	236.05	11.272
System	97.43	50.94	327.24	16.071

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Link Flow Summary  
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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	37.20	0 00:43			
100	CONDUIT	3.85	0 01:09	1.37	0.00	0.04
300	CONDUIT	33.86	0 00:59	3.02	0.02	0.13

102	DUMMY	13.20	0	00:50			
105	DUMMY	13.43	0	00:47			
106	DUMMY	12.80	0	00:53			
301	CONDUIT	46.23	0	00:59	3.31	0.02	0.15
302	CONDUIT	26.61	0	01:01	2.56	0.02	0.12
103	CONDUIT	8.57	0	00:55	2.00	0.00	0.05
104	CONDUIT	6.56	0	00:51	1.94	0.00	0.04
107	DUMMY	4.89	0	00:43			
303	CONDUIT	84.33	0	01:05	3.72	0.05	0.22
108	DUMMY	9.48	0	00:39			
304	CONDUIT	87.72	0	01:07	6.86	0.01	0.09
305	CONDUIT	85.10	0	01:23	2.83	0.02	0.17
109	DUMMY	37.18	0	00:45			
306	CONDUIT	102.88	0	01:29	3.35	0.02	0.17
318	CONDUIT	221.20	0	01:35	3.40	0.05	0.28
129	DUMMY	31.39	0	00:43			
317	CONDUIT	107.80	0	01:32	3.41	0.02	0.17
128	DUMMY	12.40	0	00:42			
316	CONDUIT	103.39	0	01:24	2.34	0.03	0.22
127	DUMMY	47.51	0	00:44			
126	DUMMY	11.35	0	00:43			
124	DUMMY	4.71	0	00:38			
314	CONDUIT	8.48	0	01:11	1.48	0.00	0.05
315	CONDUIT	3.46	0	01:01	0.84	0.00	0.04
313	CONDUIT	68.25	0	01:20	1.85	0.02	0.19
125	DUMMY	15.55	0	00:56			
312	CONDUIT	15.18	0	01:08	1.89	0.00	0.06
311	DUMMY	58.31	0	01:03			
123	DUMMY	9.79	0	00:45			
120	DUMMY	24.07	0	00:49			
121	DUMMY	17.29	0	00:56			
310	CONDUIT	50.62	0	01:04	2.64	0.01	0.12
309	CONDUIT	40.43	0	01:00	2.29	0.01	0.11
307	CONDUIT	23.92	0	00:53	1.79	0.01	0.09
308	CONDUIT	17.25	0	01:00	1.73	0.00	0.07
203	DUMMY	20.19	0	00:44			
204	DUMMY	9.02	0	00:48			
500	CONDUIT	17.69	0	00:59	2.47	0.01	0.12
501	CONDUIT	25.23	0	01:05	2.79	0.02	0.14

205	DUMMY	7.29	0	00:48			
209	DUMMY	2.91	0	00:55			
207	CONDUIT	6.93	0	01:12	1.80	0.01	0.07
208	CONDUIT	5.37	0	00:59	1.78	0.00	0.06
502	CONDUIT	46.01	0	01:05	4.30	0.01	0.09
210	DUMMY	2.49	0	00:55			
503	CONDUIT	47.73	0	01:13	2.59	0.05	0.24
211	CONDUIT	4.35	0	01:06	0.38	0.03	0.17
504	CONDUIT	51.50	0	01:19	3.11	0.04	0.22
505	DUMMY	58.54	0	01:18			
200	DUMMY	11.07	0	00:46			
201	DUMMY	2.08	0	00:53			
202	DUMMY	0.15	0	01:20			
606	CONDUIT	9.54	0	01:04	1.90	0.01	0.09
607	CONDUIT	10.49	0	01:26	1.96	0.01	0.09
608	CONDUIT	68.66	0	01:23	4.84	0.03	0.19
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	17.97	0	00:45			
510	CONDUIT	16.41	0	00:56	2.14	0.00	0.06
214	DUMMY	17.32	0	00:43			
611	CONDUIT	89.84	0	01:21	4.35	0.05	0.25
612	CONDUIT	95.02	0	01:24	3.14	0.09	0.33
613	CONDUIT	91.97	0	01:41	2.53	0.13	0.38
215	DUMMY	8.76	0	00:46			
216	DUMMY	6.00	0	00:38			
217	DUMMY	0.52	0	01:11			
218	DUMMY	0.50	0	01:20			
122	DUMMY	15.49	0	00:41			
212	DUMMY	8.47	0	00:50			
110	DUMMY	29.88	0	00:48			
206	CONDUIT	0.91	0	02:11	0.60	0.00	0.01

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Conduit Surcharge Summary

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No conduits were surcharged.

Analysis begun on: Tue Jun 6 14:54:10 2023  
Analysis ended on: Tue Jun 6 14:54:10 2023  
Total elapsed time: < 1 sec



HISTORIC CONDITION - 100-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

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Analysis Options

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Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... YES

Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

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Flow Routing Continuity

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	Volume acre-feet	Volume 10 <sup>6</sup> gal
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Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	297.405	96.914
External Outflow .....	301.814	98.351
Flooding Loss .....	0.000	0.000
Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000

Final Stored Volume ..... 0.220 0.072  
 Continuity Error (%) ..... -1.557

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Highest Flow Instability Indexes

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- Link 313 (1)
- Link 316 (1)
- Link 312 (1)
- Link 307 (1)
- Link 505 (1)

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Routing Time Step Summary

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Minimum Time Step : 60.00 sec  
 Average Time Step : 60.00 sec  
 Maximum Time Step : 60.00 sec  
 % of Time in Steady State : 0.00  
 Average Iterations per Step : 1.00  
 % of Steps Not Converging : 0.00

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Node Depth Summary

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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_101	JUNCTION	0.00	0.00	5106.50	0 00:00	0.00
JUNCT_300	JUNCTION	0.24	1.78	5108.18	0 00:50	1.78
JUNCT_100	JUNCTION	0.09	0.56	5137.16	0 00:54	0.56
JUNCT_301	JUNCTION	0.32	2.01	5066.01	0 01:00	2.01
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0 00:00	0.00

JUNCT_303	JUNCTION	0.48	2.88	5060.18	0	01:00	2.88
JUNCT_106	JUNCTION	0.00	0.00	5057.40	0	00:00	0.00
JUNCT_302	JUNCTION	0.23	1.63	5079.83	0	00:53	1.63
JUNCT_103	JUNCTION	0.09	0.79	5113.49	0	00:45	0.79
JUNCT_104	JUNCTION	0.05	0.68	5118.28	0	00:39	0.68
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.49	2.88	5042.68	0	01:03	2.88
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.39	2.11	5030.81	0	01:04	2.11
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.43	2.14	4997.34	0	01:12	2.14
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.74	3.33	4963.43	0	01:18	3.33
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.58	2.61	5002.31	0	01:16	2.61
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_316	JUNCTION	0.58	2.62	5011.12	0	01:11	2.62
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.10	0.74	5041.34	0	00:49	0.74
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.06	0.57	5015.67	0	00:43	0.57
JUNCT_313	JUNCTION	0.50	2.32	5018.52	0	01:07	2.32
JUNCT_311	JUNCTION	0.29	1.46	5017.76	0	01:05	1.46
JUNCT_312	JUNCTION	0.18	0.82	5039.52	0	01:08	0.82
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_310	JUNCTION	0.29	1.46	5036.16	0	01:01	1.46
JUNCT_309	JUNCTION	0.27	1.36	5045.66	0	01:02	1.36
JUNCT_308	JUNCTION	0.20	0.93	5051.43	0	01:07	0.93
JUNCT_307	JUNCTION	0.18	1.12	5050.72	0	00:55	1.12
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.21	1.55	5074.05	0	00:50	1.55
JUNCT_501	JUNCTION	0.29	1.79	5045.19	0	00:59	1.79
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.30	1.78	5024.38	0	01:04	1.78

JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.15	1.06	5061.26	0	00:51	1.06
JUNCT_208	JUNCTION	0.10	0.80	5052.30	0	00:48	0.80
JUNCT_503	JUNCTION	0.59	2.95	5024.75	0	01:05	2.95
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.61	2.94	5016.14	0	01:10	2.94
JUNCT_211	JUNCTION	0.33	2.28	5015.58	0	00:49	2.28
JUNCT_505	JUNCTION	0.56	2.74	5002.14	0	01:14	2.74
JUNCT_608	JUNCTION	0.56	2.49	5001.79	0	01:14	2.49
JUNCT_607	JUNCTION	0.26	1.30	5027.60	0	01:05	1.30
JUNCT_606	JUNCTION	0.18	1.20	5051.00	0	00:53	1.20
JUNCT_200	JUNCTION	0.00	0.00	5049.90	0	00:00	0.00
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_611	JUNCTION	0.72	3.24	4969.84	0	01:12	3.24
JUNCT_214	JUNCTION	0.00	0.00	4966.70	0	00:00	0.00
JUNCT_506	JUNCTION	0.11	0.79	5005.29	0	00:50	0.79
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_612	JUNCTION	0.94	4.15	4962.75	0	01:12	4.15
JUNCT_613	JUNCTION	1.13	4.88	4957.48	0	01:14	4.88
JUNCT_215	JUNCTION	0.00	0.00	4958.70	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5034.80	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.09	0.25	5022.15	0	01:14	0.25
OUTFALL_614	OUTFALL	1.16	4.82	4947.82	0	01:26	4.82
OUTFALL_319	OUTFALL	0.75	3.32	4948.62	0	01:21	3.32

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Node Inflow Summary

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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10 <sup>6</sup> gal	Total Inflow Volume 10 <sup>6</sup> gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	201.26	201.26	0 00:48	5.6	5.6	0.000
JUNCT_300	JUNCTION	0.00	218.09	0 00:50	0	6.66	0.000
JUNCT_100	JUNCTION	26.23	26.23	0 00:54	1.04	1.04	0.000
JUNCT_301	JUNCTION	0.00	289.01	0 01:00	0	9.9	0.000
JUNCT_102	JUNCTION	76.22	76.22	0 00:58	3.14	3.14	0.000
JUNCT_303	JUNCTION	0.00	528.85	0 01:00	0	18.5	0.000
JUNCT_106	JUNCTION	75.56	75.56	0 01:03	3.46	3.46	0.000
JUNCT_302	JUNCTION	0.00	166.99	0 00:53	0	5.15	0.000
JUNCT_103	JUNCTION	53.63	53.63	0 00:45	1.46	1.46	0.000
JUNCT_104	JUNCTION	42.66	42.66	0 00:39	0.837	0.837	0.000
JUNCT_105	JUNCTION	76.02	76.02	0 00:54	2.79	2.79	0.000
JUNCT_304	JUNCTION	0.00	552.62	0 01:03	0	19.5	0.000
JUNCT_107	JUNCTION	27.12	27.12	0 00:49	0.904	0.904	0.000
JUNCT_305	JUNCTION	0.00	594.67	0 01:04	0	20.8	-0.000
JUNCT_108	JUNCTION	50.62	50.62	0 00:45	1.36	1.36	0.000
JUNCT_306	JUNCTION	0.00	743.19	0 01:12	0	27.1	0.000
JUNCT_109	JUNCTION	204.48	204.48	0 00:50	6.21	6.21	0.000
JUNCT_110	JUNCTION	168.54	168.54	0 00:55	5.89	5.89	0.000
JUNCT_318	JUNCTION	0.00	1615.98	0 01:18	0	63.3	0.000
JUNCT_129	JUNCTION	170.63	170.63	0 00:48	4.89	4.89	0.000
JUNCT_317	JUNCTION	0.00	768.04	0 01:15	0	31.1	0.000
JUNCT_128	JUNCTION	67.84	67.84	0 00:48	2.07	2.07	0.000
JUNCT_316	JUNCTION	0.00	720.16	0 01:11	0	29	0.000
JUNCT_127	JUNCTION	258.19	258.19	0 00:49	7.31	7.31	0.000
JUNCT_126	JUNCTION	62.51	62.51	0 00:49	1.98	1.98	0.000
JUNCT_314	JUNCTION	0.00	62.51	0 00:49	0	1.98	0.000
JUNCT_124	JUNCTION	24.83	24.83	0 00:43	0.63	0.63	0.000
JUNCT_315	JUNCTION	0.00	24.83	0 00:43	0	0.63	0.000
JUNCT_313	JUNCTION	0.00	447.71	0 01:07	0	18.8	0.000
JUNCT_311	JUNCTION	0.00	356.90	0 01:05	0	14.2	0.000
JUNCT_312	JUNCTION	0.00	93.77	0 01:08	0	4.6	0.000
JUNCT_125	JUNCTION	93.77	93.77	0 01:08	4.6	4.6	0.000
JUNCT_123	JUNCTION	54.96	54.96	0 00:52	1.93	1.93	0.000
JUNCT_310	JUNCTION	0.00	306.44	0 01:01	0	12.2	0.000

JUNCT_309	JUNCTION	0.00	235.69	0	01:02	0	9.96	0.000
JUNCT_308	JUNCTION	0.00	103.86	0	01:07	0	4.98	0.000
JUNCT_307	JUNCTION	0.00	136.62	0	00:55	0	4.97	0.000
JUNCT_121	JUNCTION	103.86	103.86	0	01:07	4.98	4.98	0.000
JUNCT_120	JUNCTION	136.62	136.62	0	00:55	4.97	4.97	0.000
JUNCT_203	JUNCTION	111.46	111.46	0	00:50	3.51	3.51	0.000
JUNCT_500	JUNCTION	0.00	111.46	0	00:50	0	3.51	0.000
JUNCT_501	JUNCTION	0.00	158.64	0	00:59	0	5.61	0.000
JUNCT_204	JUNCTION	51.62	51.62	0	00:55	2.04	2.04	0.000
JUNCT_502	JUNCTION	0.00	293.60	0	01:04	0	11.4	0.000
JUNCT_205	JUNCTION	41.87	41.87	0	00:56	1.71	1.71	0.000
JUNCT_209	JUNCTION	18.19	18.19	0	01:11	1.14	1.14	0.000
JUNCT_207	JUNCTION	50.46	50.46	0	00:51	1.72	1.72	0.000
JUNCT_208	JUNCTION	34.49	34.49	0	00:48	1.07	1.07	-0.000
JUNCT_503	JUNCTION	0.00	308.93	0	01:05	0	12.4	0.000
JUNCT_210	JUNCTION	15.58	15.58	0	01:11	0.997	0.997	0.000
JUNCT_504	JUNCTION	0.00	335.79	0	01:10	0	13.4	-0.000
JUNCT_211	JUNCTION	29.76	29.76	0	00:49	0.995	0.995	-0.000
JUNCT_505	JUNCTION	0.00	386.10	0	01:13	0	16.3	0.000
JUNCT_608	JUNCTION	0.00	457.11	0	01:14	0	19.5	0.000
JUNCT_607	JUNCTION	0.00	72.83	0	01:05	0	3.1	0.000
JUNCT_606	JUNCTION	0.00	62.43	0	00:53	0	2.25	0.000
JUNCT_200	JUNCTION	62.43	62.43	0	00:53	2.25	2.25	0.000
JUNCT_201	JUNCTION	12.96	12.96	0	01:10	0.801	0.801	0.000
JUNCT_202	JUNCTION	0.96	0.96	0	01:18	0.124	0.124	0.000
JUNCT_611	JUNCTION	0.00	619.70	0	01:12	0	25.7	0.000
JUNCT_214	JUNCTION	94.87	94.87	0	00:49	2.89	2.89	0.000
JUNCT_506	JUNCTION	0.00	99.56	0	00:50	0	3.21	0.000
JUNCT_213	JUNCTION	99.56	99.56	0	00:50	3.21	3.21	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_612	JUNCTION	0.00	662.99	0	01:12	0	27.5	0.000
JUNCT_613	JUNCTION	0.00	683.41	0	01:14	0	28.3	0.000
JUNCT_215	JUNCTION	49.42	49.42	0	00:53	1.8	1.8	0.000
JUNCT_216	JUNCTION	31.80	31.80	0	00:43	0.834	0.834	0.000
JUNCT_217	JUNCTION	3.32	3.32	0	01:14	0.309	0.309	0.000
JUNCT_218	JUNCTION	3.16	3.16	0	01:19	0.356	0.356	0.000
JUNCT_122	JUNCTION	83.09	83.09	0	00:46	2.27	2.27	0.000
JUNCT_212	JUNCTION	49.56	49.56	0	01:00	2.23	2.23	0.000

JUNCT_206	JUNCTION	7.13	7.13	0	01:14	0.591	0.591	0.000
OUTFALL_614	OUTFALL	0.00	671.51	0	01:26	0	29.2	0.000
OUTFALL_319	OUTFALL	0.00	1742.35	0	01:20	0	69.2	0.000

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Node Flooding Summary  
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No nodes were flooded.

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Outfall Loading Summary  
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Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_614	97.08	92.96	671.51	29.164
OUTFALL_319	98.06	218.33	1742.35	69.180
System	97.57	311.30	2404.35	98.343

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Link Flow Summary  
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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	201.26	0 00:48			
100	CONDUIT	25.29	0 01:10	2.64	0.01	0.11
300	CONDUIT	212.99	0 01:00	5.18	0.12	0.35

102	DUMMY	76.22	0	00:58			
105	DUMMY	76.02	0	00:54			
106	DUMMY	75.56	0	01:03			
301	CONDUIT	288.93	0	01:00	5.75	0.15	0.40
302	CONDUIT	164.98	0	00:59	4.45	0.10	0.32
103	CONDUIT	51.99	0	00:55	3.58	0.03	0.16
104	CONDUIT	39.85	0	00:50	3.45	0.02	0.13
107	DUMMY	27.12	0	00:49			
303	CONDUIT	527.54	0	01:03	6.25	0.31	0.58
108	DUMMY	50.62	0	00:45			
304	CONDUIT	552.31	0	01:04	11.49	0.03	0.23
305	CONDUIT	577.08	0	01:14	4.60	0.13	0.42
109	DUMMY	204.48	0	00:50			
306	CONDUIT	737.12	0	01:17	5.56	0.13	0.43
318	CONDUIT	1611.41	0	01:21	5.64	0.37	0.66
129	DUMMY	170.63	0	00:48			
317	CONDUIT	762.78	0	01:21	5.63	0.14	0.43
128	DUMMY	67.84	0	00:48			
316	CONDUIT	716.51	0	01:16	3.83	0.21	0.52
127	DUMMY	258.19	0	00:49			
126	DUMMY	62.51	0	00:49			
124	DUMMY	24.83	0	00:43			
314	CONDUIT	56.83	0	01:12	2.53	0.01	0.14
315	CONDUIT	22.33	0	01:00	1.44	0.01	0.11
313	CONDUIT	441.74	0	01:16	2.97	0.16	0.46
125	DUMMY	93.77	0	01:08			
312	CONDUIT	93.47	0	01:13	3.19	0.02	0.16
311	DUMMY	356.90	0	01:05			
123	DUMMY	54.96	0	00:52			
120	DUMMY	136.62	0	00:55			
121	DUMMY	103.86	0	01:07			
310	CONDUIT	305.60	0	01:05	4.26	0.06	0.29
309	CONDUIT	235.40	0	01:05	3.68	0.05	0.27
307	CONDUIT	136.41	0	00:58	2.89	0.03	0.22
308	CONDUIT	103.80	0	01:10	2.89	0.02	0.19
203	DUMMY	111.46	0	00:50			
204	DUMMY	51.62	0	00:55			
500	CONDUIT	107.64	0	01:00	4.09	0.08	0.30
501	CONDUIT	157.63	0	01:04	4.69	0.11	0.36



205	DUMMY	41.87	0	00:56			
209	DUMMY	18.19	0	01:11			
207	CONDUIT	46.76	0	01:13	3.22	0.04	0.20
208	CONDUIT	33.25	0	00:58	3.11	0.02	0.16
502	CONDUIT	293.60	0	01:05	7.59	0.05	0.24
210	DUMMY	15.58	0	01:11			
503	CONDUIT	307.91	0	01:10	4.26	0.31	0.59
211	CONDUIT	27.88	0	01:10	0.63	0.17	0.44
504	CONDUIT	335.17	0	01:14	5.17	0.26	0.55
505	DUMMY	386.10	0	01:13			
200	DUMMY	62.43	0	00:53			
201	DUMMY	12.96	0	01:10			
202	DUMMY	0.96	0	01:18			
606	CONDUIT	60.02	0	01:05	3.30	0.05	0.24
607	CONDUIT	71.45	0	01:19	3.48	0.06	0.26
608	CONDUIT	456.88	0	01:16	8.17	0.21	0.50
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	99.56	0	00:50			
510	CONDUIT	97.41	0	00:58	3.53	0.02	0.16
214	DUMMY	94.87	0	00:49			
611	CONDUIT	619.58	0	01:13	7.32	0.38	0.65
612	CONDUIT	662.09	0	01:15	5.21	0.65	0.83
613	CONDUIT	665.13	0	01:26	4.16	0.92	0.96
215	DUMMY	49.42	0	00:53			
216	DUMMY	31.80	0	00:43			
217	DUMMY	3.32	0	01:14			
218	DUMMY	3.16	0	01:19			
122	DUMMY	83.09	0	00:46			
212	DUMMY	49.56	0	01:00			
110	DUMMY	168.54	0	00:55			
206	CONDUIT	6.54	0	01:47	1.17	0.00	0.05

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Conduit Surcharge Summary

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


No conduits were surcharged.

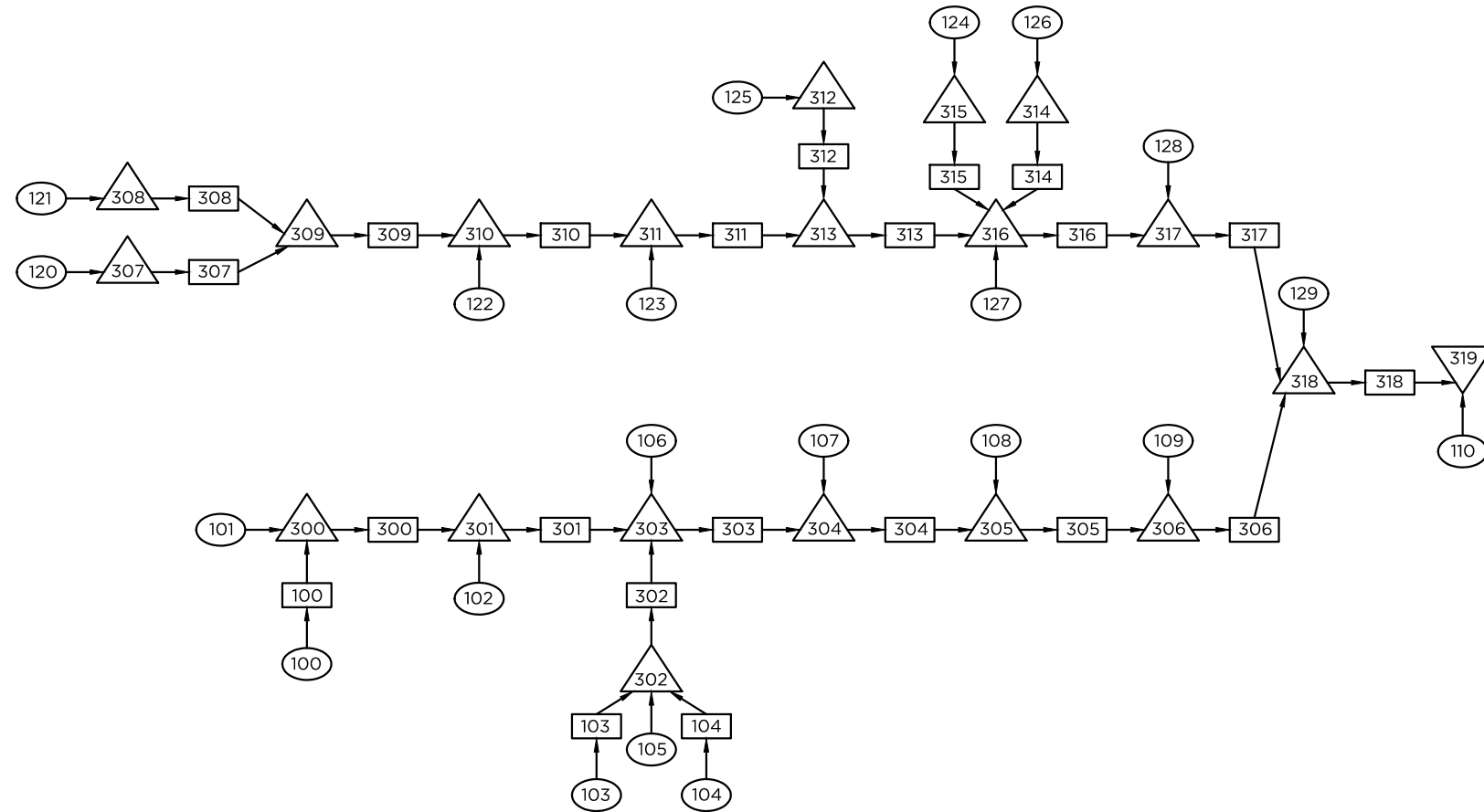
Analysis begun on: Tue Jun 6 14:53:00 2023  
Analysis ended on: Tue Jun 6 14:53:00 2023  
Total elapsed time: < 1 sec

APPENDIX D  
EXISTING CONDITION CUHP/SWMM MODEL

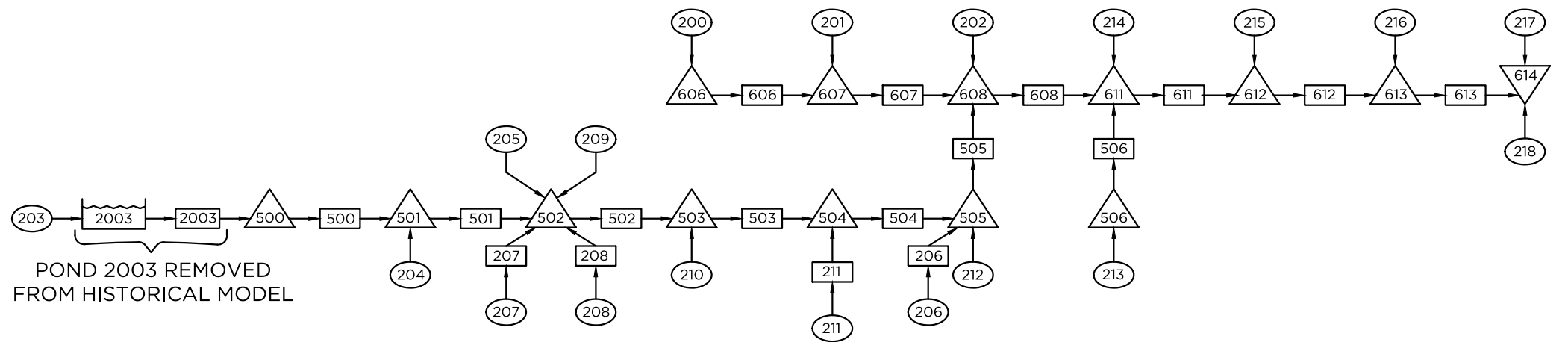
EXISTING CONDITIONS MAP

LEGEND

-  DESIGN POINT
-  SUBBASIN
-  DETENTION FACILITY
-  OUTFALL
-  CONVEYANCE ELEMENT



E. 168TH AVENUE - DRAINAGE #1



E. 168TH AVENUE - DRAINAGE #2

## CUHP SUBCATCHMENTS

Columns with this color heading are for required user-input  
 Columns with this color heading are for optional override values  
 Columns with this color heading are for program-calculated values

Subcatchment Name	EPA SWMM Target Node	Raingage	Area (mi <sup>2</sup> )	Length to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness	Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters			DCIA Level 0, 1, or 2
								Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)	
100	JUNCT_100	5-YR	0.0375	0.2119	0.4318	0.0237	23.9	0.38	0.1	3	0.0018	0.5	0
101	JUNCT_101	5-YR	0.2028	0.3134	0.5438	0.0247	3.37	0.38	0.1	3	0.0018	0.5	0
102	JUNCT_102	5-YR	0.1136	0.4163	0.6566	0.01933	5.5	0.38	0.1	3	0.0018	0.5	0
103	JUNCT_103	5-YR	0.0529	0.1572	0.2483	0.0191	10.89	0.38	0.1	3	0.0018	0.5	0
104	JUNCT_104	5-YR	0.0303	0.0701	0.1826	0.0456	25.25	0.38	0.1	3	0.0018	0.5	0
105	JUNCT_105	5-YR	0.1009	0.2858	0.5345	0.0145	2	0.38	0.1	3	0.0018	0.5	0
106	JUNCT_106	5-YR	0.1252	0.4591	0.8307	0.0173	2.26	0.38	0.1	3	0.0018	0.5	0
107	JUNCT_107	5-YR	0.0327	0.1241	0.2723	0.0111	6.73	0.38	0.1	3	0.0018	0.5	0
108	JUNCT_108	5-YR	0.0494	0.107	0.2693	0.0127	5.99	0.38	0.1	3	0.0018	0.5	0
109	JUNCT_109	5-YR	0.2248	0.2646	0.6299	0.0123	3.18	0.38	0.1	3	0.0018	0.5	0
110	JUNCT_110	5-YR	0.2131	0.2913	0.803	0.0116	2.33	0.38	0.1	3	0.0018	0.5	0
120	JUNCT_120	5-YR	0.18	0.3434	0.7458	0.0135	9.85	0.38	0.1	3	0.0018	0.5	0
121	JUNCT_121	5-YR	0.1803	0.5699	0.9413	0.0127	16.25	0.38	0.1	3	0.0018	0.5	0
122	JUNCT_122	5-YR	0.0821	0.1534	0.2905	0.0104	2	0.38	0.1	3	0.0018	0.5	0
123	JUNCT_123	5-YR	0.07	0.208	0.3845	0.0103	2	0.38	0.1	3	0.0018	0.5	0
124	JUNCT_124	5-YR	0.0228	0.0672	0.1769	0.0139	2	0.38	0.1	3	0.0018	0.5	0
125	JUNCT_125	5-YR	0.1665	0.4428	0.9917	0.0088	2	0.38	0.1	3	0.0018	0.5	0
126	JUNCT_126	5-YR	0.0715	0.1708	0.3163	0.0084	2	0.38	0.1	3	0.0018	0.5	0
127	JUNCT_127	5-YR	0.2645	0.2506	0.6981	0.0165	2.25	0.38	0.1	3	0.0018	0.5	0
128	JUNCT_128	5-YR	0.0748	0.1648	0.4085	0.0148	2	0.38	0.1	3	0.0018	0.5	0
129	JUNCT_129	5-YR	0.177	0.2455	0.5813	0.0173	2	0.38	0.1	3	0.0018	0.5	0
200	JUNCT_200	5-YR	0.0816	0.2051	0.5246	0.0119	4.37	0.38	0.1	3	0.0018	0.5	0
201	JUNCT_201	5-YR	0.029	0.31075	0.5782159	0.0128	28.83	0.38	0.1	3	0.0018	0.5	0
202	JUNCT_202	5-YR	0.0046	0.2797	0.5233	0.008	44.36	0.38	0.1	3	0.0018	0.5	0
203	JUNCT_203	5-YR	0.127	0.293140152	0.5782254	0.0272	23.32	0.38	0.1	3	0.0018	0.5	0
204	JUNCT_204	5-YR	0.074	0.2692	0.5601	0.0169	6.52	0.38	0.1	3	0.0018	0.5	0
205	JUNCT_205	5-YR	0.062	0.2464	0.4621	0.0114	3.45	0.38	0.1	3	0.0018	0.5	0
206	JUNCT_206	5-YR	0.0214	0.4103	0.6914	0.0137	31.78	0.38	0.1	3	0.0018	0.5	0
207	JUNCT_207	5-YR	0.0621	0.183	0.3847	0.0123	2	0.38	0.1	3	0.0018	0.5	0
208	JUNCT_208	5-YR	0.0388	0.10868	0.23969	0.0071	2	0.38	0.1	3	0.0018	0.5	0
209	JUNCT_209	5-YR	0.0412	0.3381	0.6977	0.0106	20.21	0.38	0.1	3	0.0018	0.5	0
210	JUNCT_210	5-YR	0.0361	0.4097	0.7119	0.0186	25.32	0.38	0.1	3	0.0018	0.5	0
211	JUNCT_211	5-YR	0.036	0.1785	0.296	0.0221	26.28	0.38	0.1	3	0.0018	0.5	0
212	JUNCT_212	5-YR	0.0808	0.280333333	0.5628106	0.0077	4.16	0.38	0.1	3	0.0018	0.5	0
213	JUNCT_213	5-YR	0.116	0.203833333	0.5581742	0.0129	2	0.38	0.1	3	0.0018	0.5	0
214	JUNCT_214	5-YR	0.1045	0.304159091	0.3573902	0.0201	12.2	0.38	0.1	3	0.0018	0.5	0
215	JUNCT_215	5-YR	0.0653	0.200164773	0.3851307	0.0089	9.19	0.38	0.1	3	0.0018	0.5	0
216	JUNCT_216	5-YR	0.0302	0.0564	0.1816	0.0049	4.01	0.38	0.1	3	0.0018	0.5	0
217	JUNCT_217	5-YR	0.0112	0.1634	0.459	0.0019	17.82	0.38	0.1	3	0.0018	0.5	0
218	JUNCT_218	5-YR	0.0129	0.2218	0.5591	0.0017	19.86	0.38	0.1	3	0.0018	0.5	0

EXISTING CONDITION - 5-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

\*\*\*\*\*

Analysis Options

\*\*\*\*\*

Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... YES

Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

\*\*\*\*\*

Flow Routing Continuity

\*\*\*\*\*

	Volume acre-feet	Volume 10 <sup>6</sup> gal
	-----	-----
Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	21.120	6.882
External Outflow .....	21.114	6.880
Flooding Loss .....	0.000	0.000

Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000
Final Stored Volume .....	1.253	0.408
Continuity Error (%) .....	-5.905	

\*\*\*\*\*

Highest Flow Instability Indexes

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- Link 317 (1)
- Link 313 (1)
- Link 309 (1)
- Link 308 (1)
- Link 505 (1)

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Routing Time Step Summary

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Minimum Time Step	:	60.00 sec
Average Time Step	:	60.00 sec
Maximum Time Step	:	60.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	1.00
% of Steps Not Converging	:	0.00

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Node Depth Summary

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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
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JUNCT_101	JUNCTION	0.00	0.00	5106.50	0	00:00	0.00
JUNCT_300	JUNCTION	0.06	0.38	5106.78	0	00:48	0.38
JUNCT_100	JUNCTION	0.03	0.20	5136.80	0	00:43	0.20
JUNCT_301	JUNCTION	0.08	0.41	5064.41	0	01:07	0.41
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0	00:00	0.00
JUNCT_303	JUNCTION	0.12	0.65	5057.95	0	01:06	0.65
JUNCT_106	JUNCTION	0.00	0.00	5057.40	0	00:00	0.00
JUNCT_302	JUNCTION	0.06	0.41	5078.61	0	00:53	0.41
JUNCT_103	JUNCTION	0.02	0.21	5112.91	0	00:39	0.21
JUNCT_104	JUNCTION	0.02	0.26	5117.86	0	00:33	0.26
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.13	0.64	5040.44	0	01:13	0.64
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.11	0.54	5029.24	0	01:15	0.54
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.13	0.51	4995.71	0	01:37	0.51
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.23	0.81	4960.91	0	01:47	0.81
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.17	0.65	5000.35	0	01:36	0.65
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_316	JUNCTION	0.17	0.66	5009.16	0	01:25	0.66
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.02	0.15	5040.75	0	00:43	0.15
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.01	0.11	5015.21	0	00:39	0.11
JUNCT_313	JUNCTION	0.15	0.67	5016.87	0	01:08	0.67
JUNCT_311	JUNCTION	0.09	0.43	5016.73	0	01:07	0.43
JUNCT_312	JUNCTION	0.03	0.15	5038.85	0	00:56	0.15
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_310	JUNCTION	0.09	0.44	5035.14	0	00:59	0.44
JUNCT_309	JUNCTION	0.08	0.44	5044.74	0	00:55	0.44



JUNCT_308	JUNCTION	0.07	0.31	5050.81	0	00:54	0.31
JUNCT_307	JUNCTION	0.05	0.32	5049.92	0	00:47	0.32
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.10	0.21	5072.71	0	02:25	0.21
JUNCT_501	JUNCTION	0.12	0.23	5043.63	0	00:46	0.23
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.12	0.22	5022.82	0	02:51	0.22
JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.02	0.20	5060.40	0	00:44	0.20
JUNCT_208	JUNCTION	0.02	0.15	5051.65	0	00:42	0.15
JUNCT_503	JUNCTION	0.22	0.59	5022.39	0	01:06	0.59
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.26	0.90	5014.10	0	01:05	0.90
JUNCT_211	JUNCTION	0.14	0.99	5014.29	0	00:39	0.99
JUNCT_505	JUNCTION	0.21	0.60	5000.00	0	01:24	0.60
JUNCT_608	JUNCTION	0.19	0.57	4999.87	0	01:27	0.57
JUNCT_607	JUNCTION	0.08	0.32	5026.62	0	01:11	0.32
JUNCT_606	JUNCTION	0.04	0.26	5050.06	0	00:45	0.26
JUNCT_200	JUNCTION	0.00	0.00	5049.90	0	00:00	0.00
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_611	JUNCTION	0.25	0.76	4967.36	0	01:24	0.76
JUNCT_214	JUNCTION	0.00	0.00	4966.70	0	00:00	0.00
JUNCT_506	JUNCTION	0.02	0.16	5004.66	0	00:45	0.16
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_612	JUNCTION	0.34	1.02	4959.62	0	01:25	1.02
JUNCT_613	JUNCTION	0.41	1.23	4953.83	0	01:29	1.23
JUNCT_215	JUNCTION	0.00	0.00	4958.70	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00

JUNCT_122	JUNCTION	0.00	0.00	5034.80	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.03	0.11	5022.01	0	01:06	0.11
OUTFALL_614	OUTFALL	0.42	1.19	4944.19	0	01:52	1.19
OUTFALL_319	OUTFALL	0.23	0.81	4946.11	0	01:54	0.81
STOR_2003	STORAGE	1.87	2.47	5075.47	0	02:25	2.47

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Node Inflow Summary  
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	11.95	11.95	0 00:44	0.277	0.277	0.000
JUNCT_300	JUNCTION	0.00	13.85	0 00:48	0	0.472	0.000
JUNCT_100	JUNCTION	4.56	4.56	0 00:43	0.184	0.184	0.000
JUNCT_301	JUNCTION	0.00	15.95	0 01:07	0	0.69	0.000
JUNCT_102	JUNCTION	5.01	5.01	0 00:49	0.193	0.193	0.000
JUNCT_303	JUNCTION	0.00	32.10	0 01:06	0	1.28	0.000
JUNCT_106	JUNCTION	3.60	3.60	0 00:52	0.15	0.15	0.000
JUNCT_302	JUNCTION	0.00	14.03	0 00:53	0	0.429	0.000
JUNCT_103	JUNCTION	5.41	5.41	0 00:39	0.136	0.136	0.000
JUNCT_104	JUNCTION	8.07	8.07	0 00:33	0.156	0.156	0.000
JUNCT_105	JUNCTION	3.73	3.73	0 00:46	0.117	0.117	0.000
JUNCT_304	JUNCTION	0.00	33.00	0 01:13	0	1.35	0.000
JUNCT_107	JUNCTION	2.06	2.06	0 00:42	0.0619	0.0619	0.000
JUNCT_305	JUNCTION	0.00	34.82	0 01:15	0	1.44	0.000
JUNCT_108	JUNCTION	3.77	3.77	0 00:40	0.0878	0.0878	0.000
JUNCT_306	JUNCTION	0.00	35.44	0 01:34	0	1.76	0.000
JUNCT_109	JUNCTION	11.68	11.68	0 00:45	0.301	0.301	0.000
JUNCT_110	JUNCTION	8.57	8.57	0 00:48	0.257	0.257	0.000

JUNCT_318	JUNCTION	0.00	73.55	0	01:47	0	4.02	0.000
JUNCT_129	JUNCTION	8.85	8.85	0	00:44	0.205	0.205	0.000
JUNCT_317	JUNCTION	0.00	38.14	0	01:35	0	2.04	0.000
JUNCT_128	JUNCTION	3.50	3.50	0	00:43	0.0864	0.0864	0.000
JUNCT_316	JUNCTION	0.00	37.83	0	01:25	0	1.94	0.000
JUNCT_127	JUNCTION	13.71	13.71	0	00:45	0.316	0.316	0.000
JUNCT_126	JUNCTION	3.20	3.20	0	00:43	0.0826	0.0826	0.000
JUNCT_314	JUNCTION	0.00	3.20	0	00:43	0	0.0826	0.000
JUNCT_124	JUNCTION	1.34	1.34	0	00:39	0.0263	0.0263	0.000
JUNCT_315	JUNCTION	0.00	1.34	0	00:39	0	0.0263	0.000
JUNCT_313	JUNCTION	0.00	32.51	0	01:08	0	1.45	0.000
JUNCT_311	JUNCTION	0.00	28.73	0	01:07	0	1.26	0.000
JUNCT_312	JUNCTION	0.00	4.24	0	00:56	0	0.192	0.000
JUNCT_125	JUNCTION	4.24	4.24	0	00:56	0.192	0.192	0.000
JUNCT_123	JUNCTION	2.74	2.74	0	00:45	0.0809	0.0809	0.000
JUNCT_310	JUNCTION	0.00	27.38	0	00:59	0	1.17	0.000
JUNCT_309	JUNCTION	0.00	24.59	0	00:55	0	1.07	0.000
JUNCT_308	JUNCTION	0.00	12.62	0	00:54	0	0.635	0.000
JUNCT_307	JUNCTION	0.00	12.30	0	00:47	0	0.431	0.000
JUNCT_121	JUNCTION	12.62	12.62	0	00:54	0.635	0.635	0.000
JUNCT_120	JUNCTION	12.30	12.30	0	00:47	0.431	0.431	0.000
JUNCT_203	JUNCTION	19.17	19.17	0	00:41	0.61	0.61	0.000
JUNCT_500	JUNCTION	0.00	2.94	0	02:25	0	0.328	0.000
JUNCT_501	JUNCTION	0.00	3.71	0	00:46	0	0.453	0.000
JUNCT_204	JUNCTION	3.71	3.71	0	00:46	0.138	0.138	0.000
JUNCT_502	JUNCTION	0.00	10.45	0	01:07	0	0.848	0.000
JUNCT_205	JUNCTION	2.33	2.33	0	00:47	0.0855	0.0855	0.000
JUNCT_209	JUNCTION	2.61	2.61	0	00:59	0.175	0.175	0.000
JUNCT_207	JUNCTION	2.54	2.54	0	00:44	0.0718	0.0718	0.000
JUNCT_208	JUNCTION	1.78	1.78	0	00:42	0.0448	0.0448	0.000
JUNCT_503	JUNCTION	0.00	13.19	0	01:06	0	1.03	0.000
JUNCT_210	JUNCTION	2.77	2.77	0	00:58	0.187	0.187	0.000
JUNCT_504	JUNCTION	0.00	17.54	0	01:16	0	1.24	0.000
JUNCT_211	JUNCTION	5.73	5.73	0	00:39	0.193	0.193	0.000
JUNCT_505	JUNCTION	0.00	20.65	0	01:24	0	1.5	0.000
JUNCT_608	JUNCTION	0.00	26.03	0	01:27	0	1.85	0.000

JUNCT_607	JUNCTION	0.00	5.58	0	01:11	0	0.304	0.000
JUNCT_606	JUNCTION	0.00	3.85	0	00:45	0	0.124	0.000
JUNCT_200	JUNCTION	3.85	3.85	0	00:45	0.124	0.124	0.000
JUNCT_201	JUNCTION	2.70	2.70	0	00:55	0.169	0.169	0.000
JUNCT_202	JUNCTION	0.44	0.44	0	01:15	0.0405	0.0405	0.000
JUNCT_611	JUNCTION	0.00	34.15	0	01:24	0	2.29	0.000
JUNCT_214	JUNCTION	10.05	10.05	0	00:42	0.293	0.293	0.000
JUNCT_506	JUNCTION	0.00	5.04	0	00:45	0	0.134	-0.000
JUNCT_213	JUNCTION	5.04	5.04	0	00:45	0.134	0.134	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_612	JUNCTION	0.00	36.77	0	01:25	0	2.43	0.000
JUNCT_613	JUNCTION	0.00	37.26	0	01:29	0	2.47	0.000
JUNCT_215	JUNCTION	4.31	4.31	0	00:44	0.149	0.149	0.000
JUNCT_216	JUNCTION	2.05	2.05	0	00:39	0.0443	0.0443	0.000
JUNCT_217	JUNCTION	0.44	0.44	0	01:16	0.0426	0.0426	0.000
JUNCT_218	JUNCTION	0.47	0.47	0	01:23	0.0539	0.0539	0.000
JUNCT_122	JUNCTION	4.40	4.40	0	00:42	0.0949	0.0949	0.000
JUNCT_212	JUNCTION	2.87	2.87	0	00:50	0.12	0.12	0.000
JUNCT_206	JUNCTION	1.78	1.78	0	01:06	0.136	0.136	0.000
OUTFALL_614	OUTFALL	0.00	36.05	0	01:52	0	2.59	0.000
OUTFALL_319	OUTFALL	0.00	75.62	0	01:54	0	4.29	0.000
STOR_2003	STORAGE	0.00	19.17	0	00:41	0	0.61	0.058

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#### Node Flooding Summary

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No nodes were flooded.

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#### Storage Volume Summary

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Storage Unit	Average Volume 1000 ft <sup>3</sup>	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft <sup>3</sup>	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_2003	46.701	14	0	0	67.826	20	0 02:25	2.94

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 Outfall Loading Summary  
 \*\*\*\*\*

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10 <sup>6</sup> gal
OUTFALL_614	98.06	8.19	36.05	2.593
OUTFALL_319	97.78	13.57	75.62	4.286
System	97.92	21.75	111.65	6.880

\*\*\*\*\*  
 Link Flow Summary  
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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	11.95	0 00:44			
100	CONDUIT	3.92	0 01:10	1.37	0.00	0.04
300	CONDUIT	11.78	0 01:10	2.10	0.01	0.07
102	DUMMY	5.01	0 00:49			

105	DUMMY	3.73	0	00:46			
106	DUMMY	3.60	0	00:52			
301	CONDUIT	15.93	0	01:09	2.31	0.01	0.08
302	CONDUIT	13.03	0	01:05	2.02	0.01	0.08
103	CONDUIT	4.37	0	00:59	1.55	0.00	0.04
104	CONDUIT	6.45	0	00:49	1.91	0.00	0.04
107	DUMMY	2.06	0	00:42			
303	CONDUIT	31.66	0	01:13	2.73	0.02	0.13
108	DUMMY	3.77	0	00:40			
304	CONDUIT	32.92	0	01:16	5.06	0.00	0.05
305	CONDUIT	31.06	0	01:37	2.15	0.01	0.10
109	DUMMY	11.68	0	00:45			
306	CONDUIT	34.56	0	01:46	2.46	0.01	0.10
318	CONDUIT	72.86	0	01:54	2.53	0.02	0.16
129	DUMMY	8.85	0	00:44			
317	CONDUIT	37.03	0	01:48	2.51	0.01	0.10
128	DUMMY	3.50	0	00:43			
316	CONDUIT	36.94	0	01:36	1.76	0.01	0.13
127	DUMMY	13.71	0	00:45			
126	DUMMY	3.20	0	00:43			
124	DUMMY	1.34	0	00:39			
314	CONDUIT	2.02	0	01:25	1.02	0.00	0.02
315	CONDUIT	0.82	0	01:15	0.58	0.00	0.02
313	CONDUIT	29.47	0	01:29	1.47	0.01	0.13
125	DUMMY	4.24	0	00:56			
312	CONDUIT	3.96	0	01:15	1.23	0.00	0.03
311	DUMMY	28.73	0	01:07			
123	DUMMY	2.74	0	00:45			
120	DUMMY	12.30	0	00:47			
121	DUMMY	12.62	0	00:54			
310	CONDUIT	26.76	0	01:07	2.19	0.01	0.09
309	CONDUIT	24.37	0	01:00	1.97	0.01	0.09
307	CONDUIT	12.16	0	00:53	1.45	0.00	0.06
308	CONDUIT	12.59	0	00:59	1.57	0.00	0.06
204	DUMMY	3.71	0	00:46			
500	CONDUIT	2.87	0	02:49	1.30	0.00	0.04

501	CONDUIT	3.54	0	02:51	1.44	0.00	0.04
205	DUMMY	2.33	0	00:47			
209	DUMMY	2.61	0	00:59			
207	CONDUIT	1.64	0	01:26	1.18	0.00	0.03
208	CONDUIT	1.30	0	01:09	1.09	0.00	0.02
502	CONDUIT	10.45	0	01:07	2.57	0.00	0.04
210	DUMMY	2.77	0	00:58			
503	CONDUIT	12.99	0	01:18	1.75	0.01	0.12
211	CONDUIT	4.75	0	01:05	0.39	0.03	0.18
504	CONDUIT	17.40	0	01:24	2.24	0.01	0.12
505	DUMMY	20.65	0	01:24			
200	DUMMY	3.85	0	00:45			
201	DUMMY	2.70	0	00:55			
202	DUMMY	0.44	0	01:15			
606	CONDUIT	3.02	0	01:14	1.31	0.00	0.04
607	CONDUIT	5.18	0	01:37	1.54	0.00	0.06
608	CONDUIT	25.99	0	01:32	3.59	0.01	0.11
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	5.04	0	00:45			
510	CONDUIT	4.09	0	01:04	1.38	0.00	0.03
214	DUMMY	10.05	0	00:42			
611	CONDUIT	34.14	0	01:26	3.27	0.02	0.15
612	CONDUIT	36.66	0	01:30	2.39	0.04	0.20
613	CONDUIT	35.22	0	01:52	1.93	0.05	0.24
215	DUMMY	4.31	0	00:44			
216	DUMMY	2.05	0	00:39			
217	DUMMY	0.44	0	01:16			
218	DUMMY	0.47	0	01:23			
122	DUMMY	4.40	0	00:42			
212	DUMMY	2.87	0	00:50			
110	DUMMY	8.57	0	00:48			
206	CONDUIT	1.56	0	02:09	0.73	0.00	0.02
27	DUMMY	19.17	0	00:41			
OUTLET_2003	DUMMY	2.94	0	02:25			

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Conduit Surcharge Summary

\*\*\*\*\*

No conduits were surcharged.

Analysis begun on: Tue Jun 6 11:10:10 2023

Analysis ended on: Tue Jun 6 11:10:10 2023

Total elapsed time: < 1 sec



EXISTING CONDITION - 10-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

\*\*\*\*\*

Analysis Options

\*\*\*\*\*

Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO  
RDII ..... NO  
Snowmelt ..... NO  
Groundwater ..... NO  
Flow Routing ..... YES  
Ponding Allowed ..... YES  
Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

\*\*\*\*\*

Flow Routing Continuity

\*\*\*\*\*

	Volume acre-feet	Volume 10 <sup>6</sup> gal
	-----	-----
Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	57.447	18.720
External Outflow .....	58.217	18.971
Flooding Loss .....	0.000	0.000
Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000

Final Stored Volume ..... 1.370 0.446  
 Continuity Error (%) ..... -3.725

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Highest Flow Instability Indexes

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- Link 313 (1)
- Link 315 (1)
- Link 314 (1)
- Link 312 (1)
- Link 309 (1)

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Routing Time Step Summary

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Minimum Time Step : 60.00 sec  
 Average Time Step : 60.00 sec  
 Maximum Time Step : 60.00 sec  
 % of Time in Steady State : 0.00  
 Average Iterations per Step : 1.00  
 % of Steps Not Converging : 0.00

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Node Depth Summary

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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_101	JUNCTION	0.00	0.00	5106.50	0 00:00	0.00
JUNCT_300	JUNCTION	0.10	0.73	5107.13	0 00:45	0.73
JUNCT_100	JUNCTION	0.05	0.29	5136.89	0 00:43	0.29
JUNCT_301	JUNCTION	0.14	0.80	5064.80	0 00:58	0.80
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0 00:00	0.00

JUNCT_303	JUNCTION	0.21	1.21	5058.51	0	00:59	1.21
JUNCT_106	JUNCTION	0.00	0.00	5057.40	0	00:00	0.00
JUNCT_302	JUNCTION	0.10	0.70	5078.90	0	00:49	0.70
JUNCT_103	JUNCTION	0.04	0.35	5113.05	0	00:38	0.35
JUNCT_104	JUNCTION	0.03	0.37	5117.97	0	00:32	0.37
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.21	1.21	5041.01	0	01:03	1.21
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.18	0.96	5029.66	0	01:05	0.96
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.21	0.92	4996.12	0	01:19	0.92
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.37	1.47	4961.57	0	01:28	1.47
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.28	1.16	5000.86	0	01:22	1.16
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_316	JUNCTION	0.28	1.16	5009.66	0	01:14	1.16
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.04	0.30	5040.90	0	00:43	0.30
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.02	0.23	5015.33	0	00:38	0.23
JUNCT_313	JUNCTION	0.23	1.10	5017.30	0	01:01	1.10
JUNCT_311	JUNCTION	0.14	0.69	5016.99	0	01:01	0.69
JUNCT_312	JUNCTION	0.06	0.32	5039.02	0	00:56	0.32
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_310	JUNCTION	0.14	0.70	5035.40	0	00:55	0.70
JUNCT_309	JUNCTION	0.13	0.67	5044.97	0	00:53	0.67
JUNCT_308	JUNCTION	0.10	0.46	5050.96	0	00:53	0.46
JUNCT_307	JUNCTION	0.08	0.52	5050.12	0	00:47	0.52
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.16	0.34	5072.84	0	02:16	0.34
JUNCT_501	JUNCTION	0.20	0.42	5043.82	0	01:49	0.42
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.20	0.42	5023.02	0	01:58	0.42

JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.05	0.41	5060.61	0	00:44	0.41
JUNCT_208	JUNCTION	0.04	0.31	5051.81	0	00:42	0.31
JUNCT_503	JUNCTION	0.35	1.04	5022.84	0	01:00	1.04
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.37	1.22	5014.42	0	01:01	1.22
JUNCT_211	JUNCTION	0.19	1.33	5014.63	0	00:39	1.33
JUNCT_505	JUNCTION	0.33	1.01	5000.41	0	01:14	1.01
JUNCT_608	JUNCTION	0.30	0.96	5000.26	0	01:17	0.96
JUNCT_607	JUNCTION	0.12	0.55	5026.85	0	01:03	0.55
JUNCT_606	JUNCTION	0.07	0.49	5050.29	0	00:46	0.49
JUNCT_200	JUNCTION	0.00	0.00	5049.90	0	00:00	0.00
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_611	JUNCTION	0.39	1.30	4967.90	0	01:15	1.30
JUNCT_214	JUNCTION	0.00	0.00	4966.70	0	00:00	0.00
JUNCT_506	JUNCTION	0.04	0.32	5004.82	0	00:45	0.32
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_612	JUNCTION	0.52	1.72	4960.32	0	01:15	1.72
JUNCT_613	JUNCTION	0.63	2.06	4954.66	0	01:19	2.06
JUNCT_215	JUNCTION	0.00	0.00	4958.70	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5034.80	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.05	0.15	5022.05	0	01:06	0.15
OUTFALL_614	OUTFALL	0.64	2.01	4945.01	0	01:36	2.01
OUTFALL_319	OUTFALL	0.37	1.47	4946.77	0	01:34	1.47
STOR_2003	STORAGE	2.25	3.48	5076.48	0	02:16	3.48

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Node Inflow Summary

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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10 <sup>6</sup> gal	Total Inflow Volume 10 <sup>6</sup> gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	38.61	38.61	0 00:43	0.944	0.944	0.000
JUNCT_300	JUNCTION	0.00	42.64	0 00:45	0	1.28	0.000
JUNCT_100	JUNCTION	8.19	8.19	0 00:43	0.327	0.327	0.000
JUNCT_301	JUNCTION	0.00	52.07	0 00:58	0	1.91	0.000
JUNCT_102	JUNCTION	14.61	14.61	0 00:49	0.574	0.574	0.000
JUNCT_303	JUNCTION	0.00	98.88	0 00:59	0	3.55	0.000
JUNCT_106	JUNCTION	12.90	12.90	0 00:52	0.557	0.557	0.000
JUNCT_302	JUNCTION	0.00	35.96	0 00:49	0	1.07	0.000
JUNCT_103	JUNCTION	12.64	12.64	0 00:38	0.321	0.321	0.000
JUNCT_104	JUNCTION	14.77	14.77	0 00:32	0.272	0.272	0.000
JUNCT_105	JUNCTION	13.43	13.43	0 00:47	0.444	0.444	0.000
JUNCT_304	JUNCTION	0.00	102.20	0 01:03	0	3.73	0.000
JUNCT_107	JUNCTION	5.58	5.58	0 00:42	0.173	0.173	0.000
JUNCT_305	JUNCTION	0.00	108.55	0 01:05	0	3.99	0.000
JUNCT_108	JUNCTION	10.56	10.56	0 00:39	0.254	0.254	0.000
JUNCT_306	JUNCTION	0.00	120.57	0 01:19	0	5.07	0.000
JUNCT_109	JUNCTION	38.42	38.42	0 00:45	1.04	1.04	0.000
JUNCT_110	JUNCTION	30.17	30.17	0 00:48	0.951	0.951	0.000
JUNCT_318	JUNCTION	0.00	253.67	0 01:28	0	11.7	0.000
JUNCT_129	JUNCTION	31.39	31.39	0 00:43	0.779	0.779	0.000
JUNCT_317	JUNCTION	0.00	124.98	0 01:21	0	5.83	0.000
JUNCT_128	JUNCTION	12.40	12.40	0 00:42	0.329	0.329	0.000
JUNCT_316	JUNCTION	0.00	120.21	0 01:14	0	5.47	0.000
JUNCT_127	JUNCTION	47.83	47.83	0 00:44	1.18	1.18	0.000
JUNCT_126	JUNCTION	11.35	11.35	0 00:43	0.315	0.315	0.000
JUNCT_314	JUNCTION	0.00	11.35	0 00:43	0	0.315	0.000
JUNCT_124	JUNCTION	4.71	4.71	0 00:38	0.1	0.1	0.000
JUNCT_315	JUNCTION	0.00	4.71	0 00:38	0	0.1	0.000
JUNCT_313	JUNCTION	0.00	88.37	0 01:01	0	3.78	0.000
JUNCT_311	JUNCTION	0.00	73.72	0 01:00	0	3.04	0.000
JUNCT_312	JUNCTION	0.00	15.55	0 00:56	0	0.733	0.000
JUNCT_125	JUNCTION	15.55	15.55	0 00:56	0.733	0.733	0.000
JUNCT_123	JUNCTION	9.79	9.79	0 00:45	0.308	0.308	0.000

JUNCT_310	JUNCTION	0.00	66.63	0	00:55	0	2.72	0.000
JUNCT_309	JUNCTION	0.00	55.13	0	00:53	0	2.35	0.000
JUNCT_308	JUNCTION	0.00	25.83	0	00:53	0	1.29	0.000
JUNCT_307	JUNCTION	0.00	29.84	0	00:47	0	1.06	0.000
JUNCT_121	JUNCTION	25.83	25.83	0	00:53	1.29	1.29	0.000
JUNCT_120	JUNCTION	29.84	29.84	0	00:47	1.06	1.06	0.000
JUNCT_203	JUNCTION	34.75	34.75	0	00:40	1.09	1.09	0.000
JUNCT_500	JUNCTION	0.00	6.98	0	02:16	0	0.777	0.000
JUNCT_501	JUNCTION	0.00	10.50	0	01:49	0	1.15	0.000
JUNCT_204	JUNCTION	10.26	10.26	0	00:47	0.388	0.388	0.000
JUNCT_502	JUNCTION	0.00	32.90	0	01:00	0	2.26	0.000
JUNCT_205	JUNCTION	7.61	7.61	0	00:48	0.289	0.289	0.000
JUNCT_209	JUNCTION	4.93	4.93	0	00:57	0.328	0.328	0.000
JUNCT_207	JUNCTION	9.05	9.05	0	00:44	0.273	0.273	0.000
JUNCT_208	JUNCTION	6.29	6.29	0	00:42	0.171	0.171	-0.000
JUNCT_503	JUNCTION	0.00	37.75	0	01:00	0	2.58	0.000
JUNCT_210	JUNCTION	4.84	4.84	0	00:57	0.325	0.325	0.000
JUNCT_504	JUNCTION	0.00	45.50	0	01:08	0	2.93	0.000
JUNCT_211	JUNCTION	10.00	10.00	0	00:39	0.331	0.331	0.000
JUNCT_505	JUNCTION	0.00	54.30	0	01:14	0	3.56	0.000
JUNCT_608	JUNCTION	0.00	68.13	0	01:17	0	4.33	0.000
JUNCT_607	JUNCTION	0.00	14.77	0	01:03	0	0.698	0.000
JUNCT_606	JUNCTION	0.00	11.84	0	00:46	0	0.395	0.000
JUNCT_200	JUNCTION	11.84	11.84	0	00:46	0.395	0.395	0.000
JUNCT_201	JUNCTION	4.59	4.59	0	00:52	0.282	0.282	0.000
JUNCT_202	JUNCTION	0.66	0.66	0	01:18	0.0595	0.0595	0.000
JUNCT_611	JUNCTION	0.00	94.61	0	01:15	0	5.51	0.000
JUNCT_214	JUNCTION	22.61	22.61	0	00:41	0.662	0.662	0.000
JUNCT_506	JUNCTION	0.00	17.97	0	00:45	0	0.51	0.000
JUNCT_213	JUNCTION	17.97	17.97	0	00:45	0.51	0.51	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_612	JUNCTION	0.00	102.09	0	01:15	0	5.89	0.000
JUNCT_613	JUNCTION	0.00	104.59	0	01:19	0	6.03	0.000
JUNCT_215	JUNCTION	10.67	10.67	0	00:45	0.375	0.375	0.000
JUNCT_216	JUNCTION	6.34	6.34	0	00:38	0.144	0.144	0.000
JUNCT_217	JUNCTION	0.87	0.87	0	01:19	0.0837	0.0837	0.000
JUNCT_218	JUNCTION	0.89	0.89	0	01:24	0.102	0.102	0.000
JUNCT_122	JUNCTION	15.49	15.49	0	00:41	0.361	0.361	0.000

JUNCT_212	JUNCTION	9.03	9.03	0	00:50	0.388	0.388	0.000
JUNCT_206	JUNCTION	2.91	2.91	0	01:06	0.221	0.221	0.000
OUTFALL_614	OUTFALL	0.00	101.50	0	01:36	0	6.27	0.000
OUTFALL_319	OUTFALL	0.00	267.40	0	01:33	0	12.7	0.000
STOR_2003	STORAGE	0.00	34.75	0	00:40	0	1.09	0.123

\*\*\*\*\*  
Node Flooding Summary  
\*\*\*\*\*

No nodes were flooded.

\*\*\*\*\*  
Storage Volume Summary  
\*\*\*\*\*

Storage Unit	Average Volume 1000 ft <sup>3</sup>	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft <sup>3</sup>	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_2003	61.134	18	0	0	108.656	31	0 02:16	6.98

\*\*\*\*\*  
Outfall Loading Summary  
\*\*\*\*\*

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10 <sup>6</sup> gal
OUTFALL_614	98.19	19.77	101.50	6.272
OUTFALL_319	98.06	40.07	267.40	12.697
System	98.12	59.84	368.47	18.970

\*\*\*\*\*

Link Flow Summary

\*\*\*\*\*

Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	38.61	0 00:43			
100	CONDUIT	7.27	0 01:04	1.70	0.00	0.05
300	CONDUIT	38.44	0 01:00	3.14	0.02	0.14
102	DUMMY	14.61	0 00:49			
105	DUMMY	13.43	0 00:47			
106	DUMMY	12.90	0 00:52			
301	CONDUIT	52.02	0 01:00	3.44	0.03	0.16
302	CONDUIT	34.32	0 00:58	2.79	0.02	0.14
103	CONDUIT	11.08	0 00:53	2.17	0.01	0.06
104	CONDUIT	11.97	0 00:47	2.37	0.01	0.06
107	DUMMY	5.58	0 00:42			
303	CONDUIT	97.95	0 01:03	3.90	0.06	0.24
108	DUMMY	10.56	0 00:39			
304	CONDUIT	102.00	0 01:05	7.17	0.01	0.10
305	CONDUIT	99.24	0 01:21	2.94	0.02	0.18
109	DUMMY	38.42	0 00:45			
306	CONDUIT	118.29	0 01:28	3.47	0.02	0.18
318	CONDUIT	251.93	0 01:34	3.52	0.06	0.29
129	DUMMY	31.39	0 00:43			
317	CONDUIT	122.84	0 01:30	3.52	0.02	0.18
128	DUMMY	12.40	0 00:42			
316	CONDUIT	118.60	0 01:22	2.42	0.04	0.23
127	DUMMY	47.83	0 00:44			
126	DUMMY	11.35	0 00:43			
124	DUMMY	4.71	0 00:38			
314	CONDUIT	8.48	0 01:11	1.48	0.00	0.05
315	CONDUIT	3.46	0 01:01	0.84	0.00	0.04
313	CONDUIT	82.45	0 01:17	1.93	0.03	0.21



125	DUMMY	15.55	0	00:56			
312	CONDUIT	15.18	0	01:08	1.89	0.00	0.06
311	DUMMY	73.72	0	01:00			
123	DUMMY	9.79	0	00:45			
120	DUMMY	29.84	0	00:47			
121	DUMMY	25.83	0	00:53			
310	CONDUIT	65.72	0	01:01	2.83	0.01	0.14
309	CONDUIT	54.84	0	00:57	2.49	0.01	0.13
307	CONDUIT	29.71	0	00:51	1.90	0.01	0.10
308	CONDUIT	25.78	0	00:57	1.95	0.01	0.09
204	DUMMY	10.26	0	00:47			
500	CONDUIT	6.95	0	02:33	1.75	0.01	0.07
501	CONDUIT	10.47	0	01:58	2.09	0.01	0.08
205	DUMMY	7.61	0	00:48			
209	DUMMY	4.93	0	00:57			
207	CONDUIT	6.93	0	01:12	1.80	0.01	0.07
208	CONDUIT	5.37	0	00:59	1.78	0.00	0.06
502	CONDUIT	32.91	0	01:00	3.84	0.01	0.07
210	DUMMY	4.84	0	00:57			
503	CONDUIT	37.22	0	01:09	2.40	0.04	0.21
211	CONDUIT	8.52	0	01:01	0.45	0.05	0.24
504	CONDUIT	45.14	0	01:14	2.99	0.04	0.20
505	DUMMY	54.30	0	01:14			
200	DUMMY	11.84	0	00:46			
201	DUMMY	4.59	0	00:52			
202	DUMMY	0.66	0	01:18			
606	CONDUIT	10.29	0	01:04	1.94	0.01	0.09
607	CONDUIT	13.73	0	01:24	2.12	0.01	0.10
608	CONDUIT	68.05	0	01:20	4.82	0.03	0.19
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	17.97	0	00:45			
510	CONDUIT	16.41	0	00:56	2.14	0.00	0.06
214	DUMMY	22.61	0	00:41			
611	CONDUIT	94.57	0	01:16	4.41	0.06	0.26
612	CONDUIT	101.84	0	01:19	3.19	0.10	0.34
613	CONDUIT	99.80	0	01:36	2.56	0.14	0.40
215	DUMMY	10.67	0	00:45			
216	DUMMY	6.34	0	00:38			

217	DUMMY	0.87	0	01:19			
218	DUMMY	0.89	0	01:24			
122	DUMMY	15.49	0	00:41			
212	DUMMY	9.03	0	00:50			
110	DUMMY	30.17	0	00:48			
206	CONDUIT	2.62	0	01:56	0.87	0.00	0.03
27	DUMMY	34.75	0	00:40			
OUTLET_2003	DUMMY	6.98	0	02:16			

\*\*\*\*\*  
 Conduit Surcharge Summary  
 \*\*\*\*\*

No conduits were surcharged.

Analysis begun on: Tue Jun 6 11:08:56 2023  
 Analysis ended on: Tue Jun 6 11:08:56 2023  
 Total elapsed time: < 1 sec

EXISTING CONDITION - 100-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

\*\*\*\*\*

Analysis Options

\*\*\*\*\*

Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... YES

Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

\*\*\*\*\*

Flow Routing Continuity

	Volume acre-feet	Volume 10 <sup>6</sup> gal
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\*\*\*\*\*

Dry Weather Inflow .....	0.000	0.000
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Wet Weather Inflow .....	0.000	0.000
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Groundwater Inflow .....	0.000	0.000
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RDII Inflow .....	0.000	0.000
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External Inflow .....	307.716	100.274
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External Outflow .....	310.723	101.254
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Flooding Loss .....	0.000	0.000
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Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000
Final Stored Volume .....	1.456	0.474
Continuity Error (%) .....	-1.450	

\*\*\*\*\*

Highest Flow Instability Indexes

\*\*\*\*\*

- Link 313 (1)
- Link 312 (1)
- Link 309 (1)
- Link 510 (1)
- Link 206 (1)

\*\*\*\*\*

Routing Time Step Summary

\*\*\*\*\*

Minimum Time Step	:	60.00 sec
Average Time Step	:	60.00 sec
Maximum Time Step	:	60.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	1.00
% of Steps Not Converging	:	0.00

\*\*\*\*\*

Node Depth Summary

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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
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JUNCT_101	JUNCTION	0.00	0.00	5106.50	0	00:00	0.00
JUNCT_300	JUNCTION	0.25	1.81	5108.21	0	00:50	1.81
JUNCT_100	JUNCTION	0.10	0.63	5137.23	0	00:50	0.63
JUNCT_301	JUNCTION	0.32	2.04	5066.04	0	00:59	2.04
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0	00:00	0.00
JUNCT_303	JUNCTION	0.49	2.93	5060.23	0	00:59	2.93
JUNCT_106	JUNCTION	0.00	0.00	5057.40	0	00:00	0.00
JUNCT_302	JUNCTION	0.23	1.68	5079.88	0	00:52	1.68
JUNCT_103	JUNCTION	0.09	0.82	5113.52	0	00:44	0.82
JUNCT_104	JUNCTION	0.06	0.75	5118.35	0	00:37	0.75
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.50	2.93	5042.73	0	01:02	2.93
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.39	2.14	5030.84	0	01:03	2.14
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.44	2.17	4997.37	0	01:11	2.17
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.74	3.37	4963.47	0	01:17	3.37
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.59	2.65	5002.35	0	01:15	2.65
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_316	JUNCTION	0.58	2.66	5011.16	0	01:10	2.66
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.10	0.74	5041.34	0	00:49	0.74
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.06	0.57	5015.67	0	00:43	0.57
JUNCT_313	JUNCTION	0.50	2.36	5018.56	0	01:05	2.36
JUNCT_311	JUNCTION	0.30	1.51	5017.81	0	01:03	1.51
JUNCT_312	JUNCTION	0.18	0.82	5039.52	0	01:08	0.82
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_310	JUNCTION	0.30	1.51	5036.21	0	00:59	1.51
JUNCT_309	JUNCTION	0.28	1.41	5045.71	0	00:59	1.41

JUNCT_308	JUNCTION	0.21	0.98	5051.48	0	01:03	0.98
JUNCT_307	JUNCTION	0.19	1.14	5050.74	0	00:54	1.14
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.32	1.33	5073.83	0	01:24	1.33
JUNCT_501	JUNCTION	0.40	1.55	5044.95	0	01:25	1.55
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.40	1.55	5024.15	0	01:30	1.55
JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.15	1.06	5061.26	0	00:51	1.06
JUNCT_208	JUNCTION	0.10	0.80	5052.30	0	00:48	0.80
JUNCT_503	JUNCTION	0.70	2.71	5024.51	0	01:20	2.71
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.72	2.71	5015.91	0	01:24	2.71
JUNCT_211	JUNCTION	0.35	2.52	5015.82	0	00:46	2.52
JUNCT_505	JUNCTION	0.65	2.55	5001.95	0	01:26	2.55
JUNCT_608	JUNCTION	0.61	2.38	5001.68	0	01:23	2.38
JUNCT_607	JUNCTION	0.26	1.35	5027.65	0	01:04	1.35
JUNCT_606	JUNCTION	0.19	1.21	5051.01	0	00:53	1.21
JUNCT_200	JUNCTION	0.00	0.00	5049.90	0	00:00	0.00
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_611	JUNCTION	0.78	3.09	4969.69	0	01:19	3.09
JUNCT_214	JUNCTION	0.00	0.00	4966.70	0	00:00	0.00
JUNCT_506	JUNCTION	0.11	0.79	5005.29	0	00:50	0.79
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_612	JUNCTION	1.01	3.97	4962.57	0	01:18	3.97
JUNCT_613	JUNCTION	1.21	4.67	4957.27	0	01:19	4.67
JUNCT_215	JUNCTION	0.00	0.00	4958.70	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00

JUNCT_122	JUNCTION	0.00	0.00	5034.80	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.09	0.31	5022.21	0	01:09	0.31
OUTFALL_614	OUTFALL	1.24	4.65	4947.65	0	01:30	4.65
OUTFALL_319	OUTFALL	0.75	3.36	4948.66	0	01:20	3.36
STOR_2003	STORAGE	2.83	6.01	5079.01	0	01:24	6.01

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Node Inflow Summary  
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	202.43	202.43	0 00:48	5.66	5.66	0.000
JUNCT_300	JUNCTION	0.00	226.39	0 00:50	0	6.88	0.000
JUNCT_100	JUNCTION	31.49	31.49	0 00:50	1.2	1.2	0.000
JUNCT_301	JUNCTION	0.00	298.30	0 00:59	0	10.2	0.000
JUNCT_102	JUNCTION	77.60	77.60	0 00:57	3.21	3.21	0.000
JUNCT_303	JUNCTION	0.00	546.86	0 00:59	0	19.1	0.000
JUNCT_106	JUNCTION	75.65	75.65	0 01:03	3.47	3.47	0.000
JUNCT_302	JUNCTION	0.00	176.22	0 00:52	0	5.37	-0.000
JUNCT_103	JUNCTION	56.48	56.48	0 00:44	1.55	1.55	0.000
JUNCT_104	JUNCTION	51.38	51.38	0 00:37	0.978	0.978	0.000
JUNCT_105	JUNCTION	76.02	76.02	0 00:54	2.79	2.79	0.000
JUNCT_304	JUNCTION	0.00	571.28	0 01:02	0	20	0.000
JUNCT_107	JUNCTION	27.83	27.83	0 00:48	0.933	0.933	0.000
JUNCT_305	JUNCTION	0.00	614.47	0 01:03	0	21.4	0.000
JUNCT_108	JUNCTION	51.68	51.68	0 00:44	1.4	1.4	0.000
JUNCT_306	JUNCTION	0.00	764.62	0 01:11	0	27.8	0.000
JUNCT_109	JUNCTION	205.55	205.55	0 00:50	6.26	6.26	0.000
JUNCT_110	JUNCTION	168.77	168.77	0 00:54	5.9	5.9	0.000

JUNCT_318	JUNCTION	0.00	1664.65	0	01:17	0	64.7	0.000
JUNCT_129	JUNCTION	170.63	170.63	0	00:48	4.89	4.89	0.000
JUNCT_317	JUNCTION	0.00	793.00	0	01:14	0	31.9	0.000
JUNCT_128	JUNCTION	67.84	67.84	0	00:48	2.07	2.07	0.000
JUNCT_316	JUNCTION	0.00	743.99	0	01:10	0	29.8	0.000
JUNCT_127	JUNCTION	258.45	258.45	0	00:49	7.32	7.32	0.000
JUNCT_126	JUNCTION	62.51	62.51	0	00:49	1.98	1.98	0.000
JUNCT_314	JUNCTION	0.00	62.51	0	00:49	0	1.98	0.000
JUNCT_124	JUNCTION	24.83	24.83	0	00:43	0.63	0.63	0.000
JUNCT_315	JUNCTION	0.00	24.83	0	00:43	0	0.63	0.000
JUNCT_313	JUNCTION	0.00	467.15	0	01:05	0	19.6	0.000
JUNCT_311	JUNCTION	0.00	378.16	0	01:02	0	15	0.000
JUNCT_312	JUNCTION	0.00	93.77	0	01:08	0	4.6	0.000
JUNCT_125	JUNCTION	93.77	93.77	0	01:08	4.6	4.6	0.000
JUNCT_123	JUNCTION	54.96	54.96	0	00:52	1.93	1.93	0.000
JUNCT_310	JUNCTION	0.00	327.15	0	00:59	0	13	0.000
JUNCT_309	JUNCTION	0.00	254.19	0	00:59	0	10.7	0.000
JUNCT_308	JUNCTION	0.00	114.57	0	01:03	0	5.49	0.000
JUNCT_307	JUNCTION	0.00	142.69	0	00:54	0	5.24	0.000
JUNCT_121	JUNCTION	114.57	114.57	0	01:03	5.49	5.49	0.000
JUNCT_120	JUNCTION	142.69	142.69	0	00:54	5.24	5.24	0.000
JUNCT_203	JUNCTION	131.53	131.53	0	00:47	4.05	4.05	0.000
JUNCT_500	JUNCTION	0.00	82.12	0	01:24	0	3.72	0.000
JUNCT_501	JUNCTION	0.00	119.09	0	01:25	0	5.84	0.000
JUNCT_204	JUNCTION	52.89	52.89	0	00:54	2.11	2.11	0.000
JUNCT_502	JUNCTION	0.00	240.66	0	01:20	0	11.7	0.000
JUNCT_205	JUNCTION	42.17	42.17	0	00:55	1.73	1.73	0.000
JUNCT_209	JUNCTION	21.24	21.24	0	01:08	1.29	1.29	0.000
JUNCT_207	JUNCTION	50.46	50.46	0	00:51	1.72	1.72	0.000
JUNCT_208	JUNCTION	34.49	34.49	0	00:48	1.07	1.07	-0.000
JUNCT_503	JUNCTION	0.00	258.76	0	01:20	0	12.9	0.000
JUNCT_210	JUNCTION	19.38	19.38	0	01:08	1.17	1.17	0.000
JUNCT_504	JUNCTION	0.00	287.31	0	01:23	0	14.1	0.000
JUNCT_211	JUNCTION	36.68	36.68	0	00:46	1.17	1.17	0.000
JUNCT_505	JUNCTION	0.00	337.79	0	01:25	0	17.1	0.000
JUNCT_608	JUNCTION	0.00	414.94	0	01:23	0	20.6	0.000



JUNCT_607	JUNCTION	0.00	78.30	0	01:04	0	3.29	0.000
JUNCT_606	JUNCTION	0.00	63.15	0	00:53	0	2.29	0.000
JUNCT_200	JUNCTION	63.15	63.15	0	00:53	2.29	2.29	0.000
JUNCT_201	JUNCTION	17.54	17.54	0	01:04	0.958	0.958	0.000
JUNCT_202	JUNCTION	2.06	2.06	0	01:10	0.167	0.167	0.000
JUNCT_611	JUNCTION	0.00	559.56	0	01:19	0	27	0.000
JUNCT_214	JUNCTION	100.77	100.77	0	00:47	3.09	3.09	0.000
JUNCT_506	JUNCTION	0.00	99.56	0	00:50	0	3.21	0.000
JUNCT_213	JUNCTION	99.56	99.56	0	00:50	3.21	3.21	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_612	JUNCTION	0.00	600.04	0	01:18	0	28.9	0.000
JUNCT_613	JUNCTION	0.00	618.40	0	01:19	0	29.7	0.000
JUNCT_215	JUNCTION	51.50	51.50	0	00:52	1.89	1.89	0.000
JUNCT_216	JUNCTION	32.12	32.12	0	00:43	0.846	0.846	0.000
JUNCT_217	JUNCTION	3.83	3.83	0	01:12	0.345	0.345	0.000
JUNCT_218	JUNCTION	3.76	3.76	0	01:17	0.402	0.402	0.000
JUNCT_122	JUNCTION	83.09	83.09	0	00:46	2.27	2.27	0.000
JUNCT_212	JUNCTION	50.11	50.11	0	01:00	2.27	2.27	0.000
JUNCT_206	JUNCTION	10.88	10.88	0	01:09	0.72	0.72	0.000
OUTFALL_614	OUTFALL	0.00	620.05	0	01:29	0	30.6	0.000
OUTFALL_319	OUTFALL	0.00	1792.71	0	01:20	0	70.6	0.000
STOR_2003	STORAGE	0.00	131.53	0	00:47	0	4.05	0.028

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#### Node Flooding Summary

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No nodes were flooded.

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#### Storage Volume Summary

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Storage Unit	Average Volume 1000 ft <sup>3</sup>	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft <sup>3</sup>	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_2003	86.186	25	0	0	229.808	66	0 01:24	82.12

\*\*\*\*\*  
 Outfall Loading Summary  
 \*\*\*\*\*

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10 <sup>6</sup> gal
OUTFALL_614	98.33	96.39	620.05	30.629
OUTFALL_319	98.19	222.56	1792.71	70.618
System	98.26	318.95	2393.97	101.246

\*\*\*\*\*  
 Link Flow Summary  
 \*\*\*\*\*

Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	202.43	0 00:48			
100	CONDUIT	30.33	0 01:03	2.80	0.02	0.12
300	CONDUIT	220.86	0 00:59	5.23	0.12	0.36
102	DUMMY	77.60	0 00:57			

105	DUMMY	76.02	0	00:54			
106	DUMMY	75.65	0	01:03			
301	CONDUIT	298.21	0	01:00	5.80	0.16	0.41
302	CONDUIT	174.22	0	00:57	4.53	0.11	0.33
103	CONDUIT	54.83	0	00:54	3.64	0.03	0.16
104	CONDUIT	47.43	0	00:48	3.66	0.02	0.14
107	DUMMY	27.83	0	00:48			
303	CONDUIT	545.42	0	01:02	6.31	0.32	0.59
108	DUMMY	51.68	0	00:44			
304	CONDUIT	570.88	0	01:03	11.59	0.03	0.23
305	CONDUIT	595.64	0	01:13	4.63	0.13	0.42
109	DUMMY	205.55	0	00:50			
306	CONDUIT	758.03	0	01:16	5.60	0.14	0.43
318	CONDUIT	1659.64	0	01:20	5.68	0.38	0.67
129	DUMMY	170.63	0	00:48			
317	CONDUIT	787.59	0	01:20	5.68	0.14	0.44
128	DUMMY	67.84	0	00:48			
316	CONDUIT	740.46	0	01:15	3.86	0.22	0.53
127	DUMMY	258.45	0	00:49			
126	DUMMY	62.51	0	00:49			
124	DUMMY	24.83	0	00:43			
314	CONDUIT	56.83	0	01:12	2.53	0.01	0.14
315	CONDUIT	22.33	0	01:00	1.44	0.01	0.11
313	CONDUIT	460.97	0	01:15	3.00	0.17	0.47
125	DUMMY	93.77	0	01:08			
312	CONDUIT	93.47	0	01:13	3.19	0.02	0.16
311	DUMMY	378.16	0	01:02			
123	DUMMY	54.96	0	00:52			
120	DUMMY	142.69	0	00:54			
121	DUMMY	114.57	0	01:03			
310	CONDUIT	326.18	0	01:03	4.33	0.06	0.30
309	CONDUIT	253.83	0	01:02	3.75	0.05	0.28
307	CONDUIT	142.44	0	00:56	2.92	0.03	0.23
308	CONDUIT	114.50	0	01:05	2.97	0.02	0.20
204	DUMMY	52.89	0	00:54			
500	CONDUIT	81.42	0	01:33	3.78	0.06	0.26

501	CONDUIT	118.76	0	01:30	4.34	0.08	0.31
205	DUMMY	42.17	0	00:55			
209	DUMMY	21.24	0	01:08			
207	CONDUIT	46.76	0	01:13	3.22	0.04	0.20
208	CONDUIT	33.25	0	00:58	3.11	0.02	0.16
502	CONDUIT	240.65	0	01:20	7.17	0.04	0.22
210	DUMMY	19.38	0	01:08			
503	CONDUIT	258.03	0	01:24	4.07	0.26	0.54
211	CONDUIT	34.27	0	01:02	0.66	0.21	0.49
504	CONDUIT	286.76	0	01:26	4.96	0.23	0.51
505	DUMMY	337.79	0	01:25			
200	DUMMY	63.15	0	00:53			
201	DUMMY	17.54	0	01:04			
202	DUMMY	2.06	0	01:10			
606	CONDUIT	60.77	0	01:04	3.31	0.05	0.24
607	CONDUIT	76.65	0	01:18	3.54	0.06	0.27
608	CONDUIT	414.71	0	01:25	7.96	0.20	0.48
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	99.56	0	00:50			
510	CONDUIT	97.41	0	00:58	3.53	0.02	0.16
214	DUMMY	100.77	0	00:47			
611	CONDUIT	559.50	0	01:20	7.12	0.34	0.62
612	CONDUIT	599.81	0	01:21	5.08	0.59	0.79
613	CONDUIT	612.70	0	01:30	4.05	0.85	0.93
215	DUMMY	51.50	0	00:52			
216	DUMMY	32.12	0	00:43			
217	DUMMY	3.83	0	01:12			
218	DUMMY	3.76	0	01:17			
122	DUMMY	83.09	0	00:46			
212	DUMMY	50.11	0	01:00			
110	DUMMY	168.77	0	00:54			
206	CONDUIT	9.95	0	01:35	1.34	0.00	0.06
27	DUMMY	131.53	0	00:47			
OUTLET_2003	DUMMY	82.12	0	01:24			

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Conduit Surcharge Summary

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No conduits were surcharged.

Analysis begun on: Tue Jun 6 11:08:04 2023






Analysis ended on: Tue Jun 6 11:08:04 2023

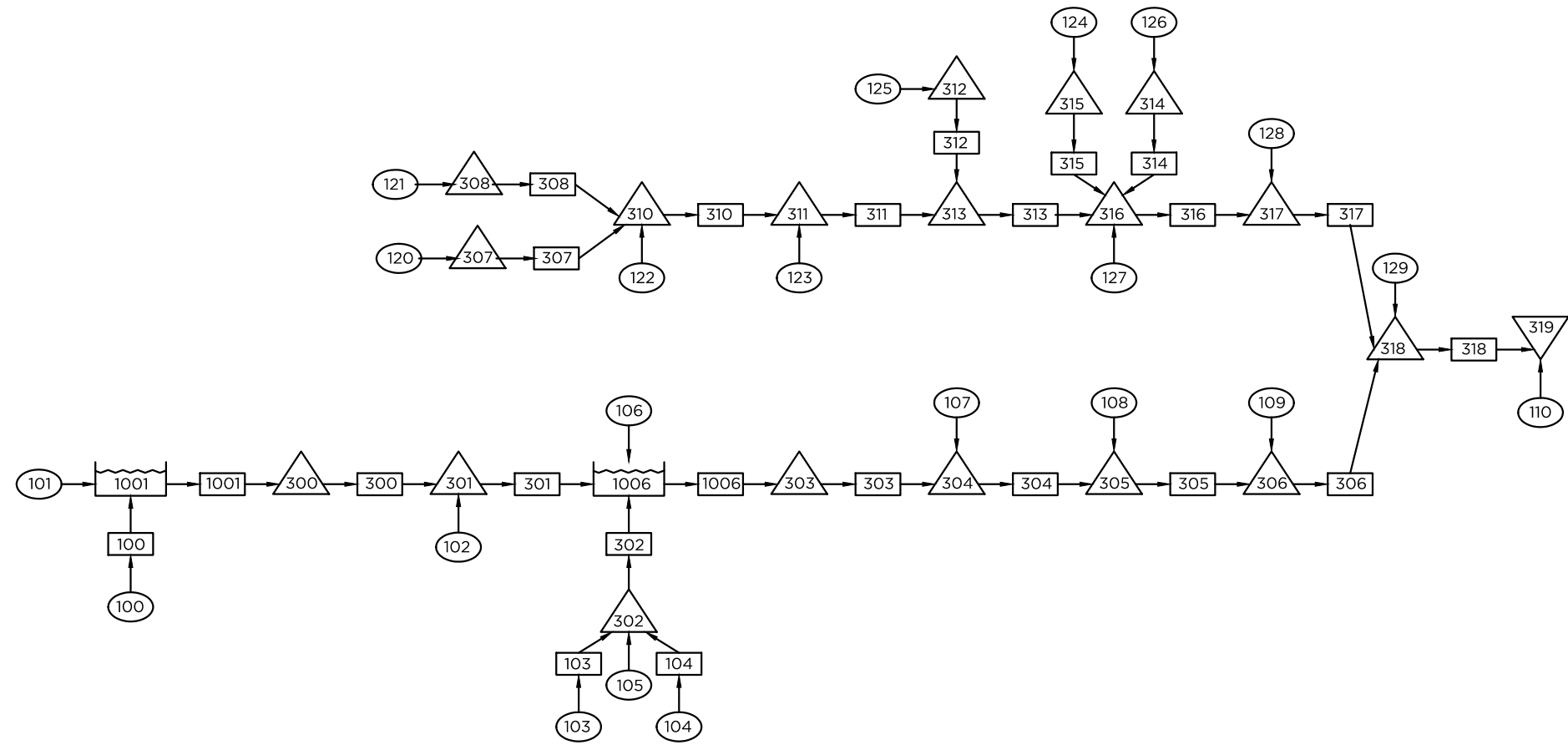
Total elapsed time: < 1 sec

APPENDIX E  
PROPOSED CONDITION CUHP/SWMM MODEL

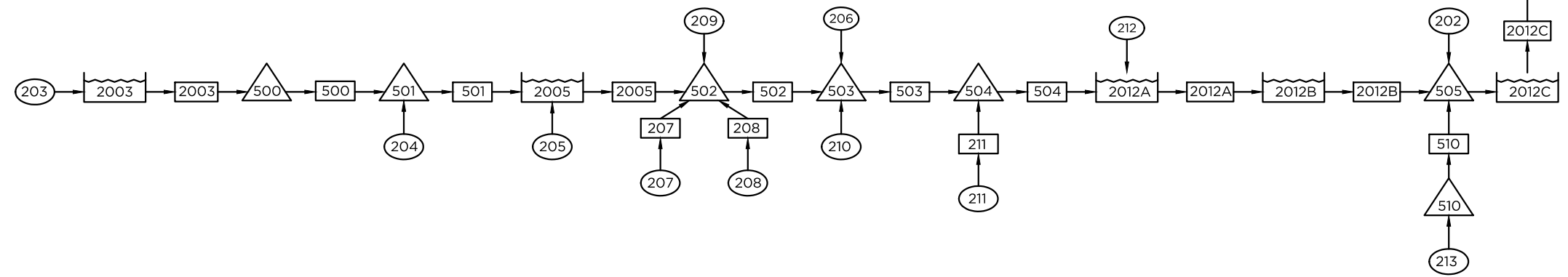
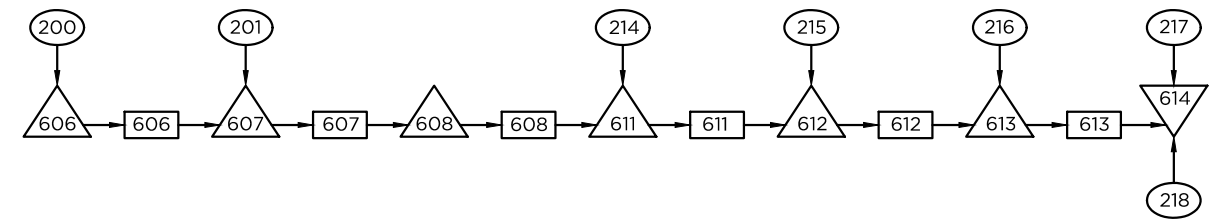
PROPOSED CONDITIONS MAP

LEGEND

-  DESIGN POINT
-  SUBBASIN
-  DETENTION FACILITY
-  OUTFALL
-  CONVEYANCE ELEMENT



E. 168TH AVENUE - DRAINAGE #1



E. 168TH AVENUE - DRAINAGE #2

J:\0009\2017\CIVIL\RAINAGE\PHASE I\CAD FILES\OUTFALL PLAN-PROPOSED.DWG



**KT ENGINEERING**  
 12500 W. 58th AVE, #230  
 ARVADA, CO 80002  
 PH: 720.638.5190

## CUHP SUBCATCHMENTS

Columns with this color heading are for required user-input  
 Columns with this color heading are for optional override values  
 Columns with this color heading are for program-calculated values

Subcatchment Name	EPA SWMM Target Node	Raingage	Area (mi <sup>2</sup> )	Length to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness	Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters			DCIA Level 0, 1, or 2
								Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)	
100	JUNCT_100	5-YR	0.0375	0.2119	0.4318	0.0237	23.9	0.38	0.1	3	0.0018	0.5	0
101	JUNCT_101	5-YR	0.2028	0.3134	0.5438	0.0247	42.25	0.38	0.1	3	0.0018	0.5	0
102	JUNCT_102	5-YR	0.1136	0.4163	0.6566	0.01933	51.12	0.38	0.1	3	0.0018	0.5	0
103	JUNCT_103	5-YR	0.0529	0.1572	0.2483	0.0191	10.89	0.38	0.1	3	0.0018	0.5	0
104	JUNCT_104	5-YR	0.0303	0.0701	0.1826	0.0456	35.57	0.38	0.1	3	0.0018	0.5	0
105	JUNCT_105	5-YR	0.1009	0.2858	0.5345	0.0145	40.45	0.38	0.1	3	0.0018	0.5	0
106	JUNCT_106	5-YR	0.1252	0.4591	0.8307	0.0173	49.6	0.38	0.1	3	0.0018	0.5	0
107	JUNCT_107	5-YR	0.0327	0.1241	0.2723	0.0111	6.73	0.38	0.1	3	0.0018	0.5	0
108	JUNCT_108	5-YR	0.0494	0.107	0.2693	0.0127	5.99	0.38	0.1	3	0.0018	0.5	0
109	JUNCT_109	5-YR	0.2248	0.2646	0.6299	0.0123	3.18	0.38	0.1	3	0.0018	0.5	0
110	JUNCT_110	5-YR	0.2131	0.2913	0.803	0.0116	2.33	0.38	0.1	3	0.0018	0.5	0
120	JUNCT_120	5-YR	0.18	0.3434	0.7458	0.0135	9.85	0.38	0.1	3	0.0018	0.5	0
121	JUNCT_121	5-YR	0.1803	0.5699	0.9413	0.0127	16.25	0.38	0.1	3	0.0018	0.5	0
122	JUNCT_122	5-YR	0.0821	0.1534	0.2905	0.0104	2	0.38	0.1	3	0.0018	0.5	0
123	JUNCT_123	5-YR	0.07	0.208	0.3845	0.0103	2	0.38	0.1	3	0.0018	0.5	0
124	JUNCT_124	5-YR	0.0228	0.0672	0.1769	0.0139	2	0.38	0.1	3	0.0018	0.5	0
125	JUNCT_125	5-YR	0.1665	0.4428	0.9917	0.0088	2	0.38	0.1	3	0.0018	0.5	0
126	JUNCT_126	5-YR	0.0715	0.1708	0.3163	0.0084	2	0.38	0.1	3	0.0018	0.5	0
127	JUNCT_127	5-YR	0.2645	0.2506	0.6981	0.0165	2.25	0.38	0.1	3	0.0018	0.5	0
128	JUNCT_128	5-YR	0.0748	0.1648	0.4085	0.0148	2	0.38	0.1	3	0.0018	0.5	0
129	JUNCT_129	5-YR	0.177	0.2455	0.5813	0.0173	2	0.38	0.1	3	0.0018	0.5	0
200	JUNCT_200	5-YR	0.0816	0.2051	0.5246	0.0119	4.37	0.38	0.1	3	0.0018	0.5	0
201	JUNCT_201	5-YR	0.029	0.31075	0.5782159	0.0128	28.83	0.38	0.1	3	0.0018	0.5	0
202	JUNCT_202	5-YR	0.0046	0.2797	0.5233	0.008	44.36	0.38	0.1	3	0.0018	0.5	0
203	JUNCT_203	5-YR	0.127	0.293140152	0.5782254	0.0272	23.32	0.38	0.1	3	0.0018	0.5	0
204	JUNCT_204	5-YR	0.074	0.2692	0.5601	0.0169	24.47	0.38	0.1	3	0.0018	0.5	0
205	JUNCT_205	5-YR	0.062	0.2464	0.4621	0.0114	3.45	0.38	0.1	3	0.0018	0.5	0
206	JUNCT_206	5-YR	0.0214	0.4103	0.6914	0.0137	37.15	0.38	0.1	3	0.0018	0.5	0
207	JUNCT_207	5-YR	0.0621	0.183	0.3847	0.0123	2	0.38	0.1	3	0.0018	0.5	0
208	JUNCT_208	5-YR	0.0388	0.10868	0.23969	0.0071	2	0.38	0.1	3	0.0018	0.5	0
209	JUNCT_209	5-YR	0.0412	0.3381	0.6977	0.0106	20.21	0.38	0.1	3	0.0018	0.5	0
210	JUNCT_210	5-YR	0.0361	0.4097	0.7119	0.0186	25.32	0.38	0.1	3	0.0018	0.5	0
211	JUNCT_211	5-YR	0.036	0.1785	0.296	0.0221	26.28	0.38	0.1	3	0.0018	0.5	0
212	JUNCT_212	5-YR	0.0808	0.280333333	0.5628106	0.0077	13.38	0.38	0.1	3	0.0018	0.5	0
213	JUNCT_213	5-YR	0.116	0.203833333	0.5581742	0.0129	46.75	0.38	0.1	3	0.0018	0.5	0
214	JUNCT_214	5-YR	0.1045	0.304159091	0.3573902	0.0201	12.2	0.38	0.1	3	0.0018	0.5	0
215	JUNCT_215	5-YR	0.0653	0.200164773	0.3851307	0.0089	9.19	0.38	0.1	3	0.0018	0.5	0
216	JUNCT_216	5-YR	0.0302	0.0564	0.1816	0.0049	4.01	0.38	0.1	3	0.0018	0.5	0
217	JUNCT_217	5-YR	0.0112	0.1634	0.459	0.0019	17.82	0.38	0.1	3	0.0018	0.5	0
218	JUNCT_218	5-YR	0.0129	0.2218	0.5591	0.0017	19.86	0.38	0.1	3	0.0018	0.5	0



PROPOSED CONDITION - 5-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

\*\*\*\*\*

Analysis Options

\*\*\*\*\*

Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... YES

Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

\*\*\*\*\*

Flow Routing Continuity

\*\*\*\*\*

	Volume acre-feet	Volume 10 <sup>6</sup> gal
	-----	-----
Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	38.079	12.409
External Outflow .....	15.618	5.089
Flooding Loss .....	0.000	0.000

Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000
Final Stored Volume .....	23.404	7.627
Continuity Error (%) .....	-2.476	

\*\*\*\*\*

Highest Flow Instability Indexes

\*\*\*\*\*

Link 317 (1)  
 Link 313 (1)  
 Link 309 (1)  
 Link 308 (1)

\*\*\*\*\*

Routing Time Step Summary

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Minimum Time Step	:	60.00 sec
Average Time Step	:	60.00 sec
Maximum Time Step	:	60.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	1.00
% of Steps Not Converging	:	0.00

\*\*\*\*\*

Node Depth Summary

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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
-----						

JUNCT_101	JUNCTION	0.00	0.00	5106.50	0	00:00	0.00
JUNCT_100	JUNCTION	0.10	0.52	5137.12	0	00:43	0.52
JUNCT_301	JUNCTION	0.21	0.85	5064.85	0	00:38	0.85
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0	00:00	0.00
JUNCT_106	JUNCTION	0.00	0.00	5061.10	0	00:00	0.00
JUNCT_302	JUNCTION	0.18	1.37	5079.57	0	00:38	1.37
JUNCT_103	JUNCTION	0.06	0.51	5113.21	0	00:39	0.51
JUNCT_104	JUNCTION	0.07	0.76	5118.36	0	00:32	0.76
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.14	0.15	5039.95	0	03:38	0.15
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.13	0.20	5028.90	0	00:47	0.20
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.14	0.28	4995.48	0	00:50	0.28
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.25	0.66	4960.76	0	01:45	0.66
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.18	0.66	5000.36	0	01:36	0.66
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.02	0.14	5040.74	0	00:43	0.14
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.01	0.11	5015.21	0	00:39	0.11
JUNCT_313	JUNCTION	0.14	0.66	5016.86	0	01:08	0.66
JUNCT_311	JUNCTION	0.09	0.43	5016.73	0	01:07	0.43
JUNCT_312	JUNCTION	0.03	0.15	5038.85	0	00:56	0.15
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_309	JUNCTION	0.09	0.44	5044.74	0	00:55	0.44
JUNCT_308	JUNCTION	0.07	0.31	5050.81	0	00:54	0.31
JUNCT_307	JUNCTION	0.05	0.32	5049.92	0	00:47	0.32
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00

JUNCT_500	JUNCTION	0.10	0.21	5072.71	0	02:25	0.21
JUNCT_501	JUNCTION	0.14	0.36	5043.76	0	00:44	0.36
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.07	0.15	5022.75	0	01:26	0.15
JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.02	0.20	5060.40	0	00:44	0.20
JUNCT_208	JUNCTION	0.02	0.15	5051.65	0	00:42	0.15
JUNCT_503	JUNCTION	0.19	0.40	5022.20	0	01:12	0.40
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.30	0.90	5014.10	0	01:05	0.90
JUNCT_211	JUNCTION	0.14	0.99	5014.29	0	00:39	0.99
JUNCT_508	JUNCTION	0.27	0.29	4995.09	0	02:42	0.29
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_511	JUNCTION	0.30	0.32	4966.92	0	02:45	0.32
JUNCT_506	JUNCTION	0.06	0.52	5005.02	0	00:35	0.52
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_512	JUNCTION	0.35	0.38	4958.98	0	02:46	0.38
JUNCT_513	JUNCTION	0.40	0.43	4952.83	0	02:50	0.43
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5035.10	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.00	0.00	5021.90	0	00:00	0.00
JUNCT_300	JUNCTION	0.10	0.11	5103.91	0	02:49	0.11
JUNCT_303	JUNCTION	0.14	0.15	5057.45	0	03:23	0.15
JUNCT_200	JUNCTION	0.00	0.00	5051.10	0	00:00	0.00
JUNCT_214	JUNCTION	0.00	0.00	4966.70	0	00:00	0.00
JUNCT_215	JUNCTION	0.00	0.00	4959.10	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_310	JUNCTION	0.09	0.44	5035.34	0	01:00	0.44
JUNCT_316	JUNCTION	0.17	0.67	5008.57	0	01:24	0.67
JUNCT_505	JUNCTION	0.06	0.52	4998.42	0	00:37	0.52

JUNCT_613	JUNCTION	0.19	0.77	4953.17	0	00:52	0.77
JUNCT_612	JUNCTION	0.15	0.61	4959.21	0	00:44	0.61
JUNCT_611	JUNCTION	0.10	0.38	4966.98	0	00:42	0.38
JUNCT_608	JUNCTION	0.08	0.29	4995.09	0	01:35	0.29
JUNCT_607	JUNCTION	0.07	0.30	5026.60	0	01:11	0.30
JUNCT_606	JUNCTION	0.04	0.26	5050.06	0	00:45	0.26
OUTFALL_514	OUTFALL	0.39	0.43	4943.43	0	03:06	0.43
OUTFALL_319	OUTFALL	0.24	0.65	4945.95	0	01:53	0.65
OUTFALL_614	OUTFALL	0.21	0.70	4943.70	0	01:48	0.70
STOR_1001	STORAGE	3.89	4.24	5108.24	0	02:49	4.24
STOR_1006	STORAGE	4.46	4.81	5065.81	0	03:23	4.81
STOR_2012B	STORAGE	1.38	2.02	5000.02	0	12:00	2.02
STOR_2003	STORAGE	1.87	2.47	5075.47	0	02:25	2.47
STOR_2005	STORAGE	3.12	3.51	5030.21	0	04:29	3.51
STOR_2012C	STORAGE	2.83	3.11	4998.11	0	02:42	3.11
STOR_2012A	STORAGE	2.74	3.12	5009.12	0	08:24	3.12

\*\*\*\*\*  
Node Inflow Summary  
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	75.89	75.89	0 00:35	1.7	1.7	0.000
JUNCT_100	JUNCTION	4.56	4.56	0 00:43	0.184	0.184	0.000
JUNCT_301	JUNCTION	0.00	38.63	0 00:38	0	1.56	0.000
JUNCT_102	JUNCTION	38.62	38.62	0 00:38	1.14	1.14	0.000
JUNCT_106	JUNCTION	36.76	36.76	0 00:40	1.23	1.23	0.000
JUNCT_302	JUNCTION	0.00	43.71	0 00:38	0	1.16	0.000
JUNCT_103	JUNCTION	5.41	5.41	0 00:39	0.136	0.136	0.000
JUNCT_104	JUNCTION	12.56	12.56	0 00:32	0.215	0.215	0.000

JUNCT_105	JUNCTION	27.31	27.31	0	00:38	0.813	0.813	0.000
JUNCT_304	JUNCTION	0.00	3.29	0	01:24	0	0.836	0.000
JUNCT_107	JUNCTION	2.06	2.06	0	00:42	0.0619	0.0619	0.000
JUNCT_305	JUNCTION	0.00	5.55	0	00:47	0	0.913	0.000
JUNCT_108	JUNCTION	3.77	3.77	0	00:40	0.0878	0.0878	0.000
JUNCT_306	JUNCTION	0.00	12.31	0	00:50	0	1.17	0.000
JUNCT_109	JUNCTION	11.68	11.68	0	00:45	0.301	0.301	0.000
JUNCT_110	JUNCTION	8.57	8.57	0	00:48	0.257	0.257	0.000
JUNCT_318	JUNCTION	0.00	48.69	0	01:45	0	3.4	0.000
JUNCT_129	JUNCTION	8.85	8.85	0	00:44	0.205	0.205	0.000
JUNCT_317	JUNCTION	0.00	38.27	0	01:35	0	2.04	0.000
JUNCT_128	JUNCTION	3.50	3.50	0	00:43	0.0864	0.0864	0.000
JUNCT_127	JUNCTION	13.71	13.71	0	00:45	0.316	0.316	0.000
JUNCT_126	JUNCTION	3.20	3.20	0	00:43	0.0826	0.0826	0.000
JUNCT_314	JUNCTION	0.00	3.20	0	00:43	0	0.0826	0.000
JUNCT_124	JUNCTION	1.34	1.34	0	00:39	0.0263	0.0263	0.000
JUNCT_315	JUNCTION	0.00	1.34	0	00:39	0	0.0263	0.000
JUNCT_313	JUNCTION	0.00	32.51	0	01:08	0	1.45	0.000
JUNCT_311	JUNCTION	0.00	28.73	0	01:07	0	1.26	0.000
JUNCT_312	JUNCTION	0.00	4.24	0	00:56	0	0.192	0.000
JUNCT_125	JUNCTION	4.24	4.24	0	00:56	0.192	0.192	0.000
JUNCT_123	JUNCTION	2.74	2.74	0	00:45	0.0809	0.0809	0.000
JUNCT_309	JUNCTION	0.00	24.59	0	00:55	0	1.07	0.000
JUNCT_308	JUNCTION	0.00	12.62	0	00:54	0	0.635	0.000
JUNCT_307	JUNCTION	0.00	12.30	0	00:47	0	0.431	0.000
JUNCT_121	JUNCTION	12.62	12.62	0	00:54	0.635	0.635	0.000
JUNCT_120	JUNCTION	12.30	12.30	0	00:47	0.431	0.431	0.000
JUNCT_203	JUNCTION	19.17	19.17	0	00:41	0.61	0.61	0.000
JUNCT_500	JUNCTION	0.00	2.94	0	02:25	0	0.328	0.000
JUNCT_501	JUNCTION	0.00	9.14	0	00:44	0	0.687	0.000
JUNCT_204	JUNCTION	9.14	9.14	0	00:44	0.371	0.371	0.000
JUNCT_502	JUNCTION	0.00	5.67	0	01:15	0	0.733	0.000
JUNCT_205	JUNCTION	2.33	2.33	0	00:47	0.0855	0.0855	0.000
JUNCT_209	JUNCTION	2.61	2.61	0	00:59	0.175	0.175	0.000
JUNCT_207	JUNCTION	2.54	2.54	0	00:44	0.0718	0.0718	0.000
JUNCT_208	JUNCTION	1.78	1.78	0	00:42	0.0448	0.0448	0.000

JUNCT_503	JUNCTION	0.00	10.58	0	01:12	0	1.08	0.000
JUNCT_210	JUNCTION	2.77	2.77	0	00:58	0.187	0.187	0.000
JUNCT_504	JUNCTION	0.00	15.21	0	01:11	0	1.28	0.000
JUNCT_211	JUNCTION	5.73	5.73	0	00:39	0.193	0.193	0.000
JUNCT_508	JUNCTION	0.00	1.82	0	02:42	0	0.525	0.000
JUNCT_201	JUNCTION	2.70	2.70	0	00:55	0.169	0.169	0.000
JUNCT_202	JUNCTION	0.44	0.44	0	01:15	0.0405	0.0405	0.000
JUNCT_511	JUNCTION	0.00	1.82	0	02:45	0	0.522	0.000
JUNCT_506	JUNCTION	0.00	43.79	0	00:35	0	1.07	-0.000
JUNCT_213	JUNCTION	43.79	43.79	0	00:35	1.07	1.07	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_512	JUNCTION	0.00	1.82	0	02:46	0	0.521	0.000
JUNCT_513	JUNCTION	0.00	1.82	0	02:50	0	0.517	0.000
JUNCT_217	JUNCTION	0.44	0.44	0	01:16	0.0426	0.0426	0.000
JUNCT_218	JUNCTION	0.47	0.47	0	01:23	0.0539	0.0539	0.000
JUNCT_122	JUNCTION	4.40	4.40	0	00:42	0.0949	0.0949	0.000
JUNCT_212	JUNCTION	5.30	5.30	0	00:49	0.243	0.243	0.000
JUNCT_206	JUNCTION	2.28	2.28	0	00:59	0.158	0.158	0.000
JUNCT_300	JUNCTION	0.00	1.51	0	02:49	0	0.45	0.000
JUNCT_303	JUNCTION	0.00	2.66	0	03:23	0	0.797	0.000
JUNCT_200	JUNCTION	3.85	3.85	0	00:45	0.124	0.124	0.000
JUNCT_214	JUNCTION	10.05	10.05	0	00:42	0.293	0.293	0.000
JUNCT_215	JUNCTION	4.31	4.31	0	00:44	0.149	0.149	0.000
JUNCT_216	JUNCTION	2.05	2.05	0	00:39	0.0443	0.0443	0.000
JUNCT_310	JUNCTION	0.00	27.37	0	00:59	0	1.17	0.000
JUNCT_316	JUNCTION	0.00	38.03	0	01:24	0	1.94	0.000
JUNCT_505	JUNCTION	0.00	44.06	0	00:37	0	1.3	0.000
JUNCT_613	JUNCTION	0.00	15.35	0	00:52	0	0.804	0.000
JUNCT_612	JUNCTION	0.00	14.31	0	00:44	0	0.756	0.000
JUNCT_611	JUNCTION	0.00	10.05	0	00:42	0	0.606	0.000
JUNCT_608	JUNCTION	0.00	5.22	0	01:35	0	0.313	0.000
JUNCT_607	JUNCTION	0.00	5.58	0	01:11	0	0.304	0.000
JUNCT_606	JUNCTION	0.00	3.85	0	00:45	0	0.124	0.000
OUTFALL_514	OUTFALL	0.00	1.82	0	03:06	0	0.504	0.000
OUTFALL_319	OUTFALL	0.00	51.09	0	01:51	0	3.64	0.000

OUTFALL_614	OUTFALL	0.00	13.58	0	01:48	0	0.948	0.000
STOR_1001	STORAGE	0.00	78.86	0	00:36	0	1.89	0.000
STOR_1006	STORAGE	0.00	118.44	0	00:41	0	3.94	-0.000
STOR_2012B	STORAGE	0.00	1.52	0	08:24	0	0.425	-0.047
STOR_2003	STORAGE	0.00	19.17	0	00:41	0	0.61	0.058
STOR_2005	STORAGE	0.00	11.31	0	00:50	0	0.769	-0.014
STOR_2012C	STORAGE	0.00	44.06	0	00:37	0	1.3	-0.000
STOR_2012A	STORAGE	0.00	19.28	0	01:19	0	1.51	-0.005

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Node Flooding Summary  
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No nodes were flooded.

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Storage Volume Summary  
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Storage Unit	Average Volume 1000 ft <sup>3</sup>	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft <sup>3</sup>	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_1001	201.404	11	0	0	238.482	13	0 02:49	1.51
STOR_1006	398.143	11	0	0	455.772	13	0 03:23	2.66
STOR_2012B	15.394	1	0	0	31.547	2	0 12:00	0.89
STOR_2003	46.701	14	0	0	67.826	20	0 02:25	2.94
STOR_2005	50.593	18	0	0	65.931	24	0 04:29	1.83
STOR_2012C	110.639	7	0	0	134.382	8	0 02:42	1.82
STOR_2012A	119.792	8	0	0	148.138	10	0 08:24	1.52

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Outfall Loading Summary  
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Outfall Node	Flow Freq Pcmt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_514	94.44	1.65	1.82	0.504
OUTFALL_319	97.78	11.51	51.09	3.636
OUTFALL_614	98.06	2.99	13.58	0.948
System	96.76	16.16	66.29	5.089

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 Link Flow Summary  
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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	75.89	0 00:35			
100	CONDUIT	4.51	0 00:48	6.23	0.09	0.21
102	DUMMY	38.62	0 00:38			
105	DUMMY	27.31	0 00:38			
106	DUMMY	36.76	0 00:40			
301	CONDUIT	38.46	0 00:40	2.38	0.03	0.17
302	CONDUIT	43.28	0 00:41	9.51	0.13	0.25
103	CONDUIT	5.31	0 00:44	6.79	0.06	0.17
104	CONDUIT	12.05	0 00:36	9.05	0.13	0.25
107	DUMMY	2.06	0 00:42			
108	DUMMY	3.77	0 00:40			
304	CONDUIT	3.28	0 01:30	2.26	0.00	0.01

305	CONDUIT	4.72	0	01:34	1.17	0.00	0.04
109	DUMMY	11.68	0	00:45			
306	CONDUIT	11.29	0	01:13	1.73	0.00	0.05
318	CONDUIT	48.21	0	01:53	2.25	0.01	0.13
129	DUMMY	8.85	0	00:44			
317	CONDUIT	37.14	0	01:48	2.51	0.01	0.10
128	DUMMY	3.50	0	00:43			
316	CONDUIT	37.06	0	01:36	1.72	0.01	0.13
127	DUMMY	13.71	0	00:45			
126	DUMMY	3.20	0	00:43			
124	DUMMY	1.34	0	00:39			
314	CONDUIT	2.02	0	01:25	1.02	0.00	0.02
315	CONDUIT	0.83	0	01:14	0.59	0.00	0.02
313	CONDUIT	29.59	0	01:28	1.51	0.01	0.12
125	DUMMY	4.24	0	00:56			
312	CONDUIT	3.96	0	01:15	1.23	0.00	0.03
311	DUMMY	28.73	0	01:07			
123	DUMMY	2.74	0	00:45			
120	DUMMY	12.30	0	00:47			
121	DUMMY	12.62	0	00:54			
309	CONDUIT	24.37	0	01:00	1.95	0.01	0.09
307	CONDUIT	12.16	0	00:53	1.45	0.00	0.06
308	CONDUIT	12.59	0	00:59	1.57	0.00	0.06
203	DUMMY	19.17	0	00:41			
204	DUMMY	9.14	0	00:44			
500	CONDUIT	2.87	0	02:49	1.30	0.00	0.04
501	CONDUIT	9.00	0	00:51	2.15	0.01	0.07
205	DUMMY	2.33	0	00:47			
209	DUMMY	2.61	0	00:59			
207	CONDUIT	1.64	0	01:26	1.18	0.00	0.03
208	CONDUIT	1.30	0	01:09	1.09	0.00	0.02
502	CONDUIT	5.67	0	01:16	2.05	0.00	0.03
210	DUMMY	2.77	0	00:58			
503	CONDUIT	10.57	0	01:14	2.23	0.01	0.08
211	CONDUIT	4.75	0	01:05	0.39	0.03	0.18
504	CONDUIT	15.04	0	01:23	1.71	0.02	0.13

201	DUMMY	2.70	0	00:55			
202	DUMMY	0.44	0	01:15			
508	CONDUIT	1.82	0	02:45	5.62	0.03	0.12
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	43.79	0	00:35			
506	CONDUIT	43.66	0	00:37	2.75	0.01	0.10
511	CONDUIT	1.82	0	02:46	4.93	0.04	0.13
512	CONDUIT	1.82	0	02:50	3.48	0.03	0.13
513	CONDUIT	1.82	0	03:06	2.64	0.03	0.12
217	DUMMY	0.44	0	01:16			
218	DUMMY	0.47	0	01:23			
122	DUMMY	4.40	0	00:42			
212	DUMMY	5.30	0	00:49			
110	DUMMY	8.57	0	00:48			
206	DUMMY	2.28	0	00:59			
300	CONDUIT	1.51	0	03:43	0.92	0.00	0.02
303	CONDUIT	2.66	0	03:38	1.11	0.00	0.03
310	CONDUIT	26.76	0	01:07	2.19	0.01	0.09
505	DUMMY	44.06	0	00:37			
606	CONDUIT	3.02	0	01:14	1.31	0.00	0.04
607	CONDUIT	5.22	0	01:35	1.62	0.00	0.06
608	CONDUIT	5.20	0	01:43	1.99	0.00	0.05
611	CONDUIT	10.00	0	00:44	2.22	0.01	0.08
612	CONDUIT	13.73	0	00:53	1.82	0.01	0.12
613	CONDUIT	12.73	0	01:48	1.44	0.02	0.14
200	DUMMY	3.85	0	00:45			
214	DUMMY	10.05	0	00:42			
215	DUMMY	4.31	0	00:44			
216	DUMMY	2.05	0	00:39			
OUTLET_1001	DUMMY	1.51	0	02:49			
OUTLET_1006	DUMMY	2.66	0	03:23			
OUTLET_2012B	DUMMY	0.89	0	12:00			
OUTLET_2003	DUMMY	2.94	0	02:25			
OUTLET_2005	DUMMY	1.83	0	04:29			
OUTLET_2012C	DUMMY	1.82	0	02:42			

OUTLET\_2012A            DUMMY            1.52            0 08:24

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Conduit Surcharge Summary  
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No conduits were surcharged.

Analysis begun on: Tue Jun 6 14:40:15 2023  
Analysis ended on: Tue Jun 6 14:40:15 2023  
Total elapsed time: < 1 sec

PROPOSED CONDITION - 10-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

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Analysis Options

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Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... YES

Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

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Flow Routing Continuity

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	Volume acre-feet	Volume 10 <sup>6</sup> gal
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Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	76.399	24.896
External Outflow .....	42.149	13.735
Flooding Loss .....	0.000	0.000

Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000
Final Stored Volume .....	35.844	11.680
Continuity Error (%) .....	-2.087	

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Highest Flow Instability Indexes

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- Link 313 (1)
- Link 312 (1)
- Link 309 (1)
- Link 307 (1)
- Link 308 (1)

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Routing Time Step Summary

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Minimum Time Step	:	60.00 sec
Average Time Step	:	60.00 sec
Maximum Time Step	:	60.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	1.01
% of Steps Not Converging	:	0.00

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Node Depth Summary

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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
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JUNCT_101	JUNCTION	0.00	0.00	5106.50	0	00:00	0.00
JUNCT_100	JUNCTION	0.13	0.69	5137.29	0	00:43	0.69
JUNCT_301	JUNCTION	0.28	1.03	5065.03	0	00:38	1.03
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0	00:00	0.00
JUNCT_106	JUNCTION	0.00	0.00	5061.10	0	00:00	0.00
JUNCT_302	JUNCTION	0.23	1.78	5079.98	0	00:37	1.78
JUNCT_103	JUNCTION	0.09	0.78	5113.48	0	00:38	0.78
JUNCT_104	JUNCTION	0.08	0.98	5118.58	0	00:31	0.98
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.24	0.32	5040.12	0	03:17	0.32
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.23	0.35	5029.05	0	00:43	0.35
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.25	0.55	4995.75	0	00:50	0.55
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.42	1.22	4961.32	0	01:27	1.22
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.28	1.18	5000.88	0	01:22	1.18
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.04	0.30	5040.90	0	00:43	0.30
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.02	0.22	5015.32	0	00:38	0.22
JUNCT_313	JUNCTION	0.23	1.08	5017.28	0	01:01	1.08
JUNCT_311	JUNCTION	0.14	0.69	5016.99	0	01:01	0.69
JUNCT_312	JUNCTION	0.06	0.32	5039.02	0	00:56	0.32
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_309	JUNCTION	0.13	0.67	5044.97	0	00:53	0.67
JUNCT_308	JUNCTION	0.10	0.46	5050.96	0	00:53	0.46
JUNCT_307	JUNCTION	0.08	0.52	5050.12	0	00:47	0.52
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00

JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.16	0.34	5072.84	0	02:16	0.34
JUNCT_501	JUNCTION	0.21	0.50	5043.90	0	00:44	0.50
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.13	0.35	5022.95	0	01:12	0.35
JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.05	0.41	5060.61	0	00:44	0.41
JUNCT_208	JUNCTION	0.04	0.31	5051.81	0	00:42	0.31
JUNCT_503	JUNCTION	0.30	0.66	5022.46	0	01:08	0.66
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.44	1.22	5014.42	0	01:01	1.22
JUNCT_211	JUNCTION	0.19	1.33	5014.63	0	00:39	1.33
JUNCT_508	JUNCTION	0.30	0.33	4995.13	0	02:45	0.33
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_511	JUNCTION	0.33	0.36	4966.96	0	02:47	0.36
JUNCT_506	JUNCTION	0.07	0.64	5005.14	0	00:35	0.64
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_512	JUNCTION	0.39	0.42	4959.02	0	02:48	0.42
JUNCT_513	JUNCTION	0.44	0.48	4952.88	0	02:52	0.48
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5035.10	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.00	0.00	5021.90	0	00:00	0.00
JUNCT_300	JUNCTION	0.15	0.25	5104.05	0	02:26	0.25
JUNCT_303	JUNCTION	0.25	0.32	5057.62	0	03:07	0.32
JUNCT_200	JUNCTION	0.00	0.00	5051.10	0	00:00	0.00
JUNCT_214	JUNCTION	0.00	0.00	4966.70	0	00:00	0.00
JUNCT_215	JUNCTION	0.00	0.00	4959.10	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_310	JUNCTION	0.14	0.70	5035.60	0	00:55	0.70
JUNCT_316	JUNCTION	0.28	1.19	5009.09	0	01:13	1.19



JUNCT_505	JUNCTION	0.07	0.64	4998.54	0	00:36	0.64
JUNCT_613	JUNCTION	0.29	1.25	4953.65	0	00:49	1.25
JUNCT_612	JUNCTION	0.23	0.97	4959.57	0	01:18	0.97
JUNCT_611	JUNCTION	0.16	0.66	4967.26	0	01:18	0.66
JUNCT_608	JUNCTION	0.12	0.51	4995.31	0	01:23	0.51
JUNCT_607	JUNCTION	0.11	0.53	5026.83	0	01:03	0.53
JUNCT_606	JUNCTION	0.07	0.49	5050.29	0	00:46	0.49
OUTFALL_514	OUTFALL	0.43	0.48	4943.48	0	03:06	0.48
OUTFALL_319	OUTFALL	0.42	1.22	4946.52	0	01:33	1.22
OUTFALL_614	OUTFALL	0.32	1.20	4944.20	0	01:37	1.20
STOR_1001	STORAGE	4.36	4.84	5108.84	0	02:26	4.84
STOR_1006	STORAGE	4.98	5.46	5066.46	0	03:07	5.46
STOR_2012B	STORAGE	1.92	2.99	5000.99	0	12:00	2.99
STOR_2003	STORAGE	2.25	3.48	5076.48	0	02:16	3.48
STOR_2005	STORAGE	3.64	4.17	5030.87	0	02:44	4.17
STOR_2012C	STORAGE	3.27	3.56	4998.56	0	02:45	3.56
STOR_2012A	STORAGE	3.84	4.42	5010.42	0	06:00	4.42

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Node Inflow Summary  
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	116.54	116.54	0 00:35	2.54	2.54	0.000
JUNCT_100	JUNCTION	8.19	8.19	0 00:43	0.327	0.327	0.000
JUNCT_301	JUNCTION	0.00	55.55	0 00:38	0	2.5	0.000
JUNCT_102	JUNCTION	55.55	55.55	0 00:38	1.63	1.63	0.000
JUNCT_106	JUNCTION	53.22	53.22	0 00:40	1.76	1.76	0.000
JUNCT_302	JUNCTION	0.00	72.79	0 00:37	0	1.88	0.000
JUNCT_103	JUNCTION	12.64	12.64	0 00:38	0.321	0.321	0.000

JUNCT_104	JUNCTION	20.60	20.60	0	00:31	0.337	0.337	0.000
JUNCT_105	JUNCTION	42.01	42.01	0	00:38	1.22	1.22	0.000
JUNCT_304	JUNCTION	0.00	9.69	0	02:48	0	2.18	0.000
JUNCT_107	JUNCTION	5.58	5.58	0	00:42	0.173	0.173	0.000
JUNCT_305	JUNCTION	0.00	15.66	0	00:43	0	2.42	0.000
JUNCT_108	JUNCTION	10.56	10.56	0	00:39	0.254	0.254	0.000
JUNCT_306	JUNCTION	0.00	43.86	0	00:50	0	3.41	0.000
JUNCT_109	JUNCTION	38.42	38.42	0	00:45	1.04	1.04	0.000
JUNCT_110	JUNCTION	30.17	30.17	0	00:48	0.951	0.951	0.000
JUNCT_318	JUNCTION	0.00	170.82	0	01:27	0	10	0.000
JUNCT_129	JUNCTION	31.39	31.39	0	00:43	0.779	0.779	0.000
JUNCT_317	JUNCTION	0.00	125.37	0	01:21	0	5.83	0.000
JUNCT_128	JUNCTION	12.40	12.40	0	00:42	0.329	0.329	0.000
JUNCT_127	JUNCTION	47.83	47.83	0	00:44	1.18	1.18	0.000
JUNCT_126	JUNCTION	11.35	11.35	0	00:43	0.315	0.315	0.000
JUNCT_314	JUNCTION	0.00	11.35	0	00:43	0	0.315	0.000
JUNCT_124	JUNCTION	4.71	4.71	0	00:38	0.1	0.1	0.000
JUNCT_315	JUNCTION	0.00	4.71	0	00:38	0	0.1	0.000
JUNCT_313	JUNCTION	0.00	88.36	0	01:01	0	3.78	0.000
JUNCT_311	JUNCTION	0.00	73.71	0	01:00	0	3.04	0.000
JUNCT_312	JUNCTION	0.00	15.55	0	00:56	0	0.733	0.000
JUNCT_125	JUNCTION	15.55	15.55	0	00:56	0.733	0.733	0.000
JUNCT_123	JUNCTION	9.79	9.79	0	00:45	0.308	0.308	0.000
JUNCT_309	JUNCTION	0.00	55.13	0	00:53	0	2.35	0.000
JUNCT_308	JUNCTION	0.00	25.83	0	00:53	0	1.29	0.000
JUNCT_307	JUNCTION	0.00	29.84	0	00:47	0	1.06	0.000
JUNCT_121	JUNCTION	25.83	25.83	0	00:53	1.29	1.29	0.000
JUNCT_120	JUNCTION	29.84	29.84	0	00:47	1.06	1.06	0.000
JUNCT_203	JUNCTION	34.75	34.75	0	00:40	1.09	1.09	0.000
JUNCT_500	JUNCTION	0.00	6.98	0	02:16	0	0.777	0.000
JUNCT_501	JUNCTION	0.00	16.30	0	00:44	0	1.42	0.000
JUNCT_204	JUNCTION	16.30	16.30	0	00:44	0.653	0.653	0.000
JUNCT_502	JUNCTION	0.00	17.92	0	02:30	0	2.03	0.000
JUNCT_205	JUNCTION	7.61	7.61	0	00:48	0.289	0.289	0.000
JUNCT_209	JUNCTION	4.93	4.93	0	00:57	0.328	0.328	0.000
JUNCT_207	JUNCTION	9.05	9.05	0	00:44	0.273	0.273	0.000

JUNCT_208	JUNCTION	6.29	6.29	0	00:42	0.171	0.171	-0.000
JUNCT_503	JUNCTION	0.00	26.02	0	01:08	0	2.6	0.000
JUNCT_210	JUNCTION	4.84	4.84	0	00:57	0.325	0.325	0.000
JUNCT_504	JUNCTION	0.00	34.25	0	01:08	0	2.94	0.000
JUNCT_211	JUNCTION	10.00	10.00	0	00:39	0.331	0.331	0.000
JUNCT_508	JUNCTION	0.00	2.26	0	02:45	0	0.655	0.000
JUNCT_201	JUNCTION	4.59	4.59	0	00:52	0.282	0.282	0.000
JUNCT_202	JUNCTION	0.66	0.66	0	01:18	0.0595	0.0595	0.000
JUNCT_511	JUNCTION	0.00	2.26	0	02:47	0	0.652	0.000
JUNCT_506	JUNCTION	0.00	65.03	0	00:35	0	1.56	0.000
JUNCT_213	JUNCTION	65.03	65.03	0	00:35	1.56	1.56	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_512	JUNCTION	0.00	2.26	0	02:48	0	0.65	0.000
JUNCT_513	JUNCTION	0.00	2.26	0	02:52	0	0.646	0.000
JUNCT_217	JUNCTION	0.87	0.87	0	01:19	0.0837	0.0837	0.000
JUNCT_218	JUNCTION	0.89	0.89	0	01:24	0.102	0.102	0.000
JUNCT_122	JUNCTION	15.49	15.49	0	00:41	0.361	0.361	0.000
JUNCT_212	JUNCTION	11.64	11.64	0	00:49	0.531	0.531	0.000
JUNCT_206	JUNCTION	3.56	3.56	0	00:58	0.245	0.245	0.000
JUNCT_300	JUNCTION	0.00	6.33	0	02:26	0	0.906	-0.000
JUNCT_303	JUNCTION	0.00	9.47	0	03:07	0	2.04	0.000
JUNCT_200	JUNCTION	11.84	11.84	0	00:46	0.395	0.395	0.000
JUNCT_214	JUNCTION	22.61	22.61	0	00:41	0.662	0.662	0.000
JUNCT_215	JUNCTION	10.67	10.67	0	00:45	0.375	0.375	0.000
JUNCT_216	JUNCTION	6.34	6.34	0	00:38	0.144	0.144	0.000
JUNCT_310	JUNCTION	0.00	66.61	0	00:55	0	2.72	0.000
JUNCT_316	JUNCTION	0.00	120.72	0	01:13	0	5.46	0.000
JUNCT_505	JUNCTION	0.00	65.38	0	00:36	0	1.9	0.000
JUNCT_613	JUNCTION	0.00	37.98	0	00:49	0	1.9	-0.000
JUNCT_612	JUNCTION	0.00	33.77	0	01:18	0	1.75	0.000
JUNCT_611	JUNCTION	0.00	26.54	0	01:18	0	1.37	0.000
JUNCT_608	JUNCTION	0.00	13.83	0	01:23	0	0.71	0.000
JUNCT_607	JUNCTION	0.00	14.77	0	01:03	0	0.698	0.000
JUNCT_606	JUNCTION	0.00	11.84	0	00:46	0	0.395	0.000
OUTFALL_514	OUTFALL	0.00	2.26	0	03:06	0	0.628	0.000

OUTFALL_319	OUTFALL	0.00	185.60	0	01:31	0	10.9	0.000
OUTFALL_614	OUTFALL	0.00	37.03	0	01:37	0	2.17	0.000
STOR_1001	STORAGE	0.00	122.41	0	00:35	0	2.86	0.015
STOR_1006	STORAGE	0.00	180.96	0	00:40	0	6.13	0.007
STOR_2012B	STORAGE	0.00	3.95	0	06:00	0	0.965	-0.028
STOR_2003	STORAGE	0.00	34.75	0	00:40	0	1.09	0.123
STOR_2005	STORAGE	0.00	23.77	0	00:49	0	1.71	0.049
STOR_2012C	STORAGE	0.00	65.38	0	00:36	0	1.9	-0.000
STOR_2012A	STORAGE	0.00	43.57	0	01:15	0	3.46	-0.010

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Node Flooding Summary  
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No nodes were flooded.

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Storage Volume Summary  
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Storage Unit	Average Volume 1000 ft <sup>3</sup>	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft <sup>3</sup>	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_1001	278.807	15	0	0	349.702	19	0 02:26	6.33
STOR_1006	560.050	16	0	0	672.946	19	0 03:07	9.47
STOR_2012B	39.705	3	0	0	91.134	6	0 12:00	1.46
STOR_2003	61.134	18	0	0	108.656	31	0 02:16	6.98
STOR_2005	81.983	29	0	0	109.439	39	0 02:44	11.92
STOR_2012C	167.897	10	0	0	198.352	12	0 02:45	2.26
STOR_2012A	285.883	18	0	0	357.840	23	0 06:00	3.95

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 Outfall Loading Summary  
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Outfall Node	Flow Freq Pcmt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_514	94.58	2.06	2.26	0.628
OUTFALL_319	98.06	34.52	185.60	10.937
OUTFALL_614	98.19	6.83	37.03	2.169
System	96.94	43.41	223.97	13.734

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 Link Flow Summary  
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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	116.54	0 00:35			
100	CONDUIT	8.10	0 00:49	7.39	0.17	0.28
102	DUMMY	55.55	0 00:38			
105	DUMMY	42.01	0 00:38			
106	DUMMY	53.22	0 00:40			
301	CONDUIT	55.37	0 00:40	2.67	0.04	0.21
302	CONDUIT	72.37	0 00:40	11.00	0.22	0.32
103	CONDUIT	12.49	0 00:42	8.67	0.15	0.26
104	CONDUIT	19.96	0 00:34	10.36	0.22	0.32
107	DUMMY	5.58	0 00:42			
108	DUMMY	10.56	0 00:39			

304	CONDUIT	9.69	0	02:53	3.34	0.00	0.03
305	CONDUIT	12.60	0	01:15	1.66	0.00	0.06
109	DUMMY	38.42	0	00:45			
306	CONDUIT	41.72	0	01:04	2.60	0.01	0.11
318	CONDUIT	169.78	0	01:33	3.18	0.04	0.24
129	DUMMY	31.39	0	00:43			
317	CONDUIT	123.21	0	01:30	3.52	0.02	0.18
128	DUMMY	12.40	0	00:42			
316	CONDUIT	118.96	0	01:22	2.36	0.04	0.24
127	DUMMY	47.83	0	00:44			
126	DUMMY	11.35	0	00:43			
124	DUMMY	4.71	0	00:38			
314	CONDUIT	8.49	0	01:10	1.49	0.00	0.05
315	CONDUIT	3.49	0	01:00	0.86	0.00	0.04
313	CONDUIT	82.73	0	01:17	1.99	0.03	0.21
125	DUMMY	15.55	0	00:56			
312	CONDUIT	15.18	0	01:08	1.89	0.00	0.06
311	DUMMY	73.71	0	01:00			
123	DUMMY	9.79	0	00:45			
120	DUMMY	29.84	0	00:47			
121	DUMMY	25.83	0	00:53			
309	CONDUIT	54.84	0	00:57	2.47	0.01	0.13
307	CONDUIT	29.71	0	00:51	1.90	0.01	0.10
308	CONDUIT	25.78	0	00:57	1.95	0.01	0.09
203	DUMMY	34.75	0	00:40			
204	DUMMY	16.30	0	00:44			
500	CONDUIT	6.95	0	02:33	1.75	0.01	0.07
501	CONDUIT	16.18	0	00:50	2.61	0.01	0.10
205	DUMMY	7.61	0	00:48			
209	DUMMY	4.93	0	00:57			
207	CONDUIT	6.93	0	01:12	1.80	0.01	0.07
208	CONDUIT	5.37	0	00:59	1.78	0.00	0.06
502	CONDUIT	17.92	0	02:31	3.12	0.00	0.05
210	DUMMY	4.84	0	00:57			
503	CONDUIT	26.00	0	01:10	2.98	0.02	0.13
211	CONDUIT	8.52	0	01:01	0.45	0.05	0.24

504	CONDUIT	33.91	0	01:17	2.18	0.04	0.21
201	DUMMY	4.59	0	00:52			
202	DUMMY	0.66	0	01:18			
508	CONDUIT	2.26	0	02:47	5.97	0.04	0.13
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	65.03	0	00:35			
506	CONDUIT	64.81	0	00:36	3.08	0.01	0.13
511	CONDUIT	2.26	0	02:48	5.27	0.04	0.14
512	CONDUIT	2.26	0	02:52	3.71	0.04	0.14
513	CONDUIT	2.26	0	03:06	2.81	0.04	0.14
217	DUMMY	0.87	0	01:19			
218	DUMMY	0.89	0	01:24			
122	DUMMY	15.49	0	00:41			
212	DUMMY	11.64	0	00:49			
110	DUMMY	30.17	0	00:48			
206	DUMMY	3.56	0	00:58			
300	CONDUIT	6.22	0	02:51	1.58	0.00	0.05
303	CONDUIT	9.47	0	03:17	1.78	0.01	0.06
310	CONDUIT	65.72	0	01:01	2.84	0.01	0.14
505	DUMMY	65.38	0	00:36			
606	CONDUIT	10.29	0	01:04	1.94	0.01	0.09
607	CONDUIT	13.83	0	01:23	2.24	0.01	0.10
608	CONDUIT	13.77	0	01:28	2.79	0.01	0.08
611	CONDUIT	26.52	0	01:20	3.03	0.02	0.13
612	CONDUIT	33.65	0	01:23	2.37	0.03	0.19
613	CONDUIT	35.34	0	01:37	1.95	0.05	0.24
200	DUMMY	11.84	0	00:46			
214	DUMMY	22.61	0	00:41			
215	DUMMY	10.67	0	00:45			
216	DUMMY	6.34	0	00:38			
OUTLET_1001	DUMMY	6.33	0	02:26			
OUTLET_1006	DUMMY	9.47	0	03:07			
OUTLET_2012B	DUMMY	1.46	0	12:00			
OUTLET_2003	DUMMY	6.98	0	02:16			
OUTLET_2005	DUMMY	11.92	0	02:44			

OUTLET_2012C	DUMMY	2.26	0	02:45
OUTLET_2012A	DUMMY	3.95	0	06:00

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Conduit Surcharge Summary  
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No conduits were surcharged.

Analysis begun on: Tue Jun 6 14:38:40 2023  
Analysis ended on: Tue Jun 6 14:38:40 2023  
Total elapsed time: < 1 sec



PROPOSED CONDITION - 100-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

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Analysis Options

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Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO  
RDII ..... NO  
Snowmelt ..... NO  
Groundwater ..... NO  
Flow Routing ..... YES  
Ponding Allowed ..... YES  
Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

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Flow Routing Continuity

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	Volume acre-feet	Volume 10 <sup>6</sup> gal
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Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	326.807	106.495
External Outflow .....	227.750	74.216
Flooding Loss .....	0.000	0.000
Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000

Final Stored Volume ..... 102.382            33.363  
 Continuity Error (%) ..... -1.018

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 Highest Flow Instability Indexes  
 \*\*\*\*\*  
 Link 313 (1)  
 Link 312 (1)  
 Link 309 (1)

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 Routing Time Step Summary  
 \*\*\*\*\*  
 Minimum Time Step            :    60.00 sec  
 Average Time Step            :    60.00 sec  
 Maximum Time Step           :    60.00 sec  
 % of Time in Steady State    :    0.00  
 Average Iterations per Step :    1.04  
 % of Steps Not Converging   :    0.00

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 Node Depth Summary  
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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_101	JUNCTION	0.00	0.00	5106.50	0 00:00	0.00
JUNCT_100	JUNCTION	0.24	1.47	5138.07	0 00:50	1.47
JUNCT_301	JUNCTION	0.53	1.80	5065.80	0 00:44	1.80
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0 00:00	0.00
JUNCT_106	JUNCTION	0.00	0.00	5061.10	0 00:00	0.00
JUNCT_302	JUNCTION	0.40	3.58	5081.78	0 00:43	3.58
JUNCT_103	JUNCTION	0.21	1.79	5114.49	0 00:44	1.79

JUNCT_104	JUNCTION	0.14	1.87	5119.47	0	00:36	1.87
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.46	0.49	5040.29	0	03:00	0.49
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.43	0.82	5029.52	0	01:08	0.82
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.50	1.34	4996.54	0	00:56	1.34
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.84	2.89	4962.99	0	01:16	2.89
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.59	2.69	5002.39	0	01:14	2.69
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.10	0.74	5041.34	0	00:49	0.74
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.06	0.56	5015.66	0	00:43	0.56
JUNCT_313	JUNCTION	0.49	2.32	5018.52	0	01:05	2.32
JUNCT_311	JUNCTION	0.29	1.50	5017.80	0	01:03	1.50
JUNCT_312	JUNCTION	0.18	0.82	5039.52	0	01:08	0.82
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_309	JUNCTION	0.28	1.41	5045.71	0	00:59	1.41
JUNCT_308	JUNCTION	0.21	0.98	5051.48	0	01:03	0.98
JUNCT_307	JUNCTION	0.19	1.14	5050.74	0	00:54	1.14
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.32	1.33	5073.83	0	01:24	1.33
JUNCT_501	JUNCTION	0.39	1.49	5044.89	0	01:24	1.49
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.28	1.10	5023.70	0	01:23	1.10
JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.15	1.06	5061.26	0	00:51	1.06
JUNCT_208	JUNCTION	0.10	0.80	5052.30	0	00:48	0.80
JUNCT_503	JUNCTION	0.59	2.22	5024.02	0	01:23	2.22
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00

JUNCT_504	JUNCTION	0.83	3.05	5016.25	0	01:23	3.05
JUNCT_211	JUNCTION	0.35	2.52	5015.82	0	00:46	2.52
JUNCT_508	JUNCTION	0.98	1.63	4996.43	0	07:19	1.63
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_511	JUNCTION	1.10	1.87	4968.47	0	07:20	1.87
JUNCT_506	JUNCTION	0.11	1.09	5005.59	0	00:40	1.09
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_512	JUNCTION	1.30	2.21	4960.81	0	07:20	2.21
JUNCT_513	JUNCTION	1.46	2.48	4954.88	0	07:22	2.48
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5035.10	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.00	0.00	5021.90	0	00:00	0.00
JUNCT_300	JUNCTION	0.31	0.33	5104.13	0	02:34	0.33
JUNCT_303	JUNCTION	0.46	0.49	5057.79	0	02:52	0.49
JUNCT_200	JUNCTION	0.00	0.00	5051.10	0	00:00	0.00
JUNCT_214	JUNCTION	0.00	0.00	4966.70	0	00:00	0.00
JUNCT_215	JUNCTION	0.00	0.00	4959.10	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_310	JUNCTION	0.30	1.51	5036.41	0	00:59	1.51
JUNCT_316	JUNCTION	0.59	2.70	5010.60	0	01:09	2.70
JUNCT_505	JUNCTION	0.11	1.09	4998.99	0	00:41	1.09
JUNCT_613	JUNCTION	0.61	2.97	4955.37	0	01:11	2.97
JUNCT_612	JUNCTION	0.48	2.38	4960.98	0	01:09	2.38
JUNCT_611	JUNCTION	0.33	1.67	4968.27	0	01:10	1.67
JUNCT_608	JUNCTION	0.26	1.28	4996.08	0	01:17	1.28
JUNCT_607	JUNCTION	0.25	1.30	5027.60	0	01:04	1.30
JUNCT_606	JUNCTION	0.19	1.21	5051.01	0	00:53	1.21
OUTFALL_514	OUTFALL	1.44	2.48	4945.48	0	07:28	2.48
OUTFALL_319	OUTFALL	0.84	2.88	4948.18	0	01:20	2.88
OUTFALL_614	OUTFALL	0.65	2.92	4945.92	0	01:24	2.92
STOR_1001	STORAGE	6.43	7.19	5111.19	0	02:34	7.19
STOR_1006	STORAGE	7.16	7.86	5068.86	0	02:52	7.86
STOR_2012B	STORAGE	5.80	7.83	5005.83	0	04:24	7.83
STOR_2003	STORAGE	2.83	6.01	5079.01	0	01:24	6.01

STOR_2005	STORAGE	4.02	5.47	5032.17	0	01:26	5.47
STOR_2012C	STORAGE	5.81	6.73	5001.73	0	07:19	6.73
STOR_2012A	STORAGE	5.42	7.54	5013.54	0	02:35	7.54

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Node Inflow Summary  
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	346.42	346.42	0 00:40	7.26	7.26	0.000
JUNCT_100	JUNCTION	31.49	31.49	0 00:50	1.2	1.2	0.000
JUNCT_301	JUNCTION	0.00	156.21	0 00:44	0	7.21	0.000
JUNCT_102	JUNCTION	156.21	156.21	0 00:44	4.28	4.28	0.000
JUNCT_106	JUNCTION	153.47	153.47	0 00:46	4.67	4.67	0.000
JUNCT_302	JUNCTION	0.00	244.28	0 00:43	0	6.17	0.000
JUNCT_103	JUNCTION	56.48	56.48	0 00:44	1.55	1.55	0.000
JUNCT_104	JUNCTION	63.84	63.84	0 00:36	1.04	1.04	0.000
JUNCT_105	JUNCTION	130.17	130.17	0 00:44	3.57	3.57	0.000
JUNCT_304	JUNCTION	0.00	40.03	0 01:10	0	6.72	0.000
JUNCT_107	JUNCTION	27.83	27.83	0 00:48	0.933	0.933	0.000
JUNCT_305	JUNCTION	0.00	79.75	0 01:08	0	8.08	0.000
JUNCT_108	JUNCTION	51.68	51.68	0 00:44	1.4	1.4	0.000
JUNCT_306	JUNCTION	0.00	263.22	0 00:56	0	14.2	0.000
JUNCT_109	JUNCTION	205.55	205.55	0 00:50	6.26	6.26	0.000
JUNCT_110	JUNCTION	168.77	168.77	0 00:54	5.9	5.9	0.000
JUNCT_318	JUNCTION	0.00	1156.19	0 01:16	0	50.9	0.000
JUNCT_129	JUNCTION	170.63	170.63	0 00:48	4.89	4.89	0.000
JUNCT_317	JUNCTION	0.00	794.27	0 01:14	0	31.9	0.000
JUNCT_128	JUNCTION	67.84	67.84	0 00:48	2.07	2.07	0.000
JUNCT_127	JUNCTION	258.45	258.45	0 00:49	7.32	7.32	0.000
JUNCT_126	JUNCTION	62.51	62.51	0 00:49	1.98	1.98	0.000
JUNCT_314	JUNCTION	0.00	62.51	0 00:49	0	1.98	0.000
JUNCT_124	JUNCTION	24.83	24.83	0 00:43	0.63	0.63	0.000

JUNCT_315	JUNCTION	0.00	24.83	0	00:43	0	0.63	0.000
JUNCT_313	JUNCTION	0.00	467.14	0	01:05	0	19.6	0.000
JUNCT_311	JUNCTION	0.00	378.14	0	01:02	0	15	0.000
JUNCT_312	JUNCTION	0.00	93.77	0	01:08	0	4.6	0.000
JUNCT_125	JUNCTION	93.77	93.77	0	01:08	4.6	4.6	0.000
JUNCT_123	JUNCTION	54.96	54.96	0	00:52	1.93	1.93	0.000
JUNCT_309	JUNCTION	0.00	254.19	0	00:59	0	10.7	0.000
JUNCT_308	JUNCTION	0.00	114.57	0	01:03	0	5.49	0.000
JUNCT_307	JUNCTION	0.00	142.69	0	00:54	0	5.24	0.000
JUNCT_121	JUNCTION	114.57	114.57	0	01:03	5.49	5.49	0.000
JUNCT_120	JUNCTION	142.69	142.69	0	00:54	5.24	5.24	0.000
JUNCT_203	JUNCTION	131.53	131.53	0	00:47	4.05	4.05	0.000
JUNCT_500	JUNCTION	0.00	82.12	0	01:24	0	3.72	0.000
JUNCT_501	JUNCTION	0.00	124.24	0	01:24	0	6.11	0.000
JUNCT_204	JUNCTION	62.30	62.30	0	00:51	2.38	2.38	0.000
JUNCT_502	JUNCTION	0.00	244.96	0	01:23	0	11.4	0.000
JUNCT_205	JUNCTION	42.17	42.17	0	00:55	1.73	1.73	0.000
JUNCT_209	JUNCTION	21.24	21.24	0	01:08	1.29	1.29	0.000
JUNCT_207	JUNCTION	50.46	50.46	0	00:51	1.72	1.72	0.000
JUNCT_208	JUNCTION	34.49	34.49	0	00:48	1.07	1.07	-0.000
JUNCT_503	JUNCTION	0.00	273.98	0	01:23	0	13.4	0.000
JUNCT_210	JUNCTION	19.38	19.38	0	01:08	1.17	1.17	0.000
JUNCT_504	JUNCTION	0.00	303.13	0	01:23	0	14.5	0.000
JUNCT_211	JUNCTION	36.68	36.68	0	00:46	1.17	1.17	0.000
JUNCT_508	JUNCTION	0.00	46.72	0	07:19	0	7.47	0.000
JUNCT_201	JUNCTION	17.54	17.54	0	01:04	0.958	0.958	0.000
JUNCT_202	JUNCTION	2.06	2.06	0	01:10	0.167	0.167	0.000
JUNCT_511	JUNCTION	0.00	46.72	0	07:20	0	7.45	0.000
JUNCT_506	JUNCTION	0.00	186.41	0	00:40	0	4.26	0.000
JUNCT_213	JUNCTION	186.41	186.41	0	00:40	4.26	4.26	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_512	JUNCTION	0.00	46.72	0	07:20	0	7.44	0.000
JUNCT_513	JUNCTION	0.00	46.72	0	07:22	0	7.42	0.000
JUNCT_217	JUNCTION	3.83	3.83	0	01:12	0.345	0.345	0.000
JUNCT_218	JUNCTION	3.76	3.76	0	01:17	0.402	0.402	0.000
JUNCT_122	JUNCTION	83.09	83.09	0	00:46	2.27	2.27	0.000
JUNCT_212	JUNCTION	53.44	53.44	0	00:57	2.41	2.41	0.000
JUNCT_206	JUNCTION	12.39	12.39	0	01:07	0.744	0.744	0.000

JUNCT_300	JUNCTION	0.00	10.29	0	02:34	0	3.03	0.000
JUNCT_303	JUNCTION	0.00	19.94	0	02:52	0	5.87	0.000
JUNCT_200	JUNCTION	63.15	63.15	0	00:53	2.29	2.29	0.000
JUNCT_214	JUNCTION	100.77	100.77	0	00:47	3.09	3.09	0.000
JUNCT_215	JUNCTION	51.50	51.50	0	00:52	1.89	1.89	0.000
JUNCT_216	JUNCTION	32.12	32.12	0	00:43	0.846	0.846	0.000
JUNCT_310	JUNCTION	0.00	327.12	0	00:59	0	13	0.000
JUNCT_316	JUNCTION	0.00	745.38	0	01:09	0	29.7	-0.000
JUNCT_505	JUNCTION	0.00	187.84	0	00:42	0	13.7	0.000
JUNCT_613	JUNCTION	0.00	223.33	0	01:11	0	9.17	0.000
JUNCT_612	JUNCTION	0.00	201.01	0	01:09	0	8.31	0.000
JUNCT_611	JUNCTION	0.00	154.65	0	01:10	0	6.41	0.000
JUNCT_608	JUNCTION	0.00	76.85	0	01:17	0	3.31	0.000
JUNCT_607	JUNCTION	0.00	78.30	0	01:04	0	3.29	0.000
JUNCT_606	JUNCTION	0.00	63.15	0	00:53	0	2.29	0.000
OUTFALL_514	OUTFALL	0.00	46.70	0	07:28	0	7.33	0.000
OUTFALL_319	OUTFALL	0.00	1287.92	0	01:18	0	56.8	0.000
OUTFALL_614	OUTFALL	0.00	223.64	0	01:24	0	10.1	0.000
STOR_1001	STORAGE	0.00	371.69	0	00:40	0	8.46	0.002
STOR_1006	STORAGE	0.00	552.74	0	00:45	0	18	0.001
STOR_2012B	STORAGE	0.00	146.66	0	02:35	0	13.3	0.063
STOR_2003	STORAGE	0.00	131.53	0	00:47	0	4.05	0.028
STOR_2005	STORAGE	0.00	156.93	0	01:23	0	7.83	0.298
STOR_2012C	STORAGE	0.00	187.84	0	00:42	0	13.7	0.015
STOR_2012A	STORAGE	0.00	341.73	0	01:28	0	17	0.065

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Node Flooding Summary

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No nodes were flooded.

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Storage Volume Summary

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Storage Unit	Average Volume 1000 ft <sup>3</sup>	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft <sup>3</sup>	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_1001	839.627	46	0	0	1046.555	57	0 02:34	10.29
STOR_1006	1633.847	47	0	0	1930.430	55	0 02:52	19.94
STOR_2012B	617.944	43	0	0	1031.015	72	0 04:24	73.41
STOR_2003	86.186	25	0	0	229.808	66	0 01:24	82.12
STOR_2005	108.667	39	0	0	210.681	75	0 01:26	156.25
STOR_2012C	754.381	45	0	0	973.007	58	0 07:19	46.72
STOR_2012A	622.632	40	0	0	1120.803	72	0 02:35	146.66

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 Outfall Loading Summary  
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Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10 <sup>6</sup> gal
OUTFALL_514	94.72	23.97	46.70	7.332
OUTFALL_319	98.19	178.91	1287.92	56.764
OUTFALL_614	98.33	31.83	223.64	10.114
System	97.08	234.71	1510.98	74.210

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 Link Flow Summary  
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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	346.42	0 00:40			



100	CONDUIT	31.41	0	00:54	10.55	0.65	0.59
102	DUMMY	156.21	0	00:44			
105	DUMMY	130.17	0	00:44			
106	DUMMY	153.47	0	00:46			
301	CONDUIT	156.02	0	00:45	3.63	0.12	0.36
302	CONDUIT	243.73	0	00:44	14.95	0.76	0.65
103	CONDUIT	56.33	0	00:47	12.87	0.66	0.60
104	CONDUIT	63.12	0	00:38	13.85	0.70	0.62
107	DUMMY	27.83	0	00:48			
108	DUMMY	51.68	0	00:44			
304	CONDUIT	39.91	0	01:13	5.38	0.00	0.06
305	CONDUIT	78.09	0	01:18	2.79	0.02	0.16
109	DUMMY	205.55	0	00:50			
306	CONDUIT	259.97	0	01:04	4.24	0.05	0.27
318	CONDUIT	1152.95	0	01:20	5.18	0.27	0.58
129	DUMMY	170.63	0	00:48			
317	CONDUIT	788.92	0	01:19	5.68	0.14	0.44
128	DUMMY	67.84	0	00:48			
316	CONDUIT	741.65	0	01:14	3.76	0.23	0.54
127	DUMMY	258.45	0	00:49			
126	DUMMY	62.51	0	00:49			
124	DUMMY	24.83	0	00:43			
314	CONDUIT	56.87	0	01:12	2.54	0.01	0.14
315	CONDUIT	22.45	0	01:00	1.48	0.01	0.11
313	CONDUIT	461.36	0	01:14	3.08	0.16	0.46
125	DUMMY	93.77	0	01:08			
312	CONDUIT	93.47	0	01:13	3.19	0.02	0.16
311	DUMMY	378.14	0	01:02			
123	DUMMY	54.96	0	00:52			
120	DUMMY	142.69	0	00:54			
121	DUMMY	114.57	0	01:03			
309	CONDUIT	253.83	0	01:02	3.72	0.05	0.28
307	CONDUIT	142.44	0	00:56	2.92	0.03	0.23
308	CONDUIT	114.50	0	01:05	2.97	0.02	0.20
203	DUMMY	131.53	0	00:47			
204	DUMMY	62.30	0	00:51			
500	CONDUIT	81.42	0	01:33	3.78	0.06	0.26
501	CONDUIT	124.11	0	01:27	4.77	0.08	0.30
205	DUMMY	42.17	0	00:55			

209	DUMMY	21.24	0	01:08			
207	CONDUIT	46.76	0	01:13	3.22	0.04	0.20
208	CONDUIT	33.25	0	00:58	3.11	0.02	0.16
502	CONDUIT	244.99	0	01:23	7.21	0.04	0.22
210	DUMMY	19.38	0	01:08			
503	CONDUIT	273.86	0	01:24	5.85	0.17	0.44
211	CONDUIT	34.27	0	01:02	0.66	0.21	0.49
504	CONDUIT	299.78	0	01:29	3.97	0.33	0.61
201	DUMMY	17.54	0	01:04			
202	DUMMY	2.06	0	01:10			
508	CONDUIT	46.72	0	07:20	13.82	0.76	0.65
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	186.41	0	00:40			
506	CONDUIT	186.18	0	00:41	4.12	0.03	0.22
511	CONDUIT	46.72	0	07:20	11.85	0.91	0.75
512	CONDUIT	46.72	0	07:22	8.38	0.89	0.74
513	CONDUIT	46.70	0	07:28	6.42	0.85	0.71
217	DUMMY	3.83	0	01:12			
218	DUMMY	3.76	0	01:17			
122	DUMMY	83.09	0	00:46			
212	DUMMY	53.44	0	00:57			
110	DUMMY	168.77	0	00:54			
206	DUMMY	12.39	0	01:07			
300	CONDUIT	10.29	0	02:55	1.88	0.01	0.07
303	CONDUIT	19.94	0	03:00	2.31	0.01	0.10
310	CONDUIT	326.16	0	01:03	4.34	0.06	0.30
505	DUMMY	187.84	0	00:42			
606	CONDUIT	60.77	0	01:04	3.31	0.05	0.24
607	CONDUIT	76.85	0	01:17	3.74	0.06	0.26
608	CONDUIT	76.73	0	01:20	4.75	0.04	0.21
611	CONDUIT	154.58	0	01:11	5.06	0.09	0.33
612	CONDUIT	200.39	0	01:13	3.88	0.19	0.47
613	CONDUIT	216.16	0	01:24	3.14	0.30	0.58
200	DUMMY	63.15	0	00:53			
214	DUMMY	100.77	0	00:47			
215	DUMMY	51.50	0	00:52			
216	DUMMY	32.12	0	00:43			
OUTLET_1001	DUMMY	10.29	0	02:34			

OUTLET_1006	DUMMY	19.94	0	02:52
OUTLET_2012B	DUMMY	73.41	0	04:24
OUTLET_2003	DUMMY	82.12	0	01:24
OUTLET_2005	DUMMY	156.25	0	01:26
OUTLET_2012C	DUMMY	46.72	0	07:19
OUTLET_2012A	DUMMY	146.66	0	02:35

\*\*\*\*\*  
Conduit Surcharge Summary  
\*\*\*\*\*






No conduits were surcharged.

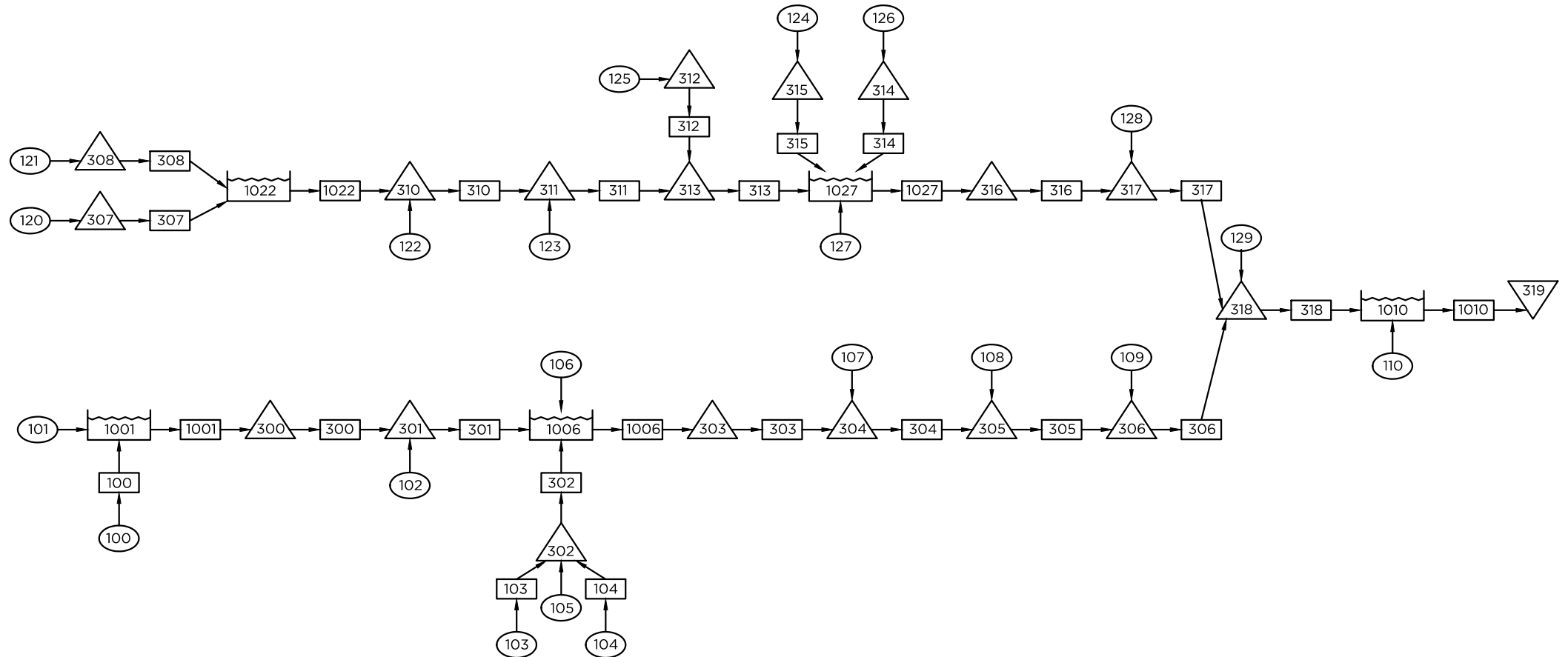
Analysis begun on: Tue Jun 6 14:31:55 2023  
Analysis ended on: Tue Jun 6 14:31:55 2023  
Total elapsed time: < 1 sec

APPENDIX F  
FUTURE CONDITION CUHP/SWMM MODEL

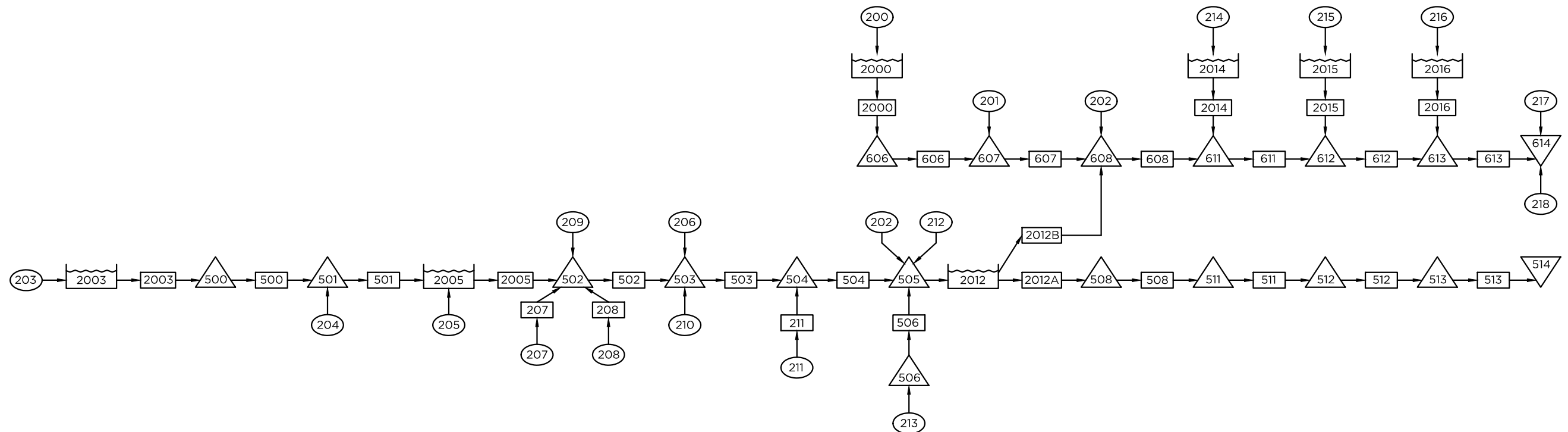
### FUTURE CONDITIONS MAP

**LEGEND**

-  DESIGN POINT
-  SUBBASIN
-  DETENTION FACILITY
-  OUTFALL
-  CONVEYANCE ELEMENT



E. 168TH AVENUE - DRAINAGE #1



E. 168TH AVENUE - DRAINAGE #2

J:\0009\2017\CIVIL\RAINAGE\PHASE 1\CAD FILES\OUTFALL PLAN-FUTURE.DWG



**KT ENGINEERING**  
 12500 W. 58th AVE, #230  
 ARVADA, CO 80002  
 PH: 720.638.5190

## CUHP SUBCATCHMENTS

Columns with this color heading are for required user-input
Columns with this color heading are for optional override values
Columns with this color heading are for program-calculated values

Subcatchment Name	EPA SWMM Target Node	Raingage	Area (mi <sup>2</sup> )	Length to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness	Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters		
								Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)
100	JUNCT_100	5-YR	0.0375	0.2119	0.4318	0.0237	23.9	0.38	0.1	3	0.0018	0.5
101	JUNCT_101	5-YR	0.2028	0.3134	0.5438	0.0247	42.25	0.38	0.1	3	0.0018	0.5
102	JUNCT_102	5-YR	0.1136	0.4163	0.6566	0.01933	51.12	0.38	0.1	3	0.0018	0.5
103	JUNCT_103	5-YR	0.0529	0.1572	0.2483	0.0191	10.89	0.38	0.1	3	0.0018	0.5
104	JUNCT_104	5-YR	0.0303	0.0701	0.1826	0.0456	35.57	0.38	0.1	3	0.0018	0.5
105	JUNCT_105	5-YR	0.1009	0.2858	0.5345	0.0145	40.45	0.38	0.1	3	0.0018	0.5
106	JUNCT_106	5-YR	0.1252	0.4591	0.8307	0.0173	49.6	0.38	0.1	3	0.0018	0.5
107	JUNCT_107	5-YR	0.0327	0.1241	0.2723	0.0111	6.73	0.38	0.1	3	0.0018	0.5
108	JUNCT_108	5-YR	0.0494	0.107	0.2693	0.0127	5.99	0.38	0.1	3	0.0018	0.5
109	JUNCT_109	5-YR	0.2248	0.2646	0.6299	0.0123	3.18	0.38	0.1	3	0.0018	0.5
110	JUNCT_110	5-YR	0.2131	0.2913	0.803	0.0116	2.33	0.38	0.1	3	0.0018	0.5
120	JUNCT_120	5-YR	0.18	0.3434	0.7458	0.0135	9.85	0.38	0.1	3	0.0018	0.5
121	JUNCT_121	5-YR	0.1803	0.5699	0.9413	0.0127	16.25	0.38	0.1	3	0.0018	0.5
122	JUNCT_122	5-YR	0.0821	0.1534	0.2905	0.0104	2	0.38	0.1	3	0.0018	0.5
123	JUNCT_123	5-YR	0.07	0.208	0.3845	0.0103	2	0.38	0.1	3	0.0018	0.5
124	JUNCT_124	5-YR	0.0228	0.0672	0.1769	0.0139	2	0.38	0.1	3	0.0018	0.5
125	JUNCT_125	5-YR	0.1665	0.4428	0.9917	0.0088	2	0.38	0.1	3	0.0018	0.5
126	JUNCT_126	5-YR	0.0715	0.1708	0.3163	0.0084	2	0.38	0.1	3	0.0018	0.5
127	JUNCT_127	5-YR	0.2645	0.2506	0.6981	0.0165	2.25	0.38	0.1	3	0.0018	0.5
128	JUNCT_128	5-YR	0.0748	0.1648	0.4085	0.0148	2	0.38	0.1	3	0.0018	0.5
129	JUNCT_129	5-YR	0.177	0.2455	0.5813	0.0173	2	0.38	0.1	3	0.0018	0.5
200	JUNCT_200	5-YR	0.0816	0.2051	0.5246	0.0119	4.37	0.38	0.1	3	0.0018	0.5
201	JUNCT_201	5-YR	0.029	0.31075	0.5782159	0.0128	28.83	0.38	0.1	3	0.0018	0.5
202	JUNCT_202	5-YR	0.0046	0.2797	0.5233	0.008	44.36	0.38	0.1	3	0.0018	0.5
203	JUNCT_203	5-YR	0.127	0.293140152	0.5782254	0.0272	23.32	0.38	0.1	3	0.0018	0.5
204	JUNCT_204	5-YR	0.074	0.2692	0.5601	0.0169	24.47	0.38	0.1	3	0.0018	0.5
205	JUNCT_205	5-YR	0.062	0.2464	0.4621	0.0114	3.45	0.38	0.1	3	0.0018	0.5
206	JUNCT_206	5-YR	0.0214	0.4103	0.6914	0.0137	37.15	0.38	0.1	3	0.0018	0.5
207	JUNCT_207	5-YR	0.0621	0.183	0.3847	0.0123	2	0.38	0.1	3	0.0018	0.5
208	JUNCT_208	5-YR	0.0388	0.10868	0.23969	0.0071	2	0.38	0.1	3	0.0018	0.5
209	JUNCT_209	5-YR	0.0412	0.3381	0.6977	0.0106	20.21	0.38	0.1	3	0.0018	0.5
210	JUNCT_210	5-YR	0.0361	0.4097	0.7119	0.0186	25.32	0.38	0.1	3	0.0018	0.5
211	JUNCT_211	5-YR	0.036	0.1785	0.296	0.0221	26.28	0.38	0.1	3	0.0018	0.5
212	JUNCT_212	5-YR	0.0808	0.280333333	0.5628106	0.0077	27.36	0.38	0.1	3	0.0018	0.5
213	JUNCT_213	5-YR	0.116	0.203833333	0.5581742	0.0129	46.89	0.38	0.1	3	0.0018	0.5
214	JUNCT_214	5-YR	0.1045	0.304159091	0.3573902	0.0201	12.2	0.38	0.1	3	0.0018	0.5
215	JUNCT_215	5-YR	0.0653	0.200164773	0.3851307	0.0089	9.19	0.38	0.1	3	0.0018	0.5
216	JUNCT_216	5-YR	0.0302	0.0564	0.1816	0.0049	4.01	0.38	0.1	3	0.0018	0.5
217	JUNCT_217	5-YR	0.0112	0.1634	0.459	0.0019	17.82	0.38	0.1	3	0.0018	0.5
218	JUNCT_218	5-YR	0.0129	0.2218	0.5591	0.0017	19.86	0.38	0.1	3	0.0018	0.5

FUTURE CONDITION - 5-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

\*\*\*\*\*

Analysis Options

\*\*\*\*\*

Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO  
RDII ..... NO  
Snowmelt ..... NO  
Groundwater ..... NO  
Flow Routing ..... YES  
Ponding Allowed ..... YES  
Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

\*\*\*\*\*

Flow Routing Continuity

\*\*\*\*\*

	Volume acre-feet	Volume 10 <sup>6</sup> gal
	-----	-----
Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	38.717	12.616
External Outflow .....	5.719	1.863
Flooding Loss .....	0.000	0.000
Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000

Final Stored Volume ..... 33.551            10.933  
 Continuity Error (%) ..... -1.428

\*\*\*\*\*  
 Highest Flow Instability Indexes  
 \*\*\*\*\*

Link OUTLET\_2015 (33)  
 Link 612 (25)  
 Link 613 (25)  
 Link 308 (1)  
 Link 309 (1)

\*\*\*\*\*  
 Routing Time Step Summary  
 \*\*\*\*\*

Minimum Time Step            :    60.00 sec  
 Average Time Step            :    60.00 sec  
 Maximum Time Step            :    60.00 sec  
 % of Time in Steady State    :    0.00  
 Average Iterations per Step :    1.01  
 % of Steps Not Converging    :    0.00

\*\*\*\*\*  
 Node Depth Summary  
 \*\*\*\*\*

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_101	JUNCTION	0.00	0.00	5106.50	0 00:00	0.00
JUNCT_100	JUNCTION	0.10	0.52	5137.12	0 00:43	0.52
JUNCT_301	JUNCTION	0.21	0.85	5064.85	0 00:38	0.85
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0 00:00	0.00
JUNCT_106	JUNCTION	0.00	0.00	5061.10	0 00:00	0.00



JUNCT_302	JUNCTION	0.18	1.37	5079.57	0	00:38	1.37
JUNCT_103	JUNCTION	0.06	0.51	5113.21	0	00:39	0.51
JUNCT_104	JUNCTION	0.07	0.76	5118.36	0	00:32	0.76
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.14	0.15	5039.95	0	03:38	0.15
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.13	0.20	5028.90	0	00:47	0.20
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.14	0.28	4995.48	0	00:50	0.28
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.20	0.41	4960.51	0	01:05	0.41
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.10	0.13	4999.83	0	00:43	0.13
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.02	0.14	5040.74	0	00:43	0.14
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.01	0.11	5015.21	0	00:39	0.11
JUNCT_313	JUNCTION	0.12	0.26	5016.46	0	01:12	0.26
JUNCT_311	JUNCTION	0.06	0.07	5016.37	0	04:59	0.07
JUNCT_312	JUNCTION	0.03	0.15	5038.85	0	00:56	0.15
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_309	JUNCTION	0.09	0.44	5044.74	0	00:55	0.44
JUNCT_308	JUNCTION	0.07	0.31	5050.81	0	00:54	0.31
JUNCT_307	JUNCTION	0.05	0.32	5049.92	0	00:47	0.32
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.10	0.21	5072.71	0	02:25	0.21
JUNCT_501	JUNCTION	0.14	0.36	5043.76	0	00:44	0.36
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.07	0.15	5022.75	0	01:26	0.15
JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.02	0.20	5060.40	0	00:44	0.20
JUNCT_208	JUNCTION	0.02	0.15	5051.65	0	00:42	0.15

JUNCT_503	JUNCTION	0.25	0.52	5022.32	0	01:12	0.52
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.29	0.90	5014.10	0	01:05	0.90
JUNCT_211	JUNCTION	0.14	0.99	5014.29	0	00:39	0.99
JUNCT_508	JUNCTION	0.32	0.35	4995.15	0	05:58	0.35
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_511	JUNCTION	0.35	0.38	4966.98	0	06:00	0.38
JUNCT_506	JUNCTION	0.05	0.47	5004.97	0	00:35	0.47
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_512	JUNCTION	0.42	0.45	4959.05	0	06:01	0.45
JUNCT_513	JUNCTION	0.47	0.51	4952.91	0	06:04	0.51
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5035.10	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.00	0.00	5021.90	0	00:00	0.00
JUNCT_300	JUNCTION	0.10	0.11	5103.91	0	02:49	0.11
JUNCT_303	JUNCTION	0.14	0.15	5057.45	0	03:23	0.15
JUNCT_200	JUNCTION	0.00	0.00	5051.10	0	00:00	0.00
JUNCT_214	JUNCTION	0.00	0.00	4967.10	0	00:00	0.00
JUNCT_215	JUNCTION	0.00	0.00	4959.10	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_310	JUNCTION	0.06	0.07	5034.97	0	04:40	0.07
JUNCT_316	JUNCTION	0.10	0.12	5008.02	0	05:03	0.12
JUNCT_505	JUNCTION	0.23	0.51	4995.41	0	01:26	0.51
JUNCT_613	JUNCTION	0.31	0.70	4953.10	0	00:55	0.70
JUNCT_612	JUNCTION	0.25	0.58	4959.18	0	00:52	0.58
JUNCT_611	JUNCTION	0.20	0.34	4966.94	0	01:08	0.34
JUNCT_608	JUNCTION	0.19	0.40	4995.20	0	01:05	0.40
JUNCT_607	JUNCTION	0.19	0.40	5026.70	0	00:56	0.40
JUNCT_606	JUNCTION	0.13	0.16	5049.96	0	03:02	0.16
OUTFALL_514	OUTFALL	0.46	0.51	4943.51	0	06:16	0.51
OUTFALL_319	OUTFALL	0.00	0.00	4945.30	0	00:00	0.00
OUTFALL_614	OUTFALL	0.31	0.68	4943.68	0	01:13	0.68
STOR_1001	STORAGE	3.89	4.24	5108.24	0	02:49	4.24
STOR_1006	STORAGE	4.46	4.81	5065.81	0	03:23	4.81

STOR_2012	STORAGE	3.66	4.00	4999.00	0	05:58	4.00
STOR_2000	STORAGE	1.77	2.11	5053.11	0	03:02	2.11
STOR_2014	STORAGE	2.03	2.30	4969.30	0	02:45	2.30
STOR_2015	STORAGE	0.02	0.21	4959.21	0	00:34	0.21
STOR_2016	STORAGE	1.70	1.91	4954.41	0	02:22	1.91
STOR_1022	STORAGE	2.78	3.15	5038.15	0	04:40	3.15
STOR_1027	STORAGE	2.20	2.46	5010.46	0	05:03	2.46
STOR_1010	STORAGE	2.74	3.28	4950.28	0	12:00	3.28
STOR_2003	STORAGE	1.87	2.47	5075.47	0	02:25	2.47
STOR_2005	STORAGE	3.12	3.51	5030.21	0	04:29	3.51

\*\*\*\*\*  
Node Inflow Summary  
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	75.89	75.89	0 00:35	1.7	1.7	0.000
JUNCT_100	JUNCTION	4.56	4.56	0 00:43	0.184	0.184	0.000
JUNCT_301	JUNCTION	0.00	38.63	0 00:38	0	1.56	0.000
JUNCT_102	JUNCTION	38.62	38.62	0 00:38	1.14	1.14	0.000
JUNCT_106	JUNCTION	36.76	36.76	0 00:40	1.23	1.23	0.000
JUNCT_302	JUNCTION	0.00	43.71	0 00:38	0	1.16	0.000
JUNCT_103	JUNCTION	5.41	5.41	0 00:39	0.136	0.136	0.000
JUNCT_104	JUNCTION	12.56	12.56	0 00:32	0.215	0.215	0.000
JUNCT_105	JUNCTION	27.31	27.31	0 00:38	0.813	0.813	0.000
JUNCT_304	JUNCTION	0.00	3.29	0 01:24	0	0.836	0.000
JUNCT_107	JUNCTION	2.06	2.06	0 00:42	0.0619	0.0619	0.000
JUNCT_305	JUNCTION	0.00	5.55	0 00:47	0	0.913	0.000
JUNCT_108	JUNCTION	3.77	3.77	0 00:40	0.0878	0.0878	0.000
JUNCT_306	JUNCTION	0.00	12.31	0 00:50	0	1.17	0.000
JUNCT_109	JUNCTION	11.68	11.68	0 00:45	0.301	0.301	0.000
JUNCT_110	JUNCTION	8.57	8.57	0 00:48	0.257	0.257	0.000
JUNCT_318	JUNCTION	0.00	19.02	0 01:05	0	1.82	0.000

JUNCT_129	JUNCTION	8.85	8.85	0	00:44	0.205	0.205	0.000
JUNCT_317	JUNCTION	0.00	3.50	0	00:43	0	0.488	0.000
JUNCT_128	JUNCTION	3.50	3.50	0	00:43	0.0864	0.0864	0.000
JUNCT_127	JUNCTION	13.71	13.71	0	00:45	0.316	0.316	0.000
JUNCT_126	JUNCTION	3.20	3.20	0	00:43	0.0826	0.0826	0.000
JUNCT_314	JUNCTION	0.00	3.20	0	00:43	0	0.0826	0.000
JUNCT_124	JUNCTION	1.34	1.34	0	00:39	0.0263	0.0263	0.000
JUNCT_315	JUNCTION	0.00	1.34	0	00:39	0	0.0263	0.000
JUNCT_313	JUNCTION	0.00	5.97	0	01:12	0	0.554	0.000
JUNCT_311	JUNCTION	0.00	2.74	0	00:45	0	0.356	0.000
JUNCT_312	JUNCTION	0.00	4.24	0	00:56	0	0.192	0.000
JUNCT_125	JUNCTION	4.24	4.24	0	00:56	0.192	0.192	0.000
JUNCT_123	JUNCTION	2.74	2.74	0	00:45	0.0809	0.0809	0.000
JUNCT_309	JUNCTION	0.00	24.59	0	00:55	0	1.07	0.000
JUNCT_308	JUNCTION	0.00	12.62	0	00:54	0	0.635	0.000
JUNCT_307	JUNCTION	0.00	12.30	0	00:47	0	0.431	0.000
JUNCT_121	JUNCTION	12.62	12.62	0	00:54	0.635	0.635	0.000
JUNCT_120	JUNCTION	12.30	12.30	0	00:47	0.431	0.431	0.000
JUNCT_203	JUNCTION	19.17	19.17	0	00:41	0.61	0.61	0.000
JUNCT_500	JUNCTION	0.00	2.94	0	02:25	0	0.328	0.000
JUNCT_501	JUNCTION	0.00	9.14	0	00:44	0	0.687	0.000
JUNCT_204	JUNCTION	9.14	9.14	0	00:44	0.371	0.371	0.000
JUNCT_502	JUNCTION	0.00	5.67	0	01:15	0	0.733	0.000
JUNCT_205	JUNCTION	2.33	2.33	0	00:47	0.0855	0.0855	0.000
JUNCT_209	JUNCTION	2.61	2.61	0	00:59	0.175	0.175	0.000
JUNCT_207	JUNCTION	2.54	2.54	0	00:44	0.0718	0.0718	0.000
JUNCT_208	JUNCTION	1.78	1.78	0	00:42	0.0448	0.0448	0.000
JUNCT_503	JUNCTION	0.00	10.58	0	01:12	0	1.08	0.000
JUNCT_210	JUNCTION	2.77	2.77	0	00:58	0.187	0.187	0.000
JUNCT_504	JUNCTION	0.00	14.92	0	01:19	0	1.27	0.000
JUNCT_211	JUNCTION	5.73	5.73	0	00:39	0.193	0.193	0.000
JUNCT_508	JUNCTION	0.00	2.53	0	05:58	0	0.747	0.000
JUNCT_201	JUNCTION	2.70	2.70	0	00:55	0.169	0.169	0.000
JUNCT_202	JUNCTION	0.44	0.44	0	01:15	0.0405	0.0405	0.000
JUNCT_511	JUNCTION	0.00	2.53	0	06:00	0	0.743	0.000
JUNCT_506	JUNCTION	0.00	43.98	0	00:35	0	1.08	0.000
JUNCT_213	JUNCTION	43.98	43.98	0	00:35	1.08	1.08	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal

JUNCT_512	JUNCTION	0.00	2.53	0	06:01	0	0.741	0.000
JUNCT_513	JUNCTION	0.00	2.53	0	06:04	0	0.736	0.000
JUNCT_217	JUNCTION	0.44	0.44	0	01:16	0.0426	0.0426	0.000
JUNCT_218	JUNCTION	0.47	0.47	0	01:23	0.0539	0.0539	0.000
JUNCT_122	JUNCTION	4.40	4.40	0	00:42	0.0949	0.0949	0.000
JUNCT_212	JUNCTION	9.70	9.70	0	00:46	0.448	0.448	0.000
JUNCT_206	JUNCTION	2.28	2.28	0	00:59	0.158	0.158	0.000
JUNCT_300	JUNCTION	0.00	1.51	0	02:49	0	0.45	0.000
JUNCT_303	JUNCTION	0.00	2.66	0	03:23	0	0.797	0.000
JUNCT_200	JUNCTION	3.85	3.85	0	00:45	0.124	0.124	0.000
JUNCT_214	JUNCTION	10.05	10.05	0	00:42	0.293	0.293	0.000
JUNCT_215	JUNCTION	4.31	4.31	0	00:44	0.149	0.149	0.000
JUNCT_216	JUNCTION	2.05	2.05	0	00:39	0.0443	0.0443	0.000
JUNCT_310	JUNCTION	0.00	1.00	0	04:40	0	0.287	0.000
JUNCT_316	JUNCTION	0.00	1.60	0	05:03	0	0.426	0.000
JUNCT_505	JUNCTION	0.00	53.05	0	00:38	0	2.83	0.000
JUNCT_613	JUNCTION	0.00	6.68	0	00:55	0	0.496	0.000
JUNCT_612	JUNCTION	0.00	6.66	0	00:52	0	0.482	0.000
JUNCT_611	JUNCTION	0.00	2.93	0	01:08	0	0.344	0.000
JUNCT_608	JUNCTION	0.00	2.70	0	01:05	0	0.236	0.000
JUNCT_607	JUNCTION	0.00	2.72	0	00:56	0	0.237	0.000
JUNCT_606	JUNCTION	0.00	0.34	0	03:02	0	0.0695	0.000
OUTFALL_514	OUTFALL	0.00	2.53	0	06:16	0	0.717	0.000
OUTFALL_319	OUTFALL	0.00	2.23	0	12:00	0	0.559	0.000
OUTFALL_614	OUTFALL	0.00	7.29	0	01:13	0	0.587	0.000
STOR_1001	STORAGE	0.00	78.86	0	00:36	0	1.89	0.000
STOR_1006	STORAGE	0.00	118.44	0	00:41	0	3.94	-0.000
STOR_2012	STORAGE	0.00	53.05	0	00:38	0	2.83	-0.002
STOR_2000	STORAGE	0.00	3.85	0	00:45	0	0.124	0.017
STOR_2014	STORAGE	0.00	10.05	0	00:42	0	0.293	0.002
STOR_2015	STORAGE	0.00	4.31	0	00:44	0	0.149	7.829
STOR_2016	STORAGE	0.00	2.05	0	00:39	0	0.0443	-0.000
STOR_1022	STORAGE	0.00	27.37	0	00:59	0	1.17	-0.002
STOR_1027	STORAGE	0.00	14.39	0	00:47	0	0.993	-0.011
STOR_1010	STORAGE	0.00	24.11	0	01:14	0	2.05	-0.012
STOR_2003	STORAGE	0.00	19.17	0	00:41	0	0.61	0.058
STOR_2005	STORAGE	0.00	11.31	0	00:50	0	0.769	-0.014

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Node Flooding Summary

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No nodes were flooded.

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Storage Volume Summary

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Storage Unit	Average Volume 1000 ft <sup>3</sup>	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft <sup>3</sup>	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_1001	201.404	11	0	0	238.482	13	0 02:49	1.51
STOR_1006	398.143	11	0	0	455.772	13	0 03:23	2.66
STOR_2012	256.264	11	0	0	299.382	13	0 05:58	2.53
STOR_2000	9.749	4	0	0	14.113	6	0 03:02	0.34
STOR_2014	27.940	6	0	0	36.040	7	0 02:45	0.47
STOR_2015	0.005	0	0	0	0.084	0	0 00:34	4.31
STOR_2016	4.344	4	0	0	5.544	5	0 02:22	0.06
STOR_1022	114.964	6	0	0	141.684	7	0 04:40	1.00
STOR_1027	72.004	1	0	0	86.662	2	0 05:03	1.60
STOR_1010	139.022	3	0	0	199.025	4	0 12:00	2.23
STOR_2003	46.701	14	0	0	67.826	20	0 02:25	2.94
STOR_2005	50.593	18	0	0	65.931	24	0 04:29	1.83

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Outfall Loading Summary

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Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10 <sup>6</sup> gal
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OUTFALL_514	94.31	2.35	2.53	0.717
OUTFALL_319	97.64	1.77	2.23	0.559
OUTFALL_614	98.06	1.85	7.29	0.587
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System	96.67	5.98	9.84	1.863

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Link Flow Summary

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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
-----						
101	DUMMY	75.89	0 00:35			
100	CONDUIT	4.51	0 00:48	6.23	0.09	0.21
102	DUMMY	38.62	0 00:38			
105	DUMMY	27.31	0 00:38			
106	DUMMY	36.76	0 00:40			
301	CONDUIT	38.46	0 00:40	2.38	0.03	0.17
302	CONDUIT	43.28	0 00:41	9.51	0.13	0.25
103	CONDUIT	5.31	0 00:44	6.79	0.06	0.17
104	CONDUIT	12.05	0 00:36	9.05	0.13	0.25
107	DUMMY	2.06	0 00:42			
108	DUMMY	3.77	0 00:40			
304	CONDUIT	3.28	0 01:30	2.26	0.00	0.01
305	CONDUIT	4.72	0 01:34	1.17	0.00	0.04
109	DUMMY	11.68	0 00:45			
306	CONDUIT	11.29	0 01:13	1.73	0.00	0.05
318	CONDUIT	18.49	0 01:18	1.64	0.00	0.08
129	DUMMY	8.85	0 00:44			
317	CONDUIT	2.46	0 01:11	1.11	0.00	0.02
128	DUMMY	3.50	0 00:43			
316	CONDUIT	1.60	0 05:31	0.62	0.00	0.02
127	DUMMY	13.71	0 00:45			
126	DUMMY	3.20	0 00:43			
124	DUMMY	1.34	0 00:39			

314	CONDUIT	2.02	0	01:25	1.02	0.00	0.02
315	CONDUIT	0.83	0	01:14	0.59	0.00	0.02
313	CONDUIT	5.33	0	01:42	0.90	0.00	0.05
125	DUMMY	4.24	0	00:56			
312	CONDUIT	3.96	0	01:15	1.23	0.00	0.03
311	DUMMY	2.74	0	00:45			
123	DUMMY	2.74	0	00:45			
120	DUMMY	12.30	0	00:47			
121	DUMMY	12.62	0	00:54			
309	CONDUIT	24.36	0	01:00	1.95	0.01	0.09
307	CONDUIT	12.16	0	00:53	1.45	0.00	0.06
308	CONDUIT	12.59	0	00:59	1.57	0.00	0.06
203	DUMMY	19.17	0	00:41			
204	DUMMY	9.14	0	00:44			
500	CONDUIT	2.87	0	02:49	1.30	0.00	0.04
501	CONDUIT	9.00	0	00:51	2.15	0.01	0.07
205	DUMMY	2.33	0	00:47			
209	DUMMY	2.61	0	00:59			
207	CONDUIT	1.64	0	01:26	1.18	0.00	0.03
208	CONDUIT	1.30	0	01:09	1.09	0.00	0.02
502	CONDUIT	5.67	0	01:16	2.05	0.00	0.03
210	DUMMY	2.77	0	00:58			
503	CONDUIT	10.47	0	01:23	1.62	0.01	0.10
211	CONDUIT	4.75	0	01:05	0.39	0.03	0.18
504	CONDUIT	14.86	0	01:26	2.34	0.01	0.10
201	DUMMY	2.70	0	00:55			
202	DUMMY	0.44	0	01:15			
508	CONDUIT	2.53	0	06:00	6.19	0.04	0.14
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	43.98	0	00:35			
506	CONDUIT	43.87	0	00:37	3.15	0.01	0.09
511	CONDUIT	2.53	0	06:01	5.44	0.05	0.15
512	CONDUIT	2.53	0	06:04	3.84	0.05	0.15
513	CONDUIT	2.53	0	06:16	2.91	0.05	0.15
217	DUMMY	0.44	0	01:16			
218	DUMMY	0.47	0	01:23			
122	DUMMY	4.40	0	00:42			
212	DUMMY	9.70	0	00:46			



110	DUMMY	8.57	0	00:48			
206	DUMMY	2.28	0	00:59			
300	CONDUIT	1.51	0	03:43	0.92	0.00	0.02
303	CONDUIT	2.66	0	03:38	1.11	0.00	0.03
200	DUMMY	3.85	0	00:45			
214	DUMMY	10.05	0	00:42			
215	DUMMY	4.31	0	00:44			
27	DUMMY	2.05	0	00:39			
310	CONDUIT	1.00	0	04:59	0.71	0.00	0.01
505	DUMMY	53.05	0	00:38			
606	CONDUIT	0.34	0	03:14	2.47	0.01	0.07
607	CONDUIT	2.70	0	01:05	4.79	0.04	0.13
608	CONDUIT	2.70	0	01:07	5.92	0.01	0.08
611	CONDUIT	2.92	0	01:09	5.23	0.01	0.08
612	CONDUIT	6.64	0	00:55	7.82	0.02	0.10
613	CONDUIT	6.39	0	01:13	4.14	0.03	0.11
OUTLET_1001	DUMMY	1.51	0	02:49			
OUTLET_1006	DUMMY	2.66	0	03:23			
OUTLET_2012A	DUMMY	2.53	0	05:58			
OUTLET_2000	DUMMY	0.34	0	03:02			
OUTLET_2014	DUMMY	0.47	0	02:45			
OUTLET_2015	DUMMY	4.31	0	00:45			
OUTLET_2016	DUMMY	0.06	0	02:22			
OUTLET_1022	DUMMY	1.00	0	04:40			
OUTLET_1027	DUMMY	1.60	0	05:03			
OUTLET_1010	DUMMY	2.23	0	12:00			
OUTLET_2003	DUMMY	2.94	0	02:25			
OUTLET_2005	DUMMY	1.83	0	04:29			
OUTLET_2012B	DUMMY	0.00	0	00:00			

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Conduit Surcharge Summary

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No conduits were surcharged.

Analysis begun on: Tue Jun 6 16:06:43 2023

Analysis ended on: Tue Jun 6 16:06:43 2023  
Total elapsed time: < 1 sec

FUTURE CONDITION - 10-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

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Analysis Options

\*\*\*\*\*

Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... YES

Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

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Flow Routing Continuity

	Volume acre-feet	Volume 10 <sup>6</sup> gal
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Dry Weather Inflow .....	0.000	0.000
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Wet Weather Inflow .....	0.000	0.000
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Groundwater Inflow .....	0.000	0.000
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RDII Inflow .....	0.000	0.000
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External Inflow .....	77.114	25.129
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External Outflow .....	12.160	3.962
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Flooding Loss .....	0.000	0.000
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Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000
Final Stored Volume .....	65.895	21.473
Continuity Error (%) .....	-1.221	

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Highest Flow Instability Indexes

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Link OUTLET\_2015 (27)  
 Link 612 (20)  
 Link 613 (16)  
 Link 313 (1)  
 Link 308 (1)

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Routing Time Step Summary

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Minimum Time Step	:	60.00 sec
Average Time Step	:	60.00 sec
Maximum Time Step	:	60.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	1.04
% of Steps Not Converging	:	0.00

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Node Depth Summary

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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
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JUNCT_101	JUNCTION	0.00	0.00	5106.50	0	00:00	0.00
JUNCT_100	JUNCTION	0.13	0.69	5137.29	0	00:43	0.69
JUNCT_301	JUNCTION	0.28	1.03	5065.03	0	00:38	1.03
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0	00:00	0.00
JUNCT_106	JUNCTION	0.00	0.00	5061.10	0	00:00	0.00
JUNCT_302	JUNCTION	0.23	1.78	5079.98	0	00:37	1.78
JUNCT_103	JUNCTION	0.09	0.78	5113.48	0	00:38	0.78
JUNCT_104	JUNCTION	0.08	0.98	5118.58	0	00:31	0.98
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.24	0.32	5040.12	0	03:17	0.32
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.23	0.35	5029.05	0	00:43	0.35
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.25	0.55	4995.75	0	00:50	0.55
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.36	0.84	4960.94	0	00:58	0.84
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.18	0.28	4999.98	0	00:42	0.28
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.04	0.30	5040.90	0	00:43	0.30
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.02	0.23	5015.33	0	00:38	0.23
JUNCT_313	JUNCTION	0.26	0.55	5016.75	0	01:04	0.55
JUNCT_311	JUNCTION	0.13	0.32	5016.62	0	02:53	0.32
JUNCT_312	JUNCTION	0.06	0.32	5039.02	0	00:56	0.32
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_309	JUNCTION	0.13	0.67	5044.97	0	00:53	0.67
JUNCT_308	JUNCTION	0.10	0.46	5050.96	0	00:53	0.46
JUNCT_307	JUNCTION	0.08	0.52	5050.12	0	00:47	0.52
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00

JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.16	0.34	5072.84	0	02:16	0.34
JUNCT_501	JUNCTION	0.21	0.50	5043.90	0	00:44	0.50
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.13	0.35	5022.95	0	01:12	0.35
JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.05	0.41	5060.61	0	00:44	0.41
JUNCT_208	JUNCTION	0.04	0.31	5051.81	0	00:42	0.31
JUNCT_503	JUNCTION	0.39	0.85	5022.65	0	01:08	0.85
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.43	1.22	5014.42	0	01:01	1.22
JUNCT_211	JUNCTION	0.19	1.33	5014.63	0	00:39	1.33
JUNCT_508	JUNCTION	0.45	0.50	4995.30	0	05:39	0.50
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_511	JUNCTION	0.48	0.54	4967.14	0	05:41	0.54
JUNCT_506	JUNCTION	0.06	0.58	5005.08	0	00:35	0.58
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_512	JUNCTION	0.57	0.64	4959.24	0	05:42	0.64
JUNCT_513	JUNCTION	0.65	0.73	4953.13	0	05:45	0.73
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5035.10	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.00	0.00	5021.90	0	00:00	0.00
JUNCT_300	JUNCTION	0.15	0.25	5104.05	0	02:26	0.25
JUNCT_303	JUNCTION	0.25	0.32	5057.62	0	03:07	0.32
JUNCT_200	JUNCTION	0.00	0.00	5051.10	0	00:00	0.00
JUNCT_214	JUNCTION	0.00	0.00	4967.10	0	00:00	0.00
JUNCT_215	JUNCTION	0.00	0.00	4959.10	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_310	JUNCTION	0.13	0.32	5035.22	0	02:45	0.32
JUNCT_316	JUNCTION	0.17	0.19	5008.09	0	06:39	0.19

JUNCT_505	JUNCTION	0.35	0.80	4995.70	0	01:20	0.80
JUNCT_613	JUNCTION	0.48	1.25	4953.65	0	01:40	1.25
JUNCT_612	JUNCTION	0.38	1.04	4959.64	0	01:38	1.04
JUNCT_611	JUNCTION	0.29	0.79	4967.39	0	01:47	0.79
JUNCT_608	JUNCTION	0.27	0.73	4995.53	0	01:47	0.73
JUNCT_607	JUNCTION	0.28	0.73	5027.03	0	01:42	0.73
JUNCT_606	JUNCTION	0.23	0.63	5050.43	0	01:41	0.63
OUTFALL_514	OUTFALL	0.64	0.73	4943.73	0	05:55	0.73
OUTFALL_319	OUTFALL	0.00	0.00	4945.30	0	00:00	0.00
OUTFALL_614	OUTFALL	0.47	1.25	4944.25	0	01:48	1.25
STOR_1001	STORAGE	4.36	4.84	5108.84	0	02:26	4.84
STOR_1006	STORAGE	4.98	5.46	5066.46	0	03:07	5.46
STOR_2012	STORAGE	4.54	5.03	5000.03	0	05:39	5.03
STOR_2000	STORAGE	2.21	2.74	5053.74	0	01:41	2.74
STOR_2014	STORAGE	2.29	2.75	4969.75	0	01:44	2.75
STOR_2015	STORAGE	0.09	0.98	4959.98	0	00:54	0.98
STOR_2016	STORAGE	2.34	2.86	4955.36	0	02:10	2.86
STOR_1022	STORAGE	3.35	3.95	5038.95	0	02:45	3.95
STOR_1027	STORAGE	3.87	4.37	5012.37	0	06:39	4.37
STOR_1010	STORAGE	4.31	5.10	4952.10	0	12:00	5.10
STOR_2003	STORAGE	2.25	3.48	5076.48	0	02:16	3.48
STOR_2005	STORAGE	3.64	4.17	5030.87	0	02:44	4.17

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Node Inflow Summary  
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	116.54	116.54	0 00:35	2.54	2.54	0.000
JUNCT_100	JUNCTION	8.19	8.19	0 00:43	0.327	0.327	0.000

JUNCT_301	JUNCTION	0.00	55.55	0	00:38	0	2.5	0.000
JUNCT_102	JUNCTION	55.55	55.55	0	00:38	1.63	1.63	0.000
JUNCT_106	JUNCTION	53.22	53.22	0	00:40	1.76	1.76	0.000
JUNCT_302	JUNCTION	0.00	72.79	0	00:37	0	1.88	0.000
JUNCT_103	JUNCTION	12.64	12.64	0	00:38	0.321	0.321	0.000
JUNCT_104	JUNCTION	20.60	20.60	0	00:31	0.337	0.337	0.000
JUNCT_105	JUNCTION	42.01	42.01	0	00:38	1.22	1.22	0.000
JUNCT_304	JUNCTION	0.00	9.69	0	02:48	0	2.18	0.000
JUNCT_107	JUNCTION	5.58	5.58	0	00:42	0.173	0.173	0.000
JUNCT_305	JUNCTION	0.00	15.66	0	00:43	0	2.42	0.000
JUNCT_108	JUNCTION	10.56	10.56	0	00:39	0.254	0.254	0.000
JUNCT_306	JUNCTION	0.00	43.86	0	00:50	0	3.41	0.000
JUNCT_109	JUNCTION	38.42	38.42	0	00:45	1.04	1.04	0.000
JUNCT_110	JUNCTION	30.17	30.17	0	00:48	0.951	0.951	0.000
JUNCT_318	JUNCTION	0.00	75.05	0	00:58	0	5.46	0.000
JUNCT_129	JUNCTION	31.39	31.39	0	00:43	0.779	0.779	0.000
JUNCT_317	JUNCTION	0.00	12.40	0	00:42	0	1.33	0.000
JUNCT_128	JUNCTION	12.40	12.40	0	00:42	0.329	0.329	0.000
JUNCT_127	JUNCTION	47.83	47.83	0	00:44	1.18	1.18	0.000
JUNCT_126	JUNCTION	11.35	11.35	0	00:43	0.315	0.315	0.000
JUNCT_314	JUNCTION	0.00	11.35	0	00:43	0	0.315	0.000
JUNCT_124	JUNCTION	4.71	4.71	0	00:38	0.1	0.1	0.000
JUNCT_315	JUNCTION	0.00	4.71	0	00:38	0	0.1	0.000
JUNCT_313	JUNCTION	0.00	22.94	0	01:04	0	2.46	0.000
JUNCT_311	JUNCTION	0.00	16.09	0	02:44	0	1.72	0.000
JUNCT_312	JUNCTION	0.00	15.55	0	00:56	0	0.733	0.000
JUNCT_125	JUNCTION	15.55	15.55	0	00:56	0.733	0.733	0.000
JUNCT_123	JUNCTION	9.79	9.79	0	00:45	0.308	0.308	0.000
JUNCT_309	JUNCTION	0.00	55.13	0	00:53	0	2.35	-0.000
JUNCT_308	JUNCTION	0.00	25.83	0	00:53	0	1.29	0.000
JUNCT_307	JUNCTION	0.00	29.84	0	00:47	0	1.06	0.000
JUNCT_121	JUNCTION	25.83	25.83	0	00:53	1.29	1.29	0.000
JUNCT_120	JUNCTION	29.84	29.84	0	00:47	1.06	1.06	0.000
JUNCT_203	JUNCTION	34.75	34.75	0	00:40	1.09	1.09	0.000
JUNCT_500	JUNCTION	0.00	6.98	0	02:16	0	0.777	0.000
JUNCT_501	JUNCTION	0.00	16.30	0	00:44	0	1.42	0.000



JUNCT_204	JUNCTION	16.30	16.30	0	00:44	0.653	0.653	0.000
JUNCT_502	JUNCTION	0.00	17.92	0	02:30	0	2.03	0.000
JUNCT_205	JUNCTION	7.61	7.61	0	00:48	0.289	0.289	0.000
JUNCT_209	JUNCTION	4.93	4.93	0	00:57	0.328	0.328	0.000
JUNCT_207	JUNCTION	9.05	9.05	0	00:44	0.273	0.273	0.000
JUNCT_208	JUNCTION	6.29	6.29	0	00:42	0.171	0.171	-0.000
JUNCT_503	JUNCTION	0.00	26.02	0	01:08	0	2.6	0.000
JUNCT_210	JUNCTION	4.84	4.84	0	00:57	0.325	0.325	0.000
JUNCT_504	JUNCTION	0.00	33.66	0	01:14	0	2.93	0.000
JUNCT_211	JUNCTION	10.00	10.00	0	00:39	0.331	0.331	0.000
JUNCT_508	JUNCTION	0.00	5.31	0	05:39	0	1.45	0.000
JUNCT_201	JUNCTION	4.59	4.59	0	00:52	0.282	0.282	0.000
JUNCT_202	JUNCTION	0.66	0.66	0	01:18	0.0595	0.0595	0.000
JUNCT_511	JUNCTION	0.00	5.31	0	05:41	0	1.44	0.000
JUNCT_506	JUNCTION	0.00	65.25	0	00:35	0	1.56	0.000
JUNCT_213	JUNCTION	65.25	65.25	0	00:35	1.56	1.56	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_512	JUNCTION	0.00	5.31	0	05:42	0	1.44	0.000
JUNCT_513	JUNCTION	0.00	5.31	0	05:45	0	1.43	0.000
JUNCT_217	JUNCTION	0.87	0.87	0	01:19	0.0837	0.0837	0.000
JUNCT_218	JUNCTION	0.89	0.89	0	01:24	0.102	0.102	0.000
JUNCT_122	JUNCTION	15.49	15.49	0	00:41	0.361	0.361	0.000
JUNCT_212	JUNCTION	16.81	16.81	0	00:47	0.761	0.761	0.000
JUNCT_206	JUNCTION	3.56	3.56	0	00:58	0.245	0.245	0.000
JUNCT_300	JUNCTION	0.00	6.33	0	02:26	0	0.906	-0.000
JUNCT_303	JUNCTION	0.00	9.47	0	03:07	0	2.04	0.000
JUNCT_200	JUNCTION	11.84	11.84	0	00:46	0.395	0.395	0.000
JUNCT_214	JUNCTION	22.61	22.61	0	00:41	0.662	0.662	0.000
JUNCT_215	JUNCTION	10.67	10.67	0	00:45	0.375	0.375	0.000
JUNCT_216	JUNCTION	6.34	6.34	0	00:38	0.144	0.144	0.000
JUNCT_310	JUNCTION	0.00	15.05	0	02:45	0	1.43	-0.000
JUNCT_316	JUNCTION	0.00	3.67	0	06:39	0	1.04	0.000
JUNCT_505	JUNCTION	0.00	81.38	0	01:00	0	5.3	0.000
JUNCT_613	JUNCTION	0.00	22.17	0	01:40	0	1.46	0.000
JUNCT_612	JUNCTION	0.00	21.71	0	01:38	0	1.37	0.000

JUNCT_611	JUNCTION	0.00	16.63	0	01:47	0	1.01	0.000
JUNCT_608	JUNCTION	0.00	9.03	0	01:47	0	0.581	0.000
JUNCT_607	JUNCTION	0.00	9.06	0	01:42	0	0.586	0.000
JUNCT_606	JUNCTION	0.00	5.51	0	01:41	0	0.308	0.000
OUTFALL_514	OUTFALL	0.00	5.31	0	05:55	0	1.4	0.000
OUTFALL_319	OUTFALL	0.00	3.43	0	12:00	0	0.939	0.000
OUTFALL_614	OUTFALL	0.00	23.62	0	01:48	0	1.63	0.000
STOR_1001	STORAGE	0.00	122.41	0	00:35	0	2.86	0.015
STOR_1006	STORAGE	0.00	180.96	0	00:40	0	6.13	0.007
STOR_2012	STORAGE	0.00	81.38	0	01:00	0	5.3	-0.005
STOR_2000	STORAGE	0.00	11.84	0	00:46	0	0.395	0.207
STOR_2014	STORAGE	0.00	22.61	0	00:41	0	0.662	0.161
STOR_2015	STORAGE	0.00	10.67	0	00:45	0	0.375	2.298
STOR_2016	STORAGE	0.00	6.34	0	00:38	0	0.144	0.049
STOR_1022	STORAGE	0.00	66.61	0	00:55	0	2.72	0.069
STOR_1027	STORAGE	0.00	59.49	0	01:04	0	4.11	-0.003
STOR_1010	STORAGE	0.00	97.42	0	01:04	0	6.36	-0.002
STOR_2003	STORAGE	0.00	34.75	0	00:40	0	1.09	0.123
STOR_2005	STORAGE	0.00	23.77	0	00:49	0	1.71	0.049

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Node Flooding Summary

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No nodes were flooded.

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Storage Volume Summary

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Storage Unit	Average Volume 1000 ft <sup>3</sup>	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft <sup>3</sup>	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
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STOR_1001	278.807	15	0	0	349.702	19	0	02:26	6.33
STOR_1006	560.050	16	0	0	672.946	19	0	03:07	9.47
STOR_2012	474.435	21	0	0	569.224	25	0	05:39	5.31
STOR_2000	17.763	7	0	0	29.203	12	0	01:41	5.51
STOR_2014	38.613	8	0	0	58.965	12	0	01:44	7.64
STOR_2015	0.109	0	0	0	1.914	1	0	00:54	9.89
STOR_2016	10.598	9	0	0	16.776	14	0	02:10	0.52
STOR_1022	187.201	9	0	0	263.305	13	0	02:45	15.05
STOR_1027	363.173	7	0	0	452.324	9	0	06:39	3.67
STOR_1010	516.278	11	0	0	724.677	15	0	12:00	3.43
STOR_2003	61.134	18	0	0	108.656	31	0	02:16	6.98
STOR_2005	81.983	29	0	0	109.439	39	0	02:44	11.92

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#### Outfall Loading Summary

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Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10 <sup>6</sup> gal
OUTFALL_514	94.58	4.57	5.31	1.396
OUTFALL_319	97.78	2.98	3.43	0.939
OUTFALL_614	98.19	5.13	23.62	1.626
System	96.85	12.67	28.93	3.962

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#### Link Flow Summary

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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	116.54	0 00:35			
100	CONDUIT	8.10	0 00:49	7.39	0.17	0.28
102	DUMMY	55.55	0 00:38			
105	DUMMY	42.01	0 00:38			
106	DUMMY	53.22	0 00:40			
301	CONDUIT	55.37	0 00:40	2.67	0.04	0.21
302	CONDUIT	72.37	0 00:40	11.00	0.22	0.32
103	CONDUIT	12.49	0 00:42	8.67	0.15	0.26
104	CONDUIT	19.96	0 00:34	10.36	0.22	0.32
107	DUMMY	5.58	0 00:42			
108	DUMMY	10.56	0 00:39			
304	CONDUIT	9.69	0 02:53	3.34	0.00	0.03
305	CONDUIT	12.60	0 01:15	1.66	0.00	0.06
109	DUMMY	38.42	0 00:45			
306	CONDUIT	41.72	0 01:04	2.60	0.01	0.11
318	CONDUIT	73.50	0 01:07	2.44	0.02	0.17
129	DUMMY	31.39	0 00:43			
317	CONDUIT	10.17	0 01:02	1.73	0.00	0.05
128	DUMMY	12.40	0 00:42			
316	CONDUIT	3.67	0 06:59	0.82	0.00	0.04
127	DUMMY	47.83	0 00:44			
126	DUMMY	11.35	0 00:43			
124	DUMMY	4.71	0 00:38			
314	CONDUIT	8.49	0 01:10	1.49	0.00	0.05
315	CONDUIT	3.49	0 01:00	0.86	0.00	0.04
313	CONDUIT	22.19	0 02:43	1.39	0.01	0.11
125	DUMMY	15.55	0 00:56			
312	CONDUIT	15.18	0 01:08	1.89	0.00	0.06
311	DUMMY	16.09	0 02:44			
123	DUMMY	9.79	0 00:45			
120	DUMMY	29.84	0 00:47			
121	DUMMY	25.83	0 00:53			

309	CONDUIT	54.83	0	00:57	2.46	0.01	0.13
307	CONDUIT	29.71	0	00:51	1.90	0.01	0.10
308	CONDUIT	25.78	0	00:57	1.95	0.01	0.09
203	DUMMY	34.75	0	00:40			
204	DUMMY	16.30	0	00:44			
500	CONDUIT	6.95	0	02:33	1.75	0.01	0.07
501	CONDUIT	16.18	0	00:50	2.61	0.01	0.10
205	DUMMY	7.61	0	00:48			
209	DUMMY	4.93	0	00:57			
207	CONDUIT	6.93	0	01:12	1.80	0.01	0.07
208	CONDUIT	5.37	0	00:59	1.78	0.00	0.06
502	CONDUIT	17.92	0	02:31	3.12	0.00	0.05
210	DUMMY	4.84	0	00:57			
503	CONDUIT	25.79	0	01:17	2.14	0.03	0.17
211	CONDUIT	8.52	0	01:01	0.45	0.05	0.24
504	CONDUIT	33.52	0	01:20	3.01	0.02	0.16
201	DUMMY	4.59	0	00:52			
202	DUMMY	0.66	0	01:18			
508	CONDUIT	5.31	0	05:41	7.69	0.09	0.20
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	65.25	0	00:35			
506	CONDUIT	65.10	0	00:36	3.53	0.01	0.12
511	CONDUIT	5.31	0	05:42	6.76	0.10	0.22
512	CONDUIT	5.31	0	05:45	4.76	0.10	0.21
513	CONDUIT	5.31	0	05:55	3.62	0.10	0.21
217	DUMMY	0.87	0	01:19			
218	DUMMY	0.89	0	01:24			
122	DUMMY	15.49	0	00:41			
212	DUMMY	16.81	0	00:47			
110	DUMMY	30.17	0	00:48			
206	DUMMY	3.56	0	00:58			
300	CONDUIT	6.22	0	02:51	1.58	0.00	0.05
303	CONDUIT	9.47	0	03:17	1.78	0.01	0.06
200	DUMMY	11.84	0	00:46			
214	DUMMY	22.61	0	00:41			

215	DUMMY	10.67	0	00:45			
27	DUMMY	6.34	0	00:38			
310	CONDUIT	15.03	0	02:53	1.82	0.00	0.06
505	DUMMY	81.38	0	01:00			
606	CONDUIT	5.48	0	01:47	5.70	0.14	0.25
607	CONDUIT	9.03	0	01:47	6.83	0.13	0.24
608	CONDUIT	9.02	0	01:49	8.52	0.04	0.14
611	CONDUIT	16.63	0	01:48	8.83	0.07	0.18
612	CONDUIT	21.69	0	01:40	6.65	0.07	0.17
613	CONDUIT	21.99	0	01:48	5.28	0.10	0.21
OUTLET_1001	DUMMY	6.33	0	02:26			
OUTLET_1006	DUMMY	9.47	0	03:07			
OUTLET_2012A	DUMMY	5.31	0	05:39			
OUTLET_2000	DUMMY	5.51	0	01:41			
OUTLET_2014	DUMMY	7.64	0	01:44			
OUTLET_2015	DUMMY	9.89	0	00:54			
OUTLET_2016	DUMMY	0.52	0	02:10			
OUTLET_1022	DUMMY	15.05	0	02:45			
OUTLET_1027	DUMMY	3.67	0	06:39			
OUTLET_1010	DUMMY	3.43	0	12:00			
OUTLET_2003	DUMMY	6.98	0	02:16			
OUTLET_2005	DUMMY	11.92	0	02:44			
OUTLET_2012B	DUMMY	0.00	0	00:00			

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 Conduit Surcharge Summary  
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No conduits were surcharged.

Analysis begun on: Tue Jun 6 16:04:16 2023  
 Analysis ended on: Tue Jun 6 16:04:16 2023  
 Total elapsed time: < 1 sec

FUTURE CONDITION - 100-YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

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Analysis Options

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Flow Units ..... CFS

Process Models:

Rainfall/Runoff ..... NO

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... YES

Water Quality ..... NO

Flow Routing Method ..... KINWAVE

Starting Date ..... 01/01/2005 00:00:00

Ending Date ..... 01/01/2005 12:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:01:00

Routing Time Step ..... 60.00 sec

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Flow Routing Continuity

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	Volume acre-feet	Volume 10 <sup>6</sup> gal
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Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	0.000	0.000
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	327.527	106.729
External Outflow .....	179.499	58.492
Flooding Loss .....	0.000	0.000

Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000
Final Stored Volume .....	149.771	48.805
Continuity Error (%) .....	-0.532	

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Highest Flow Instability Indexes

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Link OUTLET\_2015 (7)  
 Link 613 (2)  
 Link 612 (1)  
 Link 505 (1)  
 Link 312 (1)

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Routing Time Step Summary

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Minimum Time Step	:	60.00 sec
Average Time Step	:	60.00 sec
Maximum Time Step	:	60.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	1.12
% of Steps Not Converging	:	0.00

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Node Depth Summary

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Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
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JUNCT_101	JUNCTION	0.00	0.00	5106.50	0	00:00	0.00
JUNCT_100	JUNCTION	0.24	1.47	5138.07	0	00:50	1.47
JUNCT_301	JUNCTION	0.53	1.80	5065.80	0	00:44	1.80
JUNCT_102	JUNCTION	0.00	0.00	5064.10	0	00:00	0.00
JUNCT_106	JUNCTION	0.00	0.00	5061.10	0	00:00	0.00
JUNCT_302	JUNCTION	0.40	3.58	5081.78	0	00:43	3.58
JUNCT_103	JUNCTION	0.21	1.79	5114.49	0	00:44	1.79
JUNCT_104	JUNCTION	0.14	1.87	5119.47	0	00:36	1.87
JUNCT_105	JUNCTION	0.00	0.00	5078.30	0	00:00	0.00
JUNCT_304	JUNCTION	0.46	0.49	5040.29	0	03:00	0.49
JUNCT_107	JUNCTION	0.00	0.00	5039.90	0	00:00	0.00
JUNCT_305	JUNCTION	0.43	0.82	5029.52	0	01:08	0.82
JUNCT_108	JUNCTION	0.00	0.00	5028.80	0	00:00	0.00
JUNCT_306	JUNCTION	0.50	1.34	4996.54	0	00:56	1.34
JUNCT_109	JUNCTION	0.00	0.00	4995.30	0	00:00	0.00
JUNCT_110	JUNCTION	0.00	0.00	5945.40	0	00:00	0.00
JUNCT_318	JUNCTION	0.99	2.02	4962.12	0	01:00	2.02
JUNCT_129	JUNCTION	0.00	0.00	4960.20	0	00:00	0.00
JUNCT_317	JUNCTION	0.81	1.09	5000.79	0	03:09	1.09
JUNCT_128	JUNCTION	0.00	0.00	4999.80	0	00:00	0.00
JUNCT_127	JUNCTION	0.00	0.00	5008.60	0	00:00	0.00
JUNCT_126	JUNCTION	0.00	0.00	5040.70	0	00:00	0.00
JUNCT_314	JUNCTION	0.10	0.74	5041.34	0	00:49	0.74
JUNCT_124	JUNCTION	0.00	0.00	5015.20	0	00:00	0.00
JUNCT_315	JUNCTION	0.06	0.56	5015.66	0	00:43	0.56
JUNCT_313	JUNCTION	0.79	1.52	5017.72	0	01:14	1.52
JUNCT_311	JUNCTION	0.47	0.61	5016.91	0	03:06	0.61
JUNCT_312	JUNCTION	0.18	0.82	5039.52	0	01:08	0.82
JUNCT_125	JUNCTION	0.00	0.00	5038.80	0	00:00	0.00
JUNCT_123	JUNCTION	0.00	0.00	5016.40	0	00:00	0.00
JUNCT_309	JUNCTION	0.28	1.42	5045.72	0	00:59	1.42
JUNCT_308	JUNCTION	0.21	0.98	5051.48	0	01:03	0.98
JUNCT_307	JUNCTION	0.19	1.14	5050.74	0	00:54	1.14
JUNCT_121	JUNCTION	0.00	0.00	5050.60	0	00:00	0.00
JUNCT_120	JUNCTION	0.00	0.00	5049.70	0	00:00	0.00

JUNCT_203	JUNCTION	0.00	0.00	5072.60	0	00:00	0.00
JUNCT_500	JUNCTION	0.32	1.33	5073.83	0	01:24	1.33
JUNCT_501	JUNCTION	0.39	1.49	5044.89	0	01:24	1.49
JUNCT_204	JUNCTION	0.00	0.00	5043.50	0	00:00	0.00
JUNCT_502	JUNCTION	0.28	1.10	5023.70	0	01:23	1.10
JUNCT_205	JUNCTION	0.00	0.00	5022.80	0	00:00	0.00
JUNCT_209	JUNCTION	0.00	0.00	5022.70	0	00:00	0.00
JUNCT_207	JUNCTION	0.15	1.06	5061.26	0	00:51	1.06
JUNCT_208	JUNCTION	0.10	0.80	5052.30	0	00:48	0.80
JUNCT_503	JUNCTION	0.76	2.79	5024.59	0	01:23	2.79
JUNCT_210	JUNCTION	0.00	0.00	5022.00	0	00:00	0.00
JUNCT_504	JUNCTION	0.79	2.77	5015.97	0	01:28	2.77
JUNCT_211	JUNCTION	0.35	2.52	5015.82	0	00:46	2.52
JUNCT_508	JUNCTION	1.04	1.63	4996.43	0	01:37	1.63
JUNCT_201	JUNCTION	0.00	0.00	5026.40	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	4999.40	0	00:00	0.00
JUNCT_511	JUNCTION	1.17	1.88	4968.48	0	02:01	1.88
JUNCT_506	JUNCTION	0.10	0.99	5005.49	0	00:40	0.99
JUNCT_213	JUNCTION	0.00	0.00	5004.60	0	00:00	0.00
JUNCT_509	JUNCTION	0.00	0.00	5012.00	0	00:00	0.00
JUNCT_219	JUNCTION	0.00	0.00	5012.10	0	00:00	0.00
JUNCT_512	JUNCTION	1.38	2.22	4960.82	0	02:01	2.22
JUNCT_513	JUNCTION	1.56	2.49	4954.89	0	05:18	2.49
JUNCT_217	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_218	JUNCTION	0.00	0.00	4950.00	0	00:00	0.00
JUNCT_122	JUNCTION	0.00	0.00	5035.10	0	00:00	0.00
JUNCT_212	JUNCTION	0.00	0.00	4999.50	0	00:00	0.00
JUNCT_206	JUNCTION	0.00	0.00	5021.90	0	00:00	0.00
JUNCT_300	JUNCTION	0.31	0.33	5104.13	0	02:34	0.33
JUNCT_303	JUNCTION	0.46	0.49	5057.79	0	02:52	0.49
JUNCT_200	JUNCTION	0.00	0.00	5051.10	0	00:00	0.00
JUNCT_214	JUNCTION	0.00	0.00	4967.10	0	00:00	0.00
JUNCT_215	JUNCTION	0.00	0.00	4959.10	0	00:00	0.00
JUNCT_216	JUNCTION	0.00	0.00	4952.70	0	00:00	0.00
JUNCT_310	JUNCTION	0.47	0.61	5035.51	0	03:00	0.61
JUNCT_316	JUNCTION	0.77	1.09	5008.99	0	03:01	1.09

JUNCT_505	JUNCTION	0.67	2.43	4997.33	0	01:31	2.43
JUNCT_613	JUNCTION	1.35	4.48	4956.88	0	02:31	4.48
JUNCT_612	JUNCTION	1.04	3.36	4961.96	0	02:31	3.36
JUNCT_611	JUNCTION	0.85	2.85	4969.45	0	02:31	2.85
JUNCT_608	JUNCTION	0.73	2.43	4997.23	0	02:30	2.43
JUNCT_607	JUNCTION	0.57	1.64	5027.94	0	01:15	1.64
JUNCT_606	JUNCTION	0.52	1.48	5051.28	0	01:55	1.48
OUTFALL_514	OUTFALL	1.54	2.50	4945.50	0	05:21	2.50
OUTFALL_319	OUTFALL	0.00	0.00	4945.30	0	00:00	0.00
OUTFALL_614	OUTFALL	1.35	4.48	4947.48	0	02:36	4.48
STOR_1001	STORAGE	6.43	7.19	5111.19	0	02:34	7.19
STOR_1006	STORAGE	7.16	7.86	5068.86	0	02:52	7.86
STOR_2012	STORAGE	6.32	7.87	5002.87	0	02:33	7.87
STOR_2000	STORAGE	2.81	5.25	5056.25	0	01:55	5.25
STOR_2014	STORAGE	2.79	4.79	4971.79	0	01:50	4.79
STOR_2015	STORAGE	1.10	4.53	4963.53	0	01:55	4.53
STOR_2016	STORAGE	3.26	5.22	4957.72	0	01:42	5.22
STOR_1022	STORAGE	5.28	7.25	5042.25	0	03:00	7.25
STOR_1027	STORAGE	6.16	7.08	5015.08	0	03:01	7.08
STOR_1010	STORAGE	6.22	7.28	4954.28	0	02:28	7.28
STOR_2003	STORAGE	2.83	6.01	5079.01	0	01:24	6.01
STOR_2005	STORAGE	4.02	5.47	5032.17	0	01:26	5.47

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Node Inflow Summary  
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_101	JUNCTION	346.42	346.42	0 00:40	7.26	7.26	0.000
JUNCT_100	JUNCTION	31.49	31.49	0 00:50	1.2	1.2	0.000

JUNCT_301	JUNCTION	0.00	156.21	0	00:44	0	7.21	0.000
JUNCT_102	JUNCTION	156.21	156.21	0	00:44	4.28	4.28	0.000
JUNCT_106	JUNCTION	153.47	153.47	0	00:46	4.67	4.67	0.000
JUNCT_302	JUNCTION	0.00	244.28	0	00:43	0	6.17	0.000
JUNCT_103	JUNCTION	56.48	56.48	0	00:44	1.55	1.55	0.000
JUNCT_104	JUNCTION	63.84	63.84	0	00:36	1.04	1.04	0.000
JUNCT_105	JUNCTION	130.17	130.17	0	00:44	3.57	3.57	0.000
JUNCT_304	JUNCTION	0.00	40.03	0	01:10	0	6.72	0.000
JUNCT_107	JUNCTION	27.83	27.83	0	00:48	0.933	0.933	0.000
JUNCT_305	JUNCTION	0.00	79.75	0	01:08	0	8.08	0.000
JUNCT_108	JUNCTION	51.68	51.68	0	00:44	1.4	1.4	0.000
JUNCT_306	JUNCTION	0.00	263.22	0	00:56	0	14.2	0.000
JUNCT_109	JUNCTION	205.55	205.55	0	00:50	6.26	6.26	0.000
JUNCT_110	JUNCTION	168.77	168.77	0	00:54	5.9	5.9	0.000
JUNCT_318	JUNCTION	0.00	478.05	0	01:00	0	39.3	0.000
JUNCT_129	JUNCTION	170.63	170.63	0	00:48	4.89	4.89	0.000
JUNCT_317	JUNCTION	0.00	104.13	0	02:37	0	20.5	0.000
JUNCT_128	JUNCTION	67.84	67.84	0	00:48	2.07	2.07	0.000
JUNCT_127	JUNCTION	258.45	258.45	0	00:49	7.32	7.32	0.000
JUNCT_126	JUNCTION	62.51	62.51	0	00:49	1.98	1.98	0.000
JUNCT_314	JUNCTION	0.00	62.51	0	00:49	0	1.98	0.000
JUNCT_124	JUNCTION	24.83	24.83	0	00:43	0.63	0.63	0.000
JUNCT_315	JUNCTION	0.00	24.83	0	00:43	0	0.63	0.000
JUNCT_313	JUNCTION	0.00	180.17	0	01:14	0	17.9	0.000
JUNCT_311	JUNCTION	0.00	86.70	0	01:14	0	13.3	0.000
JUNCT_312	JUNCTION	0.00	93.77	0	01:08	0	4.6	0.000
JUNCT_125	JUNCTION	93.77	93.77	0	01:08	4.6	4.6	0.000
JUNCT_123	JUNCTION	54.96	54.96	0	00:52	1.93	1.93	0.000
JUNCT_309	JUNCTION	0.00	254.19	0	00:59	0	10.7	0.000
JUNCT_308	JUNCTION	0.00	114.57	0	01:03	0	5.49	0.000
JUNCT_307	JUNCTION	0.00	142.69	0	00:54	0	5.24	0.000
JUNCT_121	JUNCTION	114.57	114.57	0	01:03	5.49	5.49	0.000
JUNCT_120	JUNCTION	142.69	142.69	0	00:54	5.24	5.24	0.000
JUNCT_203	JUNCTION	131.53	131.53	0	00:47	4.05	4.05	0.000
JUNCT_500	JUNCTION	0.00	82.12	0	01:24	0	3.72	0.000
JUNCT_501	JUNCTION	0.00	124.24	0	01:24	0	6.11	0.000

JUNCT_204	JUNCTION	62.30	62.30	0	00:51	2.38	2.38	0.000
JUNCT_502	JUNCTION	0.00	244.96	0	01:23	0	11.4	0.000
JUNCT_205	JUNCTION	42.17	42.17	0	00:55	1.73	1.73	0.000
JUNCT_209	JUNCTION	21.24	21.24	0	01:08	1.29	1.29	0.000
JUNCT_207	JUNCTION	50.46	50.46	0	00:51	1.72	1.72	0.000
JUNCT_208	JUNCTION	34.49	34.49	0	00:48	1.07	1.07	-0.000
JUNCT_503	JUNCTION	0.00	273.98	0	01:23	0	13.4	0.000
JUNCT_210	JUNCTION	19.38	19.38	0	01:08	1.17	1.17	0.000
JUNCT_504	JUNCTION	0.00	298.82	0	01:27	0	14.5	0.000
JUNCT_211	JUNCTION	36.68	36.68	0	00:46	1.17	1.17	0.000
JUNCT_508	JUNCTION	0.00	46.95	0	01:37	0	8	0.000
JUNCT_201	JUNCTION	17.54	17.54	0	01:04	0.958	0.958	0.000
JUNCT_202	JUNCTION	2.06	2.06	0	01:10	0.167	0.167	0.000
JUNCT_511	JUNCTION	0.00	46.95	0	02:01	0	7.99	0.000
JUNCT_506	JUNCTION	0.00	186.80	0	00:40	0	4.26	0.000
JUNCT_213	JUNCTION	186.80	186.80	0	00:40	4.26	4.26	0.000
JUNCT_509	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_219	JUNCTION	0.00	0.00	0	00:00	0	0	0.000 gal
JUNCT_512	JUNCTION	0.00	46.95	0	02:02	0	7.98	0.000
JUNCT_513	JUNCTION	0.00	46.95	0	05:18	0	7.97	0.000
JUNCT_217	JUNCTION	3.83	3.83	0	01:12	0.345	0.345	0.000
JUNCT_218	JUNCTION	3.76	3.76	0	01:17	0.402	0.402	0.000
JUNCT_122	JUNCTION	83.09	83.09	0	00:46	2.27	2.27	0.000
JUNCT_212	JUNCTION	63.72	63.72	0	00:54	2.64	2.64	0.000
JUNCT_206	JUNCTION	12.39	12.39	0	01:07	0.744	0.744	0.000
JUNCT_300	JUNCTION	0.00	10.29	0	02:34	0	3.03	0.000
JUNCT_303	JUNCTION	0.00	19.94	0	02:52	0	5.87	0.000
JUNCT_200	JUNCTION	63.15	63.15	0	00:53	2.29	2.29	0.000
JUNCT_214	JUNCTION	100.77	100.77	0	00:47	3.09	3.09	0.000
JUNCT_215	JUNCTION	51.50	51.50	0	00:52	1.89	1.89	0.000
JUNCT_216	JUNCTION	32.12	32.12	0	00:43	0.846	0.846	0.000
JUNCT_310	JUNCTION	0.00	51.31	0	03:00	0	11.4	0.000
JUNCT_316	JUNCTION	0.00	101.27	0	03:01	0	18.6	0.000
JUNCT_505	JUNCTION	0.00	408.18	0	01:27	0	21.6	0.000
JUNCT_613	JUNCTION	0.00	209.43	0	02:31	0	14.9	0.000
JUNCT_612	JUNCTION	0.00	200.46	0	02:31	0	14.2	0.000

JUNCT_611	JUNCTION	0.00	179.78	0	02:31	0	12.3	0.000
JUNCT_608	JUNCTION	0.00	147.59	0	02:30	0	9.44	0.000
JUNCT_607	JUNCTION	0.00	40.51	0	01:15	0	3.15	0.000
JUNCT_606	JUNCTION	0.00	25.96	0	01:55	0	2.19	0.000
OUTFALL_514	OUTFALL	0.00	47.07	0	05:21	0	7.92	0.000
OUTFALL_319	OUTFALL	0.00	233.73	0	02:28	0	35	0.000
OUTFALL_614	OUTFALL	0.00	214.49	0	02:36	0	15.6	0.000
STOR_1001	STORAGE	0.00	371.69	0	00:40	0	8.46	0.002
STOR_1006	STORAGE	0.00	552.74	0	00:45	0	18	0.001
STOR_2012	STORAGE	0.00	408.18	0	01:27	0	21.6	0.148
STOR_2000	STORAGE	0.00	63.15	0	00:53	0	2.29	0.036
STOR_2014	STORAGE	0.00	100.77	0	00:47	0	3.09	0.062
STOR_2015	STORAGE	0.00	51.50	0	00:52	0	1.89	0.083
STOR_2016	STORAGE	0.00	32.12	0	00:43	0	0.846	0.071
STOR_1022	STORAGE	0.00	327.10	0	00:59	0	13	0.063
STOR_1027	STORAGE	0.00	435.76	0	01:12	0	28	0.051
STOR_1010	STORAGE	0.00	634.60	0	01:04	0	45	0.073
STOR_2003	STORAGE	0.00	131.53	0	00:47	0	4.05	0.028
STOR_2005	STORAGE	0.00	156.93	0	01:23	0	7.83	0.298

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Node Flooding Summary

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No nodes were flooded.

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Storage Volume Summary

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Storage Unit	Average Volume 1000 ft <sup>3</sup>	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft <sup>3</sup>	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
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STOR_1001	839.627	46	0	0	1046.555	57	0	02:34	10.29
STOR_1006	1633.847	47	0	0	1930.430	55	0	02:52	19.94
STOR_2012	1130.517	49	0	0	1745.725	76	0	02:33	161.17
STOR_2000	40.412	17	0	0	140.474	58	0	01:55	25.96
STOR_2014	74.861	15	0	0	231.318	47	0	01:50	33.35
STOR_2015	19.382	8	0	0	102.693	42	0	01:55	21.29
STOR_2016	26.681	22	0	0	70.025	57	0	01:42	9.53
STOR_1022	661.673	33	0	0	1235.184	61	0	03:00	51.31
STOR_1027	1418.967	29	0	0	1889.411	38	0	03:01	101.27
STOR_1010	1457.529	30	0	0	2026.279	42	0	02:28	233.73
STOR_2003	86.186	25	0	0	229.808	66	0	01:24	82.12
STOR_2005	108.667	39	0	0	210.681	75	0	01:26	156.25

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#### Outfall Loading Summary

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Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10 <sup>6</sup> gal
OUTFALL_514	94.44	25.95	47.07	7.919
OUTFALL_319	97.92	110.52	233.73	34.956
OUTFALL_614	98.33	49.14	214.49	15.612
System	96.90	185.61	494.51	58.488

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#### Link Flow Summary

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Link	Type	Maximum  Flow  CFS	Time of Max Occurrence days hr:min	Maximum  Veloc  ft/sec	Max/ Full Flow	Max/ Full Depth
101	DUMMY	346.42	0 00:40			
100	CONDUIT	31.41	0 00:54	10.55	0.65	0.59
102	DUMMY	156.21	0 00:44			
105	DUMMY	130.17	0 00:44			
106	DUMMY	153.47	0 00:46			
301	CONDUIT	156.02	0 00:45	3.63	0.12	0.36
302	CONDUIT	243.73	0 00:44	14.95	0.76	0.65
103	CONDUIT	56.33	0 00:47	12.87	0.66	0.60
104	CONDUIT	63.12	0 00:38	13.85	0.70	0.62
107	DUMMY	27.83	0 00:48			
108	DUMMY	51.68	0 00:44			
304	CONDUIT	39.91	0 01:13	5.38	0.00	0.06
305	CONDUIT	78.09	0 01:18	2.79	0.02	0.16
109	DUMMY	205.55	0 00:50			
306	CONDUIT	259.97	0 01:04	4.24	0.05	0.27
318	CONDUIT	475.15	0 01:06	3.95	0.12	0.40
129	DUMMY	170.63	0 00:48			
317	CONDUIT	103.86	0 02:47	3.30	0.02	0.17
128	DUMMY	67.84	0 00:48			
316	CONDUIT	101.23	0 03:09	2.22	0.03	0.22
127	DUMMY	258.45	0 00:49			
126	DUMMY	62.51	0 00:49			
124	DUMMY	24.83	0 00:43			
314	CONDUIT	56.87	0 01:12	2.54	0.01	0.14
315	CONDUIT	22.43	0 01:00	1.47	0.01	0.11
313	CONDUIT	175.93	0 01:25	2.39	0.06	0.30
125	DUMMY	93.77	0 01:08			
312	CONDUIT	93.47	0 01:13	3.19	0.02	0.16
311	DUMMY	86.70	0 01:14			
123	DUMMY	54.96	0 00:52			
120	DUMMY	142.69	0 00:54			
121	DUMMY	114.57	0 01:03			



309	CONDUIT	253.83	0	01:02	3.71	0.05	0.28
307	CONDUIT	142.44	0	00:56	2.92	0.03	0.23
308	CONDUIT	114.50	0	01:05	2.97	0.02	0.20
203	DUMMY	131.53	0	00:47			
204	DUMMY	62.30	0	00:51			
500	CONDUIT	81.42	0	01:33	3.78	0.06	0.26
501	CONDUIT	124.11	0	01:27	4.77	0.08	0.30
205	DUMMY	42.17	0	00:55			
209	DUMMY	21.24	0	01:08			
207	CONDUIT	46.76	0	01:13	3.22	0.04	0.20
208	CONDUIT	33.25	0	00:58	3.11	0.02	0.16
502	CONDUIT	244.99	0	01:23	7.21	0.04	0.22
210	DUMMY	19.38	0	01:08			
503	CONDUIT	271.38	0	01:28	4.13	0.27	0.55
211	CONDUIT	34.27	0	01:02	0.66	0.21	0.49
504	CONDUIT	297.50	0	01:31	5.56	0.20	0.49
201	DUMMY	17.54	0	01:04			
202	DUMMY	2.06	0	01:10			
508	CONDUIT	46.95	0	02:01	13.86	0.76	0.65
219	DUMMY	0.00	0	00:00			
509	CONDUIT	0.00	0	00:00	0.00	0.00	0.00
213	DUMMY	186.80	0	00:40			
506	CONDUIT	186.66	0	00:41	4.73	0.03	0.20
511	CONDUIT	46.95	0	02:02	11.87	0.91	0.75
512	CONDUIT	46.95	0	05:18	8.41	0.89	0.74
513	CONDUIT	47.07	0	05:21	6.49	0.86	0.71
217	DUMMY	3.83	0	01:12			
218	DUMMY	3.76	0	01:17			
122	DUMMY	83.09	0	00:46			
212	DUMMY	63.72	0	00:54			
110	DUMMY	168.77	0	00:54			
206	DUMMY	12.39	0	01:07			
300	CONDUIT	10.29	0	02:55	1.88	0.01	0.07
303	CONDUIT	19.94	0	03:00	2.31	0.01	0.10
200	DUMMY	63.15	0	00:53			
214	DUMMY	100.77	0	00:47			

215	DUMMY	51.50	0	00:52			
27	DUMMY	32.12	0	00:43			
310	CONDUIT	51.31	0	03:06	2.62	0.01	0.12
505	DUMMY	408.18	0	01:27			
606	CONDUIT	25.95	0	01:59	8.58	0.66	0.59
607	CONDUIT	40.51	0	01:19	10.23	0.58	0.55
608	CONDUIT	147.57	0	02:31	18.49	0.68	0.61
611	CONDUIT	179.78	0	02:31	16.90	0.73	0.63
612	CONDUIT	200.44	0	02:32	12.32	0.60	0.56
613	CONDUIT	209.22	0	02:36	9.29	0.91	0.75
OUTLET_1001	DUMMY	10.29	0	02:34			
OUTLET_1006	DUMMY	19.94	0	02:52			
OUTLET_2012A	DUMMY	46.95	0	01:37			
OUTLET_2000	DUMMY	25.96	0	01:55			
OUTLET_2014	DUMMY	33.35	0	01:50			
OUTLET_2015	DUMMY	21.29	0	01:55			
OUTLET_2016	DUMMY	9.53	0	01:42			
OUTLET_1022	DUMMY	51.31	0	03:00			
OUTLET_1027	DUMMY	101.27	0	03:01			
OUTLET_1010	DUMMY	233.73	0	02:28			
OUTLET_2003	DUMMY	82.12	0	01:24			
OUTLET_2005	DUMMY	156.25	0	01:26			
OUTLET_2012B	DUMMY	114.22	0	02:33			

\*\*\*\*\*

Conduit Surcharge Summary

\*\*\*\*\*

No conduits were surcharged.

Analysis begun on: Tue Jun 6 16:00:24 2023

Analysis ended on: Tue Jun 6 16:00:25 2023

Total elapsed time: 00:00:01

APPENDIX G  
FEMA FLOODPLAIN MAP

**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 0.7 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, NNGS12  
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 Universal 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.

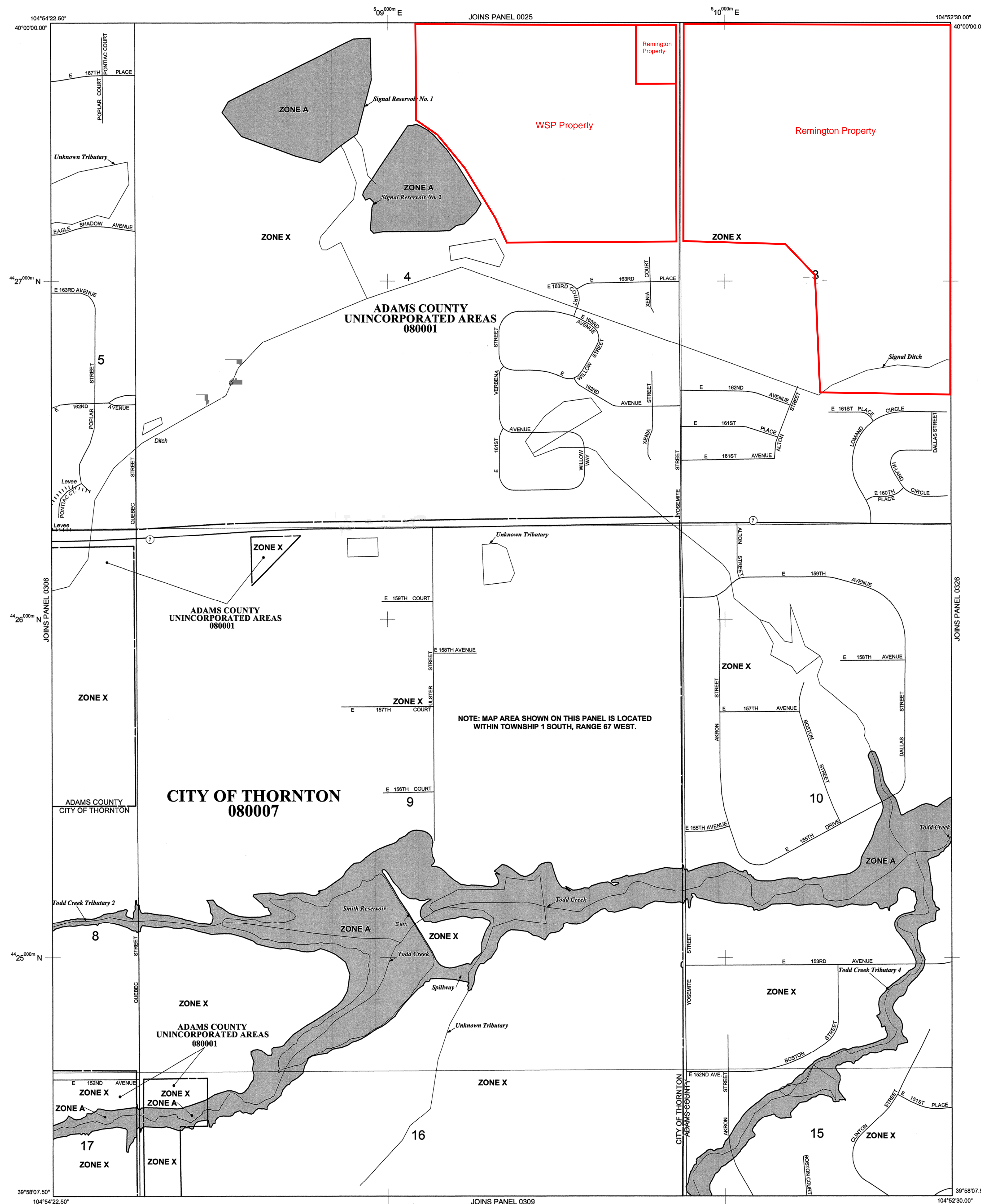
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which 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 identified. 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.
- Base Flood Elevation line and value; elevation in feet\*
- 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)

42°25'00"N 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 x 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

**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 0307H**

**FIRM FLOOD INSURANCE RATE MAP**

**ADAMS COUNTY, COLORADO AND INCORPORATED AREAS**

**PANEL 307 OF 1150**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

**CONTAINS:**

COMMUNITY	NUMBER	PANEL	SUFFIX
ADAMS COUNTY	080001	0307	H
THORNTON, CITY OF	080007	0307	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 08001C0307H**

**MAP REVISED MARCH 5, 2007**

**Federal Emergency Management Agency**

**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.

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**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.

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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.

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NGS Information Services  
NOAA, NINGS12  
National Geodetic Survey  
SSM/C-3, #6202  
1315 East-West Highway  
Silver Spring, MD 20910-3282

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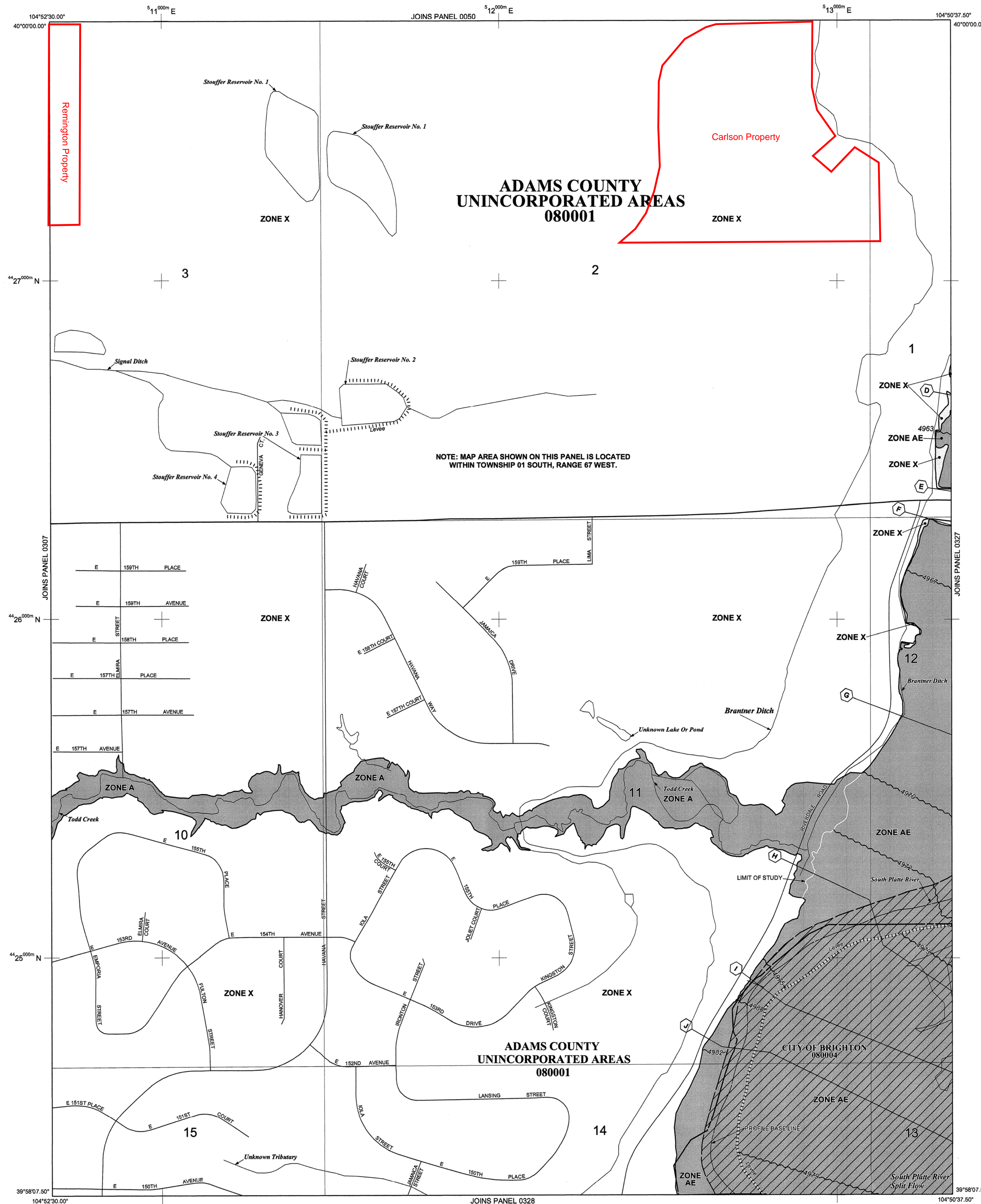
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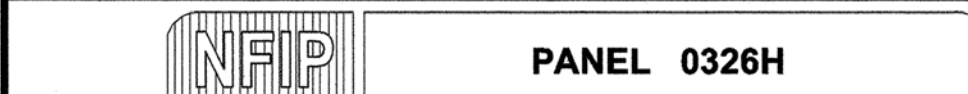
Additional flood hazard information and resources are available from local communities, the Colorado Water Conservation Board, and the Urban Drainage and Flood Control District.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 01 SOUTH, RANGE 67 WEST.

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



**PANEL 0326H**

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

**PANEL 326 OF 1150**  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

**CONTAINS:**

COMMUNITY	NUMBER	PANEL	SUFFIX
ADAMS COUNTY	080001	0326	H
BRIGHTON, CITY OF	080004	0326	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  
08001C0326H  
MAP REVISED  
MARCH 5, 2007**

**Federal Emergency Management Agency**

## MAPS

EXISTING TOPOGRAPHY MAP

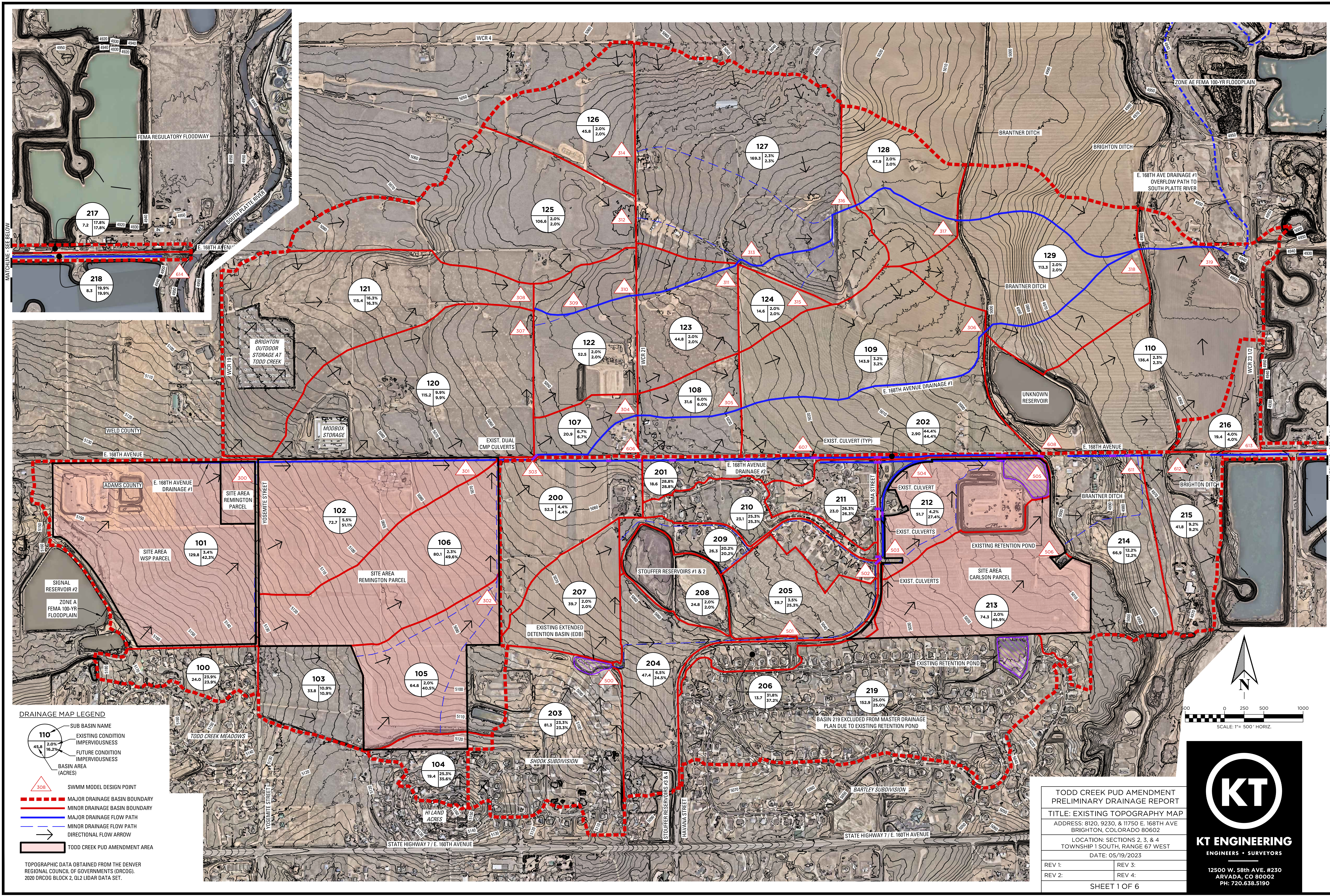
EXISTING CONDITION DRAINAGE PLAN

PROPOSED CONDITION DRAINAGE PLAN

DETAILED PROPOSED CONDITION DRAINAGE PLAN (WSP & REMINGTON PROPERTIES)

DETAILED PROPOSED CONDITION DRAINAGE PLAN (CARLSON PROPERTY)

FUTURE CONDITION DRAINAGE PLAN



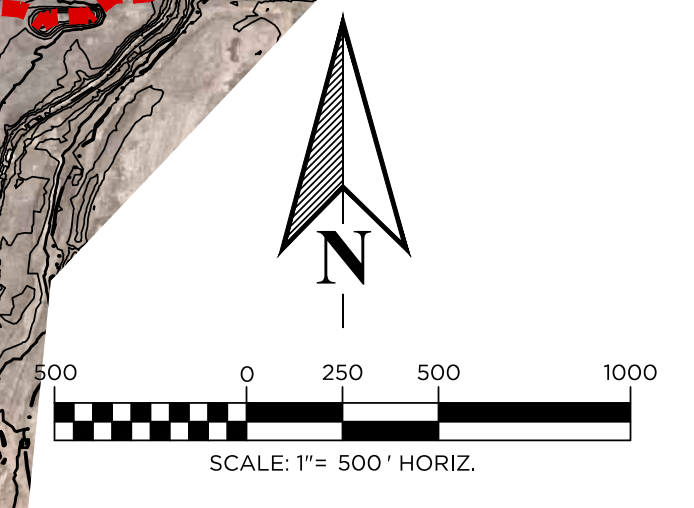
MATCHLINE - SEE BELOW

MATCHLINE - SEE ABOVE

**DRAINAGE MAP LEGEND**

- 110 SUB BASIN NAME
- 45.8 EXISTING CONDITION IMPERVIOUSNESS
- 16.2% FUTURE CONDITION IMPERVIOUSNESS
- 7.2 BASIN AREA (ACRES)
- ▲ SWMM MODEL DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- MINOR DRAINAGE BASIN BOUNDARY
- MAJOR DRAINAGE FLOW PATH
- MINOR DRAINAGE FLOW PATH
- DIRECTIONAL FLOW ARROW
- TODD CREEK PUD AMENDMENT AREA

TOPOGRAPHIC DATA OBTAINED FROM THE DENVER REGIONAL COUNCIL OF GOVERNMENTS (DRCG), 2020 DRCOG BLOCK 2, Q12 LIDAR DATA SET.



**TODD CREEK PUD AMENDMENT PRELIMINARY DRAINAGE REPORT**  
**TITLE: EXISTING TOPOGRAPHY MAP**  
 ADDRESS: 8120, 9230, & 11750 E. 168TH AVE BRIGHTON, COLORADO 80602  
 LOCATION: SECTIONS 2, 3, & 4 TOWNSHIP 1 SOUTH, RANGE 67 WEST  
 DATE: 05/19/2023

REV 1:	REV 3:
REV 2:	REV 4:

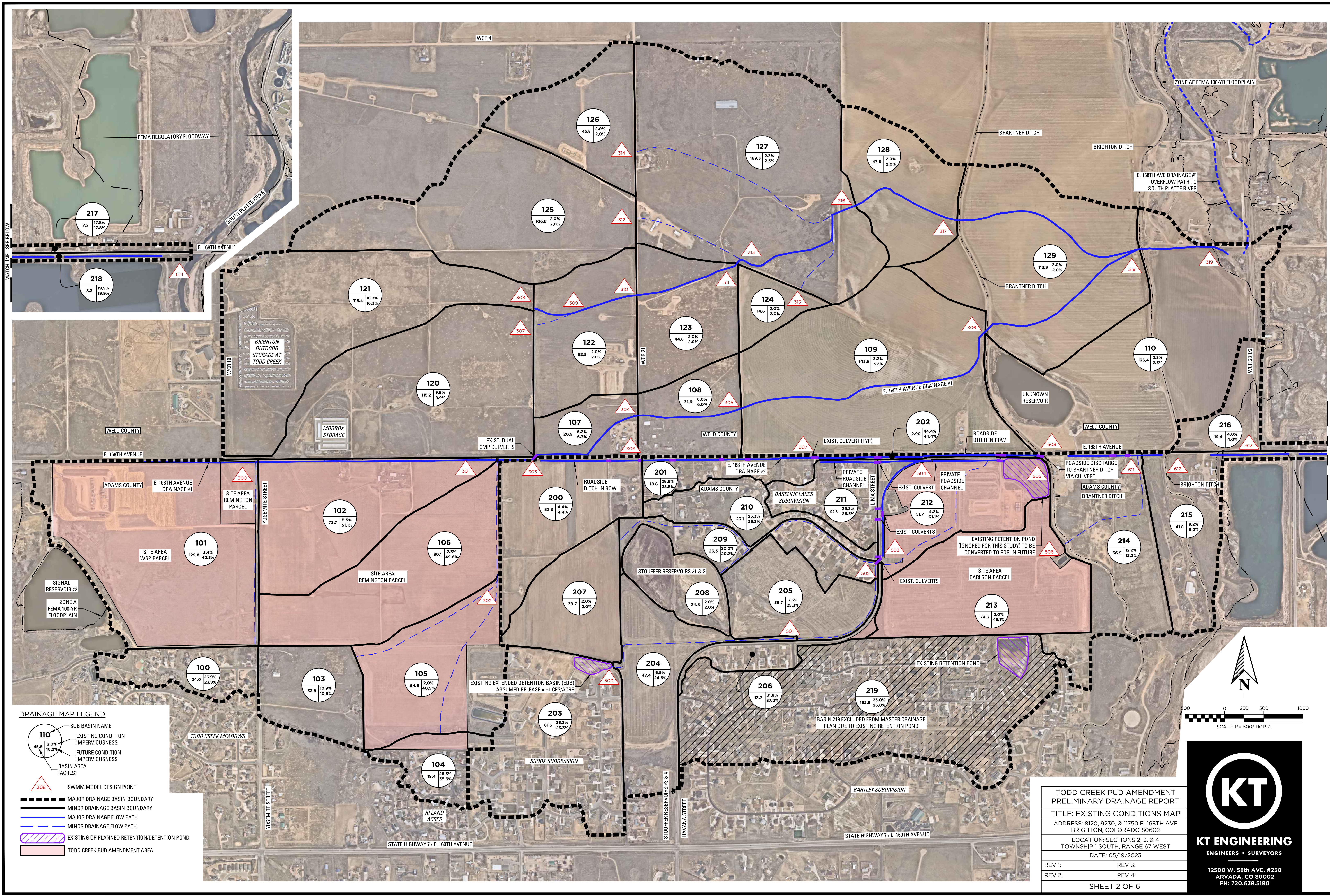
SHEET 1 OF 6



**KT ENGINEERING**  
 ENGINEERS • SURVEYORS

12500 W. 58TH AVE. #230  
 ARVADA, CO 80002  
 PH: 720.638.5190

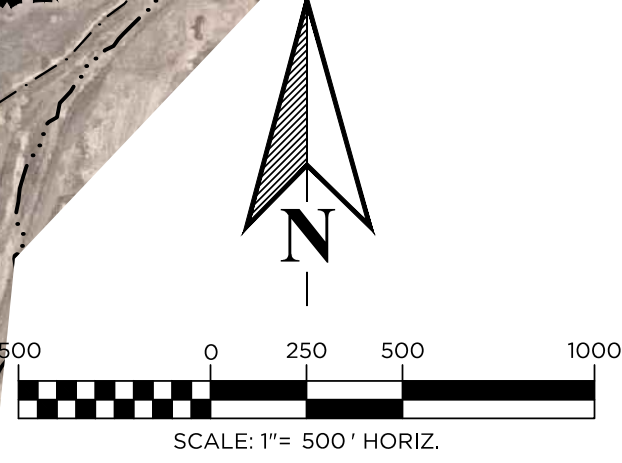
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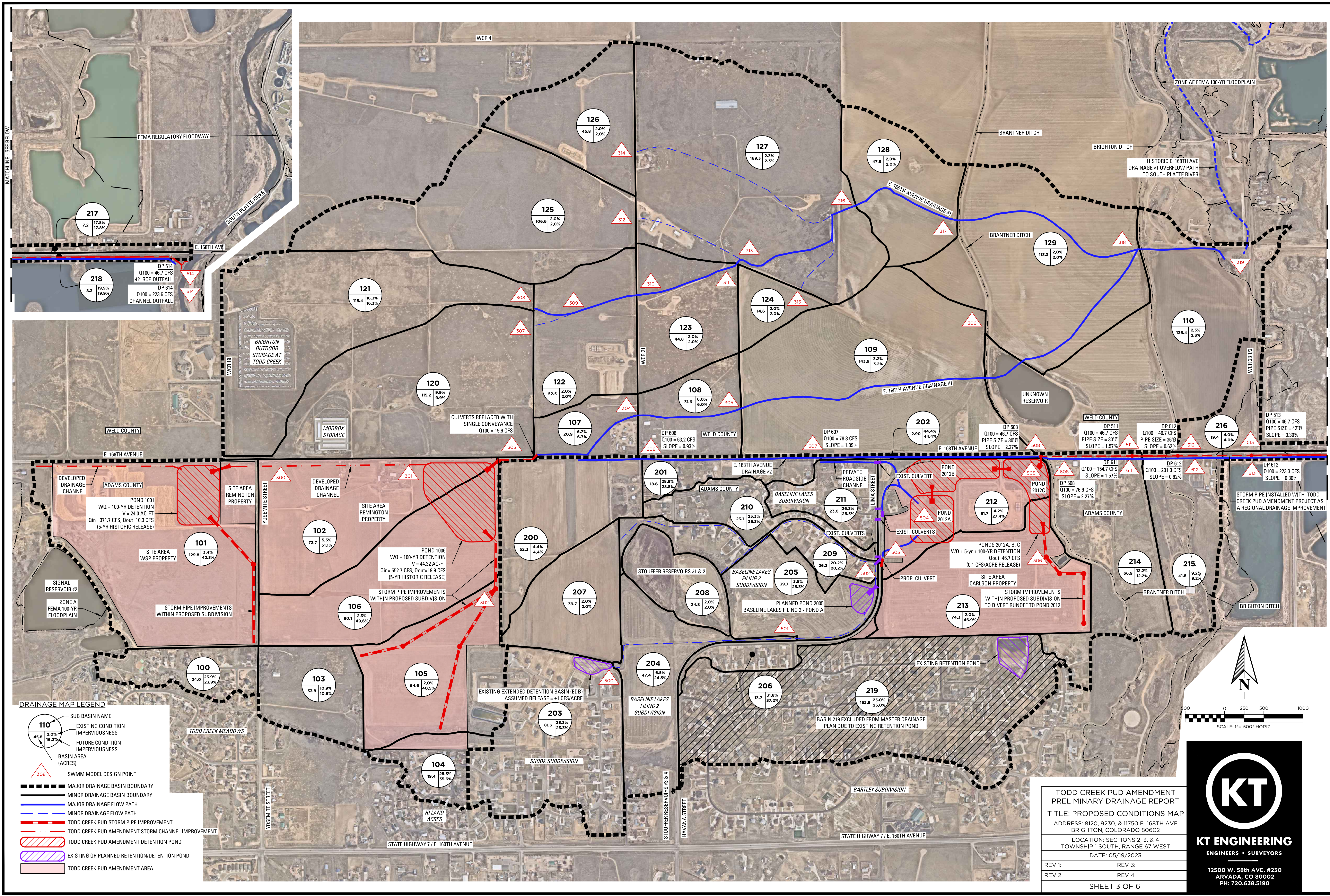
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MATCHLINE - SEE BELOW

MATCHLINE - SEE ABOVE





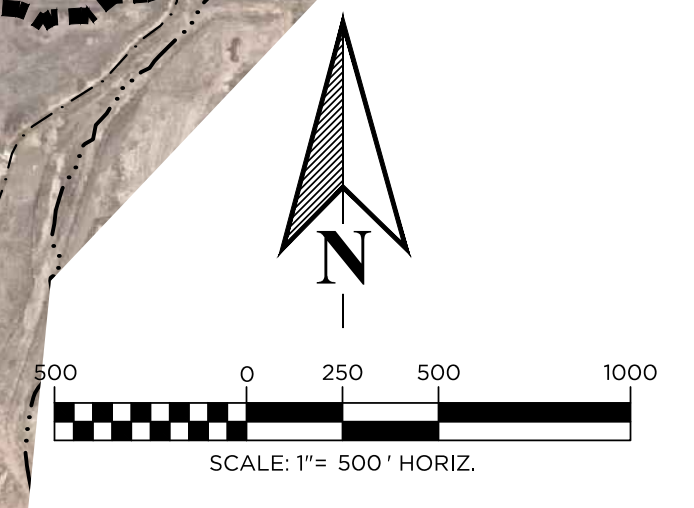


MATCHLINE - SEE BELOW

MATCHLINE - SEE ABOVE

**DRAINAGE MAP LEGEND**

- 110 SUB BASIN NAME
- 45.8 EXISTING CONDITION IMPERVIOUSNESS
- 16.2% FUTURE CONDITION IMPERVIOUSNESS
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- MINOR DRAINAGE BASIN BOUNDARY
- MAJOR DRAINAGE FLOW PATH
- MINOR DRAINAGE FLOW PATH
- TODD CREEK PUD STORM PIPE IMPROVEMENT
- TODD CREEK PUD AMENDMENT STORM CHANNEL IMPROVEMENT
- TODD CREEK PUD AMENDMENT DETENTION POND
- EXISTING OR PLANNED RETENTION/DETENTION POND
- TODD CREEK PUD AMENDMENT AREA

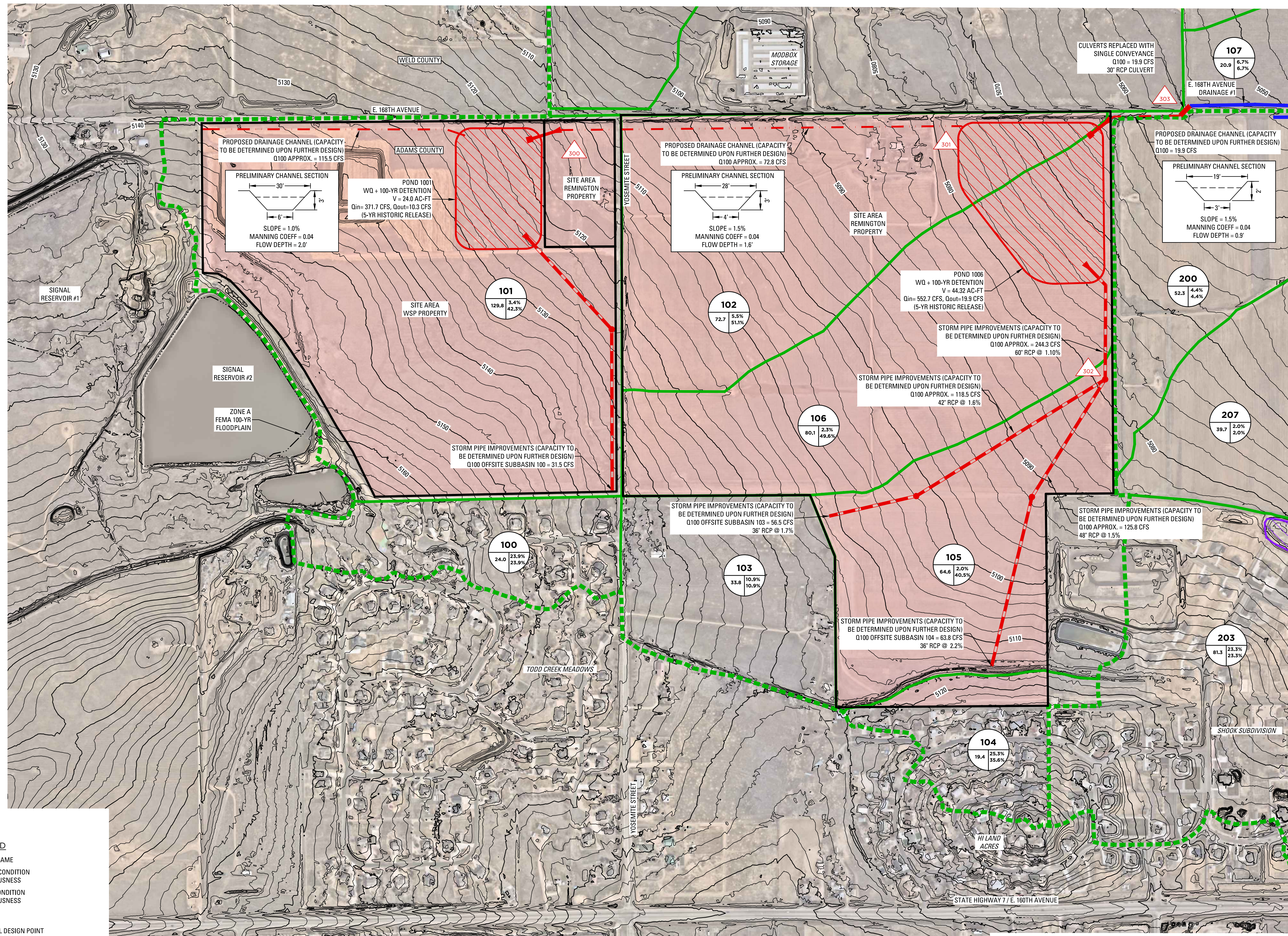


**TODD CREEK PUD AMENDMENT PRELIMINARY DRAINAGE REPORT**  
**TITLE: PROPOSED CONDITIONS MAP**  
 ADDRESS: 8120, 9230, & 11750 E. 168TH AVE  
 BRIGHTON, COLORADO 80602  
 LOCATION: SECTIONS 2, 3, & 4  
 TOWNSHIP 1 SOUTH, RANGE 67 WEST  
 DATE: 05/19/2023  
 REV 1:                      REV 3:  
 REV 2:                      REV 4:  
 SHEET 3 OF 6



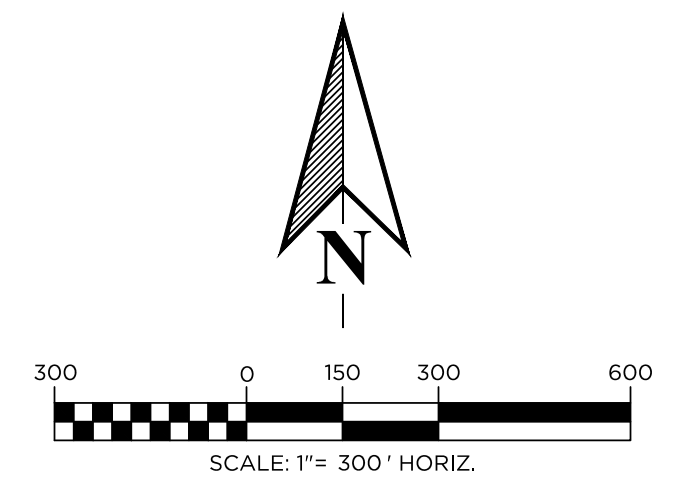
**KT ENGINEERING**  
 ENGINEERS • SURVEYORS  
 12500 W. 58th AVE. #230  
 ARVADA, CO 80002  
 PH: 720.638.5190

J:\0000207\CIVIL\DRAINAGE\PHASE 1\CAD FILES\OUTFALL PLAN-PROPOSED.DWG



**DRAINAGE MAP LEGEND**

- 110 SUB BASIN NAME
- EXISTING CONDITION IMPERVIOUSNESS
- FUTURE CONDITION IMPERVIOUSNESS
- BASIN AREA (ACRES)
- SWMM MODEL DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- MINOR DRAINAGE BASIN BOUNDARY
- MAJOR DRAINAGE FLOW PATH
- MINOR DRAINAGE FLOW PATH
- TODD CREEK PUD STORM PIPE IMPROVEMENT
- TODD CREEK PUD AMENDMENT STORM CHANNEL IMPROVEMENT
- TODD CREEK PUD AMENDMENT DETENTION POND
- EXISTING OR PLANNED RETENTION/DETENTION POND
- TODD CREEK PUD AMENDMENT AREA



<b>TODD CREEK PUD AMENDMENT PRELIMINARY DRAINAGE REPORT</b>	
<b>TITLE: PROPOSED DETAILED PLAN - WSP &amp; REMINGTON PROPERTIES</b>	
ADDRESS: 8120, 9230, & 11750 E. 168TH AVE BRIGHTON, COLORADO 80602	
LOCATION: SECTIONS 2, 3, & 4 TOWNSHIP 1 SOUTH, RANGE 67 WEST	
DATE: 05/19/2023	
REV 1:	REV 3:
REV 2:	REV 4:
SHEET 4 OF 6	

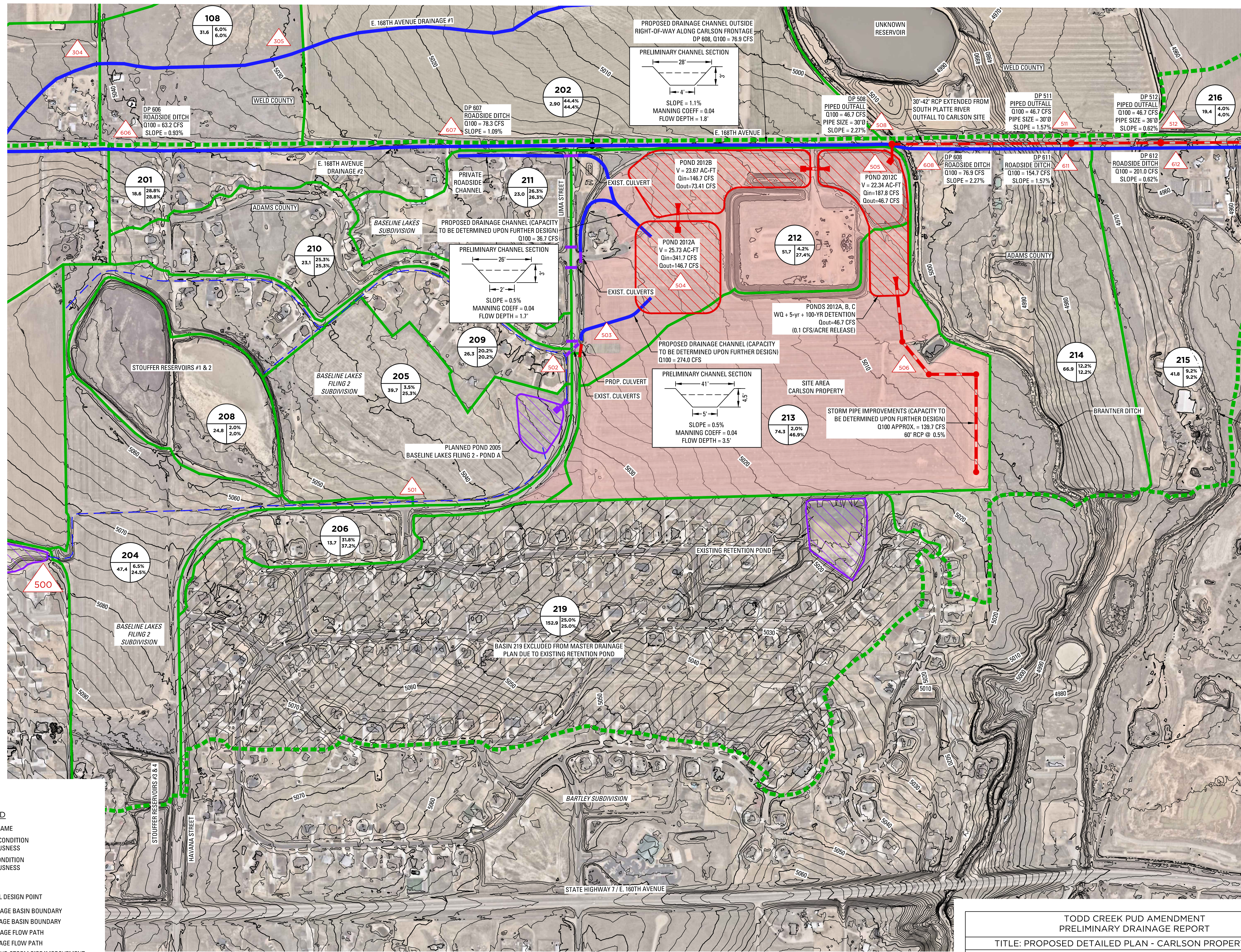


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12500 W. 58th AVE. #230  
ARVADA, CO 80002  
PH: 720.638.5190

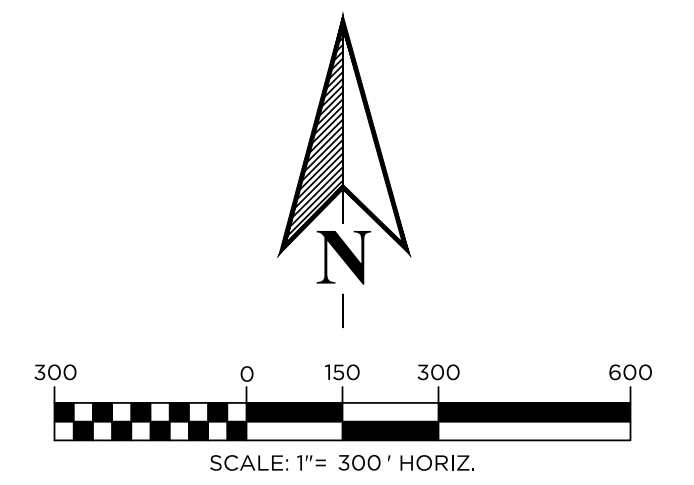
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**DRAINAGE MAP LEGEND**

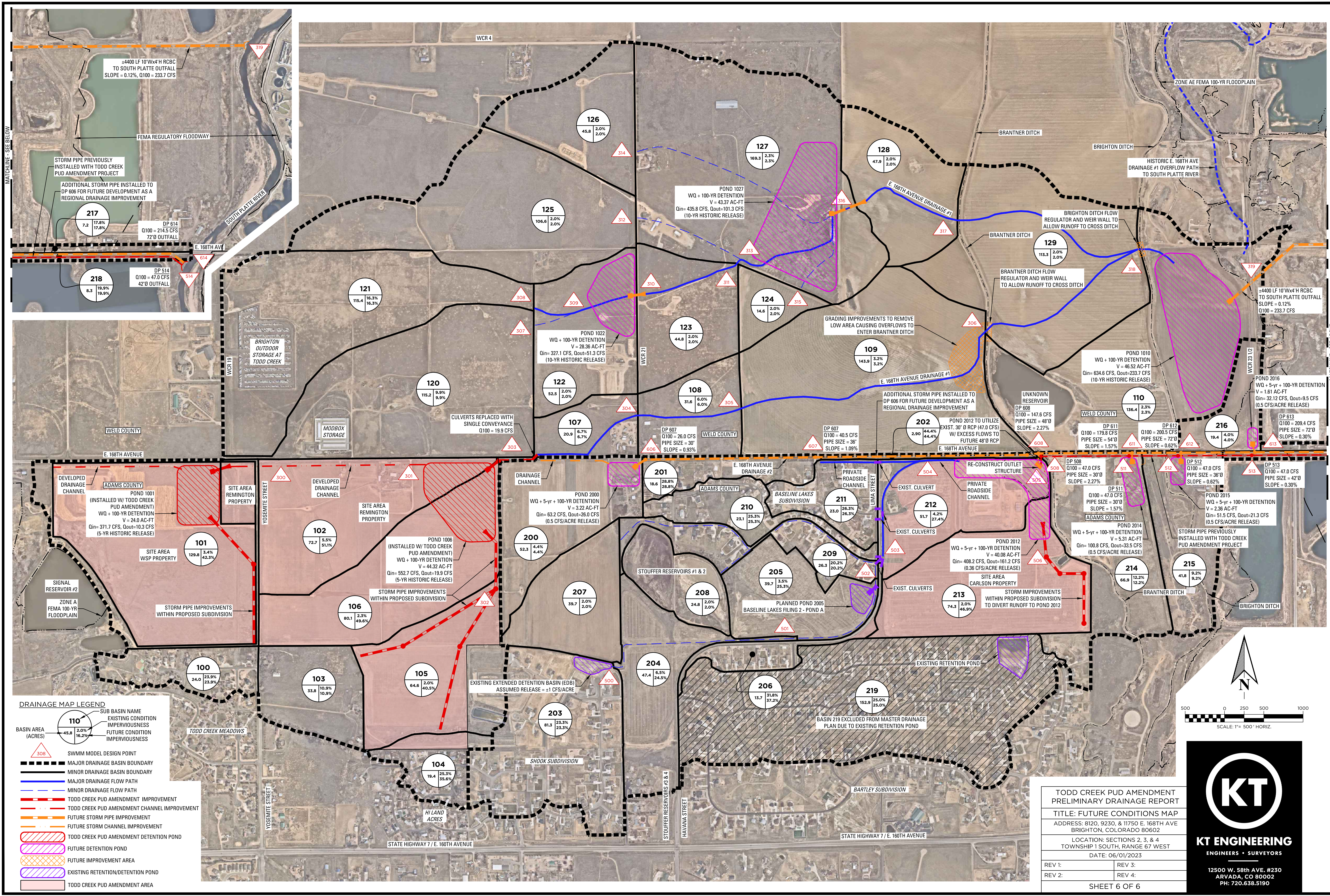
- SUB BASIN NAME
- EXISTING CONDITION IMPERVIOUSNESS
- FUTURE CONDITION IMPERVIOUSNESS
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- EXISTING OR PLANNED RETENTION/DETENTION POND
- TODD CREEK PUD AMENDMENT AREA



TODD CREEK PUD AMENDMENT PRELIMINARY DRAINAGE REPORT	
TITLE: PROPOSED DETAILED PLAN - CARLSON PROPERTY	
ADDRESS: 8120, 9230, & 11750 E. 168TH AVE BRIGHTON, COLORADO 80602	
LOCATION: SECTIONS 2, 3, & 4 TOWNSHIP 1 SOUTH, RANGE 67 WEST	
DATE: 05/19/2023	
REV 1:	REV 3:
REV 2:	REV 4:
SHEET 5 OF 6	

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12500 W. 58th AVE. #230  
ARVADA, CO 80002  
PH: 720.638.5190



**DRAINAGE MAP LEGEND**

	SUB BASIN NAME
	EXISTING CONDITION
	IMPERVIOUSNESS
	FUTURE CONDITION
	IMPERVIOUSNESS
	SWMM MODEL DESIGN POINT
	MAJOR DRAINAGE BASIN BOUNDARY
	MINOR DRAINAGE BASIN BOUNDARY
	MAJOR DRAINAGE FLOW PATH
	MINOR DRAINAGE FLOW PATH
	TODD CREEK PUD AMENDMENT IMPROVEMENT
	TODD CREEK PUD AMENDMENT CHANNEL IMPROVEMENT
	FUTURE STORM PIPE IMPROVEMENT
	FUTURE STORM CHANNEL IMPROVEMENT
	TODD CREEK PUD AMENDMENT DETENTION POND
	FUTURE DETENTION POND
	FUTURE IMPROVEMENT AREA
	EXISTING RETENTION/DETENTION POND
	TODD CREEK PUD AMENDMENT AREA

**TODD CREEK PUD AMENDMENT  
PRELIMINARY DRAINAGE REPORT**

**TITLE: FUTURE CONDITIONS MAP**

ADDRESS: 8120, 9230, & 11750 E. 168TH AVE  
BRIGHTON, COLORADO 80602

LOCATION: SECTIONS 2, 3, & 4  
TOWNSHIP 1 SOUTH, RANGE 67 WEST

DATE: 06/01/2023

REV 1:                      REV 3:  
REV 2:                      REV 4:

SHEET 6 OF 6

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12500 W. 58TH AVE. #230  
ARVADA, CO 80002  
PH: 720.638.5190

J:\0000207\CIVIL\DRAINAGE\PHASE 1\CAD FILES\OUTFALL PLAN-FUTURE.DWG



10450 E 159<sup>th</sup> Court  
Brighton, CO 80602

Phone: (303) 637-0344  
Fax: (303)637-0423

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May 31, 2023

**RE: Conditional Will-Serve Letter for various Parcels in the Todd Creek Village Preliminary PUD Plan Adams County, Colorado**

Dear Owner's Representative:

You are the owner's representatives of several parcels included in an application for a change in the Todd Creek Village Preliminary PUD Plan (the "Owners") in Adams County, Colorado (the "Property"). The Property is generally located south of WCR 2 and between Quebec St. and Tucson St. in Adams County, Colorado. The Property is located within the service area of Todd Creek Village Metropolitan District ("TCVMD" or the "District"). It is the understanding of TCVMD that the Owners may develop certain sites within the Property (the "Site") and seek Service (as defined below) to the Site. Therefore, the Site is the subject of this Conditional Will-Serve Letter from TCVMD.

TCVMD is willing and able to provide potable and non-potable water service and sanitary sewer service to the Site (the "Service") for either residential or commercial uses subject to the following conditions, which shall be conditions precedent to any obligation on the part of TCVMD to provide such Service:

1. The Owners shall pay TCVMD's then current water and sewer tap fees and all other applicable fees, rates, tolls and charges imposed pursuant to TCVMD's then current Rules and Regulations, as may be amended from time-to-time.
2. The Owners shall dedicate all groundwater rights to the District as outlined in TCVMD's Rules & Regulations at such time the District requires.
3. This Conditional Will-Serve Letter, as it relates to sewer service availability, is subject to the District receiving approval of its pending application with Metro Water Recovery to be deemed a "Special Connector" that is allowed to utilize Metro Water Recovery's sewer services.
4. The Owners shall design, construct, acquire easements and install any and all infrastructure required or deemed necessary by TCVMD to provide Service to the Site (including but not limited to: service taps, service lines, mainlines or any other improvements and facilities required, including any permits or improvements required by Adams County or Weld County). The Owners shall design all such Owner-installed infrastructure according TCVMD's design standards and in accordance with TCVMD's Rules and Regulations, in place at such time as the design is completed. The Owners shall reimburse TCVMD for any and all costs the District incurs related to its review of the

infrastructure design, construction and installation, including reimbursement of its engineering, legal and other consultant fees.

5. The Owners will be required to pay for any off-site capital improvements deemed necessary by TCVMD to provide Service to the Site including, but not limited to, water storage tanks, pipelines, reservoir improvements, pumps, water treatment plant or upgrades needed to any other District infrastructure.

6. TCVMD will provide the Owners with non-monetary assistance in the acquisition of easements necessary to provide for offsite infrastructure to allow TCVMD to provide Service to the Site. In addition, TCVMD will provide the terms of, and administer, reimbursement or cost recovery agreements related to the installation or upsizing of offsite facilities or infrastructure designed and constructed by the Owners benefiting future development receiving service from TVCMD. The standard life span of such reimbursement agreements is fifteen years.

7. The Service will be provided to the Site, subject to and conditioned upon, compliance with the District's policies and Rules and Regulations as may be amended from time-to-time and the payment of all applicable fees, rates, tolls and charges imposed thereunder. This commitment shall run only to the Site and shall not be transferrable or assignable in any manner whatsoever.

This Conditional Will-Serve Letter shall not be effective until the Owners execute a Tap Purchase Agreement with TCVMD indicating the Owner's willingness to be bound by the terms set forth therein.

If any of the Owners have any follow-up questions or concerns, please do not hesitate to contact me.

Todd Creek Village Metropolitan District



Don Summers  
General Manager,  
Todd Creek Village Metropolitan District

cc: Blair Dickhoner, District Counsel  
Todd Creek Village Metropolitan District - Board of Directors

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